

Columbus Temperature Control
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DISTECH
 CONTROLS™



Product Overview

Alarm Console
 43 Sources / 540 Alarms

Source State	Ack State	Source	Alarm Class	Priority	Msg ID
Offnormal	0 Aided / 13 Unacked	WV-09 SpaceTemp	Ventilation	295	Low
Offnormal	0 Aided / 13 Unacked	WV-02 SpaceTemp	Ventilation	295	Low
Offnormal	0 Aided / 19 Unacked	WV-02 SpaceTemp	Ventilation	295	High
Offnormal	0 Aided / 19 Unacked	WV-02 SpaceTemp	Ventilation	295	High
Normal	0 Aided / 23 Unacked	WaterConsumption	Energy	295	Bad

Energy Summary
 Elect Demand
 Elect Consumption
 Water Consumption
 Gas Consumption

Today's Demand
 kWh 2,400.00
 1,200.00
 600.00
 0.00
 12:38-10 12:00 AM EDT



Room Thermostat

System Parameters
 HVAC Mode: Heat
 Occupancy: Occupied
 Terminal Load: 0.0 %
 Fan: 0.0 m
 Floor Setpoint: 18.0 m

Equipment Control
 Control Output: 100.0 %
 Fan Control: 100.0

Operational Information
 Cooling Setpoint: 19.0 °C
 Heating Setpoint: 17.0 °C

Buttons: EGBV | Configuration | Trends



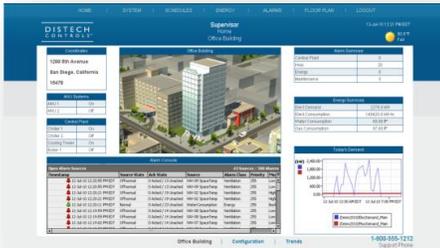
EC-Net

Last Year Electrical Consumption Comparison

Electrical Consumption per Square Foot



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)
- Scalable applications ranging from small buildings to multiple site and campus-wide solutions
- Several models available for distributed control and monitoring throughout larger facilities



Product Guide: EC-Net^{AX}

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:

- Small Building System version of the EC-Net^{AX} Supervisor limited to 3 EC-BOS^{AX} controllers. This version is upgradable to a Medium Building System.
- Medium Building System version of the EC-Net^{AX} Supervisor limited to 100 EC-BOS^{AX} controllers. This version is upgradable to a Large Building System
- Large Building System version of the EC-Net^{AX} Supervisor for an unlimited number of EC-BOS^{AX} controllers.

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 LONWORKS, BACnet, 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-3^{AX}
- EC-BOS-6^{AX}
- EC-BOS-7^{AX}
- Soft EC-BOS^{AX}

Other

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



EC-BOS-3^{AX}



EC-BOS-6^{AX}



EC-BOS-7^{AX}



Optional Models

UL 864 Listed, 9th Edition,
UUKL Smoke Control
Equipment¹

EC-BOS-6^{AX} UUKL

CPU

Processor	PowerPC 405EX	PowerPC 440	PowerPC 440Epx
Speed	400MHz	524MHz	667MHz

Memory

RAM	256MB ¹	256MB ¹	1GB
Flash	128MB	128MB	512MB
Hard Disk	-	-	-

Communication

Ethernet	Two 10/100Mps RJ-45 connectors	Two 10/100Mps RJ-45 connectors	Two 10/100Mps/1Gbps RJ-45 connectors
RS-232	9-pin D-shell connector	9-pin D-shell connector	9-pin D-shell connector
RS-485	One port	One port	One port
LON [®] Port	Optional	Optional	Optional
56k Modem	Optional	Optional	Optional
Cellular ²	Optional	Optional	Optional

I/O

On-Board	-	-	-
Expansion	IO-34 and/or IO-16	IO-34 and/or IO-16	-

Power Supply

Voltage	<i>Optional DIN Rail Mountable:</i> - 24V AC/DC Power Supply Module - Universal 90-240VAC Power Supply Module	<i>Optional DIN Rail Mountable:</i> - 24V AC/DC Power Supply Module - Universal 90-240VAC Power Supply Module	<i>Optional DIN Rail Mountable:</i> - Universal 90-240VAC Power Supply Module
	<i>Optional Wall Power Modules:</i> - 120VAC (US) - 230VAC (EUR/Asia) - 230VAC (UK)	<i>Optional Wall Power Modules:</i> - 120VAC (US) - 230VAC (EUR/Asia) - 230VAC (UK)	<i>Optional Wall Power Modules:</i> - 120VAC (US) - 230VAC (EUR/Asia) - 230VAC (UK)
Power Consumption	6VA without IO expansion	6VA without IO expansion	20VA maximum
Backup	Yes	Yes	Yes

Physical

Enclosure	Plastic DIN Rail or screw mount chassis, plastic cover	Plastic DIN Rail or screw mount chassis, plastic cover	Plastic DIN Rail or screw mount chassis, plastic cover
Dimensions	6.3", 16.0cm W	6.3", 16.0cm W	8.5", 21.6cm W
	4.8", 12.2cm H	4.8", 12.2cm H	6.0", 15.2cm H
	2.4", 6.1cm D	2.4", 6.1cm D	2.6", 6.8cm D

1. The UL 864 Listed, UUKL Smoke Control Equipment are used only in Distech Controls' UUKL smoke control system. For detailed requirements and procedures for installing and operating UL 864 Listed equipment, refer to the Distech Controls Smoke Control System documentation on SmartSource
2. Optional memory upgrade: Upgrades JAVA Heap from 24MB up to 96MB on EC-BOS-3^{AX} and from 48MB up to 96MB on EC-BOS-6^{AX}
3. Requires Cellular Service Provider Wyless Group (www.wyless.com)

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BACnet® and LONWORKS® HVAC Controllers



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 BACnet and LONMARK certified LONWORKS controllers
- 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
- Choice of custom programmable controllers or plug-and-play, pre-configured application specific controllers provides unmatched flexibility at installation
- BACnet ECB and LONWORKS ECL 50 Series controllers with live graphics color display provide quick access to a wide range of internal controller functions, while color-coded icons provide at-a-glance indication of alarms and override conditions
- Support of Allure™ EC-Smart-View and Allure EC-Smart-Sensor communicating LCD sensors offers time-saving features such as air flow balancing and pre-configured application selection
- Unique embedded Open-to-Wireless™ solution provides support of multiple wireless, battery-less sensors
- Selection of models expandable with ECx-Light and ECx-Blind Series, light and shade/sunblind control modules, for an end-to-end Smart Room Control Solution.

- 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
- Select models allow for auto diagnostics and alerts based on performance algorithms

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



ECB Series: Application Specific Controllers

ECB-VAV Series	For applications from single duct to fan powered VAV with reheat and radiation heating.
ECB-PTU Series	For fan coil, chilled ceiling/beam and heat pump applications
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. Models available with live graphics color display. Models available with environmental protection.
Allure ECB-STAT	Communicating thermostat for heat pump, roof top, fan coil, and zoning applications.

ECB Series: Advanced Application Controllers

ECB-300 Series	For AHU, chiller, boiler, and cooling tower applications. Models available with live graphics color display.
ECB-400 and ECB-403 Series	For roof top, AHU, chiller, boiler, cooling tower, and multi-zone applications. Models available with live graphics color display.
ECB-600 Series	For AHU, chiller, boiler, cooling tower, and central plant applications. Models available with live graphics color display.
ECx Series	Additional I/O modules for the ECB-600 Series.

ECB-1000 Series: BACnet Building Controllers

ECB-1000 Series	The ECB-1000 Series use the BACnet/IP LAN communication protocol with optional BACnet MS/TP connectivity, and are designed to control large building automation applications such as Air handling units, chillers, boilers, pumps, cooling towers, and central plant applications.
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EC-BOS^{AX}: Multi-protocol Web Building Controllers

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 LONWORKS or BACnet controllers, and provide real-time control functions.



Product Guide – LONWORKS HVAC Controllers

Programmable Controllers

ECB-VAV Series	For applications from single duct to fan powered VAV with reheat and radiation heating.
ECB-PTU Series	For fan coil, chilled ceiling/beam and heat pump applications
ECL-103	Control of terminal units such as VAV, fan coil, unit ventilator and heat pumps as well as chilled ceiling and other custom applications.
ECL-203 Series	Custom programming of applications such as roof top units, fan coils, heat pumps, ventilator units and other terminal units. Models available with live graphics color display. Models available with environmental protection.
ECL-300 Series	Control of equipment such as small and medium air handling units, chillers, boilers, pumps and cooling towers. Models available with live graphics color display.
ECL-400 Series	Control of equipment such as medium and large air handling units, chillers, boilers, pumps and cooling towers. Models available with live graphics color display.
ECL-600 Series	For AHU, chiller, boiler, cooling tower, and central plant applications. Models available with live graphics color display.
ECx Series	Additional I/O modules for the ECL-600 Series.
Allure ECL-STAT	Communicating thermostat for Heat pump, roof top, fan coil and zoning applications.

Configurable Controllers

EC-FCU-L	For fan coil applications including cooling, heating or cooling and heating, such as two-pipe coil shared cooling and heating and four-pipe coil cooling and heating.
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.
EC-UV-L	For unit ventilator applications such as two-pipe coil shared cooling and heating and four-pipe coil cooling and heating, electric, water or direct expansion coils.
ECC-VAV and ECC-VAVS Series	For applications from single duct to fan powered VAV with reheat and radiation heating.

Remote I/O

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.
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General	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
Controller Status LED	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Interactive color operator interface			■		■					■	■			■			
Real-Time Clock				■	■	■	■	■	■	■	■	■	■	■			
DIN-Rail Mounting		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Operating Temperature Range:																	
- 32 to 122°F; 0 to 50°C	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
- -40 to 158°F; -40 to 70°C		■ ¹															

Optional Models

UL 864 Listed, 9th Edition, UUKL Smoke Control Equipment ⁴		ECB-203 UUKL		ECB-300 UUKL		ECB-400 UUKL						ECB-600 UUKL			ECx-400 UUKL		
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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				■ ²													
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			
Wireless inputs ³	18	24	24	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	
0-20mA/4-20mA (Jumper Selectable)				■	■	■	■	■	■	■	■	■	■	■	■	■	
Digital (Triac)	4	5	5				8		8		8						
Output LED Status Indicator		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
HOA Switch								■	■				■	■		■	

Power Input

24 VAC	■																
24 VAC/VDC		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Power Status LED Indicators	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

1. Also available with the environmental protection (conformal coating) option.
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.
4. The UL 864 Listed, UUKL Smoke Control Equipment are used only in Distech Controls' UUKL Smoke Control System. For detailed requirements and procedures for installing and operating UL 864 Listed equipment, refer to the Distech Controls UUKL Smoke Control System documentation on SmartSource.



Programming – Configuration

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

Communication

BTL Listing Profile	B-ASC	B-ASC	B-ASC	B-AAC													
BACnet MS/TP	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
MAC Addressing																	
- EC-Smart-Vue sensor	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
- Dip Switch		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
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				
Schedule Objects	2	2	2	10	10	10	10	10	10	10	10	10	10	10	10	10				
Loop (PID)	8	8	8	30	30	30	30	30	30	30	30	30	30	30	30	30				
BACnet Input Objects (AI, BI, MSI)	30	38	38	62 ²	62 ²	64 ²	68 ²	68 ²	68 ²	12 ^{4 5}	12 ^{4 5}	12 ^{4 5}								
BACnet Output Objects (AO, BO)	6	8	8	8 ³	8 ³	12 ³	4 ³	12 ³	4 ³	12 ³	4 ³	12 ³	12 ³	12 ³	12 ³	12 ^{3 5}	12 ^{3 5}			
BACnet BV Objects																				
- Commandable ¹	10	10	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20			
- Non-Commandable	40	40	40	55	55	55	55	55	55	55	55	55	55	55	55	55	55			
BACnet MSV Objects																				
- Commandable ¹	10	10	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20			
- Non-Commandable	40	40	40	55	55	55	55	55	55	55	55	55	55	55	55	55	55			
BACnet AV Objects																				
- Commandable ¹	25	25	25	35	35	35	35	35	35	35	35	35	35	35	35	35	35			
- Non-Commandable	75	75	75	115	115	115	115	115	115	115	115	115	115	115	115	115	115			
BACnet Alarm Notification Classes				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5 ⁵	5 ⁵	5 ⁵

