# Metasys® System LN Series Network Configurable Thermostat with LCD for Rooftop and Heat Pump Controllers

*The Metasys® system LN Series thermostat family is specifically designed for single stage and multistage control of heating/cooling equipment such as rooftop and heat pump units.*

*The Metasys system LN Series product family is built to meet rigorous quality standards. The complete family of Metasys system LN Series controllers is designed for use with any LONWORKS® network open and interoperable system.*


**Figure 1: Metasys System LN Series Network Configurable Thermostat**

| Features and Benefits | |
|---|---|
| ❑ **LONWORKS Network Compliant and Certified** | Complies with LONMARK® Interoperability Guidelines Version 3.3. The controllers are based on the LonWorks technology for peer-to-peer communication between controllers. |
| ❑ **Frost Protection** | Protects against freeze damage with automatic frost protection. |
| ❑ **Nonvolatile Memory** | Prevents loss of parameters during power shortages with the nonvolatile Electronic-Erasable Programmable Read-Only Memory (EEPROM) chip. |
| ❑ **Anti-short Cycle and Minimum ON/OFF Run Time** | Reduces the wear and maximizes the life span of mechanical equipment. |

## Metasys System LN Series Network Configurable Thermostat Overview

Accurate temperature control is achieved using the product's Proportional plus Integral (PI) time proportional control algorithm, which virtually eliminates the temperature offset associated with traditional, differential-based thermostats.

An economizer control logic has been integrated onto the thermostat for use with proportional damper economizer actuators for more advanced applications. All programmable models contain a Single Pull Single Throw (SPST) auxiliary switch, which can be used to control lighting or disable the economizer function.

### Dimensions

Figure 2 shows the Metasys system LN Series Thermostat dimensions.

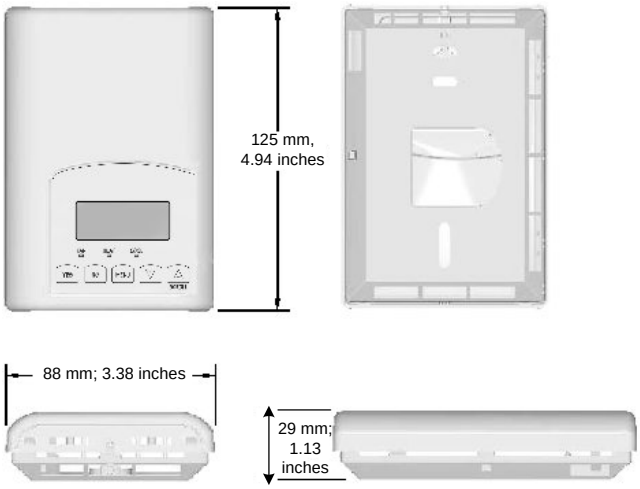


**Figure 2: Metasys System LN Series Controller Display Dimensions**

Figure 3 shows the Metasys system LN Series Network Configurable Thermostat LONMARK Objects and Network Variables.

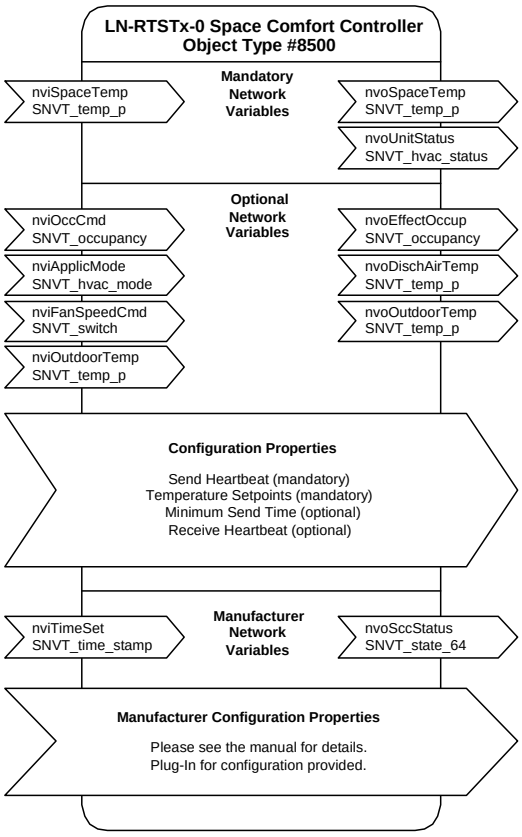


**Figure 3: Metasys System LN Series Network Configurable Thermostat—LONMARK Objects and Network Variables**

**Table 1: Thermostat Models**

| Application | 1 Heat/1 Cool | 2 Heat/2 Cool | 2 Heat/2 Cool | Heat Pump |
|---|---|---|---|---|
| **Model (programming with Scheduling)** | LN-RTST1S-0 | LN-RTST2S-0 | LN-RTST3S-0 | LN-HPST01-0 |
| **Model (non-programming without Scheduling)** | LN-RTST1-0 | LN-RTST2-0 | LN-RTST3-0 | LN-HPST02-0 |

## Technical Specifications

| | |
|---|---|
| **Product** | Metasys System LN Series Network Configurable Thermostat (LN-RTSTxx-0 and LN-HPSTxx-0) |
| **Power** | Voltage: 24 VAC, ±15%, 50/60 Hz<br>Typical Consumption: 2 VA<br>Maximum Consumption: 13 VA<br>Protection: 5 Ampere removable fuse<br>Wire Gauge: 18 gauge maximum, 22 gauge recommended<br>Static Discharge: 8 kV<br>Digital Inputs: Relay dry contact only across C terminal to Digital Input (DI) 1 or DI2<br>Contact Output Rating: Each relay output: (Y1, Y2, G, W1, W2, AU)<br>30 VAC, 1 Ampere maximum,<br>30 VAC, 3 Ampere in-rush |
| **Environmental** | Operating Temperature: 0° C to 50° C, 32° F to 122° F<br>Storage Temperature: -30° C to 50° C, -22° F to 122° F<br>Relative Humidity: 0 to 95% Noncondensing |
| **General** | Processor: Neuron® 3120®<br>Memory: EEPROM<br>Clock: Real-Time Clock Chip<br>Battery: CR 2032 Lithium Battery<br>Communication: LonTalk® Protocol<br>Media Channel: TP/FT-10; 78 kbps<br>Transceiver: Echelon® Free Topology Transceiver (FTT-10)<br>Sensor: Local 10K NTC thermistor<br>Enclosure<br>Material: Plastic<br>Dimensions: 4.94 x 3.38 x 1.13 inches (124 x 85 x 28 mm)<br>Weight: 0.75 lbs (0.34 kg) |
| **LCD Display** | Type: Backlit LCD Display<br>Display Area Size: 2 rows of 8 characters each |
| **Functionality** | Resolution: ±0.1°C (±0.2°F)<br>Control Accuracy: ±0.5°C (±0.9°F) @ 21°C (70°C) typically calibrated<br>Occupied and Unoccupied Setpoint Range Cooling: 12.0°C to 37.5°C (54°F to 100°F)<br>Occupied and Unoccupied Setpoint Range Cooling: 4.5°C to 32°C (40°F to 90°F)<br>Room and Outdoor Air Temperature Range: -40°C to 50°C (-40°F to 122°F)<br>Proportional Band for Room Temperature Control: Both Outputs 1.1°C (2.0°F)<br>Digital Inputs: Relay dry contact only across C terminal to DI1 or DI2<br>Economizer Analog Output Rating: 0 to 10 VDC into 2K ohms resistance minimum<br>Economizer Analog Output Accuracy: ±3% typical |

*The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.*

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