
PRODUCT CATALOGUE 2013

Distech Controls provides comprehensive building and energy management systems that help businesses reduce energy and maintenance costs, while optimizing occupant comfort.

Our solutions are built from the ground up to deliver exacting performance meeting the strictest guidelines, achieving an unprecedented interoperable building management system for HVAC, Lighting, Access Control and CCTV, and Energy Management.

Designed to meet the highest standards of green stewardship and durable performance, our open solutions provide a sustainable foundation that supports and evolves with your building system's lifecycle.

Our Product Catalogue provides detailed information concerning our products and building automation systems, including:

- EC-Net^{AX} Monitoring
- BACnet & LONWORKS HVAC Control
- Lighting and Sunblind Control
- Integrated Management Solution
- Allure™ Series Room Devices
- Accessories
- "Open-to-Wireless™" Solution
- EC-Net^{AX} Security: Access Control & CCTV
- Programming Tools
- LNS Integration Tools
- Peripheral Products
- Sales Tools

We also invite you to visit our website at: www.distech-controls.eu featuring all up-to-date product information as well as other valuable information.

Should you require further information or wish to discuss how Distech Controls' innovative building automation solutions can benefit your projects/buildings, please do not hesitate to contact your regional sales manager, whose contact information you will find on our website (Contacts page).

EC-Net^{AX} Monitoring

Network & Interface

EC-Net^{AX} Supervisor
EC-Net^{AX} Alarm Console
EC-Net^{AX} *EnerVue*

EC-BOS^{AX}

EC-BOS-2^{AX}
EC-BOS-6^{AX}

Comparison Chart

EC-BOS^{AX} Series

BACnet & LONWORKS HVAC Control

BACnet Programmable Controllers

ECB-103
ECB-203 Series
ECB-300 Series
ECB-400 Series
ECB-600 Series and ECx-400 Series
ECB-VAVS and ECB-VAV Series

BACnet Configurable Controllers

RCB-PFC Series

BACnet Connectivity Products

BACnet/IP to MS/TP Adapter
BACnet MS/TP Repeater
BACnet/IP to MS/TP Router

BACnet Comparison Charts

ECB Series
ECB-VAV Series
RCB-PFC Series

LONWORKS Programmable Controllers

ECL-103
ECL-203 Series
ECL-300 Series
ECL-400 Series
ECL-600 Series and ECx-400 Series
ECL-VAVS and ECL-VAV Series

LONWORKS Configurable Controllers

RCL-PFC Series
EC-HPU-L
EC-RTU-L
ECC-VAVS and ECC-VAV Series

LONWORKS Connectivity Products

EC-Remote-I/O
EC-Display
ITR Module

LONWORKS Comparison Charts

ECL Series
ECL-VAV Series
RCL-PFC Series
EC Configurable Controllers
ECC-VAV Series
Remote I/O Modules

Lighting and Sunblind Control

LONWORKS Lighting Controllers

CTR-4L/8L and CTR-4LD/8LD Series
CTR-8LDALI and CTR-DALI-LRx Series

LONWORKS Sunblind Controllers

CTR-4S/8S24 and CTR-4S/8S230 Series

Integrated Management Solution

RCx Extension Modules for RCL/RCB Series

Allure™ Series Room Devices

Communicating Sensors for ECL/ECB Series

Allure™ EC-Smart-Vue Series

Communicating Sensors for RCL/RCB Series

Allure™ RS-Smart-Sense
Smart Sense Room Control iPhone Application

Communicating Sensors for ECC Series

Allure™ EC-Smart-Sensor-VAV Series
Allure™ EC-Smart-Sensor-100 & 200 Series

Discrete sensors

Allure™ EC-Sensor Series

Wireless Sensors

Allure™ ECW-Sensor Series

Communicating Thermostats

Allure™ ECL/ECB/ECW-STAT-RT Series
Allure™ ECL/ECB/ECW-STAT-HP Series
Allure™ ECL/ECB/ECW-STAT-FC Series
Allure™ ECL/ECB/ECW-STAT-ZN Series
ECW-STAT Repeater

Accessories

Room Devices & Remote Controls

RS Series
TCND Series
TCIR Series

Multi-Sensors

MS2 Series

Receivers

RIR & RFR Series

“Open-to-Wireless™” Solution

Solution Guide

“Open-to-Wireless™” Solution

Wireless, Battery-less Receivers

Wireless Receiver
RFR-K-EnOcean & RFR-D-EnOcean

EC-Net^{AX} Security: Access Control and CCTV

Network & Interface

EC-Net^{AX} Security Supervisor
EC-Net^{AX} Video: Integrated Video Management

EC-BOS^{AX} Security

EC-BOS^{AX} Security

Programming Tools

EC-gfxProgram
Productivity Enhancing Tools
EC-Configure Series / EC-Monitor
BACnet Facilivue

LNS Integration Tools

Lonwatcher 3
Londisplay 3

Peripheral Products

Peripheral Products

Sales Tools

BACnet Demo Case
LONWORKS Demo Case

Note:

All material included in this manual is maintained up-to-date on our website at www.distech-controls.eu



EC-Net^{AX}: Web-based Multi-Protocol Building Management Solution



EC-Net^{AX} solution's multi-protocol, multi-function capabilities provide seamless and intelligent integration of HVAC, Lighting, Access Control, CCTV, Energy Management, and other building systems.

EC-Net^{AX} solution provides the power to do more, with cost-effective and scalable integration of all your control, monitoring, and operational needs. A truly open solution, the platform creates a sustainable foundation that supports and evolves with your building system's lifecycle.

The EC-Net^{AX} building management system (BMS) is a comprehensive Web-based platform powered by the Niagara^{AX} Framework[®]. Its open structure creates a common development and management environment for the integration of BACnet[®], LONWORKS[®], Modbus, and other standards.

More than a building management system, EC-Net^{AX} solution provides all the tools you need to gain intelligence into your buildings' performance and arm you with the ability to rapidly react to any situation that may adversely affect energy costs, business performance, and ultimately, your bottom line.

- Program, manage, and monitor your building management system using a Web browser
- Common platform provides global functions such as network control, monitoring, alarming, database and log management, and audit trails for all building functions
- Monitor, acknowledge, and review alarms with sophisticated alarm processing and routing, including e-mail and paging
- Manage geographically dispersed sites with one system
- Choose best-of-breed products and prolong the useful life of existing systems by extending their capabilities, regardless of manufacturer or protocol
- Leverage real-time business intelligence through connectivity with enterprise applications such as accounting, tenant billing, and energy management and utility monitoring interfaces
- Open standards provide a useful, cost-effective infrastructure for convergence with IT networks



EC-Net^{AX} Mobile Application Support

EC-Net^{AX} supports the development of applications for mobile devices like smartphones and tablets and includes a Web templating engine and sample mobile applications for viewing Station Property Sheets, Alarms, Schedules, Histories, and basic Px views.

The Mobile Px Pane allows users to create custom views optimized for the limited real estate available on mobile device screens. The Auto-detect Client for Profile Selection provides the ability to auto-detect the browser client and select an alternate user experience targeted for smaller displays, touchscreens, etc.

EC-Net^{AX} EnerVue

EC-Net^{AX} *EnerVue*, a graphics oriented Web-based energy management dashboard that provides proven visualization of vital building metrics through an easy-to-use, browser-based dashboard application.

Suited for single or multi-site projects, EC-Net^{AX} *EnerVue* dashboard allows users to quickly identify issues, assess relationships, and take action in order to optimize resource efficiencies and sustainability.

Designed for a wide range of potential users, from system integrators to energy managers, facility managers and consulting engineers, EC-Net^{AX} *EnerVue* dashboard can be fully customized and provide each user with their own unique dashboard client. The dashboard can easily be set up and modified using a library of viewlets.

EC-BOS^{AX} Web Building Controllers

The EC-BOS^{AX} device is a compact, embedded building controller that combines integrated control, supervision, data logging, alarming, scheduling, and network management functions with Internet connectivity and Web-serving capabilities. The EC-BOS^{AX} device is designed to integrate diverse systems and devices into a single seamless system and support a wide range of protocols including BACnet, LONWORKS, Modbus, and other standard protocols.

- BTL listed as BACnet Building Controller (B-BC) and WSPCert listed (in progress)
- Scalable applications ranging from small buildings to multiple site and campus-wide solutions
- Several models available for distributed control and monitoring throughout larger facilities



Network Management and Graphical User Interface

EC-Net^{AX} Supervisor

EC-Net^{AX} Supervisor flexible graphical user interface provides traditional building management functions such as scheduling, trending, alarming, historical data collection and advanced energy management applications.

EC-Net^{AX} Supervisor is also used in applications where multiple EC-BOS^{AX} controllers are networked together to create a highly efficient, distributed system. It is offered in three versions:

- EC-Net^{AX} Small Building Supervisor 1 is limited to 1 EC-BOS^{AX} controller. Drivers are not available on this version
- EC-Net^{AX} Small Building Supervisor is limited to 10 EC-BOS^{AX} controllers. Drivers are not available on this version
- EC-Net^{AX} Supervisor has unrestricted EC-BOS^{AX} controllers connectivity

EC-Net^{AX} Pro

The EC-Net^{AX} Supervisor interface includes EC-Net^{AX} Pro, a user-friendly tool kit that allows you to integrate and manage multi-vendor devices and sub-systems via the Web. This comprehensive toolset combines all the resources needed to provide a complete solution from field level programming to the end user presentation.

EC-Net^{AX} Alarm Console

The EC-Net^{AX} Alarm Console is a flexible client application for monitoring alarms from EC-BOS^{AX} or EC-Net^{AX} Supervisor nodes and provides a low cost solution for users that do not require the full EC-Net^{AX} Pro to monitor, acknowledge and review current alarms within a building or campus.

EC-Net^{AX} EnerVue

EC-Net^{AX} EnerVue is designed to run as a module on an EC-Net^{AX} station and utilizes the trusted Niagara^{AX} licensing and security model. The EC-Net^{AX} EnerVue service is then accessible to all end users through a standard Web browser, such as Internet Explorer®, Mozilla Firefox®, and Safari®.



EC-BOS^{AX} Devices

EC-BOS^{AX} devices support a wide range of protocols including BACnet®, LONWORKS®, Modbus® and Internet standards. The EC-BOS^{AX} connects to system field devices, such as LONWORKS or BACnet controllers, and provides real-time control functions.

Models include:

- EC-BOS-2^{AX}
- EC-BOS-6^{AX}

Other

Range of drivers for multi-protocol integration and third party connectivity





Overview

EC-Net^{AX} is a suite of Niagara^{AX}-based products designed to integrate diverse smart devices into a unified, Internet-enabled, web-based system. EC-Net^{AX} solutions integrate LONWORKS®, BACnet®, oBIX, Internet and web services protocols in a software platform that can be used in embedded controllers or server applications. EC-Net^{AX} includes integrated network management tools to support the design, configuration, installation, and maintenance of interoperable networks.

The EC-Net^{AX} Supervisor is a flexible network server used in applications where multiple Niagara^{AX}-based EC-BOS^{AX} stations are networked together. The EC-Net^{AX} Supervisor serves real time graphical information displays to standard web-browser clients and also provides server-level functions such as centralized data logging, archiving, alarming, real time graphical displays, master scheduling, and integration with enterprise software applications. Optional SQL and Oracle drivers enable seamless data transfer to these industry standard databases. In addition, the EC-Net^{AX} Supervisor provides a comprehensive, graphical engineering toolset for application development.

The EC-Net^{AX} Supervisor supports 64-bit Windows platforms, allowing more resources to be available for its JAVA-based environment than would otherwise be possible in a 32-bit platform. Up to 500 EC-BOS^{AX} stations can be attached to a 64-bit EC-Net^{AX} Supervisor.

Applications

- Integrate a variety of devices and protocols into a common distributed automation system.
- Create a network environment with comprehensive database management, alarm management and messaging services.

Features & Benefits

- Connects to almost any embedded device, regardless of manufacturer or communication protocol, as a result the common environment created by Niagara^{AX}'s open Java-based Framework.
- Includes a comprehensive, graphical toolset that enables users to build rich applications in a drag-and-drop environment. By wiring components together, developers build control strategies, alarming and scheduling applications as well as browser-based displays and reports.
- Reduces development time by merging automation, IT and Internet technologies in a single solution. With an EC-BOS^{AX}, advanced web-services applications, such as TCP/IP, HTTP, XML, SOAP, and oBIX, can be implemented so that you can read data, send commands, and respond to alarms in real-time from anywhere using any standard web browser.
- Integrates geographically dispersed, multi-vendor devices into an interoperable application to save time and money.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

EC-Net^{AX} Supervisor Versions and Drivers

EC-Net ^{AX} Supervisor	Basic EC-Net ^{AX} Supervisor; all EC-BOS ^{AX} must have EC-NC-SP-XXX for connectivity to EC-Net ^{AX} Supervisor for Windows XP Professional, Vista Pro, Windows Server 2003, or Windows Server 2008; includes one copy of EC-Net ^{AX} Pro.
EC-Net ^{AX} Supervisor-SBS	Small Building System version of EC-Net ^{AX} Supervisor with a 10 EC-BOS ^{AX} station limit; all EC-BOS ^{AX} stations must have EC-NC-SP-XXX for connectivity to EC-Net ^{AX} Supervisor-SBS; includes one copy of EC-Net ^{AX} Pro.
EC-S ^{AX} -SBS-EXUP	Upgrade from EC-Net ^{AX} Supervisor-SBS to a full EC-Net ^{AX} Supervisor
EC-WP ^{AX}	Additional copy of EC-Net ^{AX} Pro

Optional Database Drivers (for EC-Net^{AX} Supervisor only)

EC-S-DB-SQL	Microsoft SQL Database Driver
EC-S-DB-MYSQL	MYSQL Database Driver
EC-S-DB-DB2	IBM DB2 Database Driver
EC-S-DB-ORCL	Oracle Database Driver

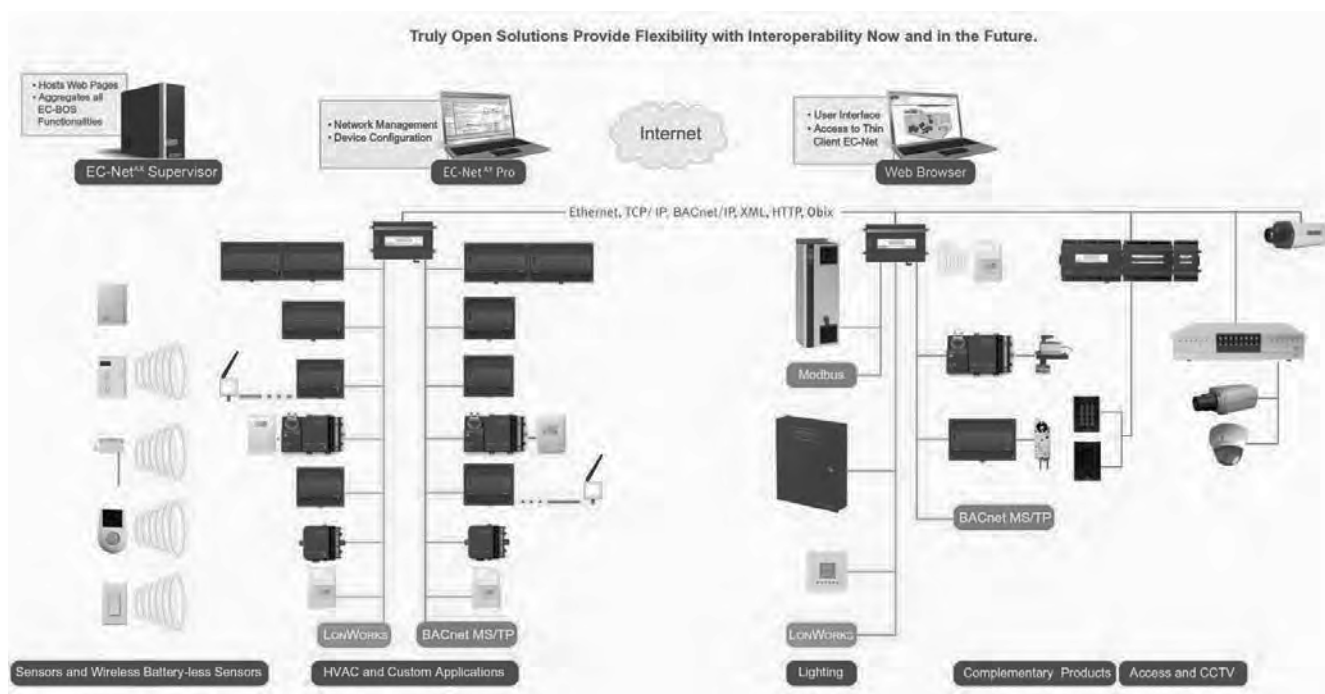
Open System Drivers (for EC-Net^{AX} Supervisor only)

EC-DR-S-BAC ^{AX}	EC-Net ^{AX} Supervisor BACnet driver. Includes license for 500 BACnet points
EC-DR-S-BAC-500	Additional 500 point block for the EC-Net ^{AX} Supervisor BACnet driver
EC-DR-S-OPC ^{AX}	EC-Net ^{AX} Supervisor OPC driver. Includes license for 500 OPC points
EC-DR-S-OPCC-500	Additional 500 point block for the EC-Net ^{AX} Supervisor OPC driver
EC-DR-S-MDB ^{AX}	EC-Net ^{AX} Supervisor Modbus TCP driver. Includes license for 500 Modbus TCP points
EC-DR-S-MDB-500	Additional 500 point block for the EC-Net ^{AX} Supervisor Modbus TCP driver
EC-DR-S-SNMP ^{AX}	EC-Net ^{AX} Supervisor SNMP driver. Includes license for 500 SNMP points
EC-DR-S-SNMP-500	Additional 500 point block for the EC-Net ^{AX} Supervisor SNMP driver
EC-DR-S-OBIX ^{AX}	EC-Net ^{AX} Supervisor oBIX driver for non-Niagara point data. Includes 500 points.
EC-DR-S-OBIX-500	Additional 500 point block for the EC-Net ^{AX} Supervisor oBIX driver

Platform Requirements

Processor	Intel Pentium IV, 2 GHz or higher, Core 2 Duo also acceptable.
Operating System	Microsoft Windows XP Professional, Windows 2003 or 2008 Server (if Microsoft IIS is disabled), Vista Ultimate Mozilla Firefox or Internet Explorer® 5.0 or later. For the 64 bit EC-Net ^{AX} Supervisor, the required OS is Windows XP Professional-64 bit.
Memory	1 GB minimum, 2GB or more recommended for large systems, 8 GB or more recommended for the Windows 64 bit version.
Hard Drive	10 GB minimum, 25 GB for applications that need more archiving capacity.
Display	Video card and monitor capable of displaying 1024 x 768 pixel resolution or greater.
Network Support	Ethernet adapter (10/100MB with RJ-45 connector).
Network Connection	Full time high-speed ISP connection recommended for remote site access (i.e. T1, ADSL, cable modem); 56KB modem minimum.

Typical Architecture



Specifications subject to change without notice.

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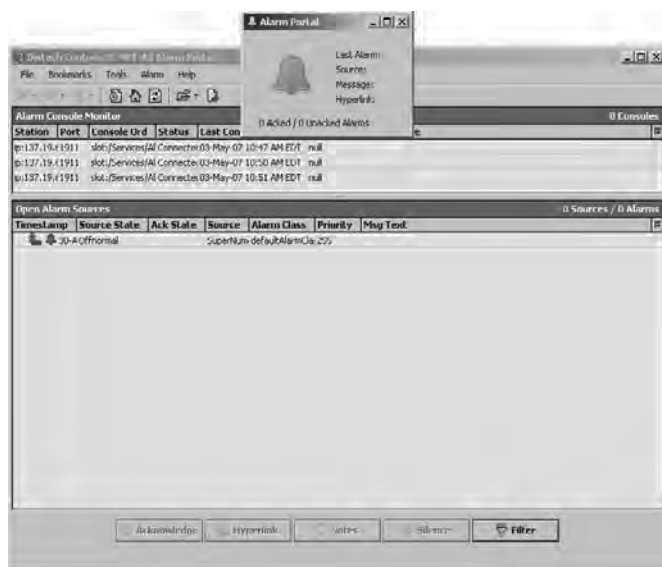


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EC-Net^{AX} Supervisor

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Overview

The EC-Net^{AX} Alarm Console is a flexible client application for monitoring alarms from EC-BOS^{AX} or Supervisor nodes and provides a low cost way for users that do not require the full EC-Net^{AX} Pro to monitor, acknowledge and review current alarms within a building or campus. This is a “thick-client” application designed to be loaded on the user’s PC for remote alarm monitoring of one or more EC-BOS^{AX} or a Supervisor. Multiple copies can be purchased to allow users with different responsibilities to monitor only the things for which they are responsible. A security office can have a copy to monitor only security alarms and a HVAC technician can have a copy to monitor critical building systems, each with his/her own console.

Applications

- Can monitor EC-BOS^{AX} or Supervisor via standard notification class connection.
- Sophisticated alarm processing and routing, including e-mail and paging.
- Supports multiple EC-BOS-NXS^{AX}, EC-BOS-2^{AX}, EC-BOS-6^{AX}, EC-BOS-403^{AX} or EC-BOS-545^{AX} stations connected to a local Ethernet network, or the Internet via the standard notification class connection(s).

Features & Benefits

- Thick-client application for installation on a user’s PC.
- Provides standalone Alarm Monitor capability for those users not requiring a full system engineering tool.
- Alarm view allows user to view current alarms as well as those previously acknowledged.
- Hyperlinks (if used) in alarms may be used to “go to” the Web page where the alarm point is displayed graphically to view more information.
- Password protection and security using standard Java authentication and encryption techniques.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

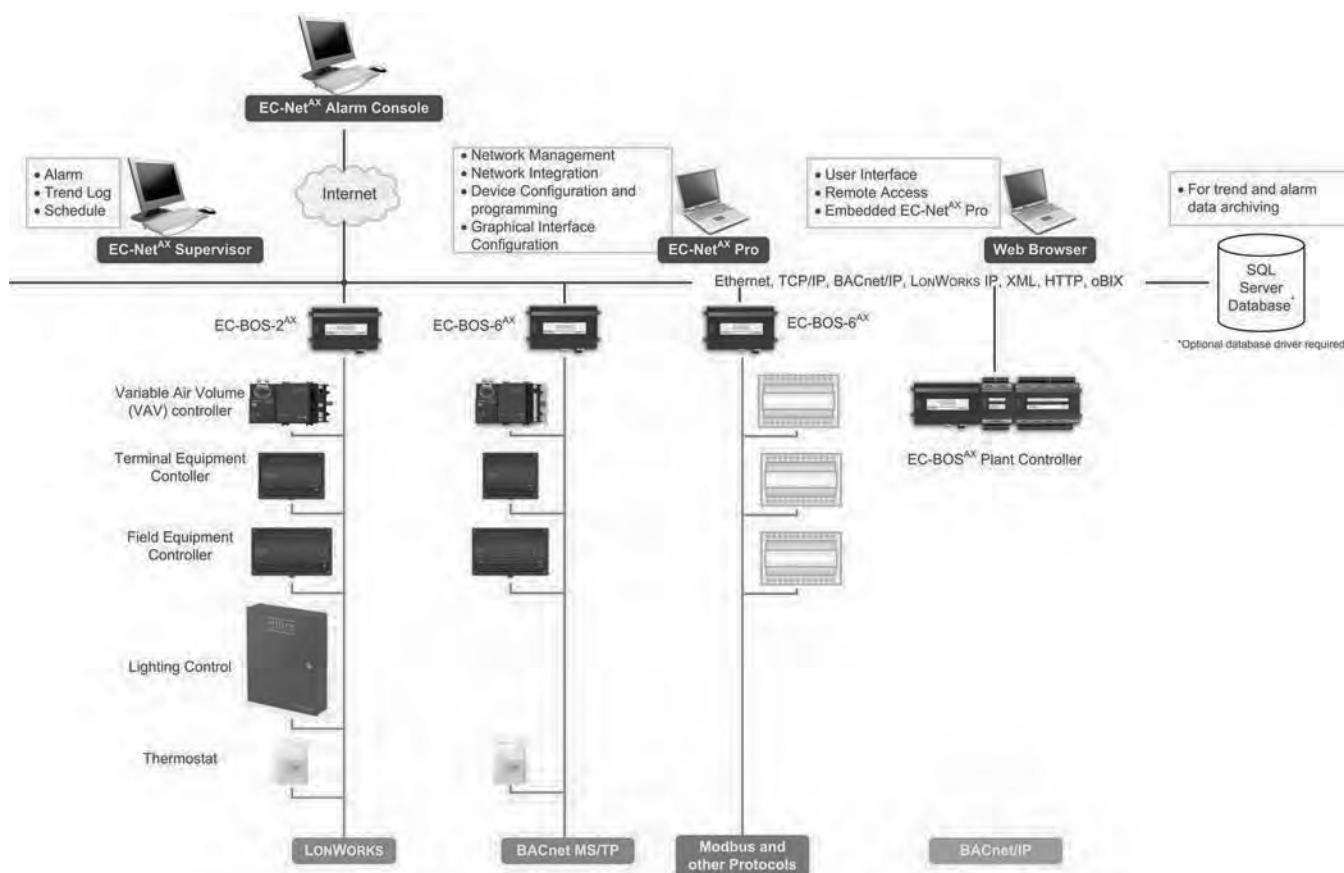
EC-Net^{AX} Alarm Console Versions and Drivers

EC-ALM-CONSOLE-AX Alarm Console client for EC-BOS^{AX} or Web Supervisor; one copy per user/PC.

Platform Requirements

Processor:	Intel Pentium™ IV, 2 GHz or higher or AMD equivalent
Operating System:	Microsoft 32 or 64 bit versions: Microsoft Windows® 2000, Windows Vista, or Windows XP Professional®, Windows 2003 Server® (if Microsoft IIS is disabled)
Memory:	1GB or higher as recommended by operating system manufacturer
Hard Drive:	1 GB minimum, 5 GB for applications that need more archiving capacity
Display:	Video card and monitor capable of displaying 1024 x 768 pixel resolution or greater
Network Support:	Ethernet adapter (10/100MB with RJ-45 connector)
CD-ROM	For software installation
Modem:	56KB minimum, full time high-speed ISP connection recommended for remote site access (i.e. T1, ADSL, cable modem)

Typical Architecture



The above architecture is shown as an example only.

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EC-Net^{AX} Alarm Console

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Applications

- Equally useful for both new structures as well as retrofits.
- Intuitive tool that enables comparisons between buildings, campuses, and departments and allows assessments to be made in order to foster improved energy awareness.
- Offers a real-time “network status” graphical viewlet which allows for immediate color-coded visual identification of “device health” or other problem areas in the connected EC-Net^{AX} network.
- Has a flexible Graphical User Interface (GUI) by integrating PX equipment views and floor plans alongside standard charts, KPI analyses, and third-party websites.
- Enables clear visualization and documentation for building commissioning, as well as tools for validation of sustainable designs.
- Enables quick visualization of locations that are deviating from their historical performance or operating outside the norm for similar structures.
- Provides timely tracking of enhanced savings as a result of investments in conservation or capital projects.

Overview

EC-Net^{AX} EnerVue is a configurable, graphical Web-based energy management dashboard application that provides rapid identification of real-time and historical trends in key areas of operations, including energy use, mechanical and electrical systems, operational efficiencies, and critical metrics. EC-Net^{AX} EnerVue provides the opportunity for users to quickly identify issues, assess relationships, and take action in order to optimize resource efficiencies and sustainability by reducing volumes of data from disparate systems into visual knowledge.

Due to the wide range of potential users, from the highly technical to the non-technical, EC-Net^{AX} EnerVue was designed to provide each user with their own unique dashboard client. The dashboard can easily be set up and modified from a growing library of “viewlets” by any user without affecting any other users’ preferences and settings.

For single sites or smaller footprints, EC-Net^{AX} EnerVue will run as a stand-alone module on an EC-BOS^{AX}, eliminating the need for additional PCs based on Software as a Service (SaaS). EC-Net^{AX} EnerVue allows owners to start small, yet remains scalable to fit any company’s growing needs.

EC-Net^{AX} EnerVue offers an extensive library of optional viewlets that permit the analysis of various data, histories, and metrics, including energy trends, building comparisons, weather data, network status, consumption efficiencies, key performance indices, and more. EC-Net^{AX} EnerVue can even display Web pages hosted by a third party, thus preserving prior investments while enabling side-by-side comparisons of operating graphics with related variables and performance trends.

Features & Benefits

- User-Centric – Each user can create, view and modify their own dashboard “on-the-fly” in minutes, thus enabling them to focus on current or rapidly changing conditions for their area of responsibility.
- Viewlet Export Options – Viewlets can be exported as an image file, or as an image within a PDF file. Their tabular data can also be exported in CSV format for instant use in reports and technical documents.
- Virtual Naming – Data mapped into EC-Net^{AX} EnerVue can be given “friendly” (recognizable) names without impacting the underlying control database.
- Data Normalization – Provides the ability to normalize data such as energy consumption and account for differences in square footage, etc.
- Equivalency Conversions – Allows for “one-click” display of selected trends in equivalent units, such as kWh to dollars or metric tons of CO₂.
- Kiosk Mode – Simplified display of normalized data by continuously cycling through the user’s viewlets. This display can foster awareness and support, while highlighting the energy initiatives of corporate and public sustainability awareness campaigns.
- Localization for Language and Currency – Dashboards can operate in multiple languages, even within the same installation, enabling multilingual, user-specific implementations.

Features & Benefits (Continued)

- Informational Screen Tips – Customizable screen tips enable the dashboard's administrator to present EC-Net^{AX} *EnerVue* end users with clarifying information, educational tips, or other relevant information prior to displaying a viewlet in kiosk mode.
- Auto Discovery Wizard – Allows users to efficiently identify and map the information from many sources, including meters, databases, or automation systems into multiple viewlets.
- Facility & Business Data – Provides integrated views of facility contribution to business profitability, such as energy cost per production unit.
- EC-Net^{AX} *EnerVue* Guest Accounts – Guest accounts permit administrators to build views for a target audience, but prevent the guest users from accidentally modifying the intended setup. This feature helps protect important configurations while “publishing” information to a large audience.
- EC-Net^{AX} – Uses existing EC-Net^{AX} user rights to enable maximum management flexibility.
- Web-Based – Built with an open source framework for building and maintaining expressive web applications that deploy consistently on all major browsers, desktops, and operating systems.

EC-Net^{AX} *EnerVue* Versions and Options

Applications

EC-Net ^{AX} <i>EnerVue</i> for EC-Net ^{AX} Supervisor	EC-Net ^{AX} <i>EnerVue</i> for EC-Net ^{AX} Supervisor, w/Std Viewlet Package: Resource Consumption; Circular & Semi-Circular Gauge; Point Table; History Line, Pie & Column Chart; PX & Web Page; Virtual Utility Meters; Green Tips Slide Show; Digital Totalizer.
EC-Net ^{AX} <i>EnerVue</i> for EC-Net ^{AX} Supervisor (Offline) ¹	EC-Net ^{AX} <i>EnerVue</i> for EC-Net ^{AX} Supervisor Offline, w/Std Viewlet Package: Resource Consumption; Circular & Semi-Circular Gauge; Point Table; History Line, Pie & Column Chart; PX & Web Page; Virtual Utility Meters; Green Tips Slide Show; Digital Totalizer.
EC-Net ^{AX} <i>EnerVue</i> for EC-BOS ^{AX}	EC-Net ^{AX} <i>EnerVue</i> for EC-BOS ^{AX} , w/Std Viewlet Package: Resource Consumption; Circular & Semi-Circular Gauge; Point Table; History Line, Pie & Column Chart; PX & Web Page; Virtual Utility Meters; Green Tips Slide Show; Digital Totalizer.
EC-Net ^{AX} <i>EnerVue</i> for EC-BOS ^{AX} (Offline) ¹	EC-Net ^{AX} <i>EnerVue</i> for EC-BOS ^{AX} Offline, w/Std Viewlet Package: Resource Consumption; Circular & Semi-Circular Gauge; Point Table; History Line, Pie & Column Chart; PX & Web Page; Virtual Utility Meters; Green Tips Slide Show; Digital Totalizer.

Location Adder

Location Adder (10)	Adds block of 10 locations
Location Adder (25)	Adds block of 25 locations
Location Adder (50)	Adds block of 50 locations
Location Adder (100)	Adds block of 100 locations
Location Adder (250)	Adds block of 250 locations
Location Adder (500)	Adds block of 500 locations

Optional Viewlets

Optional EC-Net ^{AX} <i>EnerVue</i> V101	Ranking Comparison History
Optional EC-Net ^{AX} <i>EnerVue</i> V102	Utility Performance Index History
Optional EC-Net ^{AX} <i>EnerVue</i> V103	Demand Duration History
Optional EC-Net ^{AX} <i>EnerVue</i> V104	Network Health (Spider Chart) Diagnostic
Optional EC-Net ^{AX} <i>EnerVue</i> V105	Utility Accounting History
Optional EC-Net ^{AX} <i>EnerVue</i> V106	Columnar Drill Down Point
Optional EC-Net ^{AX} <i>EnerVue</i> V107	Pie Chart Drill Down Point
Optional EC-Net ^{AX} <i>EnerVue</i> V108	Baseline Comparison History
Optional EC-Net ^{AX} <i>EnerVue</i> V109	Point Line Chart (Live) Point
Optional EC-Net ^{AX} <i>EnerVue</i> V110	Dual Axis History
Optional EC-Net ^{AX} <i>EnerVue</i> V111	History ColorGrid History
Optional EC-Net ^{AX} <i>EnerVue</i> V112	Weather Correlation History
Optional EC-Net ^{AX} <i>EnerVue</i> V113	Year-Over-Year History
Optional EC-Net ^{AX} <i>EnerVue</i> V114	Event History Timeline History
Optional EC-Net ^{AX} <i>EnerVue</i> V115	High-Low-Average History
Optional EC-Net ^{AX} <i>EnerVue</i> V116	Area Chart History
Optional EC-Net ^{AX} <i>EnerVue</i> V117	Critical Alarm Diagnostic
Optional EC-Net ^{AX} <i>EnerVue</i> V901	Viewlet Bundle - Includes all Optional EC-Net ^{AX} <i>EnerVue</i> V1XX Series Viewlets (applies to optional viewlets at time of original purchase)
Optional EC-Net ^{AX} <i>EnerVue</i> V201	AHU Diagnostics Package: Space Temperature Compliance; AHU Setpoint Efficiency Ranking; Cooling vs. Supply Air Temperature; Heating vs. Supply Air Temperature.
Optional EC-Net ^{AX} <i>EnerVue</i> V251	Weather Normalization Diagnostic. Location Based Degree-Day Normalization Analysis.
Optional EC-Net ^{AX} <i>EnerVue</i> V271	Cross Correlation Analysis Diagnostic. Determines the correlation between any two variables over a common timeframe.
Optional EC-Net ^{AX} <i>EnerVue</i> V301	Solar Energy Generation Focus (Sustainability)
Optional EC-Net ^{AX} <i>EnerVue</i> V302	Wind Energy Generation Focus (Sustainability)
Optional EC-Net ^{AX} <i>EnerVue</i> V311	Electric Vehicle Charging Station Information (may require custom drivers - Sustainability)

EC-Net^{AX} EnerVue Versions and Options (continued)

Optional EC-Net ^{AX} EnerVue V401	FIN: Connect (General): Enables the native integration and manipulation of pre-existing FIN™ Files in the system (Requires 3 rd party license for FIN™ Builder)
Optional EC-Net ^{AX} EnerVue V402	Media: Connect (General): Viewlet Flash Player for EC-Net ^{AX} EnerVue Sourced Flash Library

Other Tools

Viewlet Web Publisher F102	Enables the User to publish individual Viewlets to external web pages
Virtual History Package F103	Enables auto generation of virtual histories for unit conversion and History Grouping Functions.
Utility Data Import U001	CSV Mapper Utility to map data for Utility Accounting Viewlet

Upgrade & Maintenance

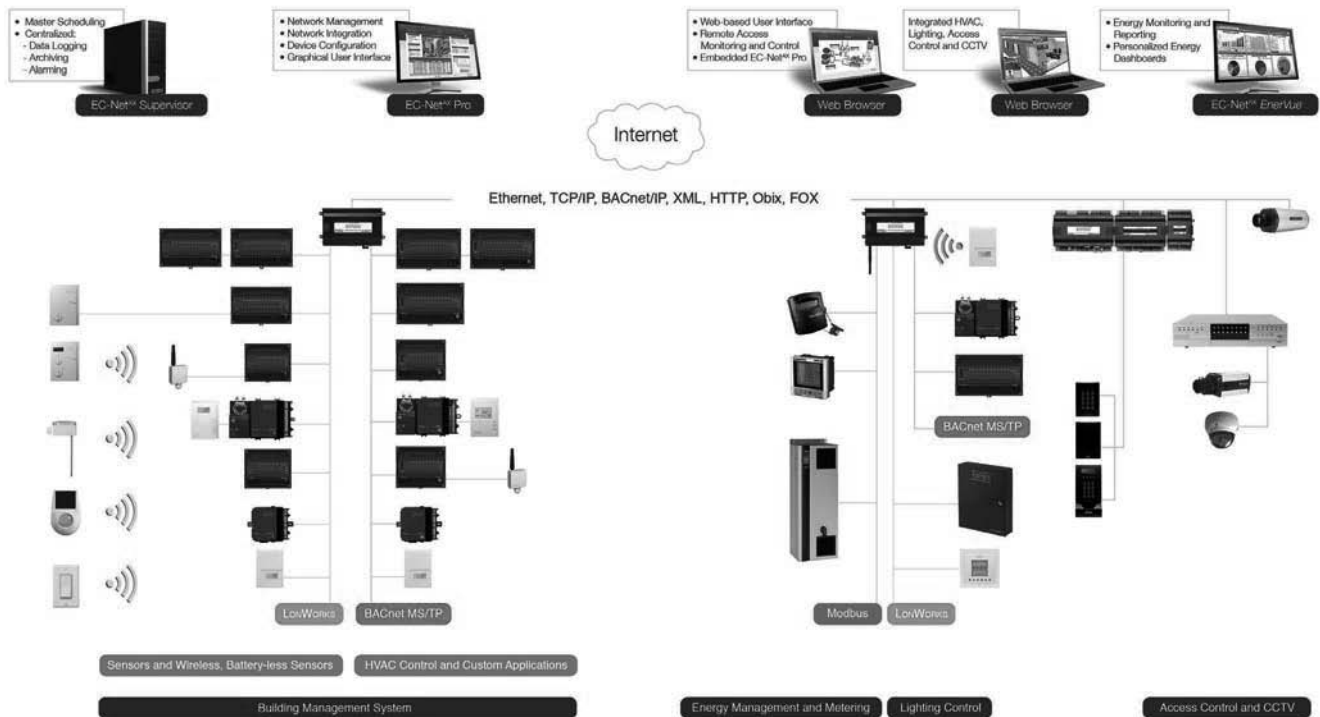
Basic Version Upgrade L001	One time version upgrade for JAR file and owned viewlets
Annual Upgrade Agreement L002	Upgrades JAR file and owned viewlets (multi-instance/yr)
Host ID Change request L003	Net Cost to move existing license to new HostID

1. For secure facilities that use an intranet or for areas where there is no internet connection, an offline version of EC-Net^{AX} EnerVue is available.

Platform Requirements

Platform	EC-Net ^{AX} (v3.5.34 or higher recommended) EC-Net ^{AX} Supervisor (recommended) or EC-BOS ^{AX}
Memory	5MB (minimum) of memory space available
Communications	oBIX [™] network installed and enabled
Web Browser Requirement	Adobe® Flash plug-in installed on web browser

Typical Architecture



Total Quality Commitment

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Compact, embedded controller/server platform.



Applications

- Ideal for smaller facilities, remote sites, and for distributing control and monitoring throughout large facilities.
- Supports a wide range of field buses for connection to remote I/O and stand-alone controllers.
- Serves data and rich graphical displays to a standard web browser via an Ethernet LAN or remotely over the Internet, or dial-up modem. In larger facilities, multi-building applications and large-scale control system integrations, the EC-Net^{AX} Supervisor software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of EC-BOS^{AX} devices into a single unified application.
- Using EC-Net^{AX} Supervisor, you can manage global control functions, support data passing over multiple networks, connect to enterprise level software applications, and host multiple, simultaneous client workstations connected over the local network, the Internet, or dial-up modem.

Overview

The EC-BOS-2^{AX} is a compact, embedded controller/server platform. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The EC-BOS-2^{AX} makes it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

The EC-BOS-2^{AX} is part of the EC-Net^{AX} suite of Java-based controller/ server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. EC-Net^{AX} products are powered by the Niagara^{AX} Framework®, the industry's first software technology designed to integrate diverse systems and devices into a seamless system. EC-Net^{AX} supports a wide range of protocols including LONWORKS®, BACnet® and Internet standards. EC-Net^{AX} also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

Special Note: The number of external devices supported by the EC-BOS-2^{AX} is dependant on the memory option used on the EC-BOS-2^{AX} and on the number and types of external devices used. Please refer to Tech Note 202 on our web site at www.distech-controls.com for more details.

Features & Benefits

- Supports open and legacy protocols.
- Web User interface (optional) serves rich graphical presentations for easier and more user-friendly control of control system integrations.
- Integral energy management routines.
- Run stand-alone control, energy management and integration applications.
- Supports two optional communications boards.
- Small compact design is easy to install and supports multiple power options
- Optional I/O Modules.
- Includes oBIX client/server and Niagara Network (Fox) client/server drivers
- BTL listed when BACnet driver is used. Complies with B-BC (BACnet Building Controller)

Recommended Peripherals

EC-Net^{AX} I/O Modules¹



EC-Net^{AX} IO-16:

- 8 universal inputs
- 4 form A relay outputs
- 4 analog outputs (0-10VDC)
- Up to four (4) IO-16 can be connected to the EC-BOS-2^{AX}



EC-Net^{AX} IO-34:

- 16 universal inputs
- 10 form A relay outputs
- 8 analog outputs (0-10VDC)
- Maximum one (1) IO-34 can be connected to the EC-BOS-2^{AX}
- In addition to the IO-34, up to two (2) IO-16 can also be connected to the EC-BOS-2^{AX}

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Distech Controls I/O Modules²



ECC-301:

- 8 universal inputs
- 8 triac outputs



ECC-401:

- 12 universal inputs
- 12 triac outputs



ECC-520:

- 16 universal inputs

Other Products (Hardware)



EC-NPB-LON	78Kbps FTT-10A LON adapter
EC-NPB-MDM	56Kbps Modem option card
EC-NPB-2X-485	Dual port RS-485 option card
EC-NPB-PWR	24V AC/DC, 50/60Hz Power Supply Module. DIN rail mountable
EC-NPB-PWR-UN	90-263VAC/15VDC, 50/60Hz Universal Power Supply Module. DIN rail mountable
EC-WPM-US	90-240VAC, 50/60Hz Wall adapter U.S. plug type
EC-WPM-EUR	90-240VAC, 50/60Hz Wall adapter European/Asian plug type
EC-WPM-UK	90-240VAC, 50/60Hz Wall adapter U.K. plug type
EC-NPB-GPRS	GPRS Modem option card

Other Products (Software)

EC-DR-LON ^{AX}	LONWORKS driver
EC-DR-MSTP ^{AX}	Driver for MS/TP BACnet communications over RS-232 or RS-485 port
EC-DR-BACnet ^{AX}	BACnet IP Client over Ethernet
EC-NPM-128	Extended memory part for 64Mb to 128Mb
EC-UI-SP-2XX	Web User Interface add-on
EC-NC-SP-2XX	Niagara Connectivity Station Pack
EC-WP ^{AX} -WEB	Embedded EC-Net ^{AX} Pro (requires EC-UI-SP-2XX)

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.eu or contact salesadmin@distech-controls.com.

1. For more information and details, please refer to the *EC-Net^{AX} I/O Modules datasheet*.

2. For more information, please refer to the *Remote I/O datasheet*.

Product Specifications³

Platform

Processor:	IBM PowerPC 405EP 250MHz processor
Memory:	64MB ⁴ SDRAM and 64MB Serial Flash
Battery Backup:	5 minutes typical. Shutdown begins within 10 secs.
Real-Time Clock:	3 month backup max via battery

Communications

Methods:

- 2 Ethernet Ports – 10/100Mbps (RJ-45 connectors)
- 1 RS-232 Port (9-pin D-shell connector)
- 1 RS-485 non-isolated port (3 screw connector on base board)
- 1 One 20-Pin Euro-DIN Connector (for I/O and Power modules)
- 2 communication card option slots

Operating Systems

Types:

- QNX RTOS
- IBM J9 JVM Java Virtual Machine
- Niagara^{AX}

Chassis

Construction:	Plastic, din rail or screw mount chassis, plastic cover
Cooling:	Internal air convection
Dimensions:	16.0cm (6.3") W x 12.2cm (4.8") H (including connectors) x 6.2cm (2.4") D
Weight:	0.708 Kg (1 lb 9 oz)

Environment

Operating Temp.:	0°C to 50°C (32°F to 122°F)
Storage Temp:	0°C to 60°C (32°F to 140°F)
Relative Humidity:	5% to 95%, non-condensing

Agency Listings

UL: UL916

CE:

FCC:



C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"

For details, refer to *EC-BOS-2^{AX} Mounting and Wiring*

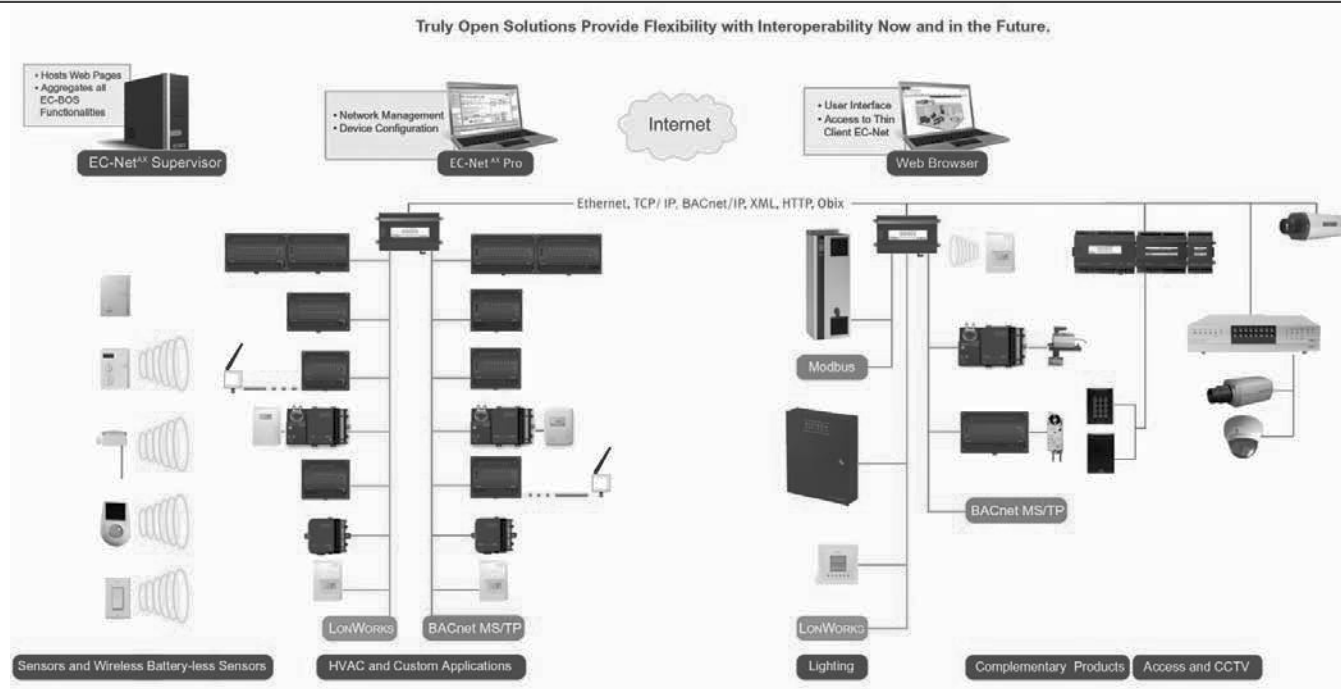
Instructions

Part 15 Class A

3. For more detailed specifications please refer to the *EC-BOS-2^{AX} Mounting and Wiring Instructions*.

4. Can be upgraded to 128MB with EC-NPM-128 option.

Typical Architecture



Product Warranty & Total Quality Commitment

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EC-BOS-2^{AX}

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Overview

The EC-BOS-6^{AX} is a compact, embedded controller/server platform. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The EC-BOS-6^{AX} makes it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

The EC-BOS-6^{AX} is part of the EC-Net^{AX} suite of Java-based controller/ server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. EC-Net^{AX} products are powered by the Niagara^{AX} Framework®, the industry's first software technology designed to integrate diverse systems and devices into a seamless system. EC-Net^{AX} supports a wide range of protocols including LONWORKS®, BACnet® and Internet standards. EC-Net^{AX} also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

Special Note: The number of external devices supported by the EC-BOS-6^{AX} is dependant on the memory option used on the EC-BOS-6^{AX} and on the number and types of external devices used. Please refer to Tech Note 202 on our web site at www.distech-controls.com for more details.

Applications

- Ideal for smaller facilities, remote sites, and for distributing control and monitoring throughout large facilities.
- Supports a wide range of field buses for connection to remote I/O and stand-alone controllers.
- Serves data and rich graphical displays to a standard web browser via an Ethernet LAN or remotely over the Internet, or dial-up modem. In larger facilities, multi-building applications and large-scale control system integrations, the EC-Net^{AX} Supervisor software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of EC-BOS^{AX} devices into a single unified application.
- Using EC-Net^{AX} Supervisor, you can manage global control functions, support data passing over multiple networks, connect to enterprise level software applications, and host multiple, simultaneous client workstations connected over the local network, the Internet, or dial-up modem.

Features & Benefits

- Supports open and legacy protocols.
- Web User interface (optional) serves rich graphical presentations for easier and more user-friendly control of control system integrations.
- Integral energy management routines.
- Run stand-alone control, energy management and integration applications.
- Supports two optional communications boards.
- Small compact design is easy to install and supports multiple power options
- Optional I/O Modules.
- Includes oBIX client/server and Niagara Network (Fox) client/server drivers
- BTL listed when BACnet driver is used. Complies with B-BC (BACnet Building Controller)

Recommended Peripherals

EC-Net^{AX} I/O Modules¹



EC-Net^{AX} IO-16:

- 8 universal inputs
- 4 form A Relay outputs
- 4 Analog outputs (0-10VDC)
- Up to four (4) IO-16 can be connected to the EC-BOS-6^{AX}



EC-Net^{AX} IO-34:

- 16 universal inputs
- 10 form A Relay outputs
- 8 Analog outputs (0-10VDC)
- Maximum one (1) IO-34 can be connected to the EC-BOS-6^{AX}
- In addition to the IO-34, up to two (2) IO-16 can also be connected to the EC-BOS-6^{AX}

Distech Controls I/O Modules²



ECC-301:

- 8 universal inputs
- 8 triac outputs



ECC-401:

- 12 universal inputs
- 12 triac outputs



ECC-520:

- 16 universal inputs

Other Products (Hardware)



EC-NPB-LON	78Kbps FTT-10A LON adapter
EC-NPB-MDM	56Kbps Modem option card
EC-NPB-2X-485	Dual port RS-485 option card
EC-NPB-PWR	24V AC/DC, 50/60Hz Power Supply Module. DIN rail mountable
EC-NPB-PWR-UN	90-263VAC/15VDC, 50/60Hz Universal Power Supply Module. DIN rail mountable
EC-WPM-US	90-240VAC, 50/60Hz Wall adapter U.S. plug type
EC-WPM-EUR	90-240VAC, 50/60Hz Wall adapter European/Asian plug type
EC-WPM-UK	90-240VAC, 50/60Hz Wall adapter U.K. plug type
EC-NPB-GPRS	GPRS Modem option card

Other Products (Software)

EC-DR-LON ^{AX}	LonWorks driver
EC-DR-MSTP ^{AX}	Driver for MS/TP BACnet communications over RS-232 or RS-485 port
EC-DR-BACnet ^{AX}	BACnet IP Client over Ethernet
EC-NPM-256	Extended memory part for 128Mb to 256Mb
EC-UI-SP-6XX	Web User Interface add-on
EC-WP ^{AX} -WEB	Embedded EC-Net ^{AX} Pro (requires EC-UI-SP-6XX)

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.eu or contact salesadmin@distech-controls.com.

1. For more information and details please refer to the *EC-Net^{AX} I/O Modules datasheet*.

2. For more information please refer to the *Remote I/O datasheet*.

Product Specifications³

Platform⁴

Processor:	IBM PowerPC 440 524MHz processor
Memory:	128MB ⁵ DDR RAM and 128MB Serial Flash
Battery Backup:	5 minutes typical. Shutdown begins within 10 secs.
Real-Time Clock:	3 month backup max via battery

Communications

Methods:

- 2 Ethernet Ports – 10/100Mbps (RJ-45 connectors)
- 1 RS-232 Port (9-pin D-shell connector)
- 1 RS-485 non-isolated port (3 screw connector on base board)
- 1 One 20-Pin Euro-DIN Connector (for I/O and Power modules)
- 2 communication card option slots
- 1 USB Port

Operating Systems

Types:

- QNX RTOS
- IBM J9 JVM Java Virtual Machine
- Niagara^{AX}

Chassis

Construction:	Plastic, din rail or screw mount chassis, plastic cover
Cooling:	Internal air convection
Dimensions:	16.0cm (6.3") W x 12.2cm (4.8") H (including connectors) x 6.2cm (2.4") D
Weight:	0.708 Kg (1 lb 9 oz)

Environment

Operating Temp.:	0°C to 50°C (32°F to 122°F)
Storage Temp:	0°C to 60°C (32°F to 140°F)
Relative Humidity:	5% to 95%, non-condensing

Agency Listings

UL:	UL916 C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
CE:	For details, refer to <i>EC-BOS-6^{AX} Mounting and Wiring Instructions</i>
FCC:	Part 15 Class A

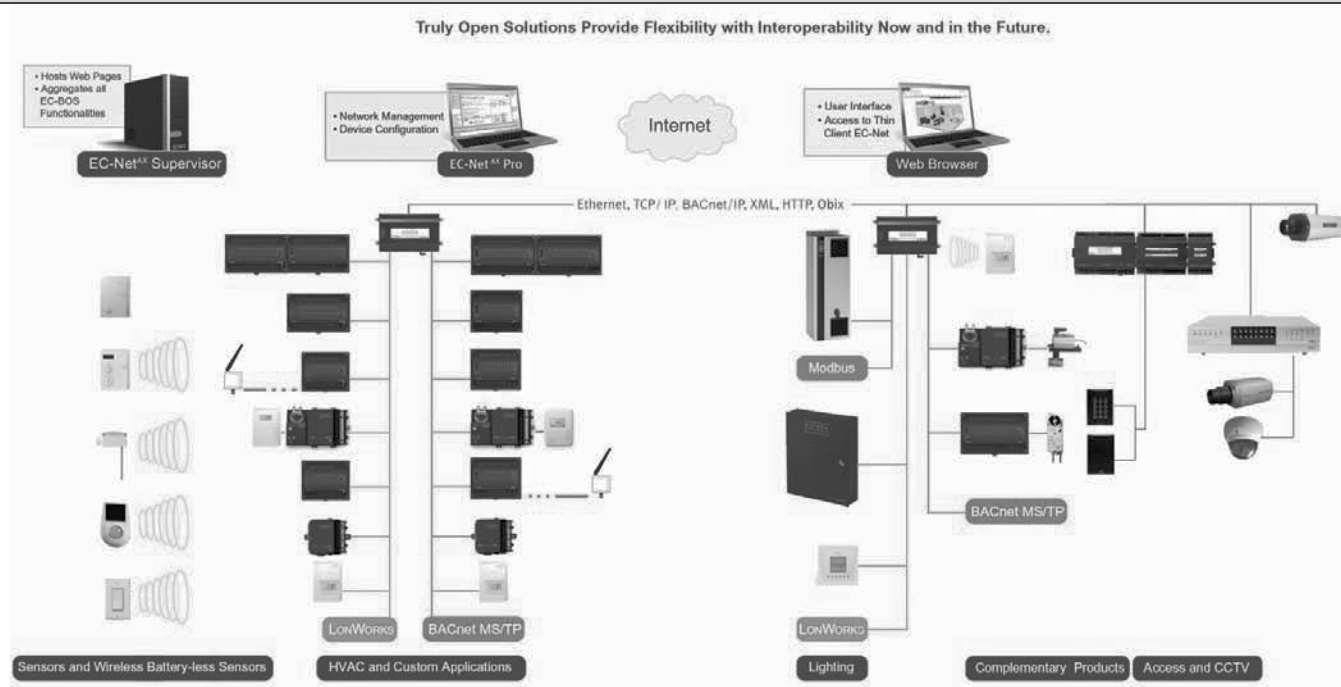


3. For more detailed specifications please refer to the *EC-BOS-6^{AX} Mounting and Wiring Instructions*.

4. Requires Niagara^{AX} version 3.2 or higher.

5. Can be upgraded to 256MB with EC-NPM-256 option.

Typical Architecture



Product Warranty & Total Quality Commitment

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EC-BOS-6^{AX}

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EC-BOS-2 ^{AX}					EC-BOS-6 ^{AX}		
EC-BOS-220		EC-BOS-230	EC-BOS-240	EC-BOS-250	EC-BOS-630	EC-BOS-640	EC-BOS-660
CPU Processor							
IBM PowerPC 405EP		■	■	■			
IBM PowerPC 440					■	■	■
Speed		250MHz	250MHz	250MHz	524MHz	524MHz	524MHz
Memory							
RAM		128MB	128MB	128MB	256MB	256MB	256MB
Flash		64MB	64MB	64MB	128MB	128MB	128MB
Resources							
Heap Memory		16MB	16MB	48MB	48MB	48MB	96MB
Resource Limit		350K	no limit	no limit	450K	1000K	no limit
Maximum Points		34 points max NDIO	200 points / driver	no limit	200 points / driver	no limit	no limit
Maximum Devices		8 devices/driver	no limit	no limit	no limit	no limit	no limit
Maximum Networks		Niagara ^{AX} @+1	no limit	no limit	no limit	no limit	no limit
Communication							
Ethernet (2 ports)		■	■	■	■	■	■
RS-232 (1 DB-9 connector)		■	■	■	■	■	■
RS-485 (1 non-isolated port)		■	■	■	■	■	■
LON® FTT-10A Port		■	■	■	■	■	■
Cellular ¹		Optional	Optional	Optional	Optional	Optional	Optional
Power Supply							
Voltage		90-240VAC 50-60Hz wall adapter UK/European/Asian/US plug type; optional DIN rail mountable		90-240VAC 50-60Hz wall adapter UK/European/Asian/US plug type; optional DIN rail mountable			
Back Up		■	■	■	■	■	■
Physical Characteristics							
Enclosure		Plastic, DIN rail or screw mount chassis; plastic cover			Plastic, DIN rail or screw mount chassis; plastic cover		
Dimensions		6.3" (16.0cm) W; 4.8" (12.2cm) H; 2.4" (6.2cm) D			6.3" (16.0cm) W; 4.8" (12.2cm) H; 2.4" (6.2cm) D		

1. Requires Cellular Service Provider

Specifications subject to change without notice.

Please note that this comparison sheet is simply an overview of the featured products. For more detailed information related to these products, please refer to their respective datasheets. In the case of differing information between the comparison sheet and the datasheet(s), the datasheet is considered to be correct. Distech Controls and the Distech Controls logo are trademarks of Distech Controls, Inc.; Niagara^{AX} Framework is a trademark of Tridium Inc.; LON is a trademark of Echelon Corporation. Products or features contained herein may be covered by one or more U.S. or foreign patents. ©2009 Distech Controls Inc.



05DI-DSCSECB-10

EC-BOS^{AX} Series

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BACnet® and LONWORKS® HVAC Control



Distech Controls offers an extensive line of quality, feature-rich controllers for BACnet and LONWORKS that allow for efficient and cost-effective implementation and operation of a building management system.

Our controllers are based on a robust common hardware platform and share the same programming and productivity enhancing toolset, providing increased efficiency and options for system design, installation, service, and maintenance.

Distech Controls controllers offer the features and flexibility to address the demands of even the most sophisticated projects, while providing a competitive value offering. In addition, numerous labor-saving tools and features minimize the learning curve, decrease engineering and installation time, and improve the functional use of the system.

- Extensive line of BTL listed & WSP Cert BACnet controllers
- Extensive line of LONMARK certified LONWORKS controllers
- RCL-PFC LONWORKS configurable controller Series has been awarded LONMARK's Certified Device of the 2012 year by LONMARK International
- Common hardware platform increases serviceability and choice of protocol based on required application
- Wide array of controllers allows selection of the most appropriate model to cost-effectively address specific application requirements
- LCD screen available on selected models
- Choice of custom programmable controllers or plug-and-play, pre-configured application specific controllers provides unmatched flexibility at installation
- Support of Allure™ EC-Smart-View (ECB/ECL Series) and Allure™ EC-Smart-Sensor communicating LCD sensors offers time-saving features such as air flow balancing and pre-configured application selection
- Support of Allure™ RS-Smart-Sense (RCL/RCB Series)
- Unique embedded Open-to-Wireless™ solution provides support of multiple wireless, battery-less sensors

Programmable Controllers:

- Select models allow for auto diagnostics and alerts based on performance algorithms
- Fast-response microprocessor provides accurate control and advanced math functions
- Optional HOA switch with potentiometer locally overrides and monitors overridden outputs
- Software configurable I/O are jumper-less selection, eliminating frequent input configuration errors
- High precision inputs support a wide variety of RTD or thermistor for increased versatility at installation

Programming & Productivity Enhancing Toolset

Distech Controls' programming and productivity enhancing toolsets are designed with a comprehensive, integrated approach that improves serviceability options and efficiency, while providing the necessary agility to address the specific operational requirements of a facility.

This toolset facilitates device configuration, reduces programming time, and increases installation, troubleshooting, and commissioning efficiency by over 25%, and includes:

- Common graphical programming interface for BACnet and LONWORKS controllers
- Pre-engineered applications and images libraries
- Pre-built, auto-generated graphics pages, with pre-defined devices, alarms, and logs
- Our control sequences comply with the highest standards in energy efficiency, including California Title 24, ASHRAE® Indoor Air Quality, and ASHRAE HVAC applications to automatically provide maximum energy efficiency, while reducing energy waste.

In addition, Distech Controls' unique ECO-Vue™ leaf pattern can be used to deliver energy efficiency level indicators to pre-built graphics pages. The ECO-Vue™ feature provides the building operator with instant feedback on the level of energy efficiency that will be realized by the chosen comfort setting. The more ECO-Vue™ leaves appear on a page, the more energy efficiency is being achieved

BACnet Programmable Controllers	
ECB-103	For two pipe fan coil, chilled ceiling, heat pump, and unit ventilator applications
ECB-203 Series	For roof top, four pipe fan coil, chilled ceiling, heat pump, unit ventilator, and small AHU systems
ECB-300 Series	For AHU, chiller, boiler, and cooling tower applications
ECB-400 Series	For roof top, AHU, chiller, boiler, cooling tower, and multi-zone applications
ECB-600 and ECx-400 Series	For AHU, chiller, boiler, cooling tower, and central plant applications and Additional I/O modules for the ECB-600 Series
ECB-VAVS and ECB-VAV Series	For applications from single duct to fan powered VAV with reheat and radiation heating
BACnet Configurable Controllers	
RCB-PFC Series	For Fan Coil Units, Unit Ventilators, Chilled Ceilings, Small Air Handling Units and Lighting and Sunblinds when associated to Rcx add-on modules
Allure™ ECB-STAT	Communicating thermostat for heat pump, roof top, fan coil, and zoning applications
BACnet Connectivity Products	
BACnet/IP to MS/TP Adapter	Device to connect a laptop to an MS/TP network
BACnet MS/TP Repeater	Designed to extend your network beyond the 4,000 feet range limitation of RS-485
BACnet/IP to MS/TP Router	Allows BACnet/IP devices connected over Ethernet to communicate with MS/TP devices

LONWORKS Programmable Controllers

ECL-103	For two pipe fan coil, chilled ceiling, heat pump, and unit ventilator applications
ECL-203 Series	For roof top, four pipe fan coil, chilled ceiling, heat pump, unit ventilator, and small AHU systems
ECL-300 Series	For AHU, chiller, boiler, and cooling tower applications
ECL-400 Series	For roof top, AHU, chiller, boiler, cooling tower, and multi-zone applications
ECL-600 and ECx-400 Series	For AHU, chiller, boiler, cooling tower, and central plant applications and Additional I/O modules for the ECL-600 Series
ECL- VAVS and ECL-VAV Series	For applications from single duct to fan powered VAV with reheat and radiation heating

LONWORKS Configurable Controllers

RCL-PFC Series	For Fan Coil Units, Unit Ventilators, Chilled Ceilings, Small Air Handling Units and Lighting and Sunblinds when associated to Rcx add-on modules
EC-RTU-L	For roof top unit applications, including those equipped with economizer
EC-HPU-L	For heat pump applications (air or water heat exchange) such as dual mode heat pumps, modulating valves, water to refrigerant heat pumps
ECC-VAV and ECC-VAVS Series	For applications from single duct to fan powered VAV with reheat and radiation heating
Allure™ ECL-STAT	Communicating thermostat for Heat pump, roof top, fan coil and zoning applications

LONWORKS Connectivity Products

Remote I/O for ECC-301, ECC-401 and ECC-520	Designed for sensor value readings, for point monitoring and can serve to extend the capability of an open control system
EC-Display	The EC-Display is the ideal LCD interface for small to medium-sized systems where a PC front-end is not necessary or where rapid access is required, such as in mechanical rooms and offices, providing quick and convenient access to any point on the network

ITR Module

Connected to a lighting or sunblind controller (CTR Series) or to an IRC (RCL-PFC and RCB-PFC Series) through the LONWORKS network, the ITR module is designed to offer 4 additional RJ9 inputs for receivers, multi sensors or push-button interfaces

EC-BOS^{AX}: Multi-protocol Web Building Controllers***EC-BOS-2^{AX*} and EC-BOS-6^{AX*}**

EC-BOS^{AX} real-time control devices support a wide range of protocols including LONWORKS, BACnet, Modbus and Internet standards. The EC-BOS^{AX} control devices connect to system field devices, such as BACnet or LONWORKS controllers, and provide real-time control functions

** Refer to the EC-Net^{AX} Monitoring Section to find EC-BOS-2^{AX} and EC-BOS-6^{AX} datasheets*



Overview

The **ECB-103** is a microprocessor-based programmable controller designed to control terminal units such as fan coil unit, heat pump unit, unit ventilator, and chilled ceilings. This controller uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Application Specific Controllers (B-ASC).

The ECB-103 supports various input types including resistance, voltage, and digital-based ones. Moreover, it provides digital, floating, pulse width modulation, and proportional control outputs for valves, heating elements, fans, and lighting applications.

This controller works with a wide range of sensors, such as those in the Allure™ EC-Smart-Vue series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. The Allure EC-Smart-Vue sensor can be used to commission the system. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of the following applications:
 - Fan Coil Units
 - Heat Pumps
 - Unit Ventilators
 - Chilled Ceilings
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to create operation sequences that meet specific engineering specifications. EC-gfxProgram is accessible through EC-Net^{AX} Pro which is powered by the Niagara^{AX}-based management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 18 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- With 4 software configurable universal inputs and 6 software configurable outputs, this controller covers all industry-standard HVAC terminal applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-103 Controller



Model	ECB-103
Points	10-Point Controller
Universal hardware inputs	4
Allure EC-Smart-View sensor ¹	4
Wireless inputs ²	18
15 Vdc Power Supply	■
Digital (triac) outputs	4
Universal output	2
Product Number	CDIB-103X-01

1. A controller can support a maximum of two Allure EC-Smart-View models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-View models must be without a CO₂ sensor.
2. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

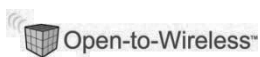
Recommended Applications

Model	ECB-103
2 Pipe Fan Coil	■
2 Pipe Fan Coil with Changeover Sensor	■
4 Pipe Fan Coil	■
Heat Pump Unit	■
Unit Ventilator	■
Chilled Ceiling	■

BACnet Objects List

BACnet Calendar Objects	1
BACnet Schedule Objects	2
BACnet PID Loop Objects	8
BACnet BV Objects	
- Commandable	10
- Non-Commandable	40
BACnet MSV Objects	
- Commandable	10
- Non-Commandable	40
BACnet AV Objects	
- Commandable	25
- Non-Commandable	75

Open-to-Wireless Series – Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.



Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms



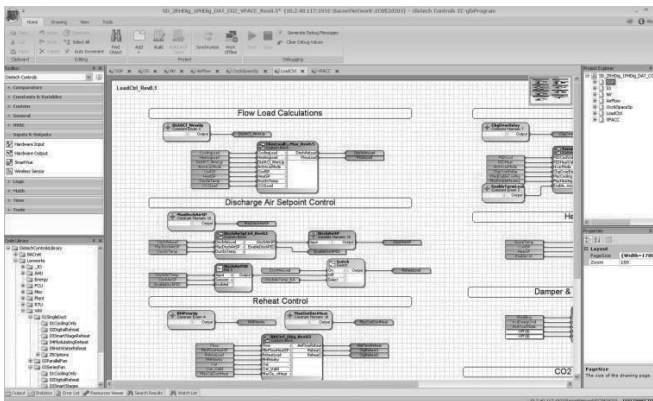
EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LonWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-Net^{AX} Wizards

EC-gfxProgram Graphical Programming Interface (GPI)

Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.



Scheduling Tool

Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.



EC-gfxProgram Software Features:

- Program both ECP Series LonWORKS and ECB Series BACnet controllers with the same tool
- Supplied as freeware – there are no associated licensing costs
- Block-oriented programming
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time
- Furnished with *gfxApplications*: A library of standard pre-coded and tested HVAC sequences that suit most field applications while allowing you to make your own modifications if necessary. For example, this library supports the following applications:
 - VAV
 - Air Handling Unit
 - Fan Coil Unit, and more
- Extensive block library of the most commonly used functions divided into 11 convenient categories containing over 100 block objects
- A code library for managing your favorite or most commonly used code or code sections
- Backup / Restore function stores the complete code in the controller allowing the retrieval of all programming code features
- The following advanced features are available with the ECB Series and ECL Series controllers:
 - Advanced mathematical functions such as sin, cosine, power, exponential, logarithm, and so on
 - For loop can be used to find highest, lowest, and average values

Scheduling Wizard Features


- Easily configure schedules using a graphical slider
- Allows you to easily copy and paste entries
- Duplicate a schedule entry for Monday to Friday
- Special events allow you to set exceptions such as holidays to a schedule
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month
- A schedule has an effective period during which it is active
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches



A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

Other

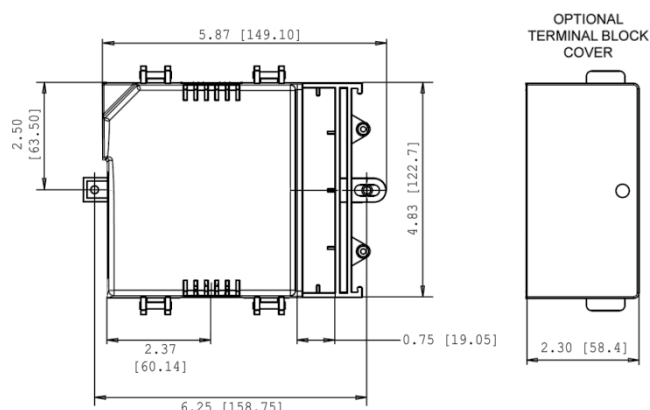


Terminal Block Cover

A cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.

For more information on these or other Distech Controls products please refer to our web site.

Controller Dimensions



Units Legend: inches [mm]

Product Specifications

Power

Voltage	24VAC; $\pm 15\%$; 50/60Hz; Class 2
Protection	2.0A user-replaceable fuse 3.0A user-replaceable fuse for triacs when using the internal power supply
Power Consumption	10 VA typical plus all external loads ¹ 85 VA maximum

Interoperability

Communication Bus	BACnet MS/TP
BACnet Profile	B-ASC1
EOL Resistor	Built-in, jumper selectable
Baud Rates	9600, 19 200, 38 400, or 76 800 bps
Addressing	Dip Switch or Configurable with Allure Allure EC-Smart-Vue sensor

Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit
CPU Speed	68 MHz
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM
Real Time Clock (RTC)	Built-in Real Time Clock without battery Network time synchronization is required at each power-up cycle before the RTC becomes available
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative Humidity	0 to 90% Non-condensing

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions (with Screws)	4.8 L × 5.9 W × 2.5" H (122.7 × 149.1 × 63.0mm)
Shipping Weight	0.92lbs (0.42kg)

Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40kΩ input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249Ω external resistor (wired in parallel)
-Digital	Dry contact
-Pulse	Dry contact; 500ms minimum ON/OFF
-Resistor	0 to 350 KΩ. All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured: <i>Thermistor</i> 10KΩ Type 2, 3 (10KΩ @ 25°C; 77°F) <i>Platinum</i> Pt1000 (1KΩ @ 0°C; 32°F) <i>Nickel</i> RTD Ni1000 (1KΩ @ 0°C; 32°F) RTD Ni1000 (1KΩ @ 21°C; 69.8°F)
Input Resolution	16-bit analog / digital converter
Power Supply Output	15VDC; maximum 80mA (4 inputs × 20mA each)

Outputs

Digital	24 VAC Triac, digital (on/off), PWM, or floating; software configurable - 0.5A continuous - 1A @ 15% duty cycle for a 10-minute period - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period
Universal	External or internal power supply (jumper selectable) 0 to 10VDC linear, digital 0 to 12VDC (on/off), floating or PWM. Built-in snubbing diode to protect against back EMF, for example when used with a 12VDC relay. - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period - 20mA max. @ 12VDC - Minimum resistance 600Ω
Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Wireless Receiver³



Communication	EnOcean wireless standard
Number of wireless inputs ⁴	18
Supported Wireless Receivers	Wireless Receiver (315)
Receivers	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6ft; 2m

Standards and Regulation

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B
FC CE	
UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁵	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁶

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

Allure EC-Smart-Vue Sensor

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **ECB-203 Series** are microprocessor-based programmable controllers designed to control terminal units such as RTUs, FCUs, UVs, HPUs, AHUs, and chilled ceilings. This controller uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Application Specific Controllers (B-ASC).

This series contains two models as follows: ECB-203 and ECB-253. The ECB-203 series models have various input types including resistance, voltage, and digital-based ones. Moreover, it provides digital, floating, pulse width modulation, and proportional control outputs for valves, heating elements, fans, and lighting applications. The ECB-253 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: view, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

Applications

- Meets the requirements of the following applications:
 - Rooftop Units
 - Fan Coil Units
 - Chilled Ceilings
 - Heat Pumps
 - Unit Ventilators
 - Small Air Handling Units
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-Vue series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. During commissioning, an Allure EC-Smart-Vue sensor can be used to perform system air balancing without requiring an onsite controls engineer and to troubleshoot the system. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to create operation sequences that meet specific engineering specifications. EC-gfxProgram is accessible through EC-Net^{AX} Pro which is powered by the Niagara^{AX}-based management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 24 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- With 6 software configurable universal inputs and 8 software configurable outputs, this controller covers all industry-standard HVAC unitary applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-203 Series Controllers



Model	ECB-203	ECB-253
Points	14-Point Controller	14-Point Controller with Color Display
Universal hardware inputs	6	6
Allure EC-Smart-Vue sensor ¹	4	4
Wireless inputs ²	24	24
15 Vdc Power Supply	■	■
Digital (triac) outputs	5	5
Universal output	3	3
Operator interface: Interactive color display to monitor and override controller parameters		■
Product Number	CDIB-203X-00	CDIB-253X-00

1. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
2. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECB-203	ECB-253
Rooftop Unit	■	■
2 Pipe Fan Coil	■	■
2 Pipe Fan Coil with Changeover Sensor	■	■
4 Pipe Fan Coil	■	■
Heat Pump Unit	■	■
Unit Ventilator	■	■
Small Air Handling Unit	■	■
Chilled Ceiling	■	■

BACnet Objects List

BACnet Calendar Objects	1
BACnet Schedule Objects	2
BACnet PID Loop Objects	8
BACnet BV Objects	
- Commandable	10
- Non-Commandable	40
BACnet MSV Objects	
- Commandable	10
- Non-Commandable	40
BACnet AV Objects	
- Commandable	25
- Non-Commandable	75

Additional Features & Benefits for the ECB-253 Model



The ECB-253 has a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms

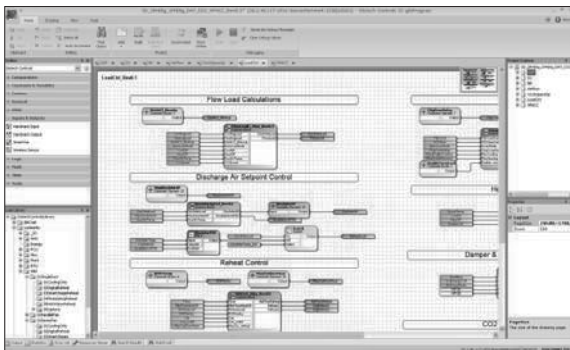


EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-NetAX Wizards

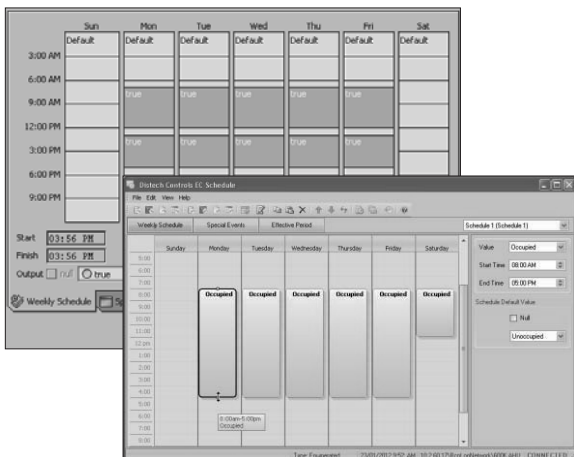
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LonWorks and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.

- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon (🌱) shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

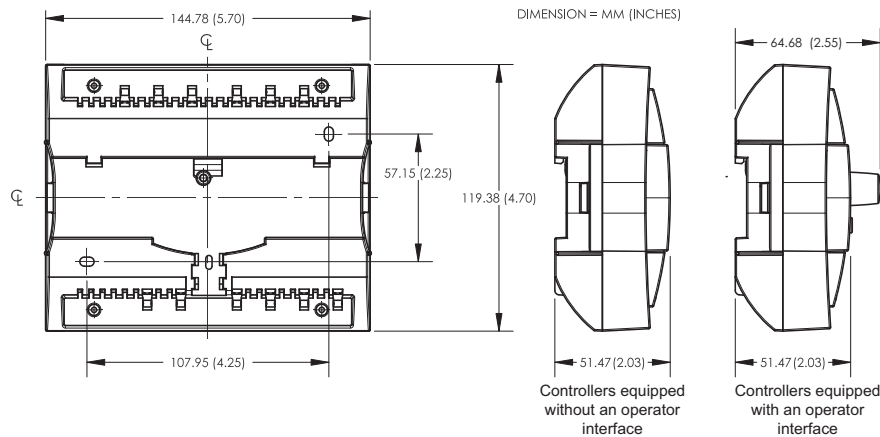


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	2.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance)
Power Consumption		-Current	- 0 to 5VDC (high input impedance)
- ECB-203	14 VA typical plus all external loads ¹ , 23 VA max.	-Digital	0 to 20mA with 249 Ω external resistor (wired in parallel)
- ECB-253	17 VA typical plus all external loads ¹ , 26 VA max.	-Pulse	Dry contact
Interoperability		-Resistor	Dry contact; 500ms minimum ON/OFF
Communication Bus	BACnet MS/TP		0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
BACnet Profile	B-ASC ²	<i>Thermistor</i>	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
EOL Resistor	Built-in, jumper selectable	<i>Platinum</i>	PT1000 (1K Ω @ 0°C; 32°F)
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	<i>Nickel</i>	RTD Ni1000 (1K Ω @ 0°C; 32°F)
Addressing	Dip Switch		RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Hardware		Input Resolution	16-bit analog / digital converter
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Power Supply Output	15VDC; maximum 120mA (6 inputs \times 20mA each)
CPU Speed	68 MHz	Outputs	
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	Digital	24VAC Triac, digital (on/off), floating, or PWM; software configurable
Real Time Clock (RTC)	Built-in Real Time Clock without battery Network time synchronization is required at each power-up cycle before the RTC becomes available		- 0.5A continuous
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx		- 1.0A @ 15% duty cycle for a 10-minute period
Communication Jack	BACnet 1/8" (3.5mm) stereo audio jack		- PWM control: adjustable period from 2 to 65sec.
Environmental			- Floating control:
Operating Temperature			- Min pulse on/off: 500msec.
- ECB-203	-40°C to 70°C; -40°F to 158°F		- Adjustable drive time period
- ECB-253	0°C to 50°C; 32°F to 122°F		External power supply
Storage Temperature	-40°C to 70°C; -40°F to 158°F		0-10VDC linear, digital 0-12VDC (on/off), floating or PWM; software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
Relative Humidity	0 to 90% Non-condensing		- PWM control: adjustable period from 2 to 65sec.
Enclosure			- Floating control:
Material	ABS type PA-765A		- Min pulse on/off: 500msec.
Color	Blue casing & grey connectors		- Adjustable drive time period
Dimensions			- 60mA max. @ 12VDC (60°C; 140°F)
- ECB-203	5.7 L \times 4.7 W \times 2.03" H (144.78 \times 119.38 \times 51.47mm)		- Minimum load resistance 200 Ω
- ECB-253	5.7 L \times 4.7 W \times 2.55" H (144.78 \times 119.38 \times 64.68mm)		- Auto-reset fuse
Shipping Weight			- 60mA @ 60°C; 140°F
- ECB-203	0.97lbs (0.44kg)		- 100mA @ 20°C; 68°F
- ECB-253	1.08lbs (0.49kg)		
Installation	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)	Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Wireless Receiver³

Communication	EnOcean wireless standard
Number of wireless inputs ⁴	24
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁵	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁶

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECB-253 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

Allure EC-Smart-Vue Sensor

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **ECB-300 Series** are microprocessor-based programmable controllers designed to control equipment such as air handling units, chillers, boilers, pumps, and cooling towers. The ECB-300 can also be used for lighting control and power measurement applications. This controller uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Advanced Application Controllers (B-AAC).

This series contains two models as follows: ECB-300 and ECB-350. The ECB-300 series models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECB-350 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

Applications

- Meets the requirements of the following applications:
 - Air Handling Units
 - Chillers
 - Boilers
 - Cooling Towers
 - Heat-Exchangers
 - Pumps
 - Lighting Control
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-View series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to customize controller operation to meet specific engineering requirements. EC-gfxProgram is accessible through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework-based management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- BTL B-AAC-listed, guaranteeing interoperability with other manufacturers' BTL listed controllers.
- With 10 software configurable universal inputs and 8 software configurable universal outputs, this controller covers all small to medium-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- 0-20mA inputs and outputs have a jumper that eliminates the need for external resistors.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware inputs and outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-300 Series Controllers



Model	ECB-300	ECB-350
Points	18-Point Controller	18-Point Controller
Universal hardware inputs	10 ¹	10 ¹
Allure EC-Smart-Vue sensor ²	12	12
Wireless inputs ³	28	28
15 Vdc Power Supply	■	■
Universal outputs	8	8
Operator interface: Interactive color display to monitor and override controller parameters		■
Product Number	CDIB-300X-00	CDIB-350X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an S0 rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECB-300	ECB-350
Air Handling Unit	■	■
Chiller	■	■
Boiler	■	■
Cooling Tower	■	■
Pumps	■	■

BACnet Objects List

BACnet Calendar Objects	2
BACnet Schedule Objects	10
BACnet PID Loop Objects	40
BACnet Input Objects (AI, BI, MSI) ¹	62 ²
BACnet Output Objects (AO, BO) ¹	8 ³
BACnet BV Objects	
- Commandable ¹	15
- Non-Commandable	60
BACnet MSV Objects	
- Commandable ¹	15
- Non-Commandable	60
BACnet AV Objects	
- Commandable ¹	35
- Non-Commandable	100
BACnet Alarm Notification Classes	5

1. Supports object internally-generated alarms (intrinsic reporting).
2. This consists of Hardware Inputs, Allure EC-Smart-Vue inputs, and Open-To-Wireless inputs.
3. This consists of Hardware Outputs.

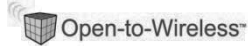
Additional Features & Benefits for the ECB-350 Model



The ECB-650 has a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms

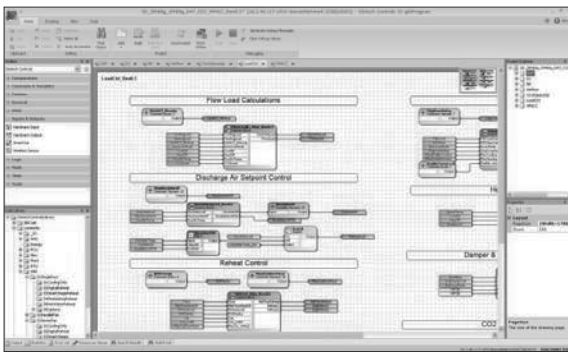


EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-Net^{AX} Wizards

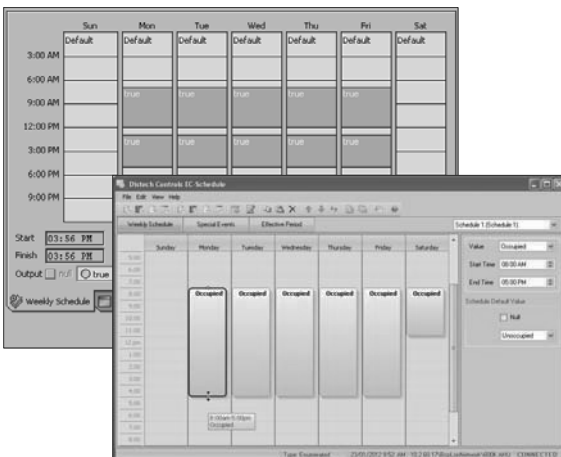
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

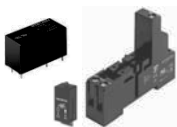


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

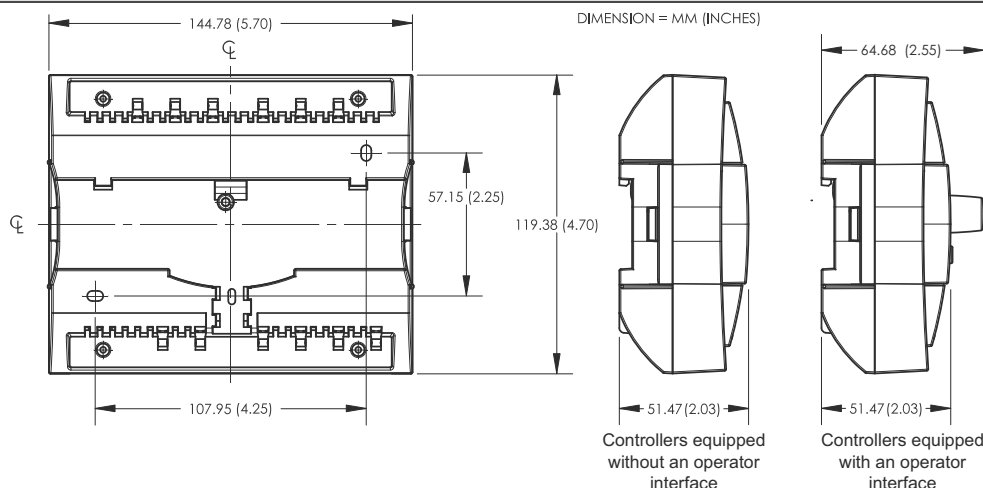
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Product Specifications

Power

Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2
Protection	3.0A user-replaceable fuse
Power Consumption	
- ECB-300	16 VA typical plus all external loads ¹ , 38 VA max.
- ECB-350	19 VA typical plus all external loads ¹ , 41 VA max.

Interoperability

Communication Bus	BACnet MS/TP
BACnet Profile	B-AAC ²
EOL Resistor	Built-in, jumper selectable
Baud Rates	9600, 19 200, 38 400, or 76 800 bps
Addressing	Dip Switch

Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit
CPU Speed	72 MHz
Memory	1 MB Non-volatile Flash (applications) 2 MB Non-volatile Flash (storage) 96 kB RAM
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery Network time synchronization is initially required
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx
Communication Jack	BACnet 1/8" (3.5mm) stereo audio jack

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative Humidity	0 to 90% Non-condensing

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions	
- ECB-300	5.7 L x 4.7 W x 2.03" H (144.78 x 119.38 x 51.47mm)
- ECB-350	5.7 L x 4.7 W x 2.55" H (144.78 x 119.38 x 64.68mm)
Shipping Weight	
- ECB-300	0.97lbs (0.44kg)
- ECB-350	1.08lbs (0.49kg)

Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40kΩ input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249Ω jumper configurable internal resistor
-Digital	Dry contact
-Pulse	UI1 to UI4: 50Hz maximum; Min 10ms On/10ms Off - SO output compatible UI5 to UI10: 1Hz maximum; Min 500ms On/500ms Off - Dry contact
-Resistor	0 to 350 KΩ. All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Thermistor	10KΩ Type 2, 3 (10KΩ @ 25°C; 77°F)
Platinum	Pt1000 (1KΩ @ 0°C; 32°F)
Nickel	RTD Ni1000 (1KΩ @ 0°C; 32°F) RTD Ni1000 (1KΩ @ 21°C; 69.8°F)
Input Resolution	16-bit analog / digital converter
Power Supply Output	15VDC; maximum 200mA (10 inputs x 20mA each)

Outputs

Universal	0-10VDC linear, digital 0-12VDC (on/off), floating PWM, or 0-20mA (jumper configurable); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay. - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period - 60mA max. @ 12VDC (60°C; 140°F)
Load resistance	- Minimum 200Ω for 0-10VDC and 0-12VDC outputs - Maximum 500Ω for 0-20mA output
Auto-reset fuse	- 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F
Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Wireless Receiver³

Communication	EnOcean wireless standard
Number of wireless inputs ⁴	28
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class A



UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁵	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁶

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-View sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECB-350 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

Allure EC-Smart-View Sensor

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Total Quality Commitment

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Overview

The **ECB-400 Series** are microprocessor-based programmable controllers designed to control various building automation applications such as air handling units, multi-zone applications, chillers, boilers, pumps, cooling towers, and roof top units. The ECB-400 Series can also be used for lighting control applications. This controller uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Advanced Application Controllers (B-AAC).

This series contains six models: ECB-400, ECB-403, ECB-410, ECB-413, ECB-450, and ECB-453. These models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECB-450 and ECB-453 models have a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-Vue series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, these controllers are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Custom program these controllers using EC-gfxProgram through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of the following applications:
 - Air Handling Units
 - Multi-Zone Applications
 - Chillers
 - Boilers
 - Cooling Towers
 - Roof Top Units
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to customize controller operation to meet specific engineering requirements. EC-gfxProgram is accessible through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework -based management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- BTL B-AAC-listed, guaranteeing interoperability with other manufacturers' BTL listed controllers.
- With 12 software configurable universal inputs and 12 software configurable outputs, this controller series covers all medium to large-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- 0-20mA inputs and outputs use an internal jumper that eliminates the need for external resistors.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Supervised HOA switches and potentiometers, allowing you to override control actions for testing purposes or when performing equipment maintenance.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-400 Series Controllers



Model	ECB-400	ECB-403	ECB-410	ECB-413	ECB-450	ECB-453
Points	24-Point Controller	24-Point Controller	24-Point Controller with HOA	24-Point Controller with HOA	24-Point Controller with Color Display	24-Point Controller with Color Display
Universal hardware inputs	12 ¹	12 ¹	12 ¹	12 ¹	12 ¹	12 ¹
Allure EC-Smart-View ²	12	12	12	12	12	12
Wireless inputs ³	28	28	28	28	28	28
15 Vdc Power Supply	■	■	■	■	■	■
Digital (triac) outputs		8		8		8
Universal outputs	12	4	12	4	12	4
HOA switch & potentiometer			■	■		
Operator interface: Interactive color display to monitor and override controller parameters					■	■
Product Number	CDIB-400X-00	CDIB-403X-00	CDIB-410X-00	CDIB-413X-00	CDIB-450X-00	CDIB-453X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an S0 rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-View models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-View models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

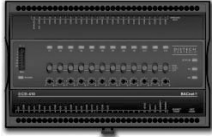
Model	ECB-400	ECB-403	ECB-410	ECB-413	ECB-450	ECB-453
Roof Top		■		■		
Air Handling Unit	■	■	■	■	■	■
Multi-zone Application	■		■		■	■
Chiller	■	■	■	■	■	■
Boiler	■	■	■	■	■	■
Cooling Tower	■	■	■	■	■	■

BACnet Objects List

Model	ECB-400	ECB-403	ECB-410	ECB-413	ECB-450	ECB-453
BACnet Calendar Objects	2	2	2	2	2	2
BACnet Schedule Objects	10	10	10	10	10	10
BACnet PID Loop Objects	30	30	30	30	30	30
BACnet Input Objects (AI, BI, MSI) ¹	64 ²	64 ²	64 ²	64 ²	64 ²	64 ²
BACnet Output Objects (AO, BO) ¹	12 ³	4 ³	12 ³	4 ³	12 ³	4 ³
BACnet BV Objects						
- Commandable ¹	20	20	20	20	20	20
- Non-Commandable	55	55	55	55	55	55
BACnet MSV Objects						
- Commandable ¹	20	20	20	20	20	20
- Non-Commandable	55	55	55	55	55	55
BACnet AV Objects						
- Commandable ¹	35	35	35	35	35	35
- Non-Commandable	115	115	115	115	115	115
BACnet Alarm Notification Classes	5	5	5	5	5	5

1. Supports object internally-generated alarms (intrinsic reporting) which are dynamically instantiated upon object creation.
2. This consists of Hardware Inputs, Allure EC-Smart-View inputs, and Open-To-Wireless inputs.
3. This consists of Hardware Outputs.

Additional Features & Benefits for the ECB-410, ECB-413, ECB-450, and ECB-453 Models



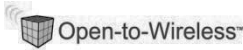
The ECB-410 and ECB-413 have supervised Hand-Off-Auto (HOA) switches and potentiometers provide feedback to the software of an operator's manual override of an output. HOA switches are ideal for testing purposes or when performing equipment commissioning and maintenance.