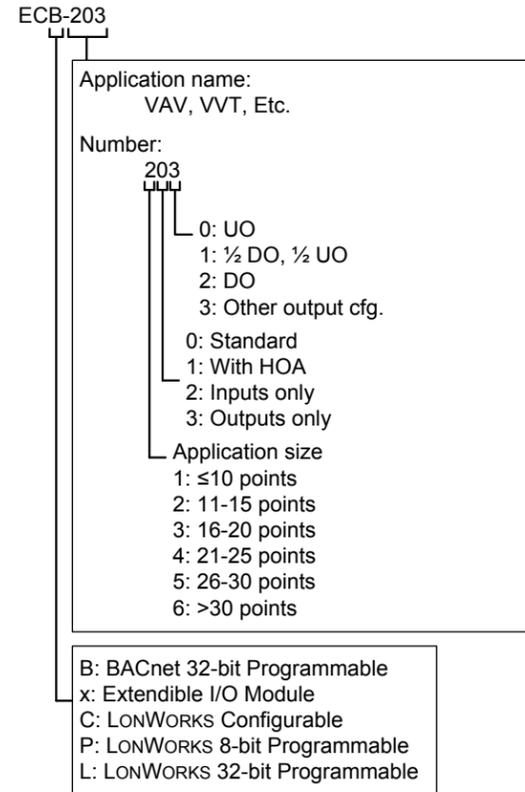
1. Supports object internally-generated alarms (intrinsic reporting).
2. Supports object internally-generated alarms (intrinsic reporting). This consists of Hardware Inputs, Allure EC-Smart-Vue inputs, and Open-To-Wireless inputs.
3. Supports object internally-generated alarms (intrinsic reporting).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



Recommended Applications	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
2 pipe Fan Coil	■	■	■														
2 pipe Fan Coil with Changeover Sensor	■	■	■														
4 pipe Fan Coil	■	■	■														
Chilled Ceiling	■	■	■														
Heat Pump	■	■	■														
Unit Ventilator	■	■	■														
Small Roof Top		■ ¹	■														
Medium Roof Top		■ ¹	■					■		■		■					
Large Roof Top								■		■		■					
Small Air Handling Unit		■	■	■	■												
Medium Air Handling Unit				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Large Air Handling Unit				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Multi-Zones Application				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Chillers				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Boiler				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Cooling Tower				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Central Plant												■	■	■	■	■	■

1. Also available with the environmental protection (conformal coating) option.

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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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 Generic	SCC Generic	SCC Generic	SPD ¹														
Operating Temperature Range:																		
32 to 122°F; 0 to 50°C	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
-40 to 158°F; -40 to 70°C		■ ²																
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				■ ³	■ ³	■ ³	■ ³											
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 ⁴	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	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		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. Also available with the environmental protection (conformal coating) option.
3. The first four inputs are software configurable for pulse counting; 50 Hz maximum frequency.
4. 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/FT-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
Schedule Objects	2	2	2	8	8	8	8	8	8	8	8	8	8	8	8	8
Loop (PID)	8	8	8	30	30	30	30	30	30	30	30	30	30	30	30	30
Constants																
- Boolean	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
- Enumeration	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
- Numeric	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
- Enumeration	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
nciSetpoint	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	171	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
Network Variable Output (General Usage)																
- NVO Changeable Type, 31 Bytes	50	50	50	35	35	35	35	35	35	35	35	35	35	35	35	35
Hardware Input Network Variable																
- nvoHwInput per Hardware Input	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■ ⁵	■ ⁵
Hardware Output Network Variable																
- nviHwOutput per Hardware Output	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■ ⁵	■ ⁵
- nvoHwOutput per Hardware Output	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■ ⁵	■ ⁵

- 5. Any type of Fan-In function is supported in combination with the “FOR” loop function.
- 6. These Network Variables are managed by the ECL-600, ECL-610, or ECL-650 controller (master).

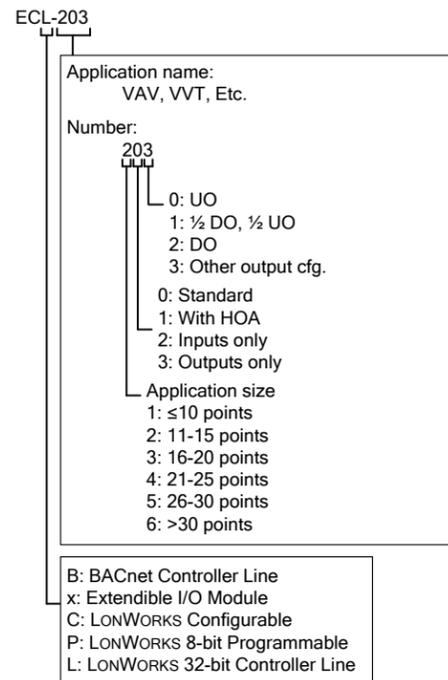


Recommended Applications

	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
2 pipe Fan Coil	■	■	■														
2 pipe Fan Coil with Changeover Sensor	■	■	■														
4 pipe Fan Coil	■	■	■														
Chilled Ceiling	■	■	■														
Heat Pump	■	■	■														
Unit Ventilator	■	■	■														
Small Roof Top		■	■ ¹														
Medium Roof Top		■	■ ¹				■		■		■						
Large Roof Top							■		■		■						
Small Air Handling Unit		■	■	■	■												
Medium Air Handling Unit				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Large Air Handling Unit				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Multi-Zones Application				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Chillers				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Boiler				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Cooling Tower				■	■	■	■	■	■	■	■	■	■	■	■	■	■
Central Plant												■	■	■	■	■	■

1. Also available with the environmental protection (conformal coating) option.

Controller Naming Conventions:



Total Quality Commitment

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ECB-VAVS-O



ECB-VAVS



ECB-VAV



ECB-VVTS



ECB-VAV-N



General

Smart Room Control Support¹



Optional Models

UL 864, 9th Edition, UUKL Listed
Smoke Control Equipment²

ECB-VAV
UUKL

Inputs

Universal (Software Configurable)	0	2	4	2	4
Built-In Differential Pressure Sensor (0 to 2.0" W.C.)	■	■	■		■
Allure™ EC-Smart-Vue Capability	4	4	4	4	4
Wireless Inputs ³	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	B-ASC	B-ASC	B-ASC	B-ASC	B-ASC
BACnet MS/TP	■	■	■	■	■
BACnet IP					
MAC Addressing					
- With an Allure EC-Smart-Vue	■	■	■	■	■
- With Onboard Dip Switches					

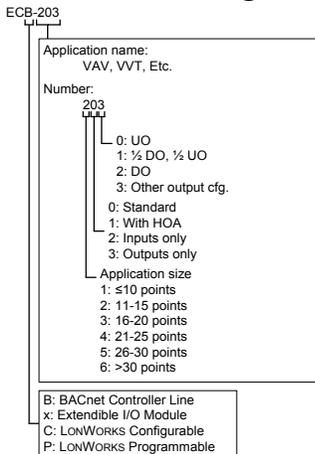


Objects					
Calendar Objects	1	1	1	1	1
Schedule Objects	2	2	2	2	2
BACnet Objects (BV, MV, AV)	200	200	200	200	200
Loop (PID)	8	8	8	8	8

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 ⁴	■	■			
Large Damper > 35 in-lb (4 Nm) VAV Box					■
Existing Damper Actuator					■
Room Pressurization			■		

- For supported quantities, see the *VAV-Smart Room Control Device Calculator.xlsx* spreadsheet file available for download from SmartSource.
- The ECB-VAV UUKL controller is used only in the Distech Controls' UUKL smoke control system. For detailed requirements and procedures for installing and operating UL 864 UUKL Listed smoke control equipment, refer to the Distech Controls Smoke Control System documentation on SmartSource.
- Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.
- Two controllers are required or one controller with an external flow sensor and actuator.

Controller Naming Conventions:



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ECL-VAVS-O



ECL-VAVS



ECL-VAV



ECL-VVTS



ECL-VAV-N



General

Controller Status LED	■	■	■	■	■
LONMARK® Device Class: SCC VAV	■	■	■	■	■
Smart Room Control Support ¹			■		

Inputs

Universal (Software Configurable)	0	2	4	2	4
Built-In Differential Pressure Sensor (0 to 2.0" W.C.)	■	■	■		■
Allure™ EC-Smart-Vue Capability	4	4	4	4	4
Wireless Inputs ²	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

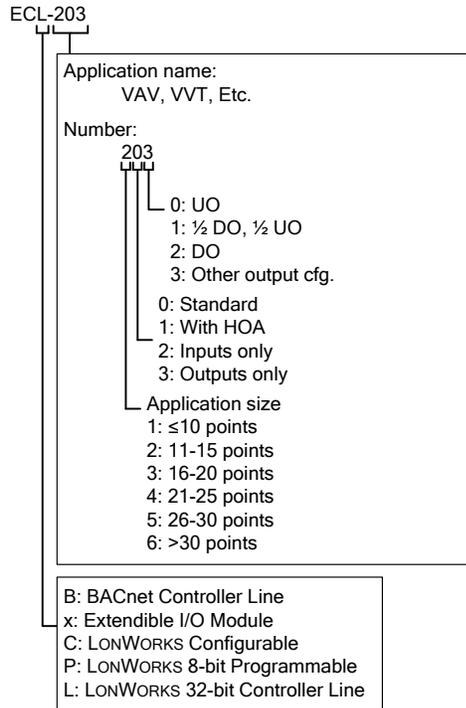
Calendar Objects	1	1	1	1	1
Schedule Objects	2	2	2	2	2
Loop (PID)	8	8	8	8	8
Constants	242	242	242	242	242
- Boolean	124	124	124	124	124
- Enumeration	62	62	62	62	62
- Numeric	56	56	56	56	56
Variable	234	234	234	234	234
- Boolean	124	124	124	124	124
- Enumeration	54	54	54	54	54
- Numeric	56	56	56	56	56
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	■	■	■	■	■
Lamp Object			8		
Sunblind Object			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 ³	■	■			
Large Damper > 35 in-lb (4 Nm) VAV Box					■
Existing Damper Actuator					■
Room Pressurization			■		

1. For supported quantities, see the *VAV Smart Room Control Device Calculator.xlsx* spreadsheet file available for download from SmartSource.
2. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.
3. Two controllers are required or one controller with an external flow sensor and actuator.

Controller Naming Conventions:



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ECB-PTU-107



ECB-PTU-207



ECB-PTU-208



ECB-PTU-307



ECB-PTU-308



General

Controller Status LED	■	■	■	■	■
DIN-Rail Mounting	■	■	■	■	■

Inputs

Universal Inputs	2	2	2	2	2
Digital Inputs	3	3	3	2	3
Sensor Inputs (NTC 10 kΩ Type II, III)	1	1	1	2	1
Wireless inputs ¹	24	24	24	24	24
Compatibility for optional subnet devices:	4	4	4	4	4
- Allure EC-Smart-Vue	Up to 4 ^{2,3}				
- EC-Multi-Sensor series	Up to 4 ³				
- ECx-Light-4 / ECx-Light-4D	2	2	2	2	2
- ECx-Blind-4 / ECx-Blind-4LV	2	2	2	2	2

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.
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. A controller can support four sensors among Allure EC-Smart-Vue and EC-Multi-Sensor.

Outputs

Relay Contact Outputs (<i>typ. Electric Heater</i>)	1 x 2 kW	1 x 2 kW	1 x 2 kW	2 x 1 kW	1 x 2 kW
Powered Relay Outputs (<i>typ. Fan Speeds</i>)	3	3	3	3	3
Line-Powered Triac Outputs (<i>typ. Valves</i>)	2	2		4	
24 VAC Triac Outputs (<i>typ. Valves</i>) ⁴			2		4
Analog Outputs		4	2	2	2
24 VAC Power Supply Outputs			■		■

4. Can be used to power certain types of valves and air dampers, thereby eliminating the need for a transformer.

Power Input

100-240 VAC	■	■	■	■	■
Power Status LED Indicators	■	■	■	■	■

ECB-PTU-107



ECB-PTU-207



ECB-PTU-208



ECB-PTU-307



ECB-PTU-308



Programming – Configuration

EC-gfxProgram	■	■	■	■	■
Pre-Engineered Applications					

Communication

BTL Listing Profile	B-ASC	B-ASC	B-ASC	B-ASC	B-ASC
BACnet MS/TP	■	■	■	■	■
MAC Addressing					
- Allure™ EC-Smart-View sensor	■	■	■	■	■
- Dip Switch	■	■	■	■	■
Rx LED Indicators	■	■	■	■	■
Tx LED Indicators	■	■	■	■	■

BACnet Objects

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

ECB-PTU-107



ECB-PTU-207



ECB-PTU-208



ECB-PTU-307



ECB-PTU-308



Recommended Applications

FCU ⁵ : 2/4 pipes - 3 speed fan - On/Off / thermal valves	■				
FCU: 2/4 pipes - Variable / 3-speed fan - On/Off/ thermal valves		■	■		
FCU: 2/4 pipes - Variable / 3-speed fan - Analog actuator		■	■		
FCU: 2 pipes - Variable / 3-speed fan - Floating actuator		■	■		
FCU: 4 pipes - Variable / 3-speed fan - Floating actuator				■	■
HPU ⁶ : 3-speed fan	■				
HPU: Variable speed fan		■	■		
Chilled Beam: On/Off / thermal valves	■		■		
Chilled Beam: 2 pipes - Floating actuator		■	■		
Chilled Beam: 4 pipes - Floating actuator				■	■
Reversible Ceiling with 6-way valves		■	■		
Unit Ventilator		■	■		
Double FCU Application: 2/4 pipes - Variable speed fan -- On/Off / thermal valves				■	■
Double Chilled Beam Application: 2/4 pipes - On/Off / thermal / analog valves				■	■

