

ECC-VAV-W / ECC-VVT-W

DISTECH
CONTROLS™

BUILDING OPEN CONTROL PRODUCTS

**easyCONTROLS™ LONMARK® Certified Wireless
Application Specific Single Duct Variable Air Volume /
Variable Volume Temperature Controllers**

- 4 Universal Inputs
- 6 Hardware Outputs: 4 Digital (Triac) and 2 Universal (Analog/Digital), 6 Network Outputs
- 1 on board pressure transducer on VAV models
- Wireless Receiver (868.3 MHz)



Applications

Designed to meet the requirements of single duct variable air volume (VAV) or variable volume according to temperature (VVT) applications.

- Simultaneously control a combination of up to 8 pieces of equipment such as baseboards, duct heaters, multi-stage heaters and fans, coolers, valves, lights etc.
- Compatible with a wide range of wired or wireless sensors and peripheral equipment

Features

Robust Communications Protocol

- Based on LONWORKS® technology for interoperability and peer-to-peer communication between controllers without any intermediary
- Supports changeable network variable types for enhanced communication
- Based on a robust communication protocol that can tolerate severe network conditions.

Hardware

- Allows the use of any commercially available thermistor type (100Ω to 100 kΩ) and setpoint potentiometer type (software configurable, jumper-less selection). Custom types supported via translation table
- Service pin positioned for easy commissioning
- Built-in brushless constant torque damper actuator with improved life expectancy
- Integrated position feedback eliminates the need for periodic re-initialization of the damper
- Extremely accurate on-board air flow sensor for pressure independent single duct VAV applications. Can read differential pressure as small as 0.04 milli-inches
- Controller only (no actuator) VAV model available to drive an external air damper actuator
- The controller application program and configuration properties are stored in non-volatile Flash memory to ensure that no data is lost during a power failure

Software Features

- Spare I/O points can be linked to other controllers on the network
- Ability to link VAV occupancy status with local lighting control
- Optimized for the simultaneous control of 2 rooms using advanced sensor averaging techniques and perimeter control
- Can perform Demand Control Ventilation based on CO₂ sensor readings to ensure high indoor air quality in an efficient manner

Built-in Wireless Receiver

- Integrated wireless RF technology allows connections to a full suite of wireless light switches and wireless sensors (temperature, set point, window contact, humidity etc.)
- Perfectly suited for retrofit installations and buildings that don't allow for in-wall wiring.
- Using battery-less wireless sensors reduces installation time and maintenance costs
- Frees up wired inputs for alternate uses



The easyCONTROLS™ ECC-VAV-W / ECC-VVT-W line of wireless controllers makes use of the latest technology to provide more flexibility of control and reliability than traditional VAV / VVT controllers. The integrated brushless constant torque actuator has a longer life expectancy than standard brushed motors. The 16-bit analog-digital converter provides high accuracy input and flow pressure sensor readings and allows for precise VAV balancing. The on-board wireless receiver provides support for a variety of wireless sensors.

The wireless peripherals supported by these controllers are easy to install, highly adaptable and have no limitations as to the building materials they can be mounted to. Distech Controls' wireless technology allows for battery-less wireless sensors and switches, reducing installation time and maintenance costs. A wide selection of wireless temperature sensors, duct sensors, window/door contacts and light switches can be used with ECC-VAV-W / ECC-VVT-W controllers.

The ECC-VAV-W / ECC-VVT-W line features expanded I/O capability with 4 universal (analog digital) inputs, 4 digital outputs, 2 universal outputs and 6 network outputs that allow you to simultaneously control 8 instances of virtually any type of HVAC equipment including duct heaters, fans, multi-stage heaters, coolers, analog and floating valve actuators, lights etc. The network outputs are bound to the physical outputs of other controllers on the network. The universal inputs similarly allow for the connection of any HVAC equipment or peripheral. The controller dynamically adapts its sequence of operations based on the connected equipment without any need for user intervention. Spare I/O points on the controller can also be linked to other controllers on the network to allow for efficient control of devices that are close to the controller.

The ECC-VAV-W features a drift-free differential pressure sensor that resists loss of accuracy over time due to dust particle accumulation.