The ECB-450 and ECB-453 have a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
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Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

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Supported Platforms

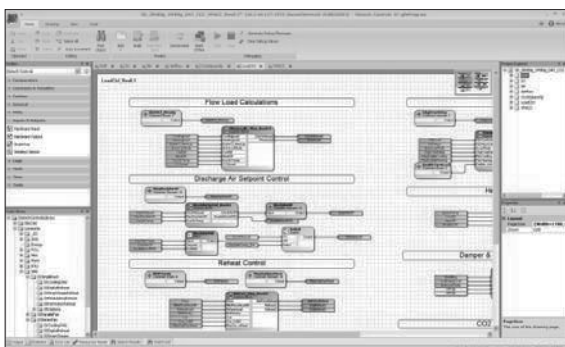


EC-Net^{AX} Solution

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EC-Net^{AX} Wizards

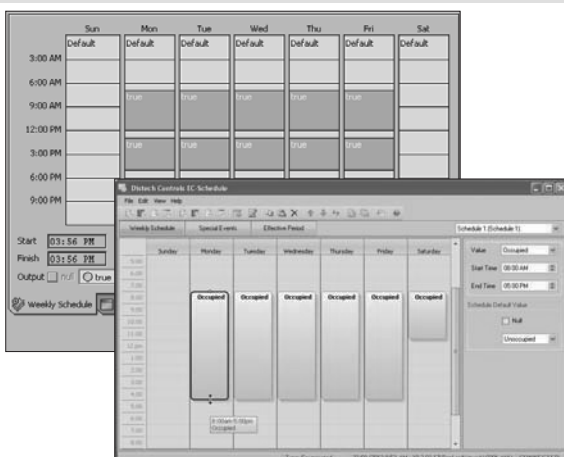
EC-gfxProgram Graphical Programming Interface (GPI)



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- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

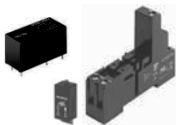


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

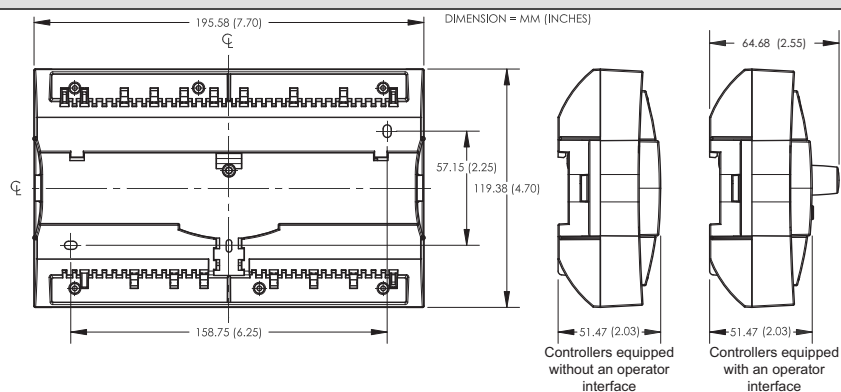
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
Power Consumption		-Current	0 to 20mA with 249 Ω jumper configurable internal resistor
- ECB-400/ECB-410	22 VA typical plus all external loads ¹ , 60 VA max.	-Digital	Dry contact
- ECB-403/ECB-413	22 VA typical plus all external loads ¹ , 50 VA max.	-Pulse	UI1 to UI4; 50Hz maximum; Min 10ms On/10ms Off - SO output compatible
- ECB-450	25 VA typical plus all external loads ¹ , 63 VA max.		UI5 to UI12: 1Hz maximum; Min 500ms On/500ms Off
- ECB-453	25 VA typical plus all external loads ¹ , 53 VA max.		- Dry contact
Interoperability		-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Communication Bus	BACnet MS/TP	Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
BACnet Profile	B-AAC ²	Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
EOL Resistor	Built-in, jumper selectable	Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Input Resolution	16-bit analog / digital converter
Addressing	Dip Switch	Power Supply Output	15VDC; maximum 240mA (12 inputs \times 20mA each)
Hardware		Outputs	
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Digital	24VAC Triac, digital (on/off), floating, or PWM; software configurable
CPU Speed	72 MHz		- 0.5A continuous
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery Network time synchronization is initially required		- 1A @ 15% duty cycle for a 10-minute period
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles		- PWM control: adjustable period from 2 to 65sec.
Memory	1 MB Non-volatile Flash (applications) 2 MB Non-volatile Flash (storage) 96 kB RAM		- Floating control:
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx		- Min pulse on/off: 500msec.
Communication Jack	BACnet 1/8" (3.5mm) stereo audio jack		- Adjustable drive time period
Environmental		Universal	External power supply 0-10VDC linear, digital 0-12VDC (on/off), floating PWM, or 0-20mA (jumper configurable); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
Operating Temperature	0°C to 50°C; 32°F to 122°F		- PWM control: adjustable period from 2 to 65sec.
Storage Temperature	-20°C to 50°C; -4°F to 122°F		- Floating control:
Relative Humidity	0 to 90% Non-condensing		- Min pulse on/off: 500msec.
Enclosure			- Adjustable drive time period
Material	FR/ABS		- HOA: Hand-Off-Auto switch (when equipped)
Color	Black & blue casing & grey connectors		- Hand position potentiometer range: 0-12.5VDC
Dimensions			- 60mA max. @ 12VDC (60°C; 140°F)
- ECB-400/ECB-403/ECB-410/ECB-413	7.7 L \times 4.7 W \times 2.03" H (195.58 \times 119.38 \times 51.47mm)		- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs
- ECB-450/ECB-453	7.7 L \times 4.7 W \times 2.55" H (195.58 \times 119.38 \times 64.68mm)		- Maximum 500 Ω for 0-20mA output
Shipping Weight		Load Resistance	- 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F
- ECB-400/ECB-403/ECB-410/ECB-413	1.17lbs (0.53kg)	Auto-reset Fuse	
- ECB-450/ECB-453	1.28lbs (0.58kg)	Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Wireless Receiver³

Communication	EnOcean wireless standard
Number of wireless inputs ⁴	28
Supported Wireless Receivers	Wireless Receiver (315)
	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁵	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁶

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-View sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECB-450 & ECB-453 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

Allure EC-Smart-View Sensor

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

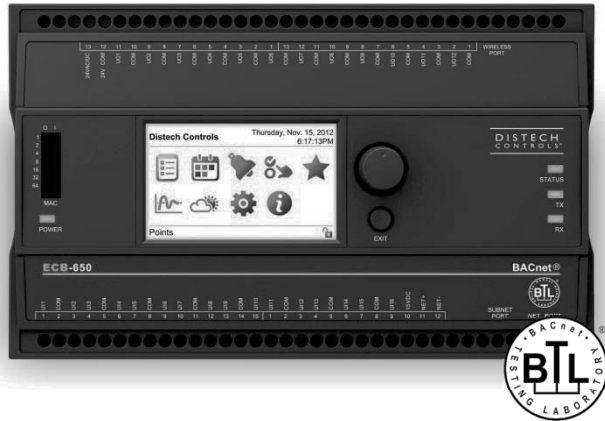
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ECB-600 and ECx-400 Series

BACnet B-AAC Programmable Controllers and I/O Extension Modules



Overview

The **ECB-600 Series** are microprocessor-based programmable controllers designed to control various building automation applications such as air handling units, chillers, boilers, pumps, cooling towers, and central plant applications. This series supports up to two ECx modules. These are I/O extension modules that operate off of a separate sub-bus, giving this controller a total of up to 40 universal inputs and 36 universal outputs. This controller uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Advanced Application Controllers (B-AAC).

This series contains three models as follows: ECB-600, ECB-610, and ECB-650. The ECB-600 series models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECB-650 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: view, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms. The ECB-610 model has the convenience of supervised Hand-Off-Auto (HOA) switches and potentiometers for supervised manual override of an output.

All controller models work with a wide range of sensors, such as those in the Allure™ EC-Smart-View series of communicating room sensors that feature a backlit-display and graphical menus. In addition, all controller models are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Custom program these controllers using EC-gfxProgram through EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

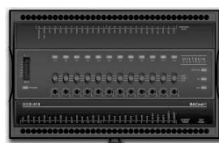
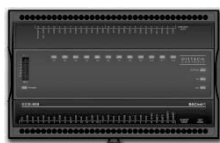
Applications

- Meets the requirements of the following applications:
 - Central Plant
 - Air Handling Units
 - Multi-Zone Applications
 - Chillers
 - Boilers
 - Cooling Towers
 - Roof Top Units
 - Power Measurement
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to create operation sequences that meet specific engineering specifications. EC-gfxProgram is accessible through EC-Net^{AX} Pro which is powered by the Niagara^{AX}-based management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- With 16 software configurable universal inputs and 12 software configurable universal outputs, this controller series covers all medium to large-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- With up to two extendible I/O modules that operate off of a separate sub-bus, this controller can have a total of up to 40 universal inputs and 36 universal outputs.
- 0-20mA inputs and outputs use an internal jumper that eliminates the need for external resistors.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Supervised HOA switches and potentiometers, allowing you to override control actions for testing purposes or when performing equipment maintenance.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-600 Series Controllers



Model	ECB-600	ECB-610	ECB-650
Points	28-Point Controller	28-Point Controller with HOA	28-Point Controller with Color Display
Universal hardware inputs	16 ¹	16 ¹	16 ¹
Allure EC-Smart-View sensor ²	12	12	12
Wireless inputs ³	28	28	28
15 Vdc Power Supply	■	■	■
Universal outputs	12	12	12
HOA switch & potentiometer		■	
Operator interface: Interactive color display to monitor and override controller parameters			■
Number of ECx Modules Supported	2	2	2
Product Number	CDIB-600X-00	CDIB-610X-00	CDIB-650X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an SO rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-View models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-View models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

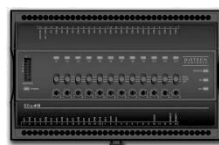
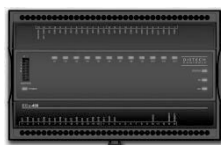
Model	ECB-600	ECB-610	ECB-650
Air Handling Units	■	■	■
Multi-Zone Application	■	■	■
Chiller	■	■	■
Boiler	■	■	■
Cooling Tower	■	■	■
Central Plant	■	■	■

BACnet Objects List

BACnet Calendar Objects	2
BACnet Schedule Objects	10
BACnet PID Loop Objects	30
BACnet Input Objects (AI, BI, MSI) ¹	68 ²
BACnet Output Objects (AO, BO) ¹	12 ³
BACnet BV Objects	
- Commandable ¹	20
- Non-Commandable	55
BACnet MSV Objects	
- Commandable ¹	20
- Non-Commandable	55
BACnet AV Objects	
- Commandable ¹	35
- Non-Commandable	115
BACnet Alarm Notification Classes	5

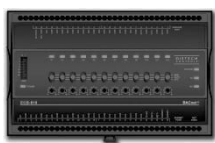
1. Supports object internally-generated alarms (intrinsic reporting) which are dynamically instantiated upon object creation.
2. This consists of Hardware Inputs, Allure EC-Smart-View inputs, and Open-To-Wireless inputs. Each ECx-400, ECx-410, or ECx-420 adds 12 input objects.
3. This consists of Hardware Outputs. Each ECx-400 or ECx-410 adds 12 output objects.

ECx-400 Series I/O Extension Modules



Model	ECx-400	ECx-410	ECx-420
Additional Points	24-Point I/O Extension Module	24-Point I/O Extension Module	12-Point I/O Extension Module
Universal hardware inputs	12	12	12
15 Vdc Power Supply	■	■	■
Universal outputs	12	12	0
HOA switch		■	
Product Number	CDIX-400X-00	CDIX-410X-00	CDIX-420X-00

Additional Features & Benefits for the ECB-610 and ECB-650 Models



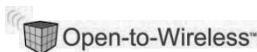
The ECB-610 has supervised Hand-Off-Auto (HOA) switches and potentiometers provide feedback to the software of an operator's manual override of an output. HOA switches are ideal for testing purposes or when performing equipment commissioning and maintenance.



The ECB-650 has a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

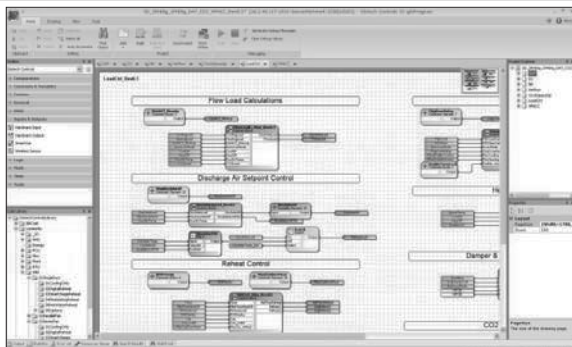
Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

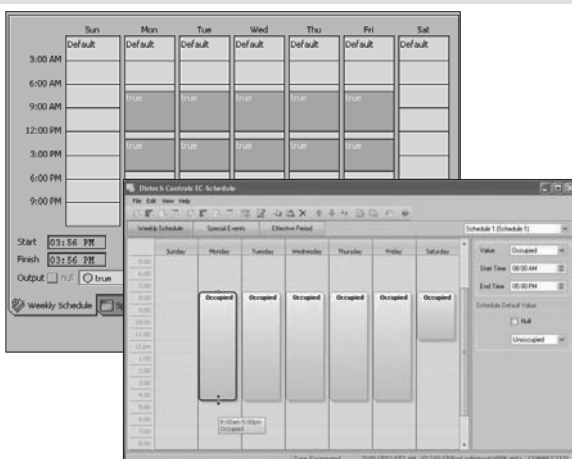
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections or use *gfxApplications* which allows you to fine-tune the code to meet engineering-specific requirements, while providing full integration of ready-to-use Px graphics pages from dc *gfxApplications*.

EC-Net^{AX} Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

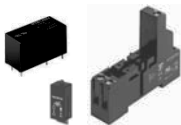


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

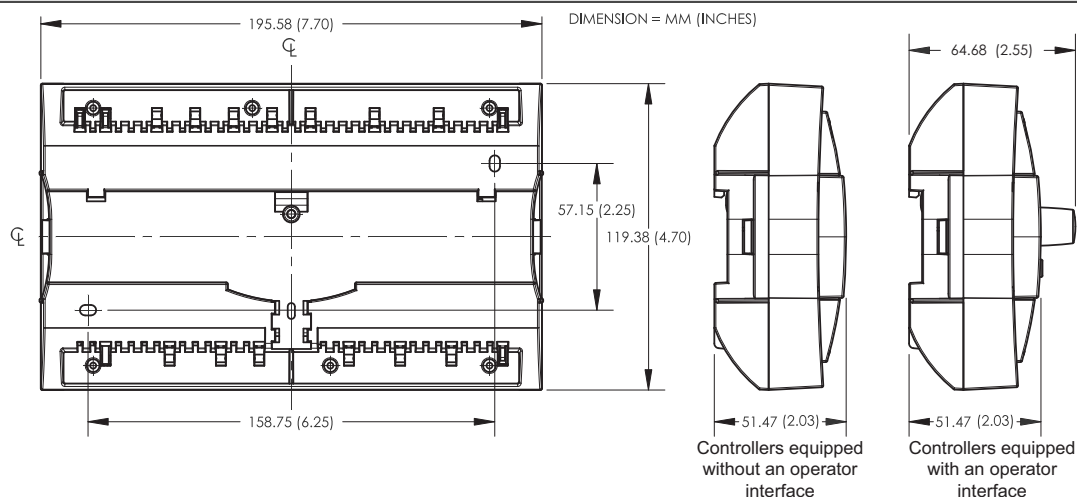
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

ECB-600 Series Controller Dimensions



ECB-600 Series Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
Power Consumption		-Current	0 to 20mA with 249 Ω jumper configurable internal resistor
- ECB-600/ECB-610	22 VA typical plus all external loads ¹ , 65 VA max.	-Digital	Dry contact
- ECB-650	25 VA typical plus all external loads ¹ , 68 VA max.	-Pulse	UI1 to UI4: 50Hz maximum; Min 10ms On/10ms Off - SO output compatible UI5 to UI16: 1Hz maximum; Min 500ms On/500ms Off - Dry contact
Interoperability		-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Communication Bus	BACnet MS/TP	<i>Thermistor</i>	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
BACnet Profile	B-AAC ¹	<i>Platinum</i>	Pt1000 (1K Ω @ 0°C; 32°F)
EOL Resistor	Built-in, jumper selectable	<i>Nickel</i>	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Input Resolution	16-bit analog / digital converter
Addressing	Dip Switch	Power Supply Output	15VDC; maximum 320mA (16 inputs \times 20mA each)
Hardware		Outputs	
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Universal	0-10VDC linear, digital 0-12VDC (on/off), floating PWM, or 0-20mA (jumper configurable); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
CPU Speed	72 MHz		- PWM control: adjustable period from 2 to 65sec.
Memory	1 MB Non-volatile Flash (applications) 2 MB Non-volatile Flash (storage) 96 kB RAM		- Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery Network time synchronization is initially required		- HOA: Hand-Off-Auto switch (when equipped) - Hand position potentiometer range: 0-12.5VDC
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles		- 60mA max. @ 12VDC (60°C; 140°F)
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx	Load resistance	- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs - Maximum 500 Ω for 0-20mA output
Communication Jack	BACnet 1/8" (3.5mm) stereo audio jack	Auto-reset fuse	- 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F
Environmental		Output Resolution	10-bit digital / analog converter
Operating Temperature	0°C to 50°C; 32°F to 122°F		
Storage Temperature	-20°C to 50°C; -4°F to 122°F		
Relative Humidity	0 to 90% Non-condensing		
Enclosure			
Material	FR/ABS		
Color	Black & blue casing & grey connectors		
Dimensions			
- ECB-600/ECB-610	7.7 L \times 4.7 W \times 2.03" H (195.58 \times 119.38 \times 51.47mm)		
- ECB-650	7.7 L \times 4.7 W \times 2.55" H (195.58 \times 119.38 \times 64.68mm)		
Shipping Weight			
- ECB-600/ECB-610	1.17lbs (0.53kg)		
- ECB-650	1.28lbs (0.58kg)		

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-View sensor. Refer to the respective module's datasheet for related power consumption information.

ECB-600 Series Product Specifications (continued)

Wireless Receiver²

Communication	EnOcean wireless standard
Number of wireless inputs ³	28
Supported Wireless Receivers	Wireless Receiver (315)
	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁴	Plastic housing, UL94-5VB flammability rating
	Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁵

1. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
2. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
3. Some wireless modules may use more than one wireless input from the controller.
4. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
5. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECB-650 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Turn-and-select pushbutton navigation wheel,

Allure EC-Smart-Vue Sensor

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

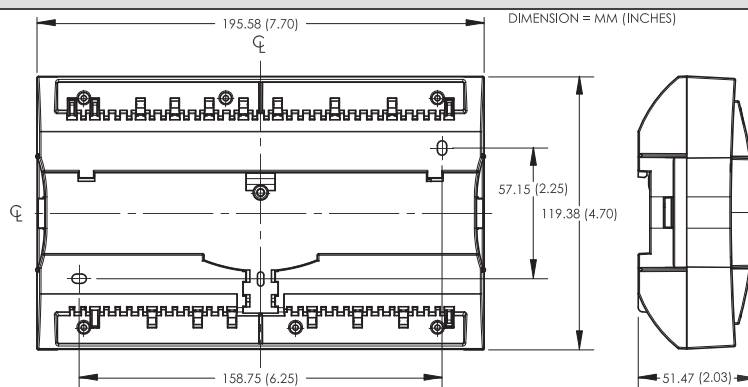
I/O Extension Modules (ECx Series)

Communication	RS-485
Number of I/O Extension Modules per controller	Up to 2, in daisy-chain configuration

Communication Protocols



ECx-400 Series Extendible I/O Module Dimensions



ECx-400 Series Extendible I/O Module Specifications

Power

Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2
Protection	3.0A user-replaceable fuse
Power Consumption;	22 VA typical plus all output loads
ECx-400/ECx-410	50 VA maximum
Power Consumption;	10 VA typical
ECx-420	16 VA maximum

Communication

Communication Bus	RS-485
Baud Rate	38 400 bps
Addressing	Dip Switch

Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit; 64 MHz
Memory	64 kB Non-volatile Flash (applications and storage) 20 kB RAM
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Module Status & LAN Rx

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative Humidity	0 to 90% Non-condensing

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions	7.7 L x 4.7 W x 2.03" H (195.58 x 119.38 x 51.47mm)
Shipping Weight	1.17lbs (0.53kg)

Standards and Regulation

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



UL Listed (CDN & US)
Material¹

UL916 Energy management equipment
Plastic housing, UL94-5VB flammability rating
Plenum rating per UL1995



Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249 Ω jumper configurable internal resistor
-Digital	Dry contact
-Pulse	1Hz maximum, 500ms On/500ms Off - Dry contact
-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Input Resolution	16-bit analog / digital converter
Power Supply Output	15VDC; maximum 240mA (12 inputs x 20mA each)

Outputs

Universal	0-10VDC linear, digital 0-12VDC (on/off), floating PWM, or 0-20mA (jumper configurable); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
	- PWM control: adjustable period from 2 to 65sec.
	- Floating control:
	- Min pulse on/off: 500msec.
	- Adjustable drive time period
	- HOA: Hand-Off-Auto switch (when equipped)
	- Hand position potentiometer range: 0-12.5VDC
	- 60mA max. @ 12VDC (60°C; 140°F)
Load resistance	- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs
	- Maximum 500 Ω for 0-20mA output
Auto-reset fuse	- 60mA @ 60°C; 140°F
	- 100mA @ 20°C; 68°F
Output Resolution	10-bit digital / analog converter

1. All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

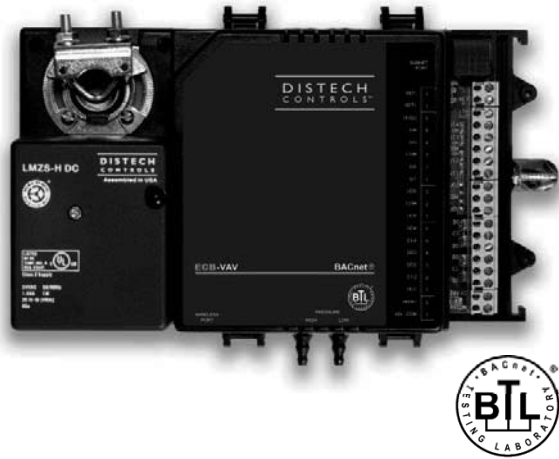
Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **ECB-VAV Series** are microprocessor-based programmable variable air volume (VAV) controllers designed to control any variable air volume box. Each controller uses the BACnet® MS/TP LAN communication protocol and are BTL®-Listed as BACnet Application Specific Controllers (B-ASC).

This series contains five models as follows: ECB-VAVS-O, ECB-VAVS, ECB-VAV, ECB-VVTS, and ECB-VAV-N. Models with inputs support various measurement types including resistance, voltage, and digital-based ones. All models provide digital, floating, pulse width modulation, and proportional control outputs for valves, heating elements, fans, and lighting applications. In particular, the ECB-VAVS-O, ECB-VAVS, ECB-VAV, and ECB-VAV-N models have an on-board air flow sensor with a range of 0-2 inches of water column (500 Pascal) and the ECB-VAVS-O, ECB-VAVS, ECB-VAV, and ECB-VVTS models have a built-in brushless actuator for precise damper positioning for loads requiring up to 35 inch-pounds (4 Newton-meters) of torque.

All controller models work with the Allure™ EC-Smart-View series of communicating sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, and occupancy state override. An Allure EC-Smart-View sensor can be used to perform system air balancing without requiring an onsite controls engineer and to commission and troubleshoot the system. In addition, all controller models are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Factory preloaded applications allow these controllers, straight out of the box, to operate standard VAV equipment with a proven energy-efficient sequence of operation thereby eliminating the need for programming. The preloaded application can be selected using an Allure EC-Smart-View sensor even before the network has been installed for rapid deployment or through the EC-Net^{AX} solution using Distech Controls' *dcmfx* Applications. Or use EC-*gfx* Program through EC-Net^{AX} Pro, which is powered by the Niagara^{AX} Framework®. These same controllers are fully programmable to allow you to easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of VAV zone applications, including:
 - Cooling Only VAV Boxes
 - Cooling with Reheat VAV Boxes
 - Parallel Fan VAV Boxes
 - Series Fan VAV Boxes
 - Dual-Duct VAV Systems
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Preloaded applications save setup time: One technician can locally configure and troubleshoot the VAV with an Allure EC-Smart-View sensor without any need for a programming interface.
- Integrated VAV Performance Assessment Control Charts (VPACC) control sequences, provides a means of automatically detecting when the VAV is operating outside of its design parameters including: Persistent High / Low Space Temperature, Persistent High / Low Discharge Temperature, Persistent High / Low Air Flow, and Unstable Air Flow.
- BTL B-ASC-listed, guaranteeing interoperability with other manufacturers' BTL listed controllers.
- Accurate on-board air flow sensor for precise air flow monitoring and control at low and high air flow rates permitting you to design for maximum energy efficiency while maintaining an optimal comfort level (ECB-VVTS models).
- Built-in actuator with a brushless motor and integrated position feedback system eliminates periodic damper re-initialization and ensures worry-free operation, providing increased occupant comfort and extended service life (except ECB-VAV-N models).
- Optimized air balancing process saves time during commissioning: The flow sensor requires no zero flow calibration, and its variable-speed motor goes to minimum and maximum flow settings in half the time of typical VAV actuators.

Features & Benefits (continued)

- Available with an optional Wireless Receiver that supports up to 18 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches. With up to 4 software configurable universal inputs and up to 6 software configurable outputs, this controller series covers all industry-standard VAV applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom to use your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECB-VAV Series Controllers



Model	ECB-VAVS-O	ECB-VAVS	ECB-VAV	ECB-VVTS	ECB-VAV-N
Points	5-Point VAV	7- Point VAV	12- Point VAV	6- Point VVT	11- Point VAV
Universal hardware inputs	0	2	4	2	4
Built-in flow sensor	■	■	■	■	■
Allure EC-Smart-View ¹	4	4	4	4	4
Wireless inputs ²	18	18	18	18	18
15 Vdc Power Supply	■	■	■	■	■
Universal output	1	1	2	1	2
Digital (triac) outputs	2	2	4	2	4
Built-in Actuator	■	■	■	■	■
Product Number	CDIB-VASO-01	CDIB-VASX-01	CDIB-VAXX-01	CDIB-VTSX-01	CDIB-VANX-01

- A controller can support a maximum of two Allure EC-Smart-View models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-View models must be without a CO₂ sensor.
- All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECB-VAVS-O	ECB-VAVS	ECB-VAV	ECB-VVTS	ECB-VAV-N
Cooling Only VAV Box	■	■		■	
Cooling w/ Reheat VAV Box	■	■		■	
Cooling w/ Reheat VAV Box & Perimeter Heating			■		
Parallel Fan VAV Box			■		
Series Fan VAV Box			■		
Dual Duct VAV Box ^{1 3}	■	■			
Large Damper VAV Box ²					■
Existing Damper Actuator					■
Room Pressurization			■		

- Two controllers are required or one controller with an external flow sensor and actuator.
- Requiring More Than 35 in-lb (4 Nm) Actuator Torque.
- This configuration is not supported by factory preloaded applications. Programming is required.

BACnet Objects List

BACnet Calendar Objects	1
BACnet Schedule Objects	2
BACnet PID Loop Objects	8
BACnet BV Objects	
- Commandable	10
- Non-Commandable	40
BACnet MSV Objects	
- Commandable	10
- Non-Commandable	40
BACnet AV Objects	
- Commandable	25
- Non-Commandable	75

Open-to-Wireless Series – Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms

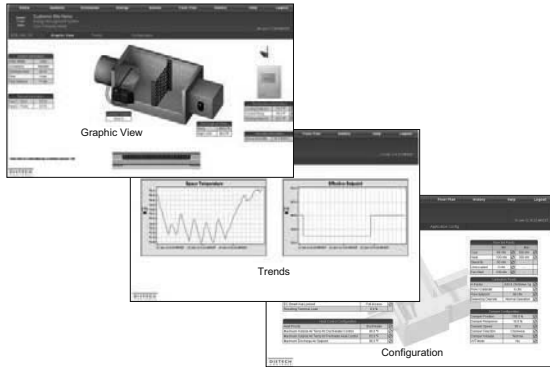


EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-Net^{AX} Wizards

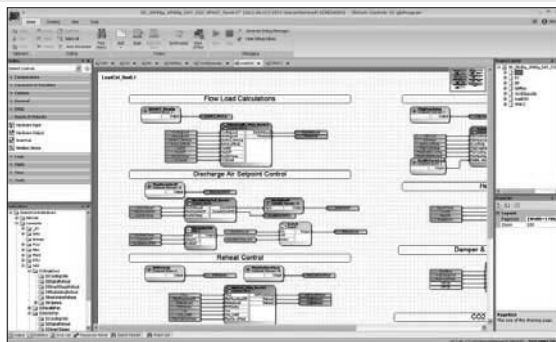
EC-Net^{AX} Px Graphics Page Support for Preloaded Applications with EC-Net^{AX} dc *gfxApplications*



In the EC-Net^{AX} solution, dc *gfxApplications* provide ready-to-use Px graphics pages for the ECB/ECL-VAV series of factory preloaded controllers. Once the controller is online, select any one of the standard VAV pre-configured controller applications to use. This provides a proven energy-efficient sequence of operation without any need for programming.

The graphics on the Px graphics page automatically update to show the currently selected controller application, the current VAV box's operational parameters with the ability to configure and override operation.

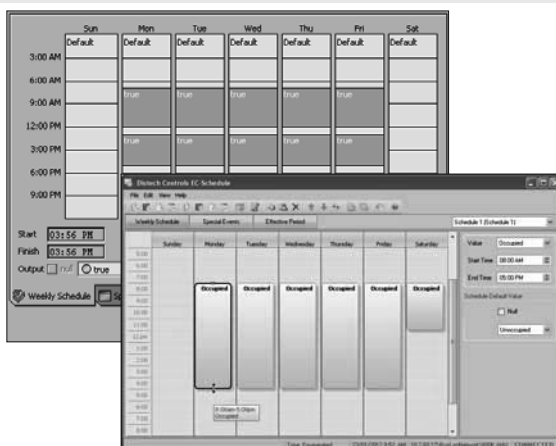
EC-*gfxProgram* Graphical Programming Interface (GPI)



Distech Controls' EC-*gfxProgram* is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-*gfxProgram* datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections or use *gfxApplications* which allows you to fine-tune the code to meet engineering-specific requirements, while providing full integration of ready-to-use Px graphics pages from dc *gfxApplications*.

EC-Net^{AX} Scheduling / EC-*gfxProgram* EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), or directly from within EC-*gfxProgram* (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches



A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

Other

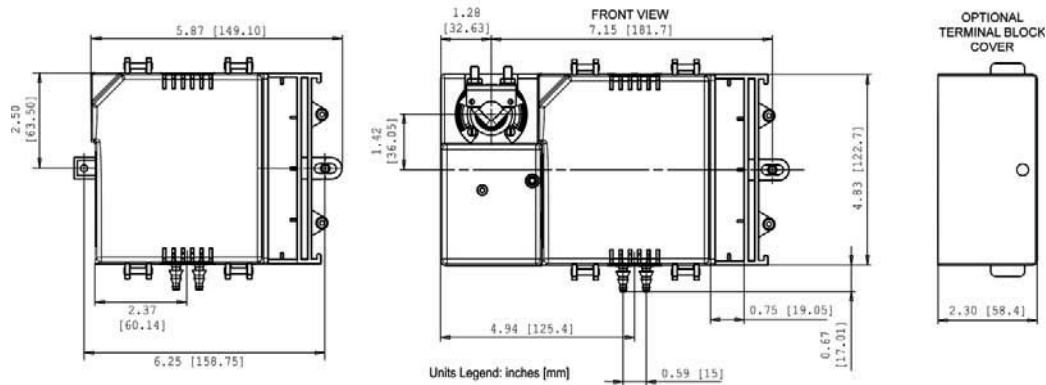


VAV Terminal Block
Cover

A cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.

For more information on these or other Distech Controls products please refer to our web site.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC; ±15%; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	2.0A user-replaceable fuse 3.0A user-replaceable fuse for triacs when using the internal power supply	-Voltage	- 0 to 10VDC (40kΩ input impedance) - 0 to 5VDC (high input impedance)
Power Consumption	10 VA typical plus all external loads ¹ 85 VA maximum	-Current	0 to 20mA with 249Ω external resistor (wired in parallel)
Interoperability		-Digital	Dry contact
Communication Bus	BACnet MS/TP	-Pulse	Dry contact; 500ms minimum ON/OFF
BACnet Profile	B-ASC ²	-Resistor	0 to 350 KΩ. All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
EOL Resistor	Built-in, jumper selectable	Thermistor	10KΩ Type 2, 3 (10KΩ @ 25°C; 77°F)
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Platinum	Pt1000 (1KΩ @ 0°C; 32°F)
Addressing	Dip Switch or Configurable with Allure EC-Smart-Vue sensor	Nickel	RTD Ni1000 (1KΩ @ 0°C; 32°F) RTD Ni1000 (1KΩ @ 21°C; 69.8°F)
Hardware		Input Resolution	16-bit analog / digital converter
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Differential Pressure	0 to 2.0 in. W.C. (0 to 500 Pa)
CPU Speed	68 MHz	-Input Resolution	0.00007 in. W.C. (0.0167 Pa)
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	-Air Flow Accuracy	±4.0% @ > 0.05 in. W.C. (12.5 Pa) ±1.5% once calibrated through air flow balancing @ > 0.05 in. W.C. (12.5 Pa)
Real Time Clock (RTC)	Built-in Real Time Clock without battery: Network time synchronization is required at each power-up cycle before the RTC becomes available	Power Supply Output	15VDC; maximum 80mA (4 inputs × 20mA each)
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx	Outputs	
Environmental		Digital	24 VAC Triac, digital (on/off), PWM, or floating; software configurable - 0.5A continuous - 1A @ 15% duty cycle for a 10-minute period - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period
Operating Temperature	0°C to 50°C; 32°F to 122°F	Universal	External or internal power supply (jumper selectable)
Storage Temperature	-20°C to 50°C; -4°F to 122°F		0 to 10VDC linear, digital 0 to 12VDC (on/off), floating or PWM. Built-in snubbing diode to protect against back EMF, for example when used with a 12VDC relay.
Relative Humidity	0 to 90% Non-condensing		- PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period
Enclosure			- 20mA max. @ 12VDC - Minimum resistance 600Ω
Material	FR/ABS	Output Resolution	10-bit digital / analog converter
Color	Black & blue casing & grey connectors		
Dimensions (with Screws)			
- ECB-VAV-N	4.8 L × 5.9 W × 2.5" H (122.7 mm × 149.1 mm × 63.0 mm)		
- Other models	4.8 L × 8.4 W × 2.5" H (122.7 mm × 214.3 mm × 63.0 mm)		
Shipping Weight			
- ECB-VAV-N	0.92lbs (0.42kg)		
- Other models	2.30lbs (1.05kg)		

Product Specifications (continued)

Integrated Damper Actuator

Motor	Belimo LMZS-H brushless DC motor
Torque	35 in-lb, 4 Nm
Degrees of Rotation	95° adjustable
Fits Shaft Diameter	5/16 to 3/4"; 8.5 to 18.2mm
Acoustic Noise Level	< 35 dB (A) @ 95° rotation in 95 seconds

Wireless Receiver³

Communication	EnOcean wireless standard
Number of wireless inputs ⁴	18
Supported Wireless	Wireless Receiver (315)
Receivers	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁵	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁶

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

Allure EC-Smart-Vue Sensor

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁴	UL94-5VA



Communication Protocols



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **RCB-PFC Series** are microprocessor-based configurable controllers designed to control a wide variety of terminal units such as powered fan coil units, unit ventilators, chilled ceilings and small air handling units.

This series can command up to 4 lights and 4 sunblinds through RCx modules. These are add-on modules that operate off of a separate sub-bus, giving this controller the ability to manage lighting and sunblinds for a full cross-management solution forming a single point on the network. These controllers use the BACnet® communication protocol and are WSP Certified.

This series contains four models as follows: RCB-PFC-107, RCB-PFC-108, RCB-PFC-207 and RCB-PFC-208. The RCB-PFC Series support various input types including sensor, pulse, and digital-based ones. Moreover, they provide analog, floating, and proportional control outputs for valves, heating elements and fans.

Applications

Meets the requirements of the following applications:

- Fan Coil Units
- Unit Ventilators
- Chilled Ceilings
- Small Air Handling Units
- Lighting and Sunblinds when associated to RCx add-on modules

Improves energy efficiency when combined with:

- Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
- CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
- Window-contact sensors

Works with a wide range of sensors and actuators

All controller models work with a wide range of sensors, such as the Allure RS-Smart-Sense, a customizable room sensor that features a color TFT Touch screen and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override, as well as lighting and sunblinds management for a complete cross-management integration.

Each controller can be configured using Distech Controls' Facilivue, a graphical tool for partitioning and installation of BACnet controllers or the EC-Net^{AX} wizard, powered by the Niagara^{AX} Framework®. Either way, a configuration interface exists that simplifies the setup of HVAC and lighting and sunblinds applications through an intuitive menu-based user interface.

Features & Benefits

- Most advanced yet cost-effective solution for addressing any terminal unit application
- Expandable with lighting and sunblinds add-on modules for unprecedented adaptability
- Most advanced yet cost-effective solution for addressing any terminal unit application
- Smart cross-management of HVAC, lighting and sunblinds as a whole for up to 45% energy savings
- Compatible with the RFR-K Wireless Receiver, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- A single point on the network for the main HVAC controller and its associated add-on modules, leading to easier BMS integration
- Optional strain relief and terminal block cover for flexible installation, in ceilings, closed to lighting and sunblind devices, or directly on HVAC equipments, to reduce wiring costs and expand installation possibilities
- Configurable using EC-Net^{AX}-based wizards or BACnet Facilivue, allowing you to work with your preferred network management platform
- Separable connectors, allowing to start on-site wiring while engineering is done at the office
- DIN rail mounting integrated into the enclosure for fast and reliable installation

RCB-PFC

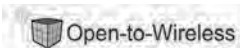


Model	RCB-PFC-107	RCB-PFC-108	RCB-PFC-207	RCB-PFC-208
Points	12-Point Controller	12-Point Controller	14-Point Controller	14-Point Controller
Configurable inputs	6	6	6	6
Electric Heater outputs	1	1	1	1
Analog output 0-10 V			2	2
Fan outputs	3	3	3	3
PWM Valve outputs 230 VAC	2		2	
PWM Valve outputs 24 V		2		2
24 VAC Generation 7 VA				■
Expandable with lighting & sunblinds add-on modules	■	■	■	■
Product Number	XPCP0256	XPCP0260	XPCP0258	XPCP0262

Recommended Applications

Model	RCB-PFC-107	RCB-PFC-108	RCB-PFC-207	RCB-PFC-208
2 Pipe Fan Coil	■	■	■	■
2 Pipe Fan Coil with Changeover	■	■	■	■
2 Pipe Fan Coil with Electric Heater	■	■	■	■
2 Pipe Fan Coil with Electric Heater and Changeover (cascade)	■	■	■	■
4 Pipe Fan Coil	■	■	■	■
4 Pipe Fan Coil with Electric Heater	■	■	■	■
Electric Heater	■	■	■	■
Unit Ventilator	■	■	■	■
Chilled Ceiling	■	■	■	■
Variable Fan Speed Control			■	■
0-10 V Valves Control			■	■
Air Quality Management			■	■

Wireless Receivers



To reduce the cost of installation, and minimize the impact on existing partition walls, these wireless receivers enable the controllers to communicate with a line of wireless battery-less room sensors, remote controls and switches

RFR Series



RFR-K

Radio receiver

RFR-K-ENOCAN

EnOcean radio receiver 868 MHz

RIR Series



RIR-L

White infrared receiver and lux sensor

RIR-B

White infrared receiver

RIR-I

Transparent infrared receiver

Inputs Configuration Table

Assignable Input Functions	D11	D12	SI3	D14	AI5	D16
Window	■	■		■		■
Presence	■	■		■		■
Dewpoint	■	■		■		■
Changeover	■	■		■		■
Auxiliary contact	■	■		■		■
Flow switch	■	■		■		■
Alarm	■	■		■		■
Analog input 0-10V					■	
Counter 1	■	■				■
Counter 2	■	■				■
Counter 3	■	■				■
Room temperature - 10K Type Z			■			
Room temperature - 10K Type II			■			
Room temperature with occupancy reinitialization push button and LED indicator - 10K Type II			■			
Room temperature with occupied/unoccupied push button and LED indicator - 10K Type II			■			
Discharge air temperature - 10K Type Z	■		■			
Discharge air temperature - 10K Type II	■		■			
Setpoint offset - 0-5V					■	
Setpoint offset - 10K rotary potentiometer		■				
Fan speed selector - 0-5V	■					
Fan speed selector - 10K rotary potentiometer	■					

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-Net^{AX} Wizards

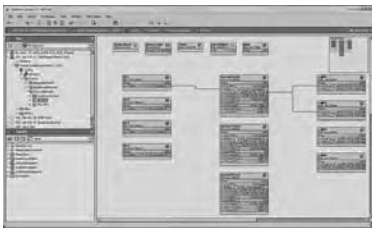


Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as load shedding, frost protection and slave operation mode.

- User-friendly interface to easily and efficiently configure the controller's parameters
- One wizard only for the controller and its associated add-on modules
- Powerful import/export functionalities to duplicate a controller's settings for reuse
- Download configuration to multiple devices for large BMS integration

Configuration Softwares

EC-Net^{AX}



EC-Net^{AX} is a suite of Niagara^{AX}-based products designed to integrate diverse smart devices into a unified, Internet-enabled, web-based system. EC-Net^{AX} solutions integrate LONWORKS®, BACnet®, oBIX, Internet and web services protocols in a software platform that can be used in embedded controllers or server applications.

EC-Net^{AX} includes integrated network management tools to support the design, configuration, installation, and maintenance of interoperable networks.

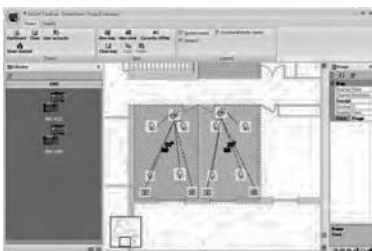
- Connects to almost any embedded device, regardless of manufacturer or communication protocol, as a result the common environment created by Niagara^{AX}'s open Java-based Framework.
- Includes a comprehensive, graphical toolset that enables users to build rich applications in a drag-and-drop environment. By wiring components together, developers build control strategies, alarming and scheduling applications as well as browser-based displays and reports.
- Reduces development time by merging automation, IT and Internet technologies in a single solution. With an EC-BOS^{AX}, advanced web-services applications, such as TCP/IP, HTTP, XML, SOAP, and oBIX, can be implemented so that you can read data, send commands, and respond to alarms in real-time from anywhere using any standard web browser.
- Integrates geographically dispersed, multi-vendor devices into an interoperable application to save time and money.

BACnet *Facilivue*

BACnet *Facilivue* is a software tool for graphical rezoning of living spaces from base maps, based on preconfigured zone models relative to the RCB-PFC Series.

BACnet *Facilivue* works from base plans, allowing you to create your application intuitively by positioning HVAC equipments, lighting, sunblinds, sensors, ... directly on the topographic representation of your installation.

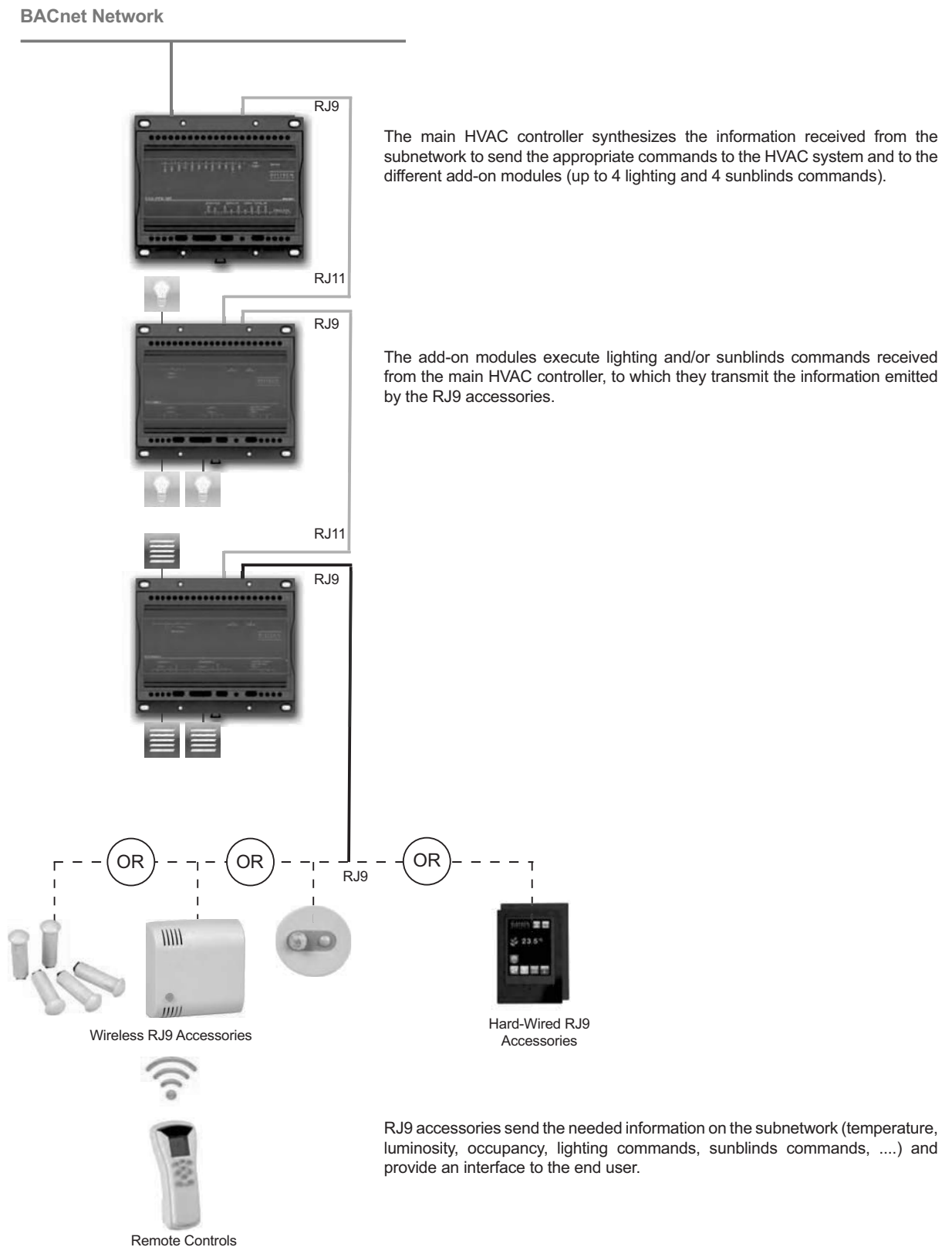
Managing consequent modifications of the installation, in terms of repartitioning as in terms of new equipments, is likewise extremely intuitive through a simple graphical rezoning, as BACnet *Facilivue* reconfigures automatically and with no mistake the living spaces.



- Simplified installation
- Tested and validated solutions libraries
- No complex and unclear protocol data
- Facilitated mass integration with powerful copy/paste
- Mass applications of the modifications from zonal repairs, by map or by project
- Drastic reduction of integration time
- No need for BACnet experts to deploy office buildings solutions
- Created models backup in dedicated libraries

RCB-PFC Subnetwork Overview

The RCB-PFC Solution combines a main HVAC Controller with add-on modules dedicated to lighting and sunblinds management to form a modular solution within a single point on the network.



Complementary Products

Add-On Modules

Lighting Add-On Modules



RCx-Light-3

3 ON/OFF light add-on module (receives L1, L2 and L3 commands)



RCx-Light-3D

3 dimming light add-on module (receives L1, L2 and L3 commands)

Sunblinds Add-On Modules



RCx-Blind-3

3 sunblind (230 VAC) add-on module (receives S1, S2 and S3 commands)



RCx-Blind-2LV

2 sunblind (24 V) add-on module (receives S1 and S2 commands)

Lighting & Sunblinds Add-On Modules



RCx-Duo-2D1

2 dimming light + 1 sunblind (230 VAC) add-on module (receives L3, L4 and S4 commands)

Remote Controls

TCND Series

Line of multi-discipline remote controls: Infrared, Radio and EnOcean technologies



TCND-I

Infrared multi-discipline remote control¹

TCND-IT

Infrared multi-discipline remote control with temperature sensor¹ (wall-mounted stand required -provided)

TCND-R

Radio multi-discipline remote control¹

TCND-RT

Radio multi-discipline remote control with temperature sensor¹ (wall-mounted stand required -provided)

TCND-ENOCEAN

EnOcean multi-discipline remote control with temperature sensor (wall-mounted stand required -provided)

¹ Models available in grey.

Smart-Sense Room Control



Smart-Sense Room Control

iPhone application for remote HVAC, lighting, sunblinds and occupancy control

Configuration Room Sensor Device

RS-LCD Config



RS-LCD Config

Digital room sensor device with a LCD screen: BACnet MS/TP HVAC controllers addressing and configuration

Room Modules

Allure RS-Smart-Sense



Allure RS-Smart-Sense

Digital room sensor device with a touch-sensitive LCD color screen for HVAC, lighting, sunblinds and occupancy control

Allure EC-Sensor

Line of discrete sensors



EC-Sensor

Room temperature sensor with communication jack

EC-Sensor-O

Room temperature sensor with occupancy override button and communication jack

EC-Sensor-S

Room temperature sensor with setpoint adjustment and communication jack

EC-Sensor-SO

Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack

EC-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Allure Wireless Battery-less ECW-Sensor

Line of wireless, battery-less sensors (EnOcean 868.3 MHz).



ECW-Sensor

Room temperature sensor

ECW-Sensor-O

Room temperature sensor with occupancy override button

ECW-Sensor-S

Room temperature sensor with setpoint adjustment

ECW-Sensor-SO

Room temperature sensor with setpoint adjustment and occupancy override button

ECW-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

RS-ANA Series

Analog room sensors



RS-ANA1

Analog room temperature sensor

RS-ANA2

Analog room temperature sensor with setpoint adjustment

RS-DL Series

Line of digital link room sensors



RS-DL2

Digital room temperature sensor with setpoint adjustment

RS-DL3

Digital room temperature sensor with setpoint adjustment and occupancy override button

RS-DL4

Digital room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

RS-LCD

Room temperature sensor with a LCD screen for HVAC, lighting and sunblinds control

In-ceiling Multi-sensors

MS2 Series



MS2-I-P

Infrared mini multi-sensor - presence detection

MS2-I-PL

Infrared mini multi-sensor - presence detection and light sensor

MS2-I-PLT

Infrared mini multi-sensor - presence detection, light sensor and temperature sensor

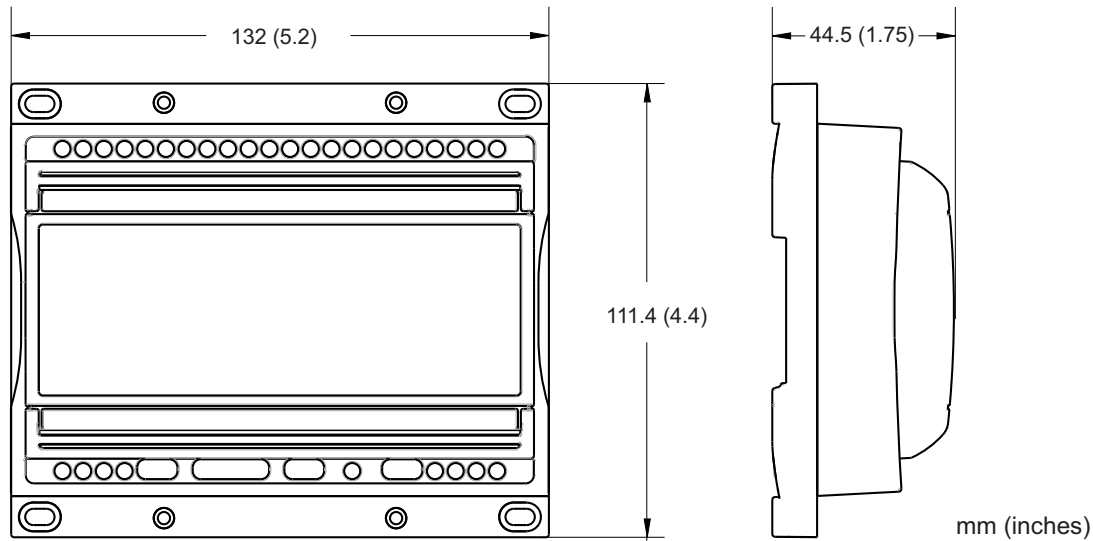
MS2-R-PL

Radio mini multi-sensor - presence detection and light sensor


MS2-R-PLT

Radio mini multi-sensor - presence detection, light sensor and temperature sensor

Product Dimensions



Product Specifications

Power		Inputs	
Voltage	230 VAC ; 50/60 Hz ; +10%/-15%	Resistive	10 kΩ Type 2, Type Z NTC (max cable length 3 m) Accuracy: $\pm 0.2^{\circ}\text{C}$ @ 20°C (controller only)
Protection	Self-protected Transformer 10 A External Circuit Breaker	Analog	0-10 V
Power Consumption	30 mA + all external loads	Digital	Dry Contact - closed contact treshold < 1 V - open contact treshold > 1V - impedance < 660 Ω - max cable length 100m)
RCB-PFC-107/207:	5 A maximum		
RCB-PFC-108/208:	3.3 A maximum		
 :	Double insulation devices		
Interoperability		Outputs	
Communication Bus	BACnet MS/TP	Analog (AO7 & AO8)	0-10 Vdc 2 mA max
BACnet Profile	B-ASC ¹	Digital Relay Contacts (DO1, DO2 & DO3)	Typically Fan Speeds 230 VAC 3 A max (total) All share the same common
Baud Rate	9600, 19200, 38400, or 76800 bps		
Addressing	Numeric using the RS-LCD Config, service PIN or Unique ID	Digital Relay Contact (DO6-C6)	Typically Heater 230 VAC 10 A - 2 kW Cycle time adjustable from 100 to 250 s Dedicated Common
Hardware			
Processor	AVR32 MCU, 32 bit ; 60 MHz		
Memory	256 kB Non-volatile Flash 32 kB RAM		
Environmental			
Operating Temperature	+5°C to 45°C	Digital (DO4 & DO5)	
Storage Temperature	-20°C to +70°C		
Relative Humidity	+20% to +90% Non-condensing	RCB-PFC-107/207	230 VAC Triac, digital (ON/OFF), PWM or floating - 1 A continuous for each output - 3 A starting current for each output - PWM control adjustable from 20 to 250 s - Floating control: requires two outputs - Adjustable drive time period 1 common per pair of outputs
Altitude	< 2000 m	RCB-PFC-108/208	24 V Triac, digital (ON/OFF), or PWM or floating - 300mA continuous for the aggregate sum of all valve outputs - 3 A starting current for each output - PWM control adjustable from 20 to 250 s - Floating control: requires two outputs - Adjustable drive time period 1 common per pair of outputs

Enclosure	
Material	FR/ABS
Color	Blue casing & grey connectors
Dimensions (with screws)	111,4 mm x 132 mm
Shipping weight	
RCB-PFC-107:	465 g
RCB-PFC-108:	630 g
RCB-PFC-207:	465 g
RCB-PFC-208:	630 g
Installation	Direct din-rail mounting or wall-mounting

Wireless Receiver ²	
Communication	EnOcean wireless standard
Number of wireless inputs	1
Supported Wireless Receivers	RFR-K-ENOCAN (868 MHz)
Cable	RJ9 Link, 50m maximum

Electromagnetic Compatibility	
CE - Emission	EN 61000-6-1: Generic standard for residential, commercial and light-industrial environments EN 61000-6-2: Generic standard for industrial environments
CE - Immunity	EN 61000-6-3: Generic standard for residential, commercial and light-industrial environments EN 61000-6-4: Generic standard for industrial environments

Electrical Safety	
General requirements	EN 60730: Specification for automatic electrical controls for household and similar use.





Extension Modules (RCx Series)	
Communication	RJ9/RJ11
Number of extension modules per controller	Up to 4 Lightings + 4 Sunblinds controlled, in daisy-chain configuration

Agency Approvals	
Material	UL94-5VA ³

Communication Protocols and Standards	
---------------------------------------	--



1. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
2. Available when an optional external RFR-K-ENOCAN receiver module is connected to the controller.
3. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

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Overview

The BACnet/IP to MS/TP adapter is a convenient device used to connect a laptop to an MS/TP network. All the electronics are provided in a lightweight, small plastic case. The unit is powered from a USB port. This small device can easily be carried from jobsite to jobsite in a laptop bag utilizing a CAT5e cable for communication and USB cable for power. No batteries or wall plug are required.

The adapter routes messages between BACnet/IP and BACnet MS/TP networks as per the ANSI/ASHRAE 135 (ISO 16484-5) standard. It allows BACnet/IP devices connected over Ethernet to communicate with MS/TP devices. The adapter is configurable via its web page.

A resident web server allows commissioning, re-configuration and troubleshooting with a standard web browser. A reset switch is provided on the adapter to set the unit to factory default IP address. Three LEDs are provided: the power LED glows green when proper power is provided. A bi-color Ethernet LED glows green for 100 Mbps operation and yellow for 10 Mbps and indicates activity by flashing. A green LED flashes when valid MS/TP traffic is received.

The adapter is shipped with a 5-foot CAT5 cable, a 6-foot USB cable and a 10-foot cable specifically designed to connect directly to Distech Controls field controllers. Each unit complies with Class A radiated and conducted emissions as defined by EN55022 and CFR 47, Part 15.

Applications

- Connect to MS/TP network using a notebook or PC
- Commission devices before your network is up and running
- Lightweight portable plastic case for inclusion in integration kit
- Connect directly to a Distech Controls field controller using the provided cable

Features & Benefits

- Route between BACnet®/IP to BACnet BACnet® MS/TP networks
- Diagnostic LEDs include MS/TP traffic monitor
- Optically isolated MS/TP communication port
- Web server for commissioning, re-configuring and troubleshooting
- 10/100 Mbps Ethernet auto-negotiation and automatic medium-dependent interface crossover port
- Powered through USB port

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Available Models

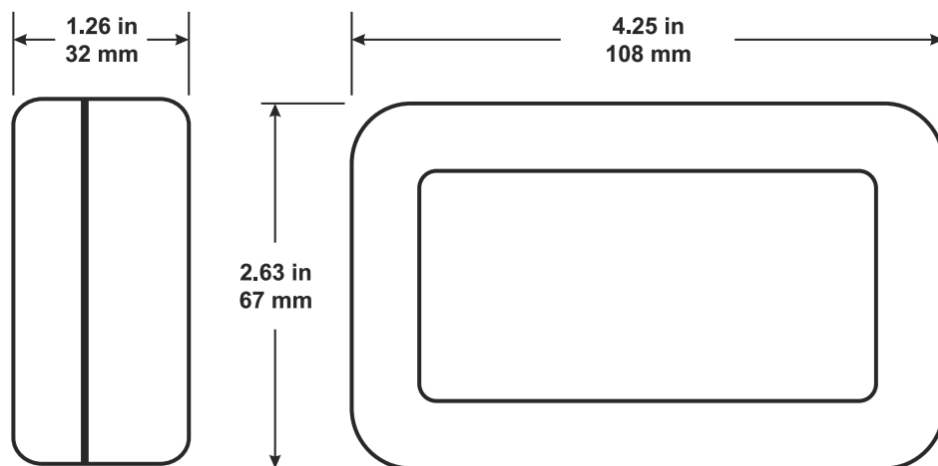


PDICC-BASRTPBXX

BACnet/IP to MS/TP Adapter

- Connect a laptop PC directly to the MS/TP trunk
- Commission devices before the network is up and running

Product Specifications



Power

Input:	USB (Type B Port)
Voltage:	5 VDC (nominal)
Current	300 mA (typical)
Power Consumption:	2.5 W

Environmental

Operating Temperature:	0°C to 60°C; 32°F to 140°F
Storage Temperature:	-40°C to 85°C; -40°F to 185°F
Relative Humidity:	10 to 95%, non-condensing
Protection	IP30

Enclosure

Material:	Plastic
Color:	Black
Dimensions (W x H x D):	4.25" x 2.63" x 1.26" (108mm x 67mm x 32mm)
Installation:	USB Plug

Interface

Port:	Ethernet	MS/TP
Compliance:	IEEE 802.3	ANSI/ASHRAE 135 (ISO 16484-5)
Data rate:	10 Mbps, 100 Mbps	9,600; 16,200; 38,400; 76,800 bps
Physical Layer:	10BASE-T, 100BASE-TX	EIA-485
Max Cable Length:	100 m	1200 m
port Connector:	Shielded RJ-45	3-pin terminal block
	Green = 100 Mbps (flash for activity)	Jumper-selectable bias and termination
	Yellow = 10 Mbps (flash for activity)	green = MS/TP (flash for activity)

Regulatory Compliance

CE:	EN 55022
	EC 55024
CFR	CFR 47, Part 15 Class A

All materials and manufacturing processes comply with the RoHS directive



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BACnet /IP to MS/TP Adapter

www.distech-controls.com

05DI-DSBRTPB-10



Overview

The BACnet MS/TP repeater is designed to extend your network beyond the 4,000 feet range limitation of RS-485.

The repeater also augments the RS-485 signal to allow more devices on a single channel.

Applications

- Extend the range of your RS-485 BACnet MS/TP field bus by 4000 ft.
- Augment an attenuated signal to add extra devices to your channel

Features & Benefits

- Auto switching baud rate, 300 ~ 115200 bps
- ESD Protection for the data line
- DIN-Rail mountable
- Flexible power input, +10 ~ +30 VDC

Product Warranty & Total Quality Commitment

This product is under warranty regarding defective materials for a period of one year from the date of delivery to the original purchaser. Distech Controls and its supplier are ISO 9001 registered companies. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Available Models



PDIID-BACNETREPX0

BACnet MS/TP repeater

- Extend the range of your BACnet network by 4000 ft
- Augment an attenuated signal to add extra devices to your channel

Related Products

Power Supplies



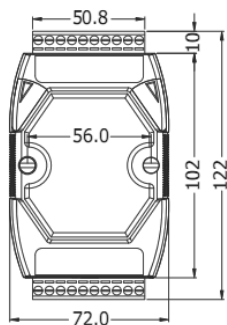
07PWS-DINKA52F

24 V_{DC}/1.04 A, 25 W Power Supply with Din-Rail Mounting

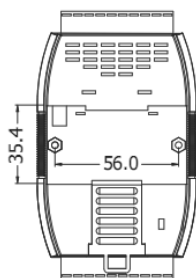
07PWS-GPSU06U6

24 V_{DC}/0.25 A, 6 W Power Supply with wall plug

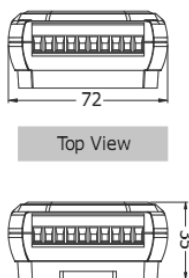
Product Specifications



Front View



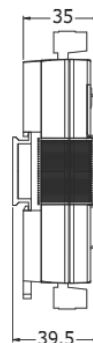
Back View



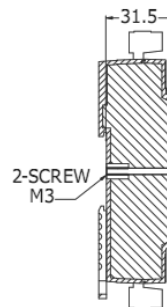
Top View



Bottom View



Din-Rail Mounting Bracket



Side View

Power

Voltage:	+10 VDC to +30 VDC (non-isolated)
Power Consumption	2.16 W

Environmental

Operating Temperature:	-25°C to 75°C; -13°F to 167°F
Storage Temperature:	-30°C to 75°C; -22°F to 167°F
Relative Humidity:	10 to 90%, non-condensing

Enclosure


Material:	Plastic (Fire Retardant materials UL 94-VO)
Color:	Grey
Dimensions (W x H x D):	2.83" x 4.80" x 1.38" (72mm x 122mm x 35mm)
Installation:	DIN-Rail

Interface

Input:	1 RS-485 Channel: Data+, Data-
Output:	1 RS-485 Channel: Data+, Data-
Wiring:	07CBL-BACNET
Transfer Distance:	Max. 1,200 m @ 9.6kbps; Max 400 m @ 115.2 kbps
Max. Devices supported:	256
Speed:	300 to 115200 bps (self-tuning)
LED Indicators:	Power/Communication

Electromagnetic Compatibility

CE:	EN 55022:1998+A1:200 Class A EN 61000-3-2:2000 Class A EN 61000-3-3:1995+A1:2001
FCC:	EC 55024:1998+A1:2001 FCC Part 15 Class A

All materials and manufacturing processes comply with the RoHS directive .

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Overview

The router routes messages between BACnet/IP and BACnet MS/TP networks as per the ANSI/ASHRAE 135 (ISO 16484-5) standard. It allows BACnet/IP devices connected over Ethernet to communicate with MS/TP devices. The router is configurable via its web page.

A resident web server allows commissioning, re-configuration and troubleshooting with a standard web browser. A reset switch is provided on the router to set the unit to factory default IP address. Three LEDs are provided: the power LED glows green when proper power is provided. A bi-color Ethernet LED glows green for 100 Mbps operation and yellow for 10 Mbps and indicates activity by flashing. A green LED flashes when valid MS/TP traffic is received.

Applications

- Use existing Ethernet infrastructure
- Locate MS/TP devices where no MS/TP cable exists
- Add IP address to MS/TP devices
- Provide access to MS/TP devices from multiple BACnet/IP enabled controllers
- End-of-line MS/TP bias and termination provided by router

Internal MS/TP bias and termination jumpers are provided to allow flexible bias and termination options. They can be removed for mid-span installations. Each unit complies with Class A radiated and conducted emissions as defined by EN55022 and CFR 47, Part 15.

Features & Benefits

- Route between BACnet/IP to BACnet BACnet MS/TP networks
- Diagnostic LEDs include MS/TP traffic monitor
- Optically isolated MS/TP communication port
- Web server for commissioning, re-configuring and troubleshooting
- 10/100 Mbps Ethernet Auto-MDIX port
- Jumper-selectable MS/TP bias and termination

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Available Models

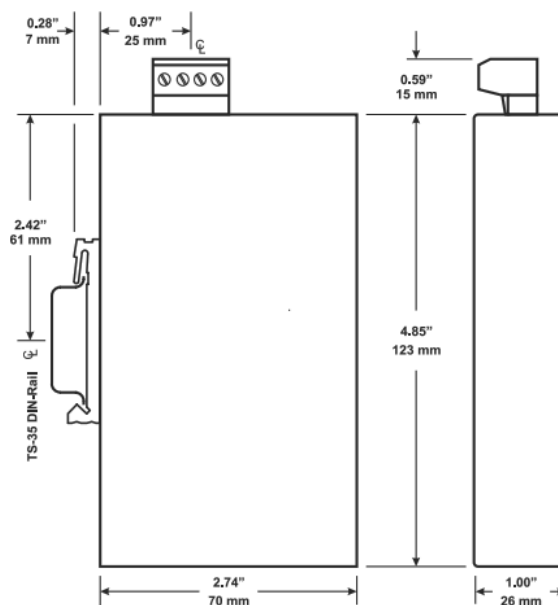


PDICC-BASRTXBXX

BACnet /IP to MS/TP router

- Route between BACnet/IP to BACnet BACnet MS/TP network
- Provide access to MS/TP devices from multiple BACnet/IP enabled controllers

Product Specifications



Power

Input	DC	AC
Voltage:	24(±10%)	24 (±10%)
Current:	125 mA (max)	125 mA (max)
Power Consumption	3 W	3 VA

Environmental

Operating Temperature:	0°C to 60°C; 32°F to 140°F
Storage Temperature:	-40°C to 85°C; -40°F to 185°F
Relative Humidity:	10 to 95%, non-condensing
Protection	IP30

Enclosure

Material:	Metal
Color:	black
Dimensions (W x H x D):	2.76" x 4.85" x 1.00" (70mm x 123mm x 26mm)
Installation:	DIN-Rail

Interface

	Ethernet	MS/TP
Port:	IEEE 802.3	ANSI/ASHRAE 135 (ISO 16484-5)
Compliance:	10 Mbps, 100 Mbps	9,600; 16,200; 38,400; 76,800 bps
Data rate:	10BASE-T, 100BASE-TX	EIA-485
Physical Layer:	100 m	1200 m
Max Cable Length:	Shielded Rj-45	3-pin terminal block
port Connector:		Jumper-selectable bias and termination
	Green = 100 Mbps (flash for activity)	green = MS/TP (flash for activity)
LED Indicators:	Yellow = 10 Mbps (flash for activity)	

Regulatory Compliance

CE: EN 55022
EN 55024
FCC: FCC Part 15 Class A

All materials and manufacturing processes comply with the RoHS directive

Specifications subject to change without notice.

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BACnet/IP to MS/TP Router


















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05DI-DSBRTXB-10

Product Comparison Chart

ECB Series

BACnet BTL Listed Programmable Controllers

	ECB-103	ECB-203	ECB-253	ECB-300	ECB-350	ECB-400	ECB-403	ECB-410	ECB-413	ECB-450	ECB-453	ECB-600	ECB-610	ECB-650	ECX-400	ECX-410	ECX-420
General																	
Controller Status LED	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Interactive color operator interface																	
Real-Time Clock																	
DIN-Rail Mounting		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Inputs																	
Universal (Software Configurable)	4	6	6	10	10	12	12	12	12	12	12	16	16	16	12	12	12
0-20mA/4-20mA (external 249Ω Resistance)	■	■	■														
0-20mA/4-20mA (built-in 249Ω Resistance, Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	■
50 Hz Pulse				■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■ ¹	■	■
Analog/Digital Converter (Bits)	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
EC-Smart-View Capability	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Wireless Inputs ²	18	24	24	28	28	28	28	28	28	28	28	28	28	28	28	28	28
15VDC Power Supply	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Outputs																	
Universal (Analog)	2	3	3	8	8	12	4	12	4	12	4	12	12	12	12	12	0
Digital/Analog Converter (Bits)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
0-20mA/4-20mA (Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Digital (Triac)	4	5	5			8	8	8	8		8						
Output LED Status Indicator		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
HOA Switch								■	■			■	■	■	■	■	■
Power Input																	
24 VAC	■																
24 VAC/VDC		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Power Status LED Indicators	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Programming – Configuration																	
EC-gfxProgram	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pre-Loaded Application																	

- The first four inputs are software configurable for pulse counting; 50 Hz maximum frequency.
- All controllers are Open-to-Wireless™ ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.



Communication

[illegible]

Objects

[illegible]

1. Supports object internally-generated alarms (intrinsic reporting).
2. Supports object internally-generated alarms (intrinsic reporting).
3. Supports object internally-generated alarms (intrinsic reporting).
4. Supports object internally-generated alarms (intrinsic reporting). This consists of Hardware Inputs.
5. Objects are in the connected ECB-600, ECB-610, or ECB-650 controller (master). This consists of Hardware Inputs, Allure EC-Smart-Vue inputs, and Open-To-Wireless inputs.



Recommended Applications														
2 pipe Fan Coil	■	■	■											
2 pipe Fan Coil with Changeover Sensor	■	■	■											
4 pipe Fan Coil	■	■	■											
Chilled Ceiling	■	■	■											
Heat Pump	■	■	■											
Unit Ventilator	■	■	■											
Small Roof Top	■	■	■											
Medium Roof Top	■	■	■											
Large Roof Top				■	■									
Small Air Handling Unit	■	■	■											
Medium Air Handling Unit				■	■									
Large Air Handling Unit				■	■									
Multi-Zones Application				■	■									
Chillers				■	■									
Boiler				■	■									
Cooling Tower				■	■									
Central Plant									■	■			■	■

Controller Naming Conventions:



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Product Comparison Chart

ECB-VAV Series
 BACnet B-ASC BTL-Listed Single Duct
 VAV / VVT Controllers

ECB-VAVS-O

ECB-VAVS

ECB-VAV

ECB-VVTS

ECB-VAV-N


Inputs

Universal (Software Configurable)	0	2	4	2	4
Built-In Differential Pressure Sensor (0 to 2.0" W.C.)	■	■	■		■
EC-Smart-View Capability	4	4	4	4	4
Wireless inputs ¹	18	18	18	18	18
Analog/Digital Converter (bits)	16	16	16	16	16

Outputs

15VDC Power Supply			■		■
Universal (Analog)	1	1	2	1	2
Digital (Triac)	2	2	4	2	4
Built-In Actuator with feedback	■	■	■	■	
Digital/Analog Converter (Bits)	10	10	10	10	10

Power Input

24 VAC	■	■	■	■	■
--------	---	---	---	---	---

Programming – Configuration

EC-gfxProgram	■	■	■	■	■
Pre-Loaded Application	■	■	■	■	■

Communication

BTL Listing Profile (pending)	B-ASC	B-ASC	B-ASC	B-ASC	B-ASC
BACnet MS/TP	■	■	■	■	■
BACnet IP					
MAC Addressing					
- With an EC-Smart-View	■	■	■	■	■
- With onboard Dip Switches					

Objects

Calendar Objects	1	1	1	1	1
Schedule Objects	2	2	2	2	2
BACnet Objects (BV, MV, AV)	200	200	200	200	200
Loop (PID)	8	8	8	8	8

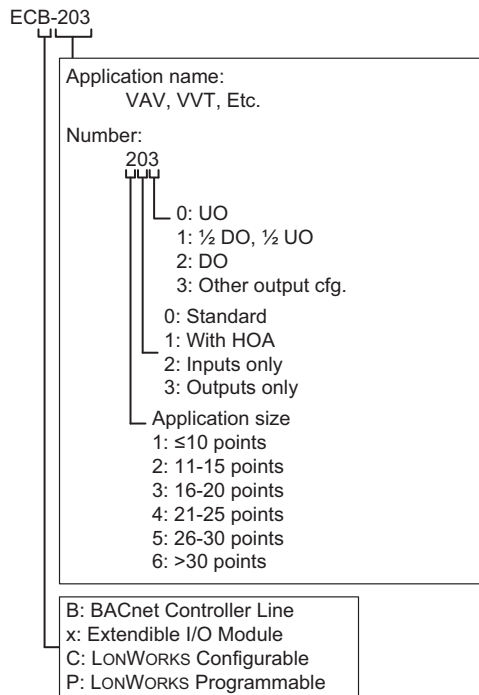


Recommended Applications

Cooling Only VAV box	■	■		■	
Cooling with Reheat VAV box	■	■		■	
Cooling with Reheat VAV box & Perimeter Heating			■		
Parallel Fan VAV box			■		
Series Fan VAV box			■		
Dual Duct VAV box ²	■	■			
Large Damper > 35 in-lb (4 Nm) VAV box					■
Existing Damper Actuator					■
Room Pressurization			■		

1. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.
2. Two controllers are required or one controller with an external flow sensor and actuator.





Controller Naming Conventions:







05DI-PCCVAV-11

ECB-VAV Series

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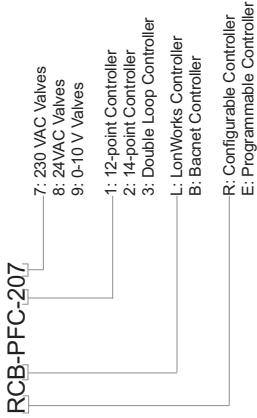
General				
Din-Rail Mounting				
BACnet Standardized Device Profile	B-ASC	B-ASC	B-ASC	B-ASC
Inputs				
Configurable Inputs	6	6	6	6
including:				
- Digital Inputs ¹	Up to 4	Up to 4	Up to 4	Up to 4
- Sensor Inputs ¹	Up to 2	Up to 2	Up to 2	Up to 2
- Analog Inputs ¹	Up to 3	Up to 3	Up to 3	Up to 3
¹ Depending on input configuration. Please refer to the datasheet for more information				
Outputs				
Electric Heater Outputs	1 x 2 kW	1 x 2 kW	1 x 2 kW	1 x 2 kW
Analog Outputs 0-10 V			2	2
Fan Outputs 230 V	3	3	3	3
PWM Valve Outputs 230 V - 10A	2		2	
PWM Valve Outputs 24 V - 300mA		2		2
24 VAC Generation 7 VA				
Light & sunblinds add-on modules support (up to 4 lighting and 4 sunblinds commands)				
Power Input				
230 VAC				

RCB-PFC-107		RCB-PFC-108		RCB-PFC-207		RCB-PFC-208	
							
Configuration							
EC-Net ^{AX} Wizard		■	■	■	■	■	■
Communication							
WSP Certification		■	■	■	■	■	■
Recommended Applications							
2 Pipe Fan Coil		■	■	■	■	■	■
2 Pipe Fan Coil with Changeover		■	■	■	■	■	■
2 Pipe Fan Coil with Electric Heater		■	■	■	■	■	■
2 Pipe Fan Coil with Electric Heater and Changeover (cascade)		■	■	■	■	■	■
4 Pipe Fan Coil		■	■	■	■	■	■
4 Pipe Fan Coil with Electric Heater		■	■	■	■	■	■
Electric Heater		■	■	■	■	■	■
Unit Ventilator		■	■	■	■	■	■
Chilled Ceiling		■	■	■	■	■	■
Variable Fan Speed Control				■	■	■	■
0-10 V Valves Control					■	■	■
Air Quality Management					■	■	■
RCB-PFC-107		RCB-PFC-108		RCB-PFC-207		RCB-PFC-208	



Compatibility				
Open-to-Wireless™ ready	■	■	■	■
Allure™ RS Series Analog Room Sensors	■	■	■	■
Allure EC Series Analog Room Sensors	■	■	■	■
Allure RS Series Digital Room Sensors	■	■	■	■
Allure EC Series Digital Room Sensors	■	■	■	■
RJ9 Multi-Sensors	■	■	■	■
RU45 Multi-Sensors				
Max number of Digital Room Devices per controller	1	1	1	1

Controller Naming Conventions:



Product Warranty & Total Quality Commitment

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Overview

The **ECL-103** is a microprocessor-based programmable controller designed to control terminal units such as fan coil units, heat pump units, unit ventilators, and chilled ceilings. This controller uses the LonTalk® communication protocol and is LONMARK certified as an SCC Generic device, guaranteeing compatibility and interoperability with other manufacturers' LONMARK certified controllers.

The ECL-103 supports various input types including resistance, voltage, and digital-based ones. Moreover, it provides digital, floating, pulse width modulation, and proportional control outputs for valves, heating elements, fans, and lighting applications.

This controller works with a wide range of sensors, such as those in the Allure™ EC-Smart-Vue series of communicating room sensors that feature a backlit display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through either EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of the following applications:
 - Fan Coil Units
 - Heat Pumps
 - Unit Ventilators
 - Chilled Ceilings
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to create operation sequences that meet specific engineering specifications. EC-gfxProgram is accessible in both Niagara^{AX} Framework-based and LNS-based software, allowing you to work with your preferred network management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 18 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- LONMARK SCC Generic certified, guaranteeing interoperability with other manufacturers' LONMARK certified controllers.
- With 4 software configurable universal inputs and 6 software configurable outputs, this controller covers all industry-standard HVAC terminal applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECL-103 Controller



Model	ECL-103
Points	10-Point Controller
Universal hardware inputs	4
Allure EC-Smart-View	4
Wireless inputs ¹	18
15 Vdc Power Supply	
Digital (triac) outputs	4
Universal output	2
Product Number	CDIL-103X-00

1 All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECL-103
2 Pipe Fan Coil	
2 Pipe Fan Coil with Changeover Sensor	
4 Pipe Fan Coil	
Heat Pump Unit	
Unit Ventilator	
Chilled Ceiling	

Open-to-Wireless Series– Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables this controller to communicate with a line of wireless battery-less room sensors and switches.

- Wireless Receiver (315)
- Receiver for EnOcean® 315MHz wireless battery-less sensors and switches
- Wireless Receiver (868)
- Receiver for EnOcean® 868.3MHz wireless battery-less sensors and switches

Note that controllers have one wireless port to support a single Wireless Receiver.
For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the Wireless Receiver Datasheet. These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

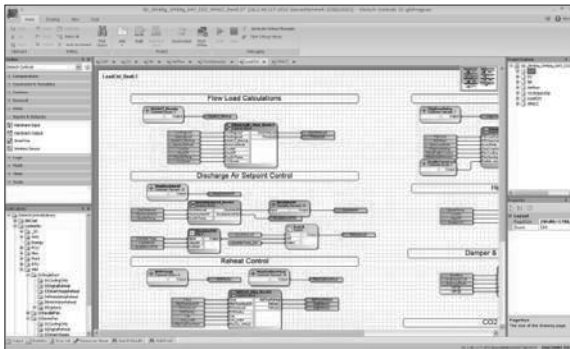


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

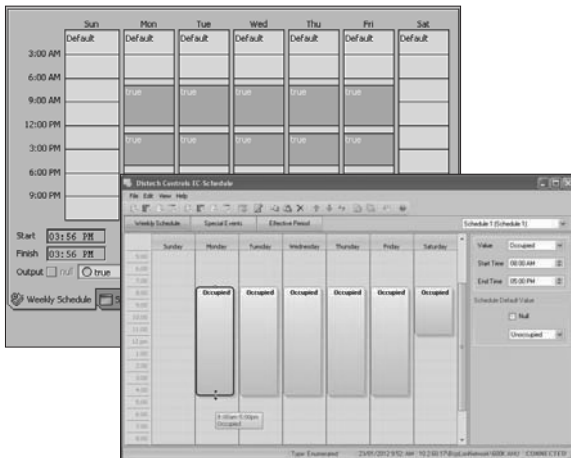
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.

- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series

Line of communicating sensors with backlight display and graphical menus. The ECO-Vue™ icon (🌿) shows how friendly the zone's energy consumption is in real time.



EC-Smart-Vue	Communicating room temperature sensor with backlight display and graphic menus
EC-Smart-Vue-H	Communicating room temperature and humidity sensor with backlight display and graphic menus

Allure EC-Sensor Series

Line of discrete sensors



EC-Sensor	Room temperature sensor with communication jack
EC-Sensor-O	Room temperature sensor with occupancy override button and communication jack
EC-Sensor-S	Room temperature sensor with setpoint adjustment and communication jack
EC-Sensor-SO	Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack
EC-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Open-to-Wireless Sensors and Switches (requires Wireless Receiver)

Allure Wireless Battery-less ECW-Sensor Series

Line of wireless, battery-less sensors. Available in EnOcean 315MHz and 868.3MHz versions.



ECW-Sensor	Room temperature sensor
ECW-Sensor-O	Room temperature sensor with occupancy override button
ECW-Sensor-S	Room temperature sensor with setpoint adjustment
ECW-Sensor-SO	Room temperature sensor with setpoint adjustment and occupancy override button
ECW-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

Wireless Sensors and Switches



SR-MDS	Wireless solar-cell powered motion detector and light sensor for room occupancy detection and/or lighting applications. Available in EnOcean 315MHz and 868.3MHz versions.
--------	--



2-channel Light Switch 4-channel Light Switch	2-/4-channel wireless light switches (European models). Available in EnOcean 315MHz and 868.3MHz versions.
--	--



PTM265 PTM265D	2-/4-channel wireless light switches (North American models). Available in EnOcean 315MHz and 868.3MHz versions.
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E3T-C2AWH (315 MHz) E8T-C2AWH (868 MHz)	Key card holder, white, wireless. Available in EnOcean 315MHz and 868.3MHz versions.
--	--



SR65 AKF Series	Wireless, solar-cell powered duct temperature sensor. Available in EnOcean 315MHz and 868.3MHz versions.
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For more information about the available wireless sensors and switches, refer to the Open-to-Wireless Solution Datasheet which can be found on our web site.

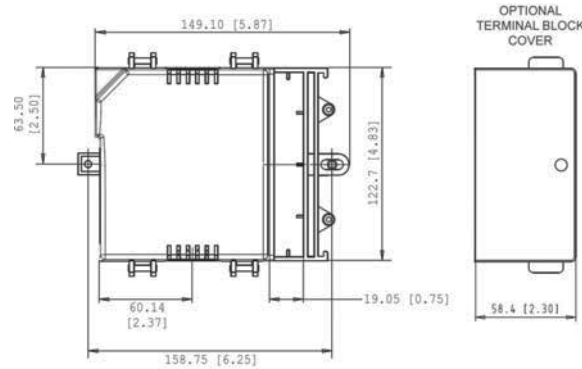
Other



Terminal Block Cover	A cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.
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For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Units Legend: mm [inches]

Product Specifications

Power		Inputs	
Voltage	24VAC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	2.0A user-replaceable fuse 3.0A user-replaceable fuse for triacs when using the internal power supply	-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
Power Consumption	10 VA typical plus all external loads 85 VA maximum	-Current	0 to 20mA with 249 Ω external resistor (wired in parallel)
Interoperability		-Digital	Dry contact
Communication	LonTalk protocol	-Pulse	Dry contact; 500ms minimum ON/OFF
Transceiver	FT 5000 Free Topology Smart Transceiver	-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Channel	TP/FT-10; 78Kbps	Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
LONMARK Interoperability	Version 3.4	Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
Guidelines		Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Device Class	SCC Generic #8500	Input Resolution	16-bit analog / digital converter
LONMARK Functional Profile		Power Supply Output	15VDC; maximum 80mA (4 inputs x 20mA each)
- Input objects	Open-Loop Sensor #1	Outputs	
- Output objects	Open-Loop Actuator #3	Digital	24 VAC Triac, digital (on/off), PWM, or floating; software configurable
- Node object	Node object #0		- 0.5A continuous
- Real Time Clock	Real Time Keeper #3300		- 1A @ 15% duty cycle for a 10-minute period
- Scheduler	Scheduler #20020		- PWM control: adjustable period from 2 to 65sec.
- Calendar	Calendar #20030		- Floating control:
- Programmable Device	Static Programmable Device #410		- Min pulse on/off: 500msec.
- SCC Object	SCC Generic #8500		- Adjustable drive time period
Hardware			External or internal power supply (jumper selectable)
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Universal	Linear (0 to 10VDC)
CPU Speed	68 MHz		Digital (on/off), PWM, or floating (0 - 12VDC); software configurable. Built-in snubbing diode to protect against back EMF, for example when used with a 12VDC relay.
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM		- PWM control: adjustable period from 2 to 65sec.
Real Time Clock (RTC)	Built-in Real Time Clock without battery Network time synchronization is required at each power-up cycle before the RTC becomes available		- Floating control:
Status Indicator	Green LEDs: power status & LON TX Orange LEDs: service & LON RX		- Min pulse on/off: 500msec.
Environmental			- Adjustable drive time period
Operating Temperature	0°C to 50°C; 32°F to 122°F		- 20mA maximum @ 12VDC
Storage Temperature	-20°C to 50°C; -4°F to 122°F		- Minimum load resistance 600 Ω
Relative Humidity	0 to 90% Non-condensing		
Enclosure		Output Resolution	10-bit digital / analog converter
Material	FR/ABS		
Color	Black & blue casing & grey connectors		
Dimensions (with Screws)	4.8" x 5.9" x 2.5" (122.7 x 149.1 x 63.0mm)		
Shipping Weight	0.92lbs (0.42kg)		



Wireless Receiver¹

Communication	EnOcean wireless standard
Number of wireless inputs ²	18
Supported Wireless Receivers	Wireless Receiver (315)
	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6ft; 2m

Electromagnetic Compatibility

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



1. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
2. Some wireless modules may use more than one wireless input from the controller.
3. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Allure EC-Smart-Vue

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Agency Approvals

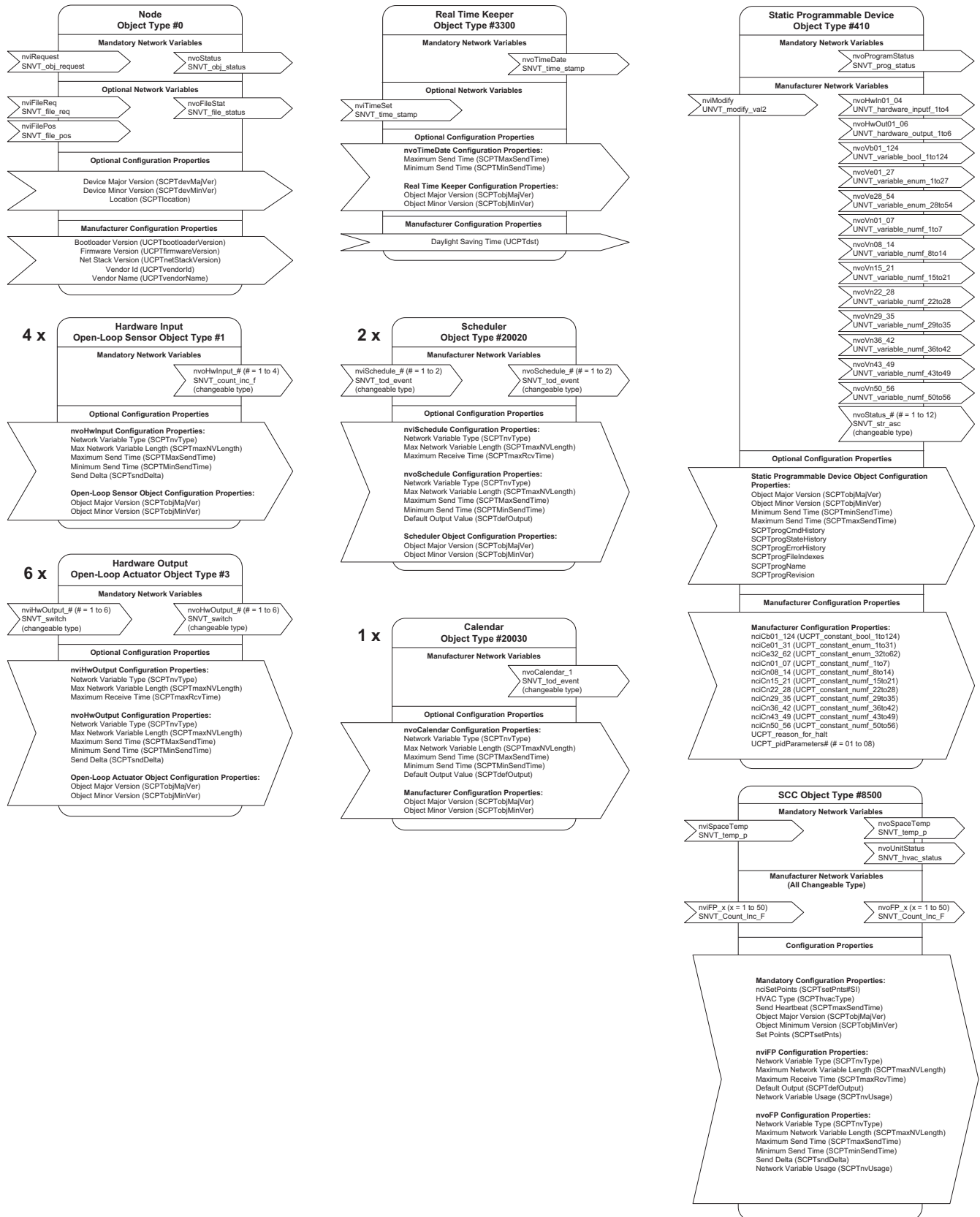
UL Listed (CDN & US)	UL916 Energy management equipment
Material ³	UL94-5VA



Communication Protocols



Functional Profile



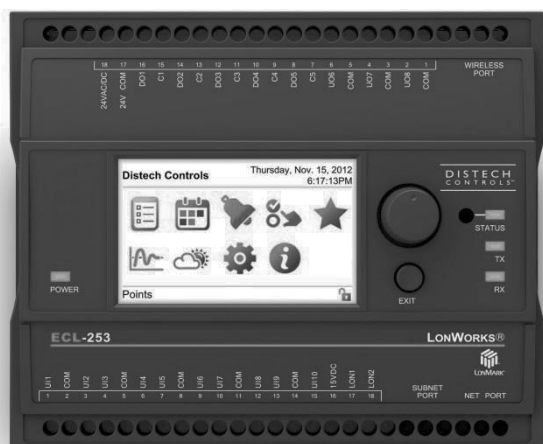
Product Warranty & Total Quality Commitment

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Overview

The **ECL-203 Series** are microprocessor-based programmable controllers designed to control terminal units such as rooftop units, fan coil units, unit ventilators, heat pump units, air handling units, and chilled ceilings. The ECL-203 series uses the LonTalk® communication protocol and is LONMARK certified as an SCC Generic device, guaranteeing compatibility and interoperability with other manufacturers' LONMARK certified controllers.

This series contains two models: ECL-203 and ECL-253. These models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECL-253 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-View series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through either EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of the following applications:
 - Rooftop Units
 - Fan Coil Units
 - Chilled Ceilings
 - Heat Pumps
 - Unit Ventilators
 - Small Air Handling Units
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to customize controller operation to meet specific engineering requirements. EC-gfxProgram is accessible in both Niagara^{AX} Framework-based and LNS-based software, allowing you to work with your preferred network management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 24 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- LonMark SCC Generic certified, guaranteeing interoperability with other manufacturers' LONMARK certified controllers.
- With 6 software configurable universal inputs and 8 software configurable outputs, this controller covers all industry-standard HVAC unitary applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECL-203 Series Controllers



Model	ECL-203	ECL-253
Points	14-Point Controller	14-Point Controller with Color Display
Universal hardware inputs	6	6
Allure EC-Smart-Vue ¹	4	4
Wireless inputs ²	24	24
15 Vdc Power Supply	■	■
Digital (triac) outputs	5	5
Universal output	3	3
Operator interface: Interactive color display to monitor and override controller parameters		■
Product Number	CDIL-203X-00	CDIL-253X-00

1. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
2. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

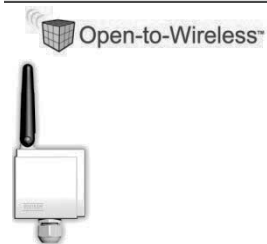
Model	ECL-203	ECL-253
Rooftop Unit	■	■
2 Pipe Fan Coil	■	■
2 Pipe Fan Coil with Changeover Sensor	■	■
4 Pipe Fan Coil	■	■
Heat Pump Unit	■	■
Unit Ventilator	■	■
Small Air Handling Unit	■	■
Chilled Ceiling	■	■

Additional Features & Benefits for the ECL-253 Model



- The ECL-450 has a large color backlit-display that allows an operator to have immediate access to internal controller data.
- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
 - Visually tune PID loops with system response graphing.
 - View active alarm list including details and acknowledge alarms.
 - Create a list of favorites to provide quick access to commonly-used values.
 - Multi-User access management.
 - Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

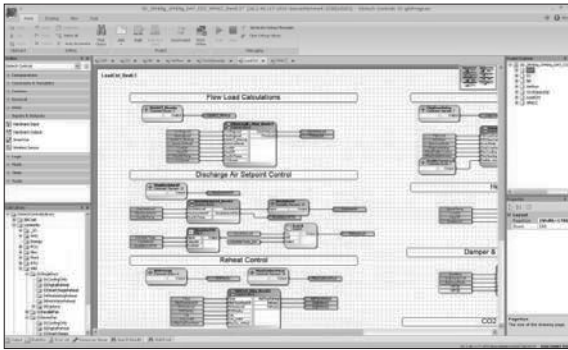


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

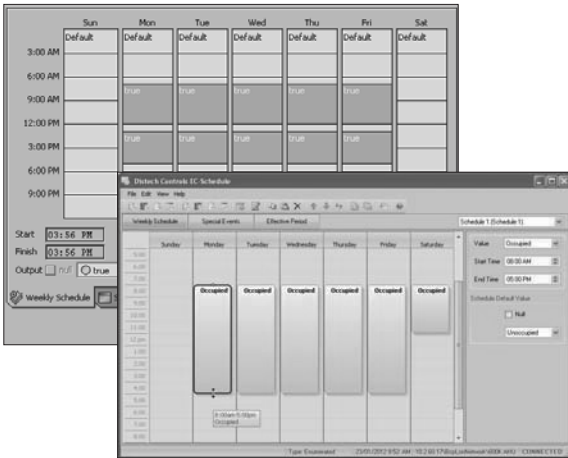
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.

- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon (🌿) shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

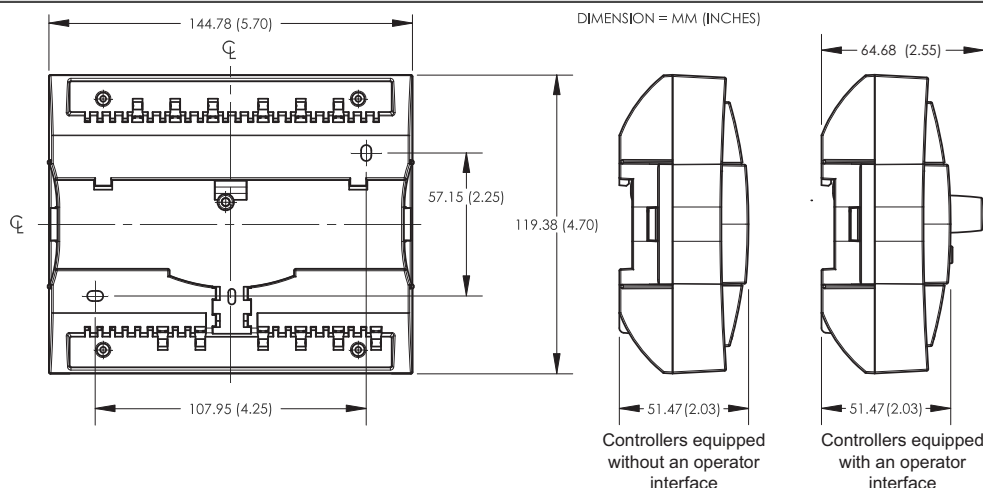


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	2.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
Power Consumption		-Current	0 to 20mA with 249 Ω external resistor
- ECB-203	14 VA typical plus all external loads ¹ , 23 VA max.	-Digital	Dry contact
- ECB-253	17 VA typical plus all external loads ¹ , 26 VA max.	-Pulse	Dry contact; 500ms minimum ON/OFF
Interoperability		-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Communication	LonTalk protocol	<i>Thermistor</i>	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Transceiver	FT 5000 Free Topology Smart Transceiver	<i>Platinum</i>	Pt1000 (1K Ω @ 0°C; 32°F)
Channel	TP/FT-10; 78Kbps	<i>Nickel</i>	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
LONMARK Interoperability	Version 3.4	Input Resolution	16-bit analog / digital converter
Guidelines		Power Supply Output	15VDC; maximum 120mA (6 inputs \times 20mA each)
Device Class	SCC Generic #8500	Outputs	
LONMARK Functional		Digital	24VAC Triac, digital (on/off), floating, or PWM; software configurable
Profile			- 0.5A continuous - 1.0A @ 15% duty cycle for a 10-minute period
- Input objects	Open-Loop Sensor #1		- PWM control: adjustable period from 2 to 65sec.
- Output objects	Open-Loop Actuator #3		- Floating control:
- Node object	Node object #0		- Min pulse on/off: 500msec.
- Real Time Clock	Real Time Keeper #3300		- Adjustable drive time period
- Scheduler	Scheduler #20020		External power supply
- Calendar	Calendar #20030		Linear (0 to 10VDC)
- Programmable Device	Static Programmable Device #410		Digital (on/off), PWM, or floating (0 - 12VDC); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
- SCC Object	SCC Generic #8500		- PWM control: adjustable period from 2 to 65sec.
Hardware			- Floating control:
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit		- Min pulse on/off: 500msec.
CPU Speed	68 MHz		- Adjustable drive time period
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	Universal	Linear (0 to 10VDC)
Real Time Clock (RTC)	Built-in Real Time Clock without battery Network time synchronization is required at each power-up cycle before the RTC becomes available		Digital (on/off), PWM, or floating (0 - 12VDC); software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
Status Indicator	Green LEDs: power status & LON TX Orange LEDs: service & LON RX		- PWM control: adjustable period from 2 to 65sec.
Communication Jack	LON® mono audio jack		- Floating control:
Environmental			- Min pulse on/off: 500msec.
Operating Temperature			- Adjustable drive time period
- ECB-203	-40°C to 70°C; -40°F to 158°F		- 60mA maximum @ 12VDC (60°C; 140°F)
- ECB-253	0°C to 50°C; 32°F to 122°F		- Minimum load resistance 200 Ω
Storage Temperature	-40°C to 70°C; -40°F to 158°F		- Auto-reset fuse
Relative Humidity	0 to 90% Non-condensing	Output Resolution	10-bit digital / analog converter
			- 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F

Product Specifications (continued)

Enclosure

Material	ABS type PA-765A
Color	Blue casing & grey connectors
Dimensions	
- ECB-203	5.7 L × 4.7 W × 2.03" H (144.78 × 119.38 × 51.47mm)
- ECB-253	5.7 L × 4.7 W × 2.55" H (144.78 × 119.38 × 64.68mm)
Shipping Weight	
- ECB-203	0.97lbs (0.44kg)
- ECB-253	1.08lbs (0.49kg)
Installation	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)

Wireless Receiver²



Communication	EnOcean wireless standard
Number of wireless inputs ³	24
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B
UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁴	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁵

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue. Refer to the respective module's datasheet for related power consumption information.
2. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
3. Some wireless modules may use more than one wireless input from the controller.
4. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
5. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECL-253 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

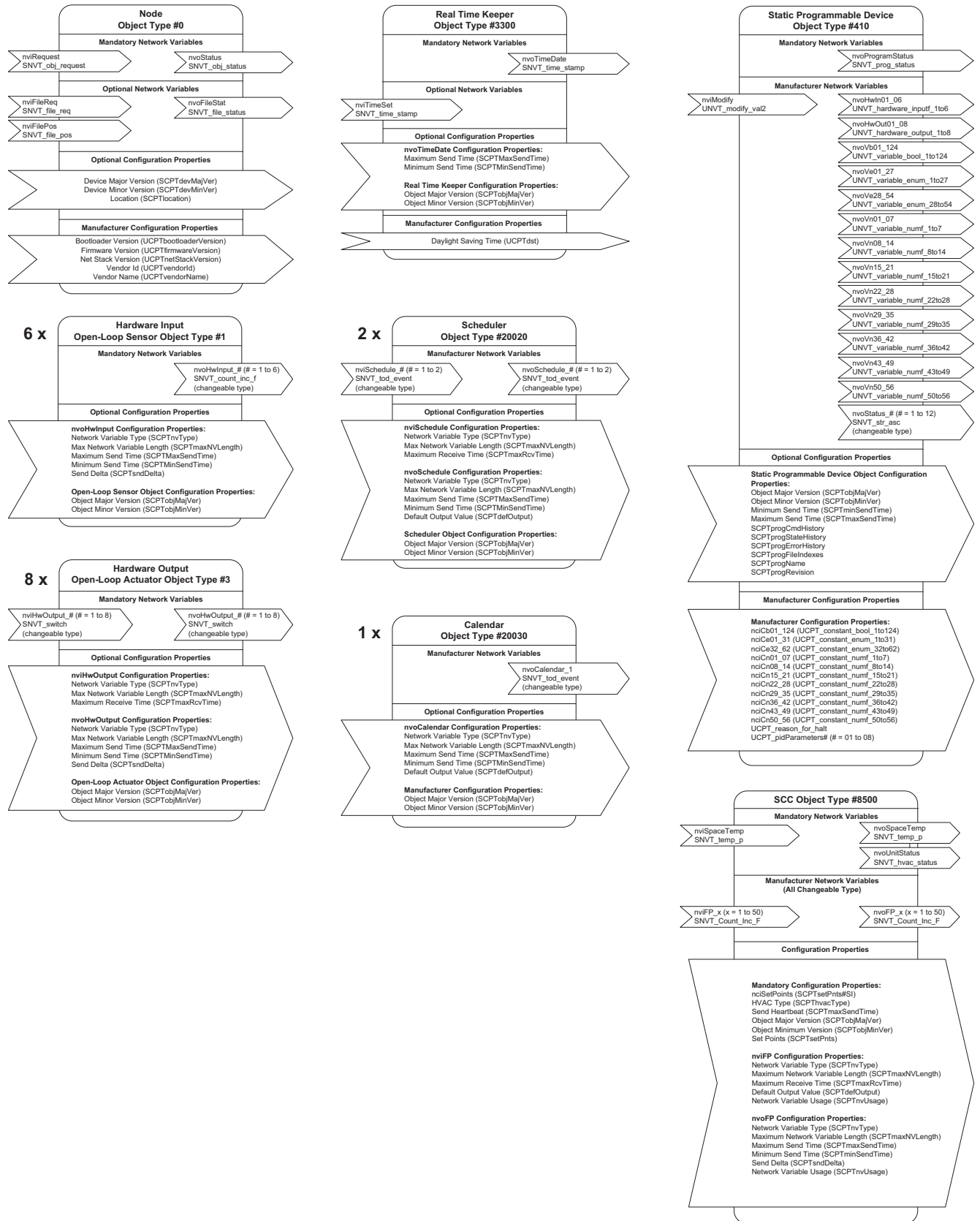
Allure EC-Smart-Vue

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Functional Profile



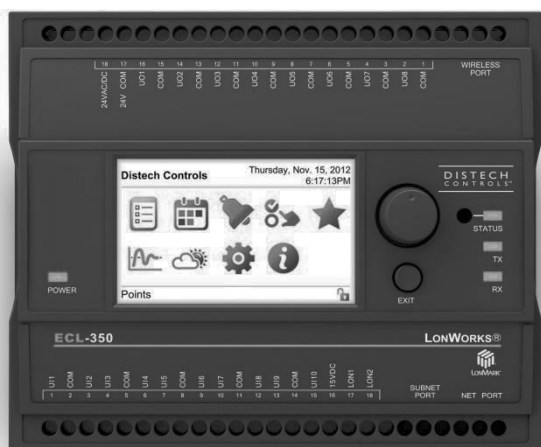
Total Quality Commitment

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Applications

- Meets the requirements of the following applications:
 - Air Handling Units
 - Chillers
 - Boilers
 - Cooling Towers
 - Heat-Exchangers
 - Pumps
 - Lighting Control
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to customize controller operation to meet specific engineering requirements. EC-gfxProgram is accessible in both Niagara^{AX} Framework-based and LNS-based software, allowing you to work with your preferred network management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- LONMARK Static Programmable Device certified, guaranteeing interoperability with other manufacturers' LONMARK certified controllers.
- With 10 software configurable universal inputs and 8 software configurable universal outputs, this controller covers all small to medium-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- 0-20mA inputs and outputs have a jumper that eliminates the need for external resistors.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

Overview

The **ECL-300 Series** are microprocessor-based programmable controllers designed to control equipment such as air handling units, chillers, boilers, pumps, and cooling towers. The ECL-300 series can also be used for lighting control and power measurement applications. This controller uses the LonTalk® communication protocol and is LONMARK certified as a Static Programmable Device, guaranteeing compatibility and interoperability with other manufacturers' LONMARK certified controllers.

This series contains two models as follows: ECL-300 and ECL-350. The ECL-300 series models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECL-350 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-Vue series of communicating room sensors that feature a backlit-display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, this controller is Open-to-Wireless™ ready, and when paired with the Wireless Receiver, it works with a variety of wireless battery-less sensors and switches.

Custom program this controller using EC-gfxProgram through either EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

ECL-300 Series Controllers



Model	ECL-300	ECL-350
Points	18-Point Controller	18-Point Controller with Color Display
Universal hardware inputs	10 ¹	10 ¹
Allure EC-Smart-Vue ²	12	12
Wireless inputs ³	28	28
15 Vdc Power Supply	■	■
Universal outputs	8	8
Operator interface: Interactive color display to monitor and override controller parameters		■
Product Number	CDIL-300X-00	CDIL-350X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an S0 rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

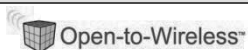
Model	ECL-300	ECL-350
Air Handling Unit	■	■
Chiller	■	■
Boiler	■	■
Cooling Tower	■	■
Pumps	■	■

Additional Features & Benefits for the ECL-350 Model



- The ECL-350 has a large color backlit-display that allows an operator to have immediate access to internal controller data.
- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
 - Visually tune PID loops with system response graphing.
 - View active alarm list including details and acknowledge alarms.
 - Create a list of favorites to provide quick access to commonly-used values.
 - Multi-User access management.
 - Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

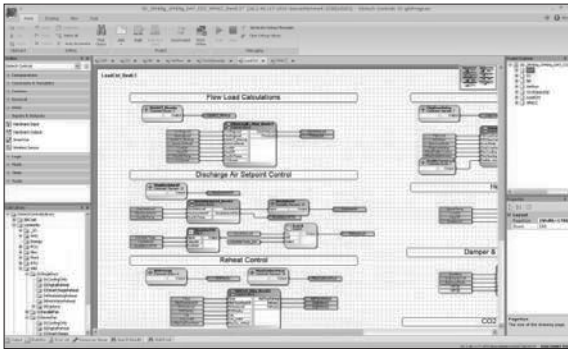


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

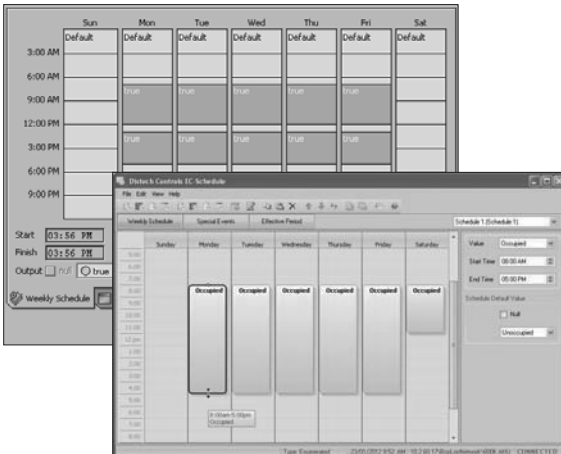
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

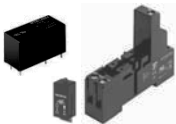


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

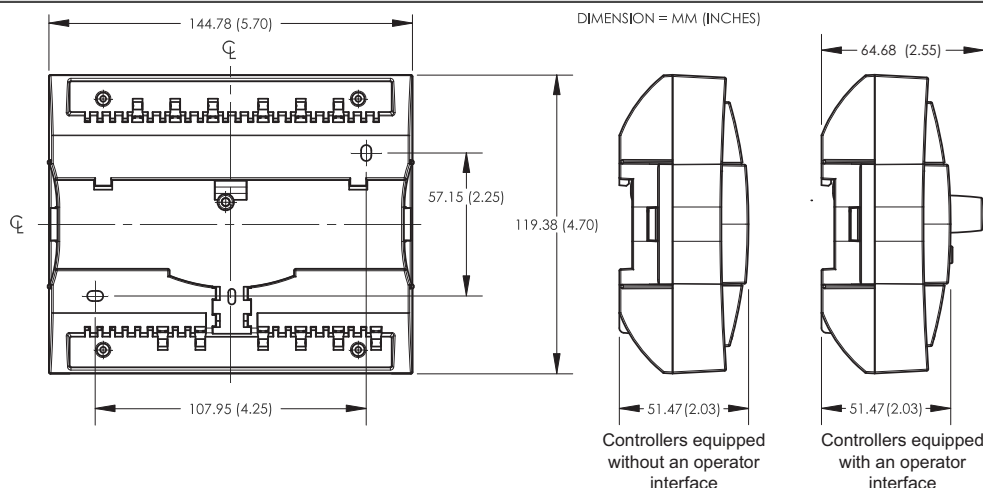
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Product Specifications

Power

Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2
Protection	3.0A user-replaceable fuse
Power Consumption	
- ECL-300	16 VA typical plus all external loads ¹ , 38 VA max.
- ECL-350	19 VA typical plus all external loads ¹ , 41 VA max.

Interoperability

Communication	LonTalk protocol
Transceiver	FT 5000 Free Topology Smart Transceiver
Channel	TP/FT-10; 78Kbps
LONMARK Interoperability	Version 3.4
Guidelines	
Device Class	Static Programmable Device
LONMARK Functional Profile	
- Input objects	Open-Loop Sensor #1
- Output objects	Open-Loop Actuator #3
- Node object	Node object #0
- Real Time Clock	Real Time Keeper #3300
- Scheduler	Scheduler #20020
- Calendar	Calendar #20030
- Programmable Device	Static Programmable Device #410

Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit
CPU Speed	72 MHz
Memory	1 MB Non-volatile Flash (applications) 2 MB Non-volatile Flash (storage) 96 kB RAM
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery Network time synchronization is initially required
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles
Status Indicator	Green LEDs: power status & LON TX Orange LEDs: service & LON RX
Communication Jack	LON® mono audio jack

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative Humidity	0 to 90% Non-condensing

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue. Refer to the respective module's datasheet for related power consumption information.

Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249 Ω jumper configurable internal resistor
-Digital	Dry contact
-Pulse	UI1 to UI4: 50Hz maximum; Min 10ms On/10ms Off - SO output compatible UI5 to UI10: 1Hz maximum; Min 500ms On/500ms Off - Dry contact
-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Input Resolution	16-bit analog / digital converter
Power Supply Output	15VDC; maximum 200mA (10 inputs \times 20mA each)

Outputs

Universal	Linear (0-10VDC) Digital (on/off), PWM, or floating (0 - 12VDC) 0-20mA (jumper configurable); software configurable Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay. - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period - 60mA maximum @ 12VDC (60°C; 140°F)
Load resistance	- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs - Maximum 500 Ω for 0-20mA output
Auto-reset fuse	- 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F
Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions	
- ECL-300	5.7 L × 4.7 W × 2.03" H (144.78 × 119.38 × 51.47mm)
- ECL-350	5.7 L × 4.7 W × 2.55" H (144.78 × 119.38 × 64.68mm)

Shipping Weight

- ECL-300	0.97lbs (0.44kg)
- ECL-350	1.08lbs (0.49kg)

Wireless Receiver¹

Communication	EnOcean wireless standard
Number of wireless inputs ²	28

Supported Wireless	Wireless Receiver (315)
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Receivers	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6.5ft; 2m

Standards and Regulation



CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class A



UL Listed (CDN & US)	UL916 Energy management equipment
Material ³	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database	Appliance Efficiency Program ⁴
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- Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
- Some wireless modules may use more than one wireless input from the controller.
- All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
- California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECL-350 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

Allure EC-Smart-Vue

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Functional Profile



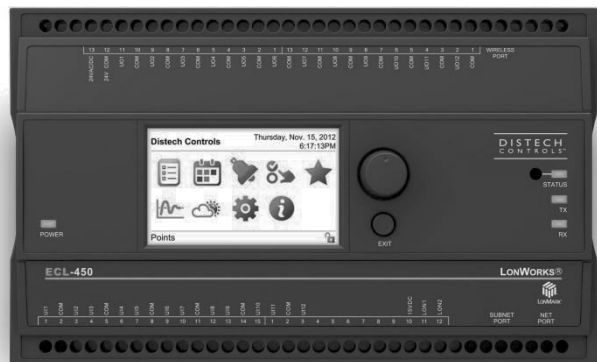
Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **ECL-400 Series** are microprocessor-based programmable controllers designed to control various building automation applications such as air handling units, multi-zone applications, chillers, boilers, pumps, cooling towers, and roof top units. The ECL-400 Series can also be used for lighting control applications. These controllers use the LonTalk® communication protocol and are LONMARK certified as a Static Programmable Device, guaranteeing compatibility and interoperability with other manufacturers' LONMARK certified controllers.

This series contains six models: ECL-400, ECL-403, ECL-410, ECL-413, ECL-450, and ECL-453. These models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECL-450 and ECL-453 models have a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms.

These controllers work with a wide range of sensors, such as those in the Allure™ EC-Smart-View series of communicating room sensors that feature a backlit display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override. In addition, these controllers are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Custom program these controllers using EC-gfxProgram through either EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of the following applications:
 - Air Handling Units
 - Multi-Zone Applications
 - Chillers
 - Boilers
 - Cooling Towers
 - Roof Top Units
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to customize controller operation to meet specific engineering requirements. EC-gfxProgram is accessible in both Niagara^{AX} Framework-based and LNS-based software, allowing you to work with your preferred network management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- LONMARK Static Programmable Device certified, guaranteeing interoperability with other manufacturers' LONMARK certified controllers
- With 12 software configurable universal inputs and 12 software configurable outputs, this controller series covers all medium to large-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- 0-20mA inputs and outputs use an internal jumper that eliminates the need for external resistors.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.
- Supervised HOA switches and potentiometers, allowing you to override control actions for testing purposes or when performing equipment maintenance.

ECL-400 Series Controllers



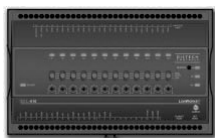
Model	ECL-400	ECL-403	ECL-410	ECL-413	ECL-450	ECL-453
Points	24-Point Controller	24-Point Controller	24-Point Controller with HOA	24-Point Controller with HOA	24-Point Controller with Color Display	24-Point Controller with Color Display
Universal hardware inputs	12 ¹	12 ¹	12 ¹	12 ¹	12 ¹	12 ¹
Allure EC-Smart-Vue ²	12	12	12	12	12	12
Wireless inputs ³	28	28	28	28	28	28
15 Vdc Power Supply	■	■	■	■	■	■
Digital (triac) outputs		8		8		8
Universal outputs	12	4	12	4	12	4
HOA switch & potentiometer			■	■		
Operator interface: Interactive color display to monitor and override controller parameters					■	■
Product Number	CDIL-400X-00	CDIL-403X-00	CDIL-410X-00	CDIL-413X-00	CDIL-450X-00	CDIL-453X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an S0 rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECL-400	ECL-403	ECL-410	ECL-413	ECL-450	ECL-453
Roof Top		■		■		■
Air Handling Unit	■	■	■	■	■	■
Multi-zone Application	■		■		■	
Chiller	■	■	■	■	■	■
Boiler	■	■	■	■	■	■
Cooling Tower	■	■	■	■	■	■

Additional Features & Benefits for the ECL-410, ECL-413, ECL-450, and ECL-453 Models



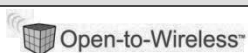
The ECL-410 and ECL-413 have supervised Hand-Off-Auto (HOA) switches and potentiometers provide feedback to the software of an operator's manual override of an output. HOA switches are ideal for testing purposes or when performing equipment commissioning and maintenance.



The ECL-450 and ECL-453 have a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver. For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

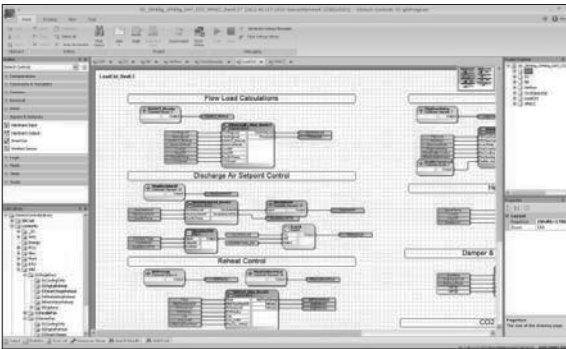


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

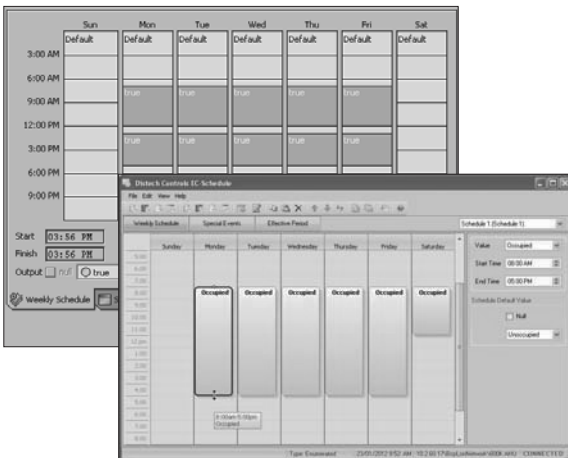
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection. These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

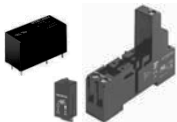


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

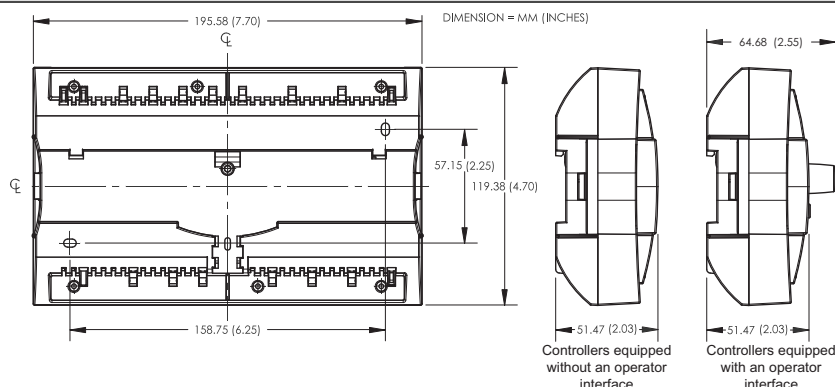
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
Power Consumption ¹		-Current	0 to 20mA with 249 Ω jumper configurable internal resistor
- ECL-400/ECL-410	22 VA typical plus all external loads ¹ , 60 VA max.	-Digital	Dry contact
- ECL-403/ECL-413	22 VA typical plus all external loads ¹ , 50 VA max.	-Pulse	UI1 to UI4; 50Hz maximum; Min 10ms On/10ms Off
- ECL-450	25 VA typical plus all external loads ¹ , 63 VA max.		- SO output compatible
- ECL-453	25 VA typical plus all external loads ¹ , 53 VA max.		UI5 to UI12: 1Hz maximum; Min 500ms On/500ms Off
Interoperability		-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Communication	LonTalk protocol		10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Transceiver	FT 5000 Free Topology Smart Transceiver		Pt1000 (1K Ω @ 0°C; 32°F)
Channel	TP/FT-10; 78Kbps		RTD Ni1000 (1K Ω @ 0°C; 32°F)
LONMARK Interoperability Guidelines	Version 3.4		RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Device Class	Static Programmable Device		16-bit analog / digital converter
LONMARK Functional Profile		Input Resolution	15VDC; maximum 240mA (12 inputs \times 20mA each)
- Input objects	Open-Loop Sensor #1		
- Output objects	Open-Loop Actuator #3		
- Node object	Node object #0		
- Real Time Clock	Real Time Keeper #3300		
- Scheduler	Scheduler #20020		
- Calendar	Calendar #20030		
- Programmable Device	Static Programmable Device #410		
Hardware			
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit		
CPU Speed	72 MHz		
Memory	1 MB Non-volatile Flash (applications) 2 MB Non-volatile Flash (storage) 96 kB RAM		
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery Network time synchronization is initially required		
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles		
Status Indicator	Green LEDs: power status & LON TX Orange LEDs: service & LON RX		
Communication Jack	LON® mono audio jack		
Environmental			
Operating Temperature	0°C to 50°C; 32°F to 122°F		
Storage Temperature	-20°C to 50°C; -4°F to 122°F		
Relative Humidity	0 to 90% Non-condensing		
Enclosure			
Material	FR/ABS		
Color	Black & blue casing & grey connectors		
Dimensions			
- ECL-400/ECL-403/	7.7 L \times 4.7 W \times 2.03" H (195.58 \times 119.38 \times 51.47mm)		
ECL-410/ECL-413			
- ECL-450/ECL-453	7.7 L \times 4.7 W \times 2.55" H (195.58 \times 119.38 \times 64.68mm)		
Shipping Weight			
- ECL-400/ECL-403/	1.17lbs (0.53kg)		
ECL-410/ECL-413			
- ECL-450/ECL-453	1.28lbs (0.58kg)		

Product Specifications (continued)

Wireless Receiver²

Communication	EnOcean wireless standard
Number of wireless inputs ³	28
Supported Wireless Receivers	Wireless Receiver (315)
	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6.5ft; 2m

Standards and Regulation

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B





UL Listed (CDN & US)

UL916 Energy management equipment

Material ⁴	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995
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CEC Appliance Database Appliance Efficiency Program⁵

- External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue. Refer to the respective module's datasheet for related power consumption information.
- Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
- Some wireless modules may use more than one wireless input from the controller.
- All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
- California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECL-450 & ECL-453 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

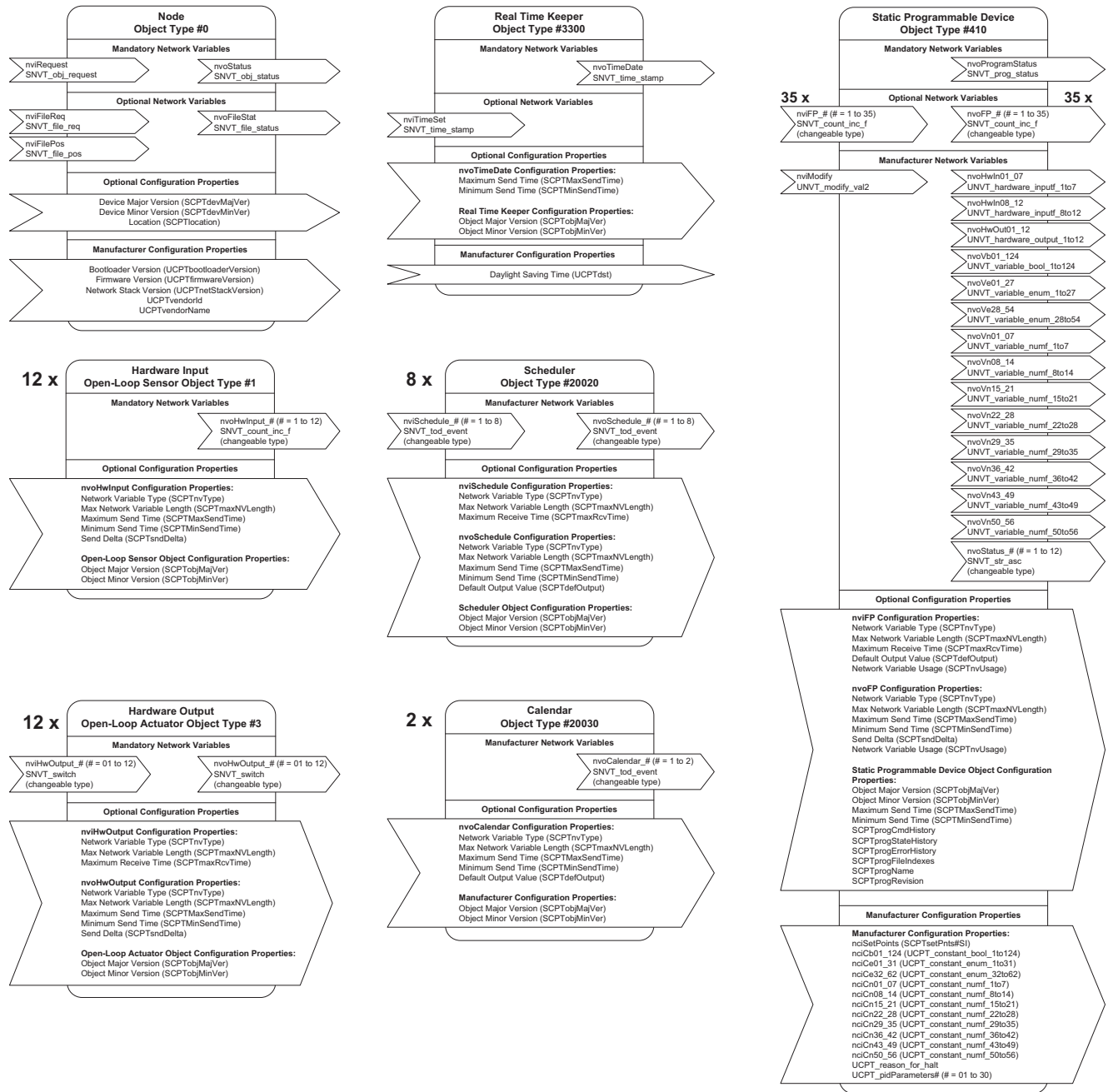
Allure EC-Smart-Vue

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Communication Protocols



Functional Profile



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

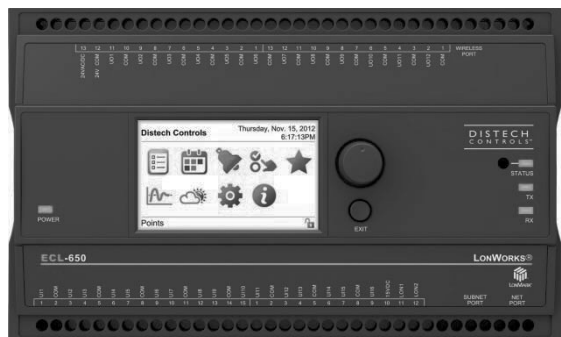
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ECL-600 and ECx-400 Series

LONMARK® Certified Programmable Controllers and I/O Extension Modules



Applications

- Meets the requirements of the following applications:
 - Central Plant
 - Air Handling Units
 - Multi-Zone Applications
 - Chillers
 - Boilers
 - Cooling Towers
 - Roof Top Units
 - Power Measurement
- Improves energy efficiency when combined with:
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Variable-frequency drives to adjust motor speed according to the instantaneous demand of the application
- Works with a wide range of wireless battery-less sensors

Overview

The **ECL-600 Series** are microprocessor-based programmable controllers designed to control various building automation applications such as air handling units, chillers, boilers, pumps, cooling towers, and central plant applications. This series supports up to two ECx modules. These are I/O extension modules that operate off of a separate sub-bus, giving this controller a total of up to 40 universal inputs and 36 universal outputs. These controllers use the LonTalk® communication protocol and are LONMARK certified as a Static Programmable Device, guaranteeing compatibility and interoperability with other manufacturers' LONMARK certified controllers.

This series contains three models as follows: ECL-600, ECL-610, and ECL-650. The ECL-600 series models have universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment. The ECL-650 model has a full-color backlit-display and a jog dial for turn and select navigation to access a wide range of internal controller functions: View, edit, and override values, tune PID loops with system response graphing, view schedule status, and acknowledge alarms. The ECL-610 model has the convenience of supervised Hand-Off-Auto (HOA) switches and potentiometers for supervised manual override of an output.

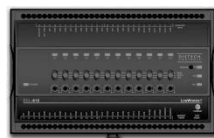
All controller models work with a wide range of sensors, such as those in the Allure™ EC-Smart-View series of communicating room sensors that feature a backlit-display and graphical menus. In addition, all controller models are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Custom program these controllers using EC-gfxProgram through either EC-Net^{AX} Pro which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Features & Benefits

- Use the EC-gfxProgram's state-of-the-art visual programming wizard to create operation sequences that meet specific engineering specifications. EC-gfxProgram is accessible in both Niagara^{AX} Framework-based and LNS-based software, allowing you to work with your preferred network management platform.
- Accelerate custom programming development by using pre-built HVAC control sequences supplied with EC-gfxProgram.
- Available with an optional Wireless Receiver that supports up to 28 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- LONMARK Static Programmable Device certified, guaranteeing interoperability and interchangeability with other manufacturers' LONMARK certified controllers that use the same profile.
- With 16 software configurable universal inputs and 12 software configurable universal outputs, this controller series covers all medium to large-size industry-standard HVAC applications. Four of these inputs also support fast pulse count reading up to 50 Hz frequency for gas, water, and electric meters.
- With up to two extendible I/O modules that operate off of a separate sub-bus, this controller can have a total of up to 40 universal inputs and 36 universal outputs.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones.
- Supervised HOA switches and potentiometers, allowing you to override control actions for testing purposes or when performing equipment maintenance.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECL-600 Series Controllers



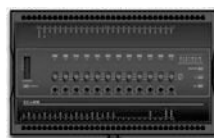
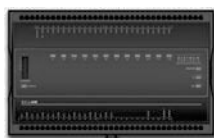
Model	ECL-600	ECL-610	ECL-650
Points	28-Point Controller	28-Point Controller with HOA	28-Point Controller with Color Display
Universal hardware inputs	16 ¹	16 ¹	16 ¹
Allure EC-Smart-Vue ²	12	12	12
Wireless inputs ³	28	28	28
15 Vdc Power Supply	■	■	■
Universal outputs	12	12	12
HOA switch & potentiometer		■	
Operator interface: Interactive color display to monitor and override controller parameters			■
Number of ECx Modules Supported	2	2	2
Product Number	CDIL-600X-00	CDIL-610X-00	CDIL-650X-00

1. The first four inputs are software configurable for pulse counting up to 50 Hz and are compatible with an S0 rated (optically-isolated) output.
2. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.
3. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

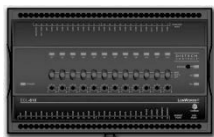
Model	ECL-600	ECL-610	ECL-650
Air Handling Units	■	■	■
Multi-Zone Application	■	■	■
Chiller	■	■	■
Boiler	■	■	■
Cooling Tower	■	■	■
Central Plant	■	■	■

ECx-400 Series I/O Extension Modules



Model	ECx-400	ECx-410	ECx-420
Additional Points	24-Point I/O Extension Module	24-Point I/O Extension Module	12-Point I/O Extension Module
Universal hardware inputs	12	12	12
15 Vdc Power Supply	■	■	■
Universal outputs	12	12	0
HOA switch & potentiometer		■	
Product Number	CDIX-400X-00	CDIX-410X-00	CDIX-420X-00

Additional Features & Benefits for the ECL-610 and ECL-650 Model



The ECL-610 has supervised Hand-Off-Auto (HOA) switches and potentiometers provide feedback to the software of an operator's manual override of an output. HOA switches are ideal for testing purposes or when performing equipment commissioning and maintenance.



The ECL-650 has a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is in alarm or overridden.
- Visually tune PID loops with system response graphing.
- View active alarm list including details and acknowledge alarms.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

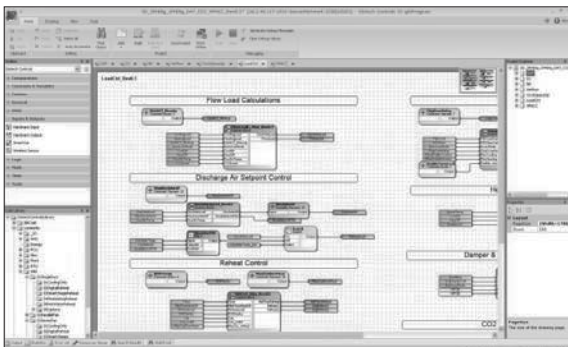


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

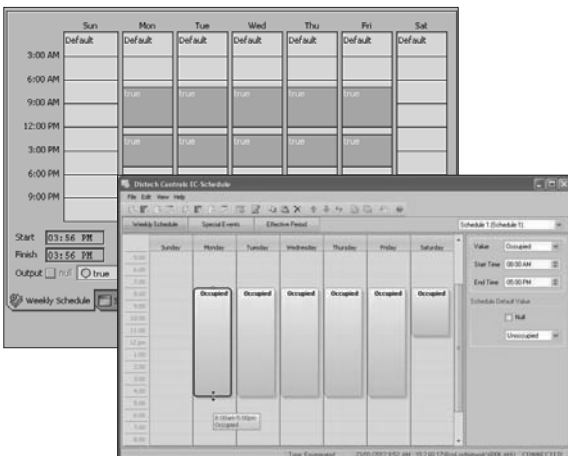
EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: Humidity sensor, motion sensor, and CO₂ sensor. The ECO-Vue™ icon () shows how environmentally-friendly the zone's energy consumption is in real time.

Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: Communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

Open-to-Wireless Sensors and Switches

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: Occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

Wireless Sensors and Switches

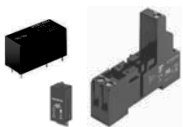


A wide range of self-powered wireless sensors and switches, including the following: Motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a Wireless Receiver.

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

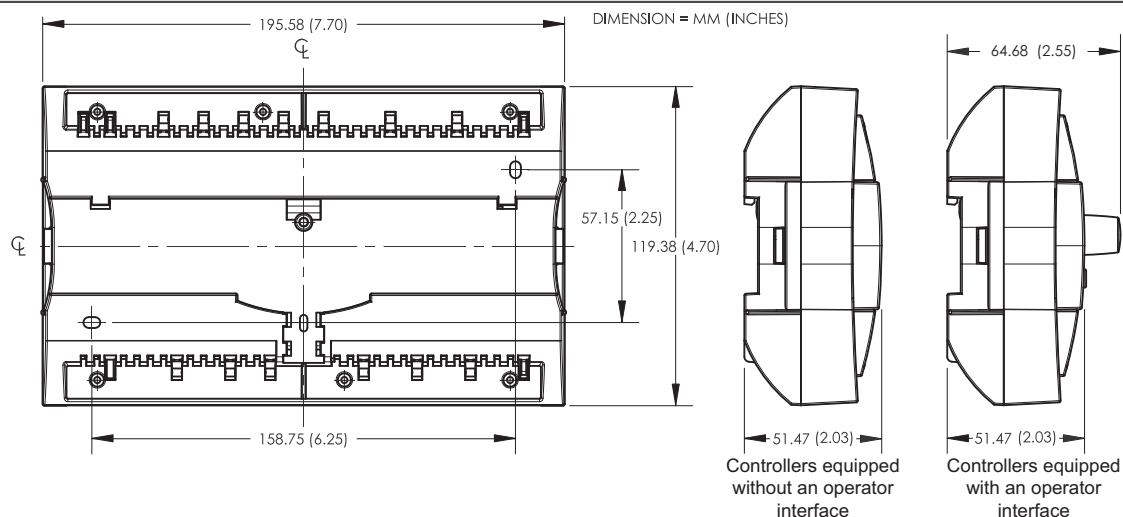
Relay and Relay Base



A SPDT (NO/NC) dry contact relay with a 12VDC coil. This relay's low-power coil allows a controller's universal output to control high-power loads. Optional hardware available includes a din-rail mountable socket base and a red LED for relay status indication.

For more information on these or other Distech Controls products, refer to our web site.

ECL-600 Series Controller Dimensions



ECL-600 Series Product Specifications

Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance)
Power Consumption		-Current	- 0 to 5VDC (high input impedance)
- ECL-600/ECL-610	22 VA typical plus all external loads ¹ , 65 VA max.	-Digital	0 to 20mA with 249 Ω jumper configurable internal resistor
- ECL-650	25 VA typical plus all external loads ¹ , 68 VA max.	-Pulse	Dry contact
Interoperability		-Resistor	UI1 to UI4; 50Hz maximum; Min 10ms On/10ms Off
Communication	LonTalk protocol		- SO output compatible
Transceiver	FT 5000 Free Topology Smart Transceiver		UI5 to UI16: 1Hz maximum; Min 500ms On/500ms Off
Channel	TP/FT-10; 78Kbps		- Dry contact
LONMARK Interoperability	Version 3.4		0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Guidelines			
Device Class	Static Programmable Device	Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
LONMARK Functional Profile		Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
- Input objects	Open-Loop Sensor #1	Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F)
- Output objects	Open-Loop Actuator #3		RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
- Node object	Node object #0	Input Resolution	16-bit analog / digital converter
- Real Time Clock	Real Time Keeper #3300	Power Supply Output	15VDC; maximum 320mA (16 inputs \times 20mA each)
- Scheduler	Scheduler #20020		
- Calendar	Calendar #20030		
- Programmable Device	Static Programmable Device #410		
Hardware		Outputs	
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Universal	Linear (0-10VDC)
CPU Speed	72 MHz		Digital (on/off), PWM, or floating (0 - 12VDC)
Memory	1 MB Non-volatile Flash (applications)		0-20mA (jumper configurable); software configurable
	2 MB Non-volatile Flash (storage)		Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
	96 kB RAM		- PWM control: adjustable period from 2 to 65sec.
Real Time Clock (RTC)	Built-in Real Time Clock with rechargeable battery		- Floating control:
	Network time synchronization is initially required		- Min pulse on/off: 500msec.
RTC Battery	20 hours charge time, 20 days discharge time		- Adjustable drive time period
	Up to 500 charge / discharge cycles		- HOA: Hand-Off-Auto switch (when equipped)
Status Indicator	Green LEDs: Power Status & LAN Tx		- Hand position potentiometer range: 0-12.5VDC
	Orange LEDs: Controller Status & LAN Rx		- 60mA maximum @ 12VDC (60°C; 140°F)
Communication Jack	LON® mono audio jack	Load resistance	- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs
Environmental			- Maximum 500 Ω for 0-20mA output
Operating Temperature	0°C to 50°C; 32°F to 122°F	Auto-reset fuse	- 60mA @ 60°C; 140°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F		- 100mA @ 20°C; 68°F
Relative Humidity	0 to 90% Non-condensing	Output Resolution	10-bit digital / analog converter

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue. Refer to the respective module's datasheet for related power consumption information.

ECL-600 Series Product Specifications (continued)

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions	
- ECL-600/ECL-610	7.7 L × 4.7 W × 2.03" H (195.58 × 119.38 × 51.47mm)
- ECL-650	7.7 L × 4.7 W × 2.55" H (195.58 × 119.38 × 64.68mm)

Shipping Weight

- ECL-600/ECL-610	1.17lbs (0.53kg)
- ECL-650	1.28lbs (0.58kg)

Wireless Receiver¹



Communication	EnOcean wireless standard
Number of wireless inputs ²	28
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Standards and Regulation

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B
UL Listed (CDN & US) Material ³	UL916 Energy management equipment Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program⁴

1. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the [Wireless Resource Guide](#) for a list of supported EnOcean wireless modules.
2. Some wireless modules may use more than one wireless input from the controller.
3. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
4. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

ECL-650 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 L × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

Allure EC-Smart-View

Communication	RS-485
Number of sensors per controller	Up to 12, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

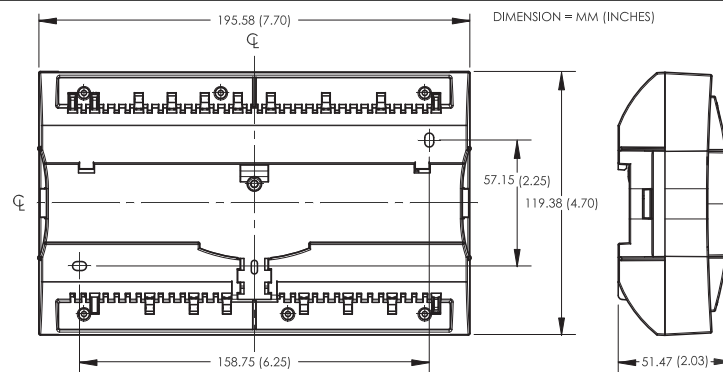
I/O Extension Modules (ECx Series)

Communication	RS-485
Number of I/O Extension Modules per controller	Up to 2, in daisy-chain configuration

Communication Protocols



ECx-400 Series Extendible I/O Module Dimensions



ECx-400 Series Extendible I/O Module Specifications

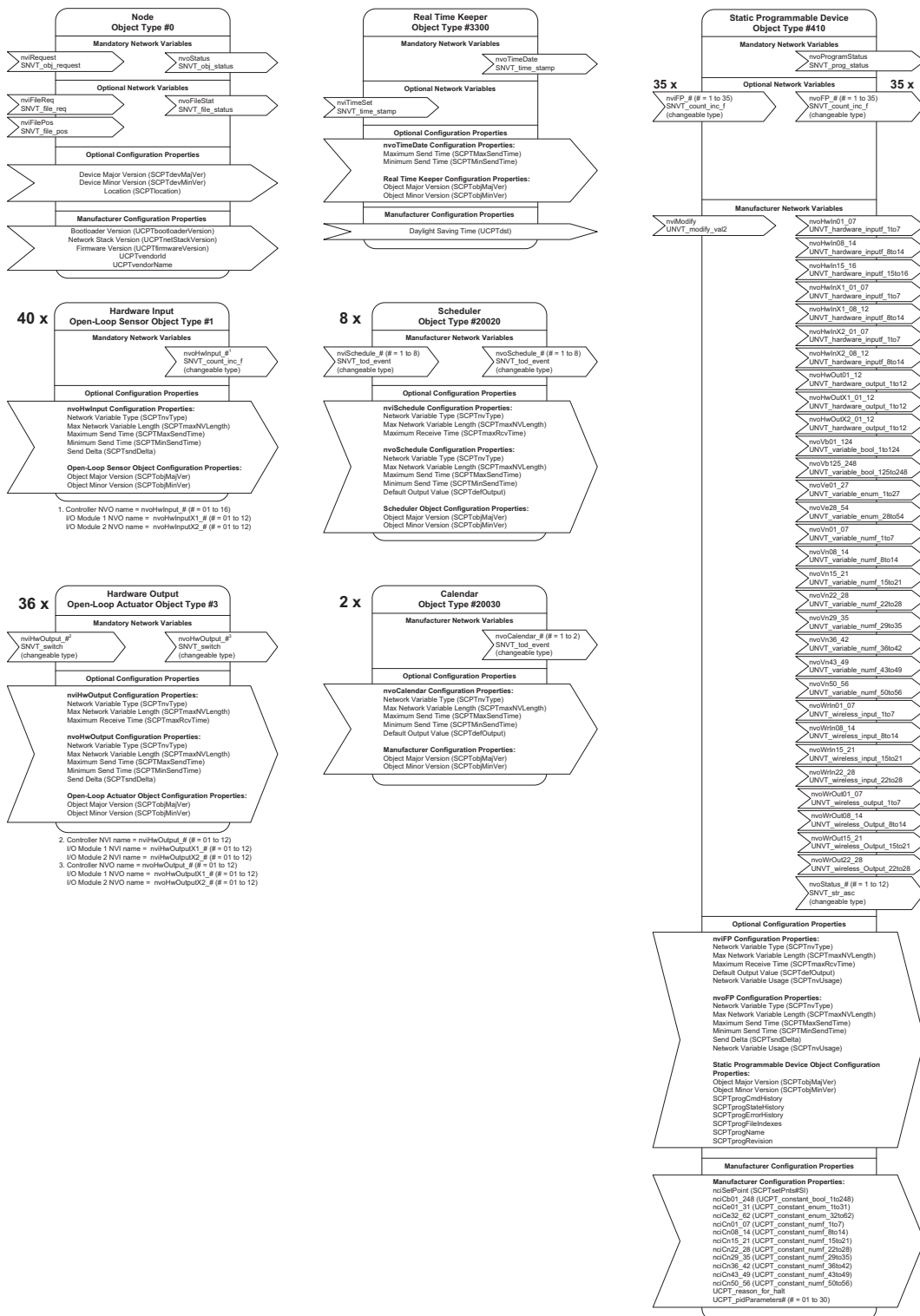
Power		Inputs	
Voltage	24VAC/DC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse	-Voltage	- 0 to 10VDC (40k Ω input impedance)
Power Consumption;	22 VA typical plus all output loads	-Current	- 0 to 5VDC (high input impedance)
ECx-400/ECx-410	50 VA maximum	-Digital	0 to 20mA with 249 Ω jumper configurable internal resistor
Power Consumption;	10 VA typical	-Pulse	Dry contact
ECx-420	16 VA maximum	-Resistor	1Hz maximum, 500ms On/500ms Off
Communication		- Dry contact	
Communication Bus	RS-485	- Thermistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Baud Rate	38 400 bps	Platinum	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Addressing	Dip Switch	Nickel	Pt1000 (1K Ω @ 0°C; 32°F)
Hardware			RTD Ni1000 (1K Ω @ 0°C; 32°F)
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit;	Input Resolution	RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Memory	64 MHz	Power Supply Output	16-bit analog / digital converter
Status Indicator	64 kB Non-volatile Flash (applications and storage)		15VDC; maximum 240mA (12 inputs \times 20mA each)
	20 kB RAM		
	Green LEDs: Power Status & LAN Tx		
	Orange LEDs: Module Status & LAN Rx		
Environmental		Outputs	
Operating Temperature	0°C to 50°C; 32°F to 122°F	Universal	Linear (0-10VDC)
Storage Temperature	-20°C to 50°C; -4°F to 122°F		Digital (on/off), PWM, or floating (0 - 12VDC)
Relative Humidity	0 to 90% Non-condensing		0-20mA (jumper configurable); software configurable
Enclosure			Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
Material	FR/ABS		- PWM control: adjustable period from
Color	Black & blue casing & grey connectors		2 to 65sec.
Dimensions (with Screws)	7.7 L \times 4.7 W \times 2.03" H		- Floating control:
	(195.58 \times 119.38 \times 51.47mm)		- Min pulse on/off: 500msec.
Shipping Weight	1.17lbs (0.53kg)		- Adjustable drive time period
Standards and Regulation			- HOA: Hand-Off-Auto switch (when equipped)
CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments		- Hand position potentiometer range: 0-12.5VDC
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments	Load resistance	- 60mA maximum @ 12VDC (60°C; 140°F)
FCC	This device complies with FCC rules part 15, subpart B, class B	Auto-reset fuse	- Minimum 200 Ω for 0-10VDC and 0-12VDC outputs
UL Listed (CDN & US)	UL916 Energy management equipment	Output Resolution	- Maximum 500 Ω for 0-20mA output
Material ¹	Plastic housing, UL94-5VB flammability rating		- 60mA @ 60°C; 140°F
	Plenum rating per UL1995		- 100mA @ 20°C; 68°F



1. All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive



Functional Profile – ECL-600



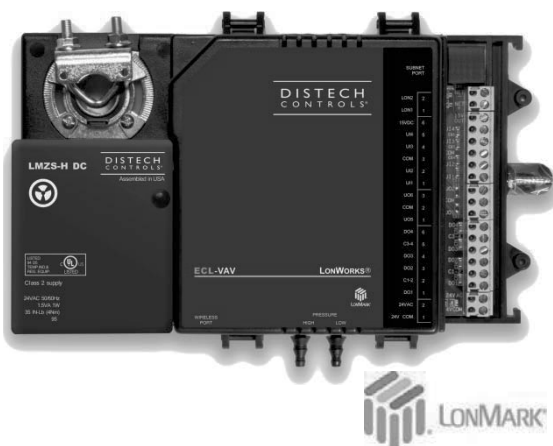
Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Overview

The **ECL-VAV series** are microprocessor-based programmable variable air volume (VAV) controllers designed to control any variable air volume box. Each controller uses the LonTalk® communication protocol and is LONMARK certified as an SCC VAV.

This series contains five models as follows: ECL-VAVS-O, ECL-VAVS, ECL-VAV, ECL-VVTS, and ECL-VAV-N. Models with inputs support various measurement types including resistance, voltage, and digital-based ones. All models provide digital, floating, pulse width modulation, and proportional control outputs for valves, heating elements, fans, and lighting applications. In particular, the ECL-VAVS-O, ECL-VAVS, ECL-VAV, and ECL-VAV-N models have an on-board air flow sensor with a range of 0-2 inches of water column (500 Pascal) and the ECL-VAVS-O, ECL-VAVS, ECL-VAV, and ECL-VVTS models have a built-in brushless actuator for precise damper positioning for loads requiring up to 35 inch-pounds (4 Newton-meters) of torque.

All controller models work with the Allure™ EC-Smart-View series of communicating sensors that feature a backlit display and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, and occupancy state override. An Allure EC-Smart-View can be used to perform system air balancing without requiring an onsite controls engineer and to commission and troubleshoot the system. In addition, all controller models are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Factory preloaded applications allow these controllers, straight out of the box, to operate standard VAV equipment with a proven energy-efficient sequence of operation thereby eliminating the need for programming. The preloaded application can be selected using an Allure EC-Smart-View even before the network has been installed for rapid deployment or through the EC-Net^{AX} solution using Distech Controls' *dcmfx* Applications. Or use EC-*gmx* Program through either EC-Net^{AX} Pro, which is powered by the Niagara^{AX} Framework® or through any LNS®-based software such as Distech Controls' Lonwatcher 3. These same controllers are fully programmable to allow you to easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

- Meets the requirements of single duct VAV zone applications, including:
 - Cooling Only VAV Boxes
 - Cooling with Reheat VAV Boxes
 - Parallel Fan VAV Boxes
 - Series Fan VAV Boxes
 - Dual-Duct VAV Systems
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Preloaded applications save setup time: One technician can locally configure and troubleshoot the VAV with an Allure EC-Smart-View without any need for a programming interface.
- Integrated VAV Performance Assessment Control Charts (VPACC) control sequences, provides a means of automatically detecting when the VAV is operating outside of its design parameters including: Persistent High / Low Space Temperature, Persistent High / Low Discharge Temperature, Persistent High / Low Air Flow, and Unstable Air Flow.
- LONMARK SCC VAV certified, guaranteeing interoperability with other manufacturers' LONMARK certified controllers.
- Accurate on-board air flow sensor for precise air flow monitoring and control at low and high air flow rates, permitting you to design for maximum energy efficiency while maintaining an optimal comfort level (except ECL-VVTS models).
- Built-in actuator with a brushless motor and integrated position feedback system eliminates periodic damper re-initialization and ensures worry-free operation, providing increased occupant comfort and extended service life (except ECL-VAV-N models).
- Optimized air balancing process saves time during commissioning: The flow sensor requires no zero flow calibration, and its variable-speed motor goes to minimum and maximum flow settings in half the time of typical VAV actuators.

Features & Benefits (continued)

- Available with an optional Wireless Receiver that supports up to 18 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches. With up to 4 software configurable universal inputs and up to 6 software configurable outputs, this controller series covers all industry-standard VAV applications.
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 0 Ohms to 350 000 Ohms, giving you the freedom to use your preferred or engineer-specified sensors, in addition to any existing ones.
- Rugged hardware Inputs and Outputs eliminate need for external protection components, such as diodes for 12V DC relays.

ECL-VAV Series Controllers



Model	ECL-VAVS-O	ECL-VAVS	ECL-VAV	ECL-VVTS	ECL-VAV-N
Points	5-Point VAV	7-Point VAV	12-Point VAV	6-Point VVT	11-Point VAV
Universal hardware inputs	0	2	4	2	4
Built-in flow sensor	■	■	■		■
Allure EC-Smart-View	4	4	4	4	4
Wireless inputs ¹	18	18	18	18	18
15 Vdc Power Supply			■		■
Universal output	1	1	2	1	2
Digital (triac) outputs	2	2	4	2	4
Built-in Actuator	■	■	■	■	
Product Number	CDIL-VASO-00	CDIL-VASX-00	CDIL-VAXX-00	CDIL-VTSX-00	CDIL-VANX-00

1. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Recommended Applications

Model	ECL-VAVS-O	ECL-VAVS	ECL-VAV	ECL-VVTS	ECL-VAV-N
Cooling Only VAV Box	■	■		■	
Cooling w/ Reheat VAV Box	■	■		■	
Cooling w/ Reheat VAV Box & Perimeter Heating			■		
Parallel Fan VAV Box			■		
Series Fan VAV Box			■		
Dual Duct VAV Box ^{1,3}	■	■			
Large Damper VAV Box ²					■
Existing Damper Actuator					■
Room Pressurization			■		

1 Two controllers are required or one controller with an external flow sensor and actuator.

2 Requiring More Than 35 in-lb (4 Nm) Actuator Torque.

3 This configuration is not supported by factory preloaded applications. Programming is required.

Open-to-Wireless Wireless Receiver – Optional



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables every controller from this series to communicate with a line of wireless battery-less room sensors and switches.

Wireless Receiver (315) - Receiver for EnOcean® 315MHz wireless battery-less sensors and switches

Wireless Receiver (868) - Receiver for EnOcean 868.3MHz wireless battery-less sensors and switches

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the Wireless Receiver Datasheet. These documents can be found on our web site.

Supported Platforms



EC-Net^{AX} Solution

The EC-Net^{AX} multi-protocol integration solution is web-enabled and powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net^{AX} open framework solution creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

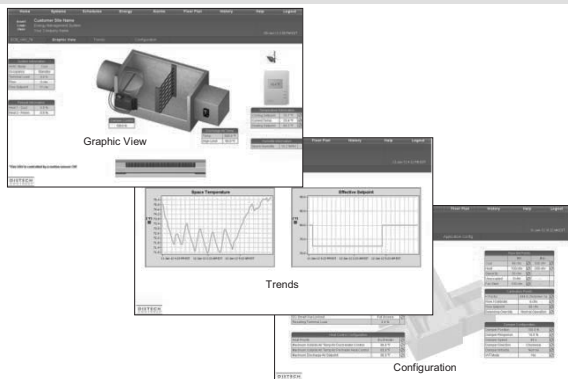


LONWORKS Network Services (LNS)

The LNS[®] client-server platform allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

EC-Net^{AX} Wizards and LNS Plug-Ins

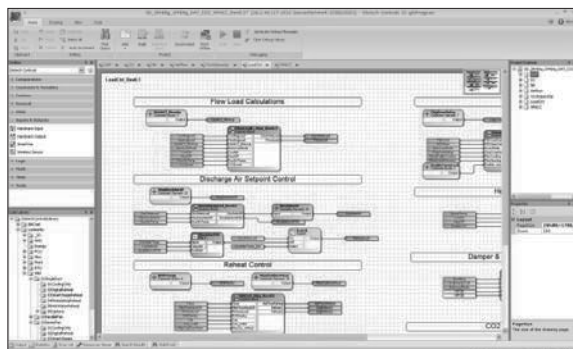
EC-Net^{AX} Px Graphics Page Support for Preloaded Applications with EC-Net^{AX} dc *gfxApplications*



In the EC-Net^{AX} solution, dc *gfxApplications* provide ready-to-use Px graphics pages for the ECL-VAV series of factory preloaded controllers. Once the controller is online, select any one of the standard VAV pre-configured controller applications to use. This provides a proven energy-efficient sequence of operation without any need for programming.

The graphics on the Px graphics page automatically update to show the currently selected controller application, the current VAV box's operational parameters with the ability to configure and override operation.

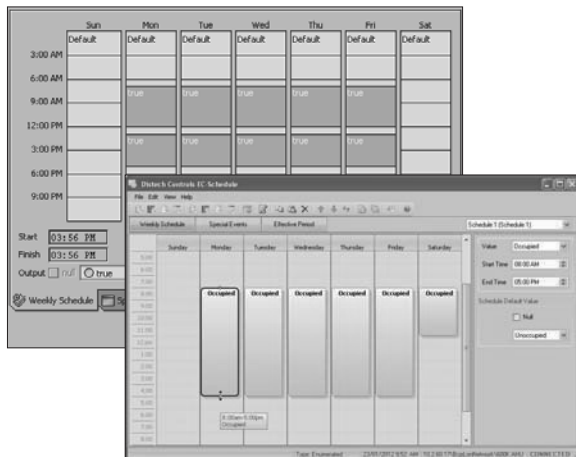
EC-*gfxProgram* Graphical Programming Interface (GPI)



Distech Controls' EC-*gfxProgram* is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-*gfxProgram* datasheet for more information.

- Program both ECP and ECL Series LONWORKS and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections or use *gfxApplications* which allows you to fine-tune the code to meet engineering-specific requirements, while providing full integration of ready-to-use Px graphics pages from dc *gfxApplications*.

EC-Net^{AX} Scheduling / EC-Schedule LNS Plugin / EC-*gfxProgram* EC-Schedule



Configure the controller's built-in schedules and holidays from EC-Net^{AX} solution (ECB and ECL series controllers), LNS (ECL series controllers), or directly from within EC-*gfxProgram* (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.

- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

Complementary Products

Temperature Sensors

Allure™ EC-Smart-Vue Series

Line of communicating sensors with backlit display and graphical menus. VAV commissioning can start immediately after installation, as it can also be used as a hand-held tool. This sensor is used to select the appropriate VAV controller application for the VAV box configuration in use, to perform air balancing of the system without requiring an onsite controls engineer, and to troubleshoot the system. The ECO-Vue™ icon (🌿) shows how friendly the zone's energy consumption is in real time.



EC-Smart-Vue

Communicating room temperature sensor with backlight display, graphic menus, and ECO-Vue.

EC-Smart-Vue-H

Communicating room temperature and humidity sensor with backlight display and, graphic menus, and ECO-Vue.

Allure EC-Sensor Series

Line of discrete sensors



EC-Sensor

Room temperature sensor with communication jack

EC-Sensor-O

Room temperature sensor with occupancy override button and communication jack

EC-Sensor-S

Room temperature sensor with setpoint adjustment and communication jack

EC-Sensor-SO

Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack

EC-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Open-to-Wireless Sensors and Switches (requires Wireless Receiver)

Allure Wireless Battery-less ECW-Sensor Series

Line of wireless, battery-less sensors. Available in EnOcean 315MHz and 868.3MHz versions.



ECW-Sensor

Room temperature sensor

ECW-Sensor-O

Room temperature sensor with occupancy override button

ECW-Sensor-S

Room temperature sensor with setpoint adjustment

ECW-Sensor-SO

Room temperature sensor with setpoint adjustment and occupancy override button

ECW-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

Wireless Sensors and Switches



SR-MDS

Wireless solar-cell powered motion detector and light sensor for room occupancy detection and/or lighting applications. Available in EnOcean 315MHz and 868.3MHz versions.



2-channel Light Switch
4-channel Light Switch

2-/4-channel wireless light switches (European models). Available in EnOcean 315MHz and 868.3MHz versions.



PTM265
PTM265D

2-/4-channel wireless light switches (North American models). Available in EnOcean 315MHz and 868.3MHz versions.

For more information about the available wireless sensors and switches, refer to the Open-to-Wireless Solution Guide which can be found on our web site.

Other

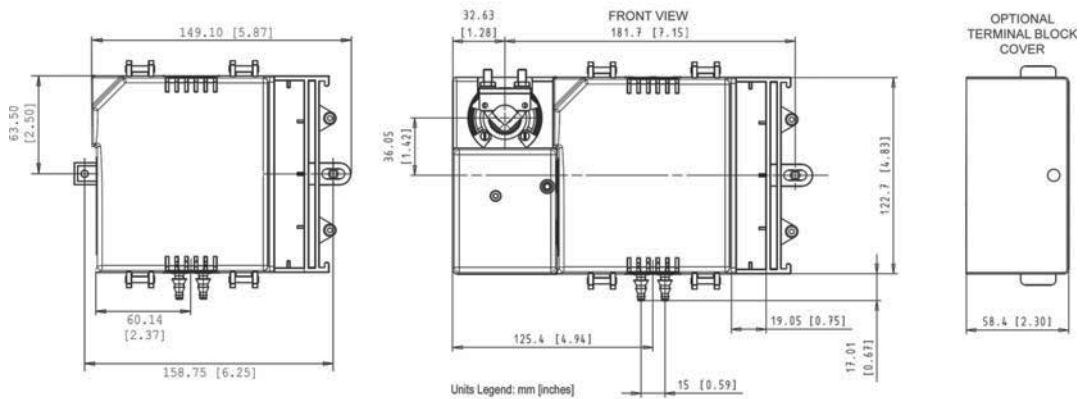


VAV Terminal Block
Cover

A cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.

For more information on these or other Distech Controls products, refer to our web site.

Controller Dimensions



Product Specifications

Power

Voltage	24VAC; $\pm 15\%$; 50/60Hz; Class 2
Protection	2.0A user-replaceable fuse 3.0A user-replaceable fuse for triacs when using the internal power supply
Power Consumption	10 VA typical plus all external loads 85 VA maximum

Interoperability

Communication	LonTalk protocol
Transceiver	FT 5000 Free Topology Smart Transceiver
Channel	TP/FT-10; 78Kbps
LONMARK Interoperability Guidelines	Version 3.4
Device Class	SCC VAV
LONMARK Functional Profile	
- Input objects	Open-Loop Sensor #1
- Output objects	Open-Loop Actuator #3
- Node object	Node object #0
- Real Time Clock	Real Time Keeper #3300
- Scheduler	Scheduler #20020
- Calendar	Calendar #20030
- Programmable Device	Static Programmable Device #410
- SCC Object	SCC VAV #8502

Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit
CPU Speed	68 MHz
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM
Real Time Clock (RTC)	Built-in Real Time Clock without battery: Network time synchronization is required at each power-up cycle before the RTC becomes available
Status Indicator	Green LEDs: Power Status & LAN Tx Orange LEDs: Controller Status & LAN Rx

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative Humidity	0 to 90% Non-condensing

Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40k Ω input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249 Ω external resistor (wired in parallel)
-Digital	Dry contact
-Pulse	Dry contact; 500ms minimum ON/OFF
-Resistor	0 to 350 K Ω . All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
Thermistor	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F)
Platinum	Pt1000 (1K Ω @ 0°C; 32°F)
Nickel	RTD Ni1000 (1K Ω @ 0°C; 32°F) RTD Ni1000 (1K Ω @ 21°C; 69.8°F)
Input Resolution	16-bit analog / digital converter
Differential Pressure	0 to 2.0 in. W.C. (0 to 500 Pa)
-Input Resolution	0.00007 in. W.C. (0.0167 Pa)
-Air Flow Accuracy	$\pm 4.0\%$ @ > 0.05 in. W.C. (12.5 Pa) $\pm 1.5\%$ once calibrated through air flow balancing @ > 0.05 in. W.C. (12.5 Pa)
Power Supply Output	15VDC; maximum 80mA (4 inputs x 20mA each)

Outputs

Digital	24 VAC Triac, digital (on/off), PWM, or floating; software configurable - 0.5A continuous - 1A @ 15% duty cycle for a 10-minute period - PWM control: adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period External or internal power supply (jumper selectable)
Universal	Linear (0 to 10VDC) Digital (on/off), PWM, or floating (0 - 12VDC); software configurable. Built-in snubbing diode to protect against back EMF, for example when used with a 12VDC relay. - PWM control: Adjustable period from 2 to 65sec. - Floating control: - Min pulse on/off: 500msec. - Adjustable drive time period - 20mA maximum @ 12VDC - Minimum load resistance 600 Ω
Output Resolution	10-bit digital / analog converter

Product Specifications (continued)

Enclosure

Material	FR/ABS
Color	Black & blue casing & grey connectors
Dimensions (with Screws)	
- ECL-VAV-N	4.8" x 5.9" x 2.5" (122.7 x 149.1 x 63.0mm)
- Other models	4.8" x 8.4" x 2.5" (122.7 x 214.3 x 63.0mm)
Shipping Weight	ECL-VAV-N: 0.92lbs (0.42kg)
	Other models: 2.30lbs (1.05kg)

Integrated Damper Actuator

Motor	Belimo LMZS-H brushless DC motor
Torque	35 in-lb, 4 Nm
Degrees of Rotation	95° adjustable
Fits Shaft Diameter	5/16 to 3/4"; 8.5 to 18.2mm
Acoustic Noise Level	< 35 dB (A) @ 95° rotation in 95 seconds



Wireless Receiver¹

Communication	EnOcean wireless standard
Number of wireless inputs ²	18
Supported Wireless	Wireless Receiver (315)
Receivers	Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

Electromagnetic Compatibility

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



- Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
- Some wireless modules may use more than one wireless input from the controller.
- All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Allure EC-Smart-Vue

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

Agency Approvals

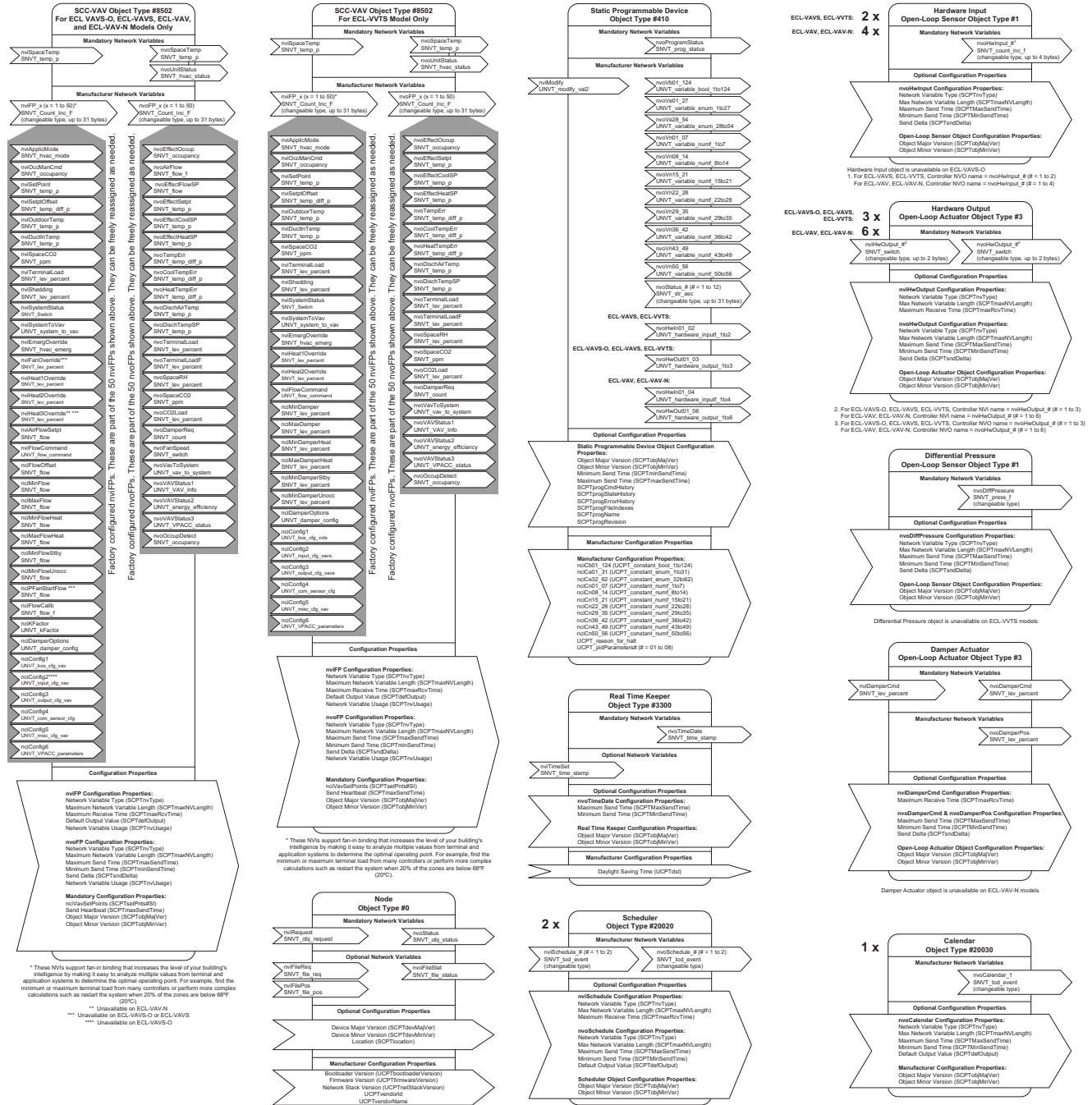
UL Listed (CDN & US)	UL916 Energy management equipment
Material ³	UL94-5VA



Communication Protocols



7/8



Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

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Applications

Meets the requirements of the following applications:

- Fan Coil Units
- Unit Ventilators
- Chilled Ceilings
- Small Air Handling Units
- Lighting and Sunblinds when associated to RCx add-on modules

Improves energy efficiency when combined with:

- Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
- CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
- Window-contact sensors

Works with a wide range of sensors

Features & Benefits

- Easily configurable using LNS-based plug-ins or EC-Net^{AX}-based wizards, allowing you to work with your preferred network management platform
- Most advanced yet cost-effective solution for addressing any terminal unit application, eu.bac certified (RCL-PFC-207 only)
- Expandable with lighting and sunblinds add-on modules for unprecedented adaptability
- Smart cross-management of HVAC, lighting and sunblinds as a whole for up to 45% energy savings
- LonMark certified according to the Interoperability Guidelines Version 3.4
- Compatible with the RFR-K Wireless Receiver, letting you create wire-free installations and use various wireless battery-less sensors and switches.
- A single point on the network for the main HVAC controller and its associated add-on modules, leading to easier BMS integration
- Optional strain relief and terminal block cover for flexible installation, in ceilings, closed to lighting and sunblind devices, or directly on HVAC equipments, to reduce wiring costs and expand installation possibilities
- Separable connectors, allowing to start on-site wiring while engineering is done at the office
- DIN rail mounting integrated into the enclosure for fast and reliable installation

Overview

The **RCL-PFC Series** are microprocessor-based configurable controllers designed to control a wide variety of terminal units such as powered fan coil units, unit ventilators, chilled ceilings and small air handling units.

This series can command up to 4 lights and 4 sunblinds through RCx modules. These are add-on modules that operate off of a separate sub-bus, giving this controller the ability to manage lighting and sunblinds for a full cross-management solution forming a single point on the network. These controllers use the LONTALK® communication protocol and are LONMARK® certified as SCC Fan Coil controllers.

The RCL-PFC Series supports various input types including sensor, pulse, and digital-based ones. Moreover, they provide analog, floating, and proportional control outputs for valves, heating elements and fans.

All controller models work with a wide range of sensors, such as the Allure™ RS-Smart-Sense, a customizable room sensor that features a color TFT Touch screen and graphical menus. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy state override, as well as light and sunblinds management for a complete cross-management integration.

Each controller can be configured using LNS®-based plug-in or the EC-Net^{AX} wizard, powered by the Niagara^{AX} Framework®. Either way, a configuration interface exists that simplifies the setup of HVAC and lighting and sunblinds applications through an intuitive menu-based user interface.

RCL-PFC

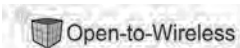


Model	RCL-PFC-107	RCL-PFC-108	RCL-PFC-207	RCL-PFC-208
Points	12-Point Controller	12-Point Controller	14-Point Controller	14-Point Controller
Configurable inputs	6	6	6	6
Electric Heater outputs	1	1	1	1
Analog output 0-10 V			2	2
Fan outputs	3	3	3	3
PWM Valve outputs 230 VAC	2		2	
PWM Valve outputs 24 V		2		2
24 VAC Generation 7 VA				■
Expandable with lighting & sunblinds add-on modules	■	■	■	■
Product Number	XPCP0255	XPCP0259	XPCP0257	XPCP0261

Recommended Applications

Model	RCL-PFC-107	RCL-PFC-108	RCL-PFC-207	RCL-PFC-208
2 Pipe Fan Coil	■	■	■	■
2 Pipe Fan Coil with Changeover	■	■	■	■
2 Pipe Fan Coil with Electric Heater	■	■	■	■
2 Pipe Fan Coil with Electric Heater and Changeover	■	■	■	■
4 Pipe Fan Coil	■	■	■	■
4 Pipe Fan Coil with Electric Heater	■	■	■	■
Electric Heater	■	■	■	■
Unit Ventilator	■	■	■	■
Chilled Ceiling	■	■	■	■
Variable Fan Speed Control			■	■
0-10 V Valves Control			■	■
Air Quality Management			■	■

Wireless Receivers



To reduce the cost of installation, and minimize the impact on existing partition walls, these wireless receivers enable the controllers to communicate with a line of wireless battery-less room sensors, remote controls and switches

RFR Series



RFR-K

Radio receiver

RFR-K-ENOCEAN

EnOcean radio receiver 868 MHz

RIR Series



RIR-L

White infrared receiver and lux sensor

RIR-B

White infrared receiver

RIR-I

Transparent infrared receiver

Inputs Configuration Table						
Assignable Input Functions	D11	D12	SI3	D14	AI5	D16
Window	■	■		■		■
Presence	■	■		■		■
Dewpoint	■	■		■		■
Changeover	■	■		■		■
Auxiliary contact	■	■		■		■
Flow switch	■	■		■		■
Alarm	■	■		■		■
Analog input 0-10V					■	
Counter 1	■	■				■
Counter 2	■	■				■
Counter 3	■	■				■
Room temperature - 10K Type Z			■			
Room temperature - 10K Type II			■			
Room temperature with occupancy reinitialization push button and LED indicator - 10K Type II			■			
Room temperature with occupied/unoccupied push button and LED indicator - 10K Type II			■			
Discharge air temperature - 10K Type Z	■		■			
Discharge air temperature - 10K Type II	■		■			
Setpoint offset - 0-5V					■	
Setpoint offset - 10K rotary potentiometer		■				
Fan speed selector - 0-5V	■					
Fan speed selector - 10K rotary potentiometer	■					

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



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EC-Net^{AX} Wizards and LNS Plug-Ins

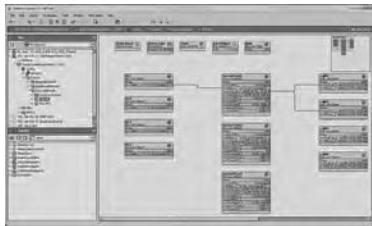


Designed for use respectively with EC-Net^{AX} (powered by the Niagara^{AX} Framework) or LNS-based softwares such as Distech Controls' Lonwatcher 3, the EC-Net^{AX} Wizards and LNS plug-in can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others, as well as all the connected add-on modules' parameters

- User-friendly interface to easily and efficiently configure the controller's parameters
- One wizard only for the controller and its associated add-on modules
- Powerful import/export functionalities to duplicate a controller's settings for reuse
- Download configuration to multiple devices for large BMS integration

Configuration Softwares

EC-Net^{AX}



EC-Net^{AX} is a suite of Niagara^{AX}-based products designed to integrate diverse smart devices into a unified, Internet-enabled, web-based system. EC-Net^{AX} solutions integrate LONWORKS®, BACnet®, oBIX, Internet and web services protocols in a software platform that can be used in embedded controllers or server applications.

EC-Net^{AX} includes integrated network management tools to support the design, configuration, installation, and maintenance of interoperable networks.

- Connects to almost any embedded device, regardless of manufacturer or communication protocol, as a result the common environment created by Niagara^{AX}'s open Java-based Framework.
- Includes a comprehensive, graphical toolset that enables users to build rich applications in a drag-and-drop environment. By wiring components together, developers build control strategies, alarming and scheduling applications as well as browser-based displays and reports.
- Reduces development time by merging automation, IT and Internet technologies in a single solution. With an EC-BOS^{AX}, advanced web-services applications, such as TCP/IP, HTTP, XML, SOAP, and oBIX, can be implemented so that you can read data, send commands, and respond to alarms in real-time from anywhere using any standard web browser.
- Integrates geographically dispersed, multi-vendor devices into an interoperable application to save time and money.

LonWatcher 3

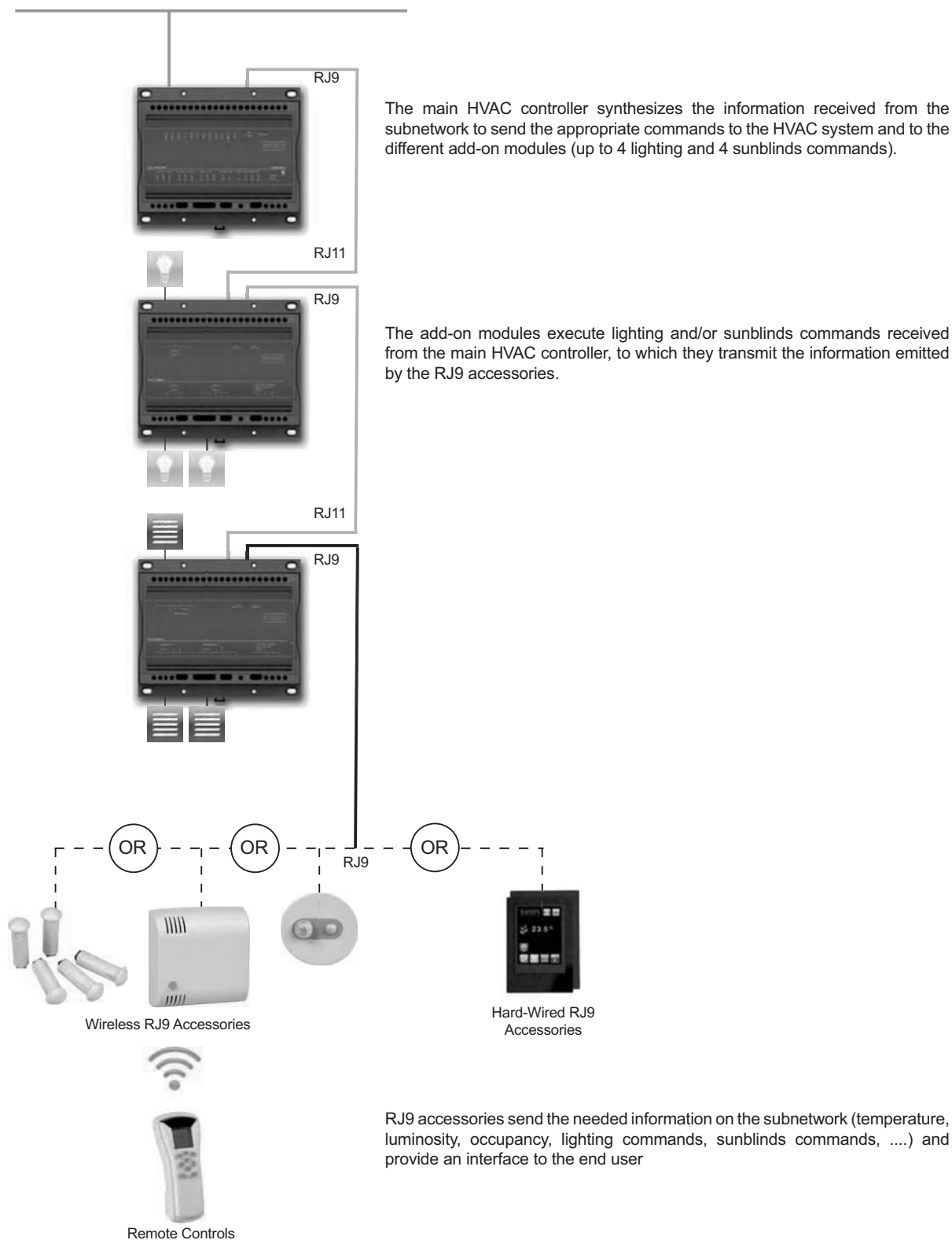


The Lonwatcher 3 network management tool is an innovative software for fast set-up and cost efficient implementation of the Distech Controls' LONWORKS products, as well as other multivendor open and interoperable LONWORKS networks, and their interaction. This intuitive yet sophisticated tool provides network integrators with advanced features and all the resources necessary to install, operate and maintain LONWORKS networks. Based on LNS TURBO Edition network operating system, Lonwatcher 3 is a performance-driven, highspeed application, allowing a fast response time from the application and increasing user productivity.

- Build, commission and maintain multi-vendor, open and interoperable LONWORKS networks.
- Manage multiple LONWORKS networks simultaneously.
- Batch operations to copy/paste multiple networks, subsystems and devices reducing time for commissioning, replacing and loading devices.
- Compatible with other LNS® databases created with any LNS network management tool.
- Supports LNS standard plug-in applications, allowing for easy integration of Distech Controls devices as well as other manufacturers' devices.
- Create device status reports to get information such as devices in override, in alarm, etc.
- Fully supports i.LON® Internet Servers.
- Create dynamic network variables.
- User Manager, to prevent unauthorized system access, and to manage user rights.
- Support of any LNS or IP network interfaces.

RCL-PFC Subnetwork Overview

The RCL-PFC Solution combines a main HVAC Controller with add-on modules dedicated to lighting and sunblinds management to form a modular solution within a single point on the network.



Complementary Products

Add-On Modules

Lighting Add-On Modules



RCx-Light-3

3 ON/OFF light add-on module (receives L1, L2 and L3 commands)



RCx-Light-3D

3 dimming light add-on module (receives L1, L2 and L3 commands)

Sunblinds Add-On Modules



RCx-Blind-3

3 sunblind (230 VAC) add-on module (receives S1, S2 and S3 commands)



RCx-Blind-2LV

2 sunblind (24 V) add-on module (receives S1 and S2 commands)

Lighting & Sunblinds Add-On Modules



RCx-Duo-2D1

2 dimming light + 1 sunblind (230 VAC) add-on module (receives L3, L4 and S4 commands)

Remote Controls

TCND Series

Line of multi-discipline remote controls: Infrared, Radio and EnOcean technologies



TCND-I

Infrared multi-discipline remote control¹

TCND-IT

Infrared multi-discipline remote control with temperature sensor ¹ (wall-mounted stand required -provided)

TCND-R

Radio multi-discipline remote control ¹

TCND-RT

Radio multi-discipline remote control with temperature sensor ¹ (wall-mounted stand required -provided)

TCND-ENOCEAN

EnOcean multi-discipline remote control with temperature sensor (wall-mounted stand required -provided)

¹ Models available in grey.

Smart-Sense Room Control



Smart-Sense Room Control

iPhone application for remote HVAC, lighting, sunblinds and occupancy control

Room Modules

Allure RS-Smart-Sense



Allure RS-Smart-Sense

Digital room sensor device with a touch-sensitive LCD color screen for HVAC, lighting, sunblinds and occupancy control

Allure EC-Sensor

Line of discrete sensors



EC-Sensor

Room temperature sensor with communication jack

EC-Sensor-O

Room temperature sensor with occupancy override button and communication jack

EC-Sensor-S

Room temperature sensor with setpoint adjustment and communication jack

EC-Sensor-SO

Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack

EC-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Allure Wireless Battery-less ECW-Sensor

Line of wireless, battery-less sensors (EnOcean 868.3 MHz).



ECW-Sensor

Room temperature sensor

ECW-Sensor-O

Room temperature sensor with occupancy override button

ECW-Sensor-S

Room temperature sensor with setpoint adjustment

ECW-Sensor-SO

Room temperature sensor with setpoint adjustment and occupancy override button

ECW-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

RS-ANA Series

Analog room sensors



RS-ANA1

Analog room temperature sensor

RS-ANA2

Analog room temperature sensor with setpoint adjustment

RS-DL Series

Line of digital link room sensors



RS-DL2

Digital room temperature sensor with setpoint adjustment

RS-DL3

Digital room temperature sensor with setpoint adjustment and occupancy override button

RS-DL4

Digital room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

RS-LCD

Room temperature sensor with a LCD screen for HVAC, lighting and sunblinds control

In-ceiling Multi-sensors

MS2 Series



MS2-I-P

Infrared mini multi-sensor - presence detection

MS2-I-PL

Infrared mini multi-sensor - presence detection and light sensor

MS2-I-PLT

Infrared mini multi-sensor - presence detection, light sensor and temperature sensor

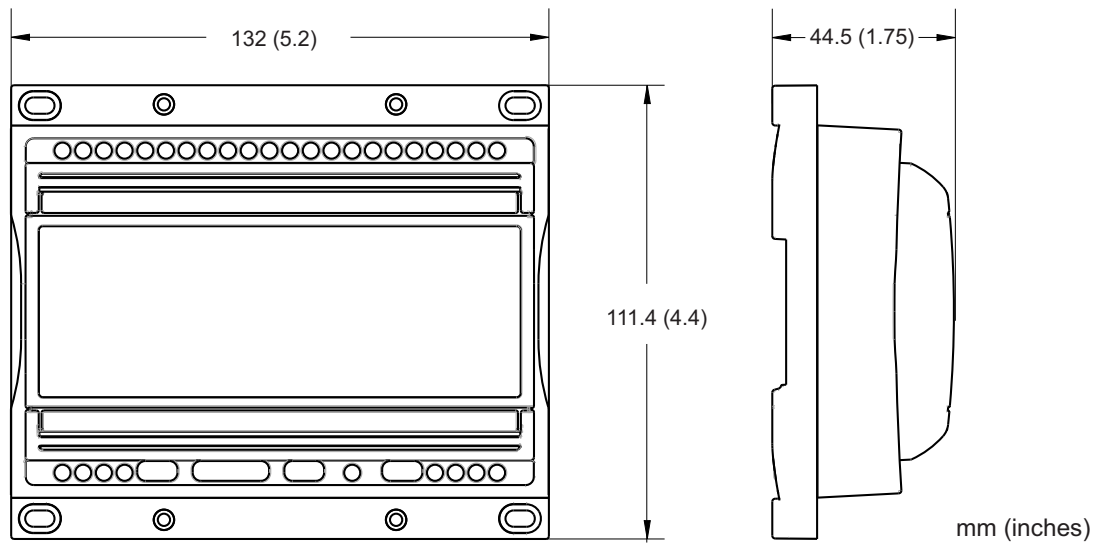
MS2-R-PL

Radio mini multi-sensor - presence detection and light sensor


MS2-R-PLT

Radio mini multi-sensor - presence detection, light sensor and temperature sensor

Product Dimensions



Product Specifications

Power		Inputs	
Voltage	230 VAC ; 50/60 Hz ; +10%/-15%	Resistive	10 kΩ Type 2, Type Z NTC (max cable length 3 m)
Protection	Self-protected Transformer 10 A External Circuit Breaker	Analog	Accuracy: $\pm 0.2^{\circ}\text{C}$ @ 20°C (controller only)
Power Consumption	30 mA + all external loads	Digital	0-10 V
RCL-PFC-107/207:	5 A maximum		Dry Contact
RCL-PFC-108/208/209:	3.3 A maximum		- closed contact treshold < 1 V
 :	Double insulation devices		- open contact treshold > 3V
			- impedance < 660 Ω
			- max cable length 100m
Interoperability		Outputs	
Communication	LONTALK Protocol	Analog (AO7 & AO8)	0-10 Vdc
Channel	TP/FT-10; 78 Kbps		2 mA max
LONMARK Interoperability Guidelines	Version 3.4	Digital Relay Contacts (DO1, DO2 & DO3)	Typically Fan Speeds
Device Class	SCC - Fan Coil		230 VAC
LONMARK Functional Profile			3 A max (total)
- Output Objects	SCC Fan Coil #8501	Digital Relay Contact (DO6-C6)	All share the same common
- Node Object	Node Object #0000		Typically Heater
- Lamp Object	Lamp Actuator #3040		230 VAC
- Sunblind Object	Sunblind Actuator #6110		10 A - 2 kW
Hardware			Cycle time adjustable from 100 to 250 s
Processor	Neuron® FT5000; 8 bits		Dedicated Common
CPU Speed	80 MHz	Digital (DO4 & DO5)	
Memory	Non-volatile Flash 64k	RCL-PFC-107/207	230 VAC Triac, digital (ON/OFF), PWM or floating
Environmental			- 1 A continuous for each output
Operating Temperature	+5°C to 45°C		- 3 A starting current for each output
Storage Temperature	-20°C to +70°C		- PWM control ajustable from 20 to 250 s
Relative Humidity	+20% to +90% Non-condensing		- Floating control: requires two outputs
Altitude	< 2000 m		- Adjustable drive time period
		RCL-PFC-108/208	1 common per pair of outputs
			24 V Triac, digital (ON/OFF), or PWM or floating
			- 300mA continuous for the aggregate sum of all valve outputs
			- 3 A starting current for each output
			- PWM control ajustable from 20 to 250 s
			- Floating control: requires two outputs
			- Adjustable drive time period
			1 common per pair of ouputs

Enclosure	
Material	FR/ABS
Color	Blue casing & grey connectors
Dimensions (with screws)	111,4 mm x 132 mm
Shipping weight	
RCL-PFC-107:	470 g
RCL-PFC-108:	630 g
RCL-PFC-207:	470 g
RCL-PFC-208:	630 g
Installation	Direct din-rail mounting or wall-mounting

Wireless Receiver ¹	
Communication	EnOcean wireless standard
Number of wireless inputs	1
Supported Wireless Receivers	RFR-K-ENOCLEAN (868 MHz)
Cable	RJ9 Link, 50m maximum

Electromagnetic Compatibility	
CE - Emission	EN 61000-6-1: Generic standard for residential, commercial and light-industrial environments EN 61000-6-2: Generic standard for industrial environments
CE - Immunity	EN 61000-6-3: Generic standard for residential, commercial and light-industrial environments EN 61000-6-4: Generic standard for industrial environments

Electrical Safety	
General requirements	EN 60730: Specification for automatic electrical controls for household and similar use.



Extension Modules (RCx Series)	
Communication	RJ9/RJ11
Number of extension modules per controller	Up to 4 Lights + 4 Sunblinds controlled, in daisy-chain configuration



Agency Approvals	
Material	UL94-5VA ²

Communication Protocols and Standards	
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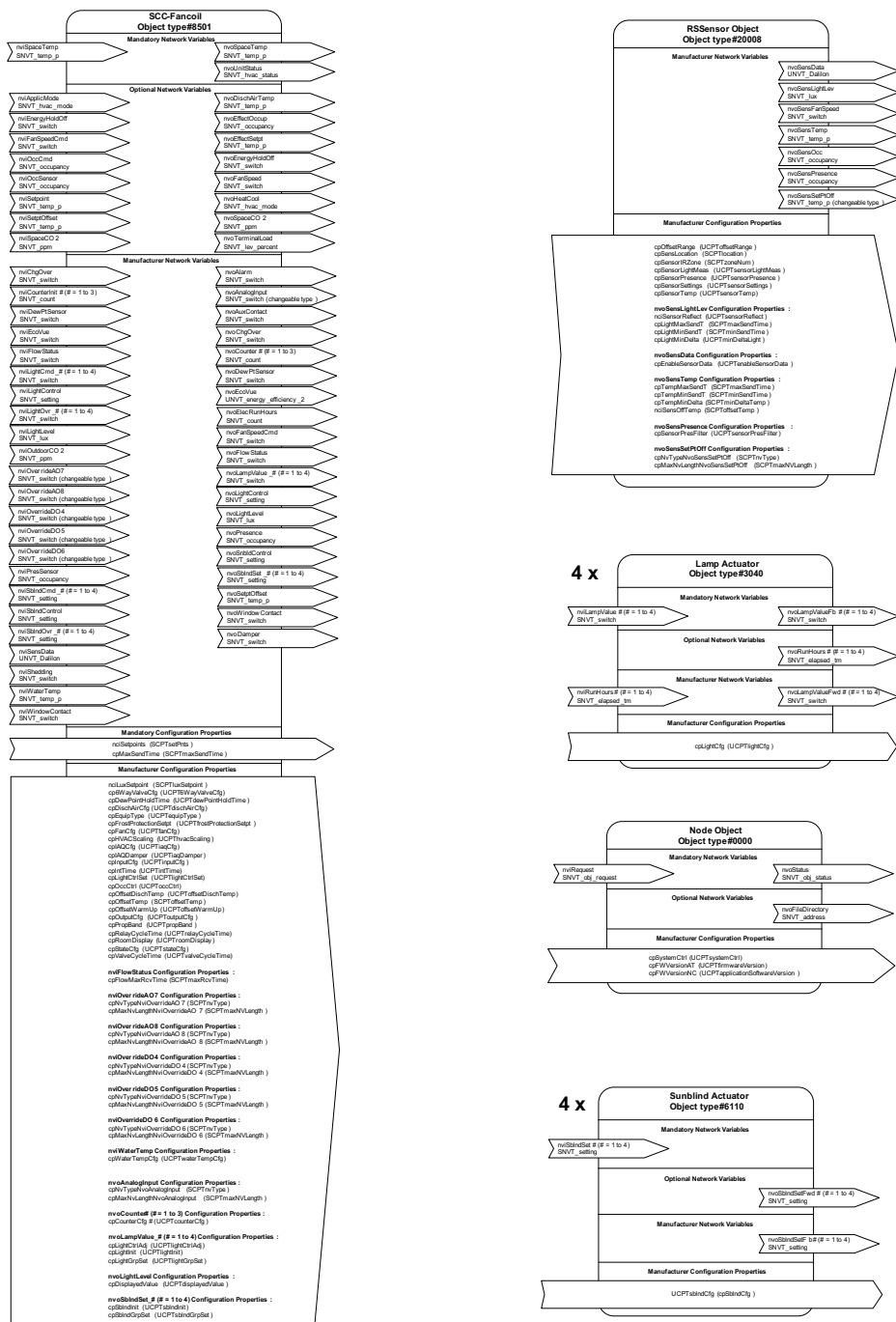


Certified Performances (RCL-PFC-207 only)	
Cooling Control Accuracy (CA)	0.1°C (4 pipes) 0.2 °C (2 pipes+electric heater)
Heating Control Accuracy (CA)	0.2°C



1. Available when an optional external RFR-K-ENOCLEAN receiver module is connected to the controller.
2. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive  .

