

EC-VAV-C/EC-VVT-C

**DISTECH
CONTROLS™**

Building Open Control Products

**EasyControls™ LONMARK® “3.3” Certified
Free Programmable Variable Air Volume /
Variable Volume Temperature Controllers**

- 4 Universal Inputs
- 1 differential pressure input
- 3 Digital Outputs (Triac)
- 1 Analog Output (0-10 Volts, or digital 0-12 Volts)



Applications

- Control of equipment such as: roof top unit, fan coil, heat pump, ventilator unit, terminal unit, multistage air handling units, chillers, boilers, lighting systems, refrigeration systems etc.
- Control of many other types of HVAC, and lighting equipment, as well as power measurement applications.

Features

Interoperability

- Based on LONWORKS® technology for peer-to-peer communication between controllers
- LONMARK® certified according to the Interoperability Guidelines Version 3.3

Hardware

- 4 universal inputs (software configurable)
- 1 differential pressure input
- 3 triac outputs (digital)
- 1 analog output (0-10 Volts, or digital 0-12 Volts)
- Extremely accurate flow sensor
- Service pin positioned for easy commissioning
- Reliable Belimo actuator LM-24 M_{US}
- Application settings and control sequences stored in a 64K non-volatile Flash memory
- 128K non-volatile Flash memory for storage of up 12000 events

Software

More than 60 network variables including:

- 18 NVIs, changeable type, changeable length
- 18 NVOs, changeable type, changeable length
- Support of fan-in binding for zoning applications
- Each object is configurable and programmable through their own LNS® plug-in including,

Free programmable object

- Configuration, code and label stored in the controller itself for advanced backup purposes
- Many programming tools available like PID, timers, optimum start
- View all internal points (e.g. constants, variables, etc.) using 10 UNVT of 15 values each

4 Scheduler objects

- All schedules are stored in Flash memory
- Schedule network variables are of changeable type and length
- Seven weekday templates per scheduler
- Six configurable events per day, per schedule
- Four holiday templates per schedule
- Schedules can be edited locally on device

Real-time clock object

- Allows configuration of daylight saving time
- Accurate timekeeping for controller applications



The EasyControls™ EC-VAV-C and EC-VVT-C controllers are microprocessor-based variable air volume (VAV) and variable volume and temperature (VVT) controllers designed to control any VAV and VVT applications. The essential difference between the two controllers is the absence of the built-in pressure sensor on all VVT boards. Additionally, both the EC-VAV-C and the EC-VVT-C can be ordered without the built-in actuator. This gives the end user the maximum flexibility in selecting the most cost effective control solution.

The EC-VAV-C and EC-VVT-C can be easily programmed using the Free Programming plug-in, through any LNS based software such as Distech Controls LonWatcher. The EC-VAV-C and EC-VVT-C controllers use the LONTALK® communication protocol and are LONMARK® certified using the Sensor profile (#1) for their input objects and the Actuator profile (#3) for their output objects.

At Distech Controls, we understand the needs of system integrators and installers. This is why we have made ease of use the primary feature of all our products. The Free Programming Plug-In is unique in the controls industry because it combines the easy to use graphical interface with the power and flexibility of a code editor and compiler. Distech Controls' Free Programming Plug-In uses a unique and simplified version of BASIC that we have developed in-house and that is custom made to suit any control requirements. Through the original combination of built-in functions and an easy to use Graphical User Interface (GUI), it offers you the very best in modular control programming. Also available for use with the EC-Net platform, the Distech Controls Shadow Objects and modules allow you to control and monitor the EC-VAV-C and EC-VVT-C free programmable controller.

The EasyControls product line is built to meet rigorous quality standards and carries a two-year warranty. The complete line of EasyControls controllers is designed for use with any LNS based and/or any other open and interoperable system – such as EC-Net. This provides both the contractor and the end user with the flexibility of using “best of breed” products in system design.

Product Specifications

Figure 1: EC-VAV-C,CF, EC-VVT-C,CF

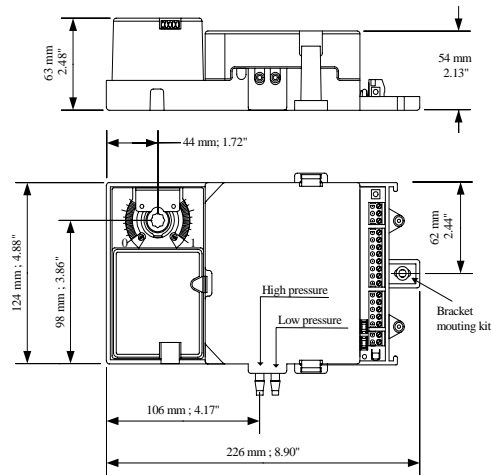
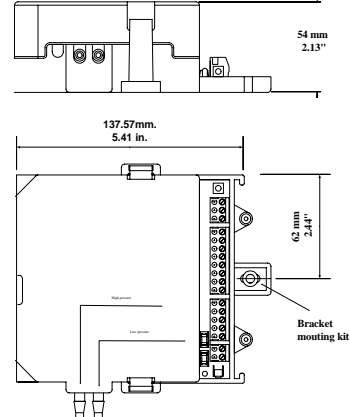


