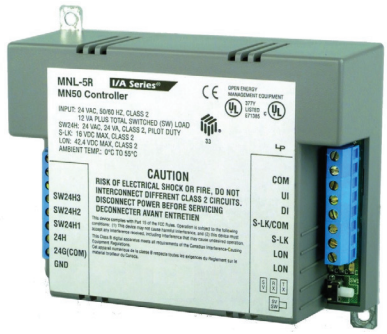
MNL-50 Series Controller



I/A Series Micronet MNL-50

The TAC I/A Series™ MicroNet™ MNL-50 Series Controller is an interoperable controller designed in accordance with LonMark™ guidelines. When programmed using WorkPlace Tech Tool (WP Tech), or loaded with a pre-engineered application, these controllers provide control for packaged rooftops, heat pumps, fan coils, unit ventilators, and similar applications. These controllers feature Sensor Link (S-Link) support, LED indication, one digital input, one universal input, and three digital outputs. These controllers can function in either standalone mode or as part of a LonWorks™ TP/FT-10 Free Topology communications network.

The MNL-50 series controller offers the advantages of standalone or networked control. Using an 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 or download pre-engineered applications.

SPECIFICATIONS

HARDWARE

Dimensions
5.0 in. W x 4.5 in. H x 1.625 in. D

(127 mm x 112 mm x 41 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
Plenum-rated enclosure for direct mounting in plenum.

Wiring Terminals
Screw terminals. Each terminal accepts one AWG #14 (2.08 mm^2) wire or up to two AWG #18 (0.823 mm^2) or smaller wires.

ELECTRICAL

Power Supply Input
20.4 to 30 Vac, 50/60 Hz.

Maximum Power Consumption
84 VA (12 VA plus DO loads at 24 VA each)

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

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 Input
Dry Contact. Detection of closed switch requires less than 300 ohms. Detection of open switch requires more than 100K ohms.

Digital Outputs
Relay outputs

SW24H1, SW24H2, and SW24H3

Specifications continued on next page.

Schneider Electric

Specifications continued from first page.

Current Ratings

24 VA at each 24 Vac, 50/60 Hz. Form A, Single-Pole, Single-Throw (SPST), Normally-open. 300k cycles at 24 Vac, 24 VA (0.4 power factor).

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.

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 TAC I/A Series 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 TAC I/A Series MicroNet Sensor is 200 ft (61 m).

FEATURES

- Designed for new or existing system installations, the MN 50 controllers provide control for: unit ventilators; 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.
- 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 create 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.