Functional Profile



Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

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Applications

Designed to meet the requirements of any heat pump unit application

- Controls heat pump applications such as:
- Dual mode heat pumps
- Modulating valves
- Water to refrigerant heat pumps
- Controls up to 4 stages of cooling or heating
- Compatible with a wide range of sensors and actuators

Features & Benefits

Hardware

- Fire retardant light weight plastic enclosure
- Separable base plate allows base with connectors to be shipped to site for installation while engineering is done at the office
- Operate controller as a stand-alone unit or as part of a networked system
- Universal outputs and power supply are fuse-protected
- Audio jack for quick access to LON® network
- DIN rail mounting integrated into the enclosure

Software

- LNS® plug-in or Niagara Framework™ EC-Net or Niagara^{AX} Framework™ EC-Net^{AX} wizards available for configuration and monitoring
- With an intuitive interface, these provide easy customization of hardware I/O, control sequences and communication schemes
- Easily configure all features, including:
 - Input and output types and properties
 - Heating and cooling stages
 - Control variable speed fans and floating valves
 - PID control loops
- Additional built-in features:
 - Optimum start
 - Load shedding
 - Frost protection
 - Slave operation mode
 - Dehumidification cycle
 - Changeable network variable types
- Allows the use of spare I/O points to be linked to other controllers on the network
- Application settings and control sequences stored in a 64K non-volatile Flash memory

Presentation

The EC-HPU-L controller is a microprocessor-based heat pump unit controller designed to control any heat pump unit application. The EC-HPU-L controller uses the LonTalk® communication protocol and is LONMARK certified using the heat pump unit profile #8051. The EC-HPU-L is designed to work with all types of heat pumps, including dual mode and water-to-refrigerant heat pumps.

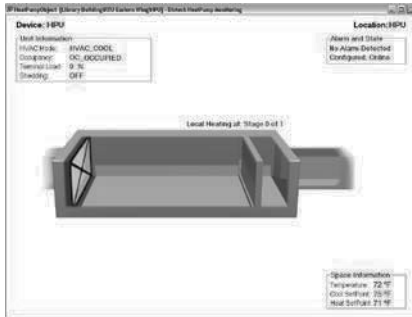
The EC-HPU-L can be configured by using the EC-Configure plug-in through either any LNS-based software such as Distech Controls Lonwatcher, or by using a multi-protocol platform software supporting LONWORKS devices such as the EC-Net and EC-Net^{AX} software powered by the Niagara Framework and Niagara^{AX} Framework respectively. These configuration interfaces are designed to simplify configuring and sequencing methods by prompting the user for the necessary configuration data. The controller then automatically selects the operation sequence according to the input and output configurations and dynamically adapts itself to the network variables that are bound to the controller.

The **easyCONTROLS** product line is built to meet rigorous quality standards and carries a two-year warranty. The complete line of **easyCONTROLS** controllers is designed for use with any LONWORKS-based and/or any other open and interoperable system – such as EC-Net^{AX}. This provides both the contractor and the end user with the flexibility of using “best of breed” products in system design.

Distech Controls' Wizards and plug-ins

Software Preview

LNS Monitoring Plug-in*



The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no more need to create any graphics pages and as it can be launched from any GUI that supports plug-in applications, graphics dynamically adapt themselves to the configuration of the device as well as the real time values being monitored.

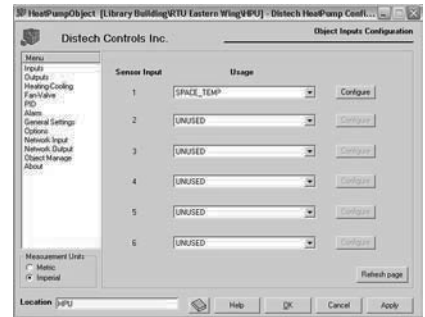
* LNS Plug-ins can be used with any LNS based network management and GUI tool, such as Distech Controls' Lonwatcher or Londisplay.

LNS Configuration Plug-in*



Easily configure all of the devices' parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. You can also enable and configure additional built-in features such as optimum start, load shedding, frost protection and slave operation mode.

EC-Net^{AX} and EC-Net Wizards



Designed for use with the Niagara^{AX} Framework, the EC-Net^{AX} Wizards offer all the same features accessible within the LNS plug-in. Simply add the device to your LON network and immediately launch the configuration wizard with a couple clicks of your mouse!

Can also be used with the Niagara Framework. Through EC-Net add pre-defined shadow objects into your database and then launch the wizard.

Complementary Products

Communicating Sensors

Allure EC-Smart-Sensor



EC-Smart-Sensor-100

Communicating sensor with 2-line LCD, setpoint adjustment, occupancy override, and room temperature display

EC-Smart-Sensor-200

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, occupancy override, HVAC mode selection, and room temperature display

EC-Smart-Sensor-FC

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, and room temperature display

EC-Smart-Sensor-FC-CF

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, room temperature display, and °C/°F toggle button

Allure EC-Sensor



EC-Sensor

Room temperature sensor with communication jack

EC-Sensor-O

Room temperature sensor with occupancy override button and communication jack

EC-Sensor-S

Room temperature sensor with setpoint adjustment and communication jack

EC-Sensor-SO

Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack

EC-Sensor-SOF

Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

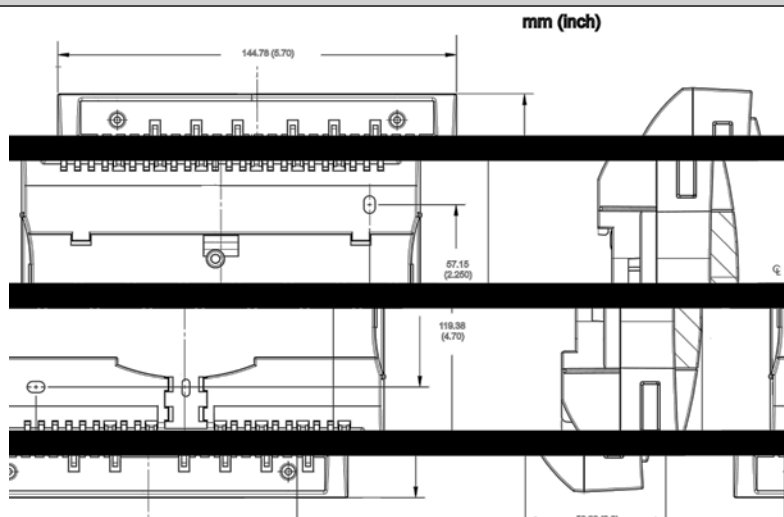
Other

For more information on any of the products listed above, please refer to our website www.distech-controls.eu.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

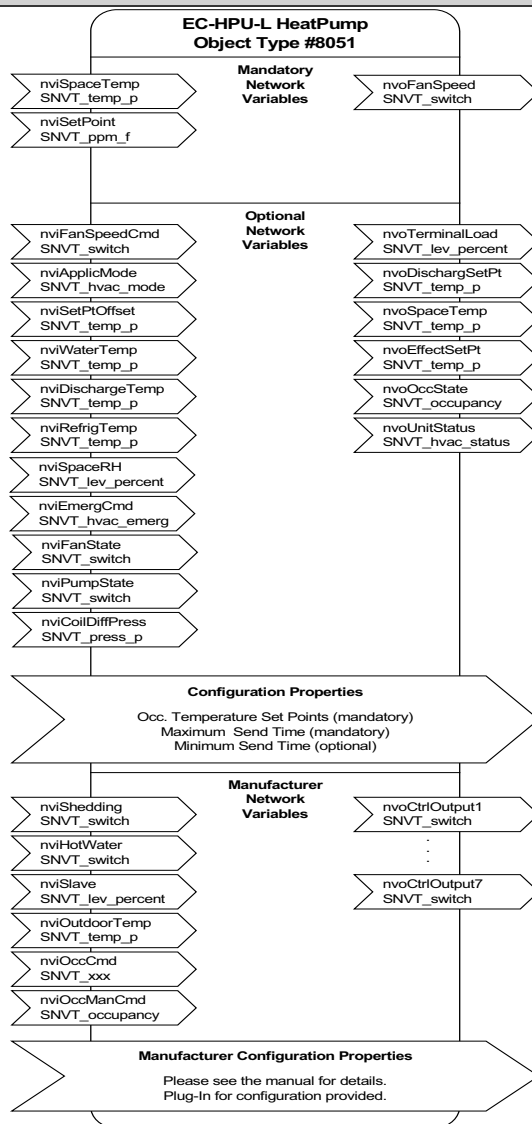
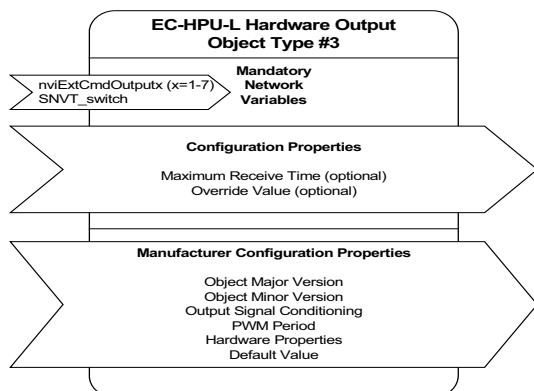
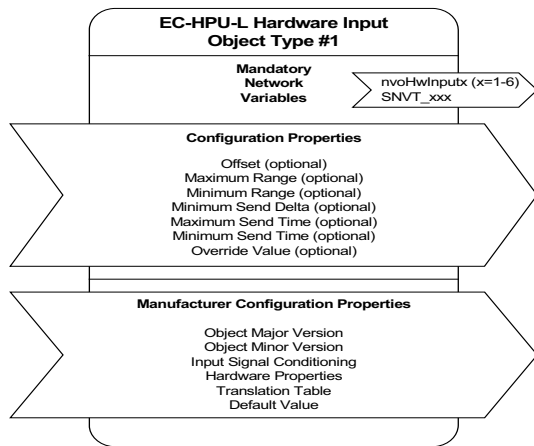
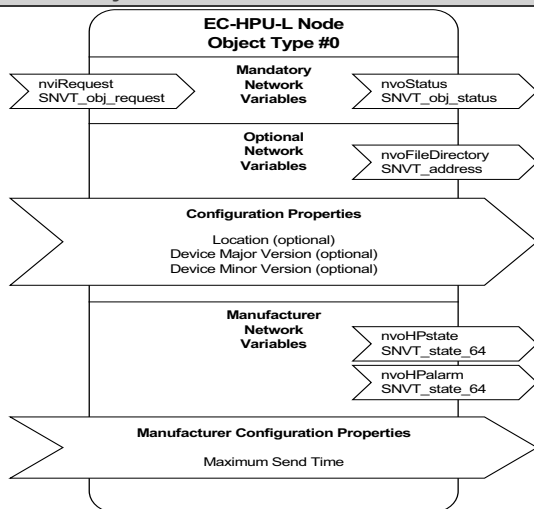
Dimensions



Specifications

Power		Inputs	
Voltage	24VAC; $\pm 15\%$, 50/60HZ, Class 2	Quantity	6
Protection	1.35A auto-reset fuse	Input Types:	Universal (software configurable)
Typical Consumption	6VA	-Voltage	0-10VDC, Accuracy $\pm 0.5\%$
Maximum Consumption	15VA	-Current	4-20mA with 249 Ω external resistor (wired in parallel), Accuracy $\pm 0.5\%$
Environmental		-Digital	Dry contact
Operating Temperature	0°C to 70°C; 32°F to 158°F	-Resistor:	
Storage Temperature	-20°C to 70°C; -4°F to 158°F	<i>Thermistor</i>	Type 2, 3 10K Ω Accuracy: $\pm 0.5^\circ\text{C}$; $\pm 0.9^\circ\text{F}$ Range: -40°C to 125°C; -40°F to 257°F Resolution: 0.1°C; 0.18°F
Relative Humidity	0 to 90% Non-condensing	<i>Potentiometer</i>	Translation table configurable on several points, Accuracy $\pm 0.5\%$
General		Input Resolution	12-bit analog / digital converter
Standard	LONMARK Functional Profile: Heat Pump with Temperature Control #8051	Outputs	
Processor	Neuron [®] 3150 [®] ; 8 bits; 10MHZ	Quantity	7
Memory	Non-volatile Flash 64K (APB application & configuration properties)	5 Digital	- Triac 1.0A @ 24VAC - External power supply
Communication	LonTalk Protocol	2 Universal	- 0-10VDC (linear), digital 0-12VDC (on/off) or PWM - PWM output: adjustable period from 2 seconds to 15 minutes - 60mA max. @ 12VDC (60°C; 140°F) - Maximum load 200 Ω - Auto-reset fuse: - 60mA @ 60°C; 140°F - 100mA @ 20°C; 68°F
Transceiver	FT-X1	Agency Approvals	
Channel	TP/FT-10; 78Kbps	UL Listed	UL916 Energy management equipment (CDN & US)
Status Indicator	Green LED: power status & LON TX Orange LED: service & LON RX	Material ¹	UL94-5VA
Communication Jack	LON audio jack mono 1/8" (3.5mm)	UL Listed	UL916 Energy management equipment
Enclosure			
Material	ABS PA-765A		
Color	Blue casing & grey connectors		
Dimension w/ Screws	5.7x4.7x2.0" (144.8x119.4x50.8mm)		
Shipping Weight	0.77lbs (0.35kg)		
Installation	Direct din-rail mounting or wall mounting		
Electromagnetic compatibility			
CE -Emission	(CDN & US)		
-Immunity	Material ¹ EN61000-4-2: 1995, level 2 by contact EN61000-4-3: 1996, level 2 EN61000-4-4: 1995, level 2 EN61000-4-6: 1996, level 2 ENV 50204 : 1995, level 2		
FCC	This device complies with FCC rules part 15, subpart B, class B		
CE -Emission	(CDN & US)		

1. All materials and manufacturing processes comply with the directive on Waste Electrical and Electronic Equipment (WEEE).





Applications

- Designed to meet the requirements of any roof top application, including units equipped with an economizer
 - Controls roof top applications such as:
 - Mechanical stages
 - Modulating valves
 - Floating outputs
 - Controls up to 4 stages of cooling or heating
 - Manages humidity control devices
- Compatible with a wide range of sensors and actuators

Overview

The EC-RTU-L controller is a microprocessor-based roof top unit controller designed to control any roof top unit application. The EC-RTU-L controller uses the LonTalk® communication protocol and is LONMARK certified using the roof top unit functional profile #8030.

The EC-RTU-L can be configured by using the EC-Configure plug-in through either any LNS-based software such as Distech Controls Lonwatcher, or by using a multi-protocol platform software supporting LONWORKS devices such as the EC-Net and EC-Net^{AX} software powered by the Niagara Framework and Niagara^{AX} Framework respectively. These configuration interfaces are designed to simplify configuring and sequencing methods by prompting the user for the necessary configuration data. The controller then automatically selects the operation sequence according to the input and output configurations and dynamically adapts itself to the network variables that are bound to the controller.

The easyCONTROLS product line is built to meet rigorous quality standards and carries a two-year warranty. The complete line of easyCONTROLS controllers is designed for use with any LONWORKS-based and/or any other open and interoperable system – such as EC-Net^{AX}. This provides both the contractor and the end user with the flexibility of using “best of breed” products in system design.

Features & Benefits

Interoperability

- Based on LONWORKS® technology for peer-to-peer communication between controllers
- LONMARK certified according to the Interoperability Guidelines Version 3.3
- LONMARK Functional Profile: Roof Top Unit Controller #8030

Hardware

- Fire retardant plastic enclosure
- Separable base plate allows base with connectors to be shipped to site for installation while engineering is done at the office
- Light weight enclosure saves on shipping cost
- 6 universal inputs (software configurable)
- 5 triac outputs (PWM or digital)
- 2 universal outputs (0-10V, PWM or digital 0-12V)
- Operate controller as a stand-alone unit or as part of a networked system
- Status indicator on each output
- Universal outputs and power supply are fuse-protected
- Transmit, receive and power LED indicators
- Audio jack for quick access to LON® network
- DIN rail mounting integrated into the enclosure

Features & Benefits

Software

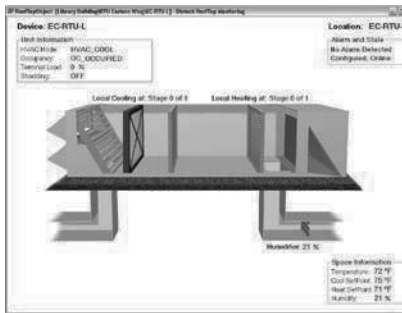
- LNS[®] plug-in or Niagara Framework[™] EC-Net or Niagara^{AX} Framework[™] EC-Net^{AX} wizards available for configuration and monitoring
- With an intuitive interface, these provide easy customization of hardware I/O, control sequences and communication schemes
- Easily configure all features, including:
 - Input and output types and properties
 - Heating and cooling stages
 - Control variable speed fans and floating valves
 - PID control loops
 - Economizer settings
 - CO₂ limit
- Additional built-in features:
 - Optimum start
 - Load shedding
 - Frost protection
 - Slave operation mode
 - Demand averaging of up to 128 VAVs
 - Changeable network variable types
- Allows the use of spare I/O points to be linked to other controllers on the network

Application settings and control sequences stored in a 64K non-volatile Flash memory

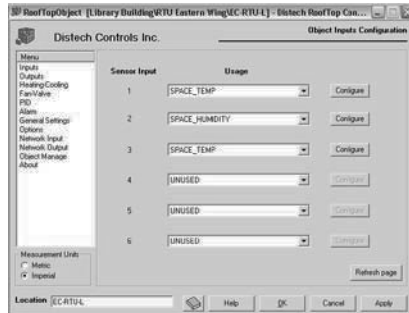
Distech Controls Software Plug-ins and Wizards

Software preview

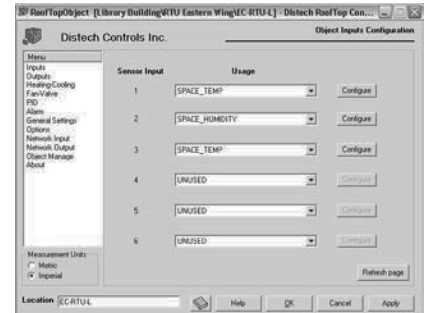
LNS Monitoring Plug-in*



LNS Configuration Plug-in*



EC-Net^{AX} and EC-Net Wizards



The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no more need to create any graphics pages and as it can be launched from any GUI that supports plug-in applications, graphics dynamically adapt themselves to the configuration of the device as well as the real time values being monitored.

* LNS Plug-ins can be used with any LNS based network management and GUI tool, such as Distech Controls' Lonwatcher or Londisplay.

Easily configure all of the devices' parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. You can also enable and configure additional built-in features such as optimum start, load shedding, frost protection and slave operation mode.

Designed for use with the Niagara^{AX} Framework, the EC-Net^{AX} Wizards offer all the same features accessible within the LNS plug-in. Simply add the device to your LON network and immediately launch the configuration wizard with a couple clicks of your mouse!

Can also be used with the Niagara Framework. Through EC-Net add pre-defined shadow objects into your database and then launch the wizard.

Complementary Products

Temperature Sensors

Allure EC-Smart-Sensor



EC-Smart-Sensor-100

Communicating sensor with 2-line LCD, setpoint adjustment, occupancy override, and room temperature display

EC-Smart-Sensor-200

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, occupancy override, HVAC mode selection, and room temperature display

EC-Smart-Sensor-FC

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, and room temperature display

EC-Smart-Sensor-FC-CF

Communicating sensor with 2-line LCD, setpoint adjustment, fan speed control, room temperature display, and °C/°F toggle button

Allure EC-Sensor



Allure EC-Sensor

Sonde de température ambiante, avec prise de communication réseau (jack)

Allure EC-Sensor-O

Sonde de température ambiante, forçage des modes d'occupation et prise de communication

Allure EC-Sensor-S

Sonde de température ambiante, ajustement de la consigne de température et prise de communication

Allure EC-Sensor-SO

Sonde de température ambiante, ajustement de la consigne de température, forçage des modes d'occupation et prise de communication

Allure EC-Sensor-SOF

Sonde de température ambiante, ajustement de la consigne de température, forçage des modes d'occupation, sélection de la vitesse de ventilation et prise de communication

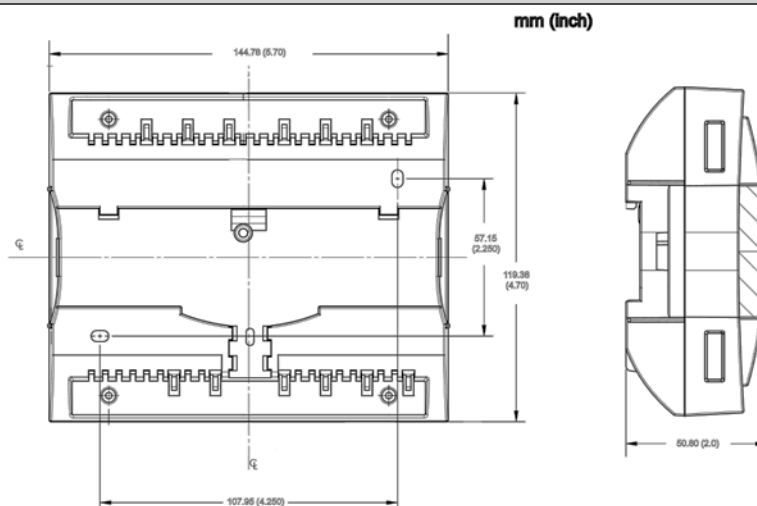
Other

Please contact salesadmin@distech-controls.com for a complete list of available products and peripherals.

Product Warranty & Total Quality Commitment

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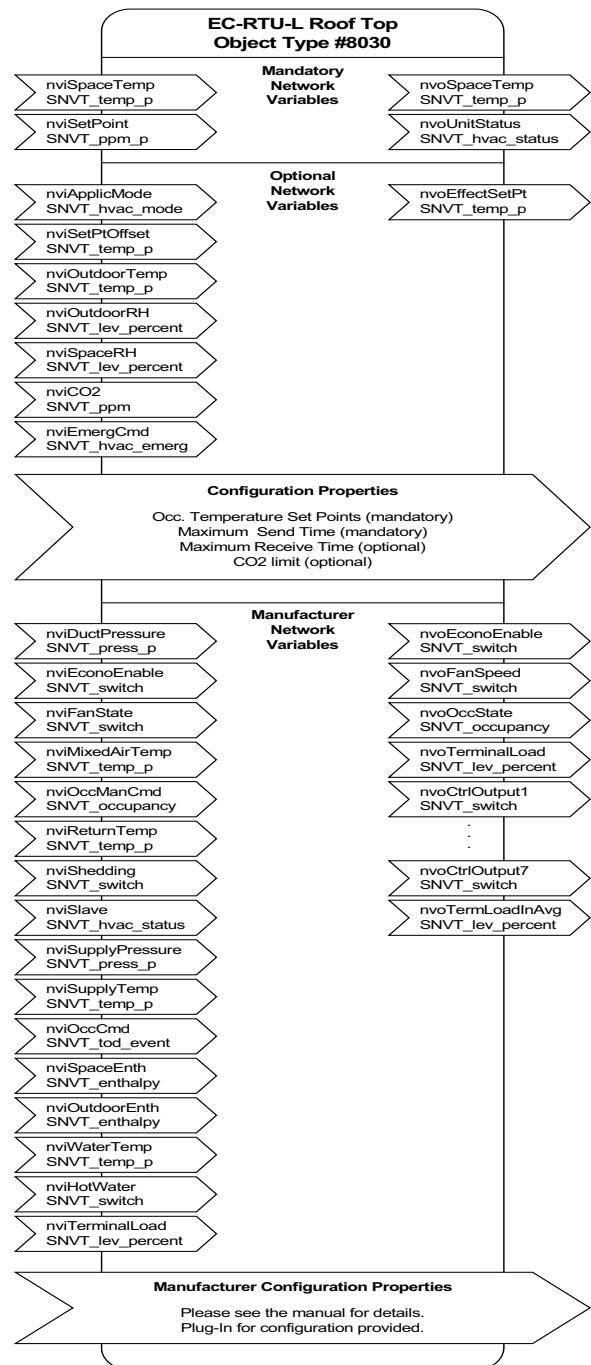
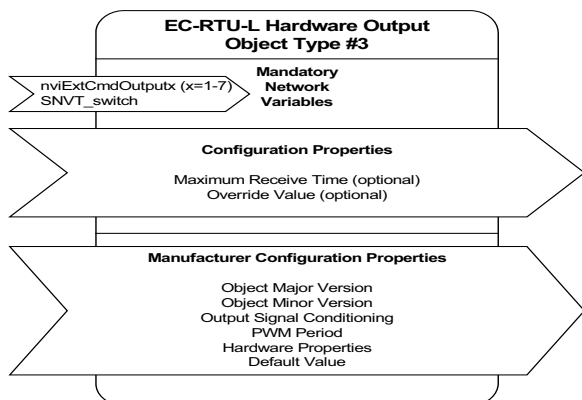
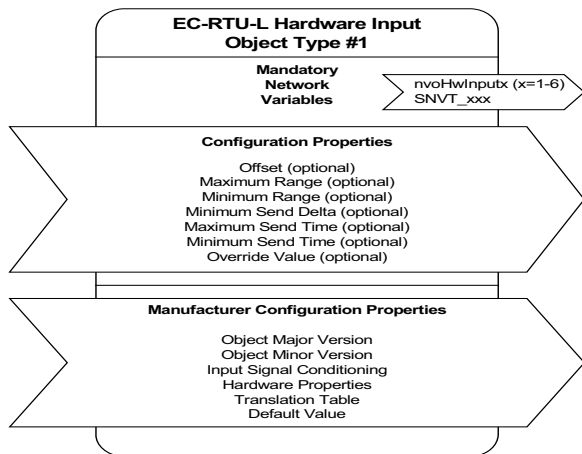
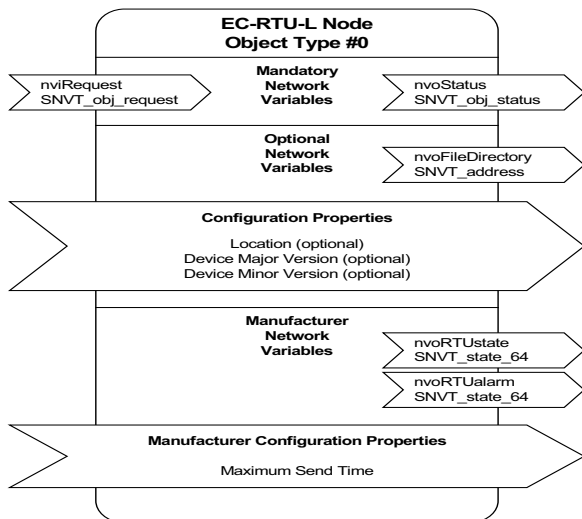
Dimensions



Specifications

Power		Inputs	
Voltage	24VAC; $\pm 15\%$, 50/60HZ, Class 2	Quantity	6
Protection	1.35A auto-reset fuse	Input Types:	Universal (software configurable)
Typical Consumption	6VA	-Voltage	0-10VDC, Accuracy $\pm 0.5\%$
Maximum Consumption	15VA	-Current	4-20mA with 249 Ω external resistor (wired in parallel), Accuracy $\pm 0.5\%$
Environmental		-Digital	Dry contact
Operating Temperature	0°C to 70°C; 32°F to 158°F	-Resistor:	
Storage Temperature	-20°C to 70°C; -4°F to 158°F	Thermistor	Type 2, 3 10K Ω
Relative Humidity	0 to 90% Non-condensing		Accuracy: $\pm 0.5^\circ\text{C}$; $\pm 0.9^\circ\text{F}$
General			Range: -40°C to 125°C; -40°F to 257°F
Standard	LONMARK Functional Profile: Roof Top		Resolution: 0.1°C; 0.18°F
	Unit Controller #8030	Potentiometer	Translation table configurable on several points, Accuracy $\pm 0.5\%$
Processor	Neuron [®] 3150 [®] ; 8 bits; 10MHZ	Input Resolution	12-bit analog / digital converter
Memory	Non-volatile Flash 64K (APB application & configuration properties)	Outputs	
Communication	LonTalk Protocol	Quantity	7
Transceiver	FT-X1	5 Digital	- Triac 1.0A @ 24VAC
Channel	TP/FT-10; 78Kbps		- External power supply
Status Indicator	Green LED: power status & LON TX Orange LED: service & LON RX	2 Universal	- 0-10VDC (linear), digital 0-12VDC (on/off) or PWM
Enclosure			- PWM output: adjustable period from 2 seconds to 15 minutes
Material	ABS PA-765A		- 60mA max. @ 12VDC (60°C; 140°F)
Color	Blue casing & grey connectors		- Maximum load 200 Ω
Dimension w/ Screws	5.7x4.7x2.0" (144.8x119.4x50.8mm)		- Auto-reset fuse:
Shipping Weight	0.77lbs (0.35kg)		Output Resolution
Installation	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)		
Electromagnetic Compatibility		Agency Approvals	
CE -Emission	(CDN & US)	UL Listed	UL916 Energy management equipment
-Immunity	Material ¹	(CDN & US)	
	EN61000-4-2: 1995, level 2 by contact	Material ¹	UL94-5VA
	EN61000-4-3: 1996, level 2		
	EN61000-4-4: 1995, level 2		
	EN61000-4-6: 1996, level 2		
	ENV 50204 : 1995, level 2		
FCC	This device complies with FCC rules part		

- All materials and manufacturing processes comply with the directive on Waste Electrical and Electronic Equipment (WEEE).



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EC-RTU-L

www.distech-controls.eu

5/5

ECC-VAVS and ECC-VAV Series

LONMARK® Certified Single Duct VAV/VVT Configurable Controllers



Overview

The **ECC-VAVS and ECC-VAV series** are microprocessor-based variable air volume (VAV) controllers designed to control any variable air volume box. Each controller uses the LonTalk® communication protocol and is LONMARK certified, using the SCC-VAV profile #8502.

This series contains five models: ECC-VAVS, ECC-VAV, ECC-VVTS, ECC-VVT, and ECC-VAV-N. These models support various input types including resistance, voltage, and digital-based ones. Moreover, they provide digital, floating, pulse width modulation, and proportional control for valves, heating elements, fans, and lighting applications. In particular, the ECC-VAVS and ECC-VAV models have an on-board air flow sensor with a range of 0-1 inches of water column (250 Pascal), as well as a built-in brushless actuator for precise damper positioning for loads requiring up to 35 inch-pounds (4 Newton-meters) of torque.

All controller models work with the EC-Smart-Sensor-VAV, a communicating sensor that can be used for indoor temperature measurement, setpoint adjustment, occupancy state override, and system air balancing. In addition, all the controllers are Open-to-Wireless® ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Each controller can be configured using the EC-Configure plug-in through any LNS®-based software, such as Distech Controls' Lonwatcher 3. Alternatively, controllers can also be configured using the EC-Configure wizard through EC-Net^{AX} which is powered by the Niagara^{AX} Framework®. Either way, a configuration interface exists that simplifies the setup of VAV and lighting applications through an intuitive menu-based user interface.

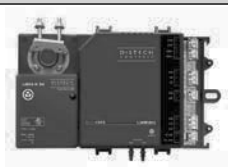
Applications

- Designed to meet the requirements of single duct VAV zone applications, including:
 - Cooling Only VAV Boxes
 - Cooling with Reheat VAV Boxes
 - Parallel Fan VAV Boxes
 - Series Fan VAV Boxes
- Improves energy efficiency when combined with:
 - Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
 - CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants
 - Light switches to control both lighting and a room's HVAC occupancy / standby mode setting
- Works with a wide range of wireless battery-less sensors

Features & Benefits

- Configurable using LNS-based EC-Configure plug-ins or Niagara^{AX}-based EC-Configure wizards, allowing you to work with your preferred network management platform
- Available with an optional Wireless Receiver that supports up to 6 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches
- LONMARK SCC-VAV approved, guaranteeing interoperability with other manufacturers' LONMARK-approved controllers and interchangeability with ones that use the same profile
- Accurate on-board air flow sensor for precise air flow monitoring and control at low and high air flow rates, permitting you to design for maximum energy efficiency while maintaining an optimal comfort level
- Built-in actuator with a brushless motor and integrated position feedback system eliminates periodic damper re-initialization and ensures worry-free operation, providing increased occupant comfort and extended service life
- Highly accurate universal inputs support thermistors and resistance temperature detectors (RTDs) that range from 100 Ohms to 100 000 Ohms, giving you the freedom of using your preferred or engineer-specified sensors, in addition to any existing ones

Models in this Series



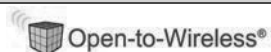
Model	ECC-VAVS	ECC-VAV	ECC-VVTS	ECC-VVT	ECC-VAV-N
Points	7-Point VAV	12-Point VAV	6-Point VVT	11-Point VVT	11-Point VAV
Universal inputs	2	4	2	4	4
Ability to use spare inputs	■	■	■	■	■
Built-in flow sensor (0-1 in. W.C.)	■	■			■
Wireless inputs ¹	4	6	4	6	6
Digital (triac) outputs	2	4	2	4	4
Digital (0 – 10VDC) LED occupancy output	1	0	1	0	0
Universal outputs	0	2	0	2	2
Network outputs (using NVOs)	2	6	2	6	6
Ability to use spare outputs	■	■	■	■	■
Built-in Actuator	■	■	■	■	
Product Number	CDIC-VASX-02	CDIC-VAXX-00	CDIC-VTSX-02	CDIC-VTXX-00	CDIC-VANX-00

1. Available when an optional Wireless Receiver is connected to the controller.

Recommended Applications

Model	ECC-VAVS	ECC-VAV	ECC-VVTS	ECC-VVT	ECC-VAV-N
Cooling Only VAV Box	■		■	■	
Cooling w/Reheat VAV Box	■		■	■	
Cooling w/Reheat VAV Box & Perimeter Heating		■		■	
Parallel Fan VAV Box		■			
Series Fan VAV Box		■			
Large Damper VAV Box Requiring More Than 35 in-lb (4 Nm) Actuator Torque					■
Existing Damper Actuator					■
Room Pressurization		■			

Open-to-Wireless Wireless Receiver – Optional



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables every controller in this series to communicate with a line of wireless battery-less room sensors and switches.

Wireless Receiver (315) - Receiver for EnOcean® 315MHz wireless-enabled sensors and switches

Wireless Receiver (868) - Receiver for EnOcean 868.3MHz wireless-enabled sensors and switches

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean technology and Open-to-Wireless, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the Wireless Receiver Datasheet. These documents can be found on our web site at www.distech-controls.eu.

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS[®], BACnet[®] and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



LNS[®] TURBO Edition

LONWORKS Network Services (LNS)

LNS[®] is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

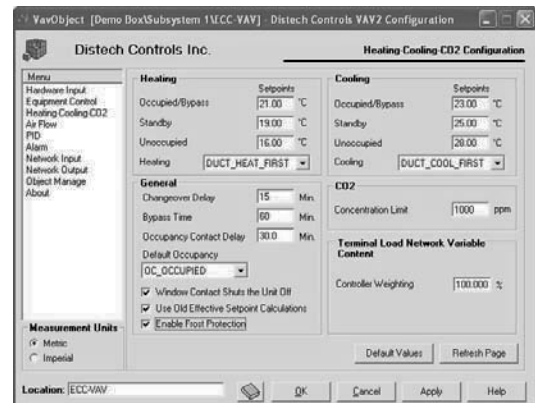
EC-Net^{AX} Wizards and LNS Plug-Ins

EC-Configure EC-Net^{AX} Wizards

Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Configure EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.

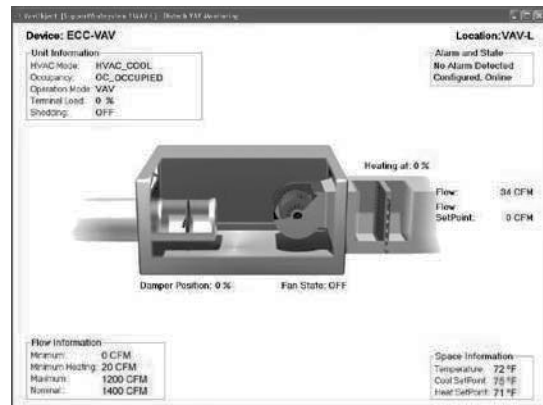
EC-Configure LNS Plug-in

Similar to an EC-Configure EC-Net^{AX} Wizard, the EC-Configure LNS Plug-in is a user-friendly configuration interface, which is accessible through any LNS[®]-based software, such as Distech Controls' Lonwatcher 3.



EC-Monitor LNS Plug-in

The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no more need to create any graphics pages and as it can be launched from any GUI that supports plug-in applications, graphics dynamically adapt themselves to the configuration of the device as well as the real time values being monitored.



Complementary Products

Temperature Sensors

Supported Smart-Sensors



- EC-Smart-Sensor-VAV:
- Communicating sensor with 2-line LCD
 - Setpoint adjustment
 - Occupancy override
 - Indoor and outdoor air temperature display
 - VAV balancing

Allure EC-Sensor

Line of discrete sensors



EC-Sensor	Room temperature sensor with communication jack
EC-Sensor-O	Room temperature sensor with occupancy override button and communication jack
EC-Sensor-S	Room temperature sensor with setpoint adjustment and communication jack
EC-Sensor-SO	Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack
EC-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Open-to-Wireless Sensors and Switches (requires Wireless Receiver)

Allure Wireless Battery-less ECW-Sensor

Line of wireless, battery-less sensors. Available in EnOcean 315MHz and 868.3MHz versions.



ECW-Sensor	Room temperature sensor
ECW-Sensor-O	Room temperature sensor with occupancy override button
ECW-Sensor-S	Room temperature sensor with setpoint adjustment
ECW-Sensor-SO	Room temperature sensor with setpoint adjustment and occupancy override button
ECW-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

Wireless EnOcean Sensors and Switches



41-580	Wireless solar-cell powered motion detector. Available at 868.3MHz.
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2-channel Light Switch 4-channel Light Switch	2-/4-channel wireless light switches (European models). Available at 315MHz or 868.3MHz.
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PTM265 PTM265D	2-/4-channel wireless light switches (North American models). Available at 315MHz or 868.3MHz.
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For a complete list of the Open-to-Wireless EnOcean sensors and switches that are compatible with the controllers in this series, refer to the Open-to-Wireless Solution Guide which can be found on our web site at www.distech-controls.eu.

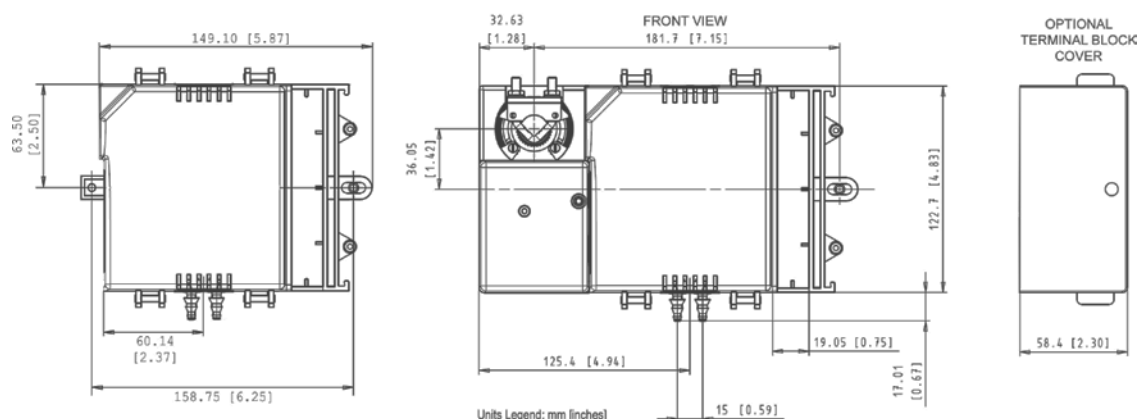
Other



Terminal Block Cover	Cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.
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For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.eu or contact salesadmin@distech-controls.com.

Controller Dimensions



Product Specifications

Power		Inputs	
Voltage	24VAC; $\pm 15\%$; 50/60Hz; Class 2	Input Types	Universal; software configurable
Protection	3.0A user-replaceable fuse for triac outputs when using the internal power supply	-Voltage	0-10VDC
Typical Consumption		-Current	4-20mA with 249 Ω external resistor (wired in parallel)
- ECC-VAVS and ECC-VVTS	12VA; triac outputs (1 valve @ 4VA) & LED occupancy output ON with 20mA load	-Digital	Dry contact
- Other models	18VA; triac outputs (2 valves @ 4VA) & 2 outputs with 20mA load @ 12VDC	-Pulse	Dry contact; 500ms minimum ON/OFF
Maximum Consumption		-Resistor	
- ECC-VAVS and ECC-VVTS	40VA - if internal power supply is used	<i>Thermistor</i>	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F) Range: -40°C to 150°C; -40°F to 302°F
- Other models	70VA - if internal power supply is used	<i>Platinum</i>	Pt1000 (1K Ω @ 0°C; 32°F) Range: -40°C to 150°C; -40°F to 302°F Pt100 (100 Ω @ 0°C; 32°F) Range: -40°C to 135°C; -40°F to 275°F
Interoperability		<i>Potentiometer</i>	Translation table configurable on several points
Communication	LonTalk protocol	Input Resolution	16-bit analog / digital converter
Channel	TP/FT-10; 78Kbps	Differential Pressure	Range: 0 to 250 Pa (0 to 1.0 in. W.C.) Resolution: 0.000162 milli-in. W.C. Accuracy: $\pm 3\%$ full scale
LONMARK Interoperability Guidelines	Version 3.4		
LONMARK Functional Profile	SCC – VAV #8502		
Hardware		Outputs	
Processor	Neuron [®] 3150; 8 bits; 10MHZ	Digital	24 VAC Triac, digital (on/off), PWM, or floating; - 0.5A continuous - 1.0A @ 15% duty cycle for a 10-minute period - PWM control: adjustable period from 2 seconds to 15 minutes - Floating control: requires two consecutive outputs - Min pulse on/off: 500msec. - Adjustable drive time period External or internal power supply (jumper selectable)
Memory	Non-volatile Flash 64K (APB applications)	Digital LED occupancy output	0-10VDC dedicated output for occupancy sensor LED. Max. 20mA
Environmental		Universal	0-10VDC, digital 0-12VDC (on/off), floating or PWM - PWM control: adjustable period from 2 seconds to 15 minutes - Floating control: requires two consecutive outputs - Min pulse on/off: 500msec. - Adjustable drive time period - 20mA max. @ 12VDC - Minimum load resistance 600 Ω
Operating Temperature	0°C to 50°C; 32°F to 122°F	Output Resolution	10-bit digital / analog converter
Storage Temperature	-20°C to 50°C; -4°F to 122°F		
Relative Humidity	0 to 90% Non-condensing		
Enclosure			
Material	FR/ABS		
Color	Black & blue casing & grey connectors		
Dimensions (with Screws)			
- ECC-VAV-N	4.8" x 5.9" x 2.5" (122.7mm x 149.1mm x 63.0mm)		
- Other models	4.8" x 8.4" x 2.5" (122.7mm x 214.3mm x 63.0mm)		
Shipping Weight			
- ECC-VAV-N	0.92lbs (0.42kg)		
- Other models	2.30lbs (1.05kg)		
Integrated Damper Actuator			
Motor	Belimo LMZS-H brushless DC motor		
Torque	35 in-lb, 4 Nm		
Degrees of Rotation	95° adjustable		
Fits Shaft Diameter	5/16 to 3/4"; 8.5 to 18.2mm		

Product Specifications (continued)

Wireless Receiver^{1,3}

Communication	EnOcean wireless standard
Number of wireless inputs ²	
- ECC-VAVS and ECC-VVTS	4
- Other models	6
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	6.5ft; 2m

Electromagnetic Compatibility

CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
FCC	This device complies with FCC rules part 15, subpart B, class B



EC-Smart-Sensors³

Models Supported	EC-Smart-Sensor-VAV
Power and Communication	2-wire
Number of sensors supported	1



Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ⁴	UL94-5VA



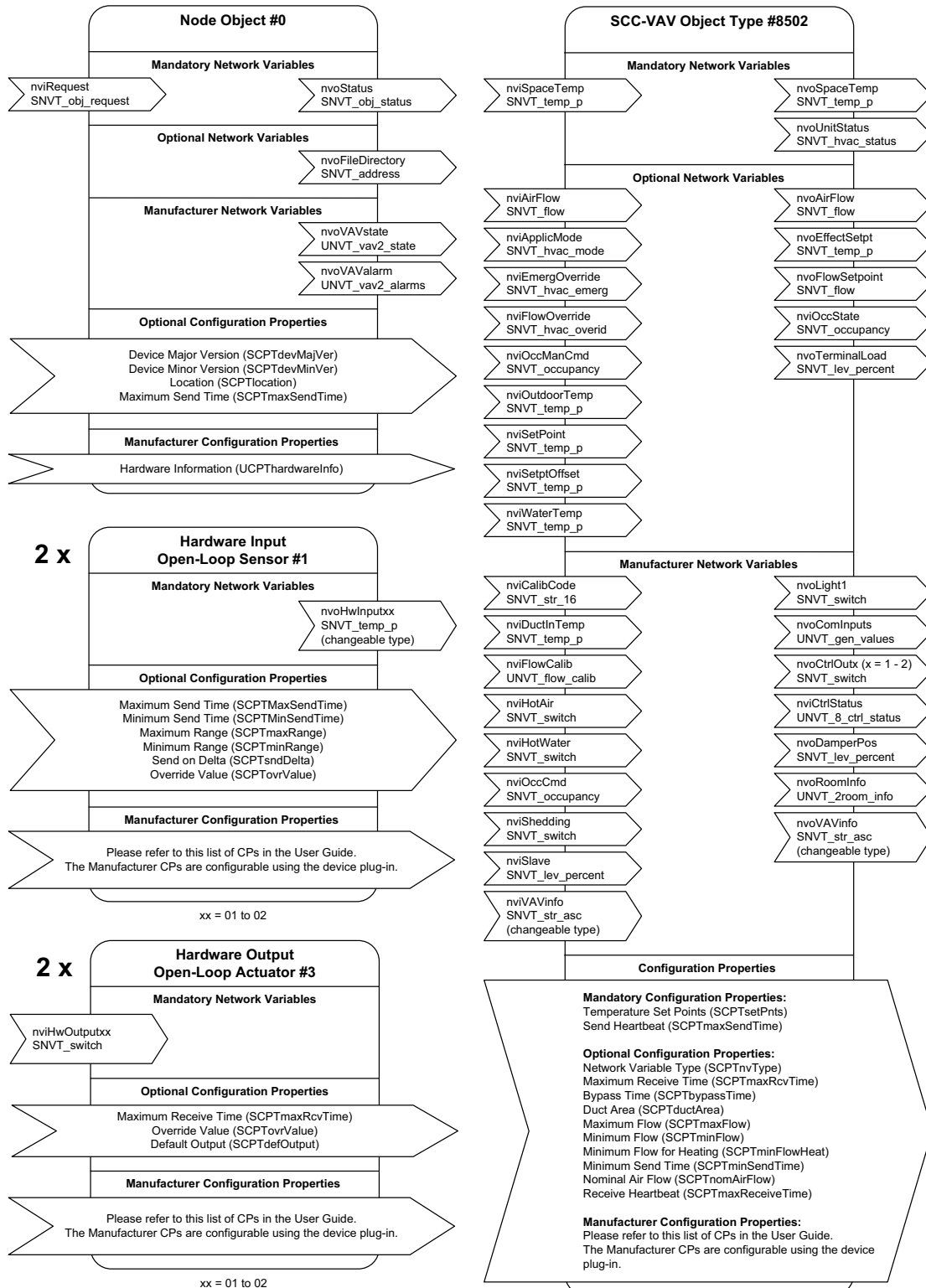
Communication Protocols and Standards



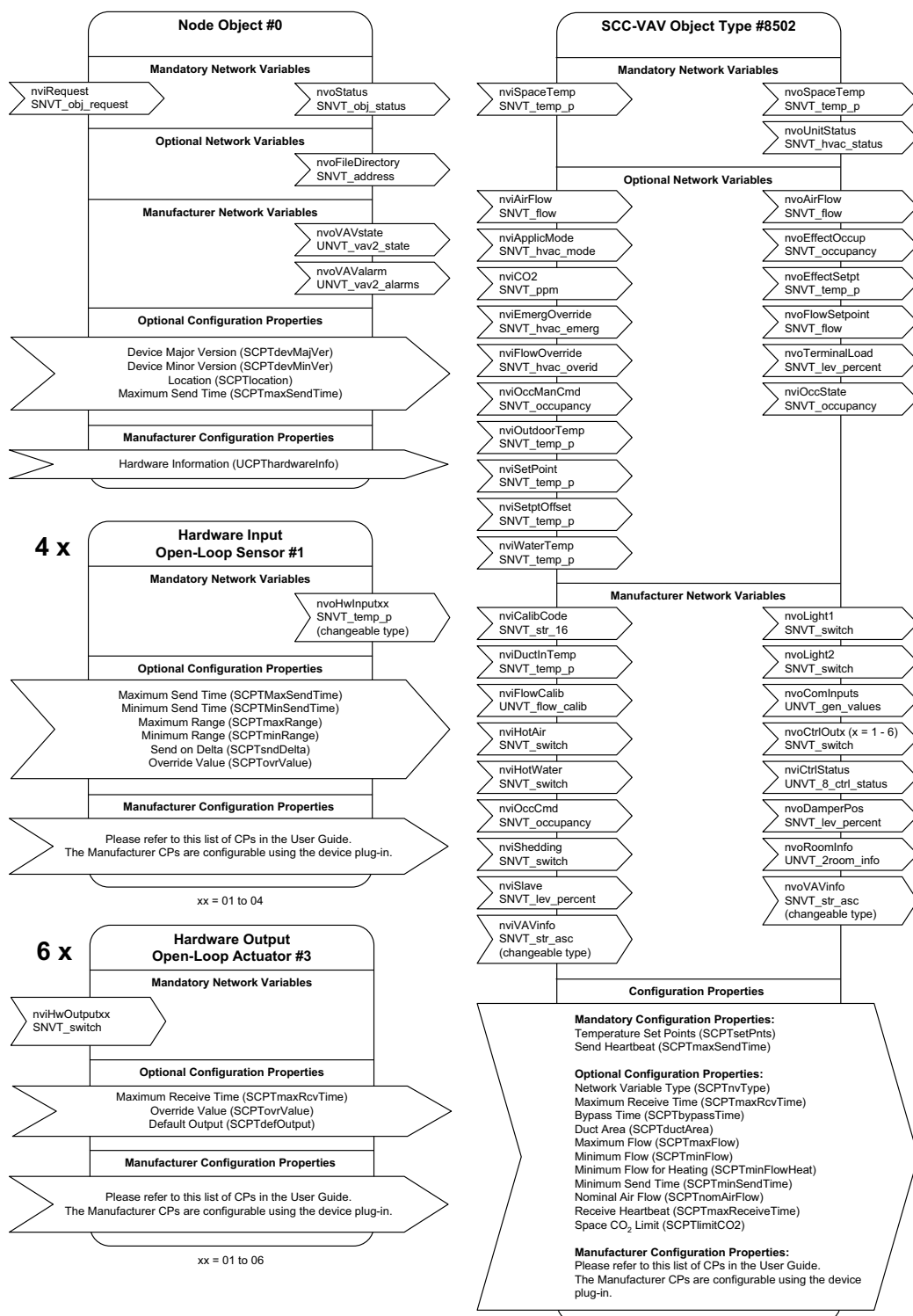
1. Available when an optional external Wireless Receiver is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
2. Some wireless sensors may use more than one wireless input from the controller.
3. An EC-Smart-Sensor and Wireless Receiver cannot be used at the same time. However, an EC-Smart-Sensor can be temporarily connected to a controller in wireless mode to perform VAV airflow balancing.
4. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.



Functional Profile (ECC-VAV, ECC-VVT, and ECC-VAV-N)



Specifications subject to change without notice.

Distech Controls, the Distech Controls logo, and Open-To-Wireless are trademarks of Distech Controls Inc.; LON, LONWORKS, LONMARK, LonTalk, and LNS are registered trademarks of Echelon Corporation; Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; BACnet is a registered trademark of ASHRAE; EnOcean is a registered trademark of EnOcean GmbH. All other trademarks are property of their respective owners.



05DI-DSCVAVX-10E

ECC-VAVS and ECC-VAV
Series

www.distech-controls.eu

8/8

Remote-I/O

easyCONTROLS™ LONMARK® v3.4 Certified Remote I/O modules

- Universal Inputs
- Triac Outputs (PWM or digital)



Applications

- Value readings
- Point monitoring
- Extending the capability of an open control system

Features

Interoperability

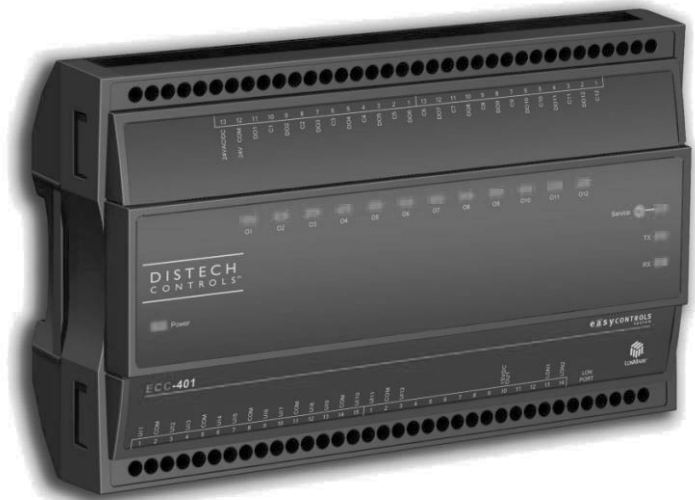
- Based on LONWORKS® technology for peer-to-peer communication between controllers
- LONMARK® certified according to the Interoperability Guidelines Version 3.4

Hardware

- Fire retardant plastic enclosure
- Separable base plate allows base with connectors to be shipped to site for installation while engineering is done at the office
- Light weight enclosure saves on shipping costs
- Universal inputs (software configurable)
- Triac outputs (PWM or digital)
- Status indicator on each output
- Power supply is fuse-protected
- Transmit, receive and power LED indicators
- Audio jack for quick access to LON® network
- Din-rail mounting integrated into the enclosure

Software

- LNS® plug-in or EC-Net^{AX} wizards available for configuration and monitoring
- With an intuitive interface, these provide easy customization of hardware inputs and outputs
- Easily configure all features, including:
 - Input and output properties
 - Hardware input SNVT type



* ECC-401 illustrated

The easyCONTROLS Remote-I/O is designed to extend the capability of an easyCONTROLS system, as well as to monitor and control various HVAC applications. The Remote-I/O uses the LonTalk® communication protocol and are LONMARK certified using the Sensor profile (#1) for its input objects and the Actuator profile (#3) for its output objects.

The Remote-I/O can be configured by using the EC-Configure plug-in through either any LNS-based software such as Distech Controls Lonwatcher, or by using a multi-protocol platform software supporting LONWORKS devices such as the EC-Net^{AX} software powered by the Niagara^{AX} Framework. These configuration interfaces are designed to simplify the configuration of input and output properties such as input types, input min/max values, output types, network variable types, etc.

The easyCONTROLS product line is built to meet rigorous quality standards and carries a two-year warranty. The complete line of easyCONTROLS controllers is designed for use with any LONWORKS-based and/or any other open and interoperable system – such as EC-Net^{AX}. This provides both the contractor and the end user with the flexibility of using “best of breed” products in system design.

Product Specifications

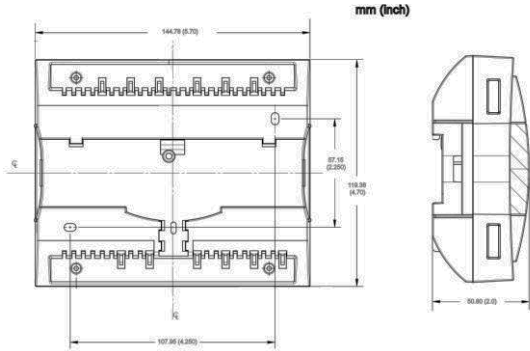


Figure 1: Remote-I/O – ECC-301 dimensions

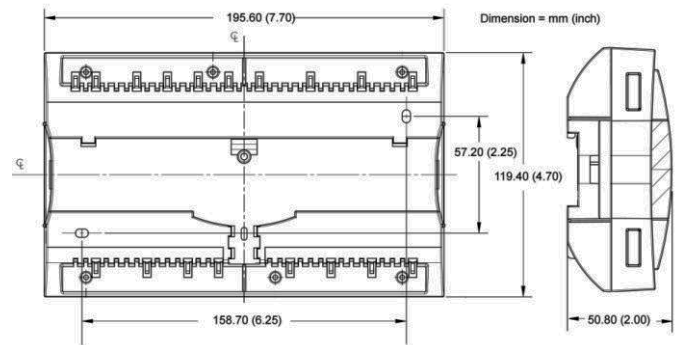






Figure 2: Remote-I/O – ECC-401 & 520 Series dimensions

Power		Inputs	
Voltage	24VAC; $\pm 15\%$, 50/60HZ, Class 2	Input Types	Universal; software configurable
Protection	1.35A auto-reset fuse	-Voltage	0-10VDC
Typical Consumption	6VA	-Current	4-20mA with 249 Ω external resistor (wired in parallel)
Maximum Consumption	15VA	-Digital	Dry contact
Environmental		-Resistor	
Operating Temperature	0°C to 50°C; 32°F to 122°F	<i>Thermistor</i>	10K Ω Type 2, 3 (10K Ω @ 25°C; 77°F) Range: -40°C to 150°C; -40°F to 302°F
Storage Temperature	-20°C to 70°C; -4°F to 158°F	<i>Platinum</i>	Pt1000 (1K Ω @ 0°C; 32°F) Range: -40°C to 150°C; -40°F to 302°F
Relative Humidity	0 to 90% Non-condensing	<i>Potentiometer</i>	Pt100 (100 Ω @ 0°C; 32°F) Range: -40°C to 135°C; -40°F to 275°F Translation table configurable on several points
General		Input Resolution	16-bit analog / digital converter
Processor	Neuron [®] 3150 [®] ; 8 bits; 10MHZ	Electromagnetic Compatibility	
Memory	Non-volatile Flash 64K (APB application & configuration properties)	CE -Emission	EN61000-6-3: 2007; Generic standards for residential, commercial and light-industrial environments
Communication	LonTalk Protocol	-Immunity	EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments
Transceiver	FT-X1	FCC	This device complies with FCC rules part 15, subpart B, class B
Channel	TP/FT-10; 78Kbps		
Status Indicator	Green LED: power status & LON TX Orange LED: service & LON RX		
Communication Jack	LON [®] audio jack mono 1/8" (3.5mm)	Agency Approvals	
Enclosure		UL Listed (CDN & US)	UL916 Energy management equipment
Material	ABS PA-765A	Material ¹	UL94-5VA
Color	Blue casing & grey connectors		
Dimension w/ Screws			
-ECC-301	5.7x4.7x2.0" (144.8x119.4x50.8mm)		
-ECC-401 & ECC-520	7.7x4.7x2.0" (195.6x119.4x50.8mm)		
Shipping Weight			
-ECC-301	0.77lbs (0.35kg)		
-ECC-401 & ECC-520	0.86lbs (0.39kg)		
Installation	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)		

1. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Output Configuration and Remote-I/O Controller Selection Guide

The Remote-I/O series of controllers is comprised of three different devices, each having its own output configuration, but all having identical input, power, environmental and general specifications.

ECC-301	
Inputs:	8
Outputs:	8 Digital
24VAC Triac, digital (on/off) or PWM – 0.5A continuous – 1.0A @ 15% duty cycle for a 10-minute period External power supply is required PWM control: adjustable period from 2 seconds to 15 minutes	

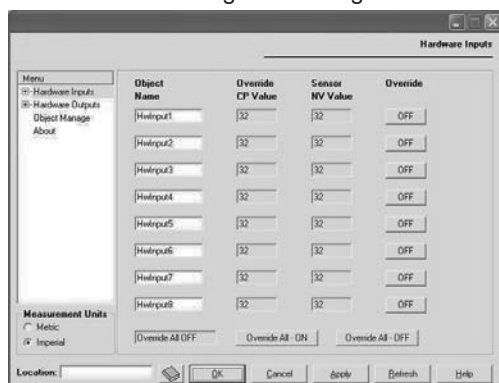
ECC-401	
Inputs:	12
Outputs:	12 Digital
24VAC Triac, digital (on/off) or PWM – 0.5A continuous – 1.0A @ 15% duty cycle for a 10-minute period External power supply is required PWM control: adjustable period from 2 seconds to 15 minutes	

ECC-520	
Inputs:	16
Outputs:	0

Distech Controls Software Plug-ins and Wizards

Software Preview

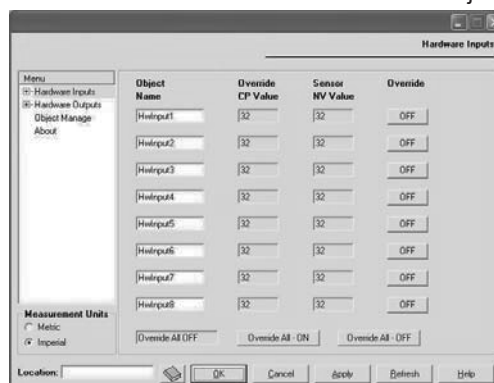
LNS Configuration Plug-in*



Easily configure all of the devices' parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. You can also enable and configure additional built-in features such as optimum start, load shedding, frost protection and slave operation mode.

* LNS Plug-ins can be used with any LNS based network management and GUI tool, such as Distech Controls' Lonwatcher or Londisplay.

EC-Net^{AX} Wizards and EC-Net Shadow Object



Designed for use with the Niagara^{AX} Framework, the EC-Net^{AX} Wizards offer all the same features accessible within the LNS plug-in. Simply add the device to your LON network and immediately launch the configuration wizard with a couple clicks of your mouse!

Can also be used with the Niagara Framework, where the EC-Net Remote I/O Shadow Object allows you to add a Remote I/O device on your network for control and monitoring purposes.

Product Warranty and Total Quality Commitment

The easyCONTROLS product line is built to meet rigorous quality standards and carries a two-year warranty. Distech Controls is an ISO 9001 registered company. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Recommended Peripherals

Recommended Optional Accessories

Temperature Sensors

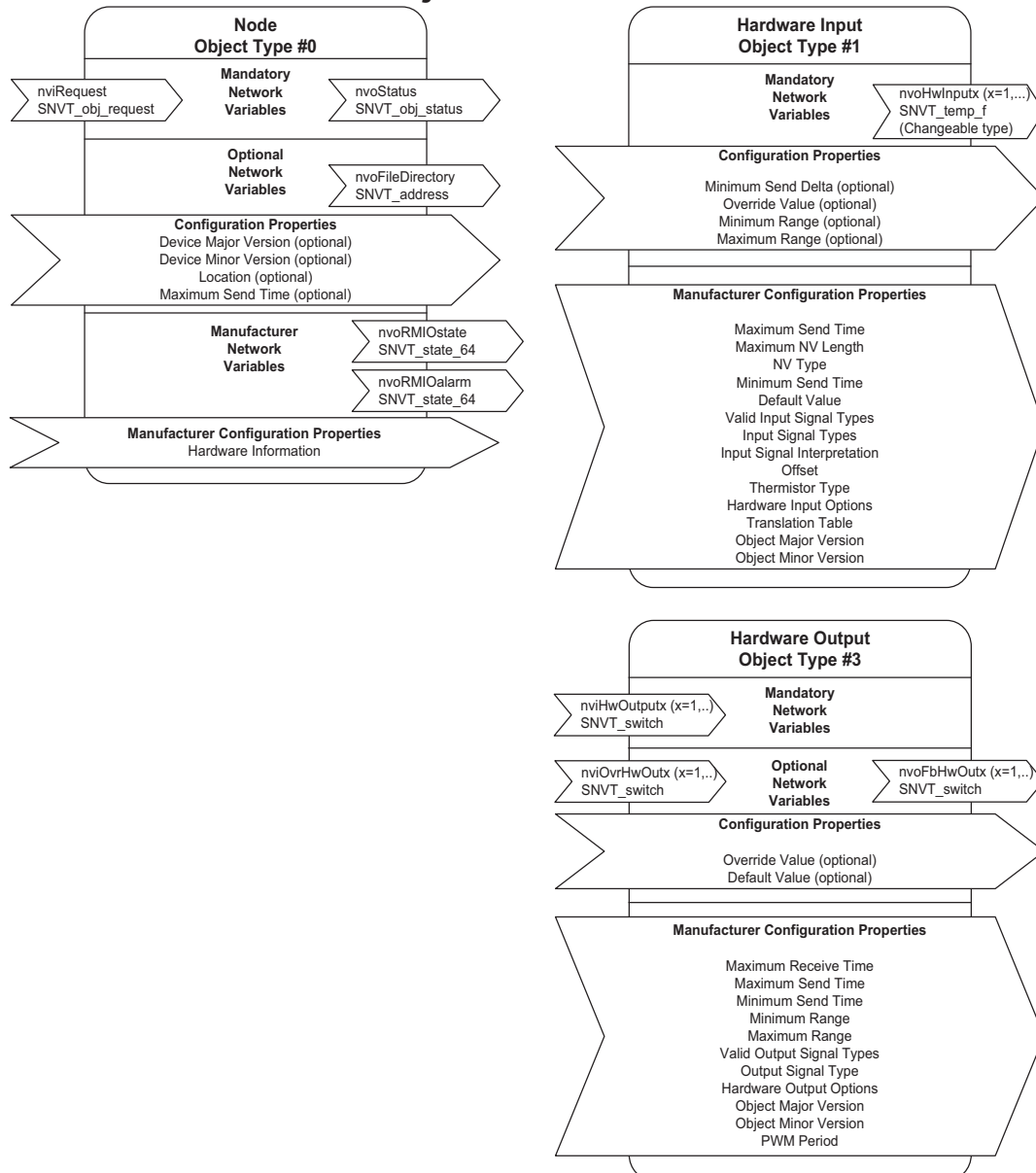


EC-SENSOR	Room sensor
EC-SENSOR-LO	Room sensor with LED and override push button
EC-SENSOR-SLO-CW	Room sensor with LED, override push button and setpoint adjustment (cool/warm)
EC-SENSOR-SLO-C	Room sensor with LED, override push button and setpoint adjustment (°C)
EC-SENSOR-SLO-F	Room sensor with LED, override push button and setpoint adjustment (°F)
EC-SENSOR-AVG	Averaging room sensor, no setpoint (Up to 3 in parallel)
EC-SENSOR-AVG-LO	Averaging room sensor with LED and override push button

Other Peripherals

Please contact sales@distech-controls.com for a complete list of available products and peripherals.

LONMARK® Objects & Network Variables



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05DI-DSRIOXX-13

Remote-I/O

Distech Controls, Inc
 Tel. Toll-free North America: 1-800-404-0043
 Tel. International: 1-450-444-9898
<http://www.distech-controls.com>
sales@distech-controls.com



EC-Display

EasyControls™ LCD Display with Scheduler

- Read / write support for up to 250 points
- 16 independent schedules
- Integrated Real-Time Clock



Applications

- Manage systems without a supervising station
- Quick and convenient access when a computer is far or out of reach
- Monitor or modify states and set points for any variable in a LONWORKS® network
- Supports up to 16 independent schedules

Features

Interoperability

- Based on LONWORKS® technology for peer-to-peer communication between controllers

Hardware

- Backlit LCD display with a 128 X 128 pixel screen
- Changeable logo (wallpaper)
- Configurable through an easy-to-use LNS® plug-in
- Simple to use 6-button interface for navigation and data entry
- Battery backup for clock with 15 year lifespan
- Can be mounted on a wall or within a panel
- Available in "flush mount" and "Din rail" casings
- Built-in input for 1/8" communication jack (3.5mm)

Display object

- Supports imperial or metric units
- Read / write support for up to 250 points (SNVT, UNVT, Free Programmable points)
- Regroup displayed points into a maximum of 50 groups
- Acts as a node and can be plugged-in anywhere on a LONWORKS network
- Supports enumeration text format (0/1 point status display ON/OFF or XXX/YYYY)
- Assign passwords to users (full access or view only)
- Auto log-off feature

16 Scheduler objects

- Schedules are configured through an LNS plug-in. Each object contains one schedule
- All schedules are stored in on-board Flash memory
- Schedule network variables are of changeable type and length
- Seven weekday templates per scheduler
- Six configurable events per day, per schedule
- Four holiday templates per schedule
- Schedules can be edited locally on device

Real-time clock object

- Allows configuration of daylight saving time
- Accurate timekeeping for controller applications



Based on the LONTALK® open network protocol, the EasyControls™ EC-Display is a multi-function LCD display equipped with a 3150® Neuron® processor. Unique in our industry, it can display and interface with up to 250 network variables, while most other displays are limited to only 64 variables.

The EC-Display can be used with the Distech Controls EasyControls system as a human-to-machine-interface. However, being fully interoperable, it can also operate with any LONMARK® compliant device, using SNVTs or UNVTs.

The EC-Display can be configured through any LNS based software such as Distech Controls LonWatcher, or by using a multi-protocol platform software, such as the EC-Net Pro software within the Niagara Framework. Furthermore, an easy-to-use Distech Controls LNS plug-in, or a Niagara Framework EC-Net wizard, are available to configure the features of the EC-Display, which allows grouping of up to 5 points (variables) per group, with a maximum of 50 groups. The group and variable names are customizable with up to 13 and 16 characters respectively.

The EC-Display is the perfect interface for any sized system, where a PC front end is not always required. It is also ideal for large and complex systems where a manual interface is desired for a faster and more convenient access. It is truly a "window" into your LONWORKS system.

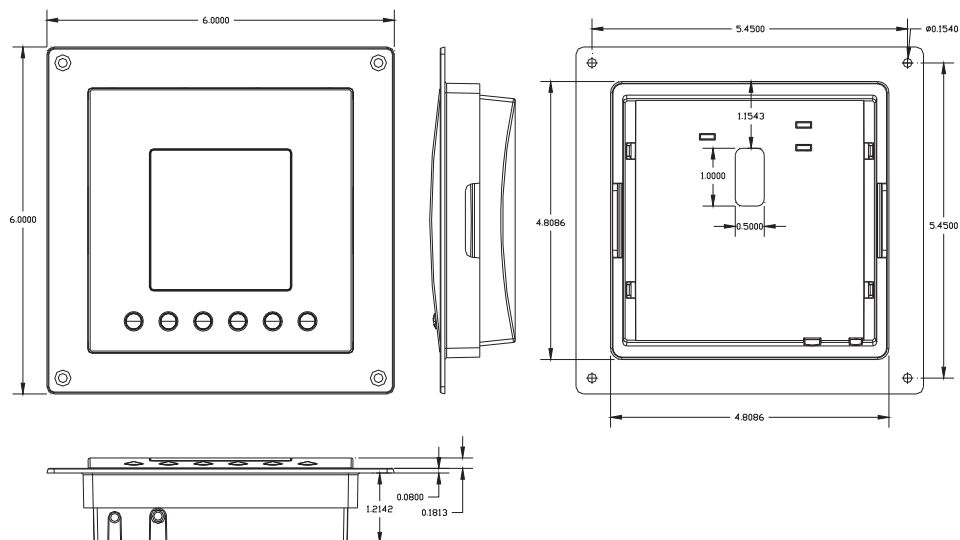
The EasyControls product line is built to meet rigorous quality standards and carries a two-year warranty. The complete line of EasyControls controllers is designed for use with any LNS based and/or any other open and interoperable system – such as EC-Net. This provides both the contractor and the end user with the flexibility of using "best of breed" products in system design.

Distech Controls' quality management system is ISO 9001:2000 certified.

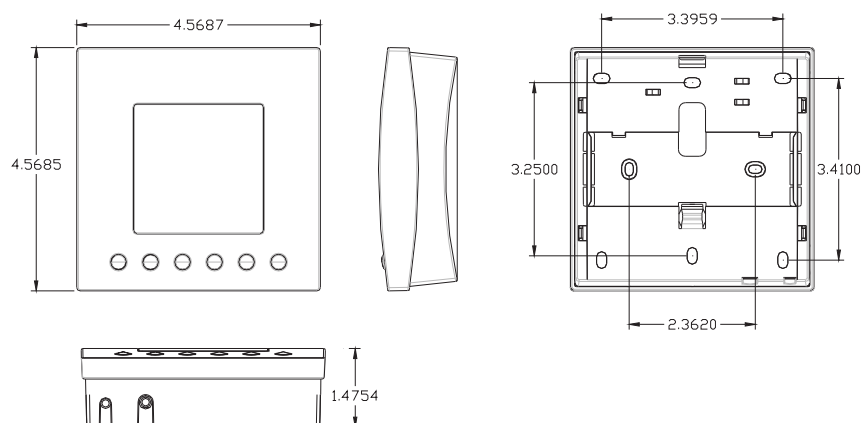
Product Specifications

The EC-Display is offered in two different casing; flush mount and surface mount.

Flush Mount Casing (FMT model)



Surface Mount Casing (SMT model)



Product Specifications

Power		LCD Display	
Voltage	24VAC/DC; ±15%, 50/60HZ, Class 2	Type	Backlit
Protection	500 mA auto-reset fuse	Definition	128 x 128 pixels
Consumption	8 VA	Display Area	2.1" x 2.1" (550 x 550mm)
		Screen Saver	Customizable
Environmental		Agency Approvals	
Operating Temperature	0°C to 70°C, 32°F to 158°F	CE	EN55022: 1998 class B
Storage Temperature	-20°C to 70°C, -4°F to 158°F		EN61000-4-2: 1995 level3 in air, level 2 by contact
Relative Humidity	0 to 90% Non-condensing		EN61000-4-3: 1996, level 2
General		UL listed	EN50204: 1995, level 2
Processor	Neuron® 3150®; 8 bits; 10MHZ		EN61000-4-4: 1995, level 2
Memory	Non-volatile Flash 64K (APB application) Non-volatile Flash 64K (storage)		EN61000-4-6: 1996, level 2
Communication	LonTalk® P protocol		Listed 6EA7
Transceiver	TP/FT-10; 78 Kbps		Energy management equipment
Status Indicator	Green LEDs on outputs		This device complies with FCC rules part 15, subpart B, class B
Communication jack input	1/8" (3.5mm)		
Enclosure			
Material	ABS Resin		
Color	Off white		
Dimension (FMT)	6" x 6" x 1.48" (151 x 151 x 38mm)		
Dimension (SMT)	4.57" x 4.57" x 1.48" (116 x 116 x 38mm)		
Shipping Weight (FMT)	0.88 lbs (0.40 kg)		

Software Preview

LNS Configuration Plug-in*



Easily configure all network variables and labels that will be displayed on the EC-Display. This plug-in allows you to select the logo that will appear on the display and also help's you manage user names and passwords to restrict the access to your building information.

LNS Scheduler and Real-time Clock Plug-in*



This plug-in allows you to easily configure a weekly-based schedule and a special day schedule for holidays. Easily add and remove the special day event into the calendar by a simple click. Manage real-time clock and daylight saving time for use with any device on the network.

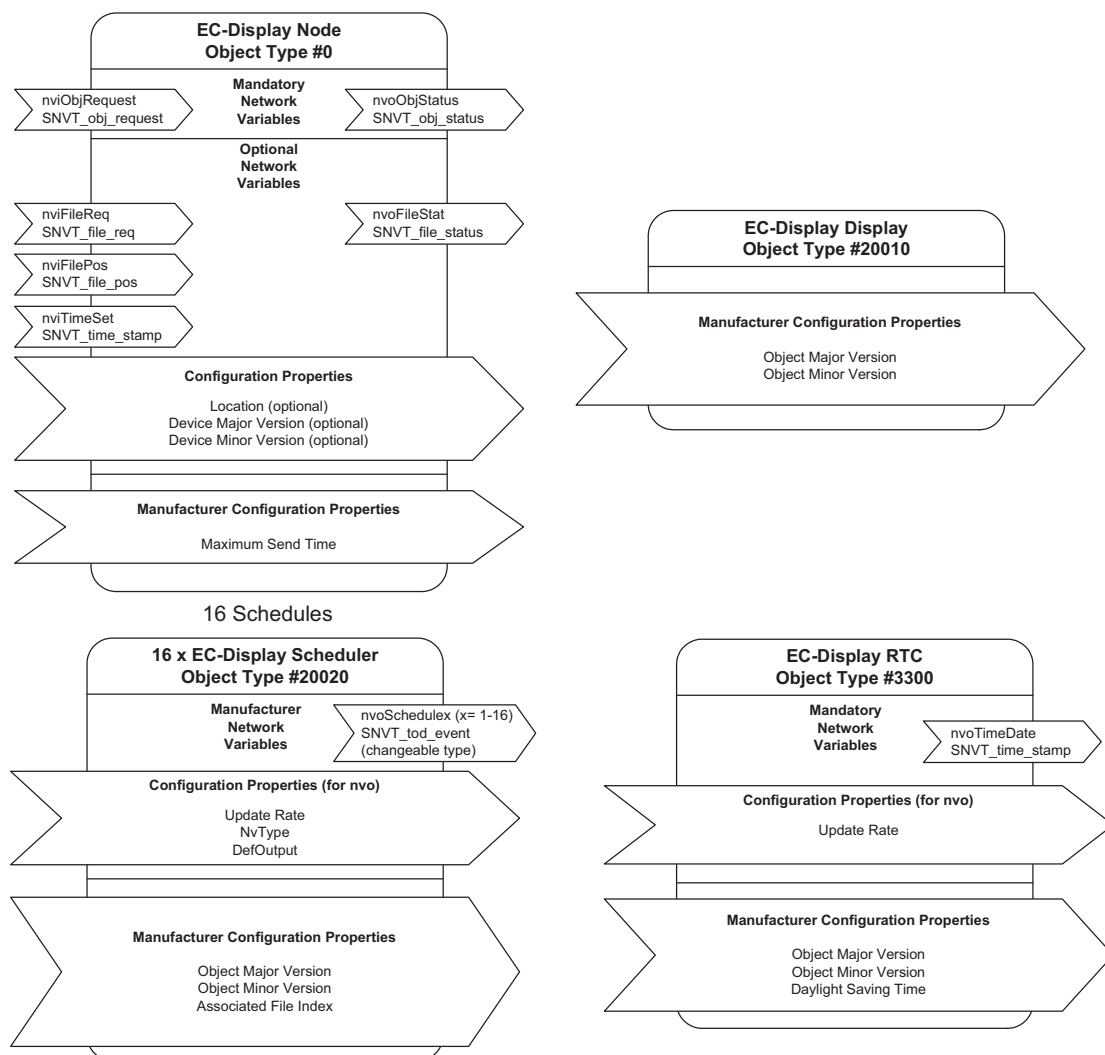
EC-Net Wizard for Niagara Framework



Designed for use with the Niagara Framework, the EC-Net wizard offers all the same features accessible within the LNS plug-in. Simply add pre-defined shadow objects into your database and immediately launch the wizard with a couple clicks of the mouse!

* LNS Plug-ins can be used with any LNS based network management and GUI tools, such as Distech Controls' LonWatcher or LonDisplay.

LONMARK® Objects & Network Variables



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05DI-DSDISPL-20

EC-DISPLAY

Distech Controls, Inc

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sales@distech-controls.com

Overview



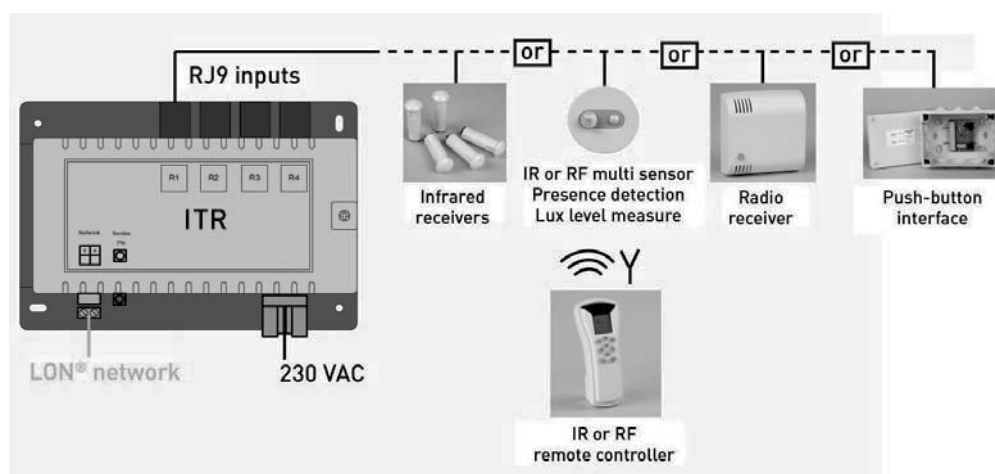
Connected to a CTR (Dalilon Range) or to an IRC (Karno Range) through the LonWorks Network, the ITR module is designed to offer 4 additional RJ9 inputs for receivers, multi sensors or push-button interfaces.

Also a receiver for infrared or radio remote controls, the ITR Module transmits the received information to the LonWorks network through its 4 room managers.

The integration of the ITR Module to a BMS allows Blinds and HVAC information transmission through their associated variables.

The ITR Module is fully compatible with all Dalilon® infrared or radio accessories through a direct RJ9 connection.

Operating Diagram



Designation

Designation	Name
ITR	Interface 230VAC 4 infrared and / or radio channels



Inputs

The 4 RJ9 digital inputs can be used with:

- Infrared receivers
- Radio receivers
- Multi sensors
- Push-button interfaces
- Switches

Power supply

Power supply of ITR module: 230VAC, 50/60 Hz, +10% -15%.
Self-protected transformer.

Environmental conditions

Operating temperature: +5°C à +45°C

Storage temperature: -20°C à +70°C

Humidity: +20% à +90% without condensing

Security : EN60669-2-1 (being validated)

EMC: complies with EN61000-6-x and EN61000-4-x

Networks

FTT10a (Free Topology Transceiver), 78 kbps, twisted pair.

Devices compatibility

The ITR module is compatible with the Dalilon® lighting and sunblind controllers, Karno® HVAC room controllers and with the Dalilon® accessories as follows:

Reference	Description	ITR
RIR-I ou RIR-B	Infrared receiver	X
		X
RIR-L	Infrared receiver and lux level sensor	X
MS-P	Infrared multi sensor (old generation) -P: presence detector -L: lux level -T: temperature	X
MS-PL		X
MS-PLT		X
MS2-x-P	Infrared or radio multi sensor -P: presence detector -L: lux level -T: temperature	X
MS2-x-PL		X
MS2-x-PLT		X
TCIR-L	Infrared remote controller: 2 light circuits control Occupancy mode	X



TCND-I	Infrared remote controller: Lighting, sunblind, HVAC functions Occupancy mode	X
TCND-IT	Infrared remote controller: Lighting, sunblind, HVAC functions Temperature measurement Occupancy mode	X
RFR-D (R1 only)	Radio frequency receiver (1 receiver for 4 remote controllers)	X
TCND-R	Bi-directional radio remote controller: Lighting, sunblind, HVAC functions Occupancy mode	X
TCND-RT	Radio remote controller: Lighting, sunblind, HVAC functions Occupancy mode Temperature measurement	X
WMS-PB-8DI	Push-button / switches interface	X

Other characteristics

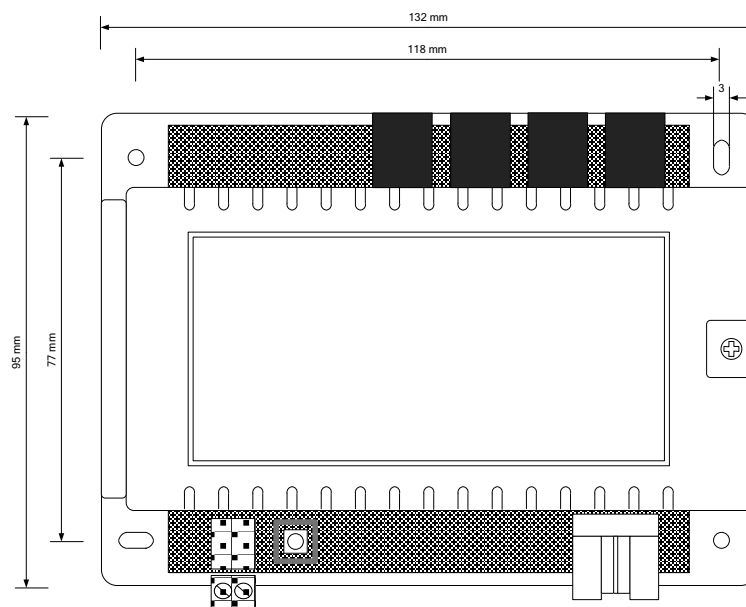
- 1) Signage LED: LED power supply traffic.
LED network traffic.
- 2) "Pin service": directly accessible by push button on front.

Installation

Mounting on DIN rail or by screwing, 4 (6.5x20mm) holes at each corner (please, see mechanical drawing below).
Installation precaution: on metal plate or cable support connected to the earth.

Mechanical drawing

Transparent yellow cap made of polycarbonate, IP20.



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ITR Module

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Connectors and wiring

All the infrared or radio receivers and multi sensors are connected through a RJ9 digital link to the ITR.

	RJ9-RJ9
5 meters cable	CBL-05
8 meters cable	CBL-08
12 meters cable	CBL-12
40 meters cable	CBL-40

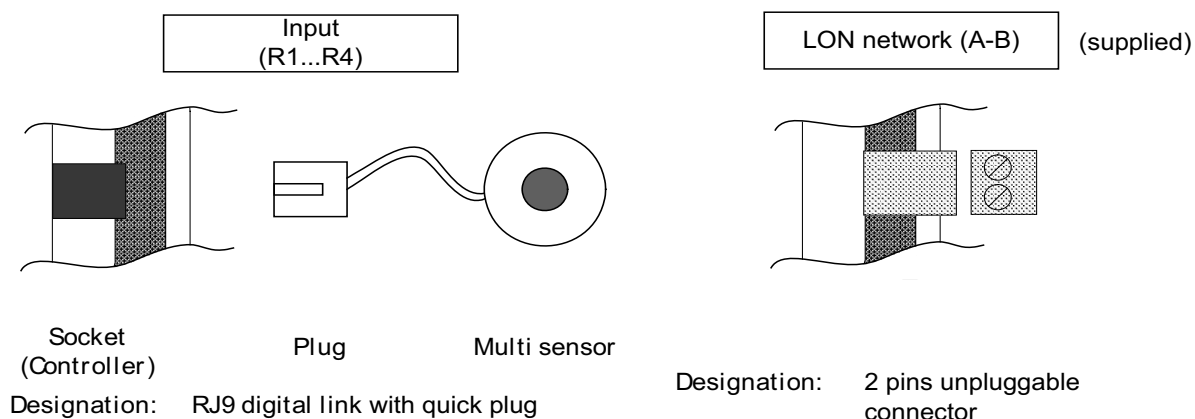
Note:

Maximum length for RIR-B and RIR-L: 40 m (please contact us)

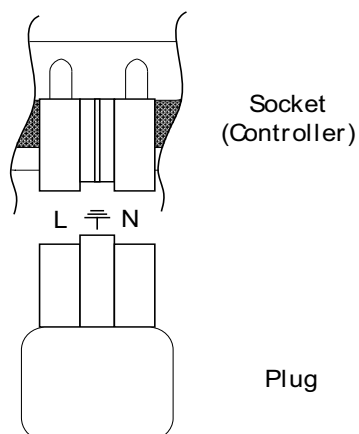
Maximum length for RIR-L and MS-P, MS-PL, MS-PLT: 12 m

Maximum length for MS2-x: 50 m

All the connectors below are recommended for the electrical installation. Only the LON[®] network connector is supplied.



Power supply 230 VAC



Name : Wieland GST18i3 connector, female 3 pins

Reference : 92.031.3258.1
99.400.5802.2 (with cable-lock)



05DI-DSITRXX-10

ITR Module


















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Product Comparison Chart

ECL Series

LonMark Certified Programmable Controllers

	ECL-103	ECL-203	ECL-253	ECL-300	ECL-350	ECL-400	ECL-403	ECL-410	ECL-413	ECL-450	ECL-453	ECL-600	ECL-610	ECL-650	ECx-400	ECx-410	ECx-420
General																	
Controller Status LED	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Interactive color operator interface			■		■												
Real-Time Clock				■	■	■	■	■	■	■	■	■	■	■	■	■	■
DIN-Rail Mounting		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
LonMark Device Class	SCC	SCC	SCC	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹	SPD ¹			
	Generic	Generic	Generic														
Inputs																	
Universal (Software Configurable)	4	6	6	10	10	12	12	12	12	12	12	16	16	12	12	12	12
0-20mA/4-20mA (external 249Ω Resistance)	■	■	■														
0-20mA/4-20mA (built-in 249Ω Resistance, Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	■
50 Hz Pulse				■	■	■	■	■	■	■	■	■	■	■	■	■	■
0-20mA/4-20mA (Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Analog/Digital Converter (Bits)	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
EC-Smart-Vue Capability	4	4	4	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Wireless inputs ³	18	24	24	28	28	28	28	28	28	28	28	28	28	28	28	28	28
15VDC Power Supply	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Outputs																	
Universal (Analog)	2	3	3	8	8	12	4	12	4	12	4	12	12	12	12	12	0
Digital/Analog Converter (Bits)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
0-20mA/4-20mA (Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Digital (Triac 24 V AC)	4	5	5				8		8								
Output LED Status Indicator		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
HOA Switch								■	■				■				
Power Input																	
24 VAC	■																
24 VAC/VDC		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Power Status LED Indicators	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

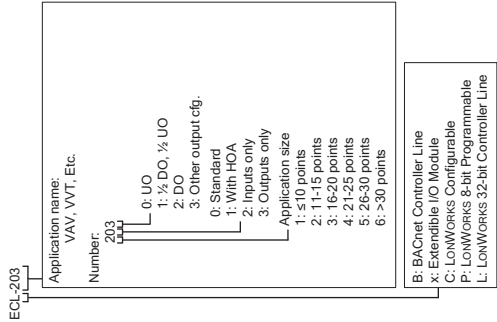
1. SPD: "Static Programmable Device" LonMark Device Class.
2. The first four inputs are software configurable for pulse counting; 50 Hz maximum frequency.
3. All controllers are Open-to-Wireless™ ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

Programming – Configuration																
EC-gfxProgram																
Pre-Loaded Application																
Communication																
LonMark Certified																
LonWorks TP/F/T-10																
Rx LED Indicators																
Tx LED Indicators																
Objects																
Calendar Objects																
1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	2	2	8	8	8	8	8	8	8	8	8	8	8	8	8	8
8	8	8	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Constants																
124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Variables																
- Boolean																
124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
- Numeric																
56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
nclSetpoint																
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Network Variables																
170	176	176	161	161	171	171	171	171	171	171	254	254	254	254	254	254
Network Variable Input (General Usage)																
- NVI Changeable Type, Up to 31 Bytes ⁴																
50	50	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Network Variable Output (General Usage)																
50	50	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35
- NVO Changeable Type, 31 Bytes																
Hardware Input Network Variable																
- nvoHwInput per Hardware Input																
Hardware Output Network Variable																
- nviHwOutput per Hardware Output																
- nvoHwOutput per Hardware Output																

4. Any type of Fan-In function is supported in combination with the "FOR" loop function.

5. These Network Variables are managed by the ECL-600, ECL-610, or ECL-650 controller (master).

Controller Naming Conventions:



Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Product Comparison Chart

ECL-VAV Series

LONMARK® Certified Single Duct VAV / VVT Controllers

ECL-VAVS-O

ECL-VAVS

ECL-VAV

ECL-VVTS

ECL-VAV-N


General

Controller Status LED	■	■	■	■	■
LONMARK® Device Class: SCC VAV	■	■	■	■	■

Inputs

Universal (Software Configurable)	0	2	4	2	4
Built-In Differential Pressure Sensor (0 to 2.0" W.C.)	■	■	■		■
EC-Smart-View Capability	4	4	4	4	4
Wireless inputs ¹	18	18	18	18	18
Analog/Digital Converter (bits)	16	16	16	16	16

Outputs

15VDC Power Supply			■		■
Universal (Analog)	1	1	2	1	2
Digital (Triac)	2	2	4	2	4
Built-In Actuator with feedback	■	■	■	■	
Digital/Analog Converter (Bits)	10	10	10	10	10

Power Input

24 VAC	■	■	■	■	■
--------	---	---	---	---	---

Programming – Configuration

EC-gfxProgram	■	■	■	■	■
Pre-Loaded Application	■	■	■	■	■

Communication

Channel: TP/FT-10; 78Kbps	■	■	■	■	■
---------------------------	---	---	---	---	---

ECL-VAVS-O



ECL-VAVS



ECL-VAV



ECL-VVTS



ECL-VAV-N



Objects

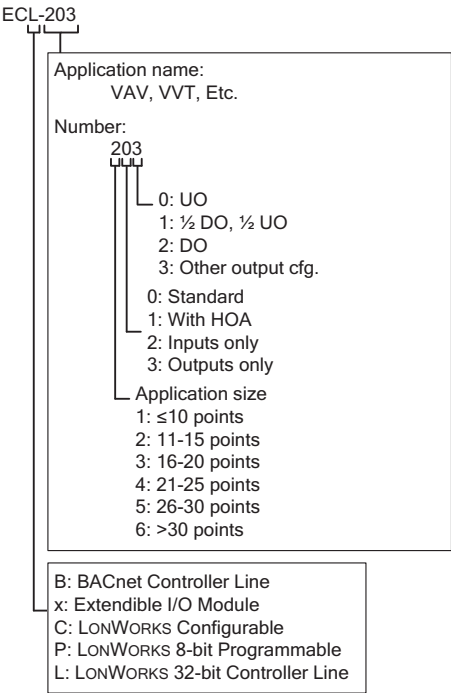
Calendar Objects	1	1	1	1	1
Schedule Objects	2	2	2	2	2
Loop (PID)	8	8	8	8	8
Constants	242	242	242	242	242
- Boolean	124	124	124	124	124
- Enumeration	62	62	62	62	62
- Numeric	56	56	56	56	56
Variable	234	234	234	234	234
- Boolean	124	124	124	124	124
- Enumeration	54	54	54	54	54
- Numeric	56	56	56	56	56
nciSetpoint	■	■	■	■	■
Total Network Variables	163	166	174	165	171
Network Variable Input (General Usage)					
- NVI Changeable Type, Up to 31 Bytes	50	50	50	50	50
Network Variable Output (General Usage)					
- NVO Changeable Type, Up to 31 Bytes	50	50	50	50	50
Hardware Input Network Variable					
- nvoHwInput per Hardware Input		■	■	■	■
Hardware Output Network Variable					
- nviHwOutput per Hardware Output	■	■	■	■	■
- nvoHwOutput per Hardware Output	■	■	■	■	■

Recommended Applications

Cooling Only VAV box	■	■		■	
Cooling with Reheat VAV box	■	■		■	
Cooling with Reheat VAV box & Perimeter Heating			■		
Parallel Fan VAV box			■		
Series Fan VAV box			■		
Dual Duct VAV box ²	■	■			
Large Damper > 35 in-lb (4 Nm) VAV box					■
Existing Damper Actuator					■
Room Pressurization			■		

1. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.
2. Two controllers are required or one controller with an external flow sensor and actuator.

