

LN-VAVLF-2, LN-VAVLN-2, and LN-VVTLF-2

## LN Series VAV and VVT Controllers

### Description

The LN Series LN-VAVLF-2, LN-VAVLN-2, and LN-VVTLF-2 controllers use the latest technology to provide you with more flexibility and reliability of control. The LN VAV/VVT controllers are designed to meet the requirements of single duct Variable Air Volume (VAV) or Variable Air Volume and Temperature (VVT) applications.

The LN-VAVLF-2, LN-VAVLN-2, and LN-VVTLF-2 controllers are based on LONWORKS® technology for interoperability and peer-to-peer communication between controllers without any intermediary, but also integrate seamlessly into the Metasys® system.

For additional information, see the *LN Series Variable Air Volume (VAV) and Variable Air Volume and Temperature (VVT) Controllers Product Bulletin (LIT-12011298)*.

### Features

- configurable software - features an LNS plug-in which provides the ability to easily configure inputs, outputs, and sequence options.

Configured device complies with LONMARK® Space Comfort Control (SCC) profile for interoperability with other LONMARK devices.

- robust hardware - allows you to use any commercially available thermistor type (100 ohms to 100k ohms) and setpoint potentiometer type. Features an extremely accurate onboard airflow sensor for pressure independent single duct VAV applications. The controller can read differential pressure as small as 0.04 milli-inches.
- wireless functionality - features an optional EnOcean® wireless receiver (LN-WMOD315-0 or LN-WMOD868-0) that you can use with a variety of wireless sensors and switches. The wireless receiver (LN-WMODxxx-0) supports up to 14 wireless inputs, which allow you to create wire-free installations.
- powerful control options - perform Demand Control Ventilation based on CO<sub>2</sub> sensor readings to ensure high indoor air quality in an efficient manner. Provides you with the ability to link VAV occupancy status with local lighting control.



LN-VAVLF-2 Controller

### Repair Information

If the LN-VAVLF-2, LN-VAVLN-2 or LN-VVTLF-2 controller fails to operate within its specifications, replace the unit. For a replacement, contact the nearest Johnson Controls® representative.

### Selection Chart

Code Number	Description
LN-VAVLF-2	Configurable VAV controller, actuator with feedback, flow sensor, 10 I/O (4 UIs, 4 triac DOs, 2 UO) and LNS® plug-in.
LN-VAVLN-2	Configurable VAV controller, flow sensor, 10 I/O (4 UIs, 4 triac DOs, 2 UO) and LNS Plug-in. No actuator.
LN-VVTLF-2	Configurable VAV controller, actuator with feedback, 10 I/O (4 UIs, 4 triac DOs, 2 UO) and LNS Plug-in. No flow sensor.

### Selection Chart

Controller Features	LN-VAVLF-2	LN-VVTLF-2	LN-VAVLN-2
Points	10-Point VAV	10-Point VAV	10-Point VAV
Universal Inputs	4	4	4
Ability to use Spare Inputs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Built-in Flow Sensor (0 to 1 in. W.C)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Wireless Inputs <sup>1</sup>	6	6	6
Digital (triac) Outputs	4	4	4
Universal Outputs	2	2	2
Network Outputs (using NVOs)	6	6	6
Ability to Use Spare Outputs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Built-in Actuator	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