Product Specifications

Power		Inputs	
Voltage Protection	24VAC; ±15%, 50/60Hz, Class 2 3 A removable fuse for triac when using the internal power supply	Quantity	4 universal software configurable
Typical Consumption	5 VA	Input Types	
Maximum Consumption	10 VA (normal), or 85 VA if internal power supply is used for triac (special application)	-Digital	Dry contact
		-Analog Voltage	0-10 VDC, Accuracy ±0.5%
		-Analog Current	4-20 mA with 249Ω external resistor Accuracy ±0.5%
		-Resistor Support	
		<i>Thermistor</i>	100Ω (PT100), 1KΩ (RTD 1K Type 85), 10KΩ (Type 2,3) Range -40°C to 125°C; -40°F to 302°F, Accuracy: ±0.5°C; ±0.9°F Resolution: 0.1°C; 0.18°F (10KΩ to 100KΩ supported using translation table)
		<i>Potentiometer</i>	Linear 2-point setpoint adjustment Min/Max linear configuration
		Differential Pressure Sensor (VAV model only)	Range: 0-250 Pa (0-1" H ₂ O) Resolution: 0.04 milli-inches H ₂ O Accuracy: ±3% full scale
		Input Resolution	16 bit analog / digital converter
Environmental		Hardware Outputs	
Operating Temperature	0°C to 70°C, 32°F to 158°F	Quantity	6 Hardware
Storage Temperature	-20°C to 70°C, -4°F to 158°F	4 Digital	Triac 0.75 Amp @ 24 VAC External or internal power supply
Relative Humidity	0 to 90% Non-condensing	2 Universal (Analog / Digital)	0-10 VDC linear, digital 0-12 VDC or PWM 20 mA max Maximum load 600Ω
		Output Resolution	10 bits digital / analog converter
General		Network Outputs	
Standard	LONMARK® Functional Profile: SCC-VAV Controller #8502	Quantity	6 (Software Configurable)
Processor	Neuron® 3150®; 8 bits; 10MHz	The network outputs are used by binding them to the free physical outputs of controllers on the network.	
Memory	Non-volatile Flash 64KB (APB application)	Damper Actuator	
Media Channel	TP/FT-10; 78 Kbps	Motor	Belimo LMZS-H (Brushless)
Communication	LonTalk® protocol	Torque	35 in-lb, 4Nm
Transceiver	Echelon® FTT-10	Angle of Rotation	95° adjustable
Wireless Receiver	EnOcean STM100, 868.3 MHz ¹	Fits Shaft Diameter	8.5 mm to 18.2 mm; 5/16" to 3/4"
Wireless Reception Range	10-30m in buildings, ~300m in free propagation	Power Supply	From controller
Enclosure			
Material	FR/ABS		
Color	Black & blue casing & grey connectors		
Dimension w/ Screws	4.88" x 8.9"x2.48" (124 x 226 x 63 mm)		
Shipping Weight	2.30 lbs (1.05 kg)		
Electromagnetic Compatibility			
CE Emissions	EN55022: 1998 class B		
Immunity	EN61000-4-2: 1995 level 3 in air, level 2 by contact EN61000-4-3: 1996, level 2 EN50204: 1995, level 2 EN61000-4-4: 1995, level 2 EN61000-4-6: 1996, level 2 ENV 50204: 1995 level 2		
FCC	This device complies with FCC rules part 15, subpart B, class B		
Agency Approvals (Pending)			
UL listed (CDN & US)	Listed 6EA7 Energy Management Equipment		
Material ²	UL94-5VA		

1.) Before purchase, verify that local communication regulations allow you to install devices that operate at a frequency of 868.3 MHz

2.) All materials and manufacturing processes comply with ROHS (Reduction of Hazardous Substances) and lead free regulations

Product Warranty and Total Quality Commitment

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

ECC-VAV & EC-VVT Controller Selection Guide

ECC-VAV Model Selection Guide

Model Name	4 UI, 4 Triac DO, 2 AO	On-Board Pressure Transducer	Brushless Belimo Actuator	Actuator Feedback	Wireless Receiver
ECC-VAV-W	✓	✓	✓	✓	✓
ECC-VAV-N-W (No-Actuator)	✓	✓			✓