Figure 2: EC-VAV-CN, EC-VVT-CN



Power		Inputs	
Voltage	24VAC; $\pm 15\%$, 50/60HZ, Class 2	Quantity	4 universal software configurable
Protection	5 Amp removable fuse	Input Types	-Digital -Voltage -Current
Typical Consumption	5 VA		Dry contact 0-10 VDC, Accuracy $\pm 0.5\%$ 4-20 mA with 500 Ω external resistor Accuracy $\pm 0.5\%$
Maximum Consumption	10 VA, or 85 VA if internal power supply is used for triac		
Environmental			
Operating Temperature	0°C to 70°C, 32°F to 158°F	-Resistor	
Storage Temperature	-20°C to 70°C, -4°F to 158°F	<i>Thermistor</i>	Type 2,3; 10K Ω Range -40°C to 150°C; -40°F to 302°F, Accuracy: $\pm 0.5^\circ\text{C}$; $\pm 0.9^\circ\text{F}$ Resolution: 0.1°C; 0.18°F
Relative Humidity	0 to 90% Non-condensing	<i>Potentiometer</i>	Linear 2-point setpoint adjustment Min/Max linear configuration Range 125-250-500 Pa (0.5-1-2"H ₂ O) Accuracy: $\pm 3\%$ full scale Input Resolution 12 bits analog / digital converter
General		Outputs	
Processor	Neuron [®] 3150 [®] ; 8 bits; 10MHZ	Quantity	4
Memory	Non-volatile Flash 64K (APB application) Non-volatile Flash 128K (storage)	3 Digital	Triac 1.0 Amp @ 24 VAC External or internal power supply
Media Channel	TP/FT-10; 78 Kbps	1 Analog	0-10 VDC linear, or digital 0-12 Vdc 60 mA max@ 12 Vdc (60°C, 140°F) Maximum load 200 Ω Auto reset fuse: 60mA @ 60°C; 140°F 100mA @ 20°C; 68°F
Communication	LonTalk [®] protocol	Output Resolution	8 bits digital / analog converter
Transceiver	Echelon [®] FTT-10	Damper Actuator	
Enclosure		Motor	Belimo LM24- M _{US}
Material	Polylac PA-765+, Fire Rated/ABS	Torque	35 in-lb, 4Nm
Color	Black&blue casing & orange connectors	Angle of Rotation	95° adjustable
Dimension w/ Screws	4.88" x 8.9"x2.48" (124 x 226 x 63 mm)	Fits Shaft Diameter	8.5mm to 18.2 mm; 5/16" to 3/4"
Shipping Weight	2.30 lbs (1.05 kg)	Power Supply	From controller
Agency Approvals			
CE	EN55022: 1998 class B 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		
UL listed	Listed 6EA7 Energy Management Equipment This device complies with FCC rules part 15, subpart B, class B		
Material	UL94-5V, UL File #E56070		

EC-VAV-C & EC-VVT-C Controller Selection Guide

The EC-VAV-C and EC-VVT-C series of controllers are comprised of three different devices each.

EC-VAV-C Model Selection Guide

Model Name	LNS Plug-in	4 UI, 3 triac 3DO, 1 AO	On-Board Pressure Transducer	LM24 Belimo Actuator	Actuator Feedback	Logging
EC-VAV-C	✓	✓	✓	✓		✓
EC-VAV-CF	✓	✓	✓	✓	✓	✓
EC-VAV-CN	✓	✓	✓			✓

EC-VVT-C Model Selection Guide

Model Name	LNS Plug-in	4 UI, 3 triac 3DO, 1 AO	On-Board Pressure Transducer	LM24 Belimo Actuator	Actuator Feedback	Logging
EC-VVT-C	✓	✓		✓		✓
EC-VVT-CF	✓	✓		✓	✓	✓
EC-VVT-CN	✓	✓				✓

Software Preview

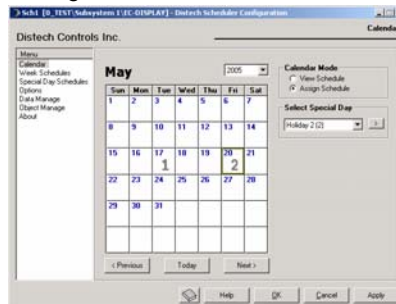
LNS Configuration Plug-in*



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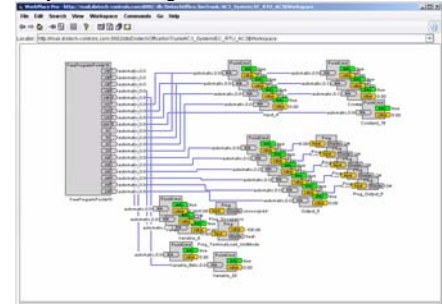
* LNS Plug-ins can be used with any LNS based network management and GUI tools, such as Distech Controls' LonWatcher or LonDisplay.