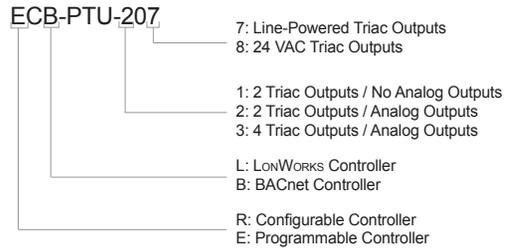
5. Fan Coil Unit
6. Heat Pump Unit

Compatibility

Open-to-Wireless™ ready	■	■	■	■	■
ECx-Light/Blind Modules Support ⁷	■	■	■	■	■
Allure™ RS Series Analog Room Sensors	■	■	■	■	■
Allure EC-Sensor Series Analog Room Sensors	■	■	■	■	■
Allure EC-Smart-Vue Series Digital Room Sensors	■	■	■	■	■
EC-Multi-Sensor Series	■	■	■	■	■
Max number of Digital Room Devices per controller	4	4	4	4	4

7. All PTU Series controllers support 2 ECx-Light + 2 ECx-Blind, in daisy-chain configuration.

Controller Naming Conventions:



Total Quality Commitment

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ECL-PTU-107



ECL-PTU-207



ECL-PTU-208



ECL-PTU-307



ECL-PTU-308



General					
Controller Status LED	■	■	■	■	■
DIN-Rail Mounting	■	■	■	■	■
LONMARK Device Class	SCC Fan Coil				

Inputs					
Universal Inputs	2	2	2	2	2
Digital Inputs	3	3	3	2	3
Sensor Inputs (NTC 10 kΩ Type II, III)	1	1	1	2	1
Wireless inputs ¹	24	24	24	24	24
Compatibility for optional subnet devices:	4	4	4	4	4
- Allure EC-Smart-Vue	Up to 4 ^{2,3}				
- EC-Multi-Sensor series	Up to 4 ³				
- ECx-Light-4 / ECx-Light-4D	2	2	2	2	2
- ECx-Blind-4 / ECx-Blind-4LV	2	2	2	2	2

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.
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. A controller can support four sensors among Allure EC-Smart-Vue and EC-Multi-Sensor.

Outputs					
Relay Contact Outputs (typ. Electric Heater)	1 x 2 kW	1 x 2 kW	1 x 2 kW	2 x 1 kW	1 x 2 kW
Powered Relay Outputs (typ. Fan Speeds)	3	3	3	3	3
Line-Powered Triac Outputs (typ. Valves)	2	2		4	
24 VAC Triac Outputs (typ. Valves) ⁴			2		4
Analog Outputs		4	2	2	2
24 VAC Power Supply Outputs			■		■

4. Can be used to power certain types of valves and air dampers, thereby eliminating the need for a transformer.

Power Input					
100-240 VAC	■	■	■	■	■
Power Status LED Indicators	■	■	■	■	■

ECL-PTU-107



ECL-PTU-207



ECL-PTU-208



ECL-PTU-307



ECL-PTU-308



Programming – Configuration

EC-gfxProgram	■	■	■	■	■
Pre-Engineered Applications					

Communication

LONMARK Certified	■	■	■	■	■
LONWORKS TP/FT-10	■	■	■	■	■
Rx LED Indicators	■	■	■	■	■
Tx LED Indicators	■	■	■	■	■

Objects

Calendar Objects	1	1	1	1	1
Schedule Objects	2	2	2	2	2
Lamp Actuator Objects	8	8	8	8	8
Sunblind Actuator Objects	8	8	8	8	8
Loop (PID)	8	8	8	8	8
Constants					
- Boolean	124	124	124	124	124
- Enumeration	62	62	62	62	62
- Numeric	56	56	56	56	56
Variables					
- Boolean	124	124	124	124	124
- Enumeration	54	54	54	54	54
- Numeric	56	56	56	56	56
nciSetpoint	1	1	1	1	1
Total Network Variables	236	244	240	246	244
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, 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	■	■	■	■	■

ECL-PTU-107



ECL-PTU-207



ECL-PTU-208



ECL-PTU-307



ECL-PTU-308



Recommended Applications

FCU ⁵ : 2/4 pipes - 3 speed fan - On/Off / thermal valves	■				
FCU: 2/4 pipes - Variable / 3-speed fan - On/Off/ thermal valves		■	■		
FCU: 2/4 pipes - Variable / 3-speed fan - Analog actuator		■	■		
FCU: 2 pipes - Variable / 3-speed fan - Floating actuator		■	■		
FCU: 4 pipes - Variable / 3-speed fan - Floating actuator				■	■
HPU ⁶ : 3-speed fan	■				
HPU: Variable speed fan		■	■		
Chilled Beam: On/Off / thermal valves	■		■		
Chilled Beam: 2 pipes - Floating actuator	■		■		
Chilled Beam: 4 pipes - Floating actuator				■	■
Reversible Ceiling with 6-way valves		■	■		
Unit Ventilator		■	■		
Double FCU Application: 2/4 pipes - Variable speed fan -- On/Off / thermal valves				■	■
Double Chilled Beam Application: 2/4 pipes - On/Off / thermal / analog valves				■	■

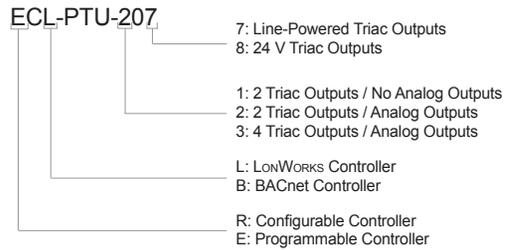
5. Fan Coil Unit
6. Heat Pump Unit

Compatibility

Open-to-Wireless™ ready	■	■	■	■	■
ECx-Light/Blind Modules support ⁷	■	■	■	■	■
Allure™ RS Series Analog Room Sensors	■	■	■	■	■
Allure EC-Sensor Series Analog Room Sensors	■	■	■	■	■
Allure EC-Smart-Vue Series Digital Room Sensors	■	■	■	■	■
EC-Multi-Sensor Series	■	■	■	■	■
Max number of Digital Room Devices per controller	4	4	4	4	4

7. All PTU Series controllers support 2 ECx-Light + 2 ECx-Blind, in daisy-chain configuration.

Controller Naming Conventions:



Total Quality Commitment

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Product Comparison Chart

Configurable Controllers

EC-FCU-L: Fan Coil Unit
 EC-RTU-L: Roof Top Unit
 EC-HPU-L: Heat Pump Unit
 EC-UV-L: Unit Ventilator



Inputs				
Universal (total)	6	6	6	6
Digital (dry contact)	■	■	■	■
Voltage (0-10V)	■	■	■	■
Current (4-20mA with ext. 249Ω)	■	■	■	■
Thermistor (10kΩ Type 2)	■	■	■	■
Thermistor (10kΩ Type 3)	■	■	■	■
Potentiometer (transtable)	■	■	■	■
Software configurable	■	■	■	■
Ability to use spare inputs	■	■	■	■
Analog/digital converter (bit)	12	12	12	12
Outputs				
Universal	2	2	2	2
Digital triac (24VAC)	5	5	5	5
Ability to use spare outputs (NVIs)	■	■	■	■
Output LED status indicators	■	■	■	■
Digital/analog converter (bit)	8	8	8	8
Power Input				
24VAC	■	■	■	■
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)	■	■	■	■

EC-FCU-L



EC-RTU-L



EC-HPU-L



EC-UV-L



Heating Output Configuration

Local / primary stages				
Perimeter / secondary stages	3	4	4	4
Local proportional valve	■	■	■	■
Perimeter proportional valve	■	■	■	■
Local floating actuator valve	■	■	■	■
Perimeter floating actuator valve	■	■	■	■

Cooling Output Configuration

Local / primary stages	3	4	4	4
Local proportional valve		■	■	■
Local floating actuator valve	■	■	■	■
Reversing valve (heat pump)	■	■	■	■
Heat pump condenser water pump			■	

Heating / Cooling Output Configuration

Local proportional valve	■	■	■	■
Local floating actuator valve	■	■	■	■

Fan Control

Speeds	3	1	3	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		■	■	■

EC-FCU-L



EC-RTU-L



EC-HPU-L



EC-UV-L



Temperature Input

Space	■	■	■	■
Supply / discharge	■	■	■	■
Outdoor	■ ¹	■	■	■
Water supply	■	■	■	■
Return air		■		■
Mixed air		■		■
Refrigerant			■	
Setpoint offset (relative)	■	■	■	■

Humidity

Space		■	■	■
Outdoor		■		■

Enthalpy

Space		■		■
Outdoor		■		■

Pressure Input

Discharge air pressure		■		
Local air static pressure		■		
Refrigerant differential pressure (for defrost cycle)			■	

Contact Input

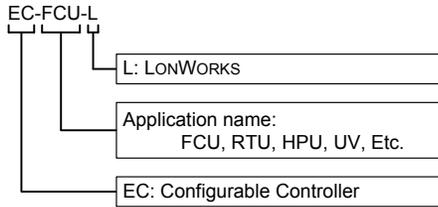
Occupancy	■	■	■	■
Bypass	■	■	■	■
Window	■		■	■
Economizer enabled		■		■
Emergency		■	■	■
Coil frost			■	

Other

Minimum fresh air enabled		■		■
Economizer enabled		■		■
HVAC mode selector	■	■	■	■
Demand control ventilation (CO ₂ level)		■		■

¹ Able to input outdoor temperature indirectly via network variable binding or by a turnaround binding.

Controller Naming Conventions:



Total Quality Commitment

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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.

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Smart Room Control Solution

Distech Controls' Smart Room Control Solution is an end-to-end system for the control of HVAC room terminal equipment, Lighting, and Shades/Sunblind, achieving the highest levels of comfort for occupants while increasing operating cost savings, from installation time and wiring/material requirements to energy consumption. It is a unique, modular solution designed for local or room applications, such as offices, patient rooms, dorms, military housing, etc.

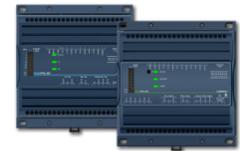
The Smart Room Control Solution is:



An extended BACnet® or LONWORKS® HVAC Controller for terminal equipment applications with built-in features and logic for Lighting and Shades/Sunblind Control – ECL and ECB-VAV or ECL and ECB-PTU Series



Lighting and Shades/Sunblind expansion modules to control lights (ON/OFF or dimming) and shades/sunblinds (up/down and angle rotation) – ECx-Light and ECx-Blind Series



A multi-sensor combining motion and luminosity (Lux) sensors and equipped with a wireless receiver for the personal remote control – EC-Multi-Sensor Series



A Room Sensor using 4 integrated sensors for temperature, humidity, CO₂, and motion – EC-Smart-View Series

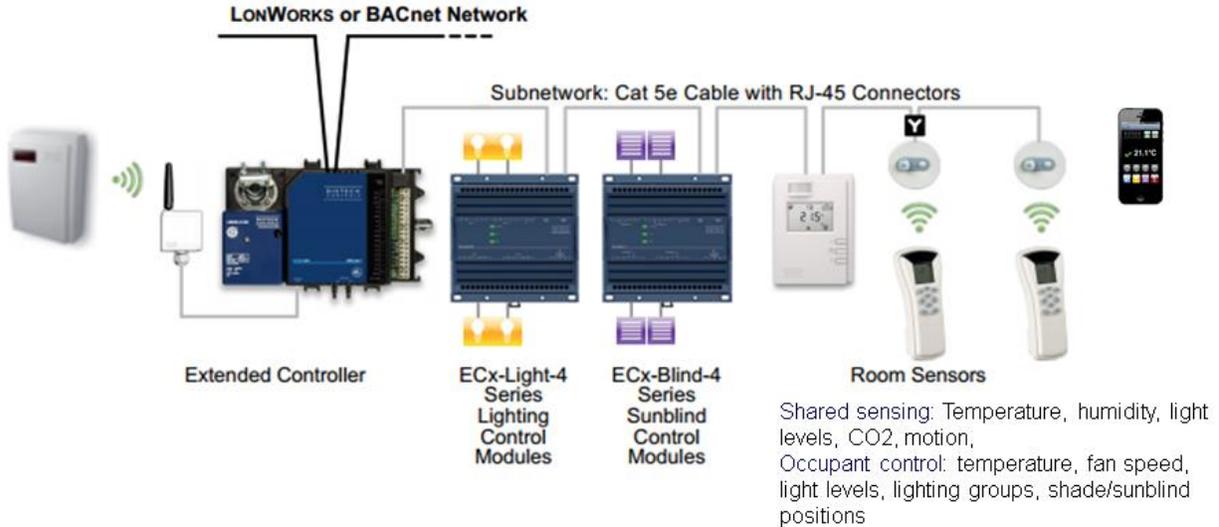


A wireless (infrared) **personal remote control** for increased occupant comfort – EC-Remote Series



A free **mobile App** that allows occupants to view or set comfort parameters at all times from an Apple® device – Smart-Sense Room Control App





Distech Controls' Smart Room Control Solution is one of synergies:



Energy Savings Delivered

- **Integrated** solution designed to deliver optimal energy savings using occupancy-based control strategies, daylight harvesting based on light level sensing and natural light optimization
- **Automation** of shades/sunblinds increases the insulation factor of windows
- Energy savings in excess of **30% on HVAC** and up to **60% on lighting** demonstrated by study at the Hannover University of Applied Sciences and Arts in Germany.



