TAC MicroNet™ 100, 150, & 200 Series Controllers

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.
- Packaged Rooftops.
- Field programmable using WorkPlace Tech Tool.
- Uses LonMark HVAC profiles for interoperability.
- 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.
- The satellite profile allows the controller to be used in a broad range of applications, providing solutions for your building control needs.
- Onboard LED indication without cover removal.
- Plenum-rated enclosure allows direct mounting in plenum.
- Protective hinged covers provide access to field wiring terminals.

The TAC I/A Series MicroNet 100, 150, and 200 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. These controllers can function in either standalone mode or as part of a LonWorks® TP/FT-10 Free Topology communications network.

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

The MN series controllers offer the advantages of standalone and networked control. 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.

Table-1   Model Chart.

Model	Description	Inputs/Outputs	Profiles
MNL-10Rxx[a]	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[a]	TAC I/A Series MicroNet 150 Series Controller	3 Universal Inputs (UI)	Heat Pump Fan Coil Packaged Rooftop Satellite
		2 Digital Outputs (DO)	
		2 Analog Outputs (AO)	
MNL-20Rxx[a]	TAC I/A Series MicroNet 200 Series Controller	2 Digital Inputs (DI)	Heat Pump Fan Coil Packaged Rooftop Satellite
		3 Universal Inputs (UI)	
		6 Digital Outputs (DO)	
		2 Analog Outputs (AO)	

[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.

Table-2 Inputs from MN-Sx TAC I/A Series MicroNet Sensor.

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

Communications

LonWorks Networks

A LonWorks communications network uses an 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 78k baud, 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).

SPECIFICATIONS

Dimensions
4-5/16 H x 4-3/8 W x 2 D in
(109 x 111 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.

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

Maximum Power Consumption
15 VA @ 24 Vac, 50/60 Hz, excluding relay output power.

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

AGENCY LISTINGS
FCC
Class B.

UL
UL-916 (File # E71385 Category PAZX).

UL Listed to Canadian Safety Standards (CAN/CSA C22.2).

European Community – EMC Directive 89/336/EEC
EN61326

Mounting
35 mm DIN rail or panel.

AMBIENT LIMITS
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.

Wiring Terminals
Screw terminals. Each terminal accepts one AWG #16 to #24 (1.31 to 0.205 mm^2 maximum) wire.

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.

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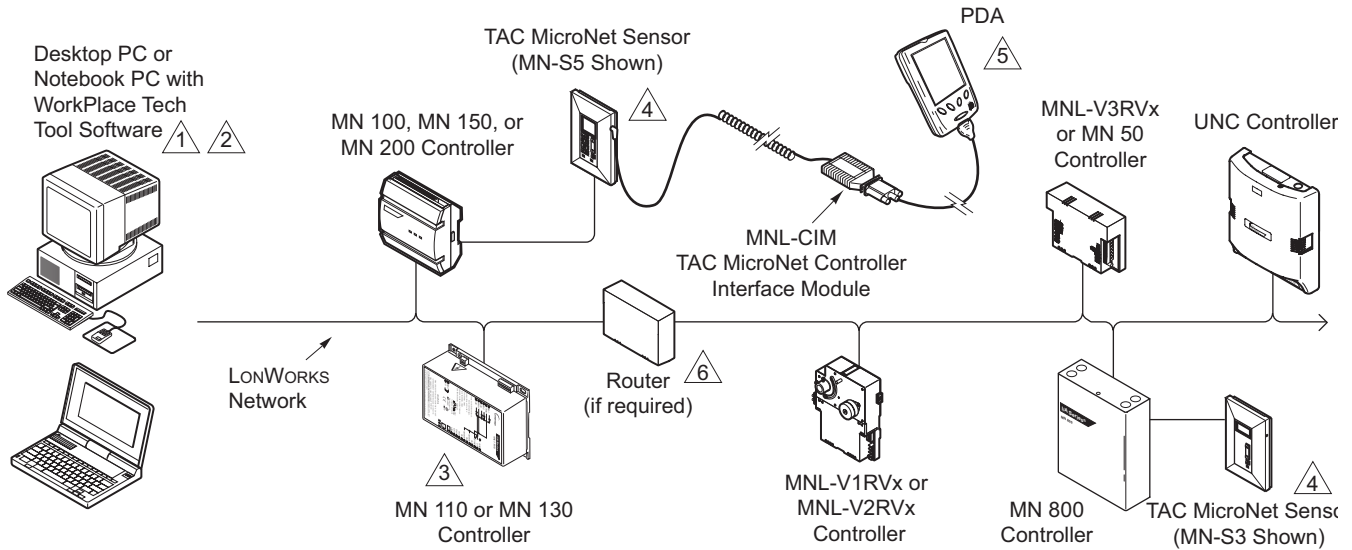0 to 20 mA requires an external 250 ohm shunt resistor.

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).

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 TAC I/A interface software may be used to communicate with TAC MicroNet I/A Series 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.
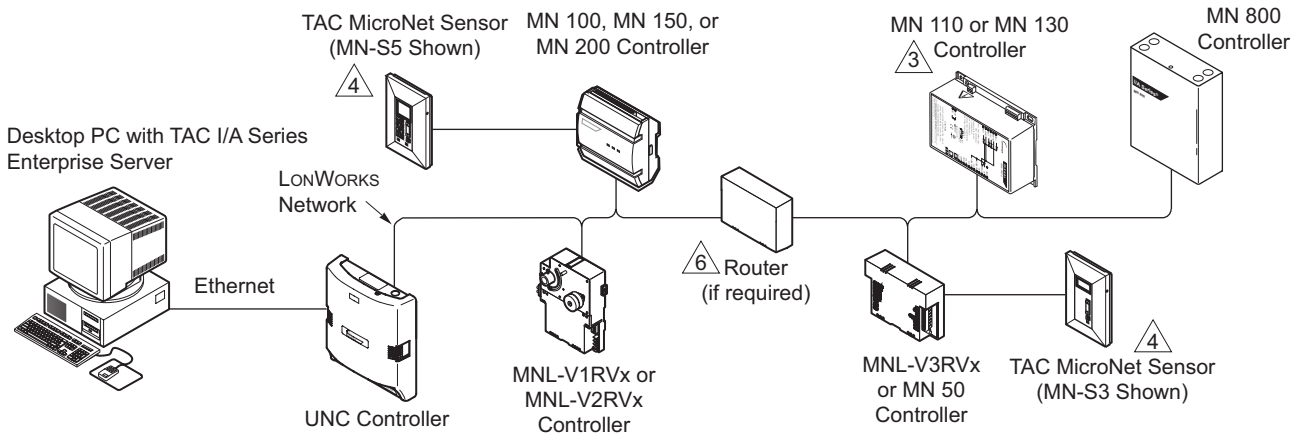

Figure-1 TAC I/A Series MicroNet MN 100, 150, and 200 Series Controller Connectivity.