ECC-VVT Model Selection Guide

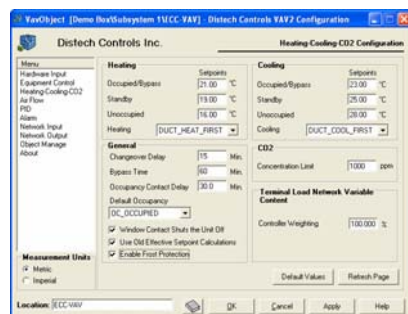
Model Name	4 UI, 4 Triac DO, 2 AO	On-Board Pressure Transducer	Brushless Belimo Actuator	Actuator Feedback	Wireless Receiver
ECC-VVT-W	✓		✓	✓	✓

Distech Controls Software Plug-ins and Wizards

ECC-VAV / ECC-VVT controllers can be configured by any LNS[®] based network management tool such as Distech Controls' Lonwatcher, or by using Distech Controls' EC-Configure LNS plug-ins which provide a user friendly GUI for configuration. Distech Controls also provides EC-Net wizards for similar ease of configuration in the Niagara Framework. The plug-ins and wizards simplify complex programming and sequencing methods by prompting users for the necessary configuration data. The controller then automatically selects the operation sequence according to the input and output configurations, and dynamically adapts itself to the network variables that are bound to it.

Software Preview

LNS EC-Configure Plug-in*



Powerful and intuitive LNS[®] plug-ins provides easy customization of hardware I/O, control sequences and communication schemes.

Easily configure all of the devices' parameters including inputs, outputs, heating and cooling set points, variable air flow and PID control loops. You can also enable and configure additional built-in features such load shedding, flow calibration, frost protection, slave operation mode.

The plug-in provides automatic flow calibration using duct areas, k-factors or using nominal flow. Manual flow calibration can be made using two or three-point calibration.

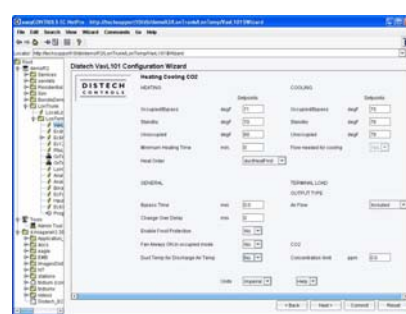
* LNS configuration plug-ins can be used with any LNS based network management and GUI tools, such as Distech Controls' Lonwatcher or Lonsdisplay.

LNS EC-Monitor Plug-in*



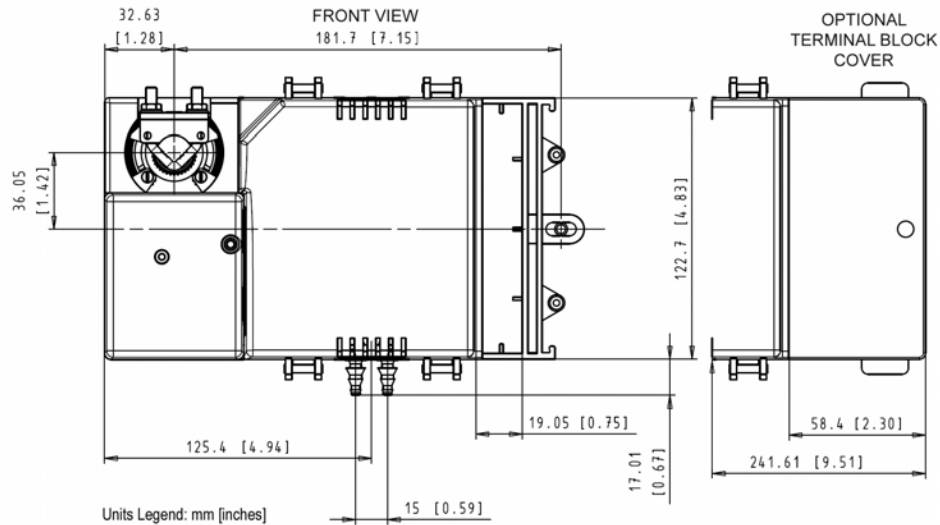
The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no need to create any graphics pages, and it can be launched from any GUI that supports plug-in applications. Graphics dynamically adapt themselves to the configuration of the device as well as the real-time values being monitored.

EC-Net R2 Wizard for Niagara Framework



Designed for use with the Niagara Framework, the EC-Net R2 wizard offers all the features that are accessible within the LNS configuration plug-in. Simply add pre-defined shadow objects into your database and immediately launch the wizard with a couple clicks of your mouse.