Increased Occupant Comfort

- **Occupants** can adjust temperature, lighting and shade/sunblind settings in the room to achieve a level of personalized comfort
- **Automation** of shade/sunblind levels based on indoor and outdoor light levels allows occupants to benefit from increased natural light
- **Variety** of room devices and convenience of a mobile App addresses the requirements of LEED® Credit 6.2: Controllability of Systems—Thermal Comfort
- Studies have shown an increase in **employee productivity** of up to **20% with appropriate lighting**, up to **50% with appropriate temperature settings**, and up to **9% when provided control over their environmental settings** (*CIBSE TM24 Environmental Factors Affecting Office Worker Performance: Review of Evidence, published in summary article by Healthy Heating, Indoor Environmental Quality: Effects on Productivity, Learning and Energy Efficiency*).



End-to-End Solution

- **Simplifies** design, installation and integration of multi-application systems including HVAC room terminal equipment, Lighting, and Shades/Sunblind control
- **Increases** the reliability of integrated systems



Easy to Configure

- The 3 functions (HVAC, Lighting, and Shades/Sunblind) can be configured through one seamless interface - no additional discovery, bindings, or commissioning required
- Can be fully customized through EC-gfxProgram to meet the most advanced energy efficient application requirements
- Reduce configuration time with gfxApplications, custom blocks, code and project examples



Lowest Total Installed Cost

- The Lighting and Shade/Sunblind expansion modules are connected to the extended HVAC controller on a sub-network and can easily be installed near the equipment they control, reducing wiring and installation costs
- Expansion modules do not require additional nodes on the LON or BACnet networks
- Motion and luminosity sensing information are shared across all 3 functions, providing optimal performance with only one sensor to install and configure
- 1 combination of the Smart Room Control Solution allows you to control up to 8 Light loads (with 2 ECx-Light Expansion Modules) and up to 8 Shade/Sunblind motors or motor groups (with 2 ECx-Blind Expansion Modules), and support up to 4 EC-Multi-Sensor and 4 EC-Smart-Vue



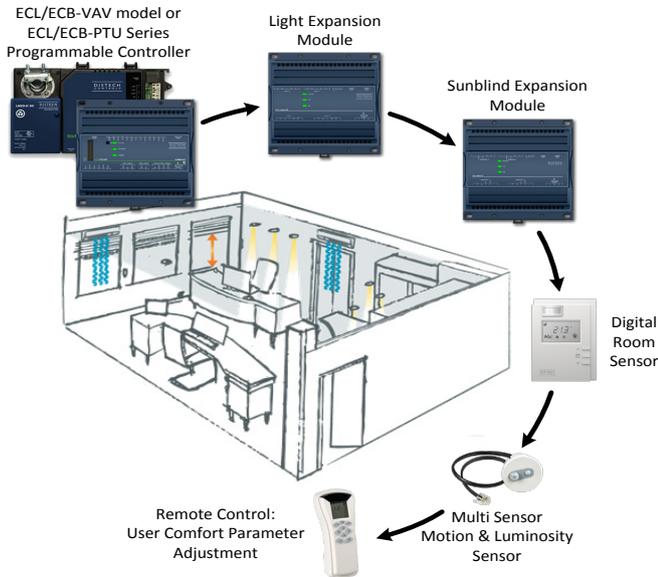
Achieve the Highest Return on Energy Efficient Systems!

The Smart Room Control Solution is the most optimal and cost-efficient way of implementing energy efficient control while ensuring comfort for room occupants



Build Your Own Smart Room Control Solution

Visit www.distech-controls.com/SMART for our interactive planner.



Overview

Distech Controls' Smart Room Control Solution is an end-to-end system for the control of HVAC room terminal equipment, lighting, and shades/sunblinds, achieving the highest levels of comfort for occupants while increasing operating cost savings, from installation time and wiring/material requirements to energy consumption. It is a unique, modular solution designed for local or room applications, such as offices, patient rooms, dorms, military housing, etc.

The Smart Room Control Solution combines:

- An extended BACnet® or LONWORKS® HVAC Controller for terminal equipment applications (VAV, fan coil, chilled beam, heat pumps, etc.) with built-in features and logic for lighting and shade/sunblind control.
- Lighting and shade/sunblind expansion modules to control lights (on/off or dimming) and shades/sunblinds (up/down and angle rotation).
- A multi-sensor combining motion and luminosity (Lux) sensors and equipped with an Infrared receiver that works with a convenient remote control.
- A wireless (infrared) personal remote control for increased occupant comfort.
- A room sensor for increased occupant comfort settings using 4 integrated sensors for temperature, humidity, CO₂, and motion.

The Smart Room Control solution allows for increased integration and automation of diverse building systems. For example, when the room is unoccupied, the room temperature setpoint is set back, and the lighting is shut off. When the room is occupied, the shades/sunblinds are adjusted according to the sun's position, and the lighting is dimmed or shut off according to the amount of available natural light.

Shades/sunblinds can also be used to reduce glare from the setting sun and to reduce cooling demand in summertime. At night, shades/sunblinds can be deployed to reduce energy loss.

Applications

- Regulates all environmental parameters in a zone:
 - Cooling and heating with occupancy setpoint setback
 - Dimming controlled lighting adjusts to available natural ambient light levels
 - Shade/sunblind positioning that adapts to maximize natural light usage
- Automates building functions to obtain LEED credits
- Improves energy efficiency when combined with:
 - Either an EC-Multi-Sensor or Allure™ EC-Smart-Vue sensor equipped with a motion detector to automatically adjust a zone's occupancy mode from standby to occupied and to turn on lighting 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

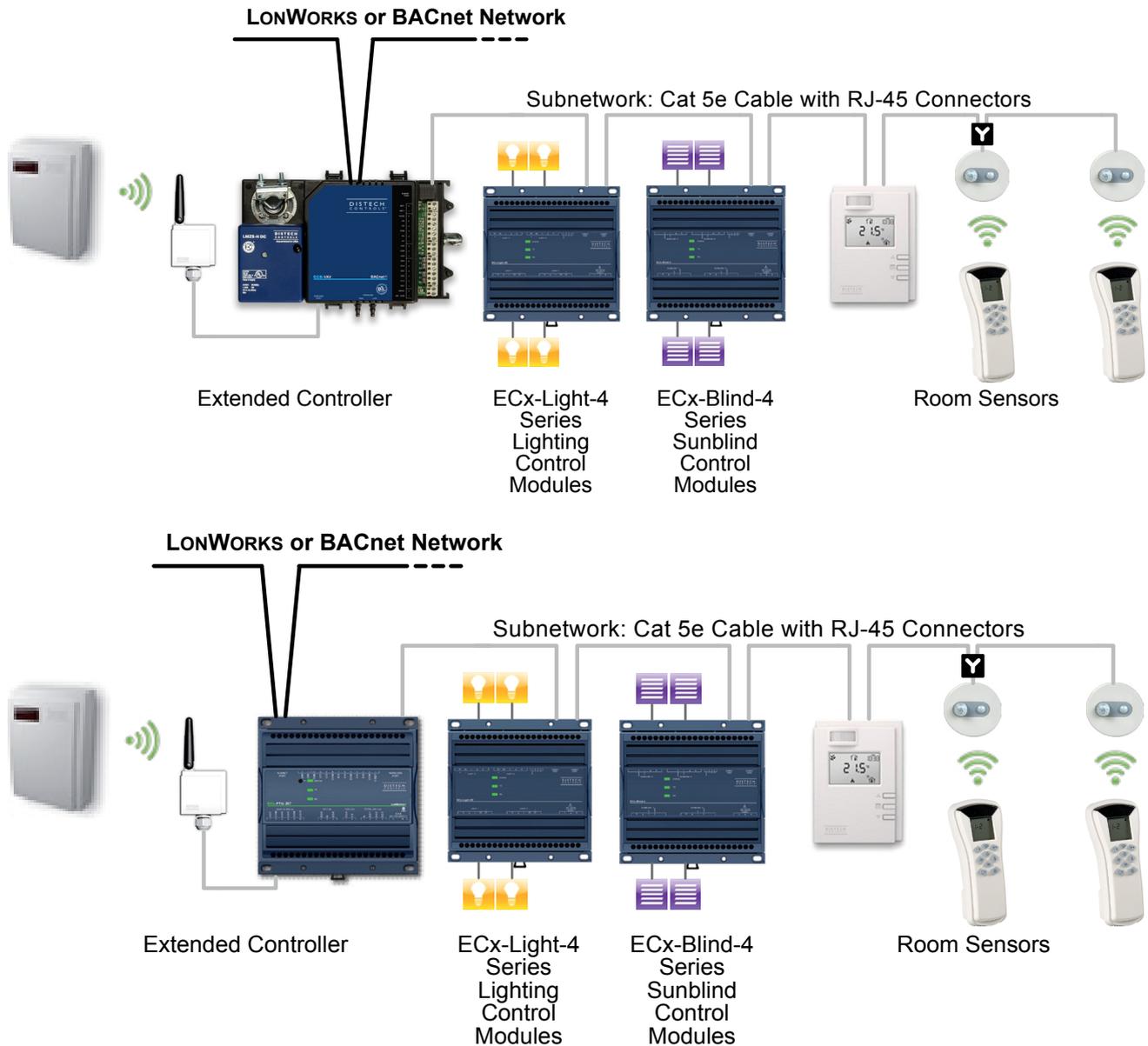
Features & Benefits

- Can be fully customized through EC-gfxProgram to meet the most advanced energy efficient application requirements
- Integrated solution designed to deliver optimal energy savings using occupancy-based control strategies, demand controlled ventilation, and daylight harvesting with light level sensing
- The Lighting and Sunblind expansion modules are connected to the extended HVAC controller on a subnetwork and can easily be installed near the equipment they control, reducing wiring and installation costs
- The 3 functions (HVAC, Lighting, and Shades/Sunblinds) can be configured through one seamless interface - no additional discovery, bindings, or commissioning required
- Motion and Luminosity sensing information is shared across all 3 functions, providing optimal performance with only one sensor to install and configure
- The Smart Room Control solution is the most optimal and cost-efficient way of implementing energy efficient control while ensuring comfort for room occupants

Features & Benefits (continued)

- This end-to-end solution simplifies the design, installation, and integration of multi-application systems including HVAC room terminal equipment, lighting, and shade/sunblind control
- Occupants can adjust temperature, lighting, and shade/sunblind settings in the room for additional comfort with the remote control, while the motion detector ensures the system resets in real-time for optimal energy savings in unoccupied mode
- The expansion modules do not require additional nodes on LON or BACnet networks

Smart Room Control Subnetwork Overview



Create Your Own Smart Room Control Solution

Choose an HVAC Controller



The ECB-PTU/ECL-PTU Series are programmable controllers designed to control powered terminal units such as powered fan coil units, heat pumps units, and chilled beams. It supports various pipe configurations such as 4-pipe, 2-pipe, and 4-pipe and 1-coil using a 6-way valve. Refer to the ECL-PTU/ECB-PTU Series datasheets for more information.



The ECL-VAV/ECB-VAV models are programmable variable air volume (VAV) controllers designed to control any variable air volume box. Refer to the ECL-VAV/ECB-VAV Series datasheets for more information about the supported models.

The ECB Series controllers use the BACnet® MS/TP LAN communication protocol and are BTL®-Listed as BACnet Application Specific Controllers (B-ASC).

The ECL-PTU Series and ECL-VAV model controllers use the LonTalk® communication protocol and are LONMARK® certified as SCC Fan Coil controllers (ECL-PTU) or is LONMARK certified as an SCC VAV (ECL-VAV).

Choose a Lighting Controller



Line of lighting expansion modules for ON/OFF lights and dimming lights

Choose a Shade/Sunblind Controller



Line of shade/sunblind expansion modules for mains-powered shades/sunblinds and 24 VDC-powered shades/sunblinds

Choose a Communicating Sensor



Line of communicating room temperature sensors with 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.

Choose an EC-Multi-Sensor and EC-Remote



Line of in-ceiling infrared multi-sensors. Models are available with occupancy detection, light sensor, and temperature sensor
Line of remote controls allows users to remotely manage all comfort parameters of a room: lighting, shades/sunblinds, temperature, fan speed and occupancy

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Mobile Apps



Distech Controls' mobile apps are downloadable free of charge from Google Play and the App Store.

The company has taken an innovative approach to designing user experiences: from delivering unique productivity enhancing tools, to intuitive, engaging interfaces. Now combined with the mobile connectivity and familiar interface of an app, these offerings increase productivity for system integrators and control technicians, provide value for building managers, and personalized comfort for occupants.

Our apps work with the ECB series BACnet® and ECL series LONWORKS® controllers' operating under an EC-Net^{AX™} system. Our apps work with the ECB series BACnet® and ECL series LONWORKS® controllers' operating under an EC-Net^{AX™} system.