Controller Naming Conventions:







Product Warranty & Total Quality Commitment

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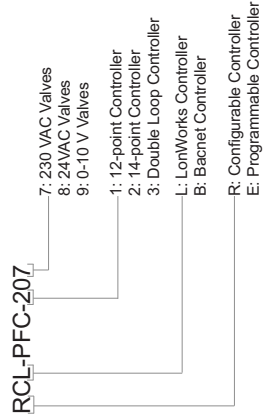
General				
Din-Rail Mounting	■	■	■	■
LONMARK® Device Class	SCC - Fan Coil	SCC - Fan Coil	SCC - Fan Coil	SCC - Fan Coil
Inputs				
Configurable Inputs	6	6	6	6
including:				
- Digital Inputs¹	Up to 4	Up to 4	Up to 4	Up to 4
- Sensor Inputs¹	Up to 2	Up to 2	Up to 2	Up to 2
- Analog Inputs¹	Up to 3	Up to 3	Up to 3	Up to 3
¹ Depending on input configuration. Please refer to the datasheet for more information				
RCL-PFC-107				
				
RCL-PFC-108				
				
RCL-PFC-207				
				
RCL-PFC-208				
				
Outputs				
Electric Heater Outputs	1 x 2 kW	1 x 2 kW	1 x 2 kW	1 x 2 kW
Analog Outputs 0-10 V		2		2
Fan Outputs	3	3	3	3
PWM Valve Outputs 230 V - 10A	2	2		
PWM Valve Outputs 24 V - 300mA		2		2
24 VAC Generation 7 VA				■
Light & sunblinds add-on modules support (up to 4 lighting and 4 sunblinds commands)	■	■	■	■
Power Input				
230 VAC	■	■	■	■

	RCL-PFC-107	RCL-PFC-108	RCL-PFC-207	RCL-PFC-208
Configuration				
EC-Net ^{xx} Wizard & LNS Plug-in	■	■	■	■
Communication				
LONMARK Certified	■	■	■	■
Recommended Applications				
2 Pipe Fan Coil	■	■	■	■
2 Pipe Fan Coil with Changeover	■	■	■	■
2 Pipe Fan Coil with Electric Heater	■	■	■	■
2 Pipe Fan Coil with Electric Heater and Changeover (cascade)	■	■	■	■
4 Pipe Fan Coil	■	■	■	■
4 Pipe Fan Coil with Electric Heater	■	■	■	■
Electric Heater	■	■	■	■
Unit Ventilator	■	■	■	■
Chilled Ceiling	■	■	■	■
Variable Fan Speed Control			■	■
0-10 V Valves Control			■	■
Air Quality Management			■	■

Compatibility				
Open-to-Wireless™ ready	■	■	■	■
Allure™ RS Series Analog Room Sensors	■	■	■	■
Allure EC Series Analog Room Sensors	■	■	■	■
Allure RS Series Digital Room Sensors	■	■	■	■
Allure EC Series Digital Room Sensors				
RJ9 Multi-Sensors	■	■	■	■
RJ45 Multi-Sensors				
Max number of Digital Room Devices per controller	1	1	1	1



Controller Naming Conventions:



Product Warranty & Total Quality Commitment

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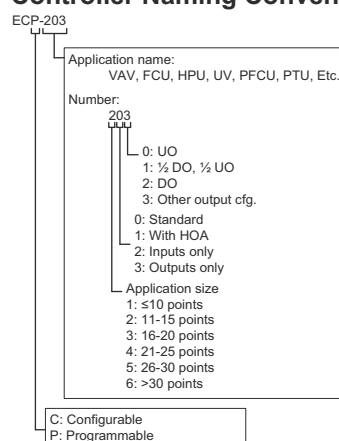


	EC-RTU-L	EC-HPU-L
Inputs		
Universal (total)	6	6
Digital (dry contact)	■	■
Voltage (0-10V)	■	■
Current (4-20mA with ext. 249Ω)	■	■
Thermistor (10kΩ Type 2)	■	■
Thermistor (10kΩ Type 3)	■	■
Platinum Pt1000 (1kΩ RTD)	—	—
Platinum Pt100 (100Ω RTD)	—	—
Nickel Ni1000 (1kΩ RTD)	—	—
Potentiometer (transtable)	■	■
Software configurable	■	■
Ability to use spare inputs	■	■
Optional wireless inputs	—	—
EC-Smart-Sensor capability	—	—
Analog/digital converter (bit)	12	12
Outputs		
Universal	2	2
Digital triac (24V AC)	5	5
Digital triac (up to 265V AC)	—	—
Digital relay (up to 277V AC)	—	—
Network (using NVOs)	—	—
Ability to use spare outputs (NVIs)	■	■
Output LED status indicators	■	■
Digital/analog converter (bit)	8	8
Power Input		
24V AC	■	■
85-265V AC	—	—
Enclosure		
Fire-retardant plastic (UL 94-5VA)	■	■
Hardware		
LED transmit, receive, service, and power indicators	■	■
LON® network jack	■	■
Integrated DIN rail mounting (separable base plate)	■	■
Heating Output Configuration		
Local / primary stages	4	4
Perimeter / secondary stages	—	—
Local proportional valve	■	■
Perimeter proportional valve	■	■

	EC-RTU-L	EC-HPU-L
Heating Output Configuration (continued)		
Local floating actuator valve	■	■
Perimeter floating actuator valve	■	■
Cooling Output Configuration		
Local / primary stages	4	4
Secondary stages	—	—
Local proportional valve	■	■
Local floating actuator valve	■	■
Reversing valve (heat pump)	■	■
Heat pump condenser water pump	—	■
Heating / Cooling Output Configuration		
On / off (2 position)	—	—
Local proportional valve	■	■
Local floating actuator valve	■	■
Fan Control		
Speeds	1	3
Proportional fan drive	■	■
State input	■	■
Speed selector input	—	■
Damper Control		
Proportional fresh air / economizer	■	—
Floating fresh air / economizer	■	—
Bypass damper	■	—
Humidification / Dehumidification		
On / off (2 positions)	■	■
Proportional valve	■	■
Floating valve	—	—
Temperature Input		
Space	■	■
Supply / discharge	■	■
Outdoor	■	■
Water supply	■	■
Return air	■	—
Mixed air	■	—
Refrigerant	—	■
Setpoint (absolute)	—	—
Setpoint offset (relative)	■	■
Humidity		
Space	■	■
Outdoor	■	—
Enthalpy		
Space	■	—
Outdoor	■	—

	EC-RTU-L	EC-HPU-L
Pressure Input		
Discharge air pressure	■	—
Local air static pressure	■	—
Refrigerant differential pressure (for defrost cycle)	—	■
Contact Input		
Occupancy	■	■
Bypass	■	■
Window	—	■
Economizer enabled	■	—
Emergency	■	■
Coil frost	—	■
Other		
Minimum fresh air enabled	■	—
Economizer enabled	■	—
HVAC mode selector	■	■
Light switch input	—	—
Demand control ventilation (CO ₂ level)	■	—
Light switch output	—	—
Occupancy state output	—	—
Model Options		
Open-to-Wireless ready	—	—
24V AC generation	—	—

Controller Naming Conventions:



Specifications subject to change without notice.

This comparison sheet is simply an overview of the featured products. For detailed information on these products, refer to their respective datasheets. In the case of differing information between the comparison sheet and the datasheet(s), the datasheet is considered to be correct. Distech Controls and the Distech Controls logo are trademarks of Distech Controls, Inc.; LON is a trademark of Echelon Corporation.



05DI-DSCSASC-30

Configurable Controllers

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ECC-VAVS: 7-Point VAV Configurable Controller
 ECC-VAV: 12-Point VAV Configurable Controller
 ECC-VVTS: 6-Point VVT Configurable Controller
 ECC-VVT: 11-Point VVT Configurable Controller
 ECC-VAV-N: 11-Point VAV Configurable Controller

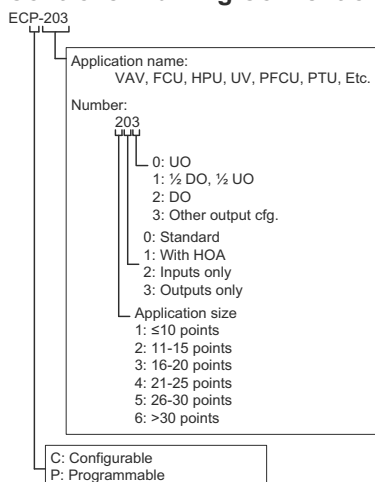
	ECC-VAVS	ECC-VAV	ECC-VVTS	ECC-VVT	ECC-VAV-N
Inputs					
Universal	2	4	2	4	4
Software configurable	■	■	■	■	■
Built-in flow sensor (0-1 in. W.C.)	■	■	—	—	■
EC-Smart-Sensor capability	■	■	■	■	■
Optional wireless inputs ¹	4	6	4	6	6
Analog/digital converter (bit)	16	16	16	16	16
Outputs					
Universal	—	2	—	2	2
Digital (triac)	2	4	2	4	4
LED	1	—	1	—	—
Output Occupancy LED (10V DC)	■	—	■	—	—
Built-in actuator (with feedback)	■	■	■	■	—
Digital/analog converter (bit)	10	10	10	10	10
Power Input					
24V AC	■	■	■	■	■
Software					
EC-Program	—	—	—	—	—
EC-gfxProgram	—	—	—	—	—
Recommended Applications					
Cooling only VAV box	■		■	■	
Cooling with reheat VAV box	■		■	■	
Cooling with reheat VAV box & perimeter heating		■		■	
Parallel fan VAV box		■			
Series fan VAV box		■			
Dual duct VAV box					
Large damper > 35 in-lb (4Nm) VAV box					■
Existing damper actuator					■
Room pressurization		■			

¹. Wireless inputs are available when the controller is connected to a Wireless Receiver.

Parameters Specific to Configurable VAV/VVT Controllers

	ECC-VAVS	ECC-VAV	ECC-VTS	ECC-VT	ECC-VAV-N
Heating Output Configuration					
Duct / primary stages	2	4	2	4	4
Perimeter / secondary stages	2	4	2	4	4
Duct proportional valve	■	■	■	■	■
Perimeter proportional valve	■	■	■	■	■
Duct floating actuator valve	■	■	■	■	■
Perimeter floating actuator valve	■	■	■	■	■
Cooling Output Configuration					
Duct / primary stages	2	4	2	4	4
Secondary stages	—	—	—	—	—
Duct proportional valve	■	■	■	■	■
Duct floating actuator valve	■	■	■	■	■
Reversing valve (heat pump)	—	—	—	—	—
Heat pump condenser water pump	—	—	—	—	—
Heating / Cooling Output Configuration					
On / off (2 position)	■	■	■	■	■
Duct proportional valve	■	■	■	■	■
Duct floating actuator valve	■	■	■	■	■
Other					
Ability to use spare inputs	■	■	■	■	■
Network outputs (using NVOs)	2	6	2	6	6
Ability to use spare outputs	■	■	■	■	■
External damper control (proportional / floating)	—	■	—	■	■
Box flow (differential pressure)	■	■	—	—	■
Demand control ventilation (CO ₂ Level)	—	■	—	■	■

Controller Naming Conventions:



Specifications subject to change without notice.

This comparison sheet is simply an overview of the featured products. For detailed information on these products, refer to their respective datasheets. In the case of differing information between the comparison sheet and the datasheet(s), the datasheet is considered to be correct. Distech Controls and the Distech Controls logo are trademarks of Distech Controls, Inc.



05DI-PCVAVXX-10

VAV/VVT Controllers

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Product Comparison Sheet

Remote I/O Modules

ECC-301	8 inputs/8 outputs Remote I/O Module
ECC-401	12 inputs/12 outputs Remote I/O Module
ECC-520	16 inputs Remote I/O Module



<u>FUNCTIONALITY</u>		<u>ECC-301</u>	<u>ECC-401</u>	<u>ECC-520</u>
<u>TYPE</u>				
Inputs	Universal (Total)	8	12	16
	Digital (Dry Contact)	✓	✓	✓
	Voltage (0-10V)	✓	✓	✓
	Current (4-20mA with Ext. 249Ω)	✓	✓	✓
	Thermistor (10kΩ Type 2)	✓	✓	✓
	Thermistor (10kΩ Type 3)	✓	✓	✓
	Platinum (1kΩ RTD)	✓	✓	✓
	Platinum (100Ω PT100)	✓	✓	✓
	Potentiometer (Transtable)	✓	✓	✓
	Software Configurable	✓	✓	✓
	Analog / Digital Converter (Bit)	16	16	16
	Dedicated NVO per input	✓	✓	✓
	Changeable NV ⁽¹⁾ Type	✓	✓	✓
	Maximum NV Length (Bytes)	4	4	4
Outputs	Digital (Triac)	8	12	-
	LED Status Indicators (Outputs)	✓	✓	-
	Dedicated Command NVI per output	✓	✓	-
	Dedicated Override NVI per output	✓	✓	-
	Dedicated Feedback NVO per output	✓	✓	-
Power Input	24VAC/DC	✓	✓	✓
Enclosure	Fire-Retardant Plastic (UL 94-5VA)	✓	✓	✓
	Integrated Din Rail Mounting	✓	✓	✓
	Separable Base Plate	✓	✓	✓
Hardware	LED Transmit, Receive, Power Indicators	✓	✓	✓
	LON® Network Jack	✓	✓	✓
Software	LNS Plug-in	✓	✓	✓
	Niagara ^{AX} Wizard	✓	✓	✓

⁽¹⁾ NV = Network Variable

More detailed information related to these products can be found on their respective data sheets.

Specifications subject to change without notice.

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Niagara^{AX} is a registered trademark of Tridium Inc.



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system

DISTECH CONTROLS

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<http://www.distech-controls.com>
sales@distech-controls.com

LONWORKS® Lighting and Sunblind Control



Distech Controls offers a wide range of configurable controllers to manage lighting through **On-Off** or **1-10VDC dimming** and also a wide range of DALI configurable controllers, dedicated to lighting management in multiple offices or large work areas.

Distech Controls offers also a range of configurable controllers to **manage 4 or 8 sunblinds, 230VAC or 24VDC**.

- These LONWORKS controllers provide the occupancy status, the lux level and all the required HVAC parameters (fan speed, setpoint offset, and temperature) on a single LONWORKS node for a multi energy management.
- Provide a modular solution when combined with our graphics configuration software: no requirement to modify your installation when repartitioned
- Helps reduce energy consumptions
- Can operate in 'stand-alone' or networked mode (communication via the LONWORKS open and interoperable network)
- Terminals type enable ceiling installation
- Wiring made easy: save installation time

The Lighting Controllers:

- Manage automatic control of lighting in multiple offices and large work areas (depending on configuration)
- Manage the varying lighting between window and corridor sides (based on Lux-level measurement and presence detection)
- Fit into a policy of reducing energy consumptions: lighting automation maximizes energy savings (up to 59% expected savings* on electrical consumptions)

The Sunblinds Controllers:

- Manage automatic control of sunblinds (up / down / rotate) in multiple offices (depending on configuration)
- Fit into a policy of reducing energy consumptions: according to sunlight and occupancy in a room, the sunblinds control management optimizes energy savings on HVAC consumptions (5% additional savings* can be achieved)

** Source: Hannover University of Applied Sciences and Arts*

Configurable Lighting Controllers

CTR-4L	Lighting controller with 4 Light outputs
CTR-8L	Lighting controller with 8 Light outputs
CTR-4LD	Lighting controller with 4 Dimming Light outputs
CTR-8LD	Lighting controller with 8 Dimming Light outputs
CTR-8LDALI	Lighting controller with 8 Dali Light outputs and automatic addressing of Dali ballasts
CTR-DALI-LR8	Lighting controller with 32 Dali Light outputs
CTR-DALI-LR16	Lighting controller with 64 Dali Light outputs

Configurable Sunblind Controllers

CTR-4S	Sunblind controller with 4 230VAC Sunblind outputs
CTR-8S	Sunblind controller with 8 230VAC Sunblind outputs
CTR-4S24	Sunblind controller with 4 24VAC Sunblind outputs
CTR-8S24	Sunblind controller with 8 24VAC Sunblind outputs

Product Guide – New range of LONWORKS Lighting and Sunblind Controllers

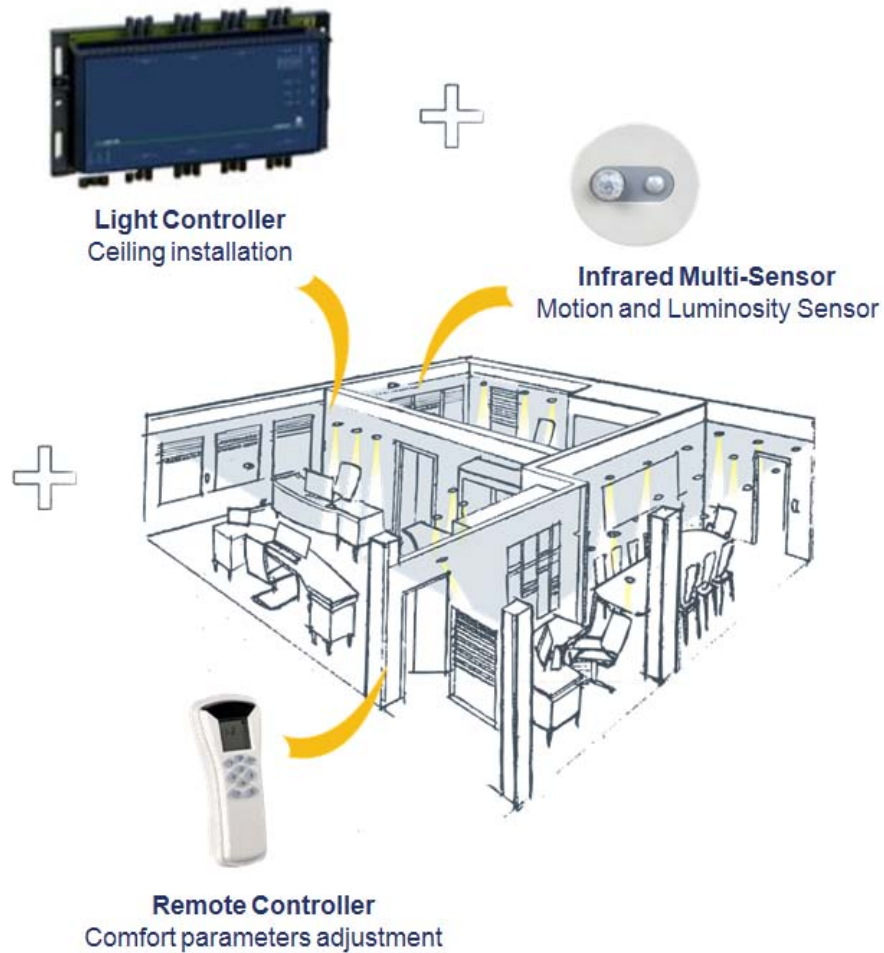
The actual range of CTR controllers will be replaced by the new RCL-Light and RCL-Blind Models.

These Lighting and Sunblind controllers are equipped with a LON 2.0 FT 5000 processor that eliminates LNS credits costs. They are LonMark certified; a completely open solution and they are very easy to configure thanks to the LNS Configuration Plug-in and EC-Net-^{AX} configuration Wizard.

RCL-Light and RCL-Blind Models:

Existing Name	New Model Name	(RJ9) Inputs	Output Type	Light/Blind Outputs
CTR-4L CTR-8L	RCL-Light-4 RCL-Light-8	4 4	Lighting	4 8
CTR-4LD CTR-8LD	RCL-Light-4D RCL-Light-8D	4 4	Dimming Lighting	4 8
CTR-8LDALI CTR-DALI-LR8 CTR-DALI-LR16	RCL-Light-8-DALI (phase out) RCL-Light-DALI	4	DALI Lighting	8 32 64
CTR-4S CTR-8S	RCL-Blind-4 RCL-Blind-8	4 4	230VAC Sunblind	4 8
CTR-4S24 CTR-8S24	RCL-Blind-4LV RCL-Blind-8LV	4 4	24VAC Sunblind	4 8

Typical lighting control application



CTR Series Continuance:

For sites equipped with CTR controllers, RCL-Light and RCL-Blind series of controllers can replace an existing CTR controller or can be added to the system.

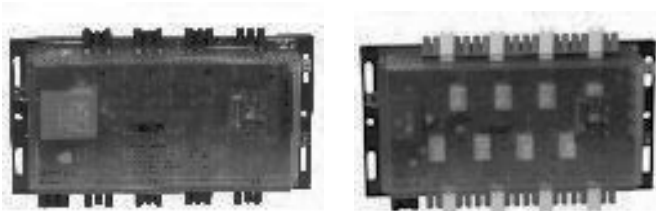
Distech Controls will continue to offer CTR controllers for replacement of defective controllers.

Refer to the Legacy tab section of the Price List.

CTR-4L / 8L and CTR-4LD / 8LD Series

Lighting controllers: On/Off or 1-10VDC dimming
DAULON® range

Overview



The lighting controllers allow the control of up to 4 or 8 on / off or 1-10VDC dimming light outputs.

They can work in 'stand alone' mode or connected to a Building Management System (BMS) with an open and interoperable network: LonWorks.

Applications

- The lighting controllers bring an optimized comfort and energy savings within office buildings or open areas.
- A comprehensive range: on / off or dimming lighting management, 4 or 8 light outputs.
- Used jointly with our graphic configuration software, they build a modular solution in case of repartitioning: no requirements to modify your installation.

Features & Benefits

- The controllers can work in 'stand alone' mode or integrated into a BMS.
- Modular solution: they are adapted in case of an office repartitioning.
- One controller to manage lighting in several rooms (depending on your installation).
- Window and corridor sides can be controlled independently.
- All controllers on the LonWorks network enable the occupancy mode, the lighting intensity, the fan speed, the temperature set-point and the temperature reading (for a multi-discipline management).
- A comprehensive accessories range that is fully compatible with our controllers: orders emitted by a remote control, presence and Lux level measure information given by multi-sensors.
- Installation on a double DIN rail or fixed on the wall.
- All controllers are provided with 'pluggable connectors' for an easier connection into the ceilings.
- All controllers perform positive security by automatically turning ON all the lights when a defect is detected.
- "Pin Service": push button in front of the controllers.

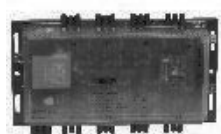
For more information about controllers' installation, please refer to the hardware installation guide.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Lighting controllers

On / Off



CTR-4L 230 VAC lighting controller, 4 on / off outputs

CTR-8L 230 VAC lighting controller, 8 on / off outputs

1-10VDC Dimming



CTR-4LD 230 VAC lighting controller, 4 1-10VDC dimming outputs

CTR-8LD 230 VAC lighting controller, 8 1-10VDC dimming outputs

Note:
*Work in manual mode: it only enables orders sent by users (installation with a receiver and a remote control).
Work in automatic mode: manual mode features + automatic regulation of comfort parameters (installation with a multi-sensor and a remote control OR an infrared receiver with Lux level sensor and a remote control).*

Complementary Products

Receivers

Infrared, radio or EnOcean receivers. They receive orders emitted by remote controls.



RIR-I Transparent infrared receiver (slotted into ceilings)



RIR-L White infrared receiver and Lux level sensor (slotted into ceilings)

RIR-B White infrared receiver (slotted into ceilings)



RFR-D 4 channel radio receiver (hidden in ceilings)

RFR-D-ENOCEAN 4 channel EnOcean radio receiver (hidden in ceilings)

Mini multi-sensors

Infrared and radio multi-sensors. Slotted into ceilings, they receive orders emitted with remote controls.



MS2-I-P Infrared mini multi-sensor: presence detection

MS2-I-PL Infrared mini multi-sensor: presence detection and Lux level measure

MS2-I-PLT Infrared mini multi-sensor: presence detection, Lux level and temperature measures

MS2-R-PL Radio mini multi-sensor: presence detection and Lux level measure

MS2-R-PLT Radio mini multi-sensor: presence detection, Lux level and temperature measures

Multi-disciplines or mono-discipline remote controls

Infrared, radio and EnOcean remote controls range. They allow users to adjust lighting in a room.



TCND-I*	White infrared multi disciplines remote control: lighting, sunblind, temperature and fan speed control
TCND-IT-PM*	White infrared multi disciplines remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe
TCND-R*	White radio multi disciplines remote control: lighting, sunblind, temperature and fan speed control
TCND-RT-PM*	White radio multi disciplines remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe
TCND-ENOCLEAN	White EnOcean multi disciplines remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe



TCIR-L	Infrared remote control: lighting control
TCIR-L-PM	Infrared remote control with wall-mounted support (fixed remote control): lighting control

* Also available in grey: TCND-I-G, TCND-IT-G-PM, TCND-R-G, TCND-RT-G-PM

Push-button interface

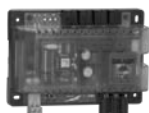
Allows to directly connect push-buttons or switches to lighting controllers.



WMS-PB-8DI	Push-button and switch interface, 8 configurable inputs
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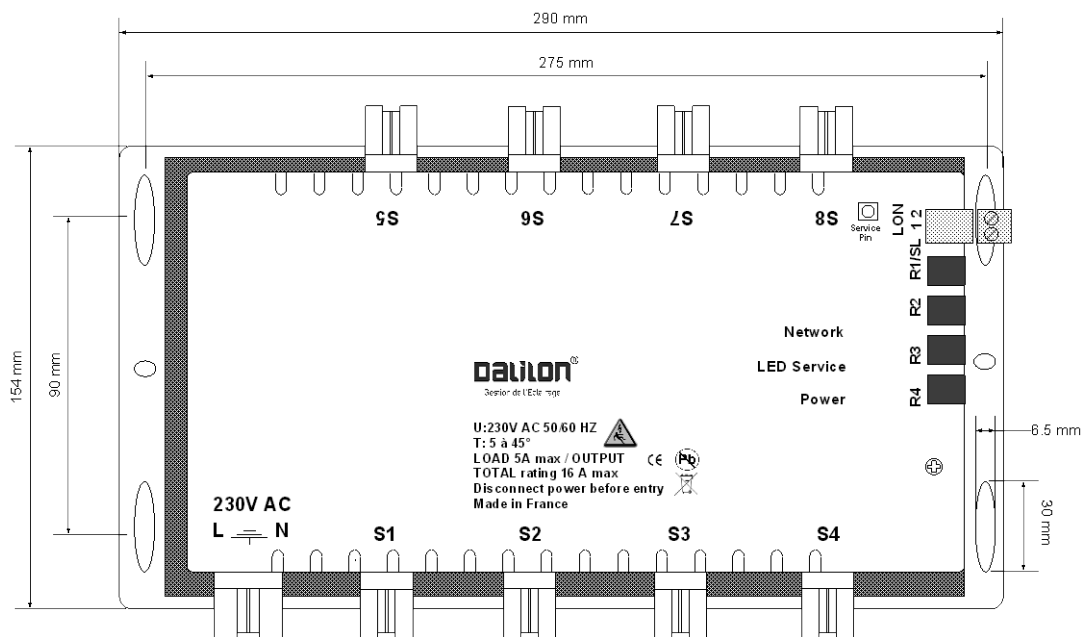
ITR module

Allows the connection of 4 additional receivers, multi-sensors or push-button interfaces to lighting controllers.



ITR	230 VAC network interface for additional RJ9 inputs (4 infrared or radio channels)
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Product Specifications

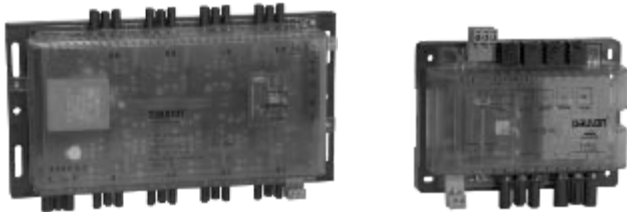


Physical specifications		Network	
Material	Polycarbonate	LonWorks network	FTT10a, 78kbps, twisted pair, 2 pin connector
Color	Black plate and yellow cover		
Mechanical protection	IP 20		
Dimensions	290 x 154 x 50mm		
Shipping box dimensions	300 x 200 x 55mm		
Shipping weights		Environment	
CTR-4L, CTR-8L, CTR-4LD	1Kg	Operating temperature	+5°C to +45°C
CTR-8LD	1.2Kg	Storage temperature	-20°C to +70°C
Electrical specifications		Relative humidity	+20% to +90% without condensation
Power supply	230VAC 50/60Hz Wieland GST 18i3, male, connector	Security	EN60669-2-1
Protection	Fuse or circuit breaker 16A		
Connection		Tested at ambient temperature (20°C)	
Inputs	4 digital RJ9 inputs		
Outputs			
CTR-4L, CTR-8L	On/off outputs, 230 VAC / 5 A with Wieland GST 18i3, female, connectors		
CTR-4LD and CTR-8LD	Dimming controlled by a 3mA 1–10VDC signal, with a Wieland GST 18i5, female, connectors		
EMC	EN61000-6-x and EN61000-4-x		
Status indicator	Power supply LED Lighting group status LED Network activity LED		

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CTR-8LDALI and CTR-DALI-LRx SeriesDALI lighting controllers
DAULON® range

**Overview**

DALI lighting controllers are a gateway between the LonWorks network and the DALI network. They enable to control several DALI ballasts groups.

They can work in stand alone mode or connected to a Building Management System (BMS) with an open and interoperable network: LonWorks.

Applications

- The lighting controllers bring an optimized comfort and energy savings within office buildings or open areas.
- Products adapted for a DALI installation: DALI is a standard communication bus (IEC 60929) between a controller and lighting devices. It enables digital control of lighting devices (On / Off, dimming) and monitoring of operating status.
- Used jointly with our graphic configuration software, they build a modular solution in case of repartitioning: no requirements to modify your installation.

Features & Benefits

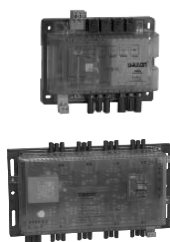
- The controllers can work in 'stand alone' mode or integrated into a BMS.
- Modular solution: it can be adapted to an office repartitioning.
- One controller to manage lighting in several rooms (depending on your installation).
- Some controllers on the LonWorks network enable the occupancy mode, lighting Lux level, fan speed, temperature set-point and the temperature reading (for a multi-discipline management).
- A comprehensive accessories range that is fully compatible with our controllers: orders emitted by a remote control, presence and Lux level measure information given by multi-sensors.
- Installation on a DIN rail or fixed on the wall.
- All controllers are provided with 'pluggable connectors' for an easier connection in the ceilings.
- All controllers perform positive security by automatically turning ON all the lights when a defect is detected.
- "Pin Service": push button in front of the controllers.
- Window and corridor sides can be controlled independently.
- They enable the operating status and defect detection of each ballast (CTR-DALI-LRx) or each ballasts group (CTR-8LDALI).

For more information about DALI controller's installation, please read the hardware installation guide.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

DALI Lighting Controllers



CTR-DALI-LR8	DALI lighting controller dedicated to open spaces: 64 ballasts managed divided in 8 groups + sunblind and HVAC variables provided on the LonWorks network
CTR-DALI-LR16	DALI lighting controller dedicated to open spaces: 64 ballasts managed divided in 16 groups
CTR-8LDALI	DALI lighting controller dedicated to offices: 8 power outputs (16 ballasts managed, divided in 8 groups maximum)

Complementary Products

Receivers

Infrared, radio and EnOcean receivers. They receive orders emitted by remote controls.



RIR-I	Transparent infrared receiver (slotted into ceilings)
RIR-L	White infrared receiver and Lux level sensor (slotted into ceilings)
RIR-B	White infrared receiver (slotted into ceilings)
RFR-D	4 channel radio receiver (hidden in ceilings)
RFR-D-ENOCEAN	4 channel EnOcean radio receiver (hidden in ceilings)

Mini multi-sensors

Infrared and radio multi-sensors. Slotted into ceilings, they receive orders emitted with remote controls.



MS2-I-P	Infrared mini multi-sensor: presence detection
MS2-I-PL	Infrared mini multi-sensor: presence detection and Lux level measure
MS2-I-PLT*	Infrared mini multi-sensor: presence detection, Lux level and temperature measures
MS2-R-PL	Radio mini multi-sensor: presence detection and Lux level measure
MS2-R-PLT*	Radio mini multi-sensor: presence detection, Lux level and temperature measures

* The CTR-DALI-LR16 does not send the temperature information on the LonWorks network, so it is not useful to use a MS2-I-PLT or a MS2-R-PLT with this controller.

Multi-discipline and mono-discipline remote controls

Infrared, radio and EnOcean remote controls. Users can adjust lighting parameters in a room.



TCND-I*	White infrared multi-discipline remote control: lighting, sunblind, temperature and fan speed control
TCND-IT-PM*	White infrared multi-discipline remote control with wall-mounted support for fixed TCND: lighting, sunblind, temperature and fan speed control + temperature sensor
TCND-R*	White radio multi-discipline remote control: lighting, sunblind, temperature and fan speed control
TCND-RT-PM*	White radio multi-discipline remote control with wall-mounted support for fixed TCND: lighting, sunblind, temperature and fan speed control + temperature sensor
TCND-ENOCEAN	White EnOcean multi-discipline remote control with wall-mounted support for fixed TCND: lighting, sunblind, temperature and fan speed control + temperature sensor



TCIR-L	Infrared remote control: lighting control
TCIR-L-PM	Infrared remote control with wall-mounted support (fixed remote control): lighting control

* Also available in grey: TCND-I-G, TCND-IT-G-PM, TCND-R-G, TCND-RT-G-PM

Compatible ballasts

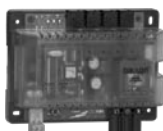
Tested and approved ballasts.



EL1x14si	HELVAR brand
QTI DALI FQ 1-24/24 DIM	OSRAM brand
HF R TD 114-35	PHILIPS brand
HR R TD 254	PHILIPS brand
EL1x49si	HELVAR brand
QTI DALI 4x18 Dim	OSRAM brand
HF R II HF-R TD 254	PHILIPS brand
HF R TD 314	PHILIPS brand

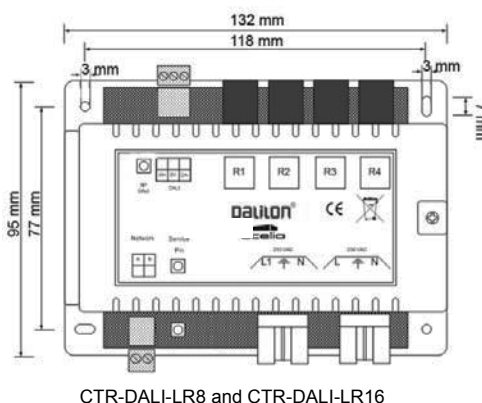
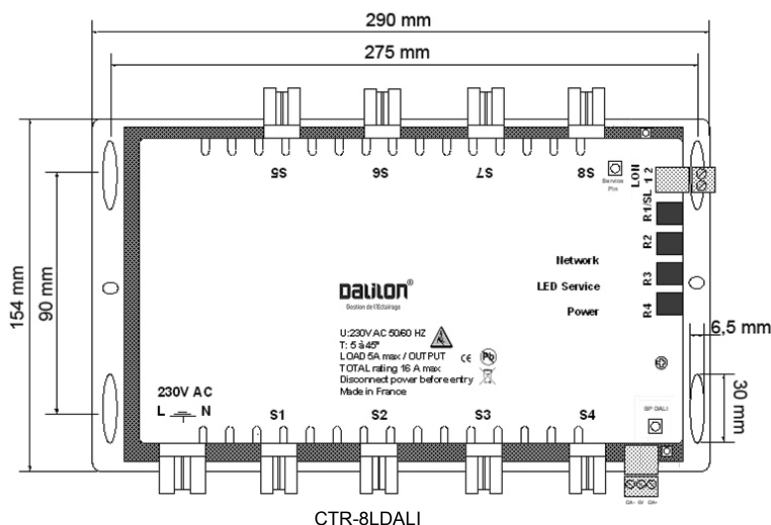
ITR module

Allows the connection of 4 additional receivers, multi-sensors or push-button interfaces to lighting controllers.



ITR	230VAC network interface for additional RJ9 inputs (4 infrared or radio channels)
-----	---

Product Specifications



Physical specifications

Material	Polycarbonate
Color	Black plate and yellow cover
Mechanical protection	IP 20
Dimensions without connectors	
CTR-DALI-LR8 and CTR-DALI-LR16	132 x 95 x 45mm
CTR-8LDALI	290 x 154 x 50mm
Shipping box dimensions	
CTR-DALI-LR8 and CTR-DALI-LR16	144 x 135 x 48mm
CTR-8LDALI	300 x 200 x 55mm
Shipping weight	
CTR-DALI-LR8	0.48Kg
CTR-DALI-LR16	0.47Kg
CTR-8LDALI	0.92Kg

Electrical specifications

Power supply	230 VAC 50/60Hz Wieland GST 18i3, male, connector
Starting current	<60A during 2ms
Protection	Fuse or circuit breaker 16A

Connection

Input	4 digital RJ9 inputs
Outputs	
CTR-8LDALI	8 on/off outputs by 230VAC relay
CTR-DALI-LR8 and CTR-DALI-LR16	1 relay output to supply DALI ballasts, 230VAC / 5A max
EMC	EN61000-6-x and EN61000-4-x
Status indicator	Power supply LED Network activity LED Lighting status LED (CTR-8LDALI) DALI network activity LED

Networks

LONWORKS® network	FTT10a, 78 kbps, twisted pair
DALI® network	IEC 62386

Environment

Operating temperature	+5°C to +45°C
Storage temperature	-20°C to +70°C
Relative humidity	+20 % to +90 % without condensing
Security	EN60669-2-1

Tested at ambient temperature (20°C)

Specifications subject to change without notice.

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O5DI-DSDALIX-11

CTR-8LDALI and
CTR-DALI-LRx lighting Series

www.distech-controls.eu

4/4

CTR-4S / 8S24 and CTR-4S / 8S230 Series

Sunblind controllers: up, down, rotation
DAULON® range

Overview



Sunblind controllers allow the control of 4 or 8 sunblinds maximum in a room (up, down, rotation). Two versions are available: 230VAC or 24VDC outputs.

They can work in 'stand alone' mode or connected to a Building Management System (BMS) with an open and interoperable network: LonWorks.

Applications

- The sunblind controllers bring optimized comfort and energy savings within office buildings or open areas.
- A comprehensive sunblind controller range: 4 or 8 sunblind control, 230VAC or 24VDC.
- Used jointly with our graphic configuration software, they build a modular solution in case of repartitioning: no requirements to modify your installation.

Features & Benefits

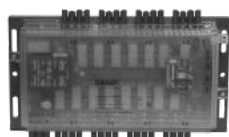
- Management of sunblind closure according to sunlight and room occupancy optimizes energy savings made as a result of HVAC parameters (5% additional saving can be achieved on HVAC consumptions).
- Modular solution: it can be adapted to an office repartitioning.
- One controller to manage sunblinds in several rooms (depending on your installation).
- All controllers on the LonWorks network enable the lighting and HVAC variables (for a multi-discipline management).
- A comprehensive accessories range fully compatible with our controllers: orders emitted by a remote control, presence and Lux level measure information given by multi-sensors.
- Installation on a double DIN rail or fixed onto the wall.
- All controllers are provided with 'pluggable connectors' for an easier connection in ceilings.
- All controllers perform positive security by automatically turning ON all the lights when a defect is detected.
- "Pin Service": push button in front of the controllers.

For more information about controller installation, please refer to the hardware installation guide.

Product Warranty & Total Quality Commitment

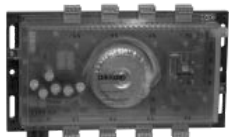
All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Sunblind Controllers



CTR-4S230 Sunblind controller, 4 230VAC outputs

CTR-8S230 Sunblind controller, 8 230VAC outputs



CTR-4S24 Sunblind controller, 4 24VDC outputs

CTR-8S24 Sunblind controller, 8 24VDC outputs

Note:

Manual mode: it only enables orders sent by users (installation with a receiver and a remote control).

Automatic mode: manual mode features + automatic regulation of comfort parameters (installation with a multi-sensor and a remote control OR an infrared receiver with Lux level sensor and a remote control).

Complementary Products

Receivers

Infrared, radio or EnOcean receivers. They receive orders emitted by remote controls.



RIR-I Transparent infrared receiver (slotted into ceilings)



RIR-L White infrared receiver and Lux level sensor (slotted into ceilings)



RIR-B White infrared receiver (slotted into ceilings)

RFR-D 4 channel radio receiver (hidden in ceilings)

RFR-D-ENOCEAN 4 channel EnOcean radio receiver (hidden in ceilings)

Mini multi-sensors

Infrared and radio multi-sensors. Slotted into ceilings, they receive orders emitted by remote controls.



MS2-I-P Infrared mini multi-sensor: presence detection

MS2-I-PL Infrared mini multi-sensor: presence detection and Lux level measure

MS2-I-PLT Infrared mini multi-sensor: presence detection, Lux level and temperature measures

MS2-R-PL Radio mini multi-sensor: presence detection and Lux level measure

MS2-R-PLT Radio mini multi-sensor: presence detection, Lux level and temperature measures

Multi-disciplines or mono-discipline remote controls

Infrared, radio and EnOcean remote control range. They allow users to adjust the sunblinds in a room.



TCND-I* White infrared multi-discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-IT-PM* White infrared multi-discipline remote control with wall-mounted support for fixed TCND: lighting, sunblind, temperature and fan speed control + temperature probe



TCND-R* White radio multi-discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-RT-PM* White radio multi-discipline remote control with wall-mounted support for fixed TCND: lighting, sunblind, temperature and fan speed control + temperature probe

TCND-ENOCLEAN White EnOcean multi-discipline remote control with wall-mounted support for Fixed TCND: lighting, sunblind, temperature and fan speed control + temperature sensor

TCIR-S Infrared remote control: sunblind control

**Also available in grey: TCND-I-G, TCND-IT-G-PM, TCND-R-G, TCND-RT-G-PM*

Push-button interfaces

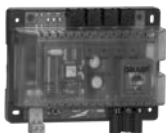
Allows to directly connect push-buttons or switches to sunblind controllers



WMS-PB-8DI Push-buttons and switches interface, 8 configurable inputs

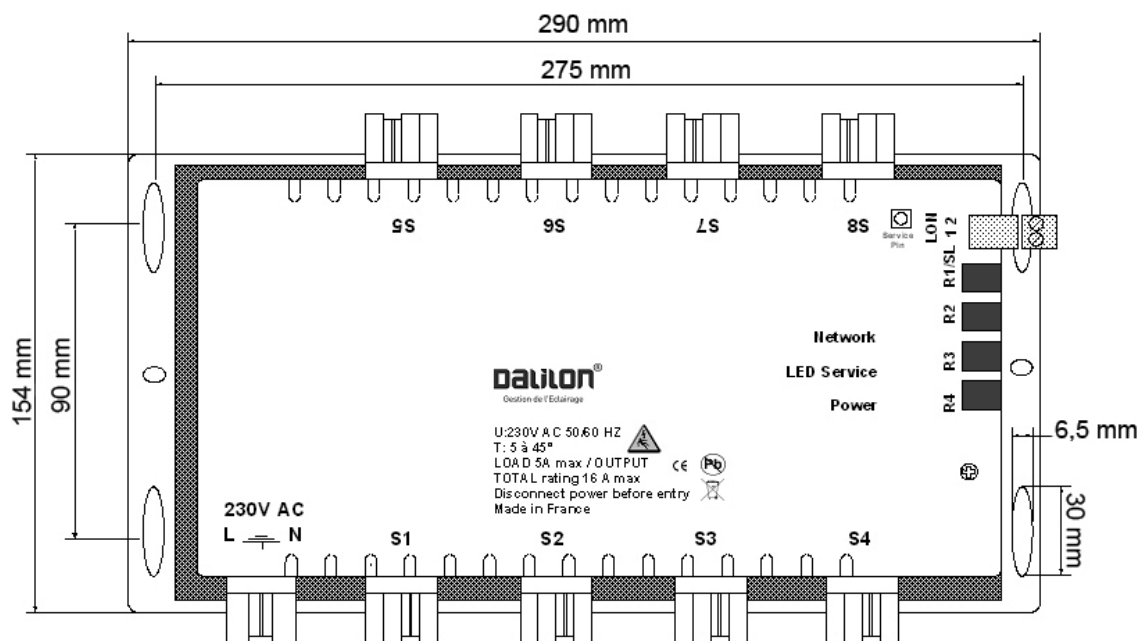
ITR Module

Allows the connection of 4 additional receivers, multi-sensors or push-button interfaces to sunblind controllers



ITR 230VAC network interface for additional RJ9 inputs (4 infrared or radio channels)

Product Specifications



Physical specifications		Network	
Material	Polycarbonate	LonWorks® network	FTT10a, 78kbps, twisted pair
Colors	Black plate and yellow cover	Environment	
Mechanical protection	IP 20		
Dimensions	290 x 154 x 50mm		
Shipping box dimensions	300 x 200 x 55mm	Operating temperature	+5°C to +45°C
Shipping weights		Storage temperature	-20°C to +70°C
CTR-8S230	1.2Kg	Relative humidity	+20% to +90% without condensing
CTR-4S24 and CTR-8S24	1.6Kg	Security	EN60669-2-1
Electrical specifications			
Power supply	230VAC 50/60Hz	Tested at ambient temperature (20°C)	
	Wieland GST 18i3, male, connector		
Protection	Fuse or circuit breaker 16A		
Connection			
Inputs	4 digital RJ9 inputs		
4S/8S230 outputs	On/Off, 230 VAC / 5 A		
4S24 outputs	24VDC / 600mA per output		
8S24 outputs	24VDC / 350mA per output		
EMC	EN61000-6-x and EN61000-4-x		
Status indicator	Power supply LED		
	Outputs status LED		
	Network activity LED		

Specifications subject to change without notice.

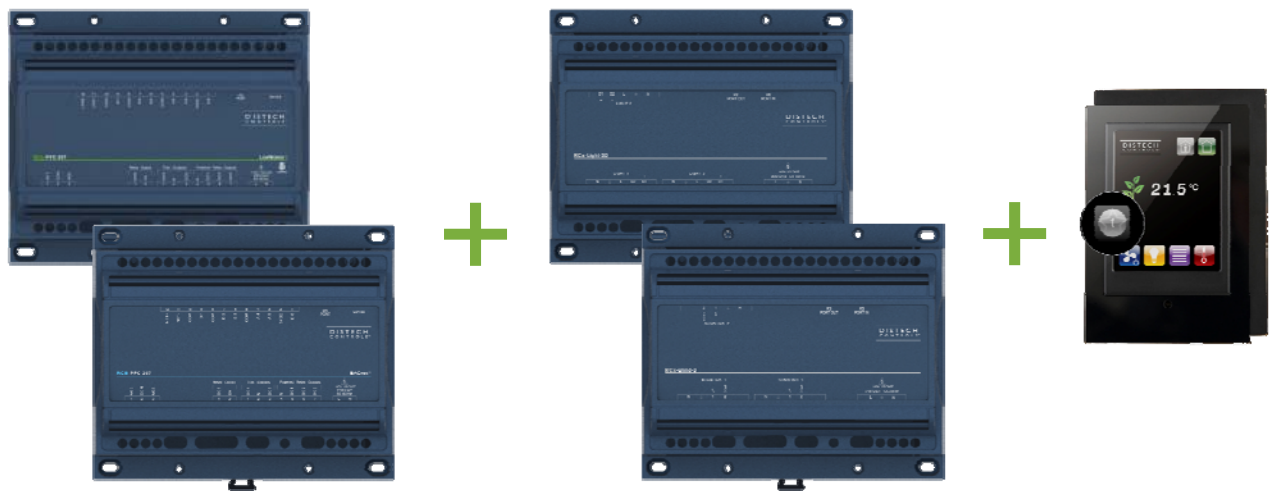
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O5DI-DSCTRST-11

230VAC or 24VDC
sunblind controller Series

Integrated Management Solution



Distech Controls offers a complete modular solution for **room management of HVAC, lighting and sunblind**: IRC (Integrated Room Controller).

RCL/RCB-PFC Series are compliant with add-on modules for Lighting (RCx-Light Series) and Sunblind (RCx-Blind Series) Control. These modules enable a configurable HVAC controller (RCL/RCB) **to manage lighting and sunblind for optimal energy savings**.

This multidiscipline solution, suitable for new constructions or retrofits, is ideal for **repartitioning**: no need to modify the physical installation, just re-configure controllers via graphical configuration software, without re-wiring.

The integrated room control operates in "stand alone" mode or connected to an open and interoperable network (**LONWORKS** or **BACnet**).

- **Simple, economic and quick installation:**
The IRC modules can be installed in suspended ceilings, near lighting or sunblind devices or directly on the HVAC terminal units, which reduces wiring costs (save on cable length)
- **Energy consumptions can be reported separately:**
Each module has its own power supply, thus allowing tracking of HVAC equipments consumptions independently from lighting or sunblind
- **Energy savings** and comfort within buildings:
50-60%* energy savings can be achieved by controlling lighting (dimming and presence detection)
25-45%* energy savings can be achieved by controlling HVAC (time schedules and occupancy management)

** Data source: University of Applied Sciences - Hannover*

- **Easier BMS integration:**
Only 1 module has to be configured on the network to enable the 3 functions. The IRC configuration defined for one office can be duplicated in all other offices (for a same application)
- **Optional Strain relief and terminal cover** (no need for metal electrical cabinet)

LONWORKS and BACnet integrated management solution:

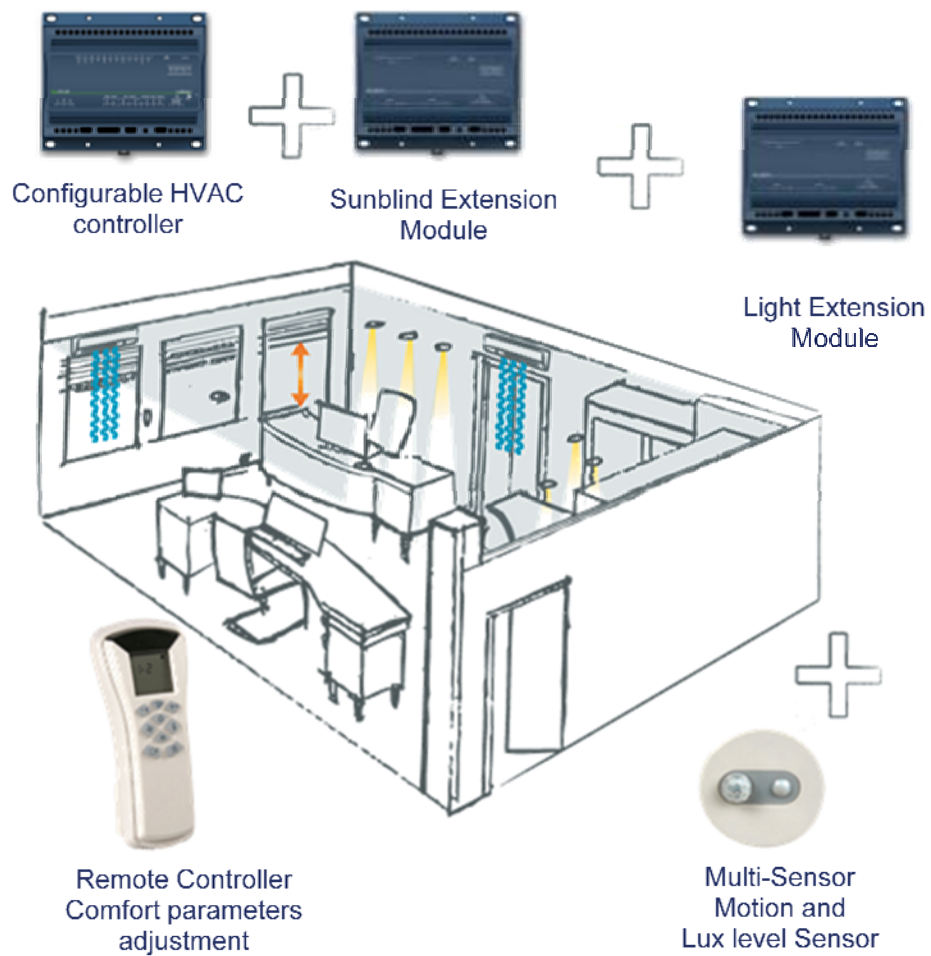
Distech Controls offers a wide range of lighting and sunblind add-on modules that can be combined with any RCL-PFC or RCB-PFC controllers and to other RCx add-on modules to form a complete integrated solution, controlling simultaneously, from a single node on the network HVAC and up to 4 lights and 4 sunblinds.

- Integration time savings: easier configuration using EC-Net^{AX} wizards for RCL and RCB Series, LNS plug-ins (used with LonWatcher 3) for RCL Series and BACnet Facilivue for RCB Series
- Auto-configuration of light and sunblind extension modules
- Connection to the main HVAC controller via a single RJ9/RJ11 cable for direct ceiling installation
- Improves energy efficiency when combined with motion detectors, lux measurement and light switches
- Cable length savings (reduced wiring costs): products can be installed in ceilings, closed to lighting and sunblind devices, or directly on HVAC equipments

Integrated Room Control Solution

This Integrated Management Solution is a complete solution for management of comfort parameters:

- HVAC controller
- Optional light and sunblind extension modules
- Multi-sensor: Lux level, motion detector and remote control receiver
- Multi-discipline remote control



Product Guide – Lighting and Sunblind extension modules

Lighting Extension Modules

Lighting extension modules are dedicated to **lighting control** in an IRC solution. Linked together with a digital RJ9-RJ11 cable ("plug-and-play" wiring), they can be connected either to any RCL or RCB controller. They can be used jointly with sunblind extension modules for a multi-discipline management.

RCx-Light-3	Extension module for control of 3 On/Off lights (receives L1, L2 and L3 commands)
RCx-Light-3D	Extension module for control of 3 dimmable (receives L1, L2 and L3 commands)

Sunblind Extension Modules

Like the lighting extension modules, sunblind extension modules can be integrated into an IRC solution ("plug-and-play" wiring). They control sunblinds in 230VAC or 24VDC: up, down, rotation. They can be used jointly with lighting extension modules for a multi-discipline management.

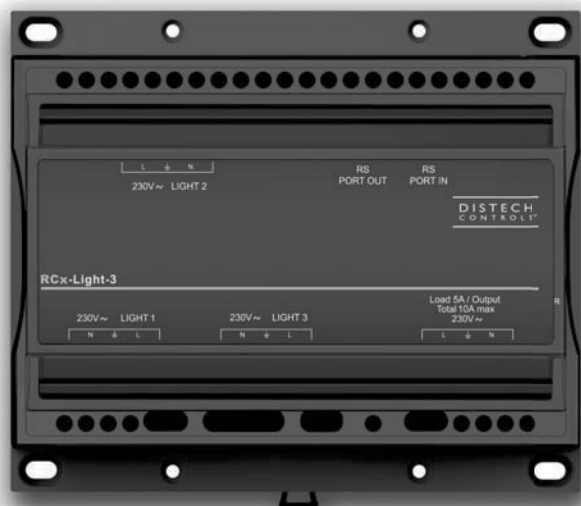
RCx-Blind-3	Extension module for control of 3 sunblinds (230 VAC) (receives S1, S2 and S3 commands)
RCx-Blind-2LV	Extension module for control of 2 sunblinds (24 V) (receives S1 and S2 commands)

Lighting & Sunblind Extension Module

RCx-Duo-2D1	This Lighting & Sunblind extension module combines both lighting and sunblind control and can control 2 dimmable lights + 1 sunblind (230 VAC) (receives L3, L4 and S4 commands)
-------------	--

RCx Add-on Modules

Lighting and Sunblind Add-on Modules for RCL-PFC and RCB-PFC Controllers



Overview

The **RCx add-on modules** are microprocessor-based controlling interfaces designed to complement RCL-PFC or RCB-PFC HVAC controllers with up to 4 lighting and 4 sunblinds commands.

The RCx Add-On Modules operate off of a separate sub-bus, giving the main HVAC controller the ability to manage additional controls through its unique subordination system to the master HVAC controller, optimizing the control possibilities by allowing the global solution (HVAC controller+extension modules) to be interpreted as a single device by the network, thereby avoiding unnecessary system overloading.

The RCx Add-On Modules provide flexible individual controls for up to 4 lighting and 4 sunblinds additional controls. Moreover, thanks to their dedicated power supply, the RCx Add-On Modules consumption can easily be monitored, allowing the supervisor to instantly detect abnormal power usage and to anticipate bulb maintenance for a more efficient building administration.

In addition, the possibility to position the add-on modules directly in ceilings, close to the lighting or sunblind motors, as well as its straightforward connection to the main HVAC controller through a single RJ9/RJ11 cable, reduces installation and wiring costs while lessening risks of errors.

Considered as apart of the solution, the RCx add-on modules are easily set up when configuring the main HVAC controller with the dedicated EC-Net^{AX} wizard, powered by the Niagara^{AX} Framework®, or using a classic network configuration tool such as Lonwatcher 3 for RCL-PFC Series or *Facilivue* for RCB-PFC-Series.

Applications

Can be combined to your liking with any RCL-PFC or RCB-PFC, and other RCx add-on modules to form a complete integrated solution, controlling simultaneously and from a single point on the network HVAC and up to 4 lights and 4 sunblinds among:

- ON/OFF Lighting
- Light Dimmers
- 230 VAC Sunblinds
- 24 VDC Sunblinds

Improves energy efficiency when combined with:

- Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected
- Light switches to control both lighting and a room's HVAC occupancy / standby mode setting

Works with a wide range of wireless battery-less sensors

Features & Benefits

- A wide range of lighting and sunblinds add-on modules for unprecedented adaptability
- The main HVAC controller and its associated add-on modules form a single point on the network for reduced network traffic and easy BMS integration
- Artificial intelligence is based in the main HVAC controller to allow for extra consumption savings
- Easy settings replication from one office to another to expedite large BMS integrations
- Smart cross-management of HVAC, lighting and sunblinds as a whole for up to 45% energy savings
- Separate power supply allowing for dedicated metering leading to more accurate energy consumption analysis
- Seen as part of the global solution when configuring the main HVAC controller with LNS-based plug-ins, BACnet *Facilivue* or EC-Net^{AX}-based wizards, allowing you to save engineering time
- Connection to the main HVAC controller via a single RJ9/RJ11 cable for direct ceiling installation
- Dimming outputs can be used as digital outputs for better lighting flexibility

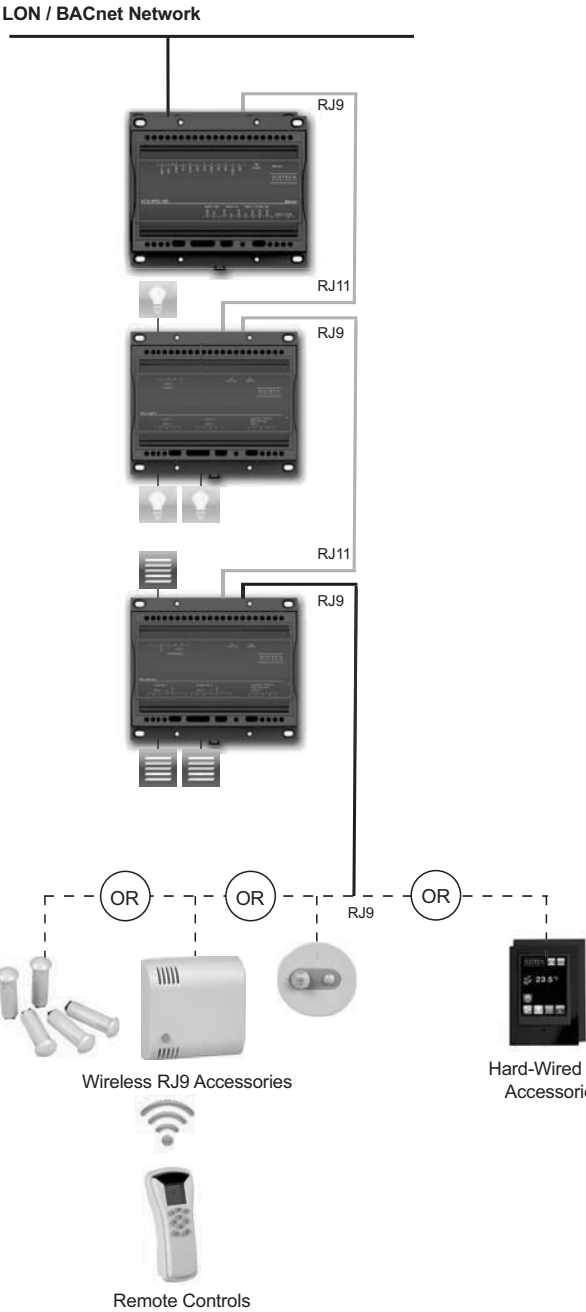
RCx Add-on Modules



Model	RCx-Light-3	RCx-Light-3D	RCx-Blind-3	RCx-Blind-2LV	RCx-Duo-2D-1
ON/OFF Light Outputs	3				
Dimming Lights Outputs		3			2
230 VAC Sunblind Outputs			3		
24 Vdc Sunblind Outputs				2	
Received commands	L1, L2, L3	L1, L2, L3	S1, S2, S3	S1, S2	L3, L4, S4
Product Number	XPCB0243	XPCB0244	XPCB0245	XPCB0246	XPCB0247

RCL-PFC / RCB-PFC Subnetwork Overview

The RCL-PFC / RCB-PFC solution combines a main HVAC Controller with add-on modules dedicated to lighting and sunblinds management to form a modular solution within a single point on the network.



The main HVAC controller synthesizes the information received from the subnetwork to send the appropriate commands to the HVAC system and to the different add-on modules (up to 4 lighting and 4 sunblinds commands).

The add-on modules execute lighting and/or sunblinds commands received from the main HVAC controller, to which they transmit the information emitted by the RJ9 accessories.

RJ9 accessories send the needed information on the subnetwork (temperature, luminosity, occupancy, lighting commands, sunblinds commands, ...) and provide an interface to the end user.

Complementary Products

Configurable HVAC Controllers

LONWORKS Controllers



RCL-PFC-107

LONMARK® Certified Powered Terminal Unit (230 VAC Valves) 12-point Configurable Controller



RCL-PFC-108

LONMARK® Certified Powered Terminal Unit (24 VAC Valves) Configurable 12-point Configurable Controller



RCL-PFC-207

LONMARK® Certified Powered Terminal Unit (230 VAC Valves) 14-point Configurable Controller



RCL-PFC-208

LONMARK® Certified Powered Terminal Unit (24 VAC Valves) 14-point Configurable Controller

BACnet Controllers



RCB-PFC-107

WSPCert Terminal Unit (230 VAC Valves) Configurable 12-point Controller



RCB-PFC-108

WSPCert Powered Terminal Unit (24 VAC Valves) Configurable 12-point Controller



RCB-PFC-207

WSPCert Powered Terminal Unit (230 VAC Valves) Configurable 14-point Controller



RCB-PFC-208

WSPCert Powered Terminal Unit (24 VAC Valves) Configurable 14-point Controller

Remote Controls

TCND Series

Line of multi-discipline remote controls: Infrared, Radio and EnOcean technologies



TCND-I

Infrared multi-discipline remote control¹

TCND-IT

Infrared multi-discipline remote control with temperature sensor¹ (wall-mounted stand required -provided)

TCND-R

Radio multi-discipline remote control¹

TCND-RT

Radio multi-discipline remote control with temperature sensor¹ (wall-mounted stand required -provided)

TCND-ENOCEAN

EnOcean multi-discipline remote control with temperature sensor (wall-mounted stand required -provided)

¹ Models available in grey.

Smart-Sense Room Control



Smart-Sense Room Control

iPhone application for remote HVAC, lighting, sunblinds and occupancy control

Room Modules

Allure RS-Smart-Sense



Allure RS-Smart-Sense

Digital room sensor device with a touch sensitive LCD color screen for HVAC, lighting, sunblinds and occupancy control

Allure EC-Sensor

Line of discrete sensors



EC-Sensor	Room temperature sensor with communication jack
EC-Sensor-O	Room temperature sensor with occupancy override button and communication jack
EC-Sensor-S	Room temperature sensor with setpoint adjustment and communication jack
EC-Sensor-SO	Room temperature sensor with setpoint adjustment, occupancy override button, and communication jack
EC-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, fan speed selection, and communication jack

Allure Wireless Battery-less ECW-Sensor

Line of wireless, battery-less sensors (EnOcean 868.3 MHz).



ECW-Sensor	Room temperature sensor
ECW-Sensor-O	Room temperature sensor with occupancy override button
ECW-Sensor-S	Room temperature sensor with setpoint adjustment
ECW-Sensor-SO	Room temperature sensor with setpoint adjustment and occupancy override button
ECW-Sensor-SOF	Room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection

RS-ANA Series

Analog room sensors



RS-ANA1	Analog room temperature sensor
RS-ANA2	Analog room temperature sensor with setpoint adjustment

RS-DL Series

Line of digital link room sensors



RS-DL2	Digital room temperature sensor with setpoint adjustment
RS-DL3	Digital room temperature sensor with setpoint adjustment and occupancy override button
RS-DL4	Digital room temperature sensor with setpoint adjustment, occupancy override button, and fan speed selection
RS-LCD	Room temperature sensor with a LCD screen for HVAC, lighting and sunblinds control

Receivers Series

RFR Series



RFR-K	Radio receiver
RFR-K-ENOCEAN	EnOcean radio receiver

RIR Series



RIR-L	White infrared receiver and lux sensor
RIR-B	White infrared receiver
RIR-I	Transparent infrared receiver

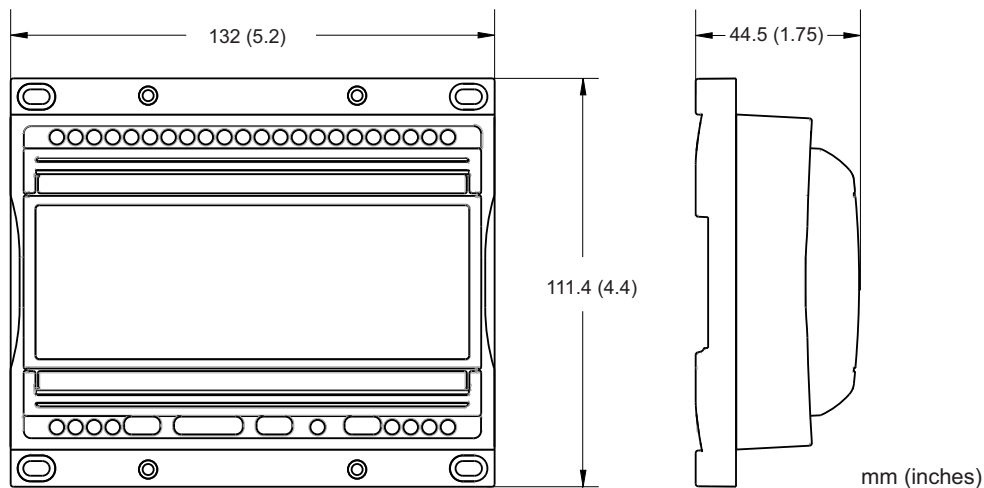
In-ceiling Multi-sensors

MS2 Series





MS2-I-P	Infrared mini multi-sensor - presence detection
MS2-I-PL	Infrared mini multi-sensor - presence detection and light sensor
MS2-I-PLT	Infrared mini multi-sensor - presence detection, light sensor and temperature sensor
MS2-R-PL	Radio mini multi-sensor - presence detection and light sensor
MS2-R-PLT	Radio mini multi-sensor - presence detection, light sensor and temperature sensor

Product Dimensions



Product Specifications

Power		Outputs	
Voltage	230 VAC ; 50/60 Hz ; +10%/-15%	On/Off Light	230 VAC inrush current relay 5 A max 10 A maximum in aggregate Starting current < 60 A during 2 ms Normally Opened contact
Protection	RCx-Light-3 16 A external circuit breaker RCx-Light-3D 16 A external circuit breaker RCx-Blind-3 6 A external circuit breaker RCx-Blind-2LV 100 mA internal fuse RCx-Duo-2D1 16 A external circuit breaker	Dimmer	230 VAC inrush current relay 5 A max 10 A maximum in aggregate Starting current < 60 A during 2 ms Normally Opened contact Command: 1-10 VDC - 3 mA maximum
Power Consumption	RCx-Light-3 0.95 W + all external loads - 10 A max RCx-Light-3D 1.16 W + all external loads - 10 A max RCx-Blind-3 0.99 W + all external loads - 3 A max RCx-Blind-2LV 1.96 W + all external loads - 100 mA max RCx-Duo-2D1 1.12 W + all external loads - 10 A max	230 VAC Sunblinds	230 VAC relay 5 A 10 A maximum in aggregate Normally Opened contact
	Double insulation devices	24 Vdc Sunblinds	24 Vdc relay 650 mA in aggregate
Subnetwork		Electromagnetic Compatibility	
Topology	Daisy-chain	CE - Emission	EN 61000-6-1: Generic standard for residential, commercial and light-industrial environments EN 61000-6-2: Generic standard for industrial environments
Cable type	4-wire RJ9/RJ11 digital cable	CE - Immunity	EN 61000-6-3: Generic standard for residential, commercial and light-industrial environments EN 61000-6-4: Generic standard for industrial environments
Cable length	50 m maximum		
Commands	4 lighting commands maximum 4 sunblinds commands maximum		
Environmental		Electrical Safety	
Operating Temperature	+5°C to 45°C	General requirements	EN 60730: Specification for automatic electrical controls for household and similar use.
Storage Temperature	-20°C to +70°C		
Relative Humidity	+20% to +90% Non-condensing	Agency Approvals	
Altitude	< 2000 m	Material	UL94-5VB
Pollution degree	2		
Enclosure			
Material	ABS Polyac PA-765A		
Color	Blue casing & grey connectors		
Dimensions (with screws)	111,4 mm x 132 mm		
Shipping weight	RCx-Light-3 485 g RCx-Light-3D 490 g RCx-Blind-3 490 g RCx-Blind-2LV 495 g RCx-Duo-2D1 750 g		
Installation	Direct din-rail mounting or wall-mounting		

1. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Product Warranty & Total Quality Commitment

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Allure™ Series Room Devices



Designed to satisfy interior designers, architects, building occupants, and consulting engineers alike, our Allure Series of room devices offers a broad array of models suitable for a wide range of environments and applications. The line ranges from wired and wireless, battery-less discrete sensors to intelligent communicating sensors and communicating thermostats.

The Allure Series features an industry-leading and contemporary look suitable for any facility. Additionally, the Series' built-in features, such as Allure EC-Smart-Vue's innovative ECO-Vue™ feature, put energy consumption decisions in the hands of the occupant, enhancing the user experience and increasing energy efficiency.

Unique features of our Allure Series room devices include:

- Allure RS-Smart-Sense features a touch-sensitive LCD colour screen, allowing for integrated room controls of comfort parameters
- Allure EC-Smart-Vue communicating sensor's integrated temperature and optional humidity sensor provide the ability to precisely control conditions in even the strictest environments
- The Allure EC-Smart-Vue and EC-Smart-Sensor communicating sensors allow you to configure, commission, and troubleshoot a controller locally and access the BACnet and LONWORKS network
- Allure EC-Smart-Vue and EC-Smart-Sensor communicating sensors include air balancing menus to perform VAV air flow balancing without the aid of an onsite building automation system control engineer
- Selected models of EC-Smart-Vue support CO2 sensing
- All Allure ECB-STAT, ECL-STAT, ECW-STAT and EC-Smart-Vue models are PIR motion detector ready, allowing for incremental energy savings
- Allure ECW-Sensors support the 315 MHz and 868.3 MHz EnOcean wireless communication standards and feature a solar cell for energy harvesting, meaning that they require no batteries to power and maintain themselves, making them both environmentally friendly and virtually service-free
- The Allure ECW-STAT model offers all the benefits of wireless mesh network communication, including the elimination of all communication wires, as well as the ability to cost-effectively and easily install communicating thermostats in new or retrofit projects

ECO-Vue™

Allure EC-Smart-Vue communicating sensor's innovative ECO-Vue leaf pattern graphically indicates energy consumption in real time to promote an occupant's energy-conscious behaviour. The more leaves appear in the LCD display, the more energy efficiency is being achieved, while less leaves will encourage the occupant to take corrective action to optimize the system's environmental performance.



Low energy efficiency



Moderate energy efficiency



Higher energy efficiency



Highest energy efficiency

Product Guide: Room Devices

Communicating Sensors for ECL/ECB Series

Allure™ EC-Smart-View Series	Communicating sensors with backlit LCD display and icon-driven menu for Distech Controls ECB and ECL Series controllers
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Communicating Sensors for RCL/RCB Series

Allure™ RS-Smart-Sense	New generation of room sensor devices available with a large choice of coloured front plates. Features touch-sensitive LCD colour screen. The Eco-View leaf indicates energy consumption in real time to promote an occupant's energy-conscious behaviour
Smart-Sense Room Control	iPhone Application for Remote Room Control

Communicating Sensors for ECC Series

Allure™ EC-Smart-Sensor Series	Communicating LCD sensors for all terminal applications for Distech Controls ECC Series LONWORKS controllers
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Discrete Sensors

Allure™ EC-Sensor Series	Discrete analogue room temperature sensor line for all terminal and sensing applications
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Wireless, Battery-less Sensors

Allure™ ECW-Sensor Series	Innovative wireless, battery-less room temperature sensor line
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Communicating Thermostats

Allure™ ECB-STAT&ECL-STAT Series	Broad range of communicating thermostats specifically designed for single or multi stage control of heating and cooling equipment such as heat pump, roof top, fan coil, and zoning applications
Allure™ ECW-STAT Series	Wide array of wireless network communicating thermostats for heat pump, roof top, fan coil, and zoning applications that work on a wireless self-healing mesh network

Product Comparison Chart

Allure™ Series Room devices

Room devices and other accessories

									
	EC-Sensor Series	ECW-Sensor Series	EC-Smart-Vue Series	EC-Smart-Sensor Series	RS-ANA Series*	RS-DL*	RS-LCD*	RS-Smart-Sense	Multi-Sensor*
Description	Analogue Room Sensor	Open-to-Wireless™ Room Sensor	Communicating Room Sensor with LCD Display	Communicating Room Sensor with LCD Display	Analogue Room Sensor	Digital Room Sensor	Digital Room Sensor with LCD Display	Communicating Room Sensor with Color touch screen Display	Multi-Sensor
Compatibility with controllers									
ECL/ECB Series	■	■	■		■				
ECL/ECB-PTU Series	■	■	■		■				RJ45
RCL/RCB-PFC Series	■	■			■	■	■	■	RJ9
RCL-Light/Blind Series		■				■	■	■	RJ9
ECC Series	■	■		■	■				

* Refer to the Accessories Section to find the datasheet

Allure™ EC-Smart-Vue Series

Line of communicating sensors with backlit display and graphical menus



Overview

The **Allure EC-Smart-Vue** Series is designed to interface with Distech Controls' ECB and ECL Series of controllers. This line of communicating sensors with backlit display consists of eight (8) models that provide precise environmental zone control. Models are available with any combination of the following: temperature, humidity, CO₂, and motion sensor.

The innovative ECO-Vue™ leaf pattern, offered by the Allure EC-Smart-Vue series, graphically indicates energy consumption in real time to promote an occupant's energy-conscious behavior. The more leaves appear in the LCD display, the more energy efficiency is being achieved, while less leaves will encourage the occupant to take corrective action to optimize the system's environmental performance.

Through its user-friendly interface, occupants can view and adjust environmental settings to their liking, for example, view the space temperature, adjust the setpoint, set the fan speed, and apply occupancy overrides.

The Allure EC-Smart-Vue sensors can be customized with the EC-gfxProgram programming tool where you can fully adapt the display for the targeted application and setup user preferences.

A fully configurable password protected technician mode allows an installer to perform commissioning and troubleshooting. When connected to an ECB-VAV or ECL-VAV series controller with its pre-loaded application, commissioning can start immediately after installation. The Allure EC-Smart-Vue sensor can be used as a hand-held tool to select the appropriate controller application for the type of HVAC equipment to be controlled, to perform air balancing of the system without requiring an onsite controls engineer, and to troubleshoot the system. Furthermore, when the controller uses wireless sensors, a technician in the field can use the Allure EC-Smart-Vue sensor to make the controller learn each wireless sensor's ID on the fly, in order to commission the wireless sensors.

Applications

- Offers temperature, CO₂, humidity, and motion sensing for the following applications:
 - VAV controllers
 - Fan coil units
 - Roof top units
 - Heat pumps
 - Unit ventilators
- Achieve energy efficiency through occupancy-based control with:
 - Motion sensor to readjust the space temperature setpoint and manage lighting
 - CO₂ sensor as part of the demand-controlled ventilation strategy that adjusts the amount of outdoor air intake according to the number of occupants

Features & Benefits

- "4-in-1" communicating sensors—one wire, one connection, four (4) sensing capabilities (temperature, humidity, CO₂, and motion).
- Encourage occupants to have greener habits with the ECO-Vue icon while reducing energy costs.
- Optimize energy use according to the actual building's conditions:
 - Control heating and cooling setback through motion sensing and adjust outdoor air demand according to air-quality.
 - Control lighting through occupancy detection.
- Commission VAV controllers immediately after installation by selecting the built-in controller application and performing system air balancing with the Allure EC-Smart-Vue sensor to get the HVAC system up and running right away.
- Occupants can override the HVAC mode and view and adjust the setpoint and fan speed for improved personal comfort.
- Slim, compact style, and clean lines are well received by architects and building owners.
- Clear and bright LCD display provides real-time access to temperature and other system information such as setpoint, occupancy status, HVAC mode, etc.
- Both power and communications pass through a single Cat 5e cable for reduced installation costs and for easier installation or system retrofit.
- The patented ABC Logic self-calibration system eliminates the need for manual CO₂ calibration in most applications.
- Lifetime CO₂ calibration guaranteed when using ABC Logic.

Allure EC-Smart-Vue Model Selection Table

Model	EC-Smart-Vue	EC-Smart-Vue-C	EC-Smart-Vue-H	EC-Smart-Vue-CH	EC-Smart-Vue-M	EC-Smart-Vue-CM	EC-Smart-Vue-HM	EC-Smart-Vue-CHM
Temperature	■	■	■	■	■	■	■	■
Humidity			■	■			■	■
Motion					■	■		■
CO ₂ ¹		■		■		■		■
Product Number	PDITE-SMRTVUE-01	PDITE-SMRTVUC-00	PDITE-SMRTVUH-01	PDITE-SMRTVUCH-00	PDITE-SMRTVUM-00	PDITE-SMRTVUCM-00	PDITE-SMRTVUHM-00	PDITE-SMRTVUCHM-00

- The EC-Smart-Vue CO₂ sensors must be used in spaces that are periodically unoccupied (e.g. during evening or nighttime hours). A controller can support a maximum of two (2) Allure EC-Smart-Vue models equipped with a CO₂ sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO₂ sensor.

ECO-Vue Icon

Distech Controls recognizes that the human factor must be considered when designing a building for energy efficiency. To encourage occupants to be as green as possible, the Allure EC-Smart-Vue sensor has an ECO-Vue icon that can be programmed to show more leaves when the occupant chooses a setpoint that reduces energy use. This helps to promote awareness for energy consciousness and to save operational costs.



Low energy efficiency



Moderate energy efficiency



Higher energy efficiency



Highest energy efficiency

Related Products



07CBL-PATCHCORD30-FT4	30 ft (9 m) patch cord with protective boot and dust cap – For use in conduit.
07CBL-PATCHCORD50-FT4	50 ft (15 m) patch cord with protective boot and dust cap – For use in conduit.
07CBL-PATCHCORD75-FT4	75 ft (22 m) patch cord with protective boot and dust cap – For use in conduit.
07CBL-PATCHCORD100-FT4	100 ft (30 m) patch cord with protective boot and dust cap- For use in conduit.
07CBL-PATCHCORD30-FT6	30 ft (9 m) patch cord with protective boot and dust cap – For plenum applications.
07CBL-PATCHCORD50-FT6	50 ft (15 m) patch cord with protective boot and dust cap – For plenum applications.
07CBL-PATCHCORD75-FT6	75 ft (22 m) patch cord with protective boot and dust cap – For plenum applications.
07CBL-PATCHCORD100-FT6	100 ft (30 m) patch cord with protective boot and dust cap – For plenum applications.



07CBL-W244P-1446WHTB	1000 ft (305 m), Cat 5e Cable – Without Connectors. For use in conduit.
07CBL-W224P-2176WHTB	1000 ft (305 m), Cat 5e Cable – Without Connectors. For plenum applications.



07CBL-PATCHCONNECTOR	100 Crimp RJ-45 Connectors
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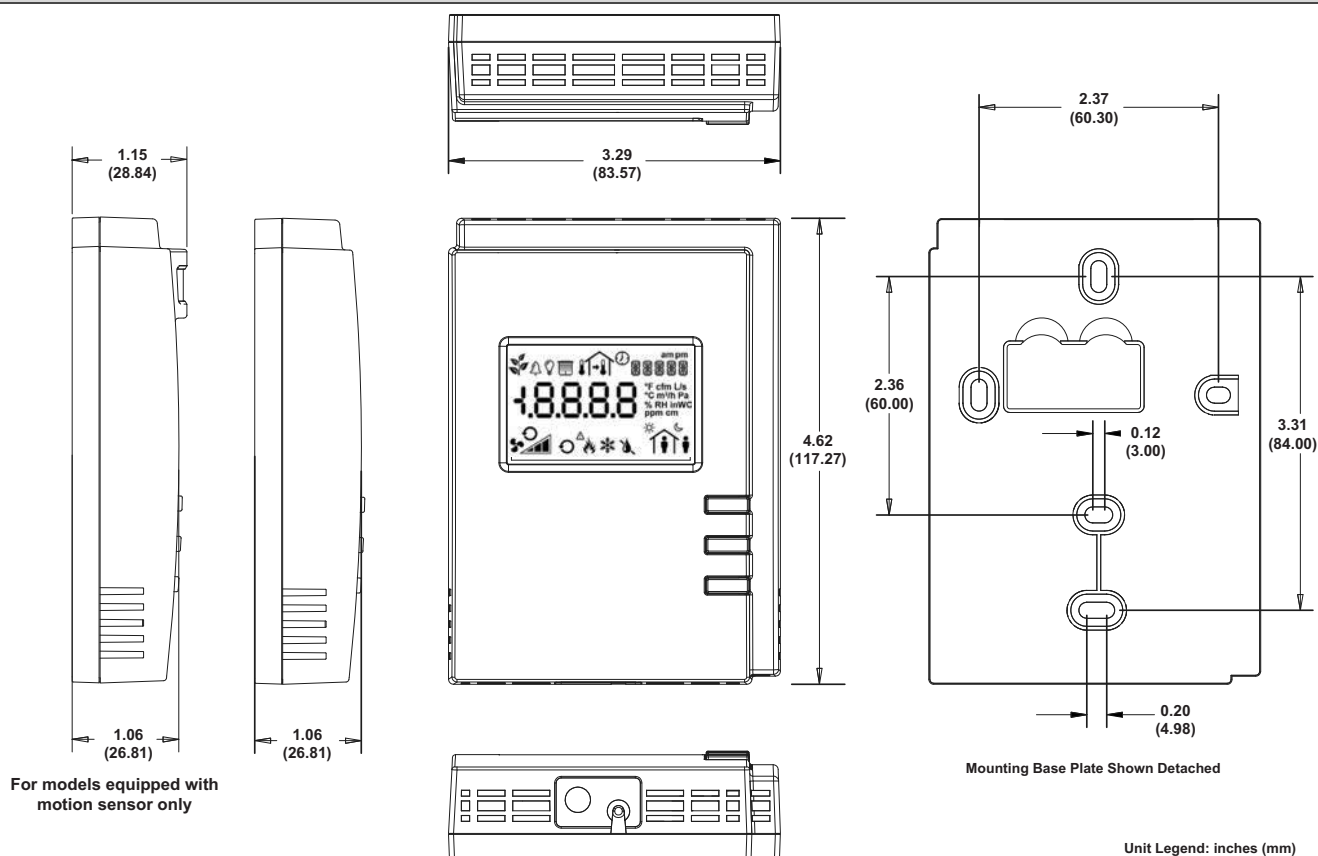
For more information on these or other Distech Controls products please refer to our web site.

Automatic Calibration of CO₂ Sensors (EC-Smart-Vue-C, EC-Smart-Vue-CH, EC-Smart-Vue-CM, EC-Smart-Vue-CHM)

ABC Logic (Automatic Calibration Logic) is a patented self-calibration technique that eliminates the need for manual calibration in most applications. The Allure EC-Smart-Vue-C series is designed to work in environments where CO₂ concentrations will drop to outdoor ambient conditions (400 ppm) at least three times in a 14-day period, typically during unoccupied periods. For example, in a typical office, school, theater, etc., people are the main source of CO₂ in a building. When people go home at night, the indoor CO₂ level will drop to the outdoor CO₂ level, which is typically 380 to 400 ppm. The ABC Logic system records the lowest reading every 24-hour period for analysis. If there is a statistical difference in the baseline readings, then a calibration factor is applied to all subsequent sensor readings. The ABC Logic system typically takes three weeks of continuous run-time before making corrections.

The sensor will typically reach its operational accuracy after 25 hours of continuous operation on condition that it was exposed to ambient air reference levels of 400 ppm \pm 10 ppm CO₂.

Product Dimensions



Product Specifications

Power		Temperature Sensor	
Voltage	16Vdc maximum, Class 2	Types	10KΩ NTC Thermistor
Power Consumption	At the connected controller, an additional 5.25VA per CO ₂ sensor model and 1.0VA per non-CO ₂ sensor model	Range	5°C to 40°C; 41°F to 104°F
LCD Display:		Accuracy	±0.5°C; ±0.9°F
		Resolution	0.1°C; 0.18°F
Type	1.85" X 1.18" (47 mm X 30 mm) with backlight	Humidity Sensor	
Symbols	Language-independent icons for mode and operating status	Accuracy	±3%
Environmental		Resolution	1%
		CO ₂ Sensor	
Operating Temperature	5°C to 40°C; 41°F to 104°F	Measurement Range	0 to 2000 ppm
Storage Temperature	-20°C to 50°C; -4°F to 122°F	Operating Elevation	0 to 16000 ft (4877 m)
Relative Humidity	0 to 95% Non-condensing	Warm-up Time	< 2 minutes (operational), 10 minutes (maximum accuracy)
Enclosure		CO ₂ Accuracy	400-1250 ppm ± 30 ppm or 3% of reading, whichever is greater ¹ 1250-2000 ppm ±5% of reading + 30ppm ¹
Material	ABS	Temperature Dependence	0.2% FS per °C (±0.11% per °F)
Color	White	Stability	<2% of FS over life of sensor (15 years)
Dimensions (overall):		Pressure Dependence	0.135% of reading per mm Hg; software adjustable
-Without Motion Sensor	3.29" x 4.62" x 1.06" (83.57mm x 117.27mm x 26.81mm)	Sensing Method	Non-dispersive infrared (NDIR) absorption Gold-plated optics
-With Motion Sensor	3.29" x 4.62" x 1.06"/1.15" (83.57mm x 117.27mm x 26.81mm/28.80mm)	Calibration Method	Patented ABC Logic self calibration algorithm
Shipping Weight	0.4 lbs to 0.44 lbs (0.18 kg to 0.2 kg)		
Installation	Wall mounting through mounting holes (see hardware installation guide for hole positions)		

Product Specifications (continued)

Communications

Rate	38 400 bps
Communications	RS-485
Wiring	Cable length: 600 ft (180 m) maximum
Cable Type	T568B Cat 5e network cable, 4 twisted pairs
Connectors	IN: RJ-45 OUT: RJ-45 (pass-through for daisy chain connection) Network Access Jack: 1/8" (3.5 mm) stereo plug connector
Daisy-chaining	Ranging from 4 to 12 Allure EC-Smart-Vue sensors depending on the controller model – See the controller's datasheet

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ²	UL94V-1



Electromagnetic Compatibility (Directive 2004/108/EC)

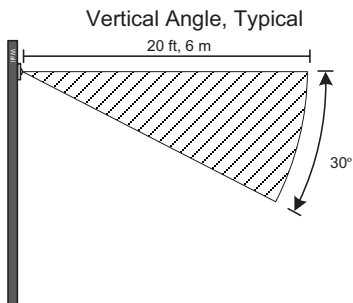
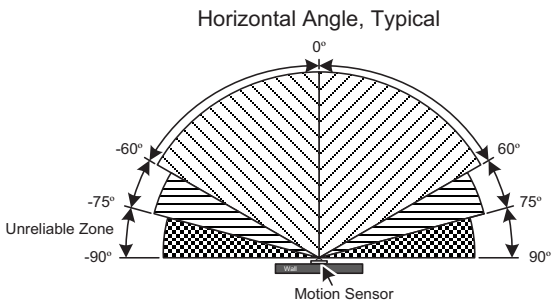
CE:	EN 61000-6-3:2007 EN 61000-6-1:2007
FCC	Part 15, subpart B class B



Motion Sensor

Type	Passive Infrared (PIR) sensor with Fresnel lens
Range	Up to 20 ft (6 m); see Typical Motion Detection pattern figure below

Typical Motion Detection Pattern:



1. Tolerance based on span gas of $\pm 2\%$ and ABC Logic enabled.
2. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .

Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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Allure RS-Smart-Sense

Room Sensor Device with a touch-sensitive LCD color screen



Overview

Thanks to its user-friendly interface, the **Allure RS-Smart-Sense** presents an optimized ergonomics for an immediate control of each room comfort parameter (lighting, temperature, sunblinds and fan speed) and instant access to 1 of the 4 saved scenes.

These 4 different scenes drive all the working conditions of the room and can be easily programmed to recall specific settings depending on the dedicated use.

The Allure RS-Smart-Sense is customizable to fit any interior design. Its wide range of front plates allows you to choose between 14 different styles (2 included). Additionally, Distech Controls offers you the possibility to change the pictograms to your own ones, enhancing its versatility and leads the Allure RS-Smart-Sense to harmonize with any aesthetic need in highly demanding environments.

The automation of the backlight intensity, regulated by its embedded sensor depending on the room ambient luminosity, improves the reading comfort while adding to its discretion.

Moreover, the ECO-Vue icon illustrates the impact of the user's settings on the global energy efficiency of the building so as to lead him to follow the supervisor's recommendations. It displays more leaves for environmentally friendly settings so as to help reducing operating costs.

A password protected technician mode allows the integrator to perform commissioning, basic settings and troubleshooting. For example, it can be used to set the controller's BACnet MAC address during commissioning when the Allure RS-Smart-Sense is connected to a BACnet IRC controller (please refer to the Hardware Installation Guide for more details about available configurations).

The Allure RS-Smart-Sense is designed to interface with Distech Controls' Karno® and Dalilon® controllers. Connection is made through a plug and play RJ9/RJ9 cable (*not included*).

The mounting hardware is compliant with European, North-American and Swiss electrical junction boxes (*not included*).

Applications

The **Allure RS-Smart-Sense** provides precise comfort zone control for temperature, fan speed, lighting and sunblinds with the following controller applications :

- Fan coil units
- Roof top units
- Heat pumps
- Unit ventilators
- Lighting and sunblind applications, ...


The **Allure RS-Smart-Sense** can be used as a classic wall-mounted room device or as a hand-held tool to :

- Set the MAC address of the controller
- Configure the basic parameters of the controller

Features & Benefits

- A single device to control temperature, fan speed, lighting, sunblinds and occupancy management
- Up to 4 scenes stored for instant access to favorite comfort parameters
- Full color LCD display for real-time control of room settings. Combined with its touch sensitive screen and its user-friendly interface, the Allure RS-Smart-Sense allows any occupant to manage easily HVAC, lighting and sunblind parameters
- 14 different front sides (2 included : brushed aluminum style and glossy black) and customizable pictograms to fit any project and suit architects and building owners' aesthetic needs.
- ECO-Vue icon to indicate graphically energy efficiency of the configuration to help the occupant adopt energy conscious behavior and therefore save energy costs.
- Automatic backlight dimming depending on the ambient lighting level in room driven by an embedded sensor.
- Occupancy control to extend normal system operating hours for further time flexibility.
- Access to controller's key features with a suitable interface to ease the integrator's job (see Hardware Installation Guide for more information).
- A single plug and play cable to connect both power and communication for easy installation and system retrofit at reduced costs (*RJ9 connection*).

Allure RS-Smart-Sense

Model	Allure RS-Smart-Sense (2 front plates included)	
Product Number	XPCP0215	
		
Color	Brushed Aluminum Style	Glossy Black
Material	PMMA	Dibon

ECO-Vue Icon

The ECO-Vue icon is to encourage the users to follow the supervisor's recommendations and therefore promote thermal homogeneity in the building so as to reduce the associated operating costs.

By displaying the maximum of leaves for close to setpoint manual settings, the ECO-Vue icon illustrates act on its energy efficiency. It illustrates the favorable or unfavorable character of the user's choices on the energy-efficiency of the building.

The ECO-Vue displays the maximum of leaves when following the programmed settings and the minimum for the further temperature from setpoint and the maximum fan speed.



Energy efficiency of the room according to the building settings (see End User Manual)

Complementary Product

Free iPhone App: "Smart-Sense Room Control"















Thanks to the "Smart-Sense Room Control" free iPhone application, the Allure RS-Smart-Sense remains accessible in any circumstances to give you full remote control from your iPhone of all your comfort parameters (occupancy, ventilation, lighting, blinds, temperature and scenarios) for enhanced flexibility and easy management).



Related products

Optional front plates

The front plates system makes the style of the Allure RS-Smart-Sense fully customizable. In addition to the 2 provided front plates you can also create your own ones (see Hardware Installation Guide for more information) or you can choose the design that will fit the final environment between the 12 optional front plates.

