

# MNL-100, MNL-150, MNL-200 Series Controllers



## SPECIFICATIONS

### HARDWARE

#### Dimensions

4.37 in. W x 4.29 in. H x 2.00 in. D  
(109 mm x 111 mm x 51 mm)

#### Enclosure

Conforms to NEMA-1 requirements.  
Meets UL94-5V flammability for plenum application use.

#### Conduit Knockouts

Not applicable. Order optional MicroNet Enclosure, MNA-FLO-1, if wiring to flexible conduit is desired.

#### Mounting

35 mm DIN rail or panel.

#### Wiring Terminals

Screw terminals. Each terminal accepts one AWG #16 to #24 (1.31 to 0.205 mm<sup>2</sup> maximum) wire.

### ELECTRICAL

#### Power Supply Input

20.4 to 30 Vac, 50/60 Hz.

#### Maximum Power Consumption

15 VA at 24 Vac, 50/60 Hz, excluding relay output power.

#### Surge Immunity Compliance

IEEE C62.41 (IEEE-587, Category A & B).

### ENVIRONMENT

#### Operating Temperature

-40 to 140 °F (-40 to 60 °C)

#### Shipping and Storage Temperature

-40 to 160 °F (-40 to 71 °C)

#### Humidity

5 to 95% RH, non-condensing

### I/A Series MicroNet MNL-100, MNL-150, MNL-200

The TAC I/A Series™ MicroNet™ MNL-100, MNL-150, and MNL-200 Series Controllers are interoperable controllers designed in accordance with LonMARK™ guidelines. When programmed using WorkPlace Tech Tool, or loaded with a pre-engineered application, these controllers provide control for packaged rooftops, heat pumps, fan coils, unit ventilators, and similar applications.

Controllers feature Sensor Link (S-Link) support, LED indication, screw terminal blocks, as well as DIN rail or panel mounting ability.

The MNL-100, MNL-150, and MNL-200 series controllers use the same physical packaging, but differ in the type and number of onboard I/O points they provide.

### Stand Alone or Connected

These controllers can function in either standalone mode or as part of a LonWorks™ TP/FT-10 Free Topology communications network. Using a TAC I/A Series MicroNet Sensor (MN-Sx series), the operator can monitor controller performance and edit operational values. The WorkPlace Tech Tool software is used to program the controllers.

### AGENCY LISTINGS

#### US

FCC Part 15, Class A  
UL 916, File #E71385 Category PAZX

#### Canadian

UL Listed to Canadian Safety Standards (CAN/CSA 22.2)

#### Australian

Meets requirements to bear the C-Tick Mark

#### European Community

EMC Directive 89/336/EEC, EN61326

### INPUTS AND OUTPUTS

#### Digital Inputs

(MN 100 and MN 200 only) Dry Contact. Detection of closed switch requires less than 300 ohm. Detection of open switch requires more than 100K ohm.

#### Digital Outputs

##### Current Ratings

24 VA at 24 Vac, pilot duty.

*Specifications continued on next page.*

Specifications continued from first page.

**Universal Inputs**

**1K ohm Balco Input**

-40 to 250 °F (-40 to 121°C) range. TSMN-81011, TS-8000 Series or equivalent.

**1K ohm Platinum Input**

-40 to 240 °F (-40 to 116 °C) range. TSMN-58011, TS-5800 Series or equivalent.

**1k Resistance**

0 to 1.5k ohms.

**10K ohm Thermistor w/ 11K ohm Shunt Resistor**

-40 to 250 °F (-40 to 121 °C) range. TSMN-57011-850, TS-5700-850 Series or equivalent.

**10k Resistance**

0 to 10.5k ohms.

**Voltage**

0 to 5 Vdc.

**Current**

0 to 20 mA requires an external 250 ohm shunt resistor.

**Digital Input**

Dry Contact. Detection of closed switch requires less than 300 ohms. Detection of open switch requires more than 1.5K ohms.

**Analog Outputs**

(MN 150 and MN 200 only).

**Current**

0 to 20 mA. (Output load from 80 to 550 ohms).

**COMMUNICATIONS**

**LONWORKS Networks**

A LONWORKS communications network uses a TP/FT-10 Free Topology configuration. Controllers on a LONWORKS network can communicate with each other in a peer-to-peer fashion. A LONWORKS network has a communications speed of 78 kbps, using unshielded, twisted-pair cabling, with connections that are not polarity sensitive.