INPUTS FROM MN-SX I/A SERIES MICRONET SENSORS

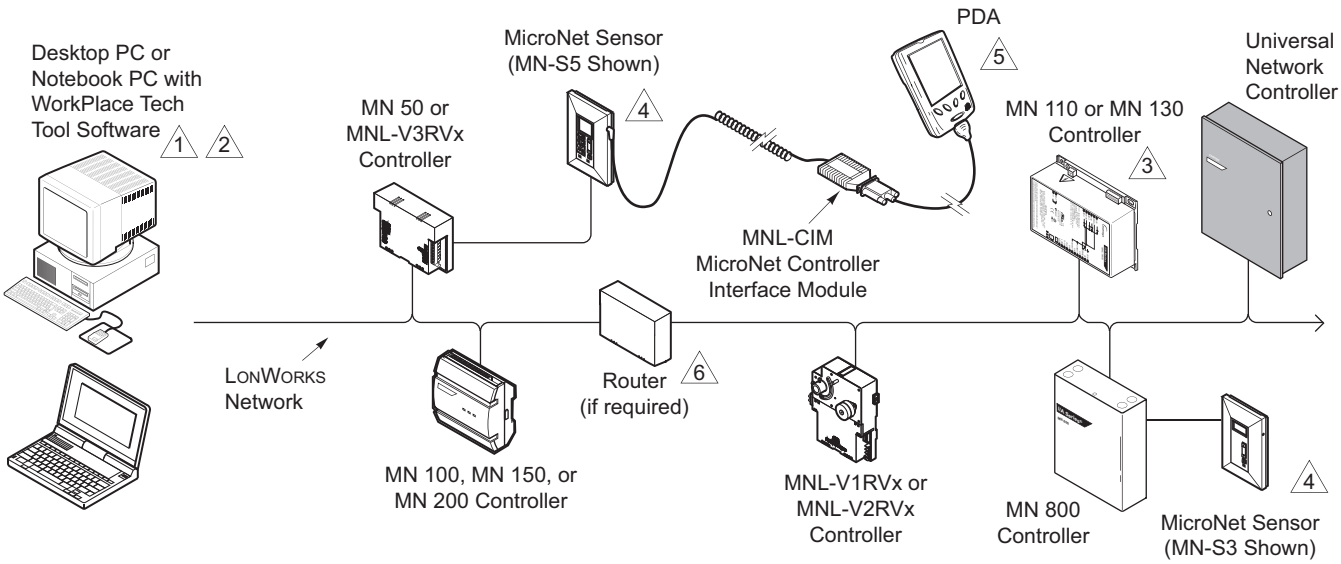
Inputs	Description	MN-Sx Sensor
Space Temperature	32 to 122 °F (0 to 50 °C)	MN-S1, MN-S1HT, MN-S2, MN-S2HT, MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S4-FCS, MN-S4HT-FCS, MN-S5 and MN-S5HT
Space Humidity	5 to 95% RH, Non-condensing	MN-S1HT, MN-S2HT, MN-S3HT, MN-S4HT, MN-S4HT-FCS, and MN-S5HT
Adjustable Setpoint	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

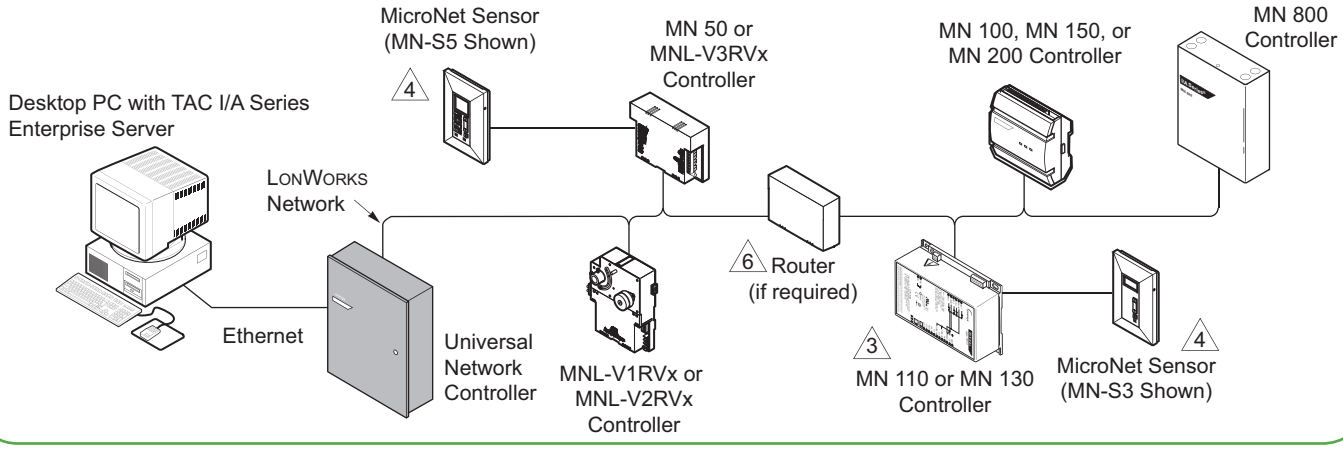
Part Number	Description	Inputs/Outputs	Profiles
MNL-5Rxx[a]	TAC I/A Series MicroNet 50 Series controller	1 Digital Input (DI) 1 Universal Input (UI) 3 Digital Outputs (DO)	Heat Pump Fan Coil Packaged Rooftop Satellite

[a] "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.



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