Color	Product reference	Description	Material
	Smart-Sense-FS-LW	Glossy light wood front-side	ABS V0
	Smart-Sense-FS-DW	Glossy dark wood front-side	ABS V0
	Smart-Sense-FS-M	Mirror finish front-side	ABS V0
	Smart-Sense-FS-EB	Electric blue front-side	ABS V0
	Smart-Sense-FS-G	Golden finish front-side	ABS V0
	Smart-Sense-FS-MB	Matt black front-side	ABS V0
	Smart-Sense-FS-GW	Glossy white front-side	ABS V0
	Smart-Sense-FS-GG	Glossy grey front-side	ABS V0
	Smart-Sense-FS-MF	Golden mirror finish front-side.	ABS V0
	Smart-Sense-FS-NB	Glossy navy blue front-side	ABS V0
	Smart-Sense-FS-SB	Glossy sky blue front-side	ABS V0
	Smart-Sense-FS-A	Aluminum front-side	Aluminum

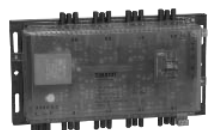
Non binding colors

HVAC Controllers



FCC Series	Fan coil controllers
SRC Series	HVAC configurable controllers
IRC Series	Integrated room controllers (with lighting and sunblind management)
SRC-DL Series	Double loop HVAC configurable controllers

Lighting And Sunblind Controllers



CTR Lighting Series	230 VAC lighting controllers, 4 or 8 on/off or 1-10VDC dimming outputs
CTR Sunblind Series	Sunblind controllers, 4 or 8 230VAC or 24VDC outputs
CTR-8LDALI	DALI lighting controllers dedicated to offices : 8 power outputs (16 ballasts managed, divided in 8 groups maximum)
CTR-DALI-LR	DALI lighting controllers dedicated to open spaces : 64 ballasts managed divided in 8 or 16 groups

Wiring



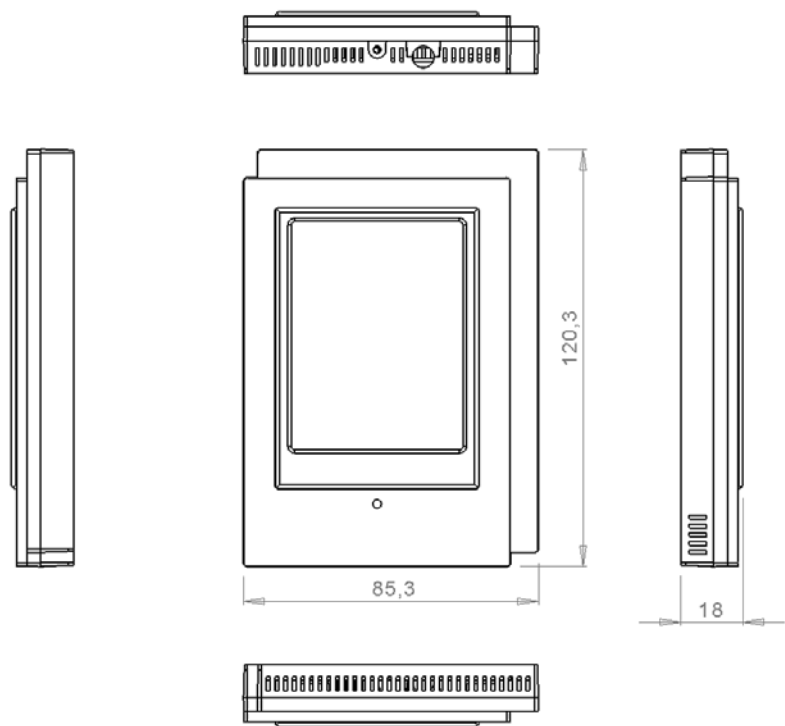
CBL-003	RJ9-RJ9 cable - 30cm length
CBL-05	RJ9-RJ9 cable - 5m length
CBL-08	RJ9-RJ9 cable - 8m length
CBL-12	RJ9-RJ9 cable - 12m length

For more information on Distech Controls products, please refer to our website: www.distech-controls.eu or call +33 4 78 45 01 23

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Product Specifications



Unit: mm

General

Voltage	5 Vdc +/-0.1 Vdc
Power	250mW typical

LCD Display

Type	Full color TFT display with backlight
Resolution	240p x 320p (48.6mm x 64.8mm)
Symbols	Language-independent icons
Temperature Resolution	± 0.1°C; ± 0.1°F

Touchscreen

Type	Resistive
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Temperature Sensor

Type	10 kΩ NTC Thermistor
Range	5°C to 36.9°C; 41°F to 98.4°F
Accuracy	±0.5°C at 25°C; 0.90°F at 77°F

Communications

Wiring	12 m maximum
Cable Type	4 conductors 7/0.16mm (26 AWG)
Connector	RJ9
Daisy-Chaining	No

Compatibility

Compatible with Distech Controls' RJ9 controllers manufactured after October 2011. Please contact the technical support for any further information.

Environmental

Operating Temperature	5°C to 40°C; 41°F to 104°F
Storage Temperature	-20°C to 50°C; -4°F to 122°F
Relative humidity	0 to 95% Non-condensing

Enclosure

Material	ABS V0
Color	Graphite black
Dimensions (overall)	85.3 mm x 120.3 mm x 18 mm
Shipping Weight	0.2 kg (0.44 lbs)
Installation	Wall-mounting through mounting holes (See Hardware Installation Guide for hole position)

Agency Approvals

Material1	UL94V-0
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Electromagnetic Compatibility

CE :	EN 61000-6-3:2007
	EN 61000-6-1:2007



¹ All materials and manufacturing processes comply with the RoHS directive

Specifications subject to change without notice.

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O5DI-DSRSSEN-15E

Allure RS-Smart-Sense

www.distech-controls.eu



Overview

Thanks to the **Smart-Sense Room Control** free iPhone application, your room settings remain accessible in any circumstances for a full remote control from your iPhone of all the room comfort parameters (occupancy, ventilation, lighting, blinds, temperature and scenarios) for enhanced flexibility and easy management.

Developed from the Allure RS-Smart-Sense Room Device, the **Smart-Sense Room Control** iPhone application presents an optimized interface for an immediate remote control of each comfort parameter as well as instant access to 1 of the 4 memorized configurations.

Each of these 4 different scenarios drive all the working conditions of the room and can be easily programmed to recall specific settings depending on the dedicated use.

Moreover, the programmable ECO-Vue icon illustrates the impact of the user's settings on the global energy efficiency of the building so as to lead him to follow the supervisor's recommendations. It displays more leaves for environmentally friendly energy saving settings and consequently helps to reduce operating costs.

The **Smart-Sense Room Control** application is designed to interface natively with Distech Controls® LON and Bacnet controllers monitored by an EC-BOS. A Demo mode is also available to acquaint yourself with the various functionalities offered.

Applications

The **Smart-Sense Room Control** application provides precise environmental zone control for temperature, fan speed, lightings and sunblinds with the following controller applications :

- Fan coil units
- Roof top units
- Heat pumps
- Unit ventilators
- Lighting and sunblind applications, ...

Features & Benefits

- Intuitive interface for temperature, fan speed, lighting and blinds remote control
- Up to 4 scenes stored for instant access to your favorite comfort parameters
- ECO-Vue icon to indicate graphically the energy efficiency of the configuration to help the occupant adopt energy conscious behavior and save energy costs
- Occupancy control to extend normal system operating hours for further time flexibility
- Multi-Room management for enhanced adaptability
- Demo Mode so as to discover easily and immediately all the functionalities



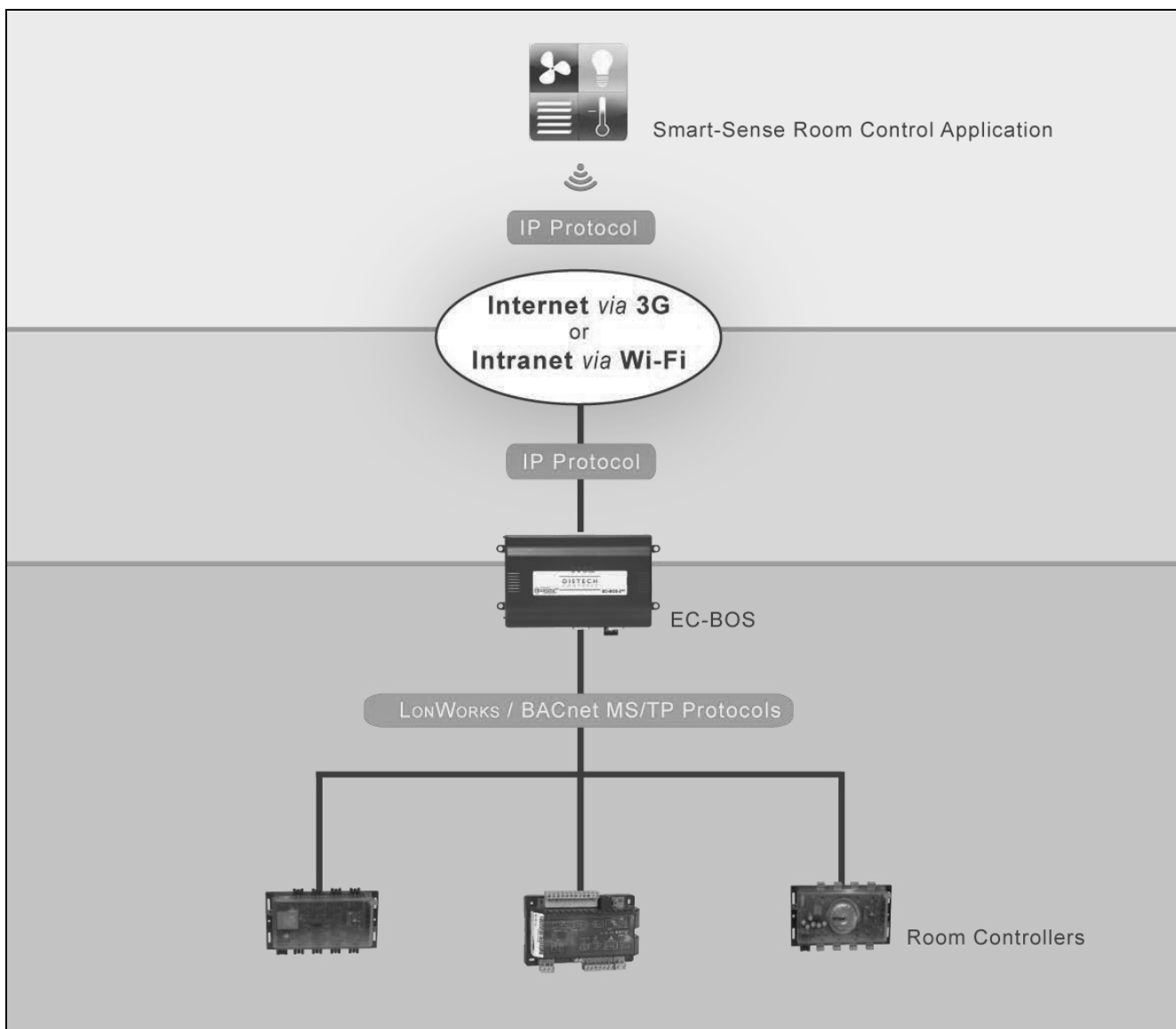
ECO-Vue Icon

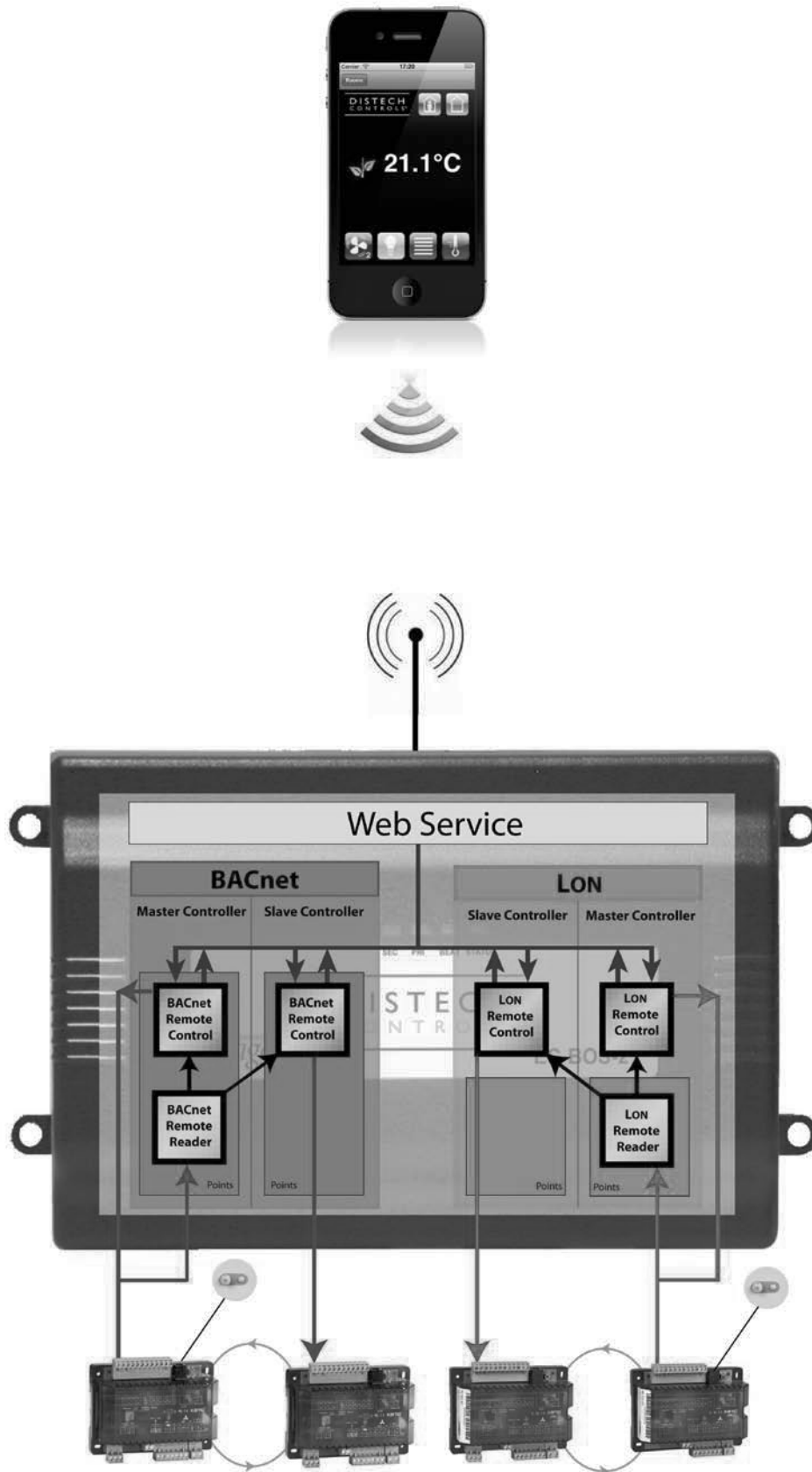
The ECO-Vue icon is designed to encourage the users to follow the supervisor's recommendations. It illustrates the favorable or unfavorable character of the user's choices on the energy-efficiency of the building by displaying the maximum of leaves for close to setpoint manual settings. By default, the ECO-Vue displays the maximum of leaves when following the programmed settings and the minimum for the further temperature setpoint and the maximum fan speed to promote thermal homogeneity in the building so as to reduce the associated operating costs. Nevertheless, the ECO-Vue icon is fully programmable through ECnet^{AX} software to fit your own needs.



Energy efficiency of the room according to the building settings (see User Guide)

Typical Architecture





Allure RS-Smart-Sense



The Allure RS-Smart-Sense is Distech Controls' new generation room sensor from which the Smart-Sense Room Control iPhone application has been developed. Its additional features lead it to become the ideal room device for any need in any configuration.

Directly connected to a controller, the Allure RS-Smart-Sense can do without the EC-BOS to provide all the functionalities offered by the iPhone application, and even more, including a technician mode for a plug-and-play installation and easy maintenance and troubleshooting.

Last but not least, the Allure RS-Smart-Sense's aspect is fully customizable to fulfill the most demanding aesthetic needs.

Main additional features :

- Wide range of front plates
- Customizable pictograms
- Wide touch-sensitive LCD colored screen: 3,2"
- Automatic dimming backlit adjustment depending on the ambient lighting
- Plug-and-play connection to a controller through a single RJ9/RJ9 digital cable
- Technician Mode to manage the controller's parameters for easy integration, maintenance and troubleshooting

Related products

Controller/Server Platform



EC-BOS-2^{AX}

Web Server for building management systems

EC-BOS-6^{AX}

Web Server for building management systems

HVAC Controllers



FCC Series

Fan coil controllers

SRC Series

HVAC configurable controllers

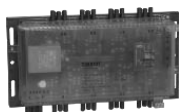
IRC Series

Integrated room controllers (with lighting and sunblind management)

SRC-DL Series

Double loop HVAC configurable controllers

Light And Sunblind Controllers



CTR Lighting Series

230 VAC lighting controllers, 4 or 8 on/off or 1-10VDC dimming outputs HVAC configurable controllers

CTR Sunblind Series

Sunblind controllers, 4 or 8 230VAC or 24VDC outputs

CTR-8LDALI

DALI lighting controllers dedicated to offices : 8 power outputs (16 ballasts managed, divided in 8 groups maximum)

CTR-DALI-LR

DALI lighting controllers dedicated to open spaces : 64 ballasts managed divided in 8 or 16 groups

For more information on Distech Controls products, please refer to our website www.distech-controls.eu or call +33 4 78 45 01 23

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Supported Platforms



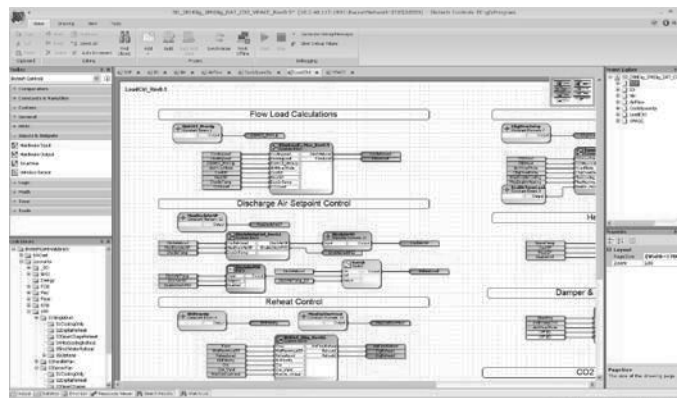
EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS®, BACnet® and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

EC-Net^{AX} Wizards and LNS Plug-Ins

EC-gfxProgram Graphical Programming Tool

Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.



Product specifications

Compatible with	Native compatibilities with LON controllers	
iPod Touch	CTR-4L	
iPhone 3	CTR-4L-4S230	
iPhone 3GS	CTR-4LD	
iPhone 4	CTR-4S230	Lighting controllers: ON/OFF or 1-10V dimming
iPad	CTR-4S24	
Minimum operating system	CTR-8L	
iOS 4.0	CTR-8LD	
Minimum EC-Net ^{AX} version	CTR-8S24	Sunblind controllers: Up, Down, Rotation
3.5.34	CTR-8S230	
Minimum LON module version	CTR-8LDALI	
3.5.34.12	CTR-DALI-LR8	Dali lighting controllers
Memory consumption (<i>indicative</i>)	CTR-DALI-LR16	
LON	SRC-4XX	
Min = 1.945 kRU	SRC-4XX-DL	HVAC controllers for Terminal Equipment Management
Max = 3.097 kRU	FCC-4XX	
BACnet	IRC-SRC-4XX	Modular solution for HVAC, lighting and sunblind management
Typical = 2.682 kRU	IRC-FCC-4XX	
Connection port	ITR	4 Infrared/Radio channels 230 VAC interface
EC-BOS	Native compatibilities with BACnet controllers	
Supported languages	IRC-SRC-4XX	Modular solution for HVAC, lighting and sunblind management
English	IRC-FCC-4XX	
French		

Specifications subject to change without notice.

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O5DI-DSSSRCX-13

Smart-Sense Room Control

www.distech-controls.eu

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Allure EC-Smart-Sensor-VAV

Two-Line LCD Display Communicating Sensors



Overview

The **Allure EC-Smart-Sensor-VAV** is specifically designed to interface with Distech Controls' ECC-VAVS / ECC-VAV and ECP-VAVS / ECP-VAV series controllers. It provides precision local temperature sensing and a variety of public functions that can be accessed by room occupants as well as password-protected functions for technicians.

The alluring, slim profile enclosure is suitable for classrooms, hotels, executive areas, office spaces and commercial areas. With a user-friendly interface, occupants can view and adjust environmental settings to their liking, for example, view the space temperature, adjust the setpoint, and apply an occupancy override.

Maintenance personnel have access to a password-protected configuration mode that allows them to perform airflow balancing on a connected VAV controller. In addition, maintenance personnel can use an EC-Smart-Sensor-VAV to either override a controller's outputs or just view its input and output values; which of these two options is available depends on whether the sensor is connected to a controller of type ECC (configurable) or ECP (programmable).

Mounting hardware with a separate sub-base is provided with the Allure EC-Smart-Sensor-VAV for installation on a dry wall or on an electrical junction box. Alternatively, the Allure EC-Smart-Sensor-VAV can be used as a handheld device when wired into a standard wall-mounted room sensor. Technicians can perform detailed monitoring and configuration such as airflow balancing of the VAV and associated equipment right near the point of control. The lightweight design and quick connect 2-wire interface make the Allure EC-Smart-Sensor-VAV convenient to use.

The Allure EC-Smart-Sensor-VAV is configurable using either the EC-Configure plug-in or EC-gfxProgram, depending on the type of controller connected to the sensor. Both tools are accessible through any LNS®-based software, such as Distech Controls' Lonwatcher 3, or from any multi-protocol platform software that supports LONWORKS® devices, such as Distech Controls' EC-Net^{AX}, which is powered by the Niagara^{AX} Framework®.

Applications

Zone control for absolute comfort:

- Precise environmental control
- Occupancy override allows the system to adjust to individual needs
- Convenient VAV airflow balancing at the point of control without a control engineer
- Light-weight solution to directly monitor and configure air handlers

Features & Benefits

- Slim, compact style and clean lines are well received by architects and building owners
- Onboard LON® jack is accessible without removing the cover to allow quick access to the network for commissioning or troubleshooting controllers (requires additional wiring)
- For people working outside of core hours, an occupancy control extends normal system operating hours for continued comfort while saving energy when possible
- Data is sent directly to the associated controller's SMRT inputs for seamless integration and control
- LCD display provides real-time access to temperature and setpoint.
- Simple 2-wire interface provides both power and communications to reduce installation costs and for easier installation or system retrofit
- Setpoint override for optimum comfort
- Accurate temperature monitoring for increased comfort
- Supports various mounting scenarios: Install the Allure EC-Smart-Sensor directly on dry wall or on a North American, European, or Asian style junction box

Related Products

ECC-VAVS and ECC-VAV Series Controllers



ECC-VAVS	7-Point Variable Air Volume Configurable Controller with Actuator and Flow Sensor
ECC-VAV	12-Point Variable Air Volume Configurable Controller with Actuator and Flow Sensor
ECC-VVTS	6-Point Variable Volume Temperature Configurable Controller with Actuator
ECC-VVT	11-Point Variable Volume Temperature Configurable Controller with Actuator
ECC-VAV-N	11-Point Variable Air Volume Configurable Controller with Flow Sensor

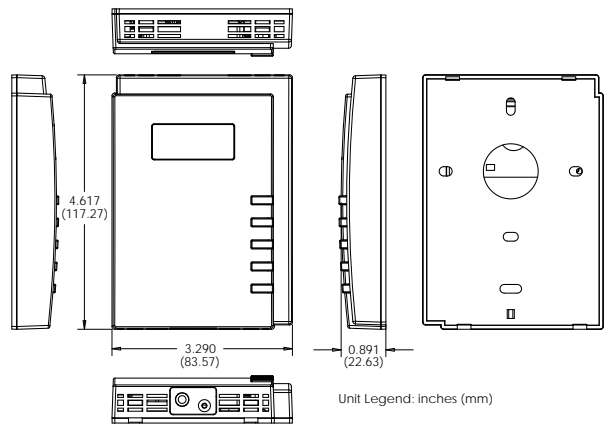
ECP-VAVS and ECP-VAV Series Controllers



ECP-VAVS	7-Point Variable Air Volume Programmable Controller with Actuator and Flow Sensor
ECP-VAV	12-Point Variable Air Volume Programmable Controller with Actuator and Flow Sensor
ECP-VVT	11-Point Variable Volume Temperature Programmable Controller with Actuator
ECP-VAV-N	11-Point Variable Air Volume Programmable Controller with Flow Sensor

For more information on these or other Distech Controls products please refer to our web site at <http://www.distech-controls.eu> or contact salesadmin@distech-controls.com.

Product Specifications



General		Temperature Sensor	
Voltage	12VDC (Through the communication wires)	Types	10KΩ NTC Thermistor
CPU	PIC16F648A	Range	5°C to 40°C; 41°F to 104°F
LCD Display	2 Lines; 8 Characters	Accuracy	±0.5°C; ±0.9°F
Environmental		Resolution	0.1°C; 0.18°F
Operating Temperature	5°C to 40°C; 41°F to 104°F	Communications	
Storage Temperature	-20°C to 57°C; -4°F to 135°F	Type	2400 baud serial communication over 2-wire interface
Relative Humidity	0 to 95% Non-condensing		Half duplex, 8-bit, no parity, 1 stop bit
Enclosure		Protocol	Based on EIA-232
Material	ABS type PA-765A	Wiring	Cable length: 76m (250ft) maximum
Color	Off white		Supported Cable: Belden #8451 or equivalent
Dimensions (overall)	4.62" x 3.30" x 0.90" (117mm x 84mm x 23mm)	Electromagnetic Compatibility	
Shipping Weight	0.4lbs (0.18kg)	CE	EN 61000-6-3:2007
Installation	Wall mounting through mounting holes (see figure above for hole positions)		EN 61000-6-1:2007
Agency Approvals		FCC	Part 15, subpart B class B
UL Listed (CDN & US)	UL916 Energy management equipment		
Material ¹	UL94V-1		



1. All materials and manufacturing processes comply with the RoHS directive

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

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05DI-DSSSAVV-11E

Allure EC-Smart-Sensor-VAV

Allure EC-Smart-Sensor-100 & 200

Two-Line LCD Display Communicating Sensors



Applications

Zone control for absolute comfort:

- Precise environmental control
- Occupancy override allows the system to adjust to individual needs

Overview

The **Allure EC-Smart-Sensor-100** and **Allure EC-Smart-Sensor-200** are specifically designed to interface with Distech Controls' ECP programmable line of controllers. These devices provide precision local temperature sensing, information display of system status, and a variety of control functions that can be accessed by room occupants.

With its user-friendly interface, occupants can view and adjust environmental settings to their liking, for example, view the space temperature, adjust the setpoint and apply occupancy overrides. In addition to this, occupants can apply HVAC overrides and select fan speed using the Allure EC-Smart-Sensor-200.

The Allure EC-Smart-Sensor-100 and Allure EC-Smart-Sensor-200 are configurable through the programming tool (EC-gfxProgram) of the connected controller. This application can be used by any LNS®-based software such as Distech Controls' Lonwatcher 3 or by a multi-protocol platform software supporting LONWORKS® devices such as Distech Controls' EC-Net^{AX} Pro powered by the Niagara^{AX} Framework®.

The alluring, slim profile enclosure is suitable for classrooms, hotels, executive areas, office spaces & commercial areas. Mounting hardware with a separate sub-base is provided with the device for installation on dry wall or on an electrical junction box.

Features & Benefits

- Slim, compact style and clean lines are well received by architects and building owners
- Onboard LON jack is accessible without removing the cover to allow quick access to the network for commissioning or troubleshooting controllers (requires additional wiring)
- For people working outside of core hours, an occupancy control extends normal system operating hours for continued comfort while saving energy when possible
- Data is sent directly to the associated controller's SMRT inputs for seamless integration and control
- HVAC mode override and Fan speed view / adjust for improved personal comfort¹
- LCD display provides real-time access to temperature and other system information such as setpoint, occupancy status, HVAC mode, etc.
- Simple 2-wire interface provides both power and communications to reduce installation costs and for easier installation or system retrofit
- Setpoint override for optimum comfort
- Accurate temperature monitoring for increased comfort
- Supports various mounting scenarios: Install the Allure EC-Smart-Sensor directly on dry wall or on a North American, European, or Asian style junction box

1. Allure EC-Smart-Sensor-200 model only

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Available EC-Smart-Sensor Models



Allure EC-Smart-Sensor-100

Two-Line LCD Display Communicating Sensor

- Monitor space temperature
- Setpoint adjustment
- Occupancy override



Allure EC-Smart-Sensor-200

Two-Line LCD Display Communicating Sensor

- Monitor space temperature
- Setpoint adjustment
- Occupancy override
- HVAC override
- Fan speed selection

Related Products

ECP Programmable Controllers¹

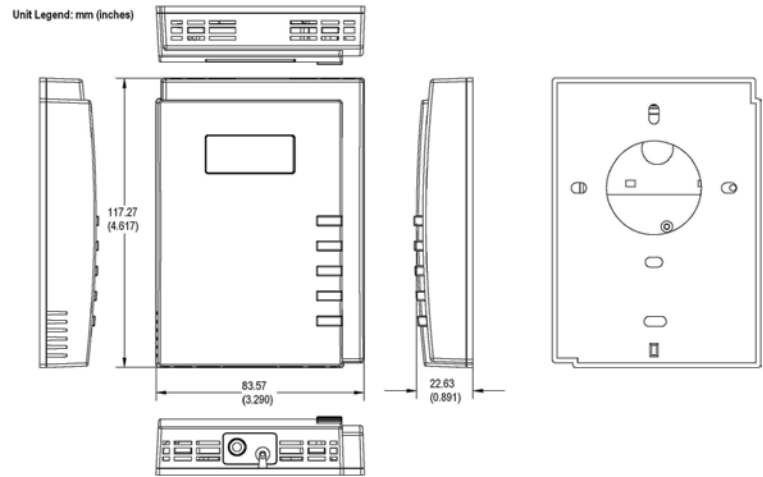


ECP-103 Series	10-Point Programmable Controller
ECP-203 Series	14-Point Programmable Controller
ECP-PTU	14-Point High Voltage Programmable Controllers
ECP-300 Series	18-Point Programmable Controller
ECP-400 Series	24-Point Programmable Controllers
ECP-500 Series	28-Point Programmable Controllers
ECP-VAV Series	10-Point Single Duct VAV Programmable Controller
ECP-VAVS Series	4-Point Single Duct VAV Programmable Controller

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.eu or contact salesadmin@distech-controls.com.

1. Can only be used with EC-gfxProgram

Product Specifications



General

Voltage:	12VDC (Through the communication wires)
CPU:	PIC16F648A
LCD Display:	2 Lines; 8 Characters

Environmental

Operating Temperature:	5°C to 40°C; 41°F to 104°F
Storage Temperature:	-20°C to 57°C; -4°F to 135°F
Relative Humidity:	0 to 95% Non-condensing

Enclosure

Material:	ABS type FR-500A
Color:	Off white
Dimensions (overall):	4.62" x 3.30" x 0.90" (117mm x 84mm x 23mm)
Shipping Weight:	0.4lbs (0.18kg)
Installation	Wall mounting through mounting holes (see figure above for hole positions)

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ¹ :	UL94-VO



Temperature Sensor

Types:	10KΩ NTC Thermistor
Range:	5°C to 40°C; 41°F to 104°F
Accuracy:	±0.5°C; ±0.9°F
Resolution:	0.1°C; 0.18°F

Communications

Type:	2400 baud serial communication over 2-wire interface Half duplex, 8-bit, no parity, 1 stop bit
Protocol:	Based on EIA-232
Wiring:	Cable length: 76m (250ft) maximum Supported Cable: Belden #8451 or equivalent

Electromagnetic Compatibility

CE:	EN 61000-6-3:2007 EN 61000-6-1:2007
FCC:	Part 15, subpart B class B



1. All materials and manufacturing processes comply with the RoHS directive

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05DI-DSSSA12-11E

Allure EC-Smart-Sensor-
100 & 200



Overview

The **Allure EC-Sensor** series are versatile room temperature sensors. All EC-Sensor models possess an integrated temperature sensor for precision local temperature sensing. In addition, some models feature a rotary knob for setpoint adjustment, fan speed setting, and a push button for occupancy override.

An onboard jack provides easy connection to the local area network without having to open the cover.

The alluring, slim profile enclosure is suitable for classrooms, hotels, executive areas, office spaces and commercial areas. A separate sub-base allows it to be mounted on dry wall or on electrical junction box.

Applications

- Precise temperature monitoring
- Allows occupant setpoint adjustment, fan speed selection, and system override initiation and status indication
- Provides a local area network service access point

Features & Benefits

- Slim, compact style and clean lines are well received by architects and building owners
- Onboard Local Area Network jack is accessible without removing the cover to allow quick access to the network for commissioning or troubleshooting controllers
- For people working outside of core hours, an occupancy control extends normal system operating hours for continued comfort while saving energy when possible. Occupancy status is shown with an LED indicator.
- Fan speed selector for improved personal comfort with EC-Sensor-SOF model.
- Accurate temperature monitoring while some models have setpoint override for increased individual comfort
- Supports various mounting scenarios: Install the Allure EC-Smart-Sensor directly on dry wall or on a North American, European, or Asian style junction box

Product Warranty & Total Quality Commitment

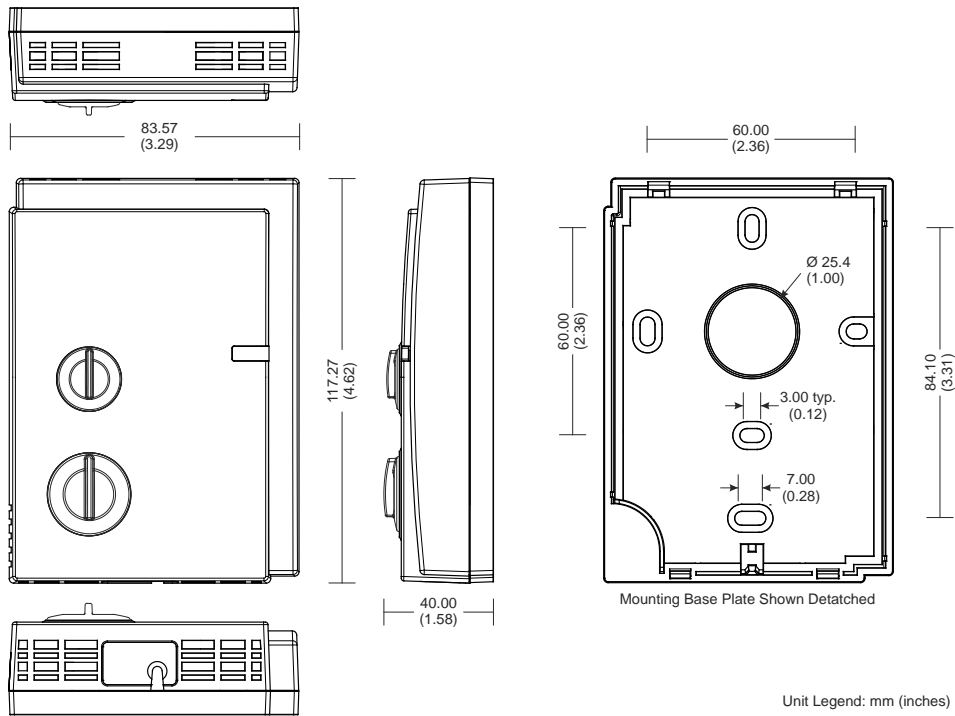
All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

EC-Sensor Models



Model	Allure EC-Sensor	Allure EC-Sensor-O	Allure EC-Sensor-S	Allure EC-Sensor-SO	Allure EC-Sensor-SOF
Monitor space temperature	■	■	■	■	■
Occupancy override		■		■	■
LED (Occupancy)		■		■	■
Setpoint cool/warm (+/-)			■	■	■
Fan speed selector					■
Communication jack	■	■	■	■	■
Product Number	PDITE-SENSORX0	PDITE-SENSOROX0	PDITE-SENSORSX0	PDITE-SENSORSOX0	PDITE-SENSORSOFX0

Product Specifications



Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 70°C; -4°F to 158°F
Relative Humidity	0 to 90% Non-condensing

Communication

LAN Access Jack	Audio jack, 1/8" (3.5mm)
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Enclosure

Material	ABS type PA-765A
Color	Off white
Dimensions (overall)	4.62" x 3.29" x 1.58" (117mm x 84mm x 40mm)
Shipping Weight	TBD 0.4lbs (0.18kg)
Installation	Wall mounting through mounting holes (see figure above for hole positions)

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
	Accessories
Material ¹	UL94V-1
	REACH, EC/2006/1907



All materials and manufacturing processes comply with the RoHS directive (WEEE) directive



Temperature Sensor

Type	10KΩ Type II Thermistor (10kΩ @ 25°C; 77°F)
Range	0°C to 50°C; 32°F to 122°F
Accuracy	±0.5°C; ±0.9°F

Functions

Setpoint Adjustment	10 kΩ linear rotary potentiometer
Occupancy override	Momentary push-button switch short-circuits the thermistor
LED	Green, powered by 12 VDC or 24 VAC
Fan speed selection	5-position rotary-switch with factory-programmed resistance values
- Auto	0 Ohms
- Off	2500 Ohms
- Fan Speed 1	5000 Ohms
- Fan Speed 2	7500 Ohms
- Fan Speed 3	10 000 Ohms

Electromagnetic Compatibility

CE	2004/108/EC
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05DI-DSECSN-10

Allure EC-Sensor Series

www.distech-controls.eu

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Overview

The **Allure™ ECW-Sensor** series are wireless and battery-less room temperature sensors specifically designed to communicate with Distech Controls' Open-to-Wireless™ controllers via radio telegrams in accordance with the EnOcean® standard. All Allure ECW-Sensor models possess an integrated temperature sensor for precision local temperature sensing. In addition, some models feature a rotary knob for setpoint adjustment, fan speed setting, and a push button for occupancy override. All models are powered by solar energy, providing maintenance-free operation and are part of Distech Controls' Open-to-Wireless solution.

All models are available in two options for 315MHz or 868MHz frequency bands, making them compliant for use in most countries.

The alluring, slim profile enclosure is suitable for classrooms, hotels, executive areas, office spaces and commercial areas. A separate sub-base allows it to be mounted on any surface with double-sided adhesive tape.

Applications

- Precise temperature monitoring
- Facilitates the mounting of sensors and switches on hard materials, such as brick and stone
- Ideally suited for spaces that undergo frequent layout changes
- Allows occupant setpoint adjustment, fan speed selection, and system override initiation and status indication
- Perfect for all sites that run automated building control systems such as hospitals, hotel rooms, offices, and retail outlets

Features & Benefits

- Wireless communication, allowing you to:
 - Eliminate expenses for wiring plans, wire and conduit installations, and electrician fees
 - Optimize sensor placement to get the most accurate reading and achieve improved temperature control and occupant comfort
 - Easily relocate sensors and switches when room configurations or floor plans change
 - Preserve architecture and materials, avoiding drilling and opening walls
 - Adhere to project deadlines and budget
 - Avoid disturbances to tenants caused by noise and dust associated with installation work
- Energy harvesting, allowing you to:
 - Eliminate the use of batteries, thus eliminating maintenance
 - Reduce cable and wiring materials including copper and plastics
 - Preserve building envelope
- Slim, compact style and clean lines are well received by architects and building owners
- For people working outside of core hours, an occupancy control extends normal system operating hours for continued comfort while saving energy when possible
- Fan speed selection for improved personal comfort with ECW-Sensor-SOF model.
- Accurate temperature monitoring while some models have setpoint override for increased individual comfort
- Supports various mounting scenarios for flexibility: Install the Allure ECW-Sensor to any hard surface with double-sided adhesive tape, or attach it in place with screws
- Optional battery available for installations where there is insufficient ambient light (such as in a plenum)

Wireless Battery-less Allure ECW-Sensor Models



These wireless battery-less sensors are part of Distech Controls' Open-to-Wireless solution that reduces the cost of installation, and minimizes the impact on existing partition walls, when they are used with a compatible controller and Wireless Receiver shown below.



Model	Allure ECW-Sensor	Allure ECW-Sensor-O	Allure ECW-Sensor-S	Allure ECW-Sensor-SO	Allure ECW-Sensor-SOF
Solar powered	■	■	■	■	■
Monitor space temperature	■	■	■	■	■
Occupancy override		■		■	■
Setpoint adjustment			■	■	■
Fan speed selector					■
Optional battery	■	■	■	■	■
Product Number (315MHz)	PDITE-WSSEN315X0	PDITE-WSENO315X0	PDITE-WSSENS315X0	PDITE-WSSENSO315X0	PDITE-WSSENSOF315X0
Product Number (868MHz)	PDITE-WSSEN868X0	PDITE-WSENO868X0	PDITE-WSSENS868X0	PDITE-WSSENSO868X0	PDITE-WSSENSOF868X0

Related Products

Wireless Receiver Models



Model	Wireless Receiver (315)	Wireless Receiver (868)
Frequency	315MHz	868.3MHz
Communication protocol	EnOcean	EnOcean
Product Number	PDITE-WIRE315X1	PDITE-WIMRE868X1

For more information on these or other Distech Controls products please refer to our web site.

Optional Battery



07BAT-ER14250

For installations where there is insufficient ambient light or where the sensor is in prolonged darkness, an optional battery can be installed to provide energy for continued operation. Type LS14250; 1/2AA, Lithium 3.6V/1.1Ah; Operational lifespan: Approximately 5-10 years depending on ambient conditions.

Transmission Ranges

The main factors that influence the system transmission range are type and location of the antennas of the receiver and the transmitter, type of terrain and degree of obstruction of the link path, sources of interference (screening) affecting the receiver, and "Dead" spots caused by signal reflections from nearby conductive objects. Since the expected transmission range strongly depends on the system conditions, range tests should categorically be performed before notification of a particular range that will be attainable by a certain application.

In the best conditions, where there are no obstructions creating screening, a radio signal is transmitted in a 65 ft (20 m) range for the 868.3MHz and a maximum 32 ft (10 m) range for the 315MHz, between an Allure ECW-Sensor (Transmitter - Tx) and Open-to-Wireless controller with a wireless receiver (Rx). In certain cases where there are obstructions, the range could be decreased. Here are some examples of different types of wireless range reducers:

Material	Range Reduction vs. LoS
Wood, drywall, glass (uncoated, without metal)	0 – 10%
Brick, particle board	5 – 35%
Metal, ferro concrete, mirrors	10 – 90%

Metallic obstructions such as wall reinforcements, machinery, metal office furniture (large filing cabinets), etc. are major sources of field strength reduction, but small metal studs on a gypsum dry wall do not show a recognizable screening. Furthermore, fire-safety walls, elevator shafts, stairwells, and supply areas should be considered as complete transmission screens. In addition, the angle with which the transmission travels through the obstructions has a major influence on the field strength. The steeper the angle through an obstruction the more the field strength dampens. Therefore it is preferable that the transmission should be arranged so that it travels straight and perpendicularly through the obstruction. Wall niches should be avoided as well. Other factors that restrict transmission range include:

Important objects and factors that decrease or constrain coverage:

- Metal separation walls or hollow lightweight walls filled with insulating wool on metal foil
- Inserted ceiling with panels made of metal or carbon fiber
- Steel furniture, glass with metal coating (typically not used indoor)

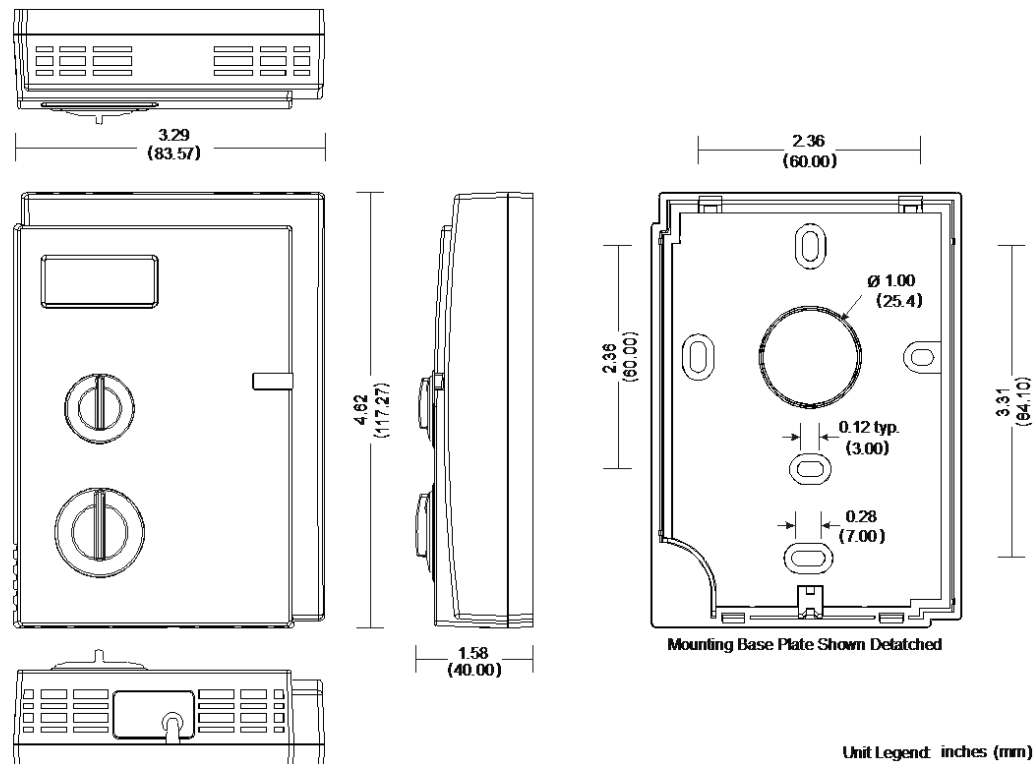
Transmission Ranges (continued)

- Switch mounted on metal surfaces (typically 30% loss of range)
- Metallic switch frames (typically 30% loss of range)

The distance between EnOcean receivers and other transmitting devices such as computers, audio and video equipment that also emit high-frequency signals should be at least 1.6 ft (0.5 m).

For more information about the EnOcean and Open-to-Wireless technologies, refer to the [Open-to-Wireless Solution Application Guide](#). For more information about the Wireless Receiver module, refer to the [Open-to-Wireless Solution Datasheet](#). These documents can be found on our web site.

Sensor Dimensions



Product Specifications

General		Sensor Data	
Power Supply	Energy harvesting from ambient light	Temperature Sensor	
Optional Battery	Type ER14250; 1/2AA, Lithium 3.6V/1.1Ah	- Type	Pt1000 (1KΩ @ 0°C; 32°F)
Environmental		- Sensor Range	0°C to 40°C; 32°F to 104°F, linear
Operating Temperature	5°C to 40°C; 41°F to 104°F	- Value Range	255 to 0
Storage Temperature	-20°C to 57°C; -4°F to 135°F	- Accuracy	±0.5°C; ±0.9°F
Relative Humidity	0 to 95% Non-condensing	- Resolution	8 Bit; 0.15°C; 0.27°F
Enclosure		Occupant Controls Data	
Material	ABS type PA-765A	- Occupancy override	1 Bit
Color	Off white	- Setpoint adjustment	8 Bit; Linear Potentiometer, 0 - 255
Dimensions (overall)	4.62" x 3.29" x 1.58" (117mm x 84mm x 40mm)	- Fan speed selection	8 Bit; 5-positions:
Shipping Weight	TBD 0.4lbs (0.18kg)		Position: Value Range:
Installation	Double-sided foam tape		- Auto 210 to 255
	Wall mounting through mounting holes		- Off 190 to 209
	(see figure above for hole positions)		- Fan Speed 1 165 to 189
			- Fan Speed 2 145 to 164
			- Fan Speed 3 0 to 144

Product Specifications (continued)

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ¹	UL94V-1



Electromagnetic Compatibility

Allure ECW-Sensor 315MHz

- FCC	This device complies with FCC rules
- IC	part 15.231
	RSS-210

Allure ECW-Sensor 868MHz

- CE -Directives	Electromagnetic Compatibility Directive 2004/108/EC
	Radio and Telecommunications Terminal Equipment Directive R&TTE 1999/5/EC
-Standards Used	ETSI EN 301 489-1: V1.6.1
	ETSI EN 301 489-3: V1.4.1
	ETSI EN 50 731 : 2002
	ETSI EN 300 220-1: V2.1.1
	ETSI EN 300 220-2 : V2.1.2
-Recommendation	ERC Recommendation 70-03: 2009-02



Communications

Communication Protocol	EnOcean 4BS Telegram
Power Output	10mW
Communication Frequency	
- Allure ECW-Sensor 315MHz	315MHz
- Allure ECW-Sensor 868MHz	868.3MHz
EnOcean Communication ²	
	EEP:
- Allure ECW-Sensor	07-02-05
- Allure ECW-Sensor-O	07-10-0C
- Allure ECW-Sensor-S	07-10-03
- Allure ECW-Sensor-SO	07-10-05
- Allure ECW-Sensor-SOF	07-10-01
- Manufacturer ID	0h009
Transmit Interval Time	1, 10, 100; Jumper selectable
- Default	10
Wake-Up Cycle Time	1, 10, 100 seconds; Jumper selectable
- Default	100 Seconds

1. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
2. From EnOcean Equipment Profiles (EEP) V2.0, EnOcean GmbH.

Total Quality Commitment

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Applications

- Controls rooftop and self-contained units, providing:
 - Single stage and multi stage temperature control
 - RH control
- Improves energy efficiency when used with the optional PIR motion detector cover by automatically adjusting temperature setpoints based on a zone's occupancy mode

Features & Benefits

- Internal embedded RH sensor and remote RH input with humidification and dehumidification sequences of operation, providing proportional humidity control¹
- Remote room and outdoor temperature sensors with system mode lock out, override, and humidity set point reset¹
- Remote discharge air sensor input for monitoring system efficiency
- 0 to 10V DC economizer output for retrofit opportunities¹
- Smart fan operation saves energy during night mode
- Compatible with an optional PIR motion detector cover, bringing advanced occupancy functionality and energy savings
- Up to 2 software configurable digital inputs for monitoring filter status, activating a remote temporary occupancy switch, or acting as a general purpose service indicator
- Configurable auxiliary SPST output switch for lighting, exhaust fan or fresh air control
- Intuitive, menu-driven programming with 7 day scheduling and 6 hour typical clock reserve time in case of power loss¹
- Lockable keypads for tamper proofing

1. Specific models only, check table on second page for details.

Overview

The ECL-STAT-RT, ECB-STAT-RT, and ECW-STAT-RT series represent three thermostat families specifically designed for single stage and multi stage control of heating and cooling equipment such as rooftop and self-contained units. In particular, the ECL-STAT-RT series uses the LonTalk® communication protocol and is LONMARK® certified. The ECB-STAT-RT series uses the BACnet® MS/TP communication protocol and is BTL® listed as an Application Specific Controller (B-ASC). Lastly, the ECW-STAT-RT series communicates over a wireless mesh network.

Every thermostat model has an internal temperature sensor and some models offer relative humidity control. For more advanced applications, there are models that contain economizer control logic for proportional damper economizer actuators. All thermostats can be equipped with an optional PIR motion detector cover for advanced occupancy functionality.

All thermostat families can be configured using Distech Controls' EC-Net^{AX}, an open multiprotocol integration solution that is powered by the Niagara^{AX} Framework®. In particular, the ECL-STAT-RT and ECB-STAT-RT families can also be configured using the EC-Configure wizard. Furthermore, the ECL-STAT-RT family can also be configured using the EC-Configure plug-in, another configuration interface that is accessible through any LNS®-based software, such as Distech Controls' Lonwatcher 3.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Models Available

Model	EC(α)-STAT-RT1	EC(α)-STAT-RT1P	EC(α)-STAT-RT2	EC(α)-STAT-RT2P	EC(α)-STAT-RT2E	EC(α)-STAT-RT2EP	EC(α)-STAT-RT2H	EC(α)-STAT-RT2HP
1 digital input								
2 digital inputs								
1 remote room sensor input								
1 remote outdoor sensor input								
1 remote mixed air sensor input								
0-10V DC remote humidity sensor input								
0-10V DC remote high limit humidity sensor input								
RH sensor (built-in)								
1 digital auxiliary output								
0-10V DC economizer output								
0-10V DC humidification output								
1 dehumidification output								
Cooling stage 1								
Cooling stage 2								
Heating stage 1								
Heating stage 2								
Smart fan								
PIR motion detector ready								
Programmable								
Scheduling								
Product Number	CDIV/-7600A50(β)1	CDIV/-7652A50(β)1	CDIV/-7600B50(β)1	CDIV/-7652B50(β)1	CDIV/-7605B50(β)1	CDIV/-7656B50(β)1	CDIV/-7607B50(β)1	CDIV/-7657B50(β)1

Recommended Applications

Model	EC(α)-STAT-RT1	EC(α)-STAT-RT1P	EC(α)-STAT-RT2	EC(α)-STAT-RT2P	EC(α)-STAT-RT2E	EC(α)-STAT-RT2EP	EC(α)-STAT-RT2H	EC(α)-STAT-RT2HP
1 heating/ 1 cooling stage								
2 heating/ 2 cooling stages								
Economizer								
Humidity control								
α represents either L for LONWORKS, B for BACnet, or W for Wireless								
β represents either E for LONWORKS, B for BACnet, or W for Wireless								

Thermostat Covers – Optional

Allure PIR Motion Detector Cover



RTxxx/HPx Allure PIR Motion Allure PIR motion detector cover for all roof top and heat pump thermostat models
Detector Cover

Allure Cover



RTxxx/HPx Allure Cover

Allure cover for all roof top and heat pump thermostat models

For replacing Traditional covers on thermostats in existing installations in order to have a uniform Allure look across all wall units.

Traditional Cover



RTxxx Traditional Cover

Traditional cover for all roof top thermostat models

For replacing Allure covers on thermostats that will be used as replacements or additions in existing installations where there is already a uniform Traditional look across all wall units.

Wireless Card (Required for ECW-STAT-RT Models Only)



ECW-STAT Add-On Card w/Whip Antenna Add-on card with whip antenna

ECW-STAT Add-On Card w/Remote Antenna Add-on card with remote antenna

Add-on card needs to be installed in an EC-BOS-2^{AX} or EC-BOS-6^{AX} for communication with wireless thermostat models. JAR file is available free of charge and is included in Distech Controls EC-NET-AX Support Package.

Wireless Repeater



ECW-STAT Repeater

Repeater for communication with out-of-range wireless thermostat models

Wireless Survey Tool



ECW-STAT Survey Tool

Kit for measuring signal strength of wireless transmissions. Used to establish suitable locations for installation of wireless thermostat models

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multiprotocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS[®], BACnet[®], ZigBee[™], and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



LNS[®] TURBO Edition

LONWORKS Network Services (LNS)

LNS[®] is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

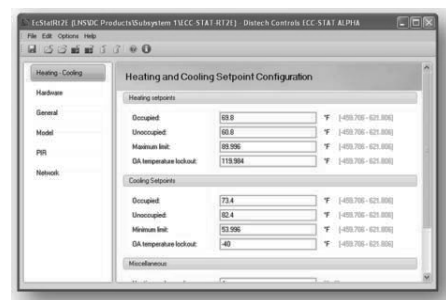
EC-Net^{AX} Wizards and LNS Plug-Ins

EC-Configure EC-Net^{AX} Wizards (ECL-STAT-RT and ECB-STAT-RT models only)

Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Configure EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.

EC-Configure LNS Plug-in (ECL-STAT-RT models only)

Similar to an EC-Configure EC-Net^{AX} Wizard, the EC-Configure LNS Plug-in is a user-friendly configuration interface, which is accessible through any LNS[®]-based software, such as Distech Controls' Lonwatcher 3.



Complementary Products

Temperature Sensors



Allure EC-SENSOR
Allure EC-SENSOR-O

Room temperature sensor with communication jack
Room temperature sensor with occupancy override button and communication jack



SS Plate Wall Sensor
Tamper Proof SS Plate Wall Sensor

Room temperature sensor with stainless steel plate cover
Room temperature sensor with stainless steel plate cover and tamper proof screws



Duct Probe Sensor

Duct temperature sensor with various enclosure types and probe lengths



Flexible Duct Averaging Sensor
Copper Duct Averaging Sensor

Duct temperature sensor with various enclosure types and cable lengths
Duct temperature sensor with various enclosure types and tube lengths



Outside Air Sensor

Outside air temperature sensor with various enclosure types

Humidity Sensors



2% Accuracy Room Sensor
3% Accuracy Room Sensor
5% Accuracy Room Sensor

Room relative humidity sensor (2%) with temperature sensor, override control and LCD options
Room relative humidity sensor (3%) with temperature sensor, override control and LCD options
Room relative humidity sensor (5%) with temperature sensor, override control and LCD options



2% Accuracy Duct Sensor
3% Accuracy Duct Sensor
5% Accuracy Duct Sensor

Duct relative humidity sensor (2%) with temperature sensor and LCD options
Duct relative humidity sensor (3%) with temperature sensor and LCD options
Duct relative humidity sensor (5%) with temperature sensor and LCD options

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.com or contact sales@distech-controls.com.

Dimensions



Units Legend: inches

STAT-RT Series

www.distech-controls.com

Specifications			
Power		Inputs	
Voltage	19-30V AC; 50/60Hz; Class 2	Digital Input	
Maximum Consumption	2VA	- EC-STAT-RT2H and EC-STAT-RT2HP models	Relay dry contact only across C terminal to DI1
Interoperability		- All other models	Relay dry contact only across C terminal to DI1 or DI2
ECL-STAT-RT series:		Analog High Limit and Remote Humidity Inputs ¹	0-10V DC into 10KΩ input load
Communication Channel	LonTalk protocol TP/FT-10; 78Kbps	Outputs	
LONMARK Interoperability Guidelines	Version 3.4	Contact Output Rating	Each relay output (Y1, Y2, G, W1, W2 and AU) has: 30V AC, 1A maximum 30V AC, 3A in-rush
LONMARK Functional Profile	Space Comfort Controller #8500	Humidification Analog Output ¹	
ECB-STAT-RT series:		- Rating	0-10V DC into 2KΩ resistance min.
Communication	BACnet MS/TP	- Accuracy	±3% typical
BACnet Profile	B-ASC	Economizer Analog Output ¹	
Baud Rate	9600, 19200, 38400, or 76800 bps	- Rating	0-10V DC into 2KΩ resistance min.
Address	BACnet MS/TP MAC address; adjustable range from 1 – 127	- Accuracy	±3% typical
ECW-STAT-RT series:		LCD Display	
Communication	Wireless	Type	Backlit LCD display
Addressing	Adjustable range from 0 – 254	Display Area	2 rows of 8 characters each
Frequency (depends on channel parameter)	2.4GHz, 802.15.4	Functionality	
Hardware		Resolution	
Memory	EEPROM	- Temperature	±0.1°C (±0.2°F)
Backup (for programmable models only)	Super capacitor, good for approx. 6 hours	- Humidity ¹	±0.1%
Environmental		Control Accuracy	
Operating Temperature	0°C to 50°C; 32°F to 122°F	- Temperature	±0.5°C (±0.9°F) @ 21°C (70°F) typ. calibrated
Storage Temperature	-30°C to 50°C; -22°F to 122°F	- Humidity ¹	±5% RH from 20-0% RH at 10-32°C (50-90°F)
Relative Humidity	0 to 95% non-condensing	Temp and Humidity Ranges	
Enclosure		- Occ and Unocc Setpoints	
Material	ABS Resin	Cooling	12.0-37.5°C (54-100°F)
Color	White	Heating	4.5-32.0°C (40-90°F)
Dimensions	4.93" x 3.41" x 1.43" (124mm x 85mm x 36mm)	- Humidification Setpoint ¹	10-90% RH
Shipping Weight	0.75lbs (0.34kg)	- Dehumidification Setpoint ¹	15-95% RH
Agency Approvals		- Room Air Temperature	-40-50°C (-40-122°F)
UL	UL873 (US) and CSA C22.2 No.24 (Canada)	- Outdoor Air Temperature	-40-50°C (-40-122°F)
Industry Canada	ICES-003 (Canada)	Proportional Band for Room Temperature Control	Factory set, heating and cooling at 1.1°C (2.0°F)
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)	Temperature Sensor Type	Local 10KΩ NTC thermistor
C-Tick	AS/NZS CISPR 22 Compliant (Australia/New Zealand)	Electromagnetic Compatibility	
ECW-STAT-RT Series only		CE	EMC Directive 89/336/EEC (European Union)
FCC	Compliant to Part 15, Subpart C	FCC	Compliant with Part 15



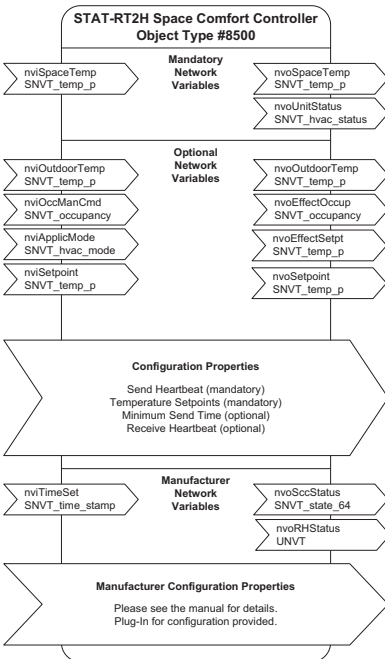
1. Specific models only, check table on second page for details.



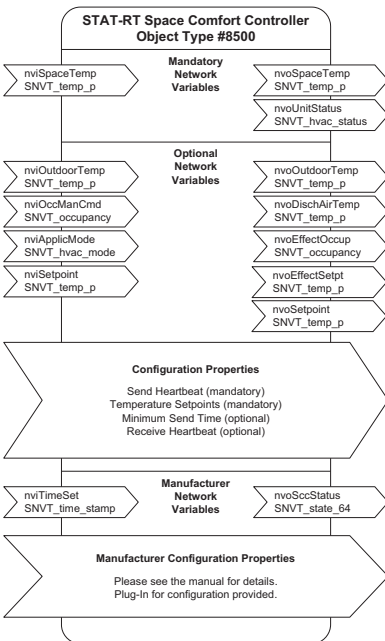
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

Communication Protocols and Standards

LONMARK Objects and Network Variables (STAT-RT2H and STAT-RT2HP Models Only)



LONMARK Objects and Network Variables (All Other Models)



BACnet Objects and Services

For information on the BACnet objects and services, refer to the BACnet Protocol Implementation Conformance Statement (PICS).

Specifications subject to change without notice.

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LONWORKS, LONMARK, LonTalk, and LNS are registered trademarks of Echelon Corporation;
BACnet is a registered trademark of ASHRAE; BTL is a registered trademark of the BACnet Manufacturers Association;
Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; ZigBee is a registered trademark of ZigBee Alliance;
All other trademarks are property of their respective owners.



05DI-DSSTATR-10

STAT-RT Series

www.distech-controls.com



Applications

- Controls heat pump units, providing single stage and multi stage temperature control
- Improves energy efficiency when used with the optional PIR motion detector cover by automatically adjusting temperature setpoints based on a zone's occupancy mode

Features & Benefits

- 2-stage cooling and 3-stage heating control with an integrated changeover function
- Remote room and outdoor sensors with heat pump balance point settings, temperature averaging, and override
- Comfort mode and economy mode – economy mode maximizes heat pump use before auxiliary heating turns on
- Compressor/auxiliary interlock to prevent high pressure trip when the coil is downstream of the auxiliary heat source
- Remote discharge air sensor input for monitoring system efficiency
- Smart fan operation saves energy during night mode
- Compatible with an optional PIR motion detector cover, bringing advanced occupancy functionality and energy savings
- 2 software configurable digital inputs for monitoring filter status, activating a remote temporary occupancy switch, or acting as a general purpose service indicator
- Configurable auxiliary SPST output switch for lighting, exhaust fan or fresh air control
- Intuitive, menu-driven programming with 7 day scheduling and 6 hour typical clock reserve time in case of power loss¹
- Lockable keypads for tamper proofing

1. Specific models only, check table on second page for details.

Overview

The ECL-STAT-HP, ECB-STAT-HP, and ECW-STAT-HP series represent three thermostat families specifically designed for single stage and multi stage control of heating and cooling equipment such as heat pump units. In particular, the ECL-STAT-HP series uses the LonTalk® communication protocol and is LONMARK® certified. The ECB-STAT-HP series uses the BACnet® MS/TP communication protocol and is BTL® listed as an Application Specific Controller (B-ASC). Lastly, the ECW-STAT-HP series communicates over a wireless mesh network.

With adjustable high and low balance points, heat pump or auxiliary heating can be limited based on outside air temperature. Moreover, when a thermostat is in “economy” mode, heat pump usage is maximized before auxiliary heating turns on. All thermostats can be equipped with an optional PIR motion detector cover for advanced occupancy functionality.

All thermostat families can be configured using Distech Controls' EC-Net^{AX}, an open multiprotocol integration solution that is powered by the Niagara^{AX} Framework®. In particular, the ECL-STAT-HP and ECB-STAT-HP families can also be configured using the EC-Configure wizard. Furthermore, the ECL-STAT-HP family can also be configured using the EC-Configure plug-in, another configuration interface that is accessible through any LNS®-based software, such as Distech Controls' Lonwatcher 3.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Models Available

Model	EC(α)-STAT-HP	EC(α)-STAT-HPP
2 digital inputs	■	■
1 remote room sensor input	■	■
1 remote outdoor sensor input	■	■
1 remote mixed air sensor input	■	■
1 digital auxiliary output	■	■
Compressor stage 1	■	■
Compressor stage 2	■	■
Auxiliary heat stage	■	■
Reversing valve operation	■	■
Smart fan	■	■
PIR motion detector ready	■	■
Programmable		■
Scheduling		■
Product Number	CDIVI-7600H50(β)1	CDIVI-7652H50(β)1

Recommended Applications

Model	EC(α)-STAT-HP	EC(α)-STAT-HPP
3 heating/ 2 cooling stages	■	■

α represents either L for LONWORKS, B for BACnet, or W for Wireless

β represents either E for LONWORKS, B for BACnet, or W for Wireless

Thermostat Covers – Optional

Allure PIR Motion Detector Cover



RTxxx/HPx Allure PIR Motion Allure PIR motion detector cover for all roof top and heat pump thermostat models
Detector Cover

Allure Cover



RTxxx/HPx Allure Cover

Allure cover for all roof top and heat pump thermostat models

For replacing Traditional covers on thermostats in existing installations in order to have a uniform Allure look across all wall units.

Traditional Cover



HPx Traditional Cover

Traditional cover for all heat pump thermostat models

For replacing Allure covers on thermostats that will be used as replacements or additions in existing installations where there is already a uniform Traditional look across all wall units.

Wireless Card (Required for ECW-STAT-HP Models Only)



ECW-STAT Add-On Card w/Whip Antenna Add-on card with whip antenna

ECW-STAT Add-On Card w/Remote Antenna Add-on card with remote antenna

Add-on card needs to be installed in an EC-BOS-2^{AX} or EC-BOS-6^{AX} for communication with wireless thermostat models. JAR file is available free of charge and is included in Distech Controls EC-NET-AX Support Package.

Wireless Repeater



ECW-STAT Repeater

Repeater for communication with out-of-range wireless thermostat models

Wireless Survey Tool



ECW-STAT Survey Tool

Kit for measuring signal strength of wireless transmissions. Used to establish suitable locations for installation of wireless thermostat models

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS[®], BACnet[®], ZigBee[™], and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



LNS[®] TURBO Edition

LONWORKS Network Services (LNS)

LNS[®] is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

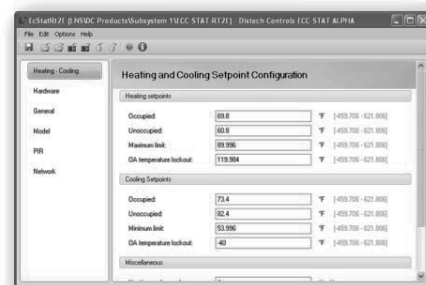
EC-Net^{AX} Wizards and LNS Plug-Ins

EC-Configure EC-Net^{AX} Wizards (ECL-STAT-HP and ECB-STAT-HP models only)

Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Configure EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.

EC-Configure LNS Plug-in (ECL-STAT-HP models only)

Similar to an EC-Configure EC-Net^{AX} Wizard, the EC-Configure LNS Plug-in is a user-friendly configuration interface, which is accessible through any LNS[®]-based software, such as Distech Controls' Lonwatcher 3.



Complementary Products

Temperature Sensors



Allure EC-SENSOR
Allure EC-SENSOR-O

Room temperature sensor with communication jack
Room temperature sensor with occupancy override button and communication jack



SS Plate Wall Sensor
Tamper Proof SS Plate Wall Sensor

Room temperature sensor with stainless steel plate cover
Room temperature sensor with stainless steel plate cover and tamper proof screws



Duct Probe Sensor

Duct temperature sensor with various enclosure types and probe lengths



Flexible Duct Averaging Sensor
Copper Duct Averaging Sensor

Duct temperature sensor with various enclosure types and cable lengths
Duct temperature sensor with various enclosure types and tube lengths



Outside Air Sensor

Outside air temperature sensor with various enclosure types

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.com or contact sales@distech-controls.com.

Dimensions



Units Legend: inches

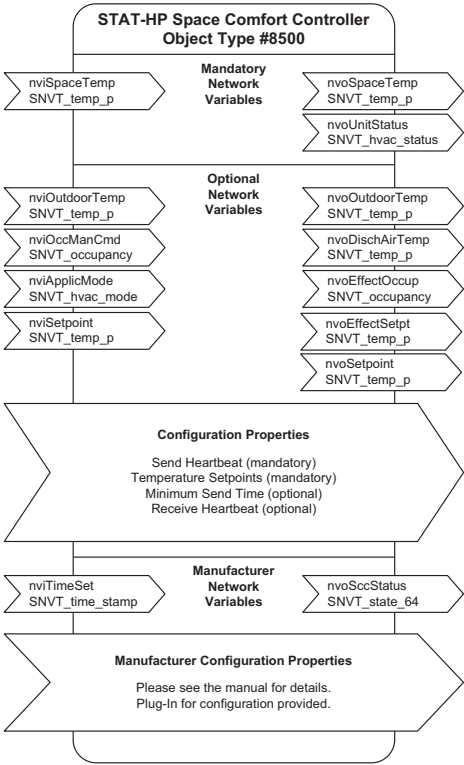
STAT-HP Series

www.distech-controls.com

Specifications			
Power		Inputs	
Voltage	19-30V AC; 50/60Hz; Class 2	Digital Input	Relay dry contact only across C terminal to DI1 or DI2
Maximum Consumption	2VA		
Interoperability		Outputs	
ECL-STAT-HP series:		Contact Output Rating	Each relay output (Y1, Y2, G, W1, and AU) has:
Communication	LonTalk protocol		30V AC, 1A maximum
Channel	TP/FT-10; 78Kbps		30V AC, 3A in-rush
LONMARK Interoperability Guidelines	Version 3.4		
LONMARK Functional Profile	Space Comfort Controller #8500		
ECB-STAT-HP series:			
Communication	BACnet MS/TP		
BACnet Profile	B-ASC		
Baud Rate	9600, 19200, 38400, or 76800 bps		
Addressing	BACnet MS/TP MAC address; adjustable range from 1 – 127		
ECW-STAT-HP series:			
Communication	Wireless		
Addressing	Adjustable range from 0 – 254		
Frequency (depends on channel parameter)	2.4GHz, 802.15.4		
Hardware		LCD Display	
Memory	EEPROM	Type	Backlit LCD display
Backup (for programmable model only)	Super capacitor, good for approx. 6 hours	Display Area	2 rows of 8 characters each
Enclosure		Environmental	
Material	ABS Resin	Operating Temperature	0°C to 50°C; 32°F to 122°F
Color	White	Storage Temperature	-30°C to 50°C; -22°F to 122°F
Dimensions	4.93" x 3.41" x 1.43" (124mm x 85mm x 36mm)	Relative Humidity	0 to 95% non-condensing
Shipping Weight	0.75lbs (0.34kg)		
Agency Approvals		Functionality	
UL	UL873 (US) and CSA C22.2 No.24 (Canada)	Resolution	±0.1°C (±0.2°F)
Industry Canada	ICES-003 (Canada)	Control Accuracy	±0.5°C (±0.9°F) @ 21°C (70°F) typ. calibrated
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)	Sensor Ranges	
C-Tick	AS/NZS CISPR 22 Compliant (Australia/New Zealand)	- Occ and Unocc Setpoints	
ECW-STAT-HP Series only		Cooling	12.0-37.5°C (54-100°F)
FCC	Compliant to Part 15, Subpart C	Heating	4.5-32.0°C (40-90°F)
		- Room Air Temperature	-40-50°C (-40-122°F)
		- Outdoor Air Temperature	-40-50°C (-40-122°F)
		Proportional Band for Room	Factory set, heating and cooling at 1.1°C (2.0°F)
		Temperature Control	
		Sensor Type	Local 10KΩ NTC thermistor
		Electromagnetic Compatibility	
		CE	EMC Directive 89/336/EEC (European Union)
		FCC	Compliant with Part 15
		OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.	
		Communication Protocols and Standards	



LONMARK Objects and Network Variables



BACnet Objects and Services

For information on the BACnet objects and services, refer to the BACnet Protocol Implementation Conformance Statement (PICS).

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BACnet is a registered trademark of ASHRAE; BTL is a registered trademark of the BACnet Manufacturers Association;
Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; ZigBee is a registered trademark of ZigBee Alliance;
All other trademarks are property of their respective owners.



05DI-DSSTATH-10

STAT-HP Series

www.distech-controls.com



Overview

The ECL-STAT-FC, ECB-STAT-FC, and ECW-STAT-FC series represent three thermostat families specifically designed to handle fan coil applications. In particular, the ECL-STAT-FC series uses the LonTalk® communication protocol and is LONMARK® certified. The ECB-STAT-FC series uses the BACnet® MS/TP communication protocol and is BTL® listed as an Application Specific Controller (B-ASC). Lastly, the ECW-STAT-FC series communicates over a wireless mesh network.

Every thermostat model has an internal temperature sensor and some models have an integrated relative humidity sensor for dehumidification.

With three configurable inputs and one configurable auxiliary output, many advanced control functions are possible. In addition, either two analog or two floating control outputs are available, depending on the thermostat model. All thermostats can control up to three fan speeds, average temperature readings from multiple remote sensors, as well as provide advanced active occupancy logic through an optional attachable PIR motion detector cover.

All thermostat families can be configured using Distech Controls' EC-Net^{AX}, an open multiprotocol integration solution that is powered by the Niagara^{AX} Framework®. In particular, the ECL-STAT-FC and ECB-STAT-FC families can also be configured using the EC-Configure wizard. Furthermore, the ECL-STAT-FC family can also be configured using the EC-Configure plug-in, another configuration interface that is accessible through any LNS®-based software, such as Distech Controls' Lonwatcher 3.

Applications

- Meets the requirements of fan coil applications, such as:
 - 2-pipe for cooling only or for heating only
 - 2-pipe for cooling with reheat, or for heating with reheat
 - 4-pipe cooling and heating
 - 4-pipe cooling and heating with reheat
- Improves energy efficiency when used with the optional PIR motion detector cover by automatically adjusting temperature setpoints based on a zone's occupancy mode

Features & Benefits

- Integrated RH sensor for increased occupant comfort through dehumidification¹
- Control of up to 3 fan speeds with ability to enter auto fan-speed mode
- 3 configurable inputs for added functionality: 2 digital inputs for remote night setback, occupancy sensing, door/window contact, remote override, or filter alarm, and 1 input for dry contact or analog sensor changeover
- 1 configurable auxiliary SPST switch for controlling lighting or auxiliary reheat
- 2 outputs for analog (0 – 10V DC) control or 2 outputs for floating and On/Off control (depends on model)
- Remote temperature sensing capable of averaging multiple temperature readings
- Compatible with an optional PIR motion detector cover, bringing advanced occupancy functionality and energy savings
- Easy connections for inputs and outputs, with removable terminals
- Backlit LCD display with status LEDs and dedicated function menu keys for simple operation
- Adjustable maximum heating and minimum cooling setpoints, as well as occupancy setpoints

1. Specific models only, check table on second page for details.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Models Available

Model	EC(α)-STAT-FC-AC	EC(α)-STAT-FC-ACH	EC(α)-STAT-FC-AH	EC(α)-STAT-FC-AHH	EC(α)-STAT-FC-FC	EC(α)-STAT-FC-FCH	EC(α)-STAT-FC-FH	EC(α)-STAT-FC-FHH
2 digital inputs	■	■	■	■	■	■	■	■
1 universal input	■	■	■	■	■	■	■	■
1 remote sensor input	■	■	■	■	■	■	■	■
2 analog (0 – 10V DC) outputs	■	■	■	■	■	■	■	■
2 floating outputs	■	■	■	■	■	■	■	■
1 digital auxiliary output	■	■	■	■	■	■	■	■
3 fan-speed control	■	■	■	■	■	■	■	■
Internal RH sensor	■	■	■	■	■	■	■	■
PIR motion detector ready	■	■	■	■	■	■	■	■
Product Number	CDIV/-7300F50(β)1	CDIV/-7350F50(β)1	CDIV/-7305F50(β)1	CDIV/-7355F50(β)1	CDIV/-7300C50(β)1	CDIV/-7350C50(β)1	CDIV/-7305C50(β)1	CDIV/-7355C50(β)1

Recommended Applications

Model	EC(α)-STAT-FC-AC	EC(α)-STAT-FC-ACH	EC(α)-STAT-FC-AH	EC(α)-STAT-FC-AHH	EC(α)-STAT-FC-FC	EC(α)-STAT-FC-FCH	EC(α)-STAT-FC-FH	EC(α)-STAT-FC-FHH
2 & 4 pipe analog	■	■	■	■	■	■	■	■
2 & 4 pipe floating and On/Off	■	■	■	■	■	■	■	■
Market – Commercial/Institution	■	■	■	■	■	■	■	■
Market – Hotel/Lodging	■	■	■	■	■	■	■	■
α represents either L for LONWORKS, B for BACnet, or W for Wireless								
β represents either E for LONWORKS, B for BACnet, or W for Wireless								

Thermostat Covers – Optional

Allure PIR Motion Detector Cover



FC-xCx Allure PIR Motion Detector Cover

Allure PIR motion detector cover for all commercial fan coil thermostat models

FC-xHx Allure PIR Motion Detector Cover

Allure PIR motion detector cover for all hotel fan coil thermostat models

Allure Cover



FC-xCx Allure Cover

Allure cover for all commercial fan coil thermostat models

FC-xHx Allure Cover

Allure cover for all hotel fan coil thermostat models

For replacing Traditional covers on thermostats in existing installations in order to have a uniform Allure look across all wall units.

Traditional Cover



FC-xCx Traditional Cover

Traditional cover for all commercial fan coil thermostat models

FC-xHx Traditional Cover

Traditional cover for all hotel fan coil thermostat models

For replacing Allure covers on thermostats that will be used as replacements or additions in existing installations where there is already a uniform Traditional look across all wall units.

Wireless Card (Required for ECW-STAT-FC Models Only)



ECW-STAT Add-On Card w/Whip Antenna

Add-on card with whip antenna

ECW-STAT Add-On Card w/Remote Antenna

Add-on card with remote antenna

Add-on card needs to be installed in an EC-BOS-2^{AX} or EC-BOS-6^{AX} for communication with wireless thermostat models. JAR file is available free of charge and is included in Distech Controls EC-NET-AX Support Package.

Wireless Repeater



ECW-STAT Repeater

Repeater for communication with out-of-range wireless thermostat models

Wireless Survey Tool



ECW-STAT Survey Tool

Kit for measuring signal strength of wireless transmissions. Used to establish suitable locations for installation of wireless thermostat models

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multiprotocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS[®], BACnet[®], ZigBee[™], and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



LNS[®] TURBO Edition

LONWORKS Network Services (LNS)

LNS[®] is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

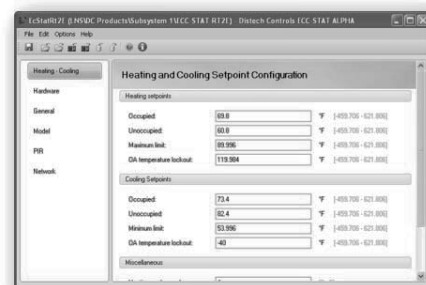
EC-Net^{AX} Wizards and LNS Plug-Ins

EC-Configure EC-Net^{AX} Wizards (ECL-STAT-FC and ECB-STAT-FC models only)

Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Configure EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.

EC-Configure LNS Plug-in (ECL-STAT-FC models only)

Similar to an EC-Configure EC-Net^{AX} Wizard, the EC-Configure LNS Plug-in is a user-friendly configuration interface, which is accessible through any LNS[®]-based software, such as Distech Controls' Lonwatcher 3.



Complementary Products

Temperature Sensors



Allure EC-SENSOR
Allure EC-SENSOR-O

Room temperature sensor with communication jack
Room temperature sensor with occupancy override button and communication jack



SS Plate Wall Sensor
Tamper Proof SS Plate Wall Sensor

Room temperature sensor with stainless steel plate cover
Room temperature sensor with stainless steel plate cover and tamper proof screws

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.com or contact sales@distech-controls.com.

Dimensions



Units Legend: inches

Specifications

Power		Inputs	
Voltage	19-30V AC; 50/60Hz; Class 2	Binary inputs	Dry contact across terminal BI1, BI2, and UI3 to Scom
Maximum Consumption	2VA		
Interoperability		Outputs	
ECL-STAT-FC series:		Fan relay output	30V AC, 1A maximum, 3A in-rush
Communication	LonTalk protocol	Valve triac output ¹	30V AC, 1A maximum, 3A in-rush
Channel	TP/FT-10; 78Kbps	Valve analog output ¹	0-10V DC into 2KΩ resistance min.
LONMARK Interoperability Guidelines	Version 3.4	Auxiliary output	Dry contact
LONMARK Functional Profile	Space Comfort Controller #8500		
ECB-STAT-FC series:		Functionality	
Communication	BACnet MS/TP	Temperature Sensor	
BACnet Profile	B-ASC	- Type	Local 10KΩ NTC thermistor
Baud Rate	9600, 19200, 38400, or 76800 bps	- Resolution	±0.1°C (±0.2°F)
Addressing	BACnet MS/TP MAC address; adjustable range from 1 – 127	- Control Accuracy	±0.5°C (±0.9°F) @ 21°C (70°F) typ. calibrated
ECW-STAT-FC series:		Humidity Sensor ¹	
Communication	Wireless	- Type and Calibration	Single point calibrated bulk polymer
Addressing	Adjustable range from 0 – 254	- Precision	Reading range: 10-90% RH non-condensing
Frequency (depends on channel parameter)	2.4GHz, 802.15.4	- Stability	10-20%; precision is 10%
			20-80%; precision is 5%
			80-90%; precision is 10%
			Less than 1.0% yearly (typical drift)
Environmental		Temp and Humidity Ranges	
Operating Temperature	0°C to 50°C; 32°F to 122°F	- Occ, Stand-by, and Unocc cooling Setpoint	12.0-37.5°C (54-100°F)
Storage Temperature	-30°C to 50°C; -22°F to 122°F	- Occ, Stand-by, and Unocc heating Setpoint	4.5-32.0°C (40-90°F)
Relative Humidity	0 to 95% non-condensing	- Dehumidification Setpoint ¹	30-95% RH
		- Room Air Temperature	-40-50°C (-40-122°F)
		- Outdoor Air Temperature	-40-50°C (-40-122°F)
		Proportional Band for Room Temperature Control	Factory set, heating and cooling at 1.8°C (3.2°F)
		Memory	EEPROM
Enclosure		LCD Display	
Material	ABS Resin	Type	Backlit LCD display
Color	White	Display Area	2 rows of 8 characters each
Dimensions	4.93" x 3.41" x 1.43" (124mm x 85mm x 36mm)		
Shipping Weight	0.75lbs (0.34kg)		
Agency Approvals		Electromagnetic Compatibility	
UL	UL873 (US) and CSA C22.2 No.24 (Canada)	CE	EMC Directive 89/336/EEC (European Union)
Industry Canada	ICES-003 (Canada)	FCC	Compliant with Part 15
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)		
C-Tick	AS/NZS CISPR 22 Compliant (Australia/New Zealand)		
ECW-STAT-FC Series only			
FCC	Compliant to Part 15, Subpart C		



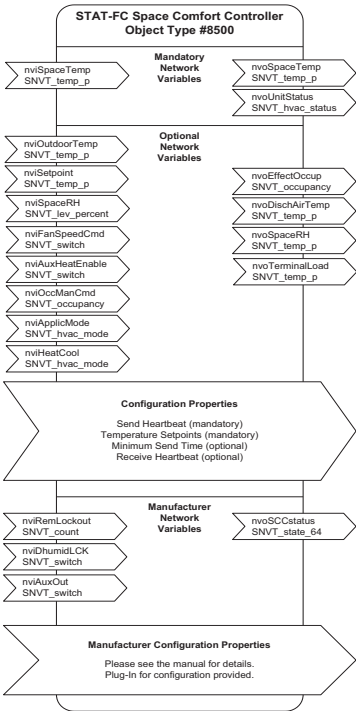
1. Specific models only, check table on second page for details.



OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

Communication Protocols and Standards

LONMARK Objects and Network Variables



BACnet Objects and Services

For information on the BACnet objects and services, refer to the BACnet Protocol Implementation Conformance Statement (PICS).

Specifications subject to change without notice.

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BACnet is a registered trademark of ASHRAE; BTL is a registered trademark of the BACnet Manufacturers Association;

Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; ZigBee is a registered trademark of ZigBee Alliance;

All other trademarks are property of their respective owners.



05DI-DSSTATF-10

STAT-FC Series

www.distech-controls.com



Applications

- Meets the requirements of local zoning applications, providing control of:
 - Local hydronic reheat valves, with or without sensor changeover.
 - Pressure dependent VAV damper actuators, with options such as local reheat and sensor changeover.
- Improves energy efficiency when used with the optional PIR motion detector cover by automatically adjusting temperature setpoints based on a zone's occupancy mode

Features & Benefits

- 3 configurable inputs for added functionality: 2 digital inputs for remote night setback, occupancy sensing, door contact, remote override, or filter alarm, and 1 input for dry contact or analog sensor changeover
- 1 configurable auxiliary SPST switch for controlling lighting or auxiliary reheat
- 2 outputs for analog (0 – 10V DC) control (EC-STAT-ZA models only)
- 2 outputs for floating and On/Off control (EC-STAT-ZF models only)
- Remote temperature sensing capable of averaging multiple temperature readings
- Compatible with an optional PIR motion detector cover, bringing advanced occupancy functionality and energy savings
- Easy connections for inputs and outputs, with removable terminals
- Backlit LCD display with dedicated function menu keys for simple operation
- Adjustable maximum heating and minimum cooling setpoints, as well as occupancy setpoints
- Lockable keypads for tamper proofing
- Non volatile EEPROM memory prevents loss of parameters during power shortage

Overview

The ECL-STAT-ZN, ECB-STAT-ZN, and ECW-STAT-ZN series represent three thermostat families specifically designed to handle zoning applications. In particular, the ECL-STAT-ZN series uses the LonTalk® communication protocol and is LONMARK® certified. The ECB-STAT-ZN series uses the BACnet® MS/TP communication protocol and is BTL® listed as an Application Specific Controller (B-ASC). Lastly, the ECW-STAT-ZN series communicates over a wireless mesh network.

With three configurable inputs and one configurable auxiliary output, many advanced control functions are possible. In addition, either two analog or two floating control outputs are available, depending on the thermostat model. All thermostats can average temperature readings from remote sensors, as well as provide advanced active occupancy logic through an optional attachable PIR motion detector cover.

All thermostat families can be configured using Distech Controls' EC-Net^{AX}, an open multiprotocol integration solution that is powered by the Niagara^{AX} Framework®. In particular, the ECL-STAT-ZN and ECB-STAT-ZN families can also be configured using the EC-Configure wizard. Furthermore, the ECL-STAT-ZN family can also be configured using the EC-Configure plug-in, another configuration interface that is accessible through any LNS®-based software, such as Distech Controls' Lonwatcher 3.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Models Available

Model	EC(α)-STAT-ZA	EC(α)-STAT-ZF
2 digital inputs	■	■
1 universal input	■	■
1 remote sensor input	■	■
2 analog (0 – 10V DC) outputs	■	
2 floating outputs		■
1 digital auxiliary output	■	■
PIR motion detector ready	■	■
Product Number	CDIVI-7200F50(β)1	CDIVI-7200C50(β)1

Recommended Applications

Model	EC(α)-STAT-ZA	EC(α)-STAT-ZF
2 & 4 pipe analog	■	
2 & 4 pipe floating and On/Off		■

α represents either L for LONWORKS, B for BACnet, or W for Wireless

β represents either E for LONWORKS, B for BACnet, or W for Wireless

Thermostat Covers – Optional

Allure PIR Motion Detector Cover



Zx Allure PIR Motion Detector Cover

Allure PIR motion detector cover for all zoning thermostat models

Allure Cover



Zx Allure Cover

Allure cover for all zoning thermostat models

For replacing Traditional covers on thermostats in existing installations in order to have a uniform Allure look across all wall units.

Traditional Cover



Zx Traditional Cover

Traditional cover for all zoning thermostat models

For replacing Allure covers on thermostats that will be used as replacements or additions in existing installations where there is already a uniform Traditional look across all wall units.

Wireless Card (Required for ECW-STAT-ZN Models Only)



ECW-STAT Add-On Card w/Whip Antenna

Add-on card with whip antenna

ECW-STAT Add-On Card w/Remote Antenna

Add-on card with remote antenna

Add-on card needs to be installed in an EC-BOS-2^{AX} or EC-BOS-6^{AX} for communication with wireless thermostat models. JAR file is available free of charge and is included in Distech Controls EC-NET-AX Support Package.

Wireless Repeater



ECW-STAT Repeater

Repeater for communication with out-of-range wireless thermostat models

Wireless Survey Tool



ECW-STAT Survey Tool

Kit for measuring signal strength of wireless transmissions. Used to establish suitable locations for installation of wireless thermostat models

Supported Platforms



EC-Net^{AX}

EC-Net^{AX} is a web-enabled multi-protocol integration solution powered by the Niagara^{AX} Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. EC-Net^{AX}'s open framework creates a common development and management environment for integration of LONWORKS[®], BACnet[®], ZigBee[™], and other protocols. Regardless of manufacturer and protocol, the EC-Net^{AX} system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.



LNS[®] TURBO Edition

LONWORKS Network Services (LNS)

LNS[®] is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LNS-based network management tool that can use Plug-Ins to configure and monitor controllers and devices in the control system.

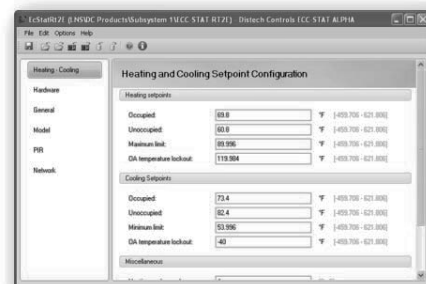
EC-Net^{AX} Wizards and LNS Plug-Ins

EC-Configure EC-Net^{AX} Wizards (ECL-STAT-ZN and ECB-STAT-ZN models only)

Designed for use with EC-Net^{AX} (powered by the Niagara^{AX} Framework), the EC-Configure EC-Net^{AX} Wizards can be used to easily configure a device's parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. Moreover, these wizards can be used to enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.

EC-Configure LNS Plug-in (ECL-STAT-ZN models only)

Similar to an EC-Configure EC-Net^{AX} Wizard, the EC-Configure LNS Plug-in is a user-friendly configuration interface, which is accessible through any LNS[®]-based software, such as Distech Controls' Lonwatcher 3.



Complementary Products

Temperature Sensors



Allure EC-SENSOR
Allure EC-SENSOR-O

Room temperature sensor with communication jack
Room temperature sensor with occupancy override button and communication jack



SS Plate Wall Sensor
Tamper Proof SS Plate Wall Sensor

Room temperature sensor with stainless steel plate cover
Room temperature sensor with stainless steel plate cover and tamper proof screws

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.com or contact sales@distech-controls.com.

Dimensions



Units Legend: inches

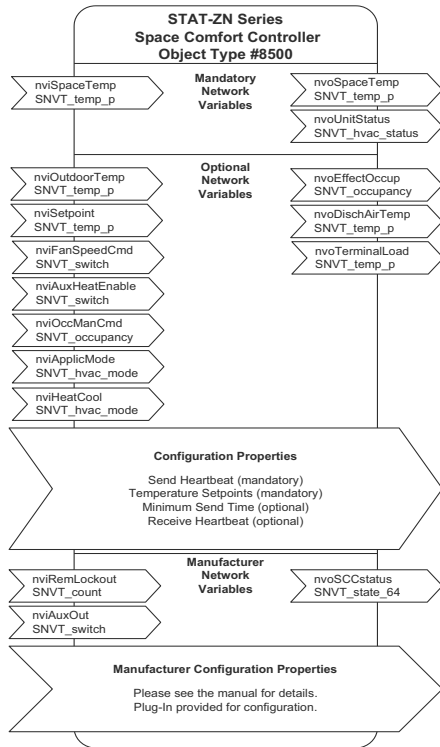
Specifications			
Power		Inputs	
Voltage	19-30V AC; 50/60Hz; Class 2	Binary inputs	Dry contact across terminal BI1, BI2, and UI3 to Scom
Maximum Consumption	2VA		
Interoperability		Outputs	
ECL-STAT-ZN series:		Triac output ¹	30V AC, 1A maximum, 3A in-rush
Communication	LonTalk protocol	Analog output ¹	0-10V DC into 2KΩ resistance min.
Channel	TP/FT-10; 78Kbps	Auxiliary output	Dry contact
LONMARK Interoperability Guidelines	Version 3.4		
LONMARK Functional Profile	Space Comfort Controller #8500		
ECB-STAT-ZN series:		LCD Display	
Communication	BACnet MS/TP	Type	Backlit LCD display
BACnet Profile	B-ASC	Display Area	2 rows of 8 characters each
Baud Rate	9600, 19200, 38400, or 76800 bps		
Addressing	BACnet MS/TP MAC address; adjustable range from 1 – 127		
ECW-STAT-ZN series:		Functionality	
Communication	Wireless	Temperature Sensor	
Addressing	Adjustable range from 0 – 254	- Type	Local 10KΩ NTC thermistor
Frequency (depends on channel parameter)	2.4GHz, 802.15.4	- Resolution	±0.1°C (±0.2°F)
		- Control Accuracy	±0.5°C (±0.9°F) @ 21°C (70°F) typ. calibrated
		Sensor Ranges	
		- Occ, Stand-by, and Unocc cooling Setpoint	12.0-37.5°C (54-100°F)
		- Occ, Stand-by, and Unocc heating Setpoint	4.5-32.0°C (40-90°F)
		- Room Air Temperature	-40-50°C (-40-122°F)
		- Outdoor Air Temperature	-40-50°C (-40-122°F)
		Proportional Band for Room Temperature Control	Factory set, heating and cooling at 1.8°C (3.2°F)
		Memory	EEPROM
Environmental		Electromagnetic Compatibility	
Operating Temperature	0°C to 50°C; 32°F to 122°F	CE	EMC Directive 89/336/EEC (European Union)
Storage Temperature	-30°C to 50°C; -22°F to 122°F	FCC	Compliant with Part 15
Relative Humidity	0 to 95% non-condensing		
Enclosure		OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.	
Material	ABS Resin		
Color	White		
Dimensions	4.93" x 3.41" x 1.43" (124mm x 85mm x 36mm)	Communication Protocols and Standards	
Shipping Weight	0.75lbs (0.34kg)		
Agency Approvals			
UL	UL873 (US) and CSA C22.2 No.24 (Canada)		
Industry Canada	ICES-003 (Canada)		
FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)		
C-Tick	AS/NZS CISPR 22 Compliant (Australia/New Zealand)		
ECW-STAT-ZN Series only			
FCC	Compliant to Part 15, Subpart C		



1. Specific models only, check table on second page for details.



LONMARK Objects and Network Variables



BACnet Objects and Services

For information on the BACnet objects and services, refer to the BACnet Protocol Implementation Conformance Statement (PICS).

Specifications subject to change without notice.

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BACnet is a registered trademark of ASHRAE; BTL is a registered trademark of the BACnet Manufacturers Association;
Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; ZigBee is a registered trademark of ZigBee Alliance;
All other trademarks are property of their respective owners.



05DI-DSSTATZ-10

STAT-ZN Series

www.distech-controls.com



Overview

The ECW-STAT Repeater is a device that is used to repeat a signal within an ECW-STAT wireless mesh network. It is used to extend the wireless network when one or a group of ECW-STATs are out-of-range of the EC-BOS add-on card receiver or the main wireless mesh network. The additional repeater(s) will enable the remote thermostat(s) to establish communication and will act as bridge(s) to the main mesh.

The repeater(s) can typically be installed where most convenient. Either on a wall or even in a suspended ceiling space if required.