**S-Link**

The Sensor Link (S-Link) communications wiring provides power and a communication interface for an MN-Sx MicroNet sensor. The various MN-Sx sensors can provide room temperature, room humidity, setpoint adjustment, and occupancy override. This connection uses two-wire, unshielded cable and is not polarity sensitive. Maximum wire length allowed between a controller and a MicroNet Sensor is 200 ft (61 m).

**FEATURES**

- Designed for new or existing system installations, the MN 100, 150, and 200 controllers provide control for: unit ventilators; series fan; heat pumps; fan coils; and packaged rooftops.
- Conforms to the LONMARK guidelines.
- HVAC interoperability achieved through use of LONMARK HVAC profiles.
- A complete, custom application can be designed for each controller, using WorkPlace Tech Tool.
- All controllers are field programmable, using WorkPlace Tech Tool, but controllers with satellite profiles are especially suited for a broad range of applications, providing solutions for your building control needs.
- Capability to function in standalone mode or as part of a LONWORKS TP/FT-10 Free Topology communications network.
- Multiple controllers on a LONWORKS FTT network creates a complex network of controllers for virtually any building control need.
- Proportional (P), Proportional Plus Integral (PI), and Proportional Plus Integral and Derivative (PID) control for cooling and heating.
- Onboard LED indication without cover removal.
- Plenum-rated enclosure allows direct mounting in plenum.
- Protective hinged covers provide access to field wiring terminals.

### INPUTS FROM MN-SX I/A SERIES MICRONET SENSORS

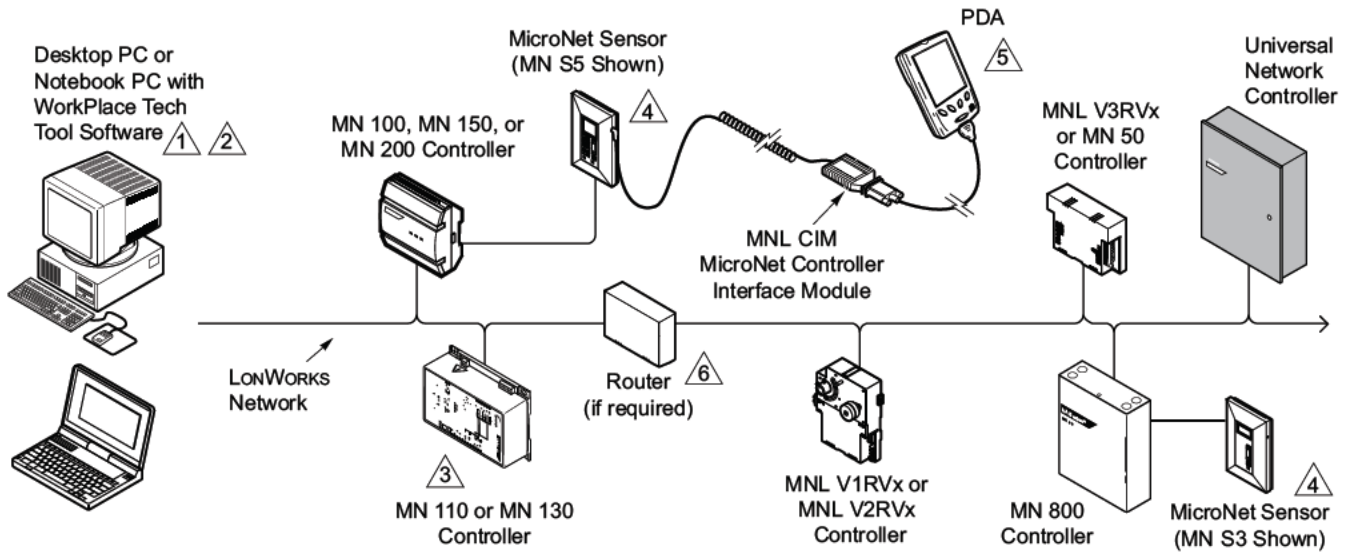
Inputs	Description	MN-Sx Sensor
Space Temperature	32 to 122 °F (0 to 50 °C)	MN-S1, MN-S1HT, MN-S2, MN-S2HT, MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S4-FCS, MN-S4HT-FCS, MN-S5 and MN-S5HT
Space Humidity	5 to 95% RH, Non-condensing	MN-S1HT, MN-S2HT, MN-S3HT, MN-S4HT, MN-S4HT-FCS, and MN-S5HT
Adjustable Setpoint	40 to 95 °F (4 to 35°C)	MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S4-FCS, MN-S4HT-FCS, MN-S5, and MN-S5HT
Override Pushbutton	For standalone occupancy control or remote status monitoring of local status condition.	MN-S2, MN-S2HT, MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S5, and MN-S5HT
Fan Operation and Speed	Fan mode selection: On, Speed (Low/Medium/High), or Auto.	MN-S4, MN-S4HT, MN-S4-FCS, MN-S4HT-FCS, MN-S5, and MN-S5HT
System Mode	System mode selection: Heat, Cool, Off, or Auto.	MN-S4, MN-S4HT, MN-S5, and MN-S5HT
Emergency Heat	Emergency heat mode selection: Enable or Disable	MN-S5 and MN-S5HT