Product Guide – Mobile Apps

myDC Control app

Quickly view, edit, and configure operating parameters of an HVAC system; while the color-coded icons provide at-a-glance indication of alarms and override conditions.

A must-have tool for increased commissioning efficiency onsite, improved response time to service calls and quality servicing from wherever your work takes you.

Smart-Sense Room Control app

Occupants can view and set comfort parameters, such as temperature, fan speed, lighting, shades/sunblind, and occupancy. Features the innovative ECO-Vue™ leaf pattern, engaging occupants and promoting energy efficient behaviors. The leaf pattern provides immediate real-time visualization as to the energy efficiency of a setting.

A unique way to deliver an intuitive interface for the occupants of modern buildings:

- Using an interface which is familiar to them, occupants can achieve a personalized level of comfort in their commonly used spaces (offices, conference rooms). Studies have demonstrated an increase in employee productivity of an additional 9%, when occupants were provided with control over their environmental settings.
- Contributes to making “buildings greener”, as it addresses the requirements of LEED® Credit 6.2: Controllability of Systems—Thermal Comfort.

UL 864 UUKL 9th Edition Smoke Control System



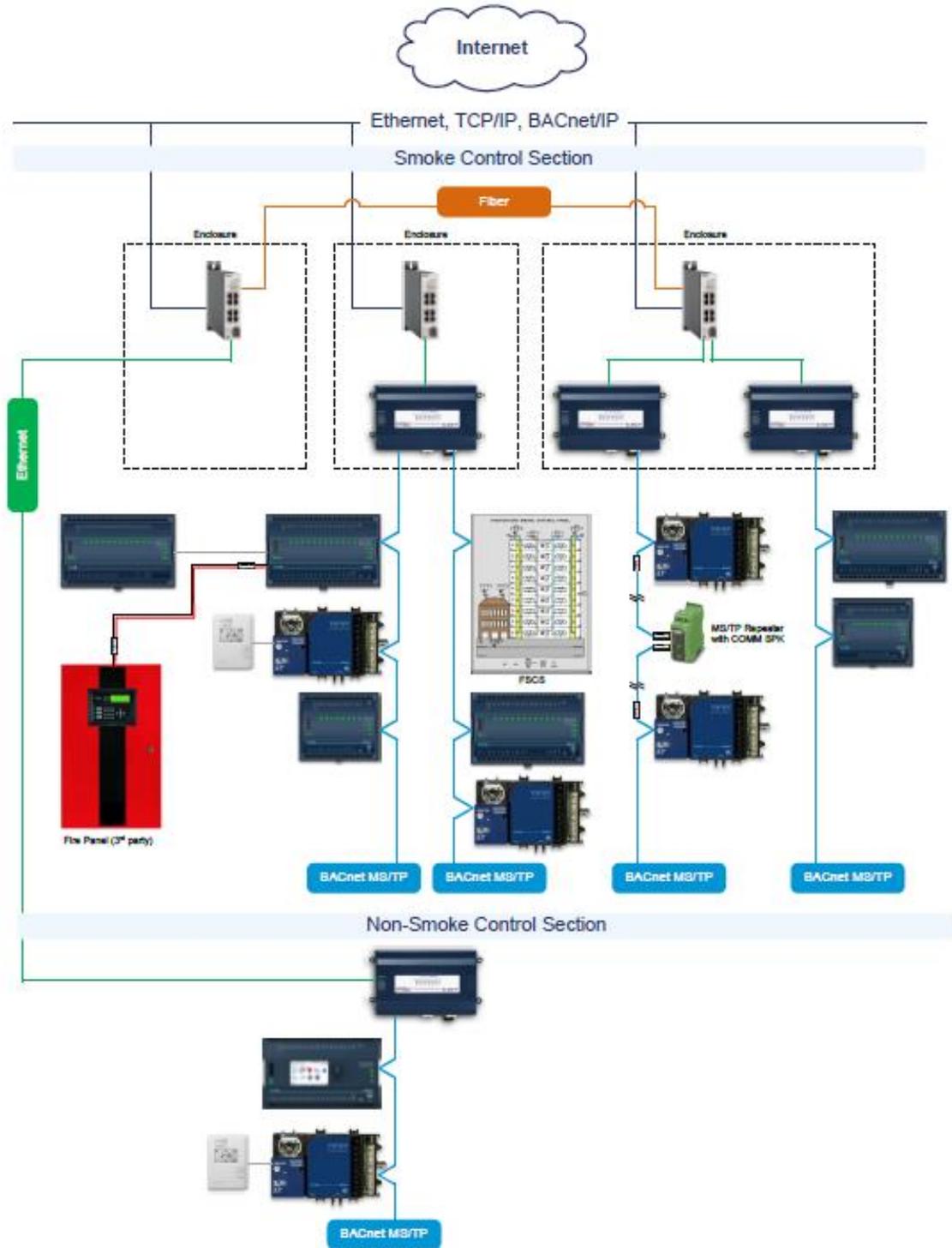
The Distech Controls Smoke Control System is designed to protect occupants and buildings in the event of a building fire by maintaining tenable evacuation routes and containing smoke within the fire area.

A smoke control system is a combination of fans, dampers, warning devices, and other equipment that work together to contain the smoke within the fire area, minimize its migration, and minimize damage to other areas of the facility. A well designed smoke control system should prevent the movement of smoke in areas that lead to exits or other designated safe zones in a building.

Complying with the Underwriters Laboratories Inc® (UL) requirements for UL 864 UUKL 9th Edition Smoke Control Listing, our smoke control system includes:

- Solutions and configuration support for dedicated or non-dedicated smoke control systems
- Integration with an EC-Net^{AX™} Building Management System, powered by the Niagara^{AX} Framework[™]
- Select models and versions of the EC-BOS-6^{AX} and ECB BACnet Series Controllers
- Other required components, such as Ethernet switches, surge suppression, etc.
- Code libraries, providing a set of examples of smoke control applications, which can be used as a guide to develop smoke control sequences required for each unique project
- System Design and Application Guides providing details on Smoke Control System design and programming requirements.

A typical smoke control system including necessary devices and their interconnections



Product Guide

Product Name	Description
BACnet Controllers	
EC-BOS-6 ^{AX} UUKL	EC-BOS-6AX UUKL controller
ECB-VAV UUKL	ECB-VAV UUKL controller
ECB-203 UUKL	ECB-203 UUKL controller
ECB-300 UUKL	ECB-300 UUKL controller
ECB-400 UUKL	ECB-400 UUKL controller
ECB-600 UUKL	ECB-600 UUKL controller
ECx-400 UUKL	ECx-400 UUKL I/O Extension Module
Surge Protection Kits and Supervised Input Kits	
Communication Surge Protection Kit (COMM SPK)	Communication surge protection kit for MS/TP bus and subnetwork bus communication lines
I/O Surge Protection Kit	Input/Output surge protection kit for universal input and output connections. Not to be used with supervised input kits
Power Surge Protection Kit	Power surge protection kit for 24VAC/DC power terminals connections
Triac Surge Protection Kit	Triac surge protection kit for the Triac outputs
Subnet Surge Protection Kit	Subnetwork surge protection kit for subnetwork ports
Supervised Input Kit – Inputs	Supervised input Kit for inputs
Dry Contact Supervised Input Kit	Supervised input Kit for dry contacts
Network Communication Equipment	
Ethernet Switch 8-ports	Ethernet Interconnect switch with eight-port 10BASE-T/100BASE-TX switching hub (for twisted-pair copper cabling)
Ethernet Switch 4-ports/2-ports	Ethernet Interconnect switch, multimode fiber model with six ports: Four-port 100BASE-TX/two-port 100BASE-FX (multimode) switching hub with SC connectors
Power Supplies and Transformer	
EC-NPB-PWR UUKL	DIN rail mountable power supply module, 24V AC/DC. Used to power the EC-BOS-6 ^{AX} UUKL
Power Supply	24 VDC/0.25 A, 6 W power supply with wall plug, used to power the Phoenix Contact modular repeater
Power Supply	100 VA 120/24 VAC power supply, 10Amp circuit breaker
Transformer	Transformer, 120/24VAC, 100 VA, 4Amp circuit breaker

Product Name	Description
Power Panels	
Power Panel – 1 transformer	Power Panel with one 100 VA, 120/24 VAC, class 2, transformer. Transformer comes with 4A manual reset secondary protection. Panel also includes low voltage terminal blocks and 10Amp circuit breaker that provides primary protection for the transformer
Power Panel – 4 transformers	Power Panel with four 100 VA, 120/24 VAC, class 2, transformers. Transformers come with 4A manual reset secondary protection. Panel also includes low voltage terminal blocks and 10Amp circuit breaker that provides primary protection for the transformers
Other components	
Fiber Optic Patch Cord	SC-to-SC duplex multimode fiber patch cord by Signamax
Tripp Lite 8 Ultra Surge Suppressor	ISOBAR 8 Ultra Surge Suppressor by Tripp Lite 8-Outlet Premium Isobar Surge Protector with 12-ft Cord and All-Metal Housing
Tripp Lite ISOBAR 12 Ultra Surge Suppressor	ISOBAR 12 Ultra Surge Suppressor by Tripp Lite 12-Outlet Isobar Rackmount Surge Protector with 15-ft Cord and All-Metal Housing
RS-485 Modular Repeater	Modular repeater for electrical isolation and range increase in RS-485 2-wire bus systems up to 500 kbps, 4-way isolation, rail-mountable, supply 24V DC by Phoenix Contact



Overview

The Distech Controls UUKL Smoke Control System is a smoke control solution designed to protect buildings and occupants in the event of a building fire by maintaining tenable evacuation routes and containing smoke within the fire area.

A smoke control system is a combination of fans, dampers, warning devices, and other equipment that work together to contain the smoke within the fire area, minimize its migration, and minimize damage to other areas of the facility. A well-designed smoke control system should prevent the movement of smoke in areas that lead to exits or other designated safe zones in a building.

Distech Controls' UUKL product offering includes the EC-BOS-6^{AX} UUKL main controller/server platform as well as a line of BACnet field controllers that provide the same value and interoperability that customers expect from all Distech Controls products. In fact, the Distech Controls UUKL Smoke Control System is a unique Niagara^{AX}-based system that complies with the UL 864 standard along with the EC-BOS-6^{AX} UUKL, a UUKL listed Niagara^{AX}-based controller. These UUKL smoke control system controllers can be interconnected with smoke control listed HVAC equipment to form a complete smoke control system.

Smoke control sequences are used to issue commands to control devices that pressurize or depressurize an area in a building to minimize the spread of smoke. The smoke control strategy is achieved using EC-gfxProgram through EC-Net^{AX}™ Pro as well as the manual override of the smoke control logic provided by the UL 864/UUKL approved FSCS (Firefighter's Smoke Control Station), an integral part of this complete smoke control system that provides firefighter control and monitoring of a building's smoke control system.

Applications

- Distech Controls' UUKL smoke control system can be used for:
 - Dedicated smoke control applications: Used exclusively for the purpose of smoke control.
 - Non-dedicated smoke control applications: Uses parts of the building's HVAC system to control smoke in case of a fire.

Features & Benefits

- The Distech Controls UUKL Smoke Control System complies with the Underwriters Laboratories Inc.® requirements for the UL 864, 9th Edition, UUKL Smoke Control Listing
- Code libraries provide a set of examples of smoke control applications, which can be used as a guide to develop smoke control sequences required for each unique project
- Solution that operates as a standalone smoke control system or can be integrated with an EC-Net^{AX} Building Management System for increased flexibility to meet a variety of project needs
- System design supports fiber optic wiring and any TCP/IP network topology for flexible implementation

UUKL Smoke Control System Controllers

The UL 864 UUKL Listed Smoke Control equipment listed below are used only in Distech Controls' UUKL smoke control system. For detailed specifications, requirements, and procedures for installing, wiring, and operating UUKL Listed equipment, refer to the Distech Controls UUKL Listed documentation on SmartSource: Smoke Control [Design Guide](#) (05DI-UGULDES-10) and the Smoke Control [Application Guide](#) (05DI-UGULAPP-10).

EC-BOS-6^{AX} UUKL



The EC-BOS-6^{AX} UUKL model is a compact, embedded controller/server platform that provides complete equipment monitoring and control. It is the main controller in the Distech Controls' Smoke Control System and controls the communication between the other UL 864 listed system components within the smoke control system. The EC-BOS-6^{AX} UUKL can be used in dedicated or non-dedicated smoke control application and must be placed in a locked enclosure.

ECB-600 UUKL



The ECB-600 UUKL BACnet programmable controller is designed to control various building automation applications such as air handling units and exhaust fans in a Distech Controls UUKL smoke control system. The ECB-600 UUKL controller supports the ECx-400 UUKL I/O extension module that operates off of a separate sub-bus, giving this controller additional universal inputs and outputs.

ECx-400 UUKL



The ECx-400 UUKL model is an I/O extension module that operates off of a separate sub-bus, giving the ECB-600 UUKL controller additional universal inputs and outputs.

ECB-400 UUKL



The ECB-400 UUKL BACnet programmable controller is designed to control various equipment such as air handling units and exhaust fans in a Distech Controls UUKL smoke control system. This controller has universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment.