1. Available when optional wireless receiver module (LN-WMODxxx-0) is connected to the controller.

## LN Series VAV and VVT Controllers (Continued)

### Technical Specifications

#### LN-VAVLF, LN-VAVLN, and LN-VVTLF (Part 1 of 2)

Product Codes	LN-VAVLF-2, LN-VAVLN-2, and LN-VVTLF-2
Power Requirement	Voltage: 24 VAC/DC; +/- 15%, 50/60 Hz, Class 2 Protection: 3 A user-replaceable fuse for triac when using the internal power supply Consumption: 18 VA Maximum Consumption: 70 VA if internal power supply is used
Ambient Storage Conditions	Ambient Operating Temperature: 0 to 50°C, (32 to 122°F) Ambient Storage Temperature: -20 to 50°C, (-4 to 122°F) Ambient Relative Humidity: 0 to 90% noncondensing
General	LONMARK Functional Profile: Space Comfort Controller (SCC) VAV #8502 Processor: Neuron® 3150™, 8 bits, 10 MHz Memory: Nonvolatile Flash 64k (APB application) Media Channel: TP/FT-10; 78 Kbps Communication: LonTalk® protocol LONMARK Interoperability Guidelines: Version 3.4
Enclosure	Material: FR/ABS Resin Dimensions (with screws): LN-VAVLN-2: 4.8 x 5.9 x 2.5 in. (122.7 x 149.1 x 63 mm) LN-VAV-LF-2/LN-VVT-LF-2: 4.8 x 8.4 x 2.5 in. (122.7 x 214.3 x 63 mm) Shipping Weight: LN-VAVLN-2: 0.92 lb (0.42 kg) LN-VAV-LF-2/LN-VVT-LF-2: 2.30 lb (1.05 kg)
Inputs	Universal software configurable Input Types: Digital: Dry Contact Analog Voltage: 0 to 10 VDC Analog current: 4 to 20 mA with 249 Ohms external resistor (wired in parallel) Pulse: Dry contact; 500 milliseconds minimum ON/OFF Resistor Support: Thermistor: 10k Ohms Type 2, Type 3 (10k Ohms at 25°C [77°F]) Range: -40° to 153°C (-40° to 302°F) Platinum: PT1000 (1k ohms at 0°C [32°F]) Range: -40 to 150°C (-40 to 302°F) PT100 (100 ohms at 0°C [32°F]) Range: -40 to 135°C (-40 to 275°F) Potentiometer: Translation table configurable on several points Input Resolution: 16-bit analog/digital converter Differential: Range 0 to 250 Pa (0 to 1 in. H <sub>2</sub> O) Resolution 0.000162 milli-inches H <sub>2</sub> O, Accuracy ±0.3% full scale
Outputs	Digital: 24 VAC Triac, digital (on/off), Pulse Width Modulation (PWM), or floating 0.5 A continuous PWM control: adjustable period from 2 seconds to 15 minutes Floating control: requires two consecutive outputs Minimum pulse on/off: 500 milliseconds Adjustable drive time period External or internal power supply (jumper selectable) Digital LED Occupancy: 0 to 10 VDC dedicated output for occupancy sensor LED, Maximum 20 mA Universal: 0 to 10 VDC, digital 0 to 12 VDC (on/off), floating for PWM PWM control: adjustable period from 2 seconds to 15 minutes Floating control: requires two consecutive outputs Minimum pulse on/off: 500 milliseconds Adjustable drive time period 20 mA maximum at 12 VDC Minimum load resistance 600 ohms Output Resolution: 10-bit digital/analog converter
Damper Actuator (LN-VAVLF-2 and LN-VVTLF-2 Models Only)	Torque: 35 in.-lb, 4 N-m Angle of Rotation: 95° adjustable Fits Shaft Diameter: 5/16 to 3/4 in. (8.5 to 18.2 mm) Power Supply: from controller
Agency	UL Listed: UL916 Energy management equipment Material: UL94-5VA <sup>1</sup>

## LN Series VAV and VVT Controllers (Continued)

### LN-VAVLF, LN-VAVLN, and LN-VVTLF (Part 2 of 2)

Electromagnetic Compatibility	CE Emission: EN61000-6-3: 2007; Generic standards for residential, commercial, and light-industrial environments. CE Immunity: EN61000-6-1: 2007; Generic standards for residential, commercial, and light-industrial environments.
Wireless <sup>2</sup>	Communication: EnOcean® Wireless standard Number of Wireless Inputs <sup>3</sup> : 14 (some sensors may require more than one wireless input) Supported Wireless Receivers: Wireless Receiver 315 (LN-WMOD315-0) and Wireless Receiver 868 (LN-WMOD868-0) Cable: Connector: 4P4C modular jack, Length: 3 ft (0.91 m)

1. All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.
2. Available when an optional external Wireless Receiver is connected to the controller. Some wireless inputs may use more than one wireless input from the controller.
3. Some wireless sensors may use more than one wireless input from the controller.