Applications

- Extends range of ECW-STAT wireless mesh networks

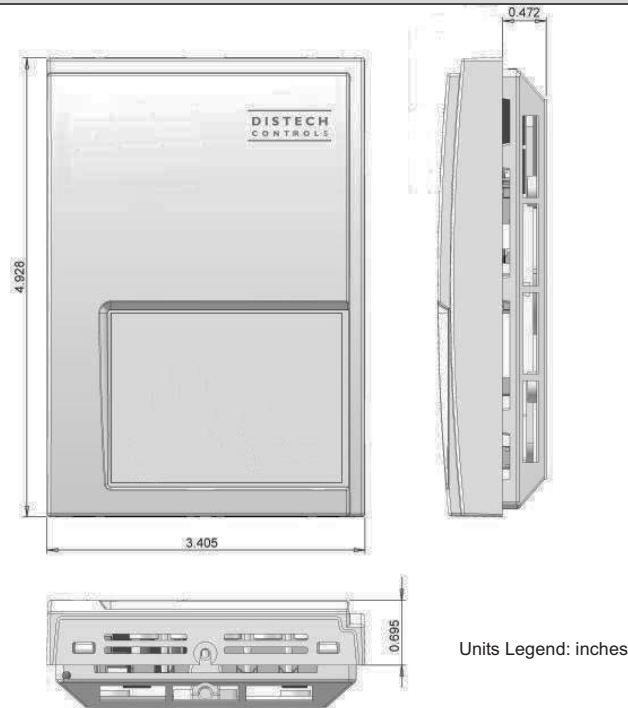
Features & Benefits

- Repeats wireless signal and thus extends range of ECW-STAT wireless mesh network
- Is a low cost component compared to an actual ECW-STAT
- Attractive Allure cover makes it convenient to install in visible space

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Dimensions



Units Legend: inches

Specifications

Power		Agency Approvals	
Voltage	19-30V AC; 50/60Hz; Class 2	UL	UL873 (US) and CSA C22.2 No.24 (Canada)
Maximum Consumption	2VA	Industry Canada	ICES-003 (Canada)
		FCC	Compliant to CFR 47, Part 15, Subpart B, Class A (US)
Environmental		C-Tick	AS/NZS CISPR 22 Compliant (Australia/New Zealand)
Operating Temperature	0°C to 50°C; 32°F to 122°F		
Storage Temperature	-30°C to 50°C; -22°F to 122°F		
Relative Humidity	0 to 95% non-condensing		
Enclosure		ECW-STAT Series only	
Material	ABS Resin	FCC	Compliant to Part 15, Subpart C
Color	White		
Dimensions	4.93" x 3.41" x 1.43" (124mm x 85mm x 36mm)		
Shipping Weight	0.75lbs (0.34kg)		



Electromagnetic Compatibility

CE	EMC Directive 89/336/EEC (European Union)
FCC	Compliant with Part 15

OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE

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05DI-DSSTREP-10

ECW-STAT Repeater

www.distech-controls.com

Accessories



Distech Controls offers a broad array of accessories to enhance and customize your HVAC, Lighting and Sunblind solutions, suitable for a wide range of environments and applications. The line ranges from wired to EnOcean wireless products, also including wired, infrared and radio accessories.

Room devices, Remote control, Multi-sensors and other Displays are available to allow you to control your comfort parameters for part or all your integrated management solution.

All these Distech Controls accessories allow significant energy savings by optimizing room comfort parameters: temperature, fan speed (air-conditioning and heating), occupancy mode via motion sensor, and also lighting and sunblind via lighting measurement. The occupant has all the necessary tools to adopt a Greener behaviour.

Product Guide: Room Devices

Room devices and Remote controls	
RS Series	Hard-wired room sensor devices that can adjust ambient temperature, fan speed and manage the occupancy mode (according to the selected model)
TCND Series	Multi-discipline Remote Controls that covers different technologies: infrared, radio, EnOcean, Hard-wired (2 or 4 wired) are conceived to manage all comfort parameters of a room
TCIR Series	Infrared Remote Controls that allow controlling one of the following parameters: Lighting, Sunblind or HVAC
Multi-sensors	
MS2 Series	Mini Multi-sensors that covers infrared or radio technologies: a presence detector, a light intensity sensor and a temperature sensor
Receivers	
RIR and RFR Series	Receivers available on different technologies: infrared, radio or EnOcean that transmit orders provided by a control interface to a HVAC, Lighting or Sunblind controller via a RJ9 cable

Product Comparison Chart
Accessories

Allure™ Series Room devices and other accessories

										
Description	EC-Sensor Series*	ECW-Sensor Series*	EC-Smart-Vue Series*	EC-Smart-Sensor Series*	RS-ANA Series	RS-DL	RS-LCD	RS-Smart-Sense*	Multi-Sensor	
Compatibility with controllers										
ECL/ECB Series	■	■	■		■					RJ45
ECL/ECB-PTU Series	■	■	■		■					
RCL/RCB-PFC Series	■	■			■	■	■	■		RJ9
RCL-Light/Blind Series		■				■	■	■		RJ9
ECC Series	■	■		■	■					

* Refer to the Allure™ Series Room Devices Section to find the datasheet



Overview

From a simple temperature sensor to our LCD screen control unit, all Karno® room sensor devices allow to optimize energy management in a room.

According to the selected model, user can adjust ambient temperature, fan speed and manage the occupancy mode.

Two room sensor types are available depending on the technology needed for your installation:

- Analog
- Digital

Applications

- A room sensor device measures the ambient temperature in a room (NTC sensor integrated).
- A RS-LCD also displays the ambient temperature.
- It allows the user to adjust room comfort parameters manually: buttons dedicated for fan speed selection, temperature set-point adjustment and room occupancy mode.

Features & Benefits

- The room sensor device is adapted to new and existing buildings.
- It is fixed onto the wall.
- It is possible to define the room occupancy mode to start the programmed comfort parameters.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Room sensors range

Hard-wired technologies: analog and digital



RS-ANA1

Analog room sensor device: temperature measure (integrated NTC sensor)

RS-ANA2

Analog room sensor device: temperature measure (integrated NTC sensor) and temperature set-point



RS-DL2

Digital room sensor device: temperature measure (integrated NTC sensor) and temperature set-point

RS-DL3

Digital room sensor device: temperature measure (integrated NTC sensor) and temperature set-point + occupancy mode selection



RS-DL4

Digital room sensor device: temperature measure (integrated NTC sensor) and temperature set-point + occupancy mode selection + fan speed control

RS-LCD

Digital room sensor device with a LCD screen: HVAC, lighting and sunblind management

Complementary products

HVAC controllers

All our room sensor devices allow remote management of all Karno® HVAC controllers: FCC, SRC, SRC-427-DL or IRC. Depending on the selected model, they can be directly connected to the screw terminals of the controller, through a RJ9 link, or they can interface with a radio receiver / multi-sensor in order to communicate with the controller.



SRC

Configurable HVAC controllers

SRC-427-DL

Configurable HVAC controllers – double loop

FCC

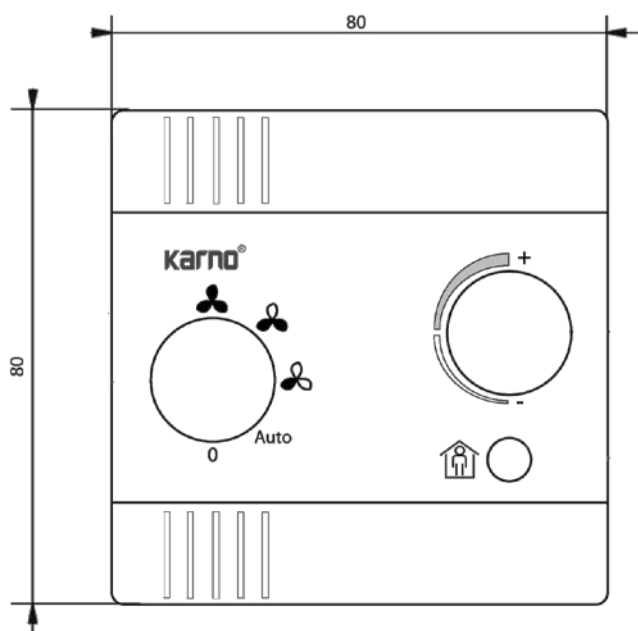
Fan coil controllers

IRC

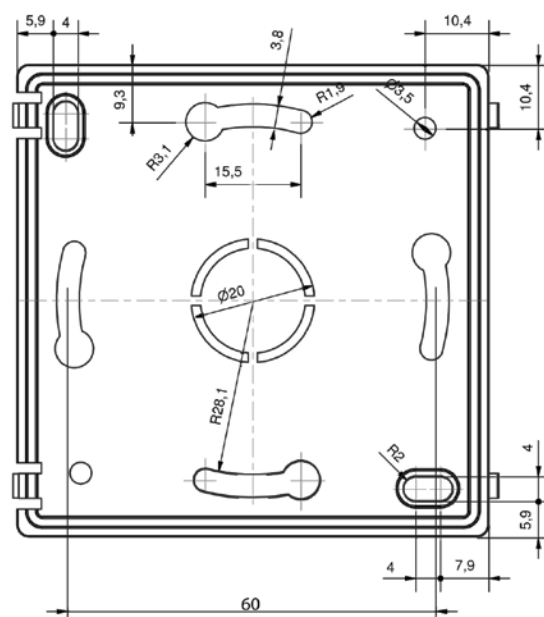
Modular integrated room controllers (with lighting and sunblind management)

Product specifications

Room Sensor Device – front



Room Sensor Device – back



Physical specifications

Material	Polycarbonate
Color	White
Dimensions	80 x 80 x 25 mm
Temperature sensor	NTC 10K Ω
Mechanical protection	IP 20
Shipping box size	118 x 100 x 44mm

Shipping weights

RS-ANA	0.080Kg
RS-DL	0.060Kg

Environment

Operating temperature	+5°C to +45°C
Storage temperature	-20°C to +70°C
Relative humidity	+20% to +90% without condensing
Status indicator	occupancy LED (RS-DL3, RS-DL4)

LCD display (RS-LCD only)

Screen size	30 x 30mm
Display zone	4 displays, 7 segments + 9 pictograms

Electrical specifications: RS-DL, RS-LCD and RS-ANA

Power supply	5V, < 5mA, supplied by a HVAC Karno [®] controller Via RJ9 cable for RS-DL and RS-LCD models (maximum length: 50m) Via multi wires / RJ11 cable for RS-ANA models (maximum length: 12m)
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O5DI-DSRSADX-11

RS Series

www.distech-controls.eu

3/3

Multi-discipline Remote Control: Infrared, Radio, EnOcean and Hard-wired Technologies

Overview

TCND Series remote controls are conceived to manage all the comfort parameters of a room: lighting, sunblinds, temperature, fan speed and occupancy.

An embedded NTC sensor for ambient temperature measurement and display is also available as an option.

The TCND Series covers different technologies to meet the requirements of your installation:

- Infrared
- Radio
- EnOcean
- Hard-wired (2 or 4 wires)

Regarding the needs defined upstream, TCND Series remote controls can be linked to radio, infrared or EnOcean accessories (receivers, multi-sensors, switches, etc...). These accessories receive the orders the user issues from the remote control so as to command lighting, sunblind or HVAC controllers.

TCND Series remote controls can be used wall-mounted or as a removable accessory which may be combined with a wall-mounted stand.



Applications

- Multi-discipline installations
- HVAC control
- Lighting control
- Blinds control
- Temperature measurement (*optional*)

Features & Benefits

- HVAC, lighting and sunblinds management from a single accessory
- Up to 8 lighting groups and 8 blinds groups handled simultaneously or separately
- Possibility to define the occupancy mode of the room so as to launch the comfort parameters as planned when configured
- Different technologies available to suit new construction and renovation sectors

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Multi-discipline Remote Controls Range

Infrared Remote Controls



TCND-I	White (RAL 9010) Infrared Remote Control
TCND-I-G	Grey (RAL 7016) Infrared Remote Control
TCND-IT-PM	White (RAL 9010) Infrared Remote Control with embedded temperature sensor <i>(wall-mounted stand required - provided)</i>
TCND-IT-G-PM	Grey (RAL 7016) Infrared Remote Control with embedded temperature sensor <i>(wall-mounted stand required - provided)</i>

Radio Remote Controls



TCND-R	White (RAL 9010) Radio Remote Control
TCND-R-G	Grey (RAL 7016) Radio Remote Control
TCND-RT-PM	White (RAL 9010) Radio Remote Control with embedded temperature sensor <i>(wall-mounted stand required - provided)</i>
TCND-RT-G-PM	Grey (RAL 7016) Radio Remote Control with embedded temperature sensor <i>(wall-mounted stand required - provided)</i>

EnOcean Remote Controls



TCND-ENOCAN	White (RAL 9010) EnOcean Radio Remote Control with embedded temperature sensor <i>(wall-mounted stand required - provided)</i>
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Hard-wired Remote Controls



TCND-2F*	White (RAL 9010) Hard-wired Remote Control (2 wires) with embedded temperature sensor <i>(for use with or without wall-mounted stand - Black 3 m cable provided)</i>
TCND-4F	White (RAL 9010) Hard-wired Remote Control (4 wires) with embedded temperature sensor <i>(wall-mounted stand required - provided / RJ9 cable - not provided)</i>

* The TCND-2F is to be connected to a 2/4 wire converter - please contact us for more information.

Accessories

Wall-mounted stands (fixed remote control)



TCND-PM	White (RAL 9010) wall-mounted stand for fixed remote control
TCND-PM-G	Grey (RAL 7016) wall-mounted stand for fixed remote control
TCND-PM-S	Velcro fastener for wall-mounted stand

Wall-mounted stands (removable remote control)



TCND-SM	White (RAL 9010) wall-mounted stand for removable remote control
TCND-SM-G	Grey (RAL 7016) wall-mounted stand for removable remote control
TCND-SM-A	Wall-mounted stand with magnets for removable remote control

Complementary Products

Infrared Receivers

In-ceiling Dalilon® receivers series for infrared remote controls.



RIR-B	White Infrared Receiver
RIR-I	Translucent Infrared Receiver
RIR-L	White Infrared Receiver with light sensor

Radio Receivers

Dalilon® receivers series for radio remote controls (1 or 4 rooms)



RFR-D	Radio receiver for lighting, sunblind or SRC-DL HVAC controller (4 channels)
RFR-K	Radio receiver for HVAC controller (1 channel)

EnOcean Receivers

Dalilon® receivers series for EnOcean remote controls (1 or 4 rooms)



RFR-D-ENOCEAN	EnOcean receiver for lighting, sunblind or SRC-DL HVAC controller (4 channels)
RFR-K-ENOCEAN	EnOcean receiver for HVAC controller (1 channel)

Infrared Mini Multi-sensors

In-ceiling Dalilon® mini multi-sensors series for infrared remote controls.



MS2-I-P	Infrared mini multi-sensor - presence detection
MS2-I-PL	Infrared mini multi-sensor - presence detection & light sensor
MS2-I-PLT	Infrared mini multi-sensor - presence detection, light sensor & temperature sensor

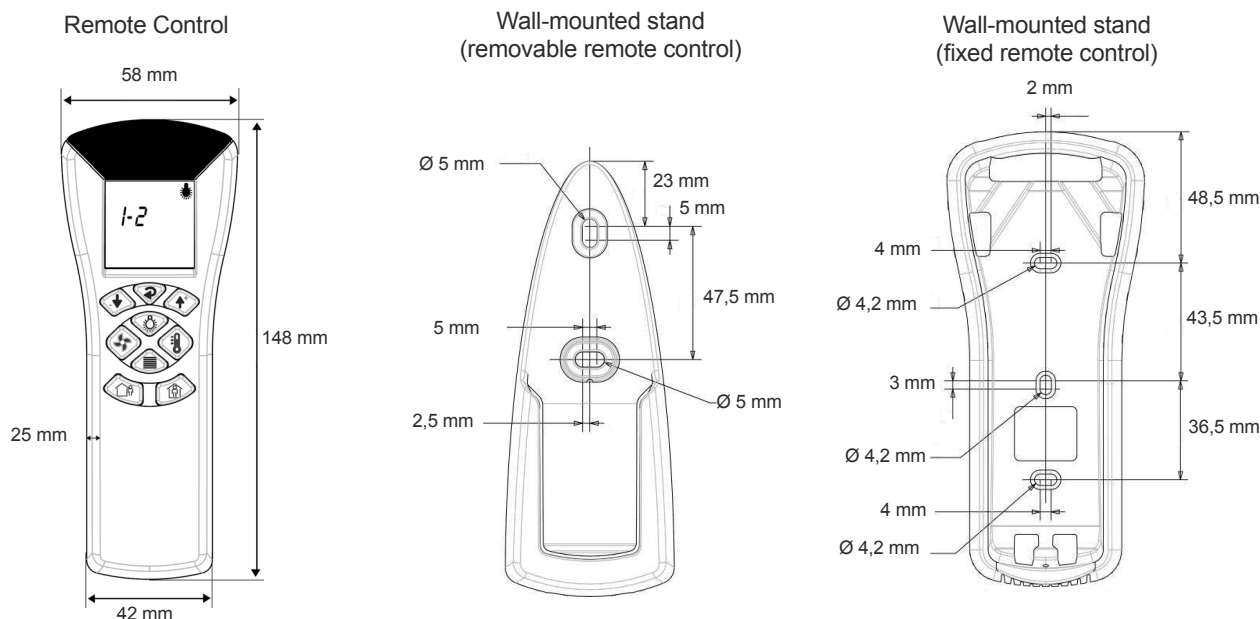
Radio Mini Multi-sensors

In-ceiling Dalilon® mini multi-sensors series for radio remote controls.



MS2-R-PL	Radio mini multi-sensor - presence detection & light sensor
MS2-R-PLT	Radio mini multi-sensor - presence detection, light sensor & temperature sensor

Specifications



Physical specifications

Material	Plastic
Color	White or grey, depending on model
Dimensions	148 x 58 x 25 mm
Shipping box dimension	178 x 81 x 42 mm
Temperature sensor	NTC 10 KΩ - ± 1°C
Mechanical protection	IP 20
Shipping weight	
TCND-I, TCND-I-G, TCND-R, TCND-R-G, TCND-2F and TCND-4F	0.10 Kg
TCND-IT and TCND-IT-G	0.12 Kg
TCND-RT and TCND-RT-G	0.13 Kg

Infrared reception: range in direct sight and associated with:

MS-2	7 m ¹
RIR-B	7 m ¹
RIR-I	9 m ¹
RIR-L	7 m ¹

Radio and EnOcean reception

Bidirectional communication ²	ISM band 868 MHz
Open field range	150 m maximum
Indoor range (indicative)	15 m in building with "classical" walls and floors (without metal)

LCD Screen

Screen dimensions	30 x 30 mm
Display	4 displays, 7 segments + 9 pictograms

Keypad

Material	Elastomer
Number of keys	9 keys

Electrical specifications: models with batteries (infrared, radio, EnOcean)

Power supply	2 batteries, 1.5 V LR03 type Indicative battery lifetime: 2 years (for 4 to 6 emissions per hour).
Power consumption	Sleep mode: 6 µA Emission: 35 mA Reception: 20 mA (Radio models only)

EnOcean Equipment profile

EEP 2.1 ³	A5-10-1F
EEP 2.0 ³	05-03-02

Electrical Specification: hard-wired models

Power supply	TCND-2F and TCND-4F : through the RJ9 cable
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Environment

Operating temperature	+5°C to +45°C
Storage temperature	-20°C to +70°C
Relative humidity	+20% to +90% non-condensing

¹ External disturbances (ex. lightings, sun...) might reduce the range

² Radio only - Please contact us for more information

³ New EnOcean standard- Please contact us for more information

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05DI-DSTCNDX-02

TCND Series

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Overview

Each infrared remote control allows to control one of the following comfort parameters:

- Lighting
- Sunblind
- HVAC

According to the remote control model, user can also select the occupancy mode.

This accessory sends orders to an infrared receiver or multi-sensor connected to a Dalilon® or Karno® controller.

Applications

- A remote control allows occupants to manage room comfort parameters manually: lighting / sunblind / temperature and fan speed according to the selected model.
- It is possible to override occupancy mode to start the configured room comfort parameters.

Features & Benefits

- It can be fixed on a wall-mounted support or used as a portable remote control.
- Simple and ergonomic product.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Mono-Discipline Remote Controls Range

Infrared technology



TCIR-C-PM

Infrared remote control with wall-mounted support (fixed remote control): HVAC management



TCIR-L

Infrared remote control: lighting management



TCIR-L-PM

Infrared remote control with wall-mounted support (fixed remote control): lighting management



TCIR-S

Infrared remote control: sunblind management

Accessories



TCIR-SM

Wall-mounted support for a removable remote control

Complementary Products

Dalilon® infrared receivers and multi-sensors receive orders emitted by infrared remote controls.



MS2-I-P

Infrared mini multi-sensor: presence detection

MS2-I-PL

Infrared mini multi-sensor: presence detection and Lux level measure

MS2-I-PLT

Infrared mini multi-sensor: presence detection, Lux level and temperature measures



RIR-I

Transparent infrared receiver



RIR-B

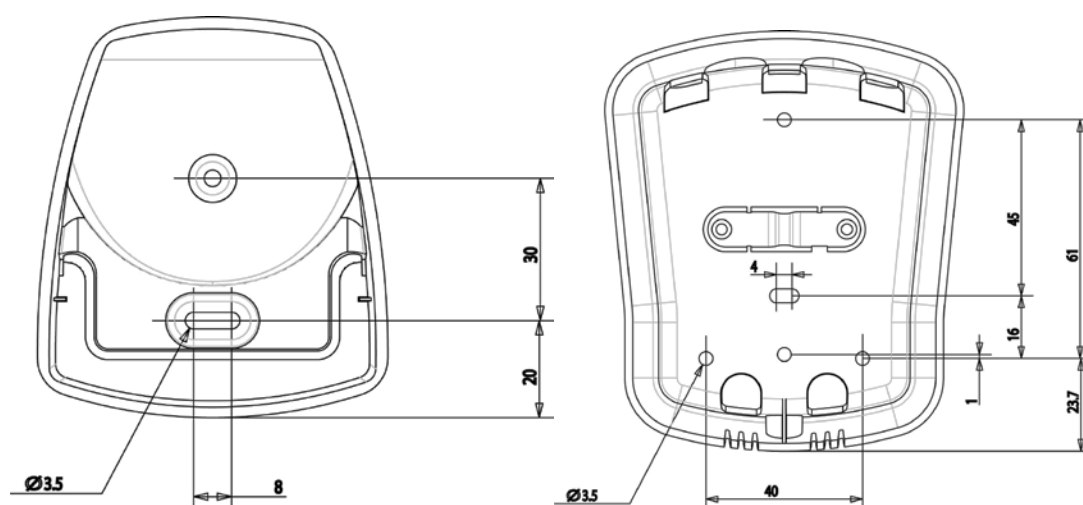
White infrared receiver



RIR-L

White infrared receiver and Lux level sensor

Products specifications



Physical specifications

Material	Polycarbonate
Color	White
Mechanical protection	IP 20

Dimensions

Remote control	86 x 70 x 22mm
Remote control with wall-mounted support (removable)	90 x 72 x 28mm
Remote control with wall-mounted support (fixed)	107 x 92 x 25mm
Shipping box	118 x 100 x 4mm

Shipping weights

TCIR-L and TCIR-S	0.10Kg
TCIR-C and TCIR-L-PM	0.14Kg

Keypad

Material	Polyester
Keys number	6 keys

Electrical specifications

Power supply	2 batteries, 1.5V LR03 type (AAA)
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Infrared reception

Direct sight range (remote control aligned with receiver)	RIR-I : 8m MS2, RIR-B and RIR-L : 6m
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Environment

Operating temperature	+5°C to +45°C
Storage temperature	-20 °C to +70°C
Relative humidity	+20% to +90% without condensing

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O5DI-DSTCIRX-11

TCIR Series

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3/3



Overview

According to the technology required (infrared or radio) several mini multi-sensors are available.

This accessory combines, in an extra small device, an infrared receiver, a presence detector, a light intensity sensor (Lux level) and a temperature sensor.

It allows the automatic control of all comfort parameters in a room, depending on the occupancy mode.

The MS2 can be directly connected to a Dalilon® or Karno® controller with a digital RJ9 link. It can be used together with a Dalilon® multi or mono discipline(s) remote control.

It receives orders emitted by users (via a remote control) and transmits them to a lighting, sunblind or HVAC controller.

Applications

- Allows the **automatic control** of all comfort parameters in a room (lighting, sunblind, temperature and fan speed).
- Ideally designed for rectangular rooms: presence detection in a rectangular area of 7 x 5.5 x 2.5m (L x w x h). These values can change according to the multi-sensor position, the detection sensibility and the room architecture.
- Can be installed into suspended ceilings or on concrete ceilings.

For more information about multi-sensor's installation, please refer to the hardware installation guide.

Features & Benefits

- Possibility to adjust the multi-sensor sensibility (attributed to a TCND-I-PR).
- Small and discreet accessory (visible part: ø40 x 8mm)
- Combines several sensing technologies:

A receiver: to transmit orders emitted by a remote control.

A presence detector: to be detected, a person has to move in the multi-sensor detection area. If the person is on the edge of the detection area, the minimum requirement is an arm movement.

A light intensity sensor: it measures the average Lux level in a room (0 to 1000 Lux) and allows a Dalilon® lighting controller to manage lights. The measure may require calibration depending on the installation configuration. The room lighting is optimized according to the occupation mode.

A temperature sensor: an adjusted temperature measurement could be required to take into account the difference between temperature at the ceiling and desk levels.

Note: For optimum temperature measurements it is recommended to use a remote control with a temperature sensor (TCND-IT). The temperature information will be more accurate and available on the network. This configuration only requires a multi-sensor with a presence detector and a Lux level sensor.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Mini Multi-Sensors Range

Infrared technology



MS2-I-P	Infrared mini multi-sensor: presence detection
MS2-I-PL	Infrared mini multi-sensor: presence detection and Lux level measure
MS2-I-PLT	Infrared mini multi-sensor: presence detection, Lux level and temperature measures

Radio technology



MS2-R-PL	Radio mini multi-sensor: presence detection and Lux level measure
MS2-R-PLT	Radio mini multi-sensor: presence detection, Lux level and temperature measures

Complementary Products

For infrared mini multi-sensors

Dalilón® infrared remote controls range.



TCND-I White infrared multi-discipline remote control: lighting, sunblind, temperature and fan speed



TCND-IT-PM White infrared multi-discipline remote control with wall-mounted support: lighting, sunblind, temperature, fan speed and temperature sensor



TCND-I-TEST Bicolor infrared remote control: lighting and sunblind outputs test



TCND-I-PR Bicolor infrared remote control: programming tool



TCIR-C-PM Infrared remote control with wall-mounted support (fixed remote control): HVAC management



TCIR-L Infrared remote control: lighting management



TCIR-L-PM Infrared remote control with wall-mounted support (fixed remote control): lighting management



TCIR-S Infrared remote control: sunblind management

For radio mini multi-sensors

Dalilon® radio remote controls range.



TCND-R

White radio multi-discipline remote control: lighting, sunblind, temperature and fan speed

TCND-RT-PM

White radio multi-discipline remote control with wall-mounted support: lighting, sunblind, temperature, fan speed and temperature sensor



TCND-R-TEST

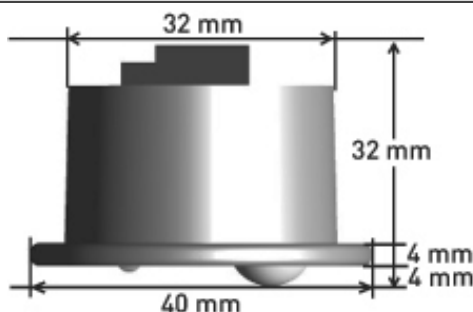
Bicolor radio remote control: lighting or sunblind outputs test

TCND-I-PR

Bicolor infrared remote control: programming tool

Note: The infrared programming remote control TCND-I-PR works with both multi-sensors technologies: infrared and radio. The radio multi-sensor has an infrared receiver to communicate with this remote control.

Product Specifications



Physical specifications		Environment	
Material	Polycarbonate, UL94V0 classification	Operating temperature	+5°C to +45°C
Color	White	Storage temperature	-20°C to +70°C
Optic	multi-face Fresnel lens	Relative humidity	+20% to +90% without condensing
Temperature sensor	NTC 10kΩ		
Mechanical protection	IP 20		
Sizes		Tested at ambient temperature (20°C)	
Visible part	Ø40 x 4mm		
Hidden part in the ceiling	Ø40 x 32mm		
Shipping box size	118 x 100 x 48mm		
Shipping weight	0.14Kg		
Electrical specifications			
Infrared power supply	5V, < 5mA, supplied by a Dalilon® or Karno® controller		
Radio power supply	5V, <25mA, supplied by a Dalilon® or Karno® controller		
Connections	Directly connected to the controller by a digital RJ9 link (50m max)		
EMC	EN61000-6-3 and EN61000-6-1		
Status indicator	Presence detection LED		

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O5DI-DSMS2XX-11

MS2 Range

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3/3

Infrared, radio or EnOcean receivers

Compatible with **Dalton®** and **Karno®** ranges



Overview

Receivers receive orders provided by a control interface and transmit them to a lighting, sunblind or HVAC (Heating, Ventilation and Air-Conditioning) controller via a RJ9 cable.

Several receivers are available depending on the technology required for your installation:

- Infrared
- Radio
- EnOcean

Applications

- These accessories, directly connected to a controller, enable lighting, sunblind and HVAC management. They transmit orders emitted by a control interface (room sensor, remote control or switch).
- The RIR-L receiver is dedicated to lighting applications: it measures the average lighting intensity (from 0 to 1000 Lux) and enables a window / corridor side management.

Features & Benefits

- Discreet (infrared receivers are slotted into the ceiling) or invisible (radio receivers are hidden in the suspended ceiling) accessories.
For more information about mounting instructions, please refer to the hardware installation guide.
- Can be connected either to a lighting, sunblind or HVAC controller through a RJ9 digital link (quick plug-in).
- The RIR-L is dedicated to automatic lighting management (light intensity sensor).
- The EnOcean receiver can be integrated with an EnOcean wireless battery-less installation.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Receivers Range

Infrared technology



RIR-L White infrared receiver and Lux level sensor



RIR-B White infrared receiver



RIR-I Transparent infrared receiver

Radio technology



RFR-D 4 channel radio receiver



RFR-K 1 channel radio receiver

EnOcean technology



RFR-D-EnOcean 4 channel EnOcean radio receiver



RFR-K-EnOcean 1 channel EnOcean radio receiver

Complementary Products

For infrared receivers

Dalilon® infrared remote controls range, for Dalilon® and Karno® controllers.



TCND-I

White infrared multi-discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-IT-PM

White infrared multi-discipline remote control with wall-mounted support: lighting, sunblind, temperature and fan speed control + temperature sensor



TCND-I-TEST

Bicolor infrared remote control: lighting and sunblind outputs testing

TCND-I-PR

Bicolor infrared remote control: programming tool



TCIR-C-PM

Infrared remote control with wall-mounted support (fixed remote control): HVAC control



TCIR-S

Infrared remote control: sunblind control



TCIR-L

Infrared remote control: lighting control

TCIR-L-PM

Infrared remote control with wall-mounted support (fixed remote control): lighting control

For radio and EnOcean receivers

Dalilon® radio remote controls, room sensors and switches ranges, for Dalilon® and Karno® controllers.



TCND-R

White radio multi-discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-RT-PM

White radio multi-discipline remote control with wall-mounted support: lighting, sunblind, temperature and fan speed control + temperature sensor



TCND-R-TEST

Bicolor radio remote control: lighting and sunblind outputs testing

TCND-R-FAC

Bicolor radio remote control: service tool



RS-RF2

Radio room sensor device: temperature measure (integrated NTC sensor) and setting

RS-RF3

Radio room sensor device : temperature measure (integrated NTC sensor) and temperature set-point + occupancy mode selection

RS-RF4

Radio room sensor device: temperature measure (integrated NTC sensor) and temperature set-point + occupancy mode selection + fan speed control



TCND-ENOCEAN

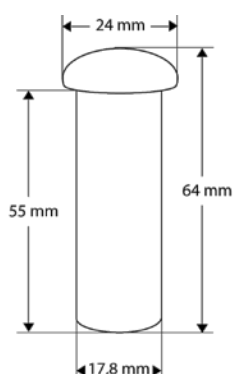
White EnOcean multi-discipline remote control with wall-mounted support: lighting, sunblind, temperature and fan speed control + temperature sensor



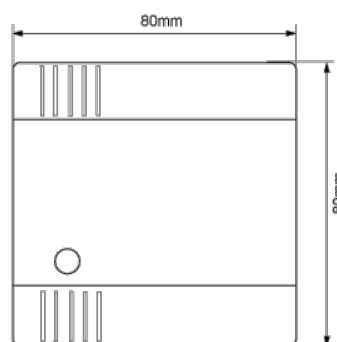
INT-ENOCEAN

EnOcean switch (double rocker switch)

Product Specifications



RIR-x



RFR-x

Thickness 25mm

Physical specifications		Electrical specifications	
Material		Power supply	5 V, 5mA (RIR-x) or 5V, 25mA (RFR), Supplied by a Dalilon® or Karno® controller
RIR	PMMA	Connection	Directly connected to a controller by a digital RJ9 link (50m max)
RFR	Polycarbonate, UL94V0 classification		
Mechanical protection	IP 20		
Color		Communication	
RIR-L, RIR-B and RFR	White	RIR	Infrared
RIR-I	Translucent	RFR	ISM Band 868Mhz
Dimensions		Sight range (direct sight)	
RIR	Body Ø17.8 x 64mm and half-sphere Ø24 x 9mm	RFR	Around 15m (through walls / floors without metal)
RFR	80 x 80 x 25mm	RIR-I and RIR-B	7m (with a TCND-I) / 6m (with a TCIR)
Shipping box sizes		RIR-L	7m (with a TCND-I)
RIR	180 x 82 x 44 mm	Environment	
RFR	118 x 100 x 44 mm	Operating temperature	+5°C to +45°C
Shipping weights		Storage temperature	-20°C to +70°C
RIR-L	0.17Kg	Humidity	+20% to +90% without condensing
RIR-B and RIR-I	0.16Kg		
RFR	0.09Kg		

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O5DI-DSRIRRF-11

RIR and RFR Series

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4/4

“Open-to-Wireless™” Solution



Distech Controls' “Open-to-Wireless™” solution facilitates wireless communication in any environment and optimizes the flexibility of any building automation system. Our “Open-to-Wireless™” offering features embedded wireless communication capabilities for all BACnet ECB and RCB Series and LONWORKS ECC, ECL and RCL Series controllers.

Distech Controls offers a wide variety of wireless battery-less sensors and switches for various applications ranging from room temperature and humidity sensing, to duct and cable temperature sensing, to occupancy detection.

A true green building solution, our “Open-to-Wireless™” solution offers many benefits for building automation, from flexibility and adaptability, to cost and time reduction at installation, to improved tenant comfort.

Energy harvesting technology:

- No batteries - powered by different kinds of ambient energy : light, vibration



Ecological compatibility:

- Use of available energy
- No battery disposal
- Reduction of cable material (copper, plastics etc.)



Quality improvement:

- Battery-less thus service free





A True Green Building Solution

- Take advantage of available ambient energy (light, movement) through energy harvesting and eliminate batteries
- Reduce cable and wiring materials to preserve building envelope and architectural integrity
- Contributes to LEED® points

Multiple Applications

- Simple installation since wireless battery-less sensors and switches require no drilling or external wiring
- Readily mount on any surface, including concrete, brick, glass, or stone
- Improve temperature control and occupant comfort
- Control spaces where sensor placement can be difficult, such as atriums and greenhouses, and optimize conditions in large open spaces with localized needs, such as office cubicles

Cost and Time Reduction

- Easy, quick, and low-cost relocation of devices when room configuration or floor plans change
- Remove expenses for wiring plans, wire and conduit installation, electrician fees, and other associated labor costs, at installation or retrofit of space
- Correct design errors in initial sensor placement
- Up to 15% cost savings in new constructions and 70% in retrofits

Product Guide: “Open-to-Wireless™” Solution

Solution Guide

“Open-to-Wireless™” Solution Guide

The “Open-to-Wireless™” Solution allows multiple cost savings such as installation costs (wiring, drilling and time), operational costs (no power supply), maintenance costs (maintenance-free) and displacement costs (can be easily moved from one location to another)

Wireless, Battery-less Receivers

For ECL, ECB and ECC Series:

Wireless Receiver

“Open-to-Wireless™” EnOcean Wireless Receiver that enables controllers to receive inputs signals wireless sensors and switches. Facilitates building retrofits

For RCL and RCB Series:

RFR-K-EnOcean¹ et
RFR-D-EnOcean¹

Wireless receivers on EnOcean radio technology that transmit orders provided by a control interface to a HVAC, Lighting or Sunblind controller

Wireless Room Devices*

Allure™ ECW-Sensor²

Innovative wireless, battery-less room temperature sensor line

Allure™ ECW-STAT²

Wide array of wireless network communicating thermostats for heat pump, roof top, fan coil, and zoning applications that work on a wireless self-healing mesh network

1: Refer to the Accessories section to find the RIR and RFR Series datasheet
2: Refer to the Allure™ Series Room Devices section to find the Wireless Room Devices datasheets

Open-to-Wireless™ Solution

Wireless communication based on the EnOcean® protocol



Overview

Distech Controls distributes an innovative line of wireless battery-less sensors and switches intended for use with its Open-to-Wireless ready controllers. Distech Controls also offers a wireless receiver, which enables these controllers to receive wireless input signals. With wireless communication, users have the freedom and convenience to place and move sensors and switches anywhere within the receiver range limits without worrying about wiring, drilling, or disrupting the visual look of a space.

Distech Controls' wireless battery-less devices can "harvest" the smallest amounts of energy from a variety of sources. Most sensors create energy from ambient building light sources, through solar cells. These cells require only 4 hrs/day of charging to operate in total darkness for over 72 hours making them a perfect solution to reduce operational energy and maintenance costs. If necessary, batteries can be used as a backup precaution (battery lifetime can vary from 5-10 years depending on battery aging and self-discharge rate). Switches on the other hand, are powered by the actual pushing of the switch button, otherwise known as a motion converter.

Applications

- Perform building retrofits with minimal impact on architecture and materials.
- Install wireless devices on any surface, such as glass, brick and stone.
- Support open spaces that undergo frequent changes in layout or require seasonal displacement.
- Expand controller input count.

Features & Benefits

- A wide variety of wireless battery-less sensors and switches suited for many applications.
- Latest in energy harvesting technology to take full advantage of pre-existing latent building energy sources for power. This environmentally sound solution requires no external power source for sensor operation.
- Designed to work reliably to communicate with the controller through a low-power wireless communication protocol, reducing its power consumption and extending its operational lifetime.
- Easily installed since there is no need for external wiring or associated drilling.
- Easy to configure & commission thus requiring minimal training.
- Multiple cost savings, such as in:
 - Installation costs (wiring, drilling, and time)
 - Operational costs (no power supply)
 - Maintenance costs (maintenance-free)
 - Displacement costs (can be easily moved from one location to another)

Energy Harvesting

Energy harvesting is the process of procuring small amounts of energy from various sources to be converted as a source of power or energy by one element. This process of energy conversion can take the form of motion conversion, solar conversion, thermal conversion, rotation conversion and vibration conversion.

Most of the sensors offered use solar conversion through small solar cells. These solar cells use the light absorbed from nature – the sun – and artificial sources, such as lamps, etc. Light switches use motion conversion through an electrodynamic energy converter.

Radio Transmission Range

When installing the wireless equipment, it is important to ensure that distances and obstructions do not impede transmission. Metallic parts, such as reinforcement in walls, machinery, office furniture, etc. are major sources of field strength dampening. Furthermore, fire-safety walls, elevator shafts, staircases and supply areas should be considered as complete transmission screens (*Figure 3*).

In the best conditions, where there are no obstructions creating screening, a radio signal is transmitted in a 65 ft (20 m) range for the 868.3MHz and a maximum 32 ft (10 m) range for the 315MHz, between the Transmitter (Tx) and Receiver (Rx). In certain cases where there are some obstructions, the range could be decreased.

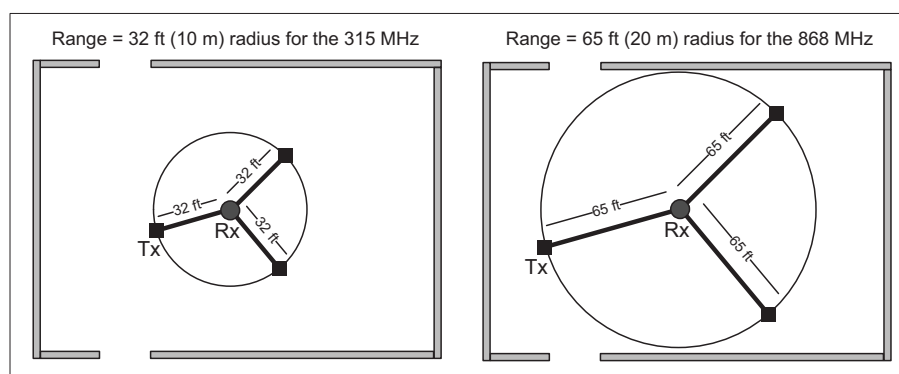


Figure 1: Radio Signal Transmission Distance between the Transmitter & Receiver

To obtain the best radio signal, avoid the following mounting/installation factors that restrict transmission range:

- Receiver mounted onto a massive wall or inside metal enclosures
- Receiver or sensor mounted next to walls with metal structures
- Receiver placed next to a room corner
- Receiver or sensor installed on a metal junction box or metal mounting plate. If this installation cannot be avoided then make sure the receiver's antenna is straightened out and away from metal (at least 1" (2.5 cm) away). For more details, refer to the [Open-to-Wireless Solution Application Guide](#).
- Switch or sensor mounted on a metal surface or structure (up to 30% loss of transmission range) or metal stud (*Figure 2*).
- Range along a narrow floor

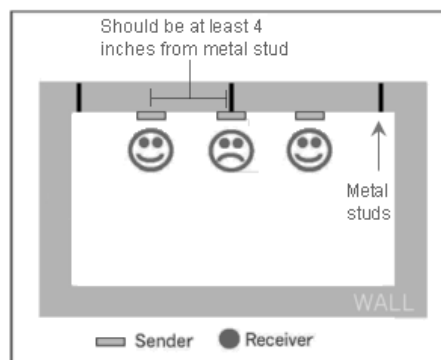


Figure 2: Avoid Placing Sensor Directly on Metal Studs

Radio signals are electromagnetic waves; hence the further they travel, the weaker the signal becomes and the range is limited. The coverage is further decreased by specific materials found in the direction of the transmission. For example, while radio waves can penetrate a wall, they are dampened more than if the waves were on a direct line-of-sight (LoS) path. Here are some examples of different types of wireless range reducers:

Material	Range Reduction vs. LoS
Wood, drywall, glass (uncoated, without metal)	0 – 10%
Brick, particle board	5 – 35%
Metal, ferro concrete, mirrors	10 – 90%

Signal Transmission Quality Testing

To ensure that the actual signal transmission quality is acceptable, Distech Controls strongly advises to check the signal quality using a “field strength meter” such as the EPM 300 (868MHz) or EPM 300C (315MHz) field strength meter. This unit tests the actual transmission strength and the quality of the received data.

Field strength tests are ideally conducted with two installers (one sending a signal from a transmitter such as a light switch and one receiving the signal with the EPM 300/C, however the EPM 300/C can also be set to hold a received signal so that a single installer can send a signal and then go to the EPM 300/C and check if it was received. Ideally, installers use a pair of EPM 300/C meters to take advantage of their repeater and radio link test modes. Please check the EPM 300/C datasheet for further information on how to use this device or refer to the [Open-to-Wireless Solution Application Guide](#).

Radio Signal Screening

Massive objects made of metal, reflect electromagnetic waves and thus create what is known as radio shadow. Therefore, when installing the wireless equipment, it is very important to ensure that distances and obstructions do not impede transmission.

Metallic obstructions such as wall reinforcements, machinery, metal office furniture (large filing cabinets), etc. are major sources of field strength reduction, but small metal studs on a gypsum dry wall do not show a recognizable screening (*Figure 3*). Furthermore, fire-safety walls, elevator shafts, stairwells, and supply areas should be considered as complete transmission screens. In addition, the angle with which the transmission travels through the obstructions has a major influence on the field strength. The steeper the angle through an obstruction the more the field strength dampens (*Figure 4*). Therefore it is preferable that the transmission should be arranged so that it travels straight and perpendicularly through the obstruction. Wall niches should be avoided as well. Other factors that restrict transmission range include:

Important objects and factors that decrease or constrain coverage:

- Metal separation walls or hollow lightweight walls filled with insulating wool on metal foil
- Inserted ceiling with panels made of metal or carbon fiber
- Steel furniture, glass with metal coating (typically not used indoor)
- Switch mounted on metal surfaces (typically 30% loss of range)
- Metallic switch frames (typically 30% loss of range)

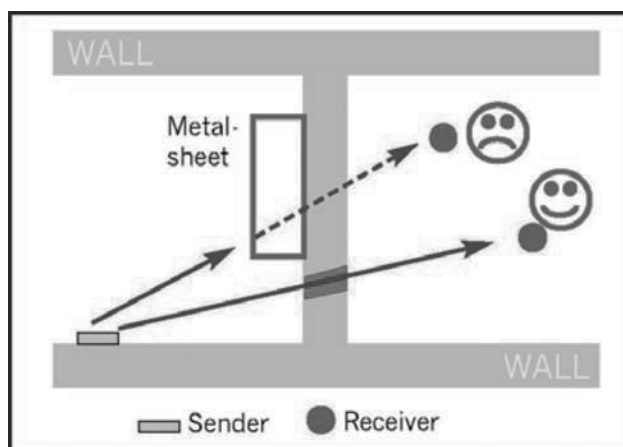


Figure 3: Screening of radio wave (metallic parts)

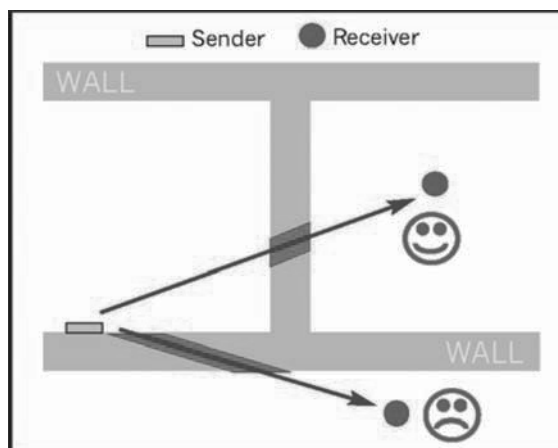


Figure 4: Penetration angle of radio wave

The wireless receiver should not be installed on the same side of the wall as the transmitter. Near a wall, the radio waves are likely to be subject to interfering dispersions or reflections. Consequently, the position of the wireless receiver has to be on the opposite or connecting wall and in the central location in the room. Where possible, the receiver antenna should be at least 4" (10 cm) away from the wall corner or concrete ceiling (*Figure 5*).

Unrelated transmitters such as computers, audio and video equipment that also emit high-frequency signals, should be more than 20 inches (50 cm) from the receiver to avoid possible interference (*Figure 6*).

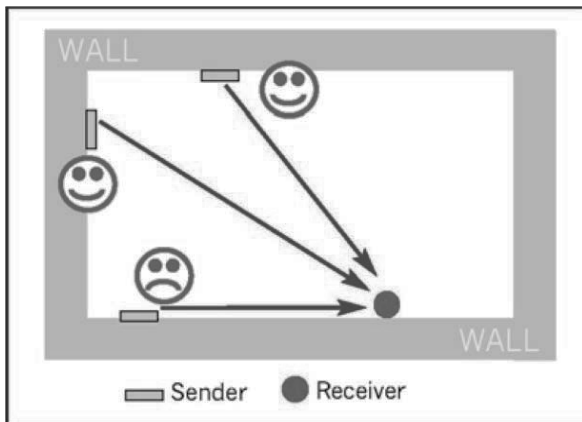


Figure 5: Radio wave along the wall

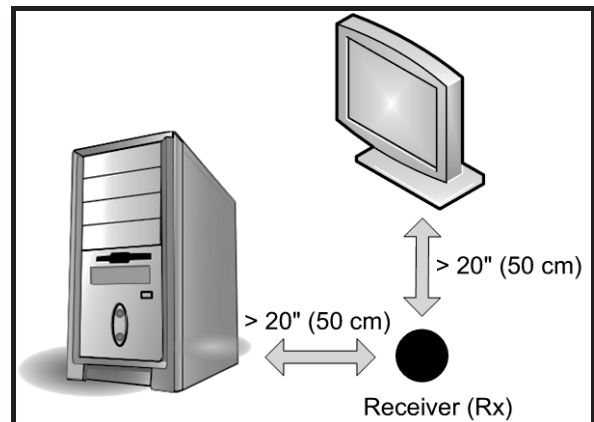


Figure 6: Distance to interference sources

It is also recommended that a wireless receiver and sensor not be placed directly below or on top of each other; for example if a wireless receiver is placed in the ceiling then the sensor should not be placed on the wall just below the ceiling, on the same vertical axis as the receiver. The sensor or the receiver should be relocated to obtain a better transmission range (*Figure 7*).

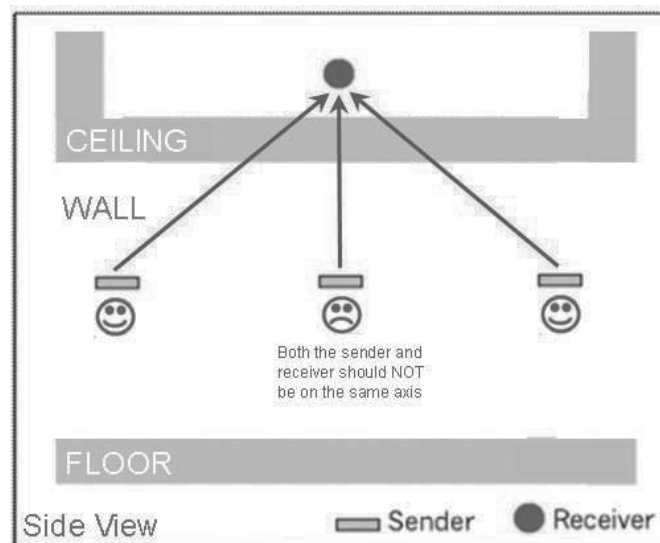


Figure 7: Wireless Receiver Ceiling Installation

Repeaters

Repeaters are wireless devices that help deal with screening and poor reception. A repeater receives transmissions and resends an amplified transmission to the receiver (*Figure 8* & *Figure 9*). This way, the transmission range can be increased and obstacles can be bypassed. Repeaters do not require any configuration and are put into operation simply by connecting them to the supply voltage.

Repeaters will help transmit additional refreshed signals to enhance range and reliability. They are used to route around obstructions or interference and as range extensions that use the radio frequency (RF) network to send information at longer distances between a transmitter and receiver.

In a setting where we need to bypass a metallic object (*Figure 8*), elevator shaft, or stairwell, mounting an additional repeater at a suited location can easily provide a better radio signal coverage.

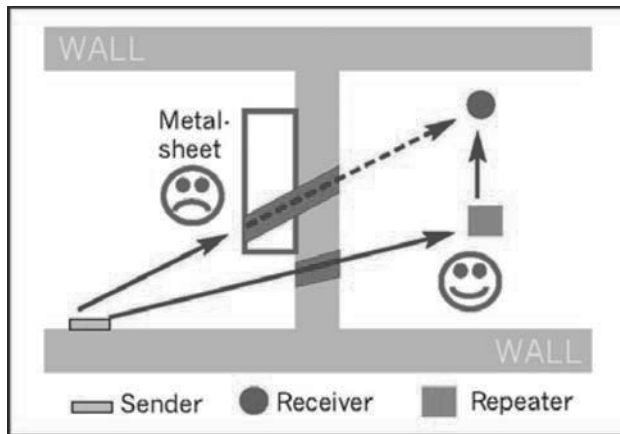


Figure 8: Use of repeaters to bypass an obstruction

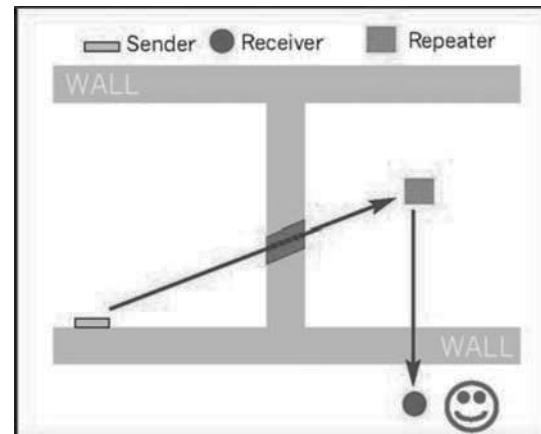


Figure 9: Use of repeaters (through walls)



Any metallic obstruction should be avoided. Elevator shafts, electric risers and metal enclosures, for example, are major obstacles for wireless transmission.

Solar Energy Storage for Wireless Sensors

Wall mounting

Wall mounting is accomplished by fastening the sensor base plate to a flat wall surface. If required, the base plate can also be installed using appropriate screws, also alternately using a double-face adhesive tape. Finally, the sensor is put on the sensor base plate. For further information, refer to the [Allure™ ECW-Sensor Series Hardware Installation Guide](#).

The sensor, as supplied, is operational. However, it may be necessary to recharge the solar cell accumulator after an extended time in darkness. In principle, the recharging process is done automatically during the first operating hours in daylight.

Mounting Considerations for Solar Energy Storage

- Wireless sensors enabled with solar cells utilize energy converted from natural and artificial light for their daily operation. All sensors, except for the motion detector model #41-580, store energy so they can continue to operate in the absence of sufficient light. Due to energy-optimized wireless technology, our wireless devices use a solar cell to supply the necessary energy to operate. To meet special requirements concerning correct and sufficient ambient brightness, it is necessary to observe certain basic conditions when selecting the mounting location:
- A minimum illumination of 200lx should be available to the sensor for at least 4 hours every day with artificial lighting (fluorescent light) or for at least 3 hours every day with natural light (sun light). Or, a minimum illumination of 260lx should be available to the sensor for at least 3 hours every day with artificial lighting (fluorescent light). Most health and safety workplace standards require a minimum illumination of 500lx in office workplaces. A Lux-Meter is highly recommended to be used for selecting the location that best meets this requirement.
- Total illumination should not exceed 1000lx for long periods.
- When illuminating the sensor with direct artificial light such as spotlights, the angle of incidence relative to the solar cell should not be too steep.
- Placing the sensor under direct sunlight must be avoided if it leads to inaccurate temperature measurements caused by heating from the sunlight.
- The sensor should be positioned in keeping with the use of the room and it should be mounted in such a way that no obstructions come between it and the light source.
- The sensor should be positioned within reception range of the intended controller.
- An increase in the sending rate of the wireless device will require more energy and thus more illumination.



The 41-580 motion detector is equipped with a solar cell, but does not store energy. It requires 80lx continuous illumination to operate. Refer to the device datasheet for more information.

Charging Guidelines for Devices with Solar Energy Storage

When these devices are stored in darkness for a long period, the solar-powered energy storage will be drained and must be fully charged prior to use. In principle, this can be done by either fully charging the device in a single day (refer to the table below) or by placing it in operation (at an environment where light is available 7 hours @ 200lx) for 3 consecutive days. Notice that the device might take some charge time (30-60min) before it is able to transmit its first signal. Once the device is charged, maintaining it would only require a daily exposure of 4 hours at 200lx.

After initially charging the wireless sensor, it is ready to be used. It is recommended that the sensor be exposed to a minimum of 4 hours at 200lx daily, which is sufficient to last for the next 72 hours under darkroom operation. Non-compliance with the minimum daily recharge requirement may result in the wireless sensor's complete discharge and its inability to continuously update the controller.

For locations where the minimum daily exposure is not always ensured, it is recommended to use a 3.6V Lithium battery (3.6V Type LS 14250, 1/2AA) to maintain constant communication between the sensor and the controller. Unlike other products on the market, the battery is only utilized as a back-up that is engaged when the sensor is discharged while operating in the absence of light.

Approximate Initial Full-Charging Time

Number of Continuous Hours	Brightness Level (lx)	Number of Continuous Hours	Brightness Level (lx)
18	200lx	7	600lx
11	300lx	5	800lx
9	400lx		

Wireless Receiver



To reduce the cost of installation and minimize the impact on existing partition walls, the Wireless Receiver enables every controller from this series to communicate with a line of wireless battery-less room sensors and switches.

Wireless Receiver (315)

-Receiver for EnOcean 315MHz wireless battery-less sensors and switches













Wireless Receiver (868)

-Receiver for EnOcean 868.3MHz wireless battery-less sensors and switches


























For more information about EnOcean and Open-to-Wireless technologies, refer to the [Open-to-Wireless Solution Application Guide](#). For more information about the wireless receiver, refer to the [Wireless Receiver Datasheet](#). These documents can be found on the Distech Controls website.

Compatible Sensors and Switches




When connected to the wireless receiver, Distech Controls' LONWORKS® (ECC, ECP, ECL series controllers) and BACnet® (ECB series controllers) Open-to-Wireless ready controllers can receive wireless input signals, in both 315MHz and 868.3MHz frequencies, from the devices listed in the table below. Many other devices not listed below can also be supported. For the LONWORKS controllers to support other devices, they have to use the same data telegram format. For details on how the BACnet controllers can support other devices, refer to the [EC-gfxProgram User Guide](#).

	Model	Description	LONWORKS	BACnet
	ECW-Sensor	Room temperature sensor, wireless and solar cell powered.	■	■
	ECW-Sensor-O	Room temperature sensor, wireless and solar cell powered with occupancy override.	■	■
	ECW-Sensor-S	Room temperature sensor, wireless and solar cell powered with setpoint adjustment.	■	■
	ECW-Sensor-SO	Room temperature sensor, wireless and solar cell powered with setpoint adjustment and occupancy override.	■	■
	ECW-Sensor-SOF	Room temperature sensor, wireless and solar cell powered with setpoint adjustment, occupancy override, and fan speed selection.	■	■
	SR04 RH	Room humidity and temperature sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).	■	■
	SR04P RH	Room humidity and temperature sensor, wireless, solar cell powered with setpoint adjustment. Complete with battery holder (battery can be ordered separately).	■	■
	SR04PT RH	Room humidity and temperature sensor, wireless, solar cell powered with setpoint adjustment and override. Complete with battery holder (battery can be ordered separately).	■	■
	SR04P MS RH	Room humidity and temperature sensor, wireless, solar cell powered with setpoint adjustment and slide switch O/I (on/off). Complete with battery holder (battery can be ordered separately).	■	■
	SR65 AKF Series	Duct temperature sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).	■	■
	SR65 TF Series	Cable temperature sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).	■	■
	SR65 VFG	Surface temperature contact sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).	■	■
	SR65	Outdoor temperature sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).	■	■
	PTM 265	2 channel light switch, wireless, powered by electrodynamic conversion, white, North American style.	■	■
	PTM 265D	4 channel light switch, wireless, powered by electrodynamic conversion, white, North American style.	■	■
	2-channel light	2 channel light switch, wireless, powered by electrodynamic conversion, white, European style.	■	■
	4-channel light	4 channel light switch, wireless, powered by electrodynamic conversion, white, European style.	■	■
	S2HWH	4 button handheld remote, wireless, powered by electrodynamic conversion, white.	■	■
	SRW01 ¹	Door/window contact sensor, wireless, solar cell powered.	■	■


Compatible Sensors and Switches (continued)

	MC-17	Door/window contact sensor, wireless, solar cell powered.		
	PTM 265KCA	Key card holder, wireless, powered by electro-dynamics conversion. When the key card is inserted into the dock or removed from it, a wireless signal is transmitted to enable or disable power consuming services in a room (HVAC, lights, etc.).		
	SR-MDS	Motion detector and light sensor, wireless, solar-cell powered, for room occupancy detection and/or lighting applications.		
	MOS-17	360° motion detector, wireless, solar cell powered. For auto lights on and off. Complete with battery holder (battery can be ordered separately).		
	SR65 LI	Outdoor light sensor, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).		
	SR65 DI	Digital input (2-wire dry contact) for potential-free contacts, wireless, solar cell powered. Complete with battery holder (battery can be ordered separately).		
	R12GP	Plug-in relay (120VAC), wireless.	N/A	N/A
	ERPT Repeater Series	Low voltage & high voltage repeaters for out-of-range sensors, wireless, powered by 24V or 120/277V or 120/347V. Due to high voltage, check with local authorities before installation.		
	SRE Repeater ¹	Low level amplifier for out-of-range sensors, wireless, powered by 230VAC. Due to high voltage, check with local authorities before installation.		

Test and Validation Tools

	EPM 300 (868.3 MHz) EPM 300C (315MHz)	Field strength meter for finding optimal mounting place for transmitter and receiver.		
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1. Only supported in 868.3MHz transmission frequency.

Countries Where Wireless Devices Meet Transmission Norms			
Region	868.3MHz	315MHz	Additional notes
America			
– USA, Canada ¹		Yes (every 6.5s)	868.3MHz meets transmission norms, but is not supported. Refer to <i>Tech Note # 123</i> for more details.
– Brazil, Colombia	Yes (every 6.5s) ²	Yes (every 6.5s)	
– Mexico	Yes (every 6.5s)		
– Argentina			Convergence to FCC expected
Europe			
– European Union: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom	Yes (every 0.4s) ³		
– Rest of Europe: Albania, Bosnia-Herzegovina, Croatia, Georgia, Monaco, Serbia, Turkey, Ukraine	■		
– Russia	In the process		Following R&TTE in process
Asia Pacific			
– New Zealand	■	■	
– French Polynesia, Papua New Guinea, Tonga	■		
– China, Hong Kong, Taiwan		■	
– Bangladesh	■	■	
– India		■	FCC compliant equipment is accepted for type approval
– Japan		■	PTM200C does have MIC grant
– Malaysia	■		On special license, approval necessary: www.sirim.my
– Singapore	■	■	
– South Korea			Convergence to Japan expected
– Thailand		■	
– Vietnam	■	■	
Middle East			
– Saudi Arabia, Lebanon	■	■	
– UAE (Dubai, Abu Dhabi)	■	■	PTM200 does have TRA grant (868.3MHz)
– Israel		■	
– Kuwait, Oman, Jordan, Tajikistan	■		
– Bahrain		■	
Africa			
– Burkina Faso, Djibouti, Malawi, Mauritius, South Africa, Swaziland, Togo, Uganda, Zambia, Zimbabwe	■		
– Egypt			Approval necessary: www.ntra.gov.eg
<ol style="list-style-type: none"> 1. Distech Controls attained FCC and IC approvals for its 315MHz Wireless Receiver and recommends using this transmission frequency in North America. In fact, transmission in 868.3MHz must be avoided in North America because of a potential source of interference from trunk radio stations. Depending on the distance to the wireless installation, this interference may cause some disturbances to the wireless transmission. For more details, refer to <i>Tech Note #123</i>. 2. This is an FCC duty cycle regulation; 1 radio packet of a transmitter should not be sent within 6.5 seconds of the previous one. 3. This is an R&TTE duty cycle regulation; 1 radio packet of a transmitter should not be sent within 0.4 seconds of the previous one. 			
 This table should only be used as a guideline; it is not meant to be all-inclusive. Before starting an installation, please contact the proper local authorities.			

General Specifications			
Operating Temperature	-25°C to 65°C; -13°F to 149°F	Frequency	868.3MHz / 315MHz
Data Rate	125kbps	Transmission Power	Max. 10mW
Modulation Type	ASK	Typical Transmission Range	328 ft (100 m) line of sight; 65 ft (20 m) between walls

Total Quality Commitment

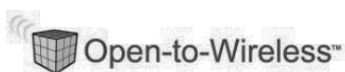
All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.



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Overview

Distech Controls' Open-to-Wireless™ Wireless Receiver enables controllers to receive input signals from wireless sensors and switches. It is fully compatible with Distech Controls' LONWORKS® and BACnet® controllers, and uses the EnOcean protocol for communication on either 868MHz or 315MHz.

The Wireless Receiver can be installed in multiple ways. For example, using double-face adhesive tape, the Wireless Receiver can be mounted on almost any type of surface and be within close proximity of the controller. If the controller is in a metal enclosure, the Wireless Receiver can be mounted on the enclosure's exterior using a ½-inch NPT hub. The Wireless Receiver performs best when the antenna is elongated and away from metal objects or surfaces (more than 1" (2.5 cm) away from metal). A 6.5 ft (2 m) long cord, provided with the Wireless Receiver, is used to connect it to the controller.

In building retrofits, the Wireless Receiver allows system integrators to use wireless sensors and switches, thereby minimizing impact on building structure and preserving original architecture and materials. Wiring complexities are avoided and any initial design errors can be easily fixed. Because the Wireless Receiver can be directly connected to Open-to-Wireless ready controllers, their input counts can be easily expanded, making field upgrades simple and straightforward.

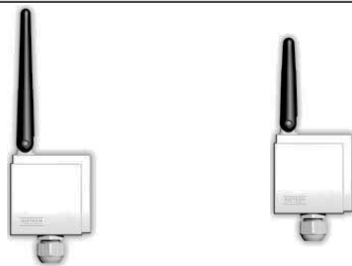
Applications

- Enables controllers to receive input signals from a wide variety of wireless battery-less room sensors and switches
- Facilitates building retrofits, minimizing impact on building structure, saving on time and costs with re-wiring, fixing initial design errors, and expanding controller input count

Features & Benefits

- Wireless communication, permitting you to:
 - Optimize sensor placement to get the most accurate reading and achieve improved temperature control and occupant comfort
 - Easily relocate sensors and switches when room configurations or floor plans change
 - Preserve architecture and materials, avoiding drilling and wall openings
 - Avoid disturbances to tenants caused by noise and dust associated with extensive installation work
- Multiple mounting options, giving you flexibility during installation
- Available in two models for communication on either 868MHz or 315MHz to suit your country or local area's transmission norms
- Cord with modular connectors included, making connection to the controller fast and straightforward
- Powered directly by the controller, simplifying installation

Wireless Receiver Models



Model	Wireless Receiver (315)	Wireless Receiver (868)
Frequency	315MHz	868.3MHz
Product Number	PDITE-WIRE315X1	PDITE-WIRE868X1

Transmission Ranges

The main factors that influence the system transmission range are type and location of the antennas of the receiver and the transmitter, type of terrain and degree of obstruction of the link path, sources of interference (screening) affecting the receiver, and "Dead" spots caused by signal reflections from nearby conductive objects. Since the expected transmission range strongly depends on the system conditions, range tests should categorically be performed before notification of a particular range that will be attainable by a certain application.

In the best conditions, where there are no obstructions creating screening, a radio signal is transmitted in a 65 ft (20 m) range for the 868.3MHz and a maximum 32 ft (10 m) range for the 315MHz, between the Transmitter (Tx) and Receiver (Rx). In certain cases where there are some obstructions, the range could be decreased. Here are some examples of different types of wireless range reducers:

Material	Range Reduction vs. LoS
Wood, drywall, glass (uncoated, without metal)	0 – 10%
Brick, particle board	5 – 35%
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Metallic obstructions such as wall reinforcements, machinery, metal office furniture (large filing cabinets), etc. are major sources of field strength reduction, but small metal studs on a gypsum dry wall do not show a recognizable screening. Furthermore, fire-safety walls, elevator shafts, stairwells, and supply areas should be considered as complete transmission screens. In addition, the angle with which the transmission travels through the obstructions has a major influence on the field strength. The steeper the angle through an obstruction the more the field strength dampens. Therefore it is preferable that the transmission should be arranged so that it travels straight and perpendicularly through the obstruction. Wall niches should be avoided as well. Other factors that restrict transmission range include:

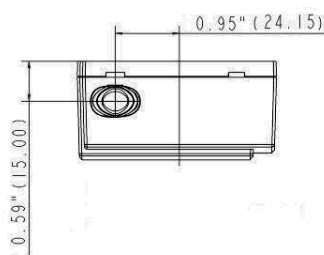
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- Metal separation walls or hollow lightweight walls filled with insulating wool on metal foil
- Inserted ceiling with panels made of metal or carbon fiber
- Steel furniture, glass with metal coating (typically not used indoor)
- Switch mounted on metal surfaces (typically 30% loss of range)
- Metallic switch frames (typically 30% loss of range)

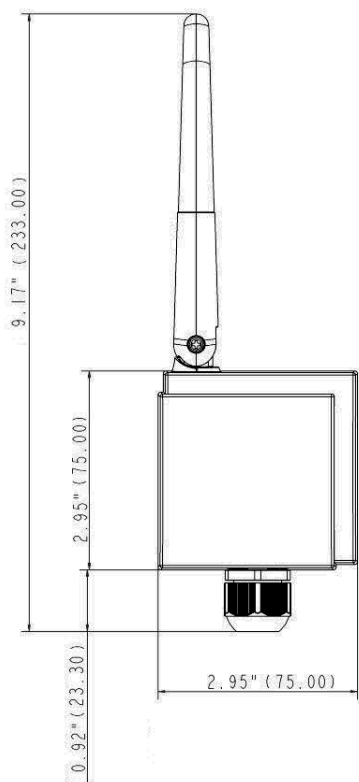
The distance between EnOcean receivers and other transmitting devices such as computers, audio and video equipment that also emit high-frequency signals should be at least 1.6 ft (0.5 m)

For more information about the EnOcean and Open-to-Wireless technologies, refer to the [Open-to-Wireless Solution Application Guide](#). For more information about the Wireless Receiver module, refer to the [Open-to-Wireless Solution Datasheet](#). These documents can be found on our web site.

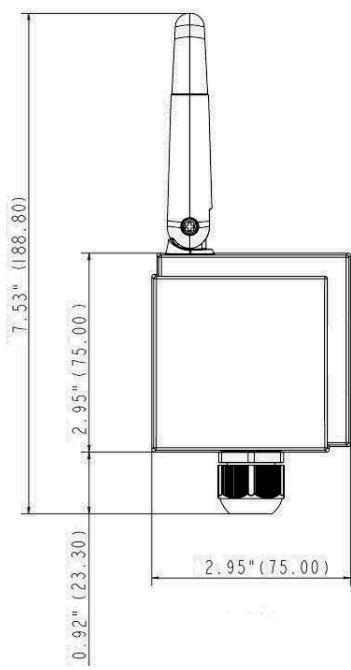
Wireless Receiver Dimensions



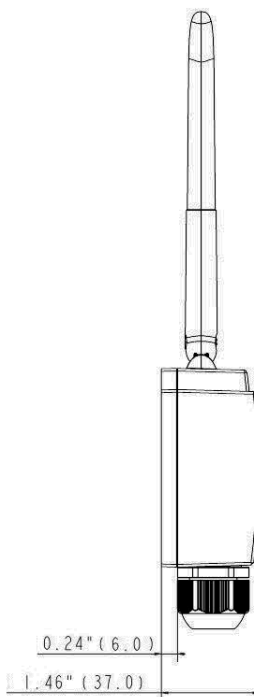
Top View



Wireless Receiver (315)



Wireless Receiver (868)



Side View

Unit legend:
inches (mm)

Product Specifications

General

Power Supply	From controller
Communication Protocol	EnOcean
Communication Frequency	
- Wireless Receiver (315) ¹	315MHz
- Wireless Receiver (868)	868.3MHz

Hardware

Receiver	
- Wireless Receiver (315)	EnOcean TCM 200C
- Wireless Receiver (868)	EnOcean RCM 120
Cable	Telephone cord (included)
- Connector	4P4C modular jack
- Length (maximum)	6.5 ft; 2 m

Electromagnetic Compatibility

Wireless Receiver (315)	
FCC	This device complies with FCC rules part 15
IC	RSS-GEN RSS-210
Wireless Receiver (868)	
CE -Emission	ETSI EN 301 489-1: 2001 – 09 ETSI EN 301 489-3: 2001 – 11 (Class 2) ETSI EN 300 220-3: 2000 – 09
-Immunity	ETSI EN 61000-6-2: 2002 – 08

Enclosure

Material	ABS type PA-765A
Color	White enclosure with black antenna
Shipping Weight	0.40lbs (0.18kg)
Mounting Options	- Wall mounting using two-faced tape (included) - Wall mounting using screws and wall anchor - Mounting on a metal enclosure using a 1/2-inch NPT hub (included)

Environmental

Operating Temperature	0°C to 50°C; 32°F to 122°F
Storage Temperature	-20°C to 70°C; -4°F to 158°F
Relative Humidity	0 to 90% Non-condensing

Agency Approvals

UL Listed (CDN & US)	UL916 Energy management equipment
Material ²	UL94V-1



1. The Wireless Receiver (315) attained FCC and IC approvals, so in North America, 315MHz is the recommended transmission frequency. For information on the transmission frequencies used in various countries around the world, refer to the [Open-to-Wireless Solution Application Guide](#).
2. All materials and manufacturing processes comply with the RoHS directive .

Countries Where Wireless Devices Meet Transmission Norms

Region	868.3MHz	315MHz	Additional notes
America			
– USA, Canada ¹		Yes (every 6.5s)	868.3MHz meets transmission norms, but is not supported. Refer to <i>Tech Note # 123</i> for more details.
– Brazil, Colombia	Yes (every 6.5s) ²	Yes (every 6.5s)	
– Mexico	Yes (every 6.5s)		
– Argentina			Convergence to FCC expected
Europe			
– European Union: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom	Yes (every 0.4s) ³		
– Rest of Europe: Albania, Bosnia-Herzegovina, Croatia, Georgia, Monaco, Serbia, Turkey, Ukraine	■		
– Russia	In the process		Following R&TTE in process
Asia Pacific			
– New Zealand	■	■	
– French Polynesia, Papua New Guinea, Tonga	■		
– China, Hong Kong, Taiwan		■	
– Bangladesh	■	■	
– India		■	FCC compliant equipment is accepted for type approval
– Japan		■	PTM200C does have MIC grant
– Malaysia	■		On special license, approval necessary: www.sirim.my
– Singapore	■	■	
– South Korea			Convergence to Japan expected
– Thailand		■	
– Vietnam	■	■	
Middle East			
– Saudi Arabia, Lebanon	■	■	
– UAE (Dubai, Abu Dhabi)	■	■	PTM200 does have TRA grant (868MHz)
– Israel		■	
– Kuwait, Oman, Jordan, Tajikistan	■		
– Bahrain		■	
Africa			
– Burkina Faso, Djibouti, Malawi, Mauritius, South Africa, Swaziland, Togo, Uganda, Zambia, Zimbabwe	■		
– Egypt			Approval necessary: www.ntra.gov.eg

1. Distech Controls attained FCC and IC approvals for its 315MHz Wireless Receiver and recommends using this transmission frequency in North America. In fact, transmission in 868.3MHz must be avoided in North America because of a potential source of interference from trunk radio stations. Depending on the distance to the wireless installation, this interference may cause some disturbances to the wireless transmission. For more details, refer to *Tech Note #123*.
2. This is an FCC duty cycle regulation; 1 radio packet of a transmitter should not be sent within 6.5 seconds of the previous one.
3. This is an R&TTE duty cycle regulation; 1 radio packet of a transmitter should not be sent within 0.4 seconds of the previous one.



This table should only be used as a guideline; it is not meant to be all-inclusive. Before starting an installation, please contact the proper local authorities.

Total Quality Commitment

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EC-Net^{AX} Security: Access Control and CCTV



EC-Net^{AX} Security is a comprehensive, easy-to-use Access Control management solution built on the Niagara^{AX} Web-based platform.

EC-Net^{AX} Security is a fully scalable solution suitable for projects ranging from single door installations to multi-building deployments, and features an intuitive Web interface that can be configured and managed by Security, IT, or Human Resource departments with little or no training.

EC-Net^{AX} Security offers unmatched flexibility, ease-of-use, as well as many other advantages as part of an integrated building management system. EC-Net^{AX} Security provides:

- Integrated control of HVAC, Lighting, Access, and CCTV, resulting in energy savings through occupancy-based control when connected to EC-Net^{AX}
- Integration of Access Control with Building Management Systems, IT, and enterprise applications
- Capability to monitor and control elevator/floor access, specific preset locations, and video via a single interface
- An all-in-one controller for HVAC (LONWORKS® and BACnet®), Access Control, and CCTV from a single device
- Ability to add Access Control to a new installation or existing EC-Net^{AX} system
- Quick and easy set-up and rapid deployment
- Integrated closed circuit television (CCTV) solution interfaces to many leading Digital Video Recorder (DVR) equipment manufacturers
- Rapid access to video playback related to individual alarm events and alarms



EC-BOS^{AX} Security

Based on the Niagara^{AX} Framework, the EC-BOS^{AX} Security is an IP-based controller that eliminates the need for on-site computers or thick client software. It provides Access Control and CCTV integration capabilities and is fully configurable through a standard Web browser.

- EC-BOS^{AX} Security also provides supervised access and log entry information.
- EC-BOS^{AX} Security integrates easily with existing HVAC and Lighting Control systems using BACnet, LONWORKS, or Modbus protocols.

Integration with HVAC & Lighting Control Systems

The added benefit of the EC-Net^{AX} Security solution over many other Access Control systems is that it is built to integrate with other building automation systems including HVAC and Lighting.

The EC-BOS-6^{AX} Security is an all-in-one controller that has the power and capacity to connect to not only Access Control readers, intrusion keypads and CCTV cameras, but to HVAC and lighting controllers as well. That makes it a cost-effective solution for integrated control in small to medium-sized facilities.

In addition, EC-Net^{AX} Security Supervisor can be incorporated to integrate system-wide information from up to 500 EC-BOS^{AX} Security controllers. Furthermore, there are several upgrade options that can be used to increase the capacity of your network, or convert a regular EC-Net^{AX} Supervisor into the Security version and vice versa.

Complementary Products

Readers and Credentials - Distech Controls' physical Access Control solutions provide the most extensive line of powerful and versatile Access Control readers and credentials (125 kHz and 13.56 Mhz) in the industry.

CCTV - Distech Controls also offers a full line of security surveillance products including network video servers, digital video recorders, remote viewing software, virtual matrix solutions, enterprise-class management tools, analytics, and analog and IP cameras.



Product Guide

EC-Net^{AX} Security Software

EC-Net^{AX} Security Supervisor

EC-Net^{AX} Security Supervisor is a flexible graphical user interface that combines a comprehensive Access Control and security management solution with traditional building management functions such as scheduling, trending, alarming, historical data collection, and advanced energy management applications

EC-Net^{AX} Security Web Tool

The EC-Net^{AX} Security Web user interface serves easy-to-use views of credentials, schedules, alarms, and activities, and provides quick access to rich live data such as events and alarms. No thick client software is required.

EC-Net^{AX} Video

EC-Net^{AX} Video is an open video framework solution designed to integrate diverse manufacturer devices and protocols into a unified, smart facility management system

EC-Net^{AX} Security Controllers & Enclosures

EC-BOS-6^{AX} Security

Provides access control according to card reader lecture of badges, and allows for two card readers to be connected directly to the controller. EC-BOS^{AX} Security also provides supervised access and log entry information

Remote Reader

Provides two additional card readers to be linked to EC-BOS^{AX} Security

Remote IO Security

Provides additional inputs/outputs to EC-BOS^{AX} Security

Small, Medium and Large Enclosure Security

Wall Mount enclosure that allows installation of EC-BOS Security, 2 remote readers or remote IO Security within a common container. Allow power distribution to components and rack mounted installation

Complementary Products

Card Readers & Credentials

Cameras

Digital Video Recorders

Hybrid Digital Video Recorders (support both Analog and IP cameras)





Overview

Distech Controls' EC-Net^{AX} Security is a comprehensive access control and security management solution, built on a truly open, IP based platform. Developed using the Niagara^{AX} Framework®, EC-Net^{AX} Security provides unparalleled interoperability not only within traditional security environments, but also extends seamlessly to create a unified, intelligent building by integrating with today's diverse facility systems including environmental controls, lighting, energy management, fire and video.

The core architecture of EC-Net^{AX} Security is proven and designed to solve the complexities of integrating disparate systems in real world scenarios.

EC-Net^{AX} Security provides scalability ranging from single door solutions to multi-building/multi-campus deployments. Entirely accessible from any standard web browser, the solution provides flexible anytime, anywhere access into the system, while liberating end users from dedicated client workstations in the traditional client /server model. EC-Net^{AX} Security is open- open architecture, open framework, open distribution and open protocol support.

By integrating today's diverse building systems such as environmental controls, security, lighting, energy, fire and video, the Niagara^{AX} Framework is creating better buildings—ones that are smarter, use less energy, are more efficient, have lower operating costs, are safer and contribute to a sustainable environment.

Applications

- Provide a comprehensive access control and security management solution.
- Integrate CCTV cameras and video recorders for added security.
- Integrate seamlessly with diverse building systems such as environmental controls, lighting, and energy management.
- Integrate a variety of devices and protocols into a common distributed automation system.
- Create a network environment with comprehensive database management, alarm management and messaging services.

Features & Benefits

- Connects to almost any embedded device, regardless of manufacturer or communication protocol, as a result the common environment created by Niagara^{AX}'s open Java-based Framework.
- Web based security application – easily managed via a standard browser anytime, anywhere.
- Reduces development time by merging automation, IT and Internet technologies in a single solution. With an EC-BOS^{AX}, advanced web-services applications, such as TCP/IP, HTTP, XML, SOAP, and oBIX, can be implemented so that you can read data, send commands, and respond to alarms in real-time from anywhere using any standard web browser.
- Centrally managed card holder and credential database.
- Integrated video solution with interfaces to many leading video manufacturers.
- Integrates geographically dispersed, multi-vendor devices into an interoperable application to save time and money.

Application Highlights

Enterprise Level Browser Based System

Distech Controls' EC-Net^{AX} Security solution was built from the ground up on web enabled technologies. Complete system functionality, system configuration and monitoring are available anytime, anywhere from any standard browser interface removing the PC requirements present in traditional client/server architectures.

Active Monitor

Comprehensive system-wide event viewer provides instant feedback on card access traffic, system administration changes and status updates on system arm/disarm. System activity is stored as historical data and can be retrieved through comprehensive built in reporting tools. Search using a standard list of pre-defined reports or generate custom reports using powerful ad-hoc reporting capabilities.

Powerful Integration Toolset

A comprehensive, integrated toolset is a fundamental part of the EC-Net^{AX} Security offering. The graphical toolset enables non-programmers (domain experts) to extend the capabilities of the standard product.

Using the toolset, integrators can integrate Building Automation, Energy Management, Lighting Control and a wide range of custom solutions tailored to their end user's needs — all while working in a powerful drag-and-drop, graphical programming environment.

Video and Graphics Support

Complete integrated facility command and control from a common user experience. Accessible through any standard web browser, with real-time information from many different systems presented through an intuitive, easy-to-use interface. Also integrates video with access control, building automation and energy management.

Extensive Access Zone Management

In addition to common access control functions, enterprise security includes comprehensive rule based access control through access zone management. The system provides one-click global lock down as well as supervisor rule enforcement, thereby restricting access to areas unless appropriate supervisory staff is present. The extensive occupancy counting functions allow access restrictions based on maximum and minimum number of occupants. Occupancy data can be used to automatically adjust building comfort controls by leveraging the extensive facility integration capabilities.

EC-Net^{AX} Security Supervisor Versions and Drivers

EC-Net^{AX} Security Supervisor EU

Base supervisor licensed for 8 Readers, 4 EC-BOS Security

Additional Reader Licenses

EC-SEC-R-8	Expands EC-Net ^{AX} Security license by 8 Reader, 4 EC-BOS Security license
EC-SEC-R-32	Expands EC-Net ^{AX} Security license by 32 Reader, unlimited EC-BOS license
EC-SEC-R-64	Expands EC-Net ^{AX} Security license by 64 Reader, unlimited EC-BOS license
EC-SEC-R-256	Expands EC-Net ^{AX} Security license by 256 Reader, unlimited EC-BOS license
EC-SEC-R-512	Expands EC-Net ^{AX} Security license by 512 Reader, unlimited EC-BOS license
EC-SEC-R-1024	Expands EC-Net ^{AX} Security license by 1024 Reader, unlimited EC-BOS license

Upgrades

EC-SEC-8R-4EC-U

Upgrade Existing EC-Net^{AX} Supervisor to EC-Net^{AX} Security Supervisor licensed for 8 Readers, 4 EC-BOS Security

Specifications

Maximum Number of	EC-Net ^{AX} Security Supervisor	EC-BOS-6 ^{AX} Security
Personnel	1 000 000	5000
Access Rights ¹	10 000	16
Schedules	25 000	100
Access Zones	25 000	10
Intrusion Zones	N/A	5
Intrusion Keypads	N/A	2
On-line Historical Records	25 000 000	10 000
Simultaneous System Users	25	5
Area Controllers	500	N/A

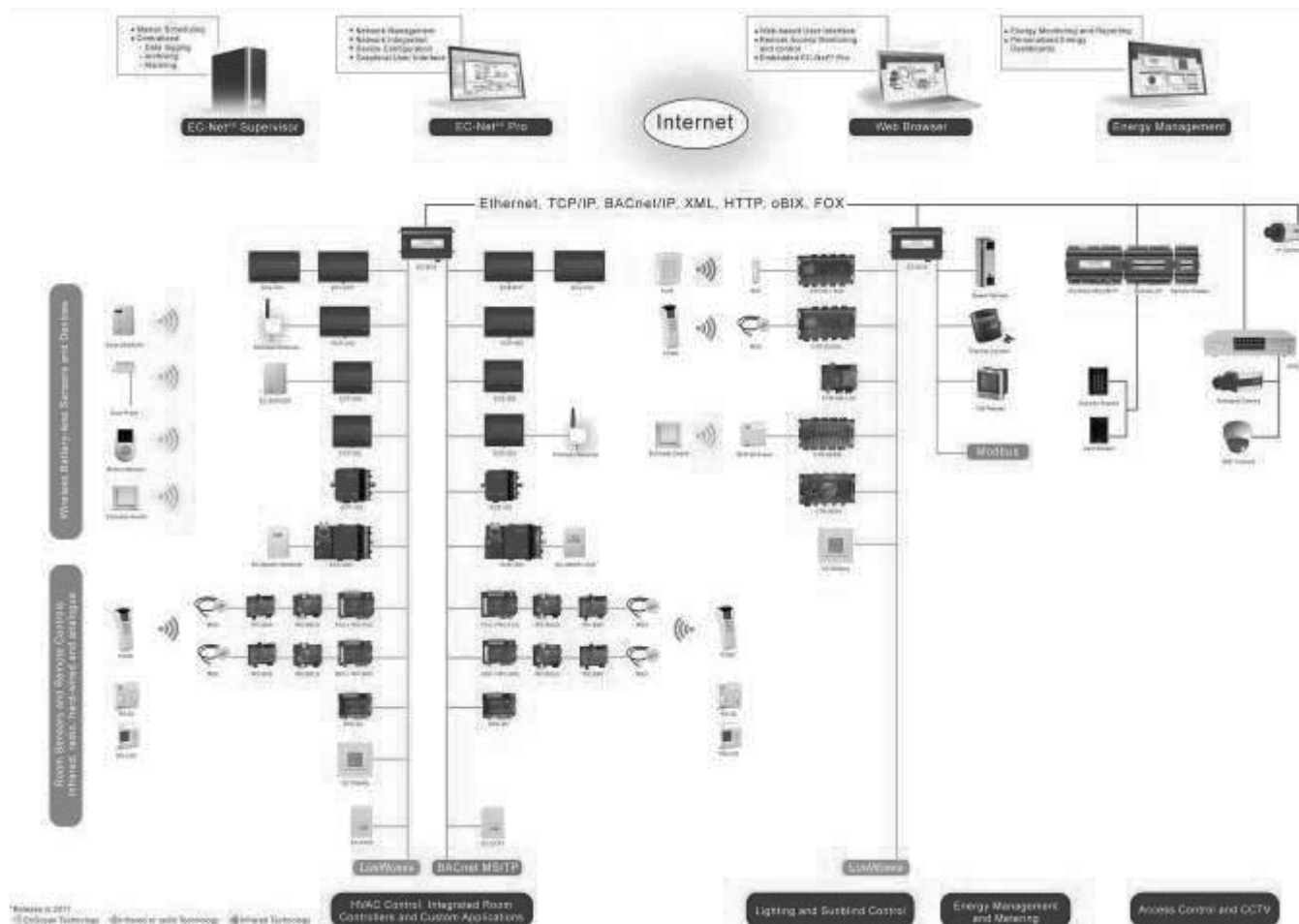
1. The number of access rights assigned to an individual cardholder is limited to 15.

Minimum Requirements

Component	Number of Controllers	
	1 to 100	More than 100
Processor	Pentium IV @ 2GHz	Core 2 Duo 2 GHz
Memory	4GB	8GB
Disk Capacity	250GB	500GB
Operating System	Windows XP or Windows Server 2008	Windows Server 2008 64Bit



Typical Architecture



Product Warranty & Total Quality Commitment

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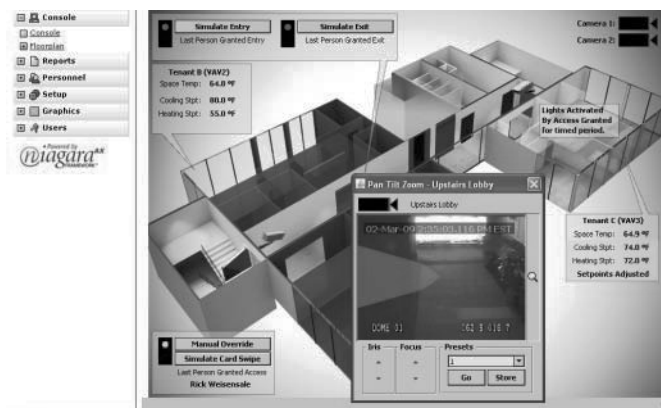
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EC-Net^{AX} Security

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Overview

EC-Net^{AX} Video by Distech Controls is an open video framework solution designed to integrate diverse manufacturer devices and protocols into a unified, smart facility management system. Built on the Niagara^{AX} Framework®, EC-Net^{AX} Video integrates with IP and analog based systems to create complete interoperability between video, security, lighting, energy management, and building automation for any facility.

The EC-Net^{AX} Video solution is a comprehensive video model that works with digital video recorders, IP cameras, network video recorders, and video management solutions. The video model supports a bi-directional alarming interface allowing event driven communication between video and EC-Net^{AX} based applications. The integrated alarm monitoring and video recall console allows system administrators to immediately review and assess video associated with alarm conditions. A single, EC-Net^{AX} integrated application provides in-depth review of the entire facility through a browser-based user experience.

Applications

- Building management and security including access control, parking lot/garage, loading dock, warehouse, retail POS, and secure areas
- Transportation centers such as ports and public transportation centers (airports, train/subway stations, etc.)
- Military compounds and airbases
- HVAC equipment monitoring

Features & Benefits

- Bi-directional alarming interface between EC-Net^{AX} stations and video products
- EC-Net^{AX} alarm extensions can initiate events in video subsystem
 - Automatically redirect camera and start video recording
 - Create video system alarm record and associate recorded video
- Integrated video playback with EC-Net^{AX} alarm console
- Customizable user experience through extensive video widget library (PX pages)
- Supports pan, tilt, zoom, iris, and focus camera control
- Video system events such as video motion detection and camera loss alarms can be processed as standard EC-Net^{AX} alarms
 - Video alarms available in EC-Net^{AX} alarm console with available hyperlink to event video
 - Initiate control logic sequences such as lighting control, building lockdown, etc.
- Ability to view live video through EC-Net^{AX} graphical user experience
- Query video subsystem for stored video and playback by time and date

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Supported Platforms

EC-Net^{AX} 3.2 and higher

EC-Net^{AX} Security 2.0 and higher

EC-BOS-6^{AX} (Maximum of 16 cameras, requires extended memory option)

EC-BOS-6^{AX} Security (Maximum of 16 cameras)

Ordering Information

Dedicated Micros



EC-DR-DED-16

Dedicated Micros DVR 16 Camera License (Web Supervisor Video Driver)

EC-DR-DED-4

Dedicated Micros DVR additional 4 Camera license (Web Supervisor Video Driver)

EC-BOS-DED-4

Dedicated Micros DVR 4 Camera license (EC-BOS Video Driver)

Axis Communications



EC-DR-AXS-16

Axis cameras 16 Camera License (Web Supervisor Video Driver)

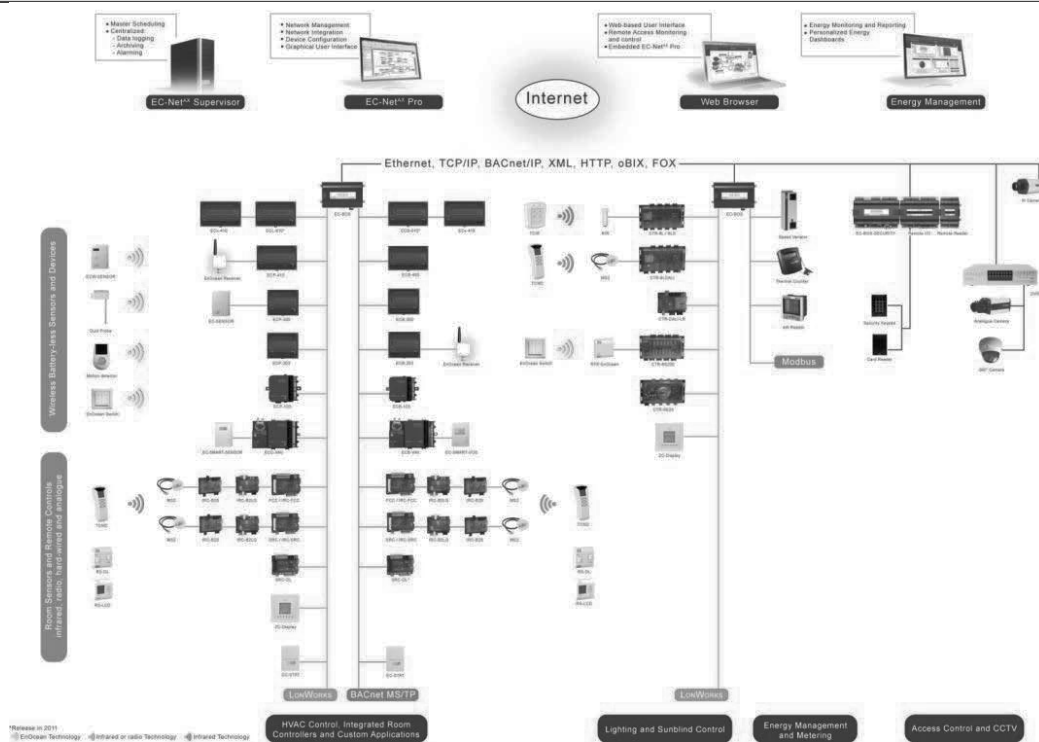
EC-DR-AXS-4

Axis Cameras additional 4 Camera license (Web Supervisor Video Driver)

EC-BOS-AXS-4

Axis Cameras 4 Camera license (EC-BOS Video Driver)

Typical Architecture



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EC-Net^{AX} Video

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Applications

- Full-featured facility access management system
- Elevator control to limit floor access
- Intrusion detection
- Advanced occupancy restrictions (access zones) further restricts access to high-security areas
- Integrate access control with existing building automation system

Features & Benefits

- Web User Interface serves easy-to-use views of credentials, schedules, alarms and activities and provides quick access to rich live data such as events and alarms. No thick client software is required
- Authorized security administrators can manage credential enrollment, access rights and schedules, time and attendance and alarm response in real time through a standard web browser from anywhere at anytime
- Pre-defined custom reports can be viewed on screen or exported
- Custom graphic floor plans and equipment displays
- Access zone definition for advanced occupancy restrictions
- User-definable Wiegand card formats
- EC-Net^{AX} Security allows for monitoring and control of a facility in real-time; actions are initiated as events are occurring
- Seamlessly integrates to HVAC, lighting, and energy management applications
- There is no need for an on-site PC or to purchase and install proprietary software since EC-Net^{AX} Security is accessed through a standard web browser
- Remote maintenance and troubleshooting improves ROI (return on investment) by reducing labor costs
- Reduce energy use via true occupancy-based control of lighting and comfort systems by integrating EC-Net^{AX} Security with other IP-based systems.
- Integrated management of access control, alarm monitoring, intrusion detection and credential database

Overview

EC-Net^{AX} Security is an open, web-based access control solution that allows you to manage and monitor your facility anytime, anywhere. Built on the Niagara^{AX} Framework®, EC-Net^{AX} Security integrates with any building automation system, enabling you to control lighting, HVAC equipment, and other building systems in response to access events and/or alarm conditions.

The heart of EC-Net^{AX} Security is the EC-BOS^{AX} Security, an advanced IP-based controller that eliminates the need for on-site PCs or thick client software. EC-Net^{AX} Security enables authorized security administrators to manage credentials, access rights, access control, intrusion detection, and alarm monitoring via a web browser interface from anywhere.