ECB-300 UUKL



The ECB-300 UUKL BACnet programmable controller is designed to control various equipment such as air handling units and exhaust fans in a Distech Controls UUKL smoke control system. This controller has universal inputs and outputs that are ideal for controlling a wide range of HVAC equipment.

ECB-203 UUKL



The ECB-203 UUKL BACnet programmable controller is designed to control terminal units such as rooftop units, small air handling units, and exhaust fans in a Distech Controls UUKL smoke control system. This controller has 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.

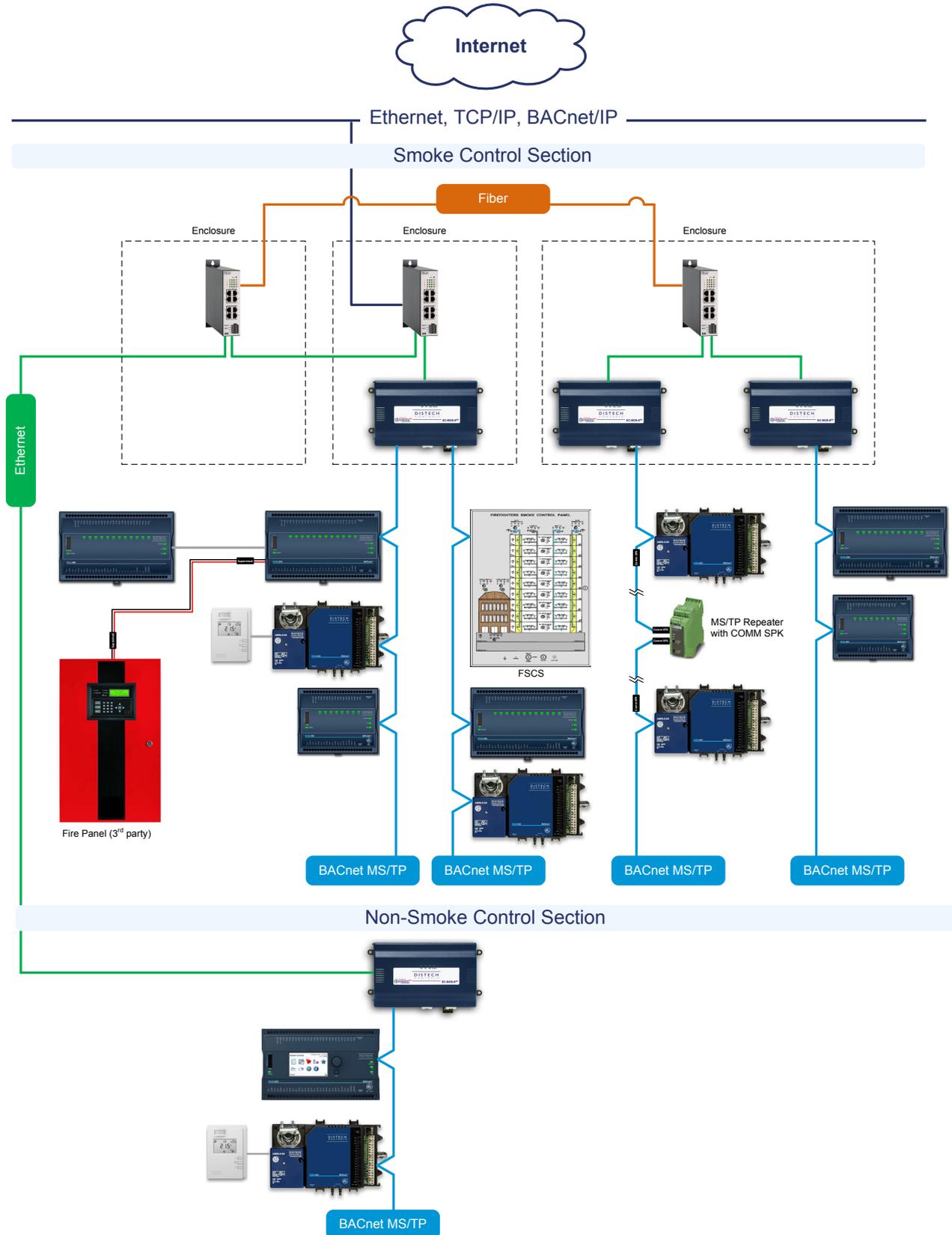
ECB-VAV UUKL



The ECB-VAV UUKL model is a UL 864 Listed BACnet programmable variable air volume (VAV) controller designed to control any variable air volume box in a Distech Controls smoke control system.

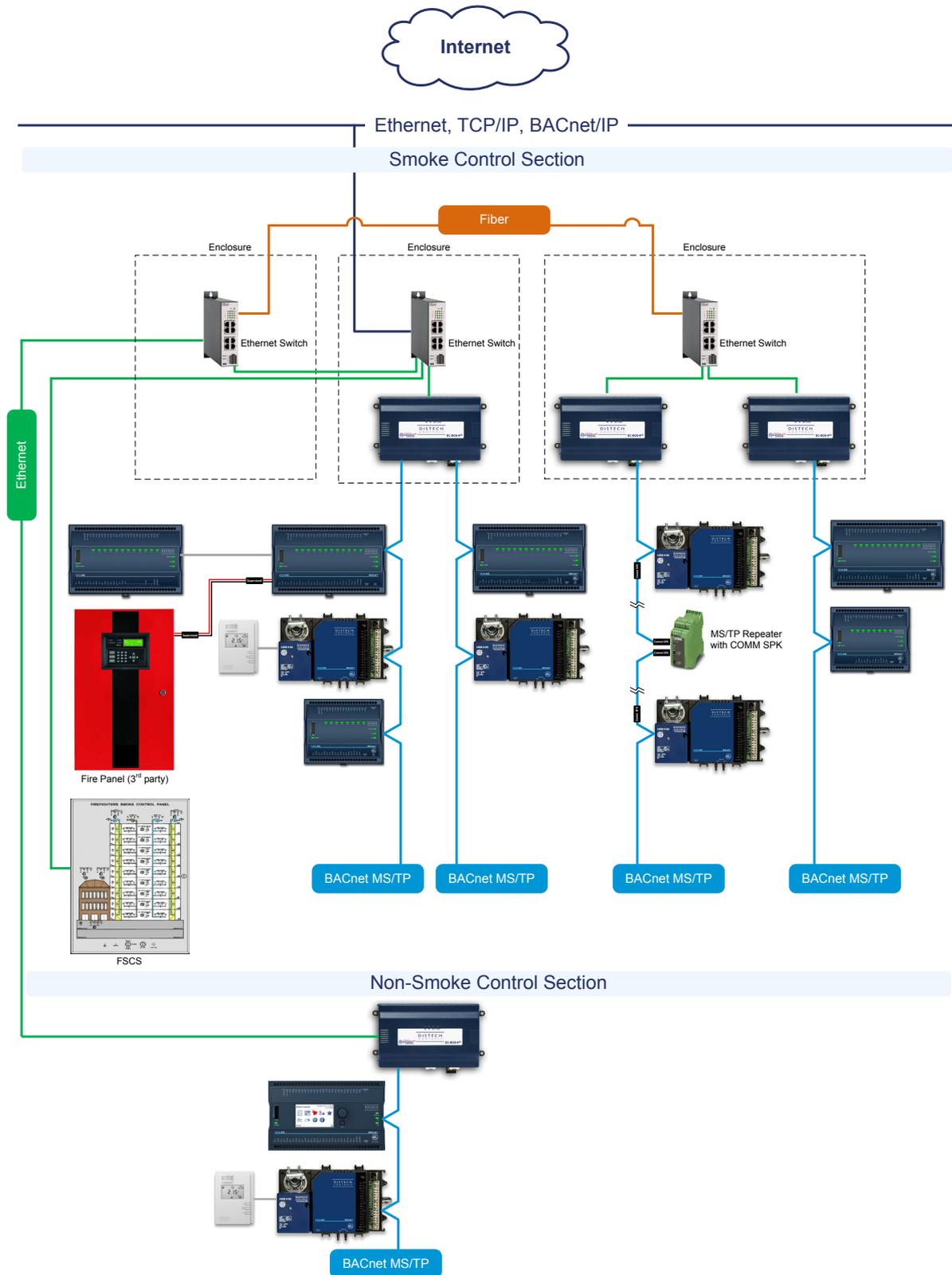
Smoke Control and Non-Smoke Control System Diagram

The following diagram depicts a typical smoke/non-smoke control system including how the controllers, FSCS, fire panel, and some protection devices are interconnected. This diagram is only an example—the actual components and arrangement in your system will differ.



Smoke Control and Non-Smoke Control System Diagram (continued)

This typical smoke/non-smoke control system diagram shows how the FSCS can also be connected to the Ethernet cable rather than to the BACnet MS/TP cable as shown in the previous diagram.



Related Products

Here is a series of Distech Controls' devices that have been tested and listed by UL for use in the Distech Controls Smoke Control System.

Supervised Input Kits (SIK)



Supervised input kits are used with all inputs in the smoke control system. These kits protect the input and detect any trouble with the wiring (ground fault, short wire, etc.).

- IN SIK: Supervised input kit for inputs
- DC SIK: Supervised input kit for dry contact

These kits are UL listed for smoke control applications and therefore should be used with the Distech Controls UUKL Smoke Control System. For more information, refer to the Distech Controls UUKL Listed documentation on SmartSource: Smoke Control [Design Guide](#) (05DI-UGULDES-10) and the Smoke Control [Application Guide](#) (05DI-UGULAPP-10).

Surge Protection Kits (SPK)



Surge protection kits prevent the spread of overvoltage in electrical installations and protect the equipment connected to it.

- COMM SPK: Communication surge protection kit for MS/TP bus and subnetwork bus communication lines.
- IO SPK: Input/Output surge protection kit for universal input and output connections.
- PWR SPK: Power surge protection kit for 24VAC/DC power terminals
- SN SPK: Subnet surge protection kit for subnetwork ports
- TRIAC SPK: Triac surge protection kit for the Triac outputs

These kits are UL listed for smoke control applications and therefore should be used with the Distech Controls UUKL Smoke Control System. For more information, refer to the Distech Controls UUKL Listed documentation on SmartSource: Smoke Control [Design Guide](#) (05DI-UGULDES-10) and the Smoke Control [Application Guide](#) (05DI-UGULAPP-10).

Power Panels

The Distech Controls power panels/enclosures are prewired, preassembled control panels. These power panels make installation, commissioning, and servicing quicker and easier. Two different models are offered: an enclosure with one transformer and another with four transformers.



One Transformer Panel: Distech Controls UUKL power panel with one 100 VA, 120/24 VAC, class 2, transformer. Each transformer comes with 4Amp manual reset secondary protection for powering Variable Air Volume (VAV) box controllers and field controllers. The panels also includes low voltage terminal blocks and 10Amp circuit breaker that provides primary protection for the transformers. This predesigned solution saves both time and money by not requiring individual transformers in every VAV box.



Four Transformer Panel: Distech Controls UUKL power panel with four 100 VA, 120/24 VAC, class 2, transformer. Each transformer comes with 4Amp manual reset secondary protection for powering Variable Air Volume (VAV) box controllers and field controllers. The panels also includes low voltage terminal blocks and 10Amp circuit breaker that provides primary protection for the transformers. This predesigned solution saves both time and money by not requiring individual transformers in every VAV box.

The Firefighter's Smoke Control Station (FSCS)



The FSCS is a manual control panel used for monitoring and overriding all smoke control equipment in a building. It provides firefighters with information about the state of the smoke control system as well as manual control over all of its components. The panel consists of command switches and LEDs as well as a custom diagram of the building that clearly indicates the type and location of smoke control equipment.

The UUKL Listed FSCS panel operates as part of the Distech Controls' UUKL smoke control system and therefore must be listed by UL as suitable for enabling firefighters to manually control the smoke control system. This panel is available from Automation Displays, Inc. (ADI): www.adipanel.com.

Others



There are other devices and accessories that have been tested and listed by UL for use in a Distech Controls Smoke Control System. For more information, refer to the Distech Controls UUKL Smoke Control [Design Guide](#) (05DI-UGULDES-10) for a complete list of UUKL listed components.



Installation of a product that is not UL Listed and labeled for this application prevents the entire system from being UL Listed for smoke control!

Specifications subject to change without notice.

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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:

- All Allure ECB-STAT, ECL-STAT, and ECW-STAT models are PIR motion detector ready, allowing for incremental energy savings
- 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
- The Allure EC-Smart-Vue communicating sensors allow you to configure, commission, and troubleshoot a controller locally and access the BACnet and LONWORKS network
- Allure EC-Smart-Vue communicating sensors include air balancing menus to perform VAV air flow balancing without the aid of an onsite building automation system control engineer
- Allure EC-Smart-Vue's four integrated sensors support demand-controlled ventilation and occupancy-based control for additional energy savings and allows for multiple sensors (temperature, humidity, CO₂, motion) in a single unit – requiring a single room device to be mounted, wired and commissioned
- 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

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 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.