LNS Scheduler and Real-time clock Plug-in*



This plug-in allows you to easily configure a weekly-based schedule and a special day schedule for holidays. Easily add and remove the special day event into the calendar by a simple click. Manage real-time clock and daylight savings time, for use with any device on the network.

EC-Net Free Programmable Shadow Object for Niagara Framework



Designed for use with the Niagara Framework, the EC-Net free programmable shadow object allows you to add a free programmable device on your network for monitoring and control purposes.

Recommended Peripherals

Recommended Optional Accessories

Temperature Sensors



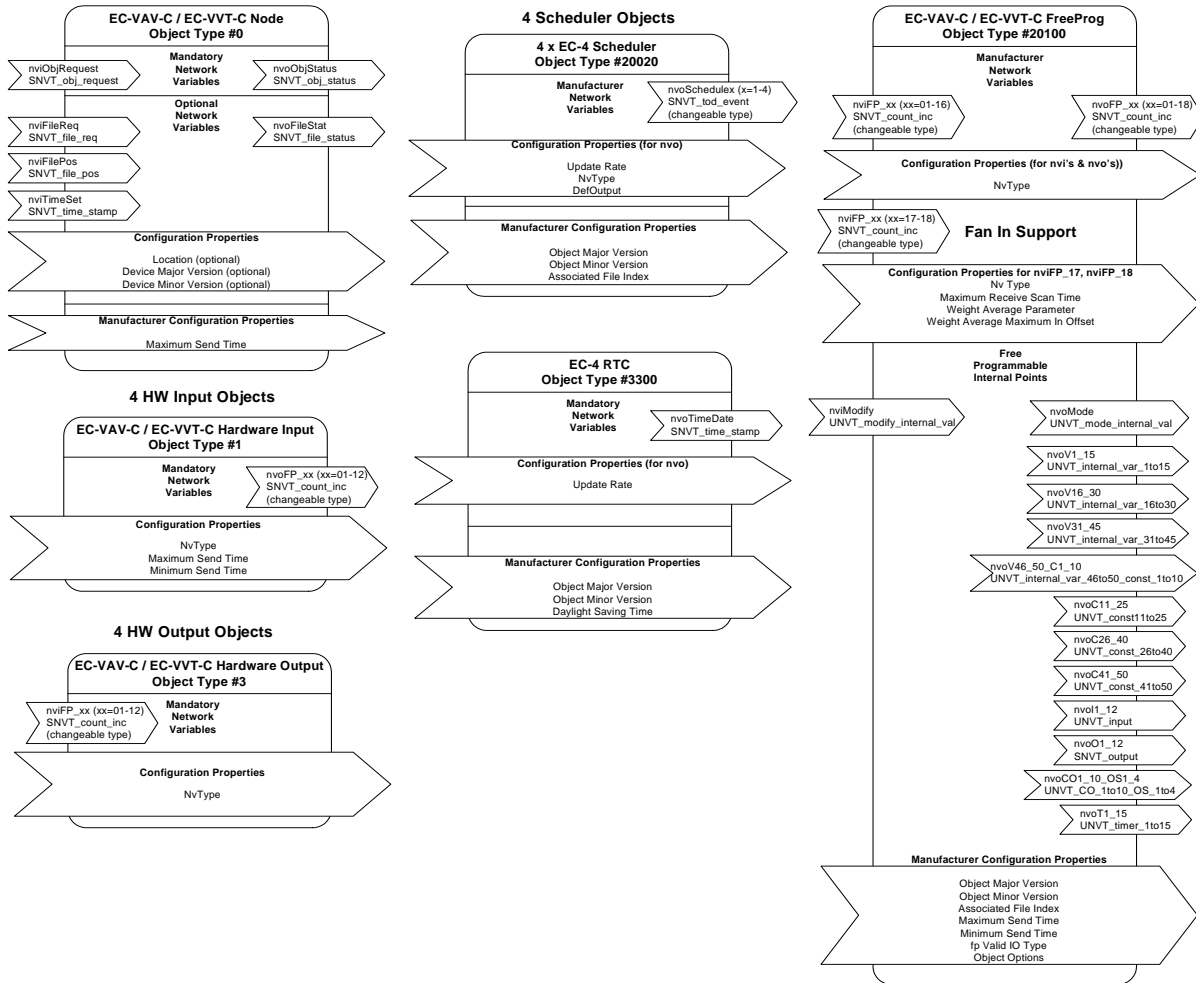
EC-SENSOR	Room sensor
EC-SENSOR-LO	Room sensor with LED and Override push button
EC-SENSOR-SLO-CW	Room sensor with LED, Override push button and setpoint adjustment (cool/warm)
EC-SENSOR-SLO-C	Room sensor with LED, Override push button and setpoint adjustment (Degrees C)
EC-SENSOR-SLO-F	Room sensor with 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

Other Peripherals

In addition to the Distech Controls EasyControls product line, we invite you to take advantage of our ray of peripheral product offering. 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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EC-VAV-C
EC-VVT-C

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