

ECC-VAV / ECC-VVT

DISTECH
CONTROLS™

BUILDING OPEN CONTROL PRODUCTS

easyCONTROLS™ LONMARK® Certified 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



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 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.
- Communications wiring is polarity free

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



The easyCONTROLS™ ECC-VAV / ECC-VVT line of 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 ECC-VAV / ECC-VVT 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 ECC-VAV / ECC-VVT.

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

Distech Controls also offers the EC-Smart-Sensor-VAV, a communicating sensor and balancing tool designed to work with the ECC-VAV as a fixed or portable peripheral. The EC-Smart-Sensor-VAV is a multi-purpose device that shows readings and status on its LCD display, allows users to adjust temperatures and facilitates flow calibration.

Product Specifications

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

1.) 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
ECC-VAV	✓	✓	✓	✓
ECC-VAV-N	✓	✓		

ECC-VVT Model Selection Guide

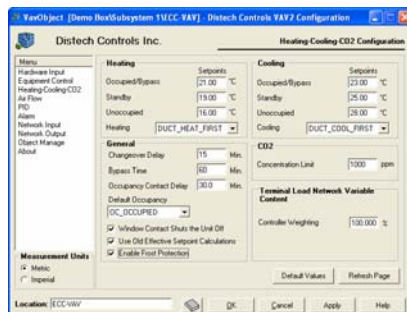
Model Name	4 UI, 4 Triac DO, 2 AO	On-Board Pressure Transducer	Brushless Belimo Actuator	Actuator Feedback
ECC-VVT	✓		✓	✓

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.

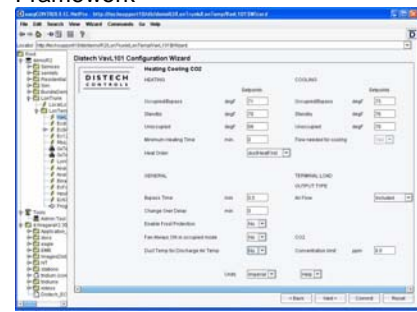
* LNS configuration plug-ins can be used with any LNS based network management and GUI tools, such as Distech Controls' Lonwatcher or Lonsdisplay.

LNS EC-Monitor Plug-in*



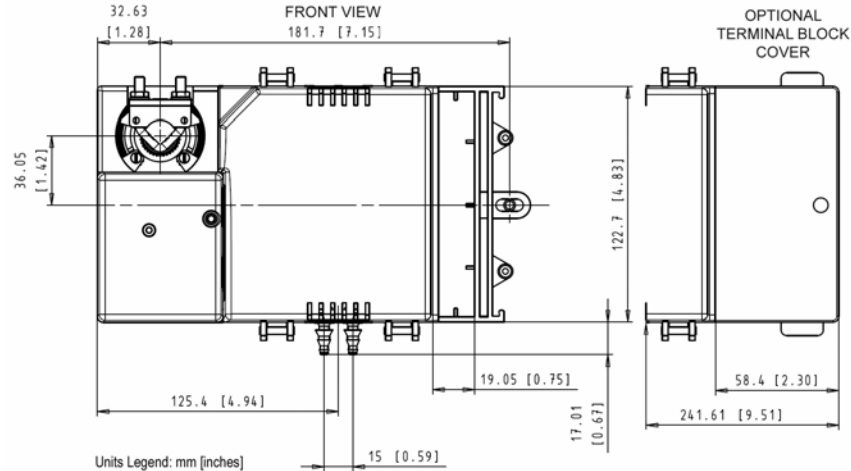
The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no need to create any graphics pages, and it can be launched from any GUI that supports plug-in applications. Graphics dynamically adapt themselves to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

Communicating LCD Sensor and Balancing Tool



EC-Smart-Sensor-VAV

Communicating Sensor with 2-line LCD display. Functionality includes setpoint adjustment, indoor and outdoor air temperature display, occupancy state display and VAV balancing (wired permanently or in portable mode, using 2-wire serial communication interface). Especially designed to work with the ECC-VAV line of controllers.