Low energy efficiency



Moderate energy efficiency



Higher energy efficiency



Highest energy efficiency

Product Guide: Room Devices

Display and Scheduler

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.

Communicating Thermostats

Allure ECB-STAT & ECL-STAT

Broad range of quality microprocessor-based communicating thermostats for heat pump, roof top, fan coil, and zoning applications

Allure ECW-STAT

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

Communicating Sensors

Allure EC-Smart-View

Communicating sensor with backlit LCD display and icon-driven menu for Distech Controls ECB and ECL Series controllers

Allure EC-Smart-Sensor

Communicating LCD sensor for all terminal applications for Distech Controls ECC Series LONWORKS controllers

Room Sensors

Allure ECW-Sensor

Innovative wireless, battery-less room temperature sensor line

Allure EC-Sensor-T

Discrete room temperature sensor

Allure EC-Sensor

Discrete analog room temperature sensor line



Front Buttons

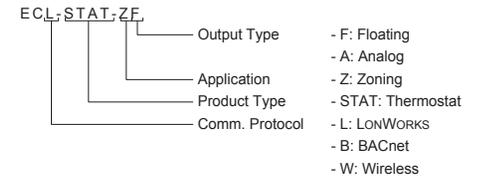
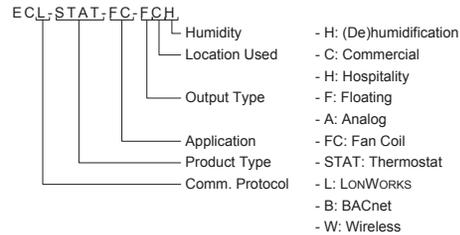
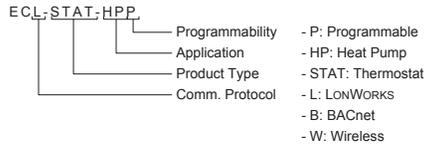
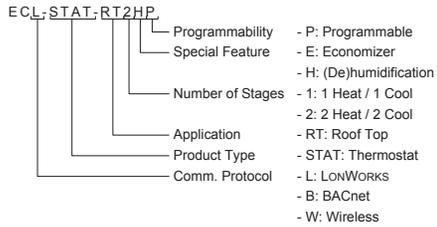


	Roof Top Models								Heat Pump Models		Fan Coil Models								Zoning Models	
	STAT-RT1	STAT-RT1P	STAT-RT2	STAT-RT2P	STAT-RT2E	STAT-RT2EP	STAT-RT2H	STAT-RT2HP	STAT-HP	STAT-HPP	STAT-FC-AC	STAT-FC-ACH	STAT-FC-AH	STAT-FC-AHH	STAT-FC-FC	STAT-FC-FCH	STAT-FC-FH	STAT-FC-FHH	STAT-ZA	STAT-ZF
Inputs																				
Digital	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Universal																				
Remote room temperature sensor	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1
Remote outdoor temperature sensor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Remote mixed air temperature sensor	1	1	1	1	1	1			1	1										
0-10V DC remote humidity sensor							1	1												
0-10V DC remote high limit humidity sensor							1	1												
Passive infrared (PIR) occupancy sensor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Relative humidity (RH) sensor (built-in)							1	1			1	1	1	1	1	1	1	1	1	1
Outputs																				
Auxiliary digital	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0-10V DC economizer					1	1														
0-10V DC humidification							1	1												
Dehumidification							1	1												
Cooling stage 1	1	1	1	1	1	1	1	1												
Cooling stage 2					1	1	1	1												
Heating stage 1	1	1	1	1	1	1	1	1												
Heating stage 2					1	1	1	1												
Fan stage 1	1	1	1	1	1	1	1	1	1	1										
Fan stage 2											1	1	1	1	1	1	1	1	1	1
Fan stage 3											1	1	1	1	1	1	1	1	1	1
Compressor stage 1									1	1										
Compressor stage 2									1	1										
Auxiliary heat									1	1										
Reversing valve									1	1										
Analog (0-10V DC)											2	2	2	2					2	2
Floating															2	2	2	2		2
Power Input																				
24V AC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Communication Protocol																				
LonTalk® (ECL)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
BACnet® MS/TP (ECB)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wireless (ECW)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

	Roof Top Models							Heat Pump Models		Fan Coil Models							Zoning Models				
	STAT-RT1	STAT-RT1P	STAT-RT2	STAT-RT2P	STAT-RT2E	STAT-RT2EP	STAT-RT2H	STAT-RT2HP	STAT-HP	STAT-HPH	STAT-FC-AC	STAT-FC-ACH	STAT-FC-AH	STAT-FC-AHH	STAT-FC-FC	STAT-FC-FCH	STAT-FC-FH	STAT-FC-FHH	STAT-ZA	STAT-ZF	
Software																					
LNS SM plug-in ¹	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Niagara SM wizard ²	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Additional Functionality																					
Programmable / Scheduling		■		■		■		■		■											
Recommended Applications																					
1 heating/ 1 cooling stage	■	■																			
2 heating/ 2 cooling stages			■	■	■	■	■	■													
Economizer					■	■															
Humidification control							■	■													
Dehumidification control							■	■			■			■		■			■		
3 heating/ 2 cooling stages									■	■											
2 & 4 pipe analog											■	■	■	■						■	
2 & 4 pipe floating and On/Off															■	■	■	■			■
Market – Commercial/Institution											■	■			■	■					
Market – Hotel/Lodging													■	■			■	■			

¹ Only applicable to models that communicate with the LonTalk protocol (ECL models)
² Only applicable to models that communicate with the LonTalk and BACnet MS/TP protocols (ECL and ECB models)

Thermostat 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.; LonTalk and LNS are registered trademarks of Echelon Corporation; BACnet is a registered trademark of ASHRAE; ZigBee is a registered trademark of ZigBee Alliance; NiagaraSM is a registered trademark of Tridium Inc.



05DI-DSCCSTA-10

Allure Communicating Thermostat Series

www.distech-controls.com

Open-to-Wireless™: Wireless, Battery-less 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 Series and LONWORKS ECC and ECL 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 solutions offer many benefits for building automation, from flexibility and adaptability, to cost and time reduction at installation, to improved tenant comfort.

Distech Controls' wireless battery-less solution offers multiple benefits for building automation, from time and cost reduction at installation or retrofits, to optimized tenant comfort.





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





Overview

Distech Controls distributes an innovative line of wireless battery-less sensors and switches intended for use with its Open-to-Wireless ready controllers. This solution facilitates wireless communication in any environment and optimizes the flexibility of any building automation system. Distech Controls also offers wireless receivers, which enable 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. When set at the recommended jumper settings and when initially fully charged, these cells require only 4hrs/day of charging at 200 lux to operate in total darkness for at least 3 days (80 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.
- Simple installation since wireless battery-less sensors and switches require no drilling or external wiring.
- Easy to configure and 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).

Range is dependent upon many environmental variables that are present in buildings. In normal conditions, a radio signal is transmitted at a maximum range of 100 feet (30 m) at 902 and 868MHz and a maximum of 32 ft (10 m) range at 315MHz, between the Transmitter (Tx) and Receiver (Rx). In certain cases where there are more obstructions, the range could be decreased

Depending on the room or office setting, you can obtain a better radio signal by avoiding 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 (see Figure 2).
- Range along a narrow floor

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)

Signal Transmission Quality Testing

To ensure that the actual signal transmission quality is acceptable, it is good practice to test the signal strength regardless of the range distance. To verify the signal strength in any installation, use the EC-*gfx*Program RSSI feature (available only with 902 MHz and 868MHz (X2) wireless receivers) or the EPM 300 field intensity meter (for certain 315MHz and 868MHz (X1) receivers). The RSSI port in the EC-*gfx*Program Wireless Sensor block indicates the wireless sensor's received signal strength (in dBm) at the moment the sensor is learned. For more detailed information on how to use these signal strength testing tools, refer to [Open-to-Wireless Solution Application Guide](#), available on SmartSource.

Related Products

Wireless Receivers



To reduce the cost of installation and minimize the impact on existing partition walls, the Distech Controls' Wireless Receivers enable controllers to communicate with a line of wireless battery-less room sensors and switches.

- Wireless Receiver (902MHz): Receiver for EnOcean 902MHz wireless battery-less sensors and switches. Compatible with ECB & ECL series controllers.
- Wireless Receiver (868MHz): Receiver for EnOcean 868MHz wireless battery-less sensors and switches. Available in 2 versions. Version X1 is compatible with ECB, ECL, ECP & ECC series controllers and version X2 with ECB & ECL series controllers only.
- Wireless Receiver (315MHz): Receiver for EnOcean 315MHz wireless battery-less sensors and switches. Compatible with ECB, ECL, ECP & ECC series controllers.

For supported frequencies in your area and detailed compatibility information, refer to the following sections in this datasheet: [Compatibility Chart](#) and [Countries Where Wireless Devices Meet Transmission Norms](#).

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' SmartSource.

Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature 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 Receivers shown above.

Models are available with the following options: occupancy override button, setpoint adjustment, and fan speed selection. These sensors are available with EnOcean® technology.

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 [Allure™ ECW-Sensor series](#) datasheet. These documents can be found on the Distech Controls' SmartSource.

Compatibility Chart

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 315MHz, 868MHz, and 902MHz frequencies, from the devices listed in the table below. This table allows you to check existing profiles for suitability and compatibility amongst the different controller series, sensors, frequencies, and wireless receivers (X1 and X2 868MHz models).



Many other devices not listed in the table below are supported. For details on EEP profiles of other devices that are supported by ECB and ECL controllers, refer to the [EC-gfxProgram User Guide](#). The ECP and ECC controllers can support other devices when they use the same data telegram format.

Sensor Model Number	Sensor Description	EEP (EnOcean Equipment Profiles)	Frequency (MHz)			Receiver		Controllers Series			
			902	315	868	1) 315 & 868X1	2) 902 & 868X2	ECB ²	ECL ²	ECP ³	ECC ³
RTS-1H-UW	RH/Temp Space Sensor	A5-04-01	■				■	■	■		
RTS-1H-CW	RH/Temp Space Sensor	A5-04-01		■		■		■	■	■	PFCU
ESRPU-W	Single Switch	F6-02-02	■				■	■	■		
EDRPU-W	Dual Switch	F6-02-02	■				■	■	■		
EDWSU-W	Door/Window Contact	D5-00-01	■				■	■	■		
EOSCU-W	Ceiling Mount Motion Sensor	A5-07-01	■				■	■	■		
EOSWU-W	Wall Mount Motion Sensor	A5-07-01	■				■	■	■		
TAP-21U	Light Level Sensor	A5-06-02	■				■	■	■		
TAP-21C	Light Level Sensor	A5-06-02		■		■		■	■		
TAP-21Y	Light Level Sensor	A5-06-02			■	■	■	■	■		
ERM-DAU-LV	24V Repeater	07-07-01	■				■	■	■		
ERM-DAC-LV	24V Repeater	07-07-01		■		■		■	■	■	■
ERM-DAY-LV	24V Repeater	07-07-01			■	■	■	■	■	■	■
ERM-DAU	120/277V Repeater	07-07-01	■				■	■	■		
ERM-DAC	120/277V Repeater	07-07-01		■		■		■	■	■	■
ERM-DAY	120/277V Repeater	07-07-01			■	■	■	■	■	■	■
SR65AKF62-315	62mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65AKF135-315	135mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65AKF192-315	192mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65AKF240-315	240mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65AKF320-315	320mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65AKF465-315	465mm Duct Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65TF1-315	Cable Duct Temp Sensor	A5-02-14		■		■		■	■	■	■
SR65 VFG-315	Contact Surface Temp Sensor	A5-02-17		■		■		■	■	■	■
SR65-315	Outdoor Temp Sensor	A5-02-14		■		■		■	■	■	■
PTM265CW	Single Switch	F6-02-02		■		■		■	■	■	■
PTM265DCW	Dual Switch	F6-02-02		■		■		■	■	■	■
MC-17C	Door/Window Contact	A5-30-02		■		■		■	■		
MOS-21CA	1000SF Coverage Motion Sensor	A5-07-01		■		■		■	■		
MOS-21CB	1900SF Coverage Motion Sensor	A5-07-01		■		■		■	■		
SR65AKF62	62mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65AKF135	135mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65AKF192	192mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65AKF240	240mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65AKF320	320mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65AKF465	465mm Duct Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65TF1	Cable Duct Temp Sensor	A5-02-14			■	■	■	■	■	■	■
SR65 VFG	Contact Surface Temp Sensor	A5-02-17			■	■	■	■	■	■	■
SR65	Outdoor Temp Sensor	A5-02-14			■	■	■	■	■	■	■
SR04RH	RH/Temp Space Sensor	A5-04-01			■	■	■	■	■	■	PFCU
SR04P RH	RH/Temp+SP Space Sensor	A5-10-12			■	■	■	■	■	■	PFCU
SR04PT RH	RH/Temp+SP+O Space Sensor	A5-10-10			■	■	■	■	■	■	PFCU
SR04P MS RH	RH/Temp+SP+NSB Space Sensor	A5-10-11			■	■	■	■	■	■	PFCU
2-Channel Light Switch	Single Switch	F6-02-01			■	■	■	■	■	■	■
4-Channel Light Switch	Dual Switch	F6-02-01			■	■	■	■	■	■	■
SRW01	Door/Window Contact	D5-00-01			■	■	■	■	■		
MOS-21YA	1000SF Coverage Motion Sensor	A5-07-01			■	■	■	■	■		
MOS-21YB	1900SF Coverage Motion Sensor	A5-07-01			■	■	■	■	■		
SRE-Repeater	230V Repeater				■	■	■	■	■	■	■

1. The 902 and 868X2 wireless receiver versions support the RSSI (Receiver Signal Strength Indicator) when used with EC-gfxProgram V4.5 or higher and with the latest controller firmware. The latest software and firmware is available on Distech Controls' SmartInstaller. .

