I/A Series®

MicroNet 800 Series Controllers

The I/A MicroNet 800 Series Controllers are programmable, interoperable, LONWORKS® based control devices.

The MN 800 Series Controller features eight universal inputs, four analog outputs, eight digital outputs, a 5.1 volt reference, LED indication, and support for MicroNet MN-Sx Sensor Link (S-Link) sensors. Additionally, network capability is provided through the use of a FTT-10 transceiver allowing the controller to communicate to other devices as part of a LONWORKS ® Free Topology Communications network. A direct connection to a WPA-LON WorkPlace Communication adapter and a PC with WorkPlace Tech Tool software is necessary to download and modify applications.

LONWORKS®

Applications

Designed for new or existing systems, the MN 800 Series Controller may be used in large I/A Series MicroNet Systems, as well as with stand alone applications. When programmed using WorkPlace Tech Tool or loaded with a previously designed application, it provides control strategies for a wide variety of mechanical equipment. Typical applications include central station air handlers, VAV air handlers, fan coil units, unit ventilators, and cooling towers.

Connectivity

The WorkPlace Tech Tool software is used to program the controllers or to download applications. The MN 800 Series Controller offers the advantages of standalone or networked control. Using an I/A Series MicroNet sensor (MN-Sx Series), the operator can monitor controller performance and edit operational values.

Features —

- Complete user creation of custom control strategies through I/A Series WorkPlace Tech Tool software adapts the MN 800 Series Controller to virtually any HVAC control sequence or mechanical system.
- LONWORKS compatible applications are completely programmable.
- Backed-up time clock provides true stand-alone direct digital control with optimum start stop, scheduling functions, and backed-up RAM.
- Functions as part of a LONWORKS FTT-10 Free Topology communications network.
- Separate sensor bus (S-Link) supported to facilitate communications to a MicroNet wall sensor.
- Provides basic trend of up to 24 points within the application. Trend maintains last 48 analog samples or digital changes of state with time stamp. Analog sampling adjustable time rates.

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Printed in U.S.A. 9-05

Model Chart

Model	Mounting Type	Backed-up Time Clock	Dimensions (in.) H x W x D
ENCL-MZ800-WAL	Wall	—	10-7/8 x 8-1/2 x 4-1/4
ENCL-MZ800-PAN	Panel	—	10-5/8 x 8-1/2 x 4-1/8
MNL-800-101	Card	Yes	—

Hardware Specifications

Microprocessor SAF-C161, 10 MHz clock speed, 16-bit word size.

Memory

EPROM 512 kbytes

RAM 128 kbytes

EEPROM 32 kbytes

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

Maximum Power Consumption 20 VA at 24 Vac, 50/60 Hz.

Surge Immunity Compliance
ANSI C62.41 (IEEE-587, Category A & B).
EN61000-4-5 Surges per EN50082-1.

Agency Listings
FCC, Part 15, Class B.
UL Listed to UL-916 (File # E71385 Category PAZX).
CUL, UL listed to Canadian Safety Standard (CAN/CSA C22.2)
Canadian Department of Communications, Class B

European Community – EMC Directive

EN55022 (Emissions, Class A)
EN55014 (RF Disturbance due to switching devices as applied per EN50081-1)
EN60555-2 (AC Mains Power Line Harmonics as applied per EN50081-1)
EN60555-3 (AC Mains Power Line Voltage-variation as applied per EN50081-1)
EN61000-4-2 (Electrostatic Discharge as applied per EN50082-1)
EN61000-4-3 (RF Immunity as applied per EN50082-1)
EN61000-4-4 (Electrical Fast Transients as applied per EN50082-1)
EN61000-4-5 (Surges as applied per EN50082-1)
EN61000-4-6 (Radio frequency-common mode as applied per EN50082-1)
EN61000-4-11 (AC Mains Voltage Dips & Interruptions as applied per EN50082-1)

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.

Backup Clock/RAM 3 days (rechargeable) at 77 °F (25 °C).

Backed-up Time Clock Accuracy +/-150 sec/mo at 77 °F (25 °C).

Maximum Pulse Count Rate
10 per second (50 msec. minimum On or Off time per pulse) to 1 per 4 minutes (IN1 only).
1 per second (0.5 sec. minimum On or Off time per pulse) to 1 per 4 minutes (IN2 - IN8).

Inputs from MN-Sx 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

Analog to Digital Conversion Resolution 12 bit.

Analog Outputs

Quantity 4.

Type 0-20 mA range programmable source into 80 to 550 ohm load, momentary short circuit protection.

Digital to Analog Conversion Resolution 8bit.

Digital Outputs

Quantity 8.

Contact Ratings 30 VA at 24 Vac, pilot duty. 120 VA at 120 Vac, pilot duty.