Temperature Sensors



- EC-SENSOR
- EC-SENSOR-LO
- EC-SENSOR-SLO-CW
- EC-SENSOR-SLO-C
- EC-SENSOR-SLO-F
- EC-SENSOR-AVG
- EC-SENSOR-AVG-LO

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

Terminal Block Cover



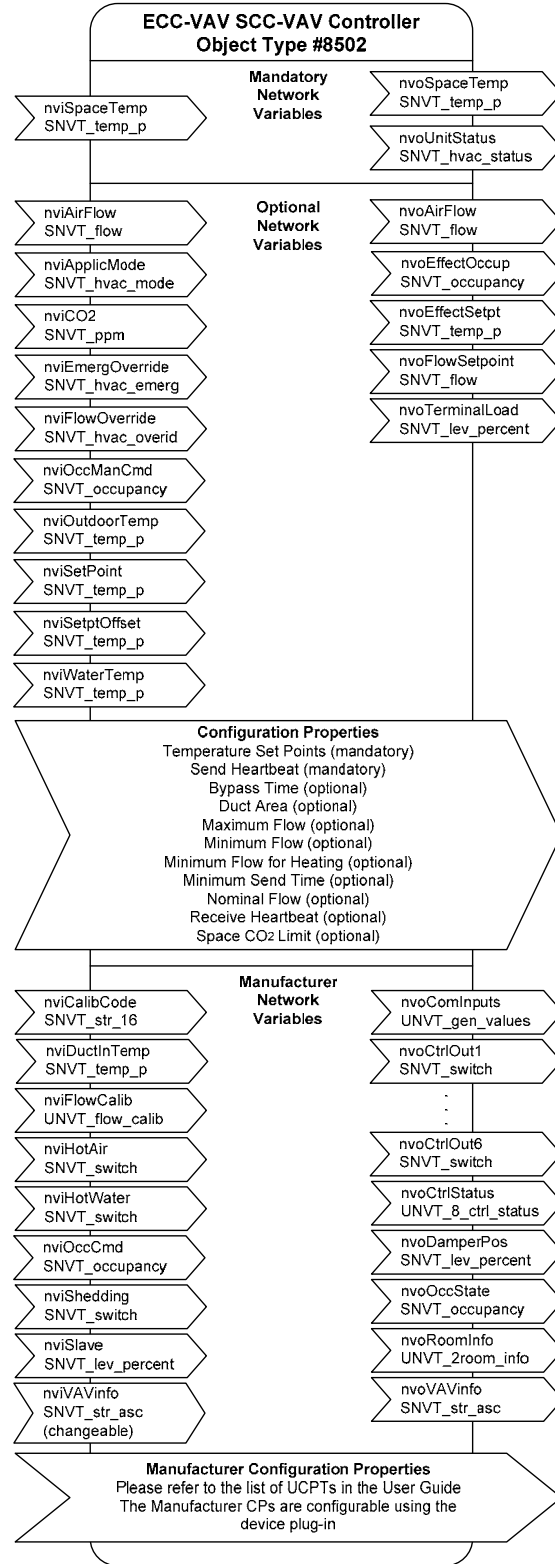
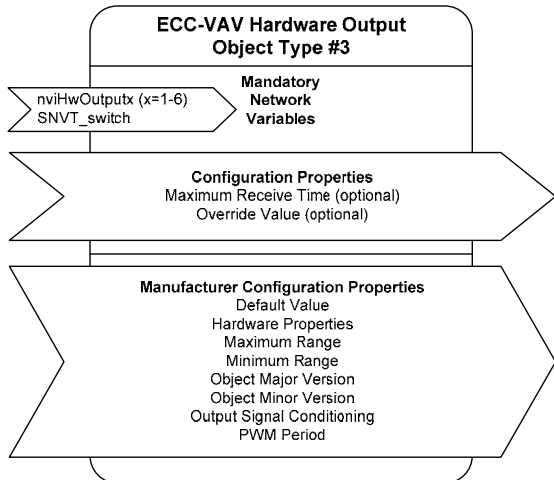
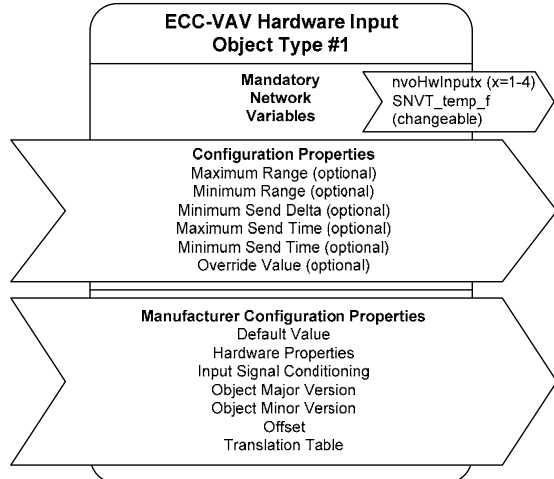
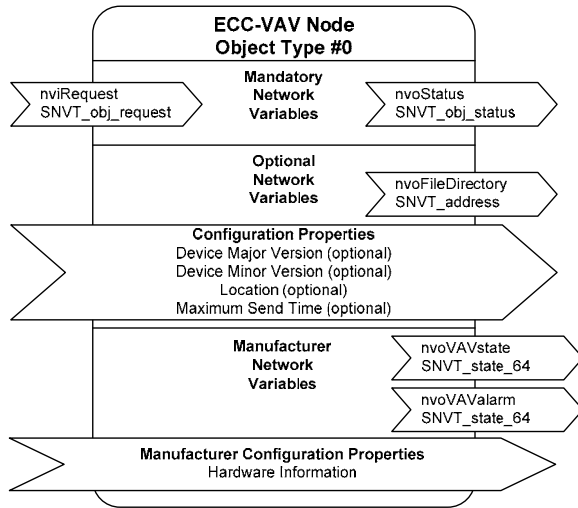
Terminal block cover designed to conceal wire terminals. Required to meet local safety regulations in certain jurisdictions.

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.

LONMARK® Objects & Network Variables



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