2. ECB and ECL series controllers support the 315MHz and 868X1 wireless receiver versions as well as the 902 and 868X2 wireless receiver versions.

3. ECC and ECP series controllers support the 315 and 868X1 wireless receiver versions. PFCU = Applies to ECC PFCU series only.

Countries Where Wireless Devices Meet Transmission Norms

Distech Controls offers wireless devices with the following frequency bands: 868MHz, 902MHz, and 315MHz. When authorized in your jurisdiction, the use of either the 902MHz or 868MHz frequency is preferred over the 315MHz frequency. In this case, 315MHz should be used to expand pre-existing 315MHz installations only (Legacy). The following table serves only as a guideline to indicate the countries where wireless devices meet transmission norms, yet local regulations must always be taken into account.

Region	902MHz ¹	868MHz	315MHz ³	Additional notes
Americas				
– USA ² , Canada ²	■		■ (Legacy)	
– Brazil, Colombia		■	■ (Legacy)	
– Mexico		■		
– Panama, Puerto Rico, Virgin Islands	■	■	■ (Legacy)	
– Argentina				
– Anguilla, Aruba, Bermuda, Cayman Islands, El Salvador, French Guiana, French Polynesia, Guadeloupe, Martinique, Netherlands Antilles, Saint Martin, Turks and Caicos Islands		■		
Middle East				
– Saudi Arabia		■		
– United Arab Emirates (Abu Dhabi, Dubai)		■ ⁴		Limited TRA Grant
– Egypt, Isreal			■	
– Bahrain, Lebanon		■	■	
– Kuwait, Kyrgyzstan, Oman, Jordan, Tadjikistan		■		
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		■		R&TTE Approval
– Rest of Europe: Switzerland, Albania, Bosnia-Herzegovina, Croatia, Georgia, Monaco, Serbia, Turkey, Ukraine		■		
– Russia		■ ⁴		
Asia Pacific				
– French Polynesia, Malaysia, New Caledonia, Papua New Guinea, Tonga, Wallis & Futana		■		
– Brunei, Hong Kong, Taiwan, Thailand			■	
– Japan			■	Limited MIC Grant
– South Korea	■ ⁴			
– Bangladesh, China, New Zealand, Singapore, Vietnam		■	■ (Legacy)	
– India, Guam	■		■ (Legacy)	
– Australia				
Africa				
– Burkina Faso, Djibouti, Malawi, Mauritius, Mayotte, Reunion, South Africa, Swaziland, Togo, Uganda, Zambia, Zimbabwe		■		

1. The 902MHz is the overall recommended frequency when available.

2. Distech Controls attained FCC grant for both 902 MHz and 315MHz Wireless Receivers but recommends using the 902MHz transmission frequency in USA and Canada.

3. In certain countries the 315MHz is being phased out (legacy), therefore use the recommended 902MHz frequency when available otherwise use 868MHz.

4. Band is available but details must be checked with the Authority Having Jurisdiction (AHJ).



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:	868MHz, 902MHz, and 315MHz
Data Rate:	125kbps	Transmission Power:	Max. 10mW
Modulation Type:	FSK (902 MHz) ASK (868 and 315MHz)	Typical Transmission Range:	100 ft (30 m) line of sight; 65 ft (20 m) between walls

Specifications subject to change without notice.

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EC-Light™: LONWORKS Lighting Control Solution



EC-Light is a complete and flexible indoor and outdoor network lighting control system designed to meet the requirements of any commercial, retail, educational, or governmental site, including accent and general lighting.

EC-Light is fully configurable, making it easy to provide optimal lighting level in different zones (i.e. reception, corridors, offices, and parking areas) and allows for quick re-configuration if changes are made to the building environment. EC-Light also provides for reduced energy costs by delivering the best possible lighting in all settings and situations based on occupancy state.

An integrated EC-Net^{AX™} solution that includes EC-Light, HVAC, Access Control, and CCTV, provides energy savings of over 30%.

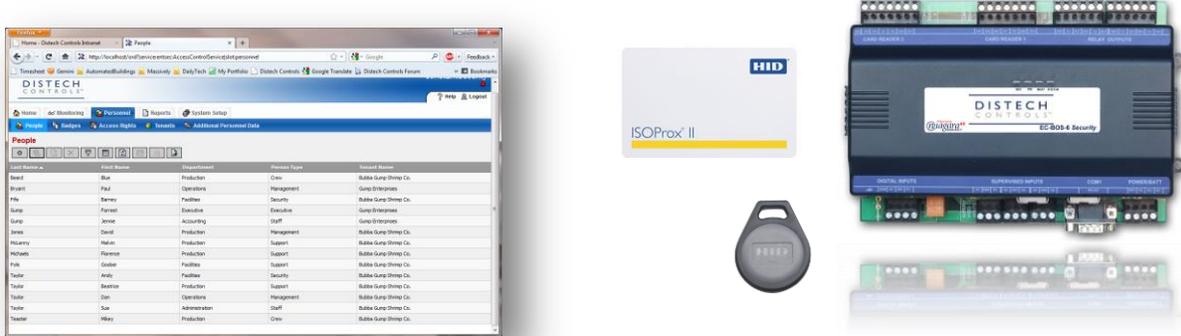
- Integrates various control strategies that comply with standard building energy codes such as ANSI/ASHRAE/IESNA Standard 90.1, and IECC, providing energy and cost savings
- LONMARK certified, guaranteeing interoperability with our LONWORKS-based controllers, for a fully integrated energy management system
- Configurable using EC-Net^{AX} EC-Configure wizards or LNS-based EC-Configure plug-ins to quickly and easily create energy saving lighting control sequences
- Equipped with full 2-way, 2-wire, latched, HID relays, offering true feedback, manual override, and ON/OFF status indicator
- Full 2-way switches can be wired directly to full 2-way relays, saving points on the input controller for other devices to be connected
- Full 2-way switches share a common low voltage wiring run, eliminating expensive multiple home runs
- Compatible with low-voltage sensors, such as occupancy or photocell sensors and maintenance/override switches, allowing for powerful energy saving control strategies
- Manages individual or groups of relays, allowing for a variety of lighting scenes
- Panel components come pre-installed and pre-wired including transformer, relays, input and output controllers, thus simplifying and reducing installation time
- Standard sized panels of 8, 16, 32, and 64 relays, are convenient for simple to complex installations consisting of several lighting panels networked together
- Multi-voltage transformer (120/277/347V) adds flexibility and adaptability to the installation
- Removable hinged door with key lock adds security

EC-Light



Lighting Control Panels	
<p>EC-Light 8 EC-Light 16 EC-Light 32 EC-Light 64</p>	<p>Pre-configured lighting control panels available for 8, 16, 32, or 64 zones. Panels come standard with input controller, heavy-duty relays, output controllers, 120/277/347 Volt transformer, and movable protection plate between high and low voltage sections.</p>
Display and Scheduler	
<p>EC-Light Display</p>	<p>Multi-function LCD device allowing you to manage systems without requiring a supervising station. Includes EC-Light Scheduler functionality.</p>
<p>EC-Light Scheduler</p>	<p>For storing and managing the scheduled events required for your lighting control system.</p>
Other	
<p>EC-Light Input and Output Cards</p>	
<p>Accessories and Sensors</p>	<p>Wide array of EC-Light accessories such as switches, plates, daylight control sensors, occupancy sensors, photocells and relays. EC-Light solution can also be completed using wireless, battery-less light switches and other devices.</p>

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



EC-Net^{AX} Security is a comprehensive, easy-to-use Access Control management solution built on the Niagara^{AX} Framework[®] 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^{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

Models include:

EC-BOS-2^{AX} Security

EC-BOS-6^{AX} Security

Remote Reader

Provide two additional card readers to be linked to EC-BOS^{AX} Security.

Remote IO Security

Provide additional inputs/outputs to EC-BOS^{AX} Security.

Small, Medium and Large Enclosure Security

Allow installation of controller, remote reader and remote IO Security within a common container. Allow power distribution to components and rack mounted installation

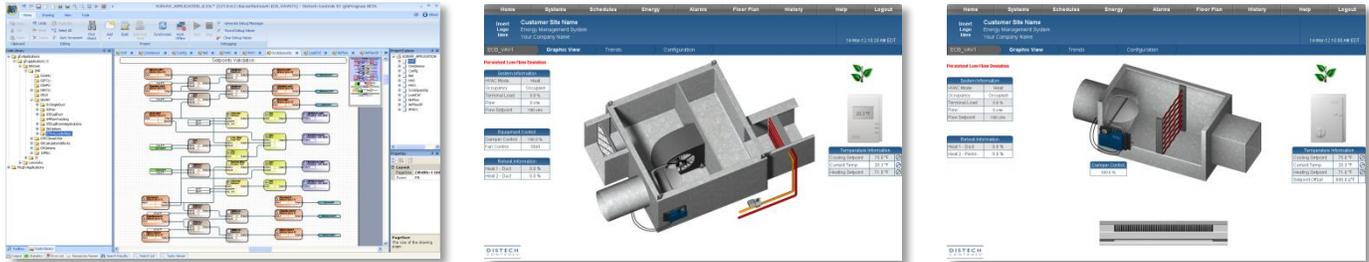


Complementary Products

Card Readers & Credentials
Cameras
Digital Video Recorders
Hybrid Digital Video Recorders (support
both Analog and IP cameras)



Programming and Productivity Enhancing Toolsets



Distech Controls provides EC-Net^{AX} wizards and EC-*gfx*Program, 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



Product Guide – Programming and Productivity Enhancing Toolsets

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

EC-Configure EC-Net^{AX} Wizards

- Available for all Distech Controls' LONWORKS 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

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
 - **dclmages:** 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.



Peripheral Product Line

In addition to the Distech Controls controllers, LONWORKS and BACnet network and EC-Net^{AX}™ 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 needed in projects.

Please refer to the following page for a selection of our most popular peripheral products:

Air Quality	<ul style="list-style-type: none"> • CO and CO₂ sensors • Smoke detectors 	Temperature Sensors	<ul style="list-style-type: none"> • For room, outside air, duct and pipe applications • Immersion thermowells
Humidity Sensors	<ul style="list-style-type: none"> • For room, duct and outdoor monitoring applications • Moisture detector 	Combo Sensors	<ul style="list-style-type: none"> • Sensors combining applications for temperature, humidity, CO₂ etc.
Air Flow	<ul style="list-style-type: none"> • Air flow switches and transducers • Pressure transducers 	Wireless, Battery-less Devices and Sensors	<ul style="list-style-type: none"> • Light switches • Lux sensors • Temperature and humidity sensors • Occupancy detectors • Cable sensors • Duct sensors
Control Valves	<ul style="list-style-type: none"> • Zone valves • Powermite (Globe) valves • Flowrite (Globe) valves • Ball valves • Butterfly valves 	Actuators	<ul style="list-style-type: none"> • Damper actuators
Variable Frequency Drives	<ul style="list-style-type: none"> • VLT HVAC drives • VLT Micro drives 		
DVRs and Cameras	<ul style="list-style-type: none"> • Digital video recorders • Analog and IP cameras • Camera accessories 	Access Cards and Readers	<ul style="list-style-type: none"> • Door access cards and readers • Proximity products
BACnet Network Devices	<ul style="list-style-type: none"> • BACnet IP to MS/TP adapter • BACnet IP to MS/TP router • BACnet MS/TP repeater • End of line resistors 	LONWORKS Network Devices	<ul style="list-style-type: none"> • Routers • Gateways • Switches • Touch-screens • Repeaters • Protocol analyzer
Other Network Devices	<ul style="list-style-type: none"> • Converters • Wireless network tools and repeaters 		
Lighting Products	<ul style="list-style-type: none"> • Light Switches • Heavy-duty switches • Photocells 	Signal and Current Accessories and Tools	<ul style="list-style-type: none"> • Transducers • Signal conditioners • Power supplies • Transformers
Energy Meters and Current Monitoring	<ul style="list-style-type: none"> • Energy meters • Current/Power monitoring 	Relays	<ul style="list-style-type: none"> • Panel relays • Enclosed relays • High voltage relays • Relay products
Low Voltage Wire and Cable	<ul style="list-style-type: none"> • HVAC network cable (LONWORKS and BACnet) • Data communication and Electronics cable • Ethernet cable 	Software	<ul style="list-style-type: none"> • Estimating software