### MODELS

Part Number	Description	Inputs/Outputs	Profiles
MNL-10Rxx <sup>a</sup>	TAC I/A Series MicroNet 100 series controller	1 Digital Input (DI)	Heat Pump Fan Coil Packaged Rooftop Satellite
		2 Universal Inputs (UI)	
		4 Digital Outputs (DO)	
MNL-15Rxx <sup>a</sup>	TAC I/A Series MicroNet 150 series controller	3 Universal Inputs (UI)	
		2 Digital Outputs (DO)	
		2 Analog Outputs (AO)	
MNL-20Rxx <sup>a</sup>	TAC I/A Series MicroNet 200 series controller	2 Digital Inputs (DI)	
		3 Universal Inputs (UI)	
		6 Digital Outputs (DO)	
		2 Analog Outputs (AO)	

<sup>a</sup> "xx" denotes LONMARK profile and profile version (F=Fan Coil, H=Heat Pump, R=Rooftop, S=Satellite). Satellite profile is based on Rooftop profile.

## ARCHITECTURE



1 A PC can be connected to the LONWORKS TP/FT 10 Network, either directly or through the LONWORKS network jack of a LONWORKS controller or MN Sxxx Wall Sensor. The PC must have an Echelon™ LONTALK™ adapter card.

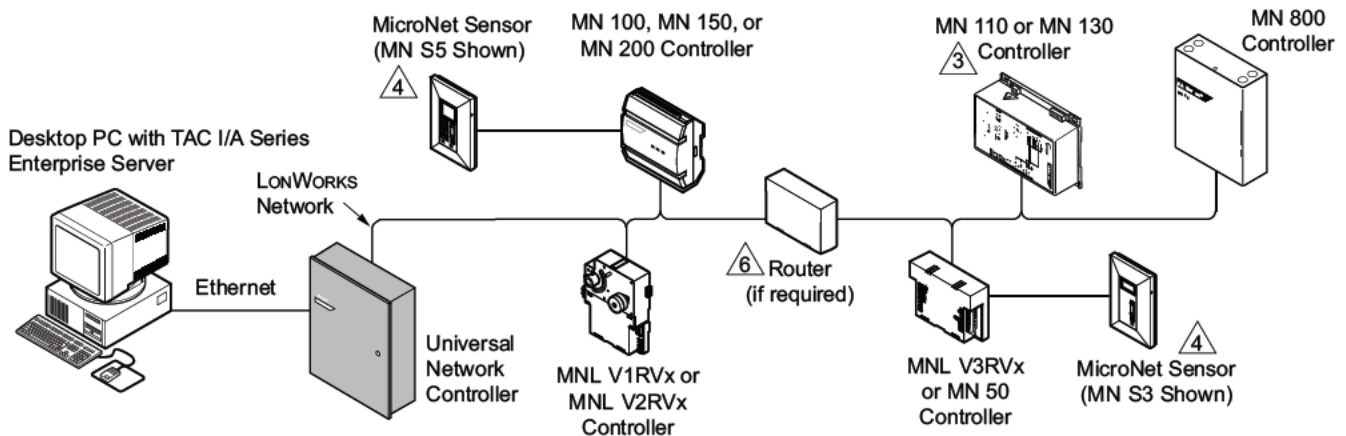
2 Programming any of the TAC I/A Series controllers, or the TAC I/A Series MN 800 controller, requires WorkPlace Tech Tool.

3 This controller is not suitable for exposed mounting on a wall or panel, or in any other easily accessible place due to the possibility of personal contact with the high voltage terminals. It must be mounted inside a suitable grounded metal enclosure.

4 MicroNet Sensors can be connected to any MN controller.

5 A PDA running the Pocket I/A interface software may be used to communicate with TAC I/A Series MicroNet controllers.

6 When routers are used, WP Tech is able to communicate through them to any of the TAC I/A Series devices on the network.



On October 1st, 2009, TAC became the Buildings Business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remain references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes.

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