Product Dimensions



Recommended Peripherals

Recommended Accessories

Temperature Sensors



EC-SENSOR	Room sensor
EC-SENSOR-LO	Room sensor with LED and Override push button
EC-SENSOR-SLO-CW	Room sensor with LED, Override push button and setpoint adjustment (cool/warm)
EC-SENSOR-SLO-C	Room sensor with LED, Override push button and setpoint adjustment (Degrees C)
EC-SENSOR-SLO-F	Room sensor with LED, Override push button and setpoint adjustment (Degrees F)
EC-SENSOR-AVG	Averaging room sensor, no setpoint (Up to 3 in parallel)
EC-SENSOR-AVG-LO	Averaging room sensor with LED and Override push button

Terminal Block Cover



Terminal block cover designed to conceal wire terminals. Required to meet local safety regulations in certain jurisdictions.

Wireless Peripherals

Room Temperature Sensors (with Optional Setpoint Adjustment and Override Button)



Window / Door Contacts



Contact Temperature Sensors



Duct Temperature Sensors



Light Switches



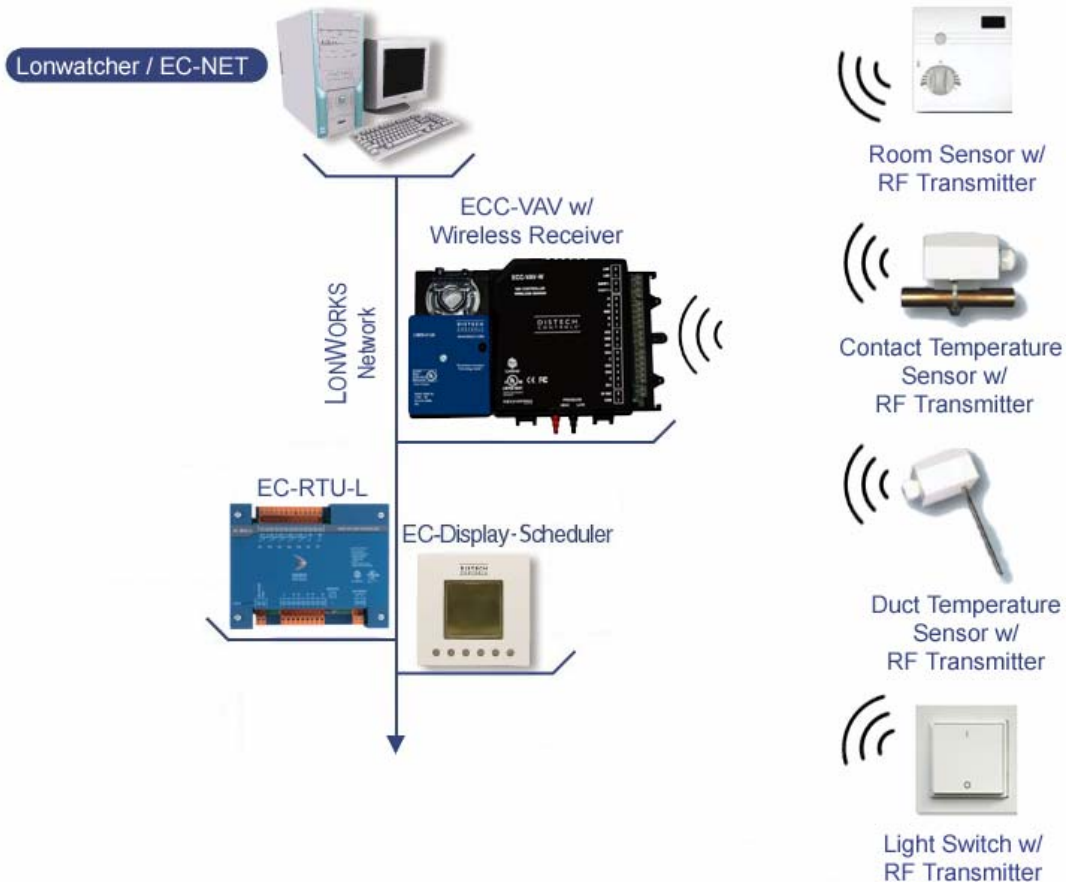
Other Peripherals

In addition to the Distech Controls easyCONTROLS product line, we invite you to take advantage of our array of peripheral product offerings. We are confident our peripheral product offering can:

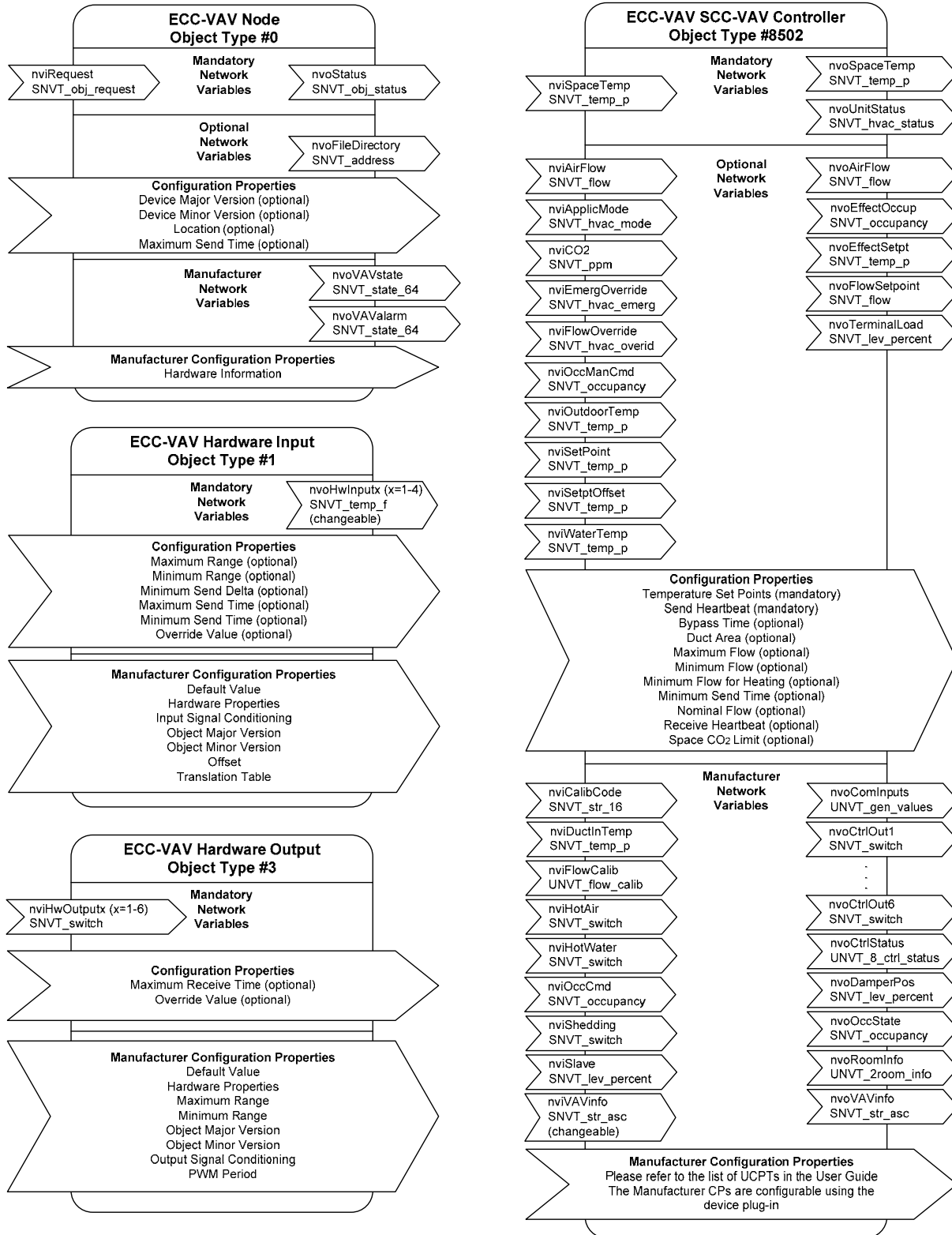
- Facilitate your ordering process
- Simplify your search for equal or better prices on all items
- Help standardize your purchasing process by providing quality and performance-proven products

Please contact sales@distech-controls.com for a complete list of available products and peripherals.

Wireless Sensors and Open Networks



LONMARK® Objects & Network Variables



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