EC-Net^{AX} Security is built on the Niagara^{AX} Framework, the industry's leading facility automation and management platform. This allows integration with your building control system via BACnet®, LONWORKS®, or Modbus. Enterprise connectivity through XML, SNMP, oBIX and HTTP is also supported.



EC-BOS^{AX} Security Controller



Model	EC-BOS-6^{AX} Security	
Processor	- PowerPC 440 524MHz - 256 MB DDR RAM & 128 MB Serial Flash - Battery Backup - Real-time Clock	
Card Readers Connected Directly	2	
Supervised Inputs	6	
Digital Inputs	3	
Relay Outputs	4	
Remote Reader Modules	Up to 15 ¹	
Remote I/O Security Modules	Up to 15 ¹	
Total Readers	32 ²	
Intrusion Arming Keypad	Up to 10	
Total I/O	120 ² /120 ²	
Personnel Records	10,000	
History Records	50,000	
Product Number	CDITR-BSE6010	

1. Maximum of 15 modules (combines reader and I/O) per EC-BOS-6^{AX} Security.
2. Up to 32 readers or 120 I/O points, depending on module combination.

EC-Net^{AX} Security Web Tool

Real Time Monitoring

Access real time alarm and activity monitoring from an intuitive console and quickly view facility graphical layouts to locate points of entry, exit and alarms. Facilitate operator response to system events with unique alarm point instructions or process events with pertinent notes to create a written record of events.

Comprehensive Reporting

Historical data is easily searchable through a list of pre-defined reports and comprehensive ad-hoc reporting capabilities. Export results to comma separated value (CSV) format or standard PDF format utilizing flexible report styles to customize report layouts.

Alarm Console						
<input type="checkbox"/>	Timestamp	Source	Source Status	Ack. Status	Priority	Alarm Class / Message
<input type="checkbox"/>	10-Mar-10 6:36:55 AM EST	NagaraNetwork SecurityUgo	Offnormal	0 Acked / 7 Unacked	150	defaultAlarmClass Ping Failed
<input type="checkbox"/>	10-Mar-10 6:33:48 AM EST	ReplicatorService	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass SecurityUgo failed replication
<input type="checkbox"/>	09-Mar-10 5:09:30 PM EST	SecurityUgo:BaseModule:Entrance_Sensor	Offnormal	0 Acked / 5 Unacked	150	defaultAlarmClass Door Held Open Alarm
<input type="checkbox"/>	09-Mar-10 5:00:00 PM EST	SecurityUgo:NagaraNetwork:ecnetUxSecurity	Normal	0 Acked / 7 Unacked	150	defaultAlarmClass Ping Success
<input type="checkbox"/>	09-Mar-10 3:53:33 PM EST	SecurityUgo:PlantSideModule:SideExit_Sensor	Normal	0 Acked / 4 Unacked	250	High Door Forced Alarm Cleared
<input type="checkbox"/>	09-Mar-10 3:53:28 PM EST	SecurityUgo:GunpitZone	Alert	0 Acked / 3 Unacked	150	defaultAlarmClass Granted But Anti Passback Violation: Person Already Inside
<input type="checkbox"/>	09-Mar-10 3:44:24 PM EST	SecurityUgo:BaseModule:Reader 1	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass Badge Does Not Exist
<input type="checkbox"/>	09-Mar-10 1:24:00 PM EST	SecurityUgo:Input/Output Module:RoofHatch	Offnormal	0 Acked / 2 Unacked	250	High roof hatch is open!
<input type="checkbox"/>	09-Mar-10 1:14:03 PM EST	SecurityUgo:Input/Output Module:RoofHatch	Normal	0 Acked / 1 Unacked	250	High Supervised Fault Cleared
<input type="checkbox"/>	09-Mar-10 1:11:25 PM EST	SecurityUgo:AccessNetwork:Input/Output Module	Normal	0 Acked / 1 Unacked	150	defaultAlarmClass Ping Success
<input type="checkbox"/>	09-Mar-10 1:11:25 PM EST	SecurityUgo:AccessNetwork:BaseModule	Normal	0 Acked / 1 Unacked	150	defaultAlarmClass Ping Success
<input type="checkbox"/>	09-Mar-10 1:11:25 PM EST	SecurityUgo:AccessNetwork:PlantSideModule	Normal	0 Acked / 1 Unacked	150	defaultAlarmClass Ping Success
<input type="checkbox"/>	09-Mar-10 10:47:12 AM EST	SecurityUgo:PlantSideModule:PlantExitRd	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass Granted But Not Used
<input type="checkbox"/>	09-Mar-10 10:46:52 AM EST	SecurityUgo:PlantSideModule:PlantEntryRd	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass Granted But Not Used
<input type="checkbox"/>	09-Mar-10 9:03:09 AM EST	SecurityUgo:BaseModule:breakRoomId	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass Badge Does Not Exist
<input type="checkbox"/>	09-Mar-10 9:01:25 AM EST	SecurityUgo:BaseModule:break_Room_Sensor	Normal	0 Acked / 1 Unacked	250	High Door Forced Alarm Cleared
<input type="checkbox"/>	09-Mar-10 9:01:14 AM EST	SecurityUgo:BaseModule:Entrance_Sensor	Normal	0 Acked / 1 Unacked	150	defaultAlarmClass Door Forced Alarm Cleared
<input type="checkbox"/>	09-Mar-10 6:57:00 AM EST	SecurityUgo:BaseModule:breakRoomId	Alert	0 Acked / 1 Unacked	150	defaultAlarmClass granted But Not Used
<input type="checkbox"/>	09-Mar-10 6:49:43 AM EST	SecurityUgo:BaseModule:break_Room_Sensor	Normal	0 Acked / 1 Unacked	150	defaultAlarmClass Door Held Open Alarm Cleared

Recommended Peripherals

Expansion Modules



Security Reader Module

Remote reader module
(2) card reader inputs
(4) supervised inputs
(2) digital inputs
(2) Form C (SPDT) relay outputs.



Security I/O module

Remote I/O module
(8) supervised inputs
(2) digital inputs
(8) Form C (SPDT) relay outputs.



Security keypad

LCD display and keypad for arming and disarming Intrusion Zones. Display also provides feedback to the user regarding arming status and status of individual intrusion points.

Enclosure



EC-SEC-ENC-WM

Wall Mount enclosure for EC-BOS *Security*, 2 reader modules or IO modules

HID Readers & Credentials



Various Models

HID offers 13.56MHz and 125kHz readers and credentials for various types of installations.

Dedicated Micros Cameras



Various Models

Dedicated Micros offers various types of cameras and camera accessories including box type, interior dome, vandal dome, PTZ and IP cameras.

Dedicated Micros Video Recorders



Various Models

Dedicated Micros offers various models of video recorders and video recorder accessories for both analog and IP cameras, small to large installations and for a wide range of applications.

Other Products (Hardware)



EC-NPB-2X-485

Dual port RS-485 option card. Required for intrusion keypad.

EC-NPB-LON

78Kbps FTT-10A LON adapter

EC-NPB-GPRS

GPRS Modem option card

EC-NPB-PWR-UN

90-263VAC/15VDC, 50/60Hz Universal Power Supply Module. DIN rail mountable

For more information on these or other Distech Controls products please refer to our website at www.distech-controls.eu or call +33 4 78 45 01 23.

Product Warranty & Total Quality Commitment

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EC-Net^{AX} Security

EC-BOS^{AX} Security

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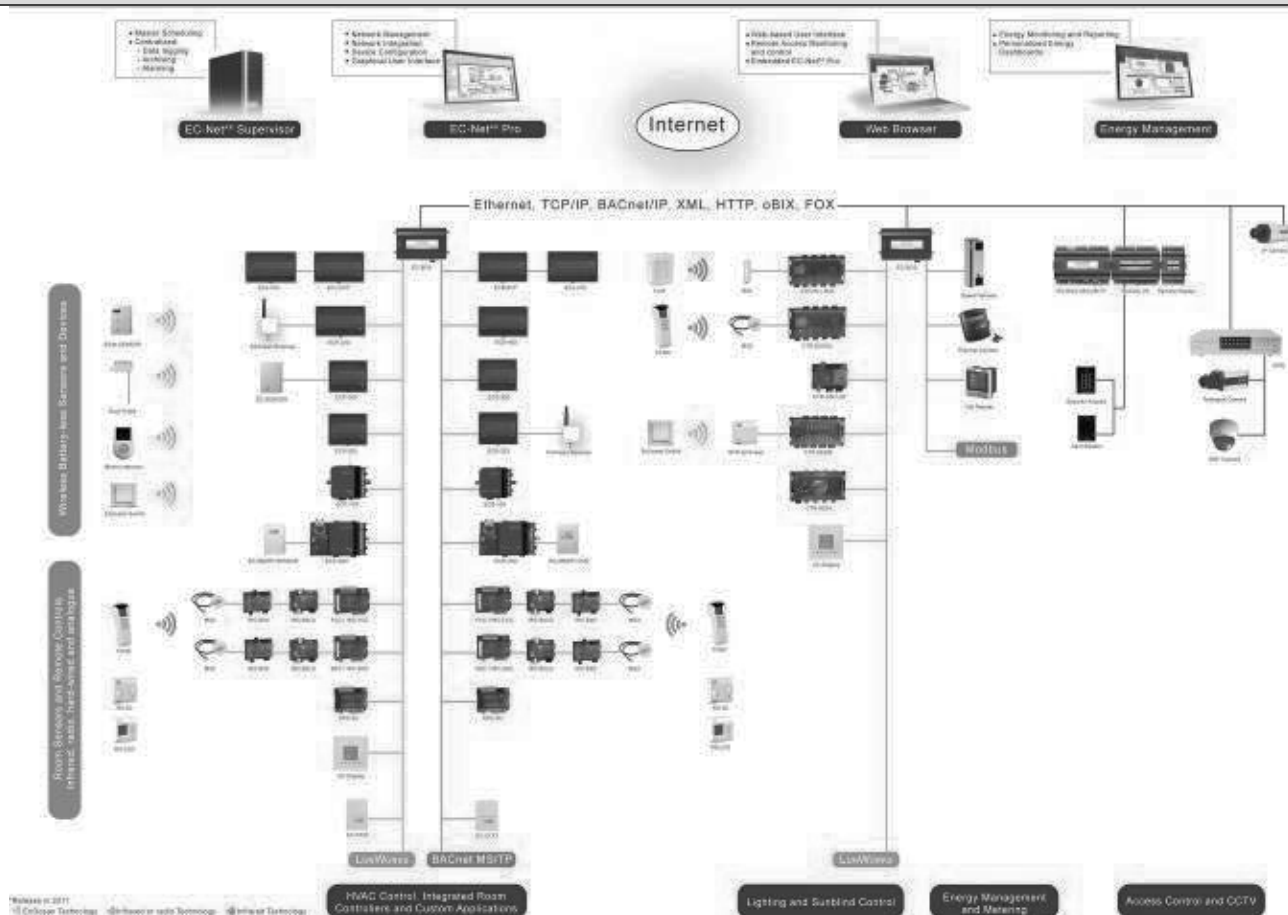
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Product Specifications

Platform		Chassis	
Processor:	See EC-BOS ^{AX} Security Controller	Construction:	Plastic, din rail or screw mount chassis, plastic cover
Memory:	See EC-BOS ^{AX} Security Controller	Cooling:	Internal air convection
		Dimensions:	16 cm (W) x 12,2cm (H) (including connectors) x 6,2cm (D)
		Weight:	0.708 Kg
Communications		Environment	
Methods:	<ul style="list-style-type: none"> - 2 Ethernet Ports – 10/100Mbps (RJ-45 connectors) - 1 RS-232 Port (9-pin D-shell connector) - 1 RS-485 isolated port (6 pin screw terminal) - 1 6-Pin Connector (for Power modules) - 2 communication card option slots 	Operating Temp.:	0°C to 50°C
		Storage Temp:	0°C to 60°C
		Relative Humidity:	5% to 95%, non-condensing
Operating Systems		Agency Listings	
Types:	<ul style="list-style-type: none"> - QNX RTOS - IBM J9 Java Virtual Machine - Niagara^{AX} 3.5 or higher 	UL:	UL 294
		CE:	C-UL listed to Canadian Standards Association
		FCC:	For details, refer to EC-BOS-6 ^{AX} Security Mounting and Wiring Instructions
		Part 15 Class A	



Typical Architecture



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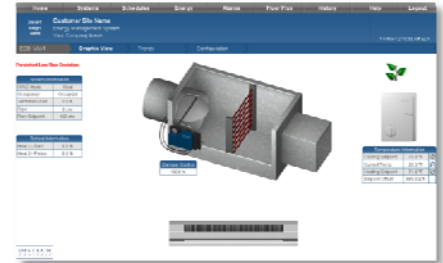
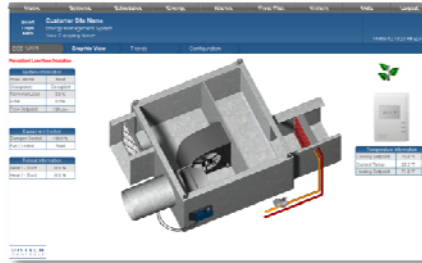
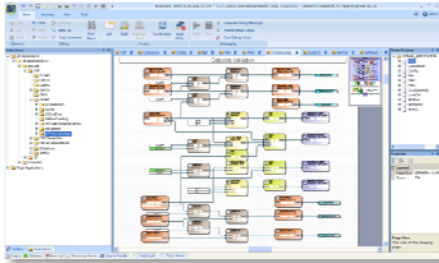


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EC-BOS^{AX} Security

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Programming and Productivity Enhancing Toolsets



Distech Controls provides EC-Net^{AX} wizards and EC-gfxProgram, graphical programming interface, for the configuration and custom programming of our BACnet[®] and LONWORKS[®] controllers. These tools significantly improve efficiency of the engineering and programming processes in the EC-Net^{AX} solution.

Distech Controls' programming and productivity enhancing toolsets are designed with a comprehensive, integrated approach that improves serviceability options and efficiency, while providing the necessary agility to address the specific operational requirements of a facility.

This toolset facilitates device configuration, reduces programming time, and increases installation, troubleshooting, and commissioning efficiency by over 25%, and includes:

- Common graphical programming interface for BACnet and LONWORKS controllers
- Pre-engineered applications and images libraries
- Pre-built, auto-generated graphics pages, with pre-defined devices, alarms, and logs
- Our control sequences comply with the highest standards in energy efficiency, including California Title 24, ASHRAE Indoor Air Quality, and ASHRAE HVAC applications to automatically provide maximum energy efficiency, while reducing energy waste.

In addition, Distech Controls' unique ECO-Vue™ leaf pattern can be used to deliver energy efficiency level indicators to pre-built graphics pages. The ECO-Vue feature provides the building operator with instant feedback on the level of energy efficiency that will be realized by the chosen comfort setting. The more ECO-Vue leaves appear on a page, the more energy efficiency is being achieved



EC-gfxProgram

- Common graphical programming tool for LONWORKS and BACnet programmable controllers
 - Provides an intuitive and customizable block-oriented programming environment
 - Complete with *gfxApplications*, an extensive library of pre-engineered, energy-efficient HVAC applications
 - Supplied toolbox includes more than 100 pre-defined functions including HVAC, Comparators, Logic, Math, Time, Input/Output, among others, to simplify programming and reduce programming time
 - Create your own standard code libraries and toolboxes from previously used code or code sections to save programming time
 - Supports large deployments with multiple device code download
 - Easily troubleshoot your application in real-time through live-debugging and a Watch List to monitor specific process variables and detect errors as they occur

Productivity Enhancing Toolsets

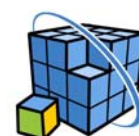
- Common toolset for BACnet and LONWORKS Programmable Controllers
 - **gfxApplications:** Pre-engineered HVAC applications, with pre-configured inputs and outputs, covering terminal, air handling, and central plant requirements
 - **dclImages:** Complete library of over 700 HVAC equipment and application images
 - **dcgfxApplications:** Pre-built EC-Net^{AX} graphic pages (PX) for display and controller configuration, with pre-defined devices, alarms, and logs. Graphic dynamically adapts to changes in configuration options

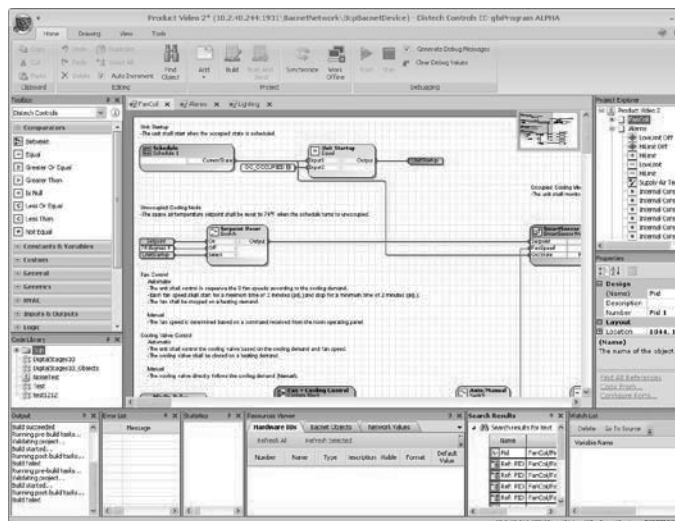
EC-Configure – Wizard EC-Net^{AX}

- Available for all Distech Controls' LONWORKS or BACnet configurable controllers
 - Intuitive configuration through a series of screens and forms
 - Easily configure a multitude of parameters, such as inputs and outputs, heating, cooling and fan settings, alarm conditions, PID parameters, and network variable settings

FaciliVue Toolset

- Easy-to-use and friendly graphical interface for Distech Controls' configurable controllers
 - Software tool for graphical rezoning of living spaces from base maps, based on preconfigured zone models relative
 - Create your application intuitively by positioning HVAC equipments, lights, blinds, sensors... directly on the topographical representation of your installation
 - Tested and validated solutions libraries





Overview

Distech Controls' EC-gfxProgram Graphical Programming Interface (GPI) tool makes Building Automation System (BAS) programming effortless by allowing you to visually assemble building blocks together as necessary to create a custom control sequence for any HVAC / building automation application. By "dragging and dropping" a few block objects from the EC-gfxProgram's vast library and connecting them with a simple "click, select, and release" process, you can quickly and easily assemble common control sequences and customized applications specific to your needs.

EC-gfxProgram provides an intuitive and customizable programming environment with window panes that can be moved, docked, and hidden; it adapts to how you work. The programming area is where you visually compose your code and when two or more code sheets need to be managed, new programming sheets can be created and layered relative to each other. Coupled with a ribbon bar along with the project explorer pane, you have all the tools necessary to keep your code well-organized.

EC-gfxProgram's block object toolbox provides you with an ample collection of components and functions that can be used to create simple to very complex control sequences. Use a Custom Block to keep your code clean by putting the specialized code that this block encapsulates on its own programming sheet. Block objects not only make coding clean and easy, but they also reduce basic errors that may arise when writing code conventionally. Furthermore, EC-gfxProgram's smart code compiling, error list pane, Watch List, and live debugger allows you to execute code, view input/output values, and troubleshoot errors in real-time.

EC-gfxProgram can be run from any multi-protocol software platform supporting BACnet® and LonWorks® devices such as Distech Controls' EC-Net^{AX} Pro, powered by the Niagara^{AX} Framework or from any LNS-based software such as Distech Controls' Lonwatcher.

Applications

- Designed to program Distech Controls' ECB, ECL and ECP programmable controllers.
- Furnished with *gfxApplications*, a diverse library of standard pre-coded, tested, and energy-efficient HVAC applications. These applications are modular, allowing you to easily customize them to your specific needs. Variable Air Volume applications are currently supported with a growing range of application types: Air Handling Unit, Roof top Unit, Fan Coil Unit, Heat Pump Unit, Chilled Ceiling Unit, Chiller plant, and more.
- Supports the configuration of a line of wireless battery-less devices¹ as well as the EC-Smart-Sensor and EC-Smart-Vue series of communicating sensors with LCD display.
- Supports large deployments with multiple device code download.

Features & Benefits

- Program both ECL/ECP Series LonWorks® and ECB Series BACnet® controllers with the same tool
- EC-gfxProgram simplifies BAS programming:
 - Allows you to easily create a control sequence according to the engineer's specifications.
 - Uses Block-oriented programming that reduces your learning curve and results in fewer errors making it a faster and more intuitive programming method.
 - Reduces language barriers in international environments.
- Easily troubleshoot your application in real-time through live-debugging that shows block input and output values of the code being executed, and a Watch List to monitor specific process variables to detect errors as they occur.
- Supplied toolbox includes more than 100 pre-defined functions split into 14 categories including HVAC, Comparators, Logic, Math, Time, Custom, and Inputs & Outputs among others to simplify programming and reduce programming time.
- The EC-Net^{AX} wizard and LNS plug-ins are supplied as freeware: Program and configure the device with your preferred platform. There are no associated licensing costs.

1. Only when the controller is combined with Open-to-Wireless Receiver.

Features & Benefits (Continued)

- Create your own standard code libraries and toolboxes from your own code to better manage your favorite or most commonly used code or code sections
- Standardize and reuse code in your organization by sharing code libraries and toolboxes.
- Complete jobs faster and simplify field support with the Toolbox Builder by providing technicians with tested, non-modifiable, application-specific blocks that are known to work.
- Send your terminal application code to multiple devices at once for easier deployment and update. This eliminates the tedious task of uploading code to each individual device one by one.
- Device firmware update wizard allows you to conveniently upgrade multiple devices at once¹.
- Automatically import point type, name and unit/enumeration into Niagara^{AX} thereby saving time normally required to import and configure a controller's Internal Points such as Inputs, Outputs, Constants, and Variables.
- Live Trend block allows you to view and optimize system response and Pid tuning by monitoring controlled variables in real time. This is ideal to view control loop effect on supply air temperature, chilled water temperature, CO₂ level, etc.
- Assisted troubleshooting:
 - Real-time error checking identifies programming errors during program sequence creation.
 - Quickly locate coding errors in a large project by double-clicking on an error in the Error List.
- Network Variable fan-in aggregates multiple network information sources into one Network Variable Input to retrieve the highest, lowest, average, and sum of all inputted values.
- Obtain optimal control system response accuracy with Pid loops.
- Customizable blocks enable you to create unique functions and programs.
- Open support for industry-standard hardware allows you to connect your preferred sensing or actuating device to the controller.
- Communicate and receive more information from a LCD-based Smart-Sensor device than from a typical sensor.
- Reduce installation/retrofit time by taking advantage of wireless battery-less technology.
- Persistently store values such as fan or pump run time or number of start/stop cycles in the device so that these values are not reset by a power failure.
- Schedule your system's start/stop period or use it as a back-up to the centralized scheduling device in case of network communication failure.
- Quick access to manage, monitor, and override the values of Inputs, Outputs, Constant, Variables, and Network Variables through the Resource Viewer.
- Backup / Restore function stores the complete code in the controller allowing the retrieval of all programming code features
- The following advanced features are available with the ECB and ECL Series controllers:
 - Advanced mathematical functions such as sin, cosine, power, exponential, logarithm, and so on
 - For loop can be used to find highest, lowest, and average values

¹ Available with ECB Series controllers.

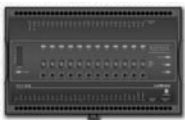
Related Products

ECB, ECL and ECP Programmable Controllers



ECB Series Controllers

BACnet line of controllers



ECL / ECP Series Controllers

LonWorks line of programmable controllers

For more information on these or other Distech Controls products please refer to our web site at www.distech-controls.eu.

Block Objects¹

Comparators - Comparators are blocks that evaluate two numeric inputs using a particular function (=, ≠, <, ≤, >, and ≥).

Equal	Not Equal	Less Or Equal	Greater Or Equal
Less Than	Greater Than	Between	Is Null

Constants & Variables - Constants are blocks that are mainly used to configure set values (setpoints, delays, limits, etc.) that may need to be made available to an HMI. Variables are blocks that are mainly used to monitor changing values or calculate new values using old ones that may need to be made available to an HMI.

Constant Numeric	Constant Enum	Variable Numeric	Variable Enum
Internal Constant	Internal Variable	Analog Value	Binary Value
Multi State Value	Null Value		

Custom - Custom blocks are used to simplify code representation on a Programming Sheet by creating a block that contains code that makes up a unique sequence, function, or logic. They are also used to create blocks that do not already exist in the standard Toolbox pane and they can be saved in the Code Library for easy reuse. A Custom block can also be converted into a toolbox with the Toolbox Builder.

Custom Block	Conditional Custom Block	Exported Input	Exported Output
For Loop	Loop Info		

General - General blocks are used to perform various important control loop functions in a program to provide control and supervision of a process.

Latch	Toggle	Hysteresis	Limit
Digital Fault	Numeric Fault	Linear	Ramp
Rising Edge	Falling Edge	Count Up	Count Down
Startup	Pid		

Generics - Generic blocks allow a resource instance to be dynamically selected from the EC-gfxProgram code. This is mainly used with the For Loop block.

Generic Analog Value	Generic Binary Value	Generic Hardware Input	Generic Hardware Output
Generic Internal Variable	Generic Multi State Value	Generic Network Value	Generic Timer
Generic Pid Loop	Generic ComSensor Condition	Generic ComSensor Value	

HVAC - HVAC blocks are used for standard HVAC requirements such as stage control.

Analog Stages	Digital Stages	Digital Stages + Delay	Smart Stages
Stages With Modulation	Optimum Start/Stop	Thermostat	

Inputs & Outputs - Inputs and Outputs are blocks used to interface with various types of physical inputs and outputs, as well as network variable inputs (NVIs) and network variable outputs (NVOs).

Hardware Input	Network Variable Input	ComSensor	Wireless Sensor
Hardware Output	Network Variable Output	Floating Output	Led Output
Network Value	ComSensor Condition	ComSensor Value	Smart Sensor Module
Wireless Module			

Logic - Logic blocks evaluate the binary values at two or more inputs according to the block's Boolean logic and to perform Boolean operations.

And	Or	Xor	Multiplexer
Switch	Not		

Logic Binary - Logic blocks that operate on values at the bit level according to the block's Boolean logic.

Bitwise And	Bitwise Or	Left Bit Shift	Right Bit Shift
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Math - Math blocks evaluate the values at two or more inputs according to the block's mathematical or trigonometric operator.










Add	Subtract	Multiply	Divide
Absolute	Modulus	Summation	Square Root
Minimum	Maximum	Average	Min / Max / Average
Muldiv	Sine	Cosine	Tangent
Inverse Sine	Inverse Cosine	Inverse Tangent	Power
Ln	Log		

SNVT Conversions - The SNVT Conversion blocks are used to process structured 2 byte long SNVT types.

SNVT_scene Demux	SNVT_scene Mux	SNVT_state Demux	SNVT_state Mux
SNVT_switch Demux	SNVT_switch Mux		

Block Objects¹

Psychrometric - Psychrometric blocks are for psychrometric calculations.

 Dew Point	 Actual Vapor Pressure	 Enthalpy	 Wet Bulb
 Air Density	 Heat Index	 Humidity Ratio	 Relative Humidity
 Saturation Vapor Pressure			

Time - Time blocks are used to configure delays, schedules, and time events.

 Min On Time	 Min Off Time	 Min On Off Time	 Real Time Clock
 Start Delay	 Stop Delay	 Start Stop Delay	 Timer

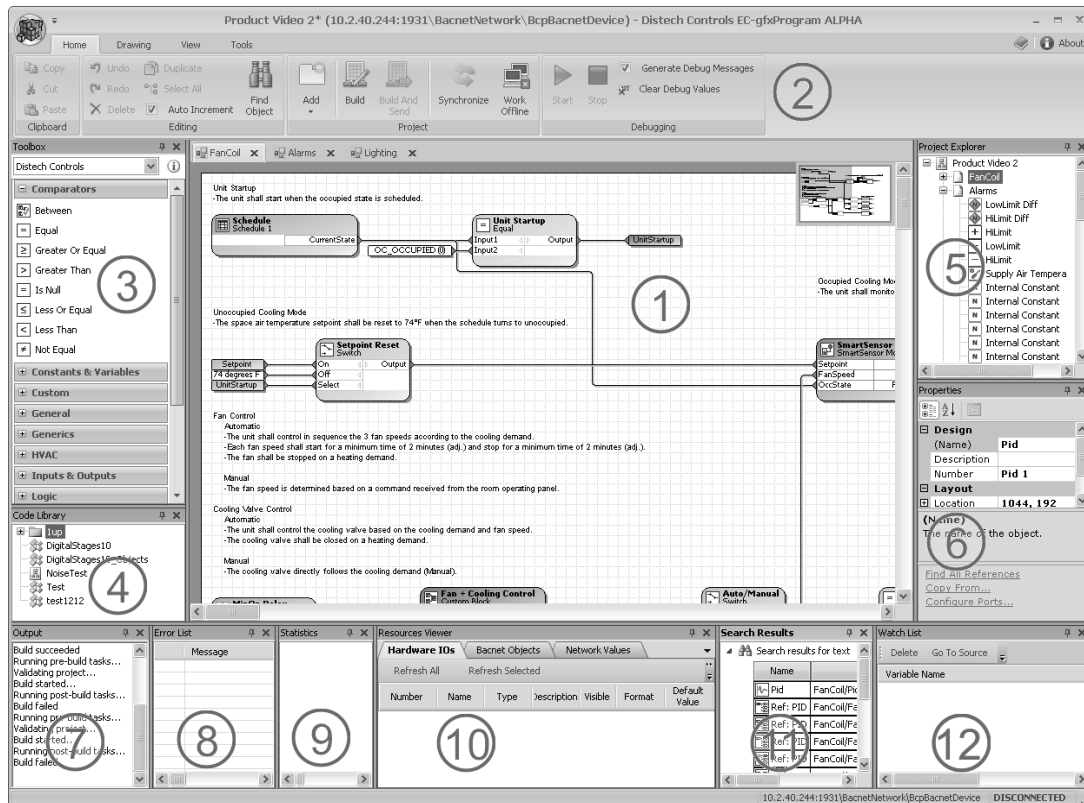
Tools - Tools are blocks that are used to help program developers keep their code organized.

 Text	 Monitor	 Reference Hub	 Reference Target
 Live Trend Log			

VAV - VAV blocks are used to interface with the flow sensor and actuator of a programmable VAV controller for single-duct and dual-duct applications.

 Damper Control	 Flow Sensor	 Actuator Control	 Flow Calculation
 Diff Pressure	 Internal Actuator		

¹ Block objects availability varies according to controller type. Refer to the EC-gfxProgram User Guide for more information.



- 1. Programming Sheet:** This area is the main section of the user interface and is where device programming is done. "Drag and drop" block objects from the *Toolbox* then connect them together with a "click, select, and release" to build a control sequence.
- 2. Ribbon Bar:** EC-gfxProgram comes with a ribbon bar that allows for easy access to commonly-used functions.
- 3. Toolbox Pane:** This library contains the block objects that can be "dragged and dropped" into the *Programming Sheet* to build a control sequence. The block objects are organized into 12 categories. You can select purpose-built toolboxes you have created with the *Toolbox Builder* to apply standard control methods to your project.
- 4. Code Library:** This library contains saved code drawings (snippets) and projects that can be "dragged and dropped" into the *Programming Sheet*.
- 5. Project Explorer Pane:** This tree-view list allows for easy navigation throughout the block objects and drawing documents of a project.
- 6. Properties Pane:** This pane is used to define the properties of each block object, drawing documents, projects, etc. in the *Programming Sheet*. The properties are then dynamically adjusted according to the block object(s) selected.
- 7. Output Pane:** This pane displays information and progress of the build.
- 8. Error List Pane:** This list indicates errors when compiling the control sequence to the controller. This helps you to troubleshoot and debug problems.
- 9. Statistics Pane:** After a control sequence is compiled, this pane displays certain statistics such as memory usage, resource usage, compiling time, etc.
- 10. Resources Viewer Pane:** This pane displays information about all Hardware IOs, Wireless Inputs, Smart Sensor Outputs, Network Variables, Constants and Variables, such as name, value, and mode.
- 11. Search Results Pane:** Search for objects based on text entered in the object's properties, the type of block, or port names.
- 12. Watch List:** Monitor a selection of process values during debug mode for troubleshooting.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

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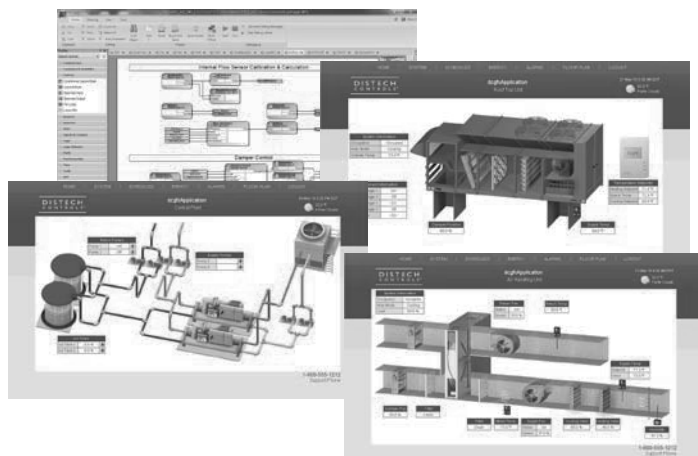


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EC-gfxProgram

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Overview

Distech Controls has built a cohesive package of tools designed to reduce commissioning time and provide easy to build, esthetically pleasing, user interfaces. **gfxApplications** is a complete library of pre-engineered sequences embedded within EC-gfxProgram. **dclImages** is a comprehensive module of over 700 pre-animated HVAC components. **dcgfxApplications** provides pre-engineered applications complete with ready to use graphics.

Found within the code library section of EC-gfxProgram, **gfxApplications** provides a comprehensive library of pre-engineered codes. To ensure compliance with the highest energy standards, the supplied sequences are inspired by recognized authorities in energy efficiency such as California Title 24 and ASHRAE Indoor Air quality. Once a code has been dropped into a programming sheet the sequence is clearly explained and code snippets are provided so tweaking is intuitive and painless.

The **dclImages** module provides the equipment and components needed to consistently assemble high-end system graphics, so you can spend less time assembling graphics and further distinguish your organization's graphics that are competitive in today's industry. Systems such as variable air volume boxes, air handling units, fan coil units, roof tops, central plants, and more can be created.

Applications

- Pre-engineered HVAC Applications for EC-gfxProgram
- Pre-engineered HVAC Graphics for EC-Net^{AX}
- Create various HVAC Systems within EC-Net^{AX}
- Create complex sequences based on provided code
- Pre-engineered terminal applications for quick installation

While independently powerful and intuitive, the sheer power and measureable efficiencies come when these tools are used together. **dcgfxApplications** allows a user to drag and drop pre-engineered devices from a palette and have a working device, direct from the manufacturer, complete with code and graphics, in minutes. **dcgfxApplications** also allows devices to be configured using configuration pages provided or customize the code using EC-gfxProgram.

Features & Benefits

- Reduce engineering time and complement ECP Series LonWorks® and ECB Series BACnet® controllers.
- Reduce programming errors by using pre-engineered HVAC applications.
- Control sequences comply with the highest standards in energy efficiency including California Title 24, ASHRAE Indoor Air Quality, and ASHRAE HVAC applications
- Pre-engineered, pre-animated EC-Net^{AX} module allows easy drag-and-drop creation of system graphics
- Provided code allows easy customization for advanced control and system requirements
- **dcgfxApplications** provides configuration pages which can be used by entry level agents and balancing technicians

Available Products

gfxApplications



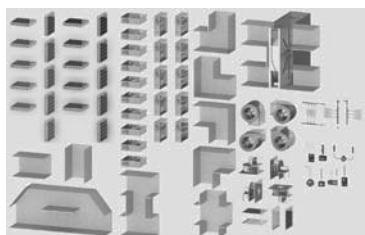
gfxApplications is a comprehensive library of pre-engineered codes for EC-gfxProgram.

dcgfxApplications



dcgfxApplications is a complete set of pre-built devices with corresponding proxy points, logs, alarms, code and EC-Net^{AX} graphic pages (PX) for display and configuration.

dclImages



dclImages is an EC-Net^{AX} module which includes an extensive library of over 700 HVAC components.

Product Warranty & Total Quality Commitment

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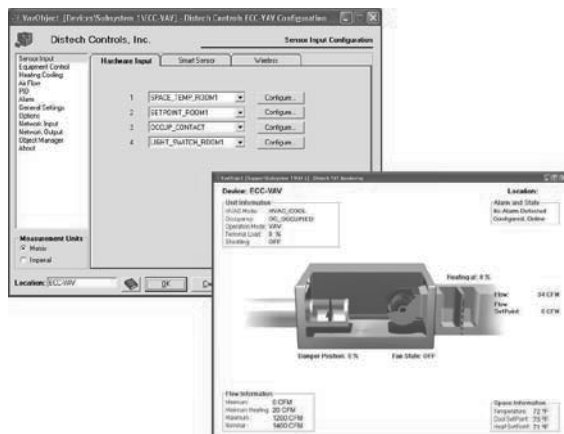


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Gfx Applications, dcgfxApplications
& dclImages

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Overview

Distech Controls' EC-Configure series, dynamic configuration tools, simplify BAS designing by laying out the necessary parameters required to configure the inputs, outputs and control sequences of the products involved. The EC-Configure series offers a user-friendly interface that can be used to setup a control sequence or system in a very short amount of time.

EC-Configure consists of a set of interfaces that are designed to simplify configuring and sequencing methods by prompting the user for the necessary configuration data. The controller then automatically selects the operation sequence according to the input and output configurations and dynamically adapts itself to the network variables that are bound to the controller.

The EC-Configure series can be used with any LNS-based software such as Distech Controls' Lonwatcher 3 or with a multi-protocol platform software supporting LonWorks® devices such as Distech Controls' EC-Net^{AX} Pro powered by the Niagara^{AX} Framework.

EC-Configure can be used to setup all Distech Controls' configurable controllers.

EC-Configure is unique for each type of controller or application being configured though there are several interfaces that are common amongst most devices/applications.

EC-Monitor is a Graphical User Interface (GUI) that monitors all device parameters including inputs, outputs, alarms and device status. The graphics in EC-Monitor dynamically adapt themselves to the configuration of the device as well as the real-time values being monitored. EC-Monitor can only be used with an LNS platform.

Benefits

- Simplifies controller configuration
- Reduces setup time
- User-friendly interface and operation
- Automatically selects operation sequences
- Adapts to controller type to display unique features

Features

Supported Platforms

- LNS® Turbo 3.20 and greater
- Niagara^{AX} Framework® (EC-Configure only)

Supported Controllers

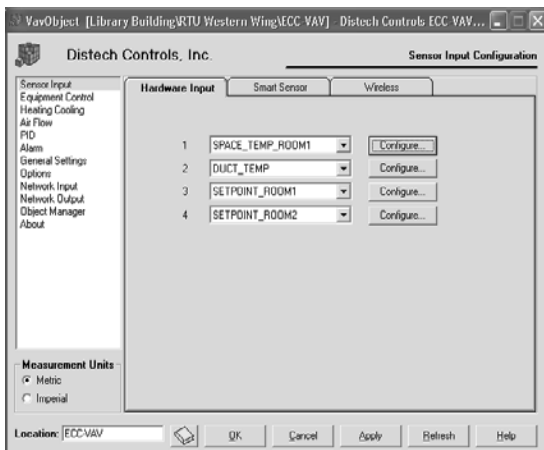
- EC-FCU-L, RTU-L, HPU-L, UV-L, VAV-L
- ECC-VAV, VAVS, PFCU Series
- ECC-301, 401, 520 (EC-Configure only)
- EC-STATs¹
- EC-Display, EC-Light-Display (EC-Configure only)
- EC-Scheduler, EC-Light-Scheduler (EC-Configure only)

Other Features

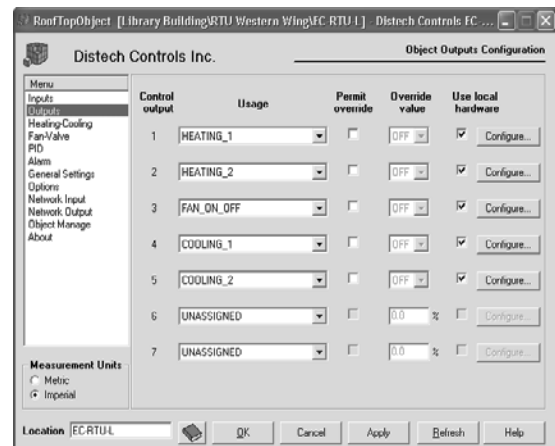
- Intuitive user interface (UI) designed specifically to simplify application configuration
- Automatically selects operation sequence based on input and output configuration
- Displays prompts when users need to input important information
- Several configuration windows for easy programming of devices

EC-Configure Series

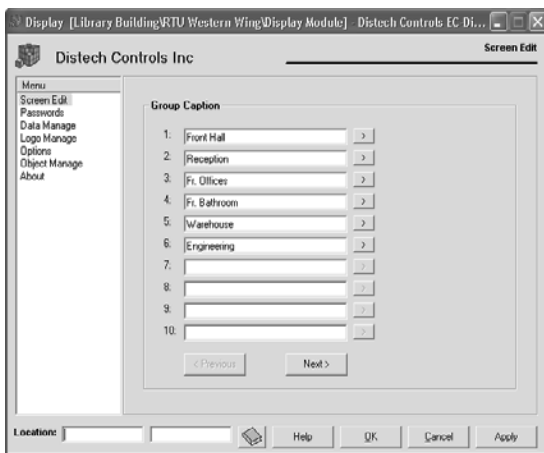
EC-Configure Examples



ECC-VAV Configuration Tool



EC-RTU-L Configuration Tool

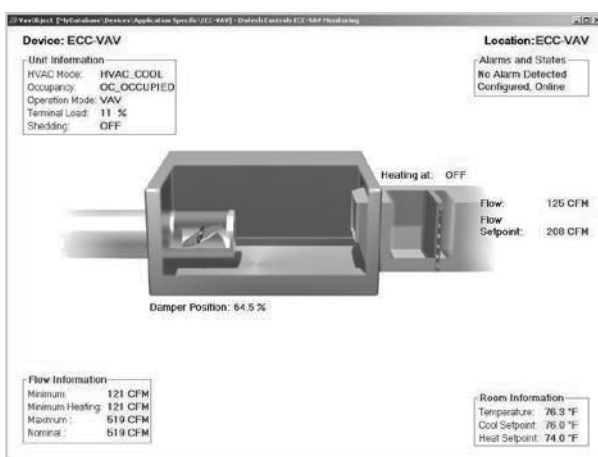


EC-Display Configuration Tool

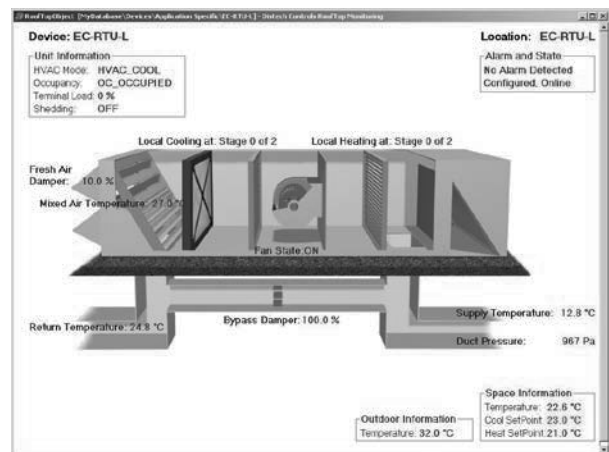


EC-Scheduler Configuration Tool

Exemples EC-Monitor



ECC-VAV Monitor Tool



EC-RTU-L Monitor Tool

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EC-Configure

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Graphical tool for (re)partitioning and installation of IRC range BACnet® controllers

Overview

BACnet FaciliVue is a software tool for graphical rezoning of living spaces from base maps, based on preconfigured zone models relative to IRC BACnet® range.

As a result of an analysis of integrators' needs for years on large networks, and taking into account the customers' expectations concerning the site exploitation, this Windows®-based software is the ideal complement of a supervision system, providing an interface between the operator and the network once the installation phase completed.

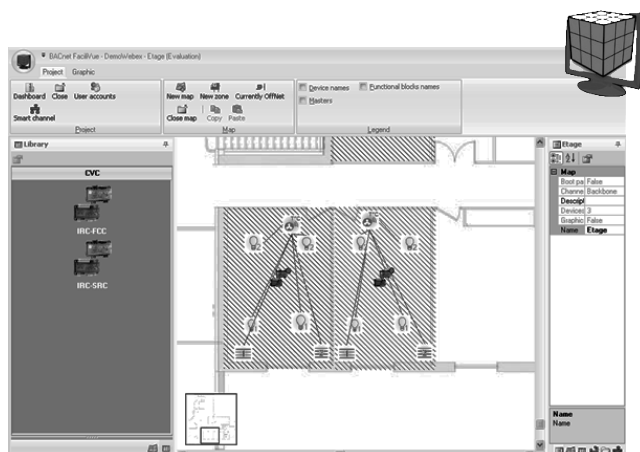
BACnet FaciliVue works from base plans, allowing you to create your application intuitively by positioning HVAC equipments, lights, blinds, sensors... directly on the topographical representation of your installation.

These equipments are then assigned to the zones matching the different managed spaces. The extremely flexible management of these zones (immediate creation, modification and removal) allows for instantaneous reconfiguration of the installation, following its evolution.

The installation commissioning is therefore particularly simple as the zones gathering the concerned equipments simply need to be drawn on the base map once the equipments on site.

Managing consequent modifications of the installation, in terms of repartitioning as in terms of new equipments, is likewise extremely intuitive through a simple graphical rezoning, as **BACnet FaciliVue** reconfigures automatically and with no mistakes the living spaces.

All the maintenance functions associated to the equipments (test, reset, downloads...) are also managed, and detection, substitution and repair of any failing equipment is facilitated.



Applications

- Appropriate for new installations as for renovation
- Fast and secure integration for small, medium and higher service industry buildings
- Intuitive installation creation based on BACnet controllers of the IRC range by direct positioning of the equipments straight on the base map.
- Graphical repartitioning of the control equipments on different independant zones
- Fast and easy modifications of the architectural and technical characteristics of the installation (repartitioning, equipment addition/removal...) by the allocation of new zones or the adaptation of pre-existing ones.

Features & Benefits

- Installation, configuration and commissioning of BACnet® controllers from IRC range with a single tool
- Simplified installation
- Tested and validated solutions libraries
- No complex and unclear and protocol data
- Facilitated mass integration with powerful copy/paste
- Mass application of the modifications from zonal repairs, by map or by project
- Drastic reduction of integration times
- No need for BACnet® expert to deploy office buildings solutions
- Created models backup in dedicated libraries



Features & Benefits *(continued)*

- Graphical partitioning/repartitioning to your liking and without protocol technical knowledge
- No manual operation (except otherwise specified) therefore no configuration issues (all is in the model)
- Complete library of application solutions for office comfort management
- Complete office management, from simple HVAC configuration to more elaborated one, including lighting and sunblinds management
- Living space reconfiguration depending on dividing wall positioning
- Complete maintenance of the equipments: test, substitutions, commissioning....
- Fast commissioning method, ideal for deployment on large sites
- Complete management of BACnet® facilities equipments: all BACnet servers are supported
- Analog dynamic zoom
- All traditional drawing functions included: alignments, rotation, symmetry, spaces, multi-selection...

Related products

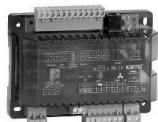


IRC-FCC-427 MS/TP

- 230 V_{AC} modular office controller operating on the BACnet network:
230 V_{AC} valves + possibility to connect extension modules «lighting and sunblind».**
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
 - 1 RJ9 input (for connecting extension modules or accessories).
 - 6 230 V_{AC} outputs (2 TRIAC 230 V_{AC}, 3 relays 230 V_{AC} and 1 electric heater relay).

IRC-FCC-428 MS/TP

- 230 V_{AC} modular office controller operating on the BACnet network:
24 V_{AC} valves + possibility to connect extension modules.**
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
 - 1 RJ9 input (for connecting extension modules or accessories).
 - 6 outputs (2 TRIAC 24 V_{AC}, 3 relay 230V_{AC} and 1 electric heater relay)



IRC-SRC-427 MS/TP

- 230 V_{AC} modular office controller operating on the BACnet network:
230 V_{AC} valves + inputs & outputs 0-10 V_{DC} + possibility to connect extension modules.**
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10 V_{DC}.
 - 1 RJ9 input (for connecting extension modules or accessories).
 - 8 configurable outputs: 2 analog (0-10 V_{DC}), 6 digital (2 TRIAC 230 V_{AC}, 3 relay 230 V_{AC}, 1 electric battery relay).

IRC-SRC-428 MS/TP

- 230 V_{AC} modular office controller operating on the BACnet network:
24 V_{AC} valves + 0-10 V_{DC} inputs & outputs + possibility to connect extension modules.**
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10 V_{DC}.
 - 1 RJ9 input (for connecting extension modules or accessories).
 - 8 configurable outputs: 2 analog (0-10 V_{DC}), 6 digital (2 TRIAC 24 V_{AC}, 3 relay 230 V_{AC}, 1 electric battery relay).

Minimum System Requirements

Operating System	Memory
Windows XP Windows Vista Windows 7	2 GB of RAM
Disk Usage	CPU
At least 300 MB of available hard-disc space	Single Core 2 GHz or Dual Core 2 GHz



05DI-DSFACIL-10E

BACnet Facilivue

www.distech-controls.eu

Lonwatcher 3

easyCONTROLS LONWORKS Network Management Tool

Includes:

- Lonwatcher 3 Network Management Tool
- LNS 3.2 TURBO Edition Network Operating System
- Distech Controls Browser
- Distech Controls MiniDirector



Features

Lonwatcher 3

- Build, commission and maintain multi-vendor, open and interoperable LONWORKS® networks.
- Manage multiple LONWORKS networks simultaneously.
- Batch operations to copy/paste multiple networks, subsystems and devices reducing time for commissioning, replacing and loading devices.
- Compatible with other LNS® databases created with any LNS network management tool.
- Supports LNS standard plug-in applications, allowing for easy integration of Distech Controls devices as well as other manufacturers' devices.
- Create device status reports to get information such as devices in override, in alarm, etc.
- Fully supports i.LON® Internet Servers.
- Create dynamic network variables.
- User Manager, to prevent unauthorized system access, and to manage user rights.
- Support of any LNS or IP network interfaces.

LNS TURBO Edition

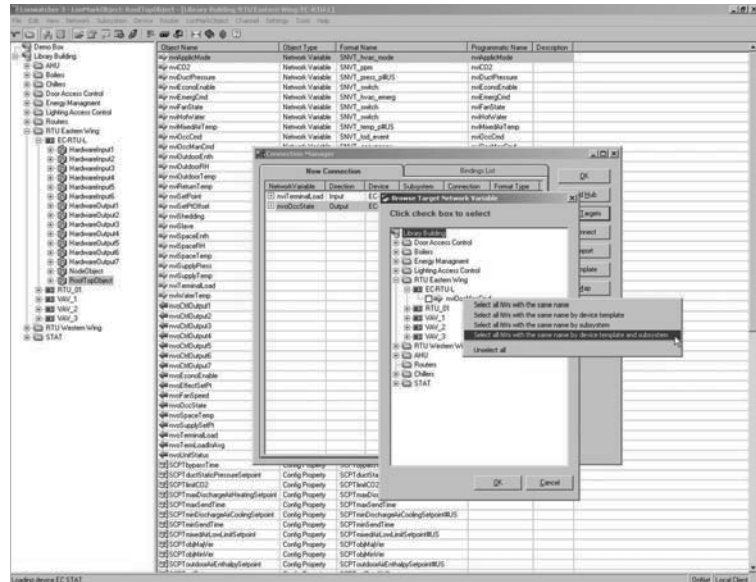
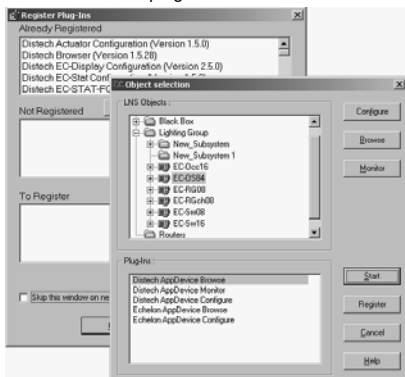
- Includes LNS® TURBO Edition network operating system.
- Open databases, register plug-ins or browse devices up to 10 times faster than with any previous version.

Distech Controls Browser

- Uses Distech Controls Browser plug-in, to monitor and manage network variables as well as configuration properties.
- Lonwatcher 3 offers enhanced functionality to browse network variables or configuration properties of the same type in one operation.

Distech Controls MiniDirector

- Acts as an independent director to launch plug-ins and configure devices.
- Can be used by non-LNS software to launch Distech Controls plug-ins.



The Lonwatcher 3 network management tool is an innovative software for fast set-up and cost efficient implementation of the easyCONTROLS system, as well as other multi-vendor open and interoperable LONWORKS networks, and their interaction. This intuitive yet sophisticated tool provides network integrators with advanced features and all the resources necessary to install, operate and maintain LONWORKS networks. Based on LNS TURBO Edition network operating system, Lonwatcher is a performance-driven, high-speed application, allowing a fast response time from the application and increasing user productivity.

Lonwatcher is a tree-view oriented program, promoting a user-friendly interface and intuitive navigation through the network, regardless of the amount of devices. Through context sensitive menus and dynamically enabled toolbars, all device, channel, subsystem, functional object and network variable operations can be easily set-up and maintained. Advanced features allow moving or copying devices or entire subsystems in one simple operation.

Lonwatcher presents multiple modular applications such as the Binding Manager and the Distech Controls Browser. The Binding Manager is designed to create network connections and with a network variables filter, it quickly determines which network variables are compatible. The Distech Controls Browser monitors network variables and configuration property values during operation, allowing for fast and easy troubleshooting.

Distech Controls' quality management system is ISO 9001:2000 certified

Features

Create a network

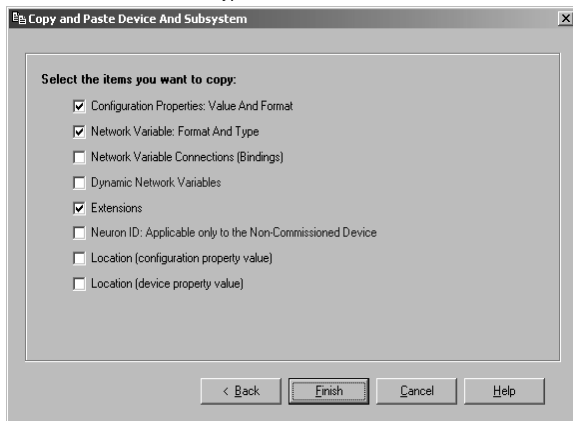
- Create new networks, and add new subsystems, channels, routers and devices.
- Configure the network offsite by working unattached from the network interface, or in OffNet management mode.
- Manage devices and routers. Test, reset, enable / disable override, wink and monitor device errors.
- Supports requests on LONMARK® objects such as disable, update status, self test and override among many others.
- Easier network maintenance with the replace function as well as the load function that allows to easily update the device application program.

Manage multiple networks/databases simultaneously

- Install and maintain projects comprising multiple networks.
- Copy / Paste multiple database with a single operation.
- Copy / Paste devices and subsystems between networks.
- Create your personal device template database.

User productivity improvements (batch operations)

- Copy / Paste multiple subsystems, including associated devices with one operation.
- Copy / Paste multiple devices (including bindings) with one operation.
- Copy / Paste configuration properties on a collection of devices with one operation.
- Create multiple subsystems with one operation.
- Create multiple devices of same type with one operation.
- Multi-device operations reduce time to commission, replace and load devices.
- Network variable type filter as well as multi-variable selection when selecting network variables for a binding.
- One click selection of network variables for fan-in / fan-out connections (all of same name, all of same name and device type).
- Export a device's properties as an .xml file which can then be imported into one or more devices of the same type.



Network Explorer

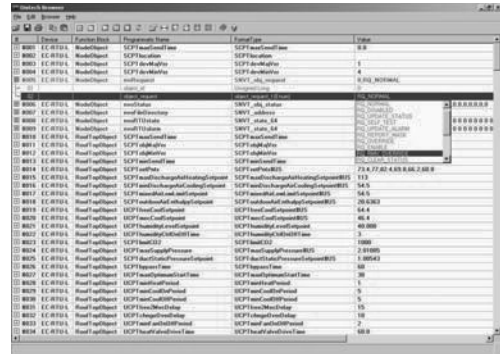
- Explore a network by channel (physical view) or by subsystem (logical view).
- Combined tree view and list view allows to navigate the network down to the level of network variables and configuration properties.
- Comprehensive property view on all object levels.

Host-based node support

- Create network interface devices for all supervisory stations in a network.
- Create dynamic network variables for devices that support this feature.
- Create entire set of dynamic network variables in one operation.

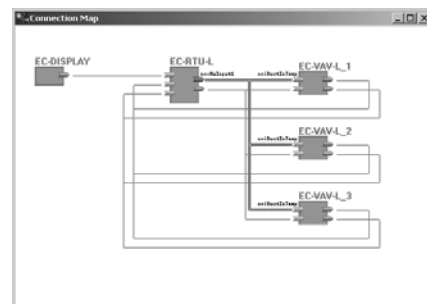
Enhanced Distech Controls Browser support

- Browse all network variables or configuration properties of same name throughout a subsystem or network in one operation.
- Browse all network variables or configuration properties of same name and type throughout a subsystem or network in one operation.
- Drag and drop selections of network variables and configuration properties from the network explorer to the browser.



Other new features

- Visual binding map to review network connections.
- Session log with user name and time stamp to track all database / network manipulations and errors.
- Backup / Restore / Import / Defragment database.
- Connection template management.
- Router management.
- Device status report generator allows you to generate reports on the network containing information such as the number of devices on the network, the status of the devices (Ex.: Is the device in alarm? Is the device in override?).



System Requirements

With Windows XP Operating System:

Operating System:	Windows XP
Processor:	500 MHz processor or higher
Memory:	256 MB RAM minimum
Hard Drive:	500 MB minimum of free hard disk space
Display:	Minimum – Super VGA (800x600); Recommended – 1024x768

With Windows Vista Operating System:

Operating System:	Vista Home Premium, Vista Business or Vista Ultimate
Processor:	1 GHz processor or higher
Memory:	1 GB RAM minimum
Hard Drive:	40 GB hard drive with minimum 15 GB or free disk space
Display:	128 MB video card minimum

Specifications subject to change without notice.

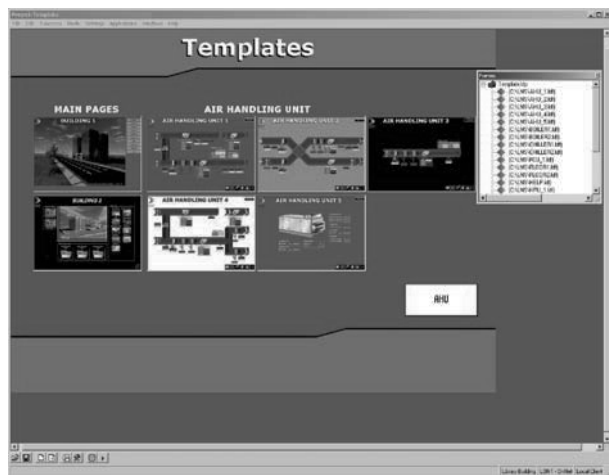
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Lonwatcher 3

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Overview

Londisplay 3 is an advanced HMI package that includes a Log Manager.

The Londisplay 3 HMI allows you to create a custom visual interface for your building automation projects. While in *Design* mode you can easily create a comprehensive graphical environment of the facility from top-level site plans to equipment details, adding menus, animations, text boxes and navigation buttons within graphics pages. Then switch Londisplay 3 into *Run* mode to display and interact with network data points and information and launch any LNS based plug-ins directly from the application.

The Londisplay 3 Log Manager allows you to map any network variable through the programmable controllers (controllers configured by EC-Program only), for historical and real-time trending. Logging conditions include differential, variations by specified amount and configurable time basis. The logs and trends are displayed through a fully customizable graphical interface, with options of displaying one or multiple logs, and can be exported to both Microsoft Excel® and Microsoft Access® formats.

The Londisplay 3 suite consists of an ideal mix of software modules such as a User Manager to complement your LNS database management tool. At Distech Controls, we understand the needs of systems integrators and installers – our products are designed for ease of use, reliability and flexibility.

Applications

Londisplay 3 HMI (Human Machine Interface)

- Create building automation system HMIs while in *Design* mode to monitor and control real-time information for all devices on the network when in *Run* mode.

Log Manager

- Configure and manage logs and events for programmable devices (controllers configured by EC-Program only) on the network.

Distech Controls Browser

- Used to monitor and manage network variables as well as configuration properties.

Mini Director

- Acts as an independent director to launch plug-ins to monitor, configure and program devices.

User Manager

- Universal user manager which manages access rights for all current generation Distech Controls products.

Features & Benefits

- Londisplay's *Design* mode can create a comprehensive graphical environment of the facility from top-level site plans to equipment details, adding menus, animations, text boxes and navigation buttons within graphics pages using an easy-to-use GUI.
- Use Londisplay's *Run* mode to display and interact with network data points and information and launch any LNS based plug-ins directly from the application in real time.

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Londisplay HMI Builder

- ## User Manager

- ## MiniDirector

- Distech Controls Browser

- [illegible]

- Used only in conjunction with Distech Controls EC-Program Plug-ins.

-

Operating System:	Windows XP, Vista Home Premium, Business or Ultimate
Processor:	500MHz or higher (XP) / 1GHz or higher (Vista)
Memory:	256MB RAM min (XP) / 1GB RAM min (Vista)
Hard Drive:	500MB min (XP) / 40GB min (Vista)
Display:	Super VGA (800x600) min (1024x768 recommended)
Accessories:	CD-ROM drive, mouse or other Windows-compatible pointing device
Network Interface:	LonWorks network interface required

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$$\text{Londisplay 3}$$

www.distech-controls.com

Peripheral Products



In addition to the Distech Controls BACnet and LONWORKS HVAC controllers and EC-Net^{AX} Monitoring products, we invite you to take advantage of our wide array of peripheral products. Distech Controls has secured best-of-breed product agreements with different product manufacturers in order to provide you with volume discounts on products commonly used on projects.

Please refer to the **Peripheral Products Catalogue** for a selection of our most popular peripheral products. You can download the catalogue from our website in Sensors and Probes Products section.

Some of the devices available in the Peripherals Catalogue:

- Valves
- Temperature and Humidity sensors
- Duct probes
- Dew point detectors
- Air Quality sensors
- Water or Air Pressure gages
- Hydrostats
- Switches
- Door / window Contacts
- Variable Speed Drive

Sales Tools



Distech Controls team develops new tools to help you and your customers to better understand and use our products and solutions. To better serve you, sales tools have been created.

There are Demo Cases (BACnet® or LONWORKS® protocol) to support a product presentation (of our controllers, our room devices and our monitoring solution).

Distech Controls is pleased to make available several updated sales tools to help you get up-and-running quickly with all our products. All documents are available in Distech Controls' multilingual website (in Client Log-in section): datasheets, user guides, products Power Point presentations, video tutorials and video past Webex sessions...



Overview

The BACnet demo case is a simple and plug-and-play tool for qualitative and representative demonstrations aimed at globally apprehending Distech Controls' BACnet programmable controllers range.

Designed to present a VAV (Variable Air Volume) terminal application, the BACnet demo case includes:

- 1 EC-BOS-220
- 1 ECB-VAV
- 1 ECB-413
- 1 Allure EC-Smart-Vue
- Supply and connection cables.

The EC-BOS is delivered with its «Appliance» (pre-loaded specific program) to allow for fast and simple demonstrations, with no pre-programming required.

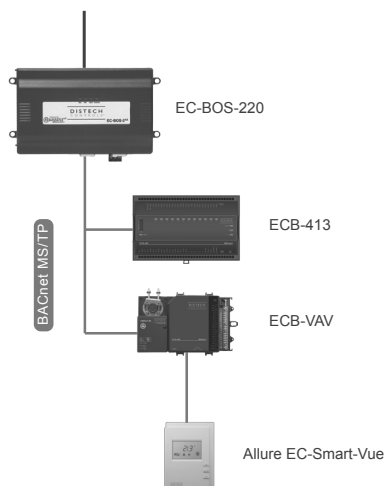
The demo case will help you to:

- Explicit the architecture of Distech Controls' BACnet solution: equipments, wiring, settings and programming.
- Present the different hardware components of the solution.
- Highlight the covered functionalities and benefits of the solution through a concrete application.
- Illustrate the operation with visualization through EC-Net^{AX} to strengthen the demonstration.

Architecture



Ethernet, TCP/IP, BACnet/IP, XML, HTTP, oBIX, FOX



Features & Benefits

- Plug-and-play: no need for prior programming before presentation
- Easy to transport
- Fast and simple installation
- Representative sample of Distech Controls' BACnet know-how
- Operates as a stand-alone network or connected to a computer
- Immediate input data modification and output data visualization through the Allure EC-Smart-Vue
- Simple access to the graphical interface directly from a Web browser
- Access to the complete configuration and visualization of all the parameters through EC-Net^{AX}

Contents

EC-BOS-2^{AX}: Compact controller/server platform



The **EC-BOS-2^{AX}** is a compact, embedded controller/server platform. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The **EC-BOS-2^{AX}** makes it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

The **EC-BOS-2^{AX}** is part of the **EC-Net^{AX}** suite of Java-based controller/ server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. **EC-Net^{AX}** products are powered by the Niagara^{AX} Framework®, the industry's first software technology designed to integrate diverse systems and devices into a seamless system. **EC-Net^{AX}** supports a wide range of protocols including LonWorks®, BACnet® and Internet standards. **EC-Net^{AX}** also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

ECB-VAV: BACnet B-ASC VAV Controller



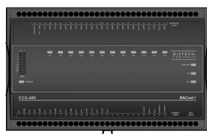
The **ECB-VAV** is a microprocessor-based variable air volume (VAV) controller designed to control any variable air volume box. Each controller uses the BACnet® MS/TP LAN communication protocol and are BTL®-Listed as BACnet Application Specific Controllers (B-ASC).

The **ECB-VAV** support various measurement types including resistance, voltage, and digital-based ones. It provides digital, floating, pulse width modulation, as well as proportional control outputs for valves, heating elements, fans, and lighting applications.

In particular, the **ECB-VAV** has an on-board air flow sensor with a range of 0-2 inches of water column (500 Pascal), as well as a built-in brushless actuator for precise positioning of dampers requiring up to 35 inch-pounds (4 Newton-meters) of torque.

The **ECB-VAV** comes preloaded with all standard VAV controller applications that can be selected using an **EC-Smart-Vue**. It can also be custom-programmed using **EC-gfxProgram** through **EC-Net^{AX}** which is powered by the Niagara^{AX} Framework®. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

ECB-413: BACnet B-AAC Programmable Controller



The **ECB-413** is a microprocessor-based programmable controller designed to control various building automation applications such as Air Handling Units, Multi-zone Applications, Chillers, Boilers, Pumps, Cooling Towers, and Roof Top Units. It can also be used for lighting control applications.

The **ECB-413** uses the BACnet® MS/TP LAN communication protocol and is BTL®-Listed as BACnet Advanced Application Controllers (B-AAC).

The **ECB-413** supports various input types including resistance, voltage, and digital-based ones. Moreover, it provides digital, floating, pulse width modulation, and proportional control outputs for valves, pumps, heating elements, fan, and lighting applications. Moreover, the **ECB-413** have the added convenience of supervised Hand-Off-Auto (HOA) switches and potentiometers for manual override of an output.

It can be custom-programmed using **EC-gfxProgram** through **EC-Net^{AX}** which is powered by the Niagara^{AX} Framework. This allows you to quickly and easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Allure EC-Smart-Vue: Communicating sensors with backlit display and graphical menus



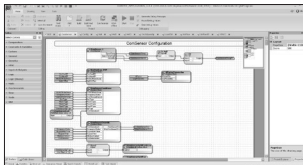
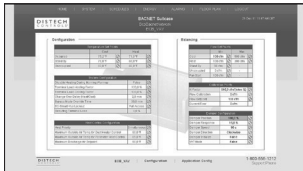
The **Allure EC-Smart-Vue** is designed to interface with Distech Controls' **ECB** and **ECL** series of controllers. This sensor provides precision local temperature sensing, information display of system status, and a variety of control functions that can be accessed by room occupants.

Through its user-friendly interface, occupants can view and adjust environmental settings to their liking, for example, view the space temperature, adjust the setpoint, and apply occupancy overrides.

With the **EC-gfxProgram** programming tool, you can create your own tailor-made display control features that make full use of all **Allure EC-Smart-Vue**'s capabilities. For example, you can program the display to give users feedback on their setpoint selection with the ECO Vue icon that shows more leaves for a setting that not only cares for the environment, but one that also reduces operating costs. A five-character alphanumeric display is available for showing messages.

A fully configurable password protected technician mode allows an installer to perform commissioning and troubleshooting. For example, when an **Allure EC-Smart-Vue** is connected to an **ECB-VAV** controller, it can be used to set the controller's BACnet MAC address during commissioning. Moreover, when connected to an **ECB-VAV** series controller with its pre-loaded application, commissioning can start immediately after installation. The **Allure EC-Smart-Vue** can be used as a hand-held tool to select the appropriate controller application for the type of HVAC equipment to be controlled, to perform air balancing of the system without requiring an onsite controls engineer, and to troubleshoot the system.

Pre-loaded Appliances



Distech Controls' BACnet **ECB-VAV** series are delivered with a pre-loaded appliance for standard VAV terminal applications. A basic program is also included in the **ECB-413**.

These codes have been created using **EC-gfxProgram** which allows for effortless programming by visually assembling building blocks together as necessary to create a custom control sequence for any HVAC / building automation application. By "dragging and dropping" a few block objects from the EC-gfxProgram's vast library and connecting them with a simple "click, select, and release" process, you can quickly and easily assemble common control sequences and customized applications specific to your needs.

The **ECB-VAV** pre-loaded appliance can moreover be configured using **dccgfxApplication**, based on Niagara^{AX} Framework accessible from **EC-Net^{AX} Pro**, which provides an intuitive graphical interface for fast and simple controller configuration, easily understandable for all the potential users.

An **Allure EC-Smart-Vue** can alternatively be used for on-site installation and configuration of the controller's pre-loaded application and to perform air balancing of the system without requiring an on-site controls engineer, and to troubleshoot the system

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Complementary Products

ECgfxProgram: Graphical Programming Interface for Programmable Controllers



Distech Controls' **EC-gfxProgram** Graphical Programming Interface (GPI) tool makes Building Automation System (BAS) programming effortless by allowing you to visually assemble building blocks together as necessary to create a custom control sequence for any HVAC and building automation application. By “dragging and dropping” a few block objects from the **EC-gfxProgram**'s vast library and connecting them with a simple “click, select, and release” process, you can quickly and easily assemble common control sequences and customized applications specific to your needs.

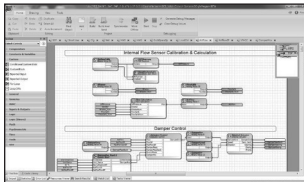
EC-gfxProgram provides an intuitive and customizable programming environment with window panes that can be moved, docked, and hidden; it adapts to how you work. The programming area is where you visually compose your code and when two or more code sheets need to be managed, new programming sheets can be created and layered relative to each other. Coupled with a ribbon bar along with the project explorer pane, you have all the tools necessary to keep your code well-organized.

EC-gfxProgram's block object toolbox provides you with an ample collection of components and functions that can be used to create simple to very complex control sequences. Use a Custom Block to keep your code clean by putting the specialized code that this block encapsulates on its own programming sheet. Block objects not only make coding clean and easy, but they also reduce basic errors that may arise when writing code conventionally. Furthermore, **EC-gfxProgram**'s smart code compiling, error list pane, watch list, and live debugger allows you to execute code, view input/output values, and troubleshoot errors in real-time.

EC-gfxProgram can be run from any multi-protocol software platform supporting BACnet and LONWORKS devices such as Distech Controls' **EC-Net^{AX} Pro**, powered by the Niagara^{AX} Framework or from any LNS-based software such as Distech Controls' Lonwatcher.

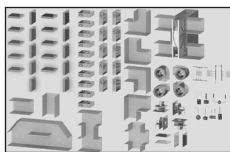
Productivity Enhancing Tools : gfxApplications, dclImages & dcgfxApplications

Distech Controls has built a cohesive package of tools designed to reduce commissioning time and provide easy to build, aesthetically pleasing, user interfaces:



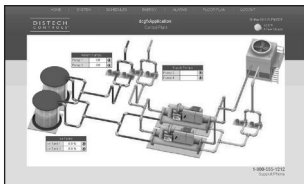
gfxApplications is a complete library of pre-engineered sequences embedded within the code library section of **EC-gfxProgram**.

Once a code has been dropped into a programming sheet the sequence is clearly explained and code snippets are provided so tweaking is intuitive and painless.



dclImages is a comprehensive module of over 700 pre-animated HVAC components.

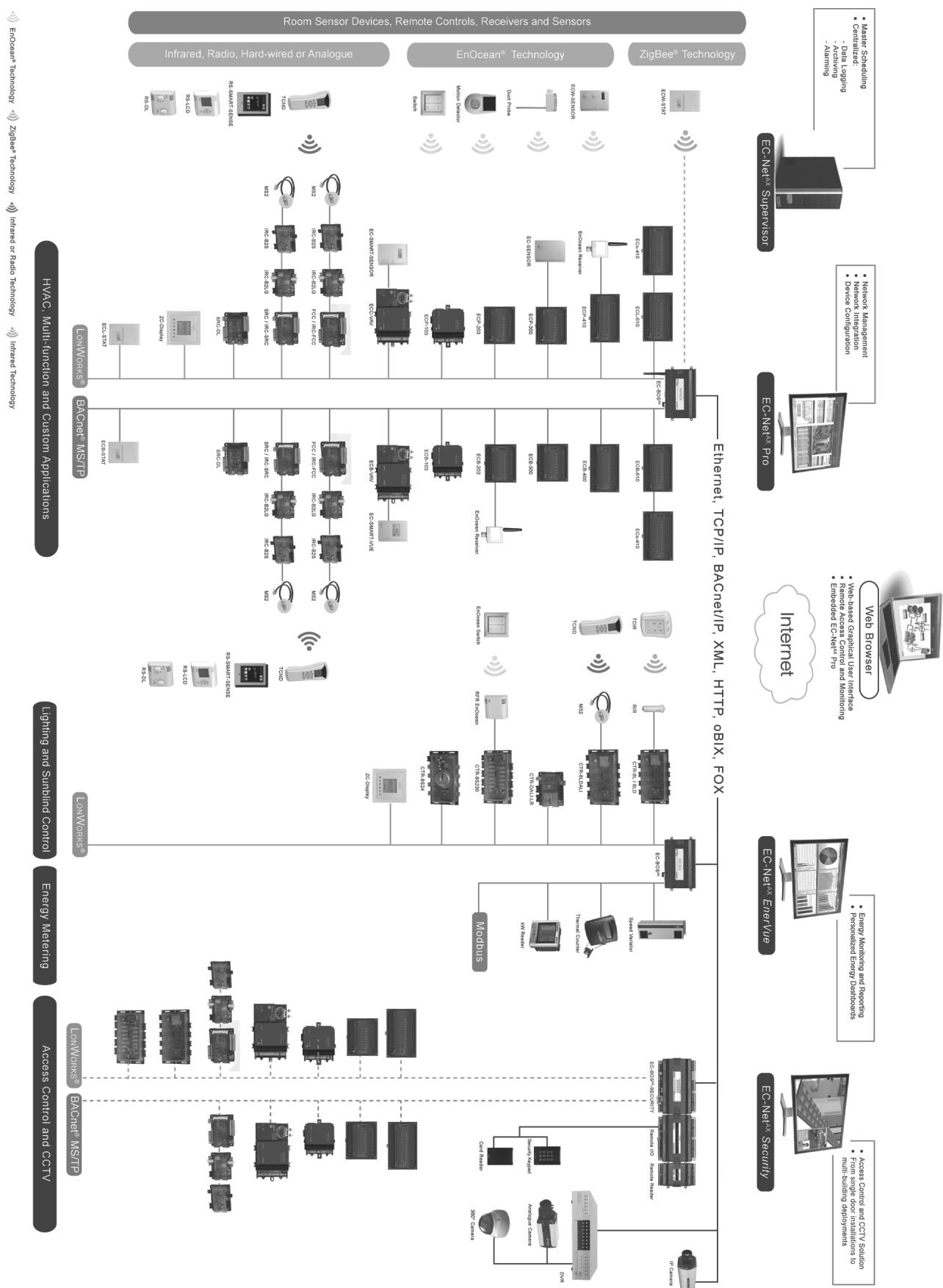
The **dclImages** module provides the equipment and components needed to consistently assemble high-end system graphics, so you can spend less time assembling graphics and further distinguish your organization's graphics that are competitive in today's industry. Systems such as variable air volume boxes, air handling units, fan coil units, roof tops, central plants, and more can be created.



dcgfxApplications allows a user to drag and drop pre-engineered devices from a palette and have a working device, direct from the manufacturer, complete with code and graphics, in minutes. **dcgfxApplications** also allows devices to be configured using configuration pages provided or customize the code using **EC-gfxProgram**.

While independently powerful and intuitive, the sheer power and measureable efficiencies come when these tools are used together.

Distech Controls' multiprotocol solution



Specifications

Suitcase		Power Supply	
Dimensions	500 x 420 x 225 mm	Voltage	230 V _{AC}
Weight	7 kg	Connector	Male IEC Power Supply Connector
Material		Wiring	Provided Power Supply Cable (2 m)
Enclosure	Polypropylene	Communications	
Fitting	Expanded PVC	Speed	10-100 Mbps
Protecting foam	Polyethylene foam 29 kg/m ³	Communications	Ethernet port
Environnement		Wiring	Provided RJ45/RJ45 cable (2 m)
Operating temperature	5°C to 45°C	Additional access to BACnet network	Female 3,5 mm stereo jack connector on the EC-Smart-View
Relative humidity	5% to 95% non-condensing		

For more information on Distech Controls products included in the BACnet demo case, please refer to their respective documentation.

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Overview

The LONWORKS demo case is a simple and plug-and-play tool for qualitative and representative demonstrations aimed at globally apprehending Distech Controls' LONWORKS programmable and configurable controllers ranges.

Designed to present a cross-management application, the LONWORKS demo case includes:

- 1 EC-BOS-220
- 1 IRC-SRC-427
- 1 IRC-B3LD
- 1 IRC-B2S
- 1 ECP-413
- 1 MS2-I-PL
- 1 TCND-I
- Supply and connection cables.

The EC-BOS is delivered with its «Appliance» (pre-loaded specific program) to allow for fast and simple demonstrations, with no pre-programming required.

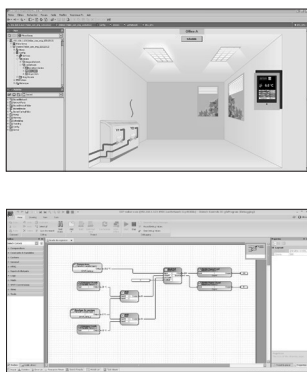
The demo case will help you to:

- Explicit the architecture of Distech Controls' BACnet solution: equipments, wiring, settings and programming.
- Present the different hardware components of the solution.
- Highlight the covered functionalities and benefits of the solution through a concrete application.
- Illustrate the operation with visualization through EC-Net^{AX} to strengthen the demonstration.

Features & Benefits

- Plug-and-play: no need for prior programming before presentation
- Easy to transport
- Fast and simple installation
- Representative sample of Distech Controls' LONWORKS know-how
- Immediate input data modification and output data visualization through the Allure EC-Smart-View
- Simple access to the graphical interface directly from a Web browser
- Access to the complete configuration and visualization of all the parameters through EC-Net^{AX}

Pre-loaded Applications

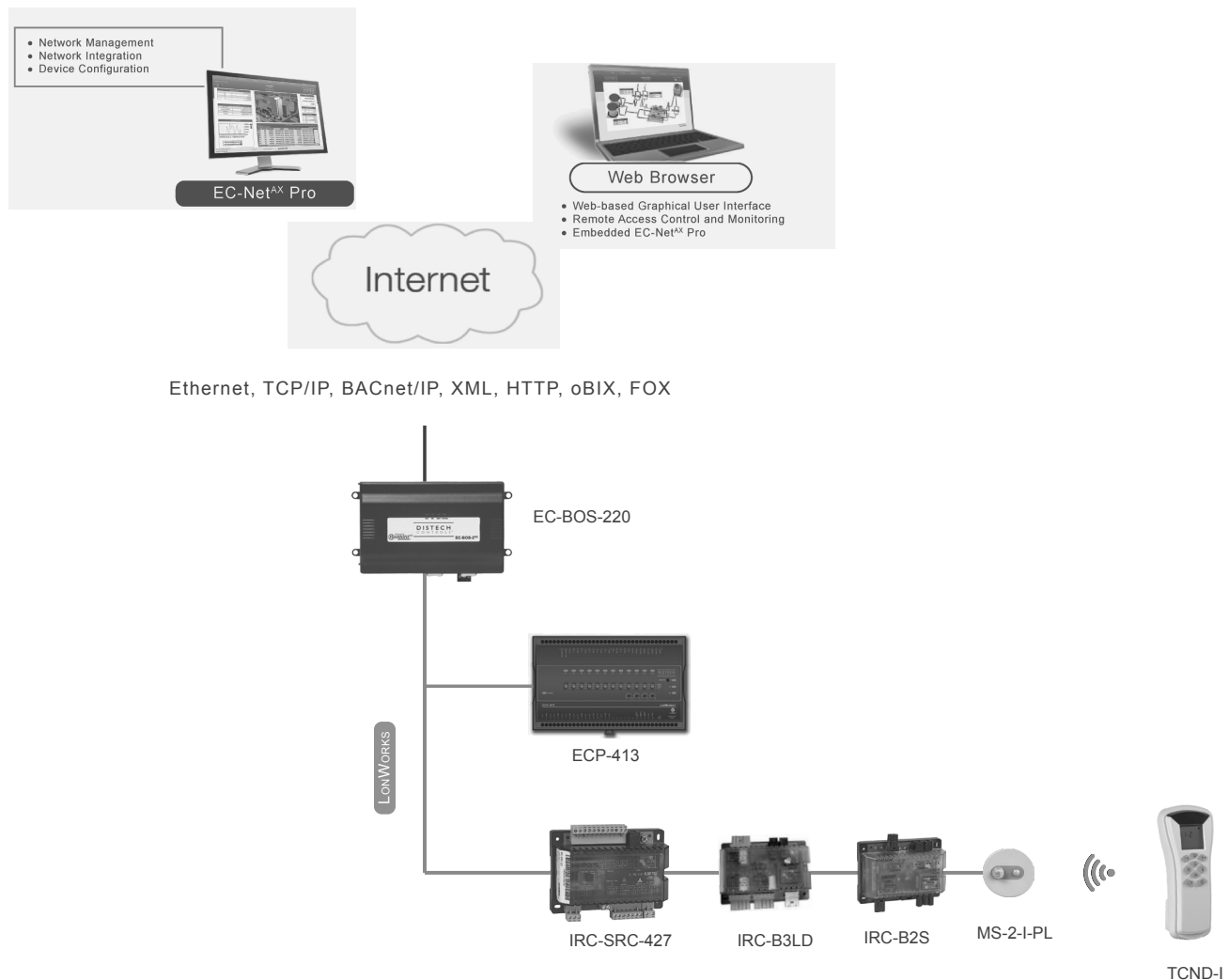


The controllers included in the demo case are delivered with a pre-loaded application.

These codes have been created using **EC-gfxProgram** which allows for effortless programming by visually assembling building blocks together as necessary to create a custom control sequence for any HVAC / building automation application. By "dragging and dropping" a few block objects from the **EC-gfxProgram**'s vast library and connecting them with a simple "click, select, and release" process, you can quickly and easily assemble common control sequences and customized applications specific to your needs.

The **IRC** pre-loaded appliance can moreover be configured using **dcgfxApplication**, based on Niagara^{AX} Framework accessible from **EC-Net^{AX} Pro**, which provides an intuitive graphical interface for fast and simple controller configuration, easily understandable for all the potential users.

Architecture



Contents

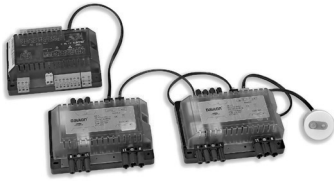
EC-BOS-2^{AX}: Compact controller/server platform



The **EC-BOS-2^{AX}** is a compact, embedded controller/server platform. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The **EC-BOS-2^{AX}** makes it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

The **EC-BOS-2^{AX}** is part of the **EC-Net^{AX}** suite of Java-based controller/ server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. **EC-Net^{AX}** products are powered by the Niagara^{AX} Framework®, the industry's first software technology designed to integrate diverse systems and devices into a seamless system. **EC-Net^{AX}** supports a wide range of protocols including LonWorks®, BACnet® and Internet standards. **EC-Net^{AX}** also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

IRC-SRC-427, IRC-B3LD et IRC-B2S: Modular solution for HVAC, lighting and sunblind management



The **Integrated Room Controller (IRC)** is a complete modular solution for the cross-management of air conditioning, ventilation, lighting and sunblinds.

An all-in-one product, forming a single device on the network, suitable for office construction and repartitioning.

The IRC system is composed of a main office HVAC controller with extension modules to manage additional lights and sunblinds.

Most of Dalilon® and Karno® accessories can be connected to the IRC system through a plug-and-play RJ9 cable: room sensors, infrared or radio receivers combined with a remote control.

Associated to our graphical configuration software, the **IRC** is the ideal product for repartitioning your premises (no need to modify the physical installation).

IRC-SRC-427 : Modular office controller 230 V

230 V_{AC} modular office controller operating on the LON 2.0 network: 230 V_{AC} valves + 0-10 V_{DC} inputs and outputs + possibility to connect extension modules for lighting and sunblind management.

- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
- 1 RJ9 input (for connecting extension modules or accessories).
- 6 230 V_{AC} outputs (2 TRIAC 230 V_{AC}, 3 relays 230 V_{AC} and 1 electric heater relay).

IRC-B3LG

Lighting Add-on Module, 3 dimming outputs (1-10 V_{DC})

IRC-B2S

Sunblind Add-on Module, 2 sunblind outputs (230 V_{DC})

ECP-413: LONMARK Certified 24-Point Programmable Controller



The **ECP-413** is a microprocessor-based programmable controller designed to control various building automation applications such as air handling units, multi-zone applications, chillers, boilers, pumps, cooling towers, and rooftop units. They can also be used for lighting control applications.

The **ECP-413** uses the LONTALK® communication protocol and is LONMARK certified as a Multi-I/O module.

The **ECP-413** supports various input types including resistance, voltage, and digital-based ones, and provides digital, floating, pulse width modulation, and proportional control for valves, heating elements, fans, and lighting applications. Moreover, the **ECP-413** have the added convenience of Hand-Off-Auto (HOA) switches and potentiometers for output manual override.

The **ECP-413** can be programmed using either **EC-gfxProgram**, a state-of-the-art object-oriented graphical programming interface tool, or **EC-Program**, a user-friendly line-by-line programming tool. Both tools are accessible from any LNS®-based software such as Distech Controls' **Lonwatcher 3** or from any multi-protocol platform software that supports LONWORKS devices, such as Distech Controls' **EC-Net^{AX}**, which is powered by the Niagara^{AX} Framework®.

MS2-I-PL : Mini Infrared Multi-sensor



The **MS2-I-PL** combines, in an extra small device, an infrared receiver, a presence detector, a light intensity sensor (Lux level) and a temperature sensor.

It allows the automatic control of all comfort parameters in a room, depending on the occupancy mode.

The MS2 can be directly connected to a Dalilon® or Karno® controller with a digital RJ9 link. It can be used together with a Dalilon® multi or mono discipline remote control.

It receives orders emitted by users (via a remote control) and transmits them to a lighting, sunblind or HVAC controller.

TCND-I: Multi-discipline Infrared Remote Control - Presence Detection and Lux Level Measurement



The TCND remote control is dedicated to multi-discipline installations. Attributing to an ergonomic and intuitive keypad and to a LCD screen, it allows the adjustment of lighting, sunblind, temperature and fan speed parameters and to select the room occupancy mode. Depending on the model, it measures and displays temperature (integrated NTC probe).

According to requirements, the remote control can be used with radio, infrared or EnOcean accessories (receivers, multi sensors, switches, etc).

It can be fixed on a wall with 2 types of wall-mounted supports: a support for a removable remote control and another one for a fixed remote control.

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

Complementary Products

ECgfxProgram: Graphical Programming Interface for Programmable Controllers



Distech Controls' **EC-gfxProgram** Graphical Programming Interface (GPI) tool makes Building Automation System (BAS) programming effortless by allowing you to visually assemble building blocks together as necessary to create a custom control sequence for any HVAC and building automation application. By “dragging and dropping” a few block objects from the **EC-gfxProgram**'s vast library and connecting them with a simple “click, select, and release” process, you can quickly and easily assemble common control sequences and customized applications specific to your needs.

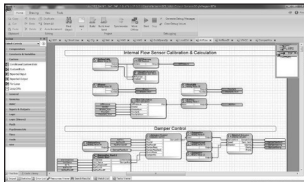
EC-gfxProgram provides an intuitive and customizable programming environment with window panes that can be moved, docked, and hidden; it adapts to how you work. The programming area is where you visually compose your code and when two or more code sheets need to be managed, new programming sheets can be created and layered relative to each other. Coupled with a ribbon bar along with the project explorer pane, you have all the tools necessary to keep your code well-organized.

EC-gfxProgram's block object toolbox provides you with an ample collection of components and functions that can be used to create simple to very complex control sequences. Use a Custom Block to keep your code clean by putting the specialized code that this block encapsulates on its own programming sheet. Block objects not only make coding clean and easy, but they also reduce basic errors that may arise when writing code conventionally. Furthermore, **EC-gfxProgram**'s smart code compiling, error list pane, watch list, and live debugger allows you to execute code, view input/output values, and troubleshoot errors in real-time.

EC-gfxProgram can be run from any multi-protocol software platform supporting BACnet and LONWORKS devices such as Distech Controls' **EC-Net^{AX} Pro**, powered by the Niagara^{AX} Framework or from any LNS-based software such as Distech Controls' Lonwatcher.

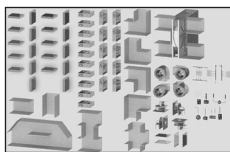
Productivity Enhancing Tools : gfxApplications, dclImages & dcgfxApplications

Distech Controls has built a cohesive package of tools designed to reduce commissioning time and provide easy to build, aesthetically pleasing, user interfaces:



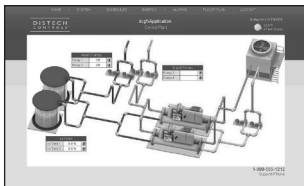
gfxApplications is a complete library of pre-engineered sequences embedded within the code library section of **EC-gfxProgram**.

Once a code has been dropped into a programming sheet the sequence is clearly explained and code snippets are provided so tweaking is intuitive and painless.



dclImages is a comprehensive module of over 700 pre-animated HVAC components.

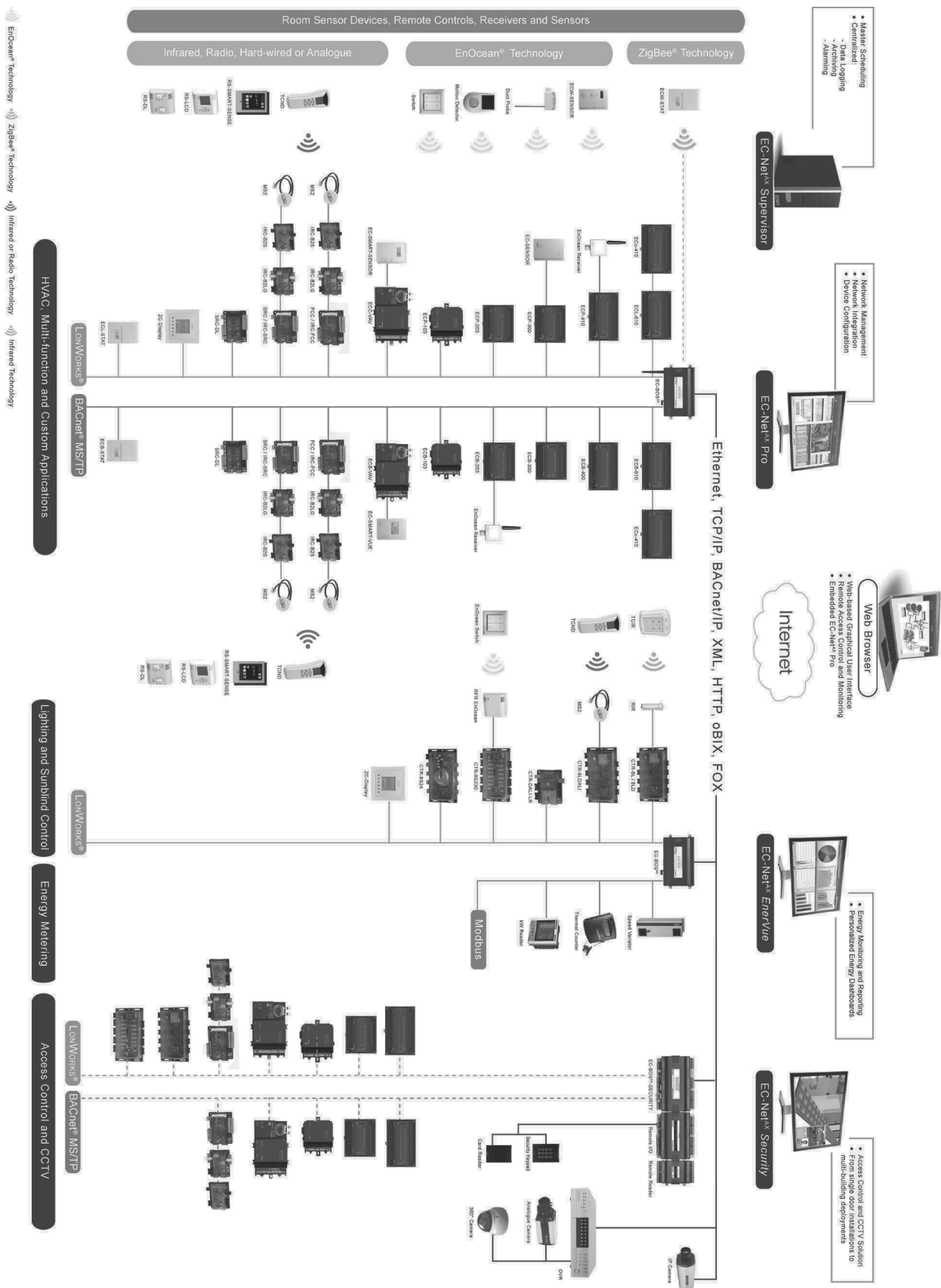
The **dclImages** module provides the equipment and components needed to consistently assemble high-end system graphics, so you can spend less time assembling graphics and further distinguish your organization's graphics that are competitive in today's industry. Systems such as variable air volume boxes, air handling units, fan coil units, roof tops, central plants, and more can be created.



dcgfxApplications allows a user to drag and drop pre-engineered devices from a palette and have a working device, direct from the manufacturer, complete with code and graphics, in minutes. **dcgfxApplications** also allows devices to be configured using configuration pages provided or customize the code using **EC-gfxProgram**.

While independently powerful and intuitive, the sheer power and measurable efficiencies come when these tools are used together.

Distech Controls' multiprotocol solution



Specifications

Suitcase		Power Supply	
Dimensions	500 x 420 x 225 mm	Voltage	230 V _{AC}
Weight	7.5 kg	Connector	Male IEC Power Supply Connector
Material		Wiring	Provided Power Supply Cable (2 m)
Enclosure	Polypropylene	Communications	
Fitting	Expanded PVC	Speed	10-100 Mbps
Protecting foam	Polyethylene foam 29 kg/m ³	Communications	Ethernet port
Environnement		Wiring	Provided RJ45/RJ45 cable (2 m)
Operating temperature	5°C to 45°C		
Relative humidity	5% to 95% non-condensing		

For more information on Distech Controls products included in the LonWORKS demo case, please refer to their respective documentation.

Specifications subject to change without notice.

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LONWORKS[®] Demo Case

www.distech-controls.eu