Contact Type Form C (SPDT) isolated.

Status Indication Light emitting diode.

Voltage Reference 5.1 Vdc, 20 mA maximum.

Mounting Requirements

ENCL-MZ800-WAL NEMA 1 location.

ENCL-MZ800-PAN Control compartment of controlled equipment.

Inputs (from I/A Series MicroNet Sensor)

Space Temperature 32 to 122 °F (0 to 50 °C).

Space Humidity 5 to 95% RH, non-condensing.

Adjustable Setpoints 40 to 95 °F (4.4 to 35 °C).

Operational Mode Heat/Cool/Auto/Off.

Override Pushbutton For stand-alone occupancy control or remote status monitoring of local status condition.

Emergency Heat Pushbutton Emergency heat mode selection. Enable or disable.

Fan High/Med/Low.

Universal Input

Quantity 8.

1K Ω Balco Input -40 to 250 °F (-40 to 121 °C) range. TSMN Series or equivalent.

1K Ω Platinum Input -40 to 240 °F (-40 to 116 °C) range. TSMN Series or equivalent.

1K ohm Copper Input -31 to 240 °F (-35 to 116 °C) range TS-5600 Series or equivalent

10K Ω Thermistor w/ 11K Ω Shunt Resistor
-40 to 250 °F (-40 to 121 °C) range. TSMN Series or equivalent.

Ohms 1000 Ω resistance (0-1500 Ω) 10,000 Ω resistance (0-10,500 Ω).

Potentiometers 1000 to 15000 Ω resistance using 5.1 volt reference.

Voltage 0 to 5 Vdc.

Current 0 to 20 mA requires an external 250 Ω shunt resistor.

Digital Input Dry Contact. Detection of closed switch requires less than 300 Ω. Detection of open switch requires more than 1.5K Ω.

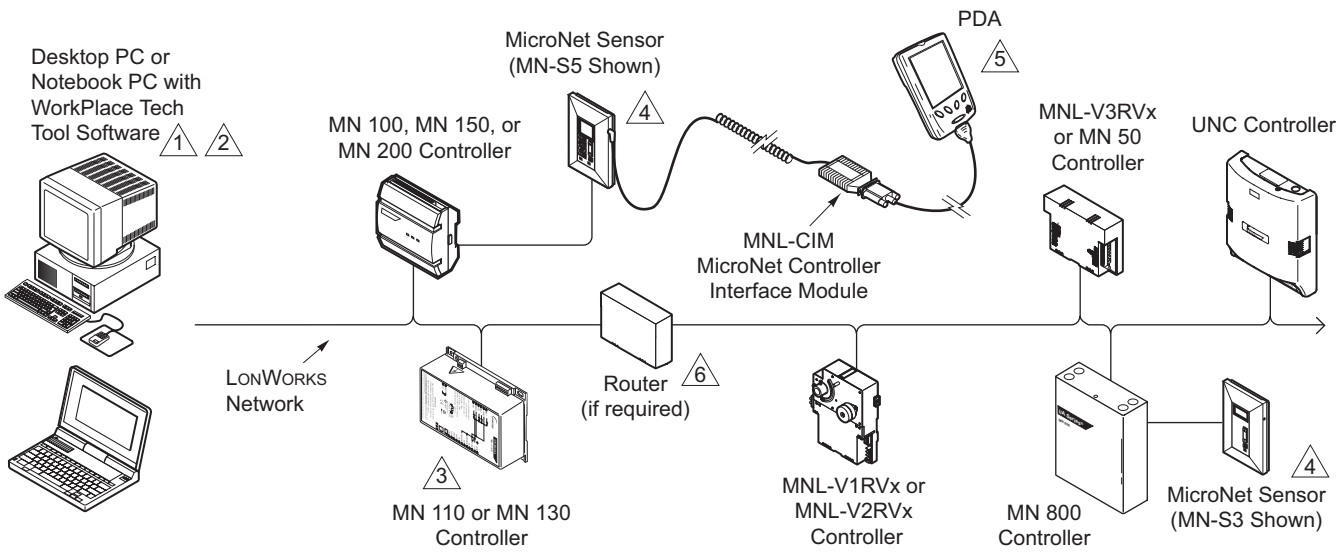
Software Capabilities

- WorkPlace Tech Tool is capable of reconfiguring and editing application configuration data to fit a wide range of control requirements.
- Interoperability achieved using LONWORKS Standard Network Variable Types (SNVTs).

Communications

LONWORKS Networks A LONWORKS communications network uses an FTT-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 A Sensor Link (S-Link) communications wiring provides power and a communication interface for an MN-Sx 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 an I/A Series MicroNet Sensor is 200 ft (61 m).



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 I/A Series controllers, or the 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 MicroNet I/A Series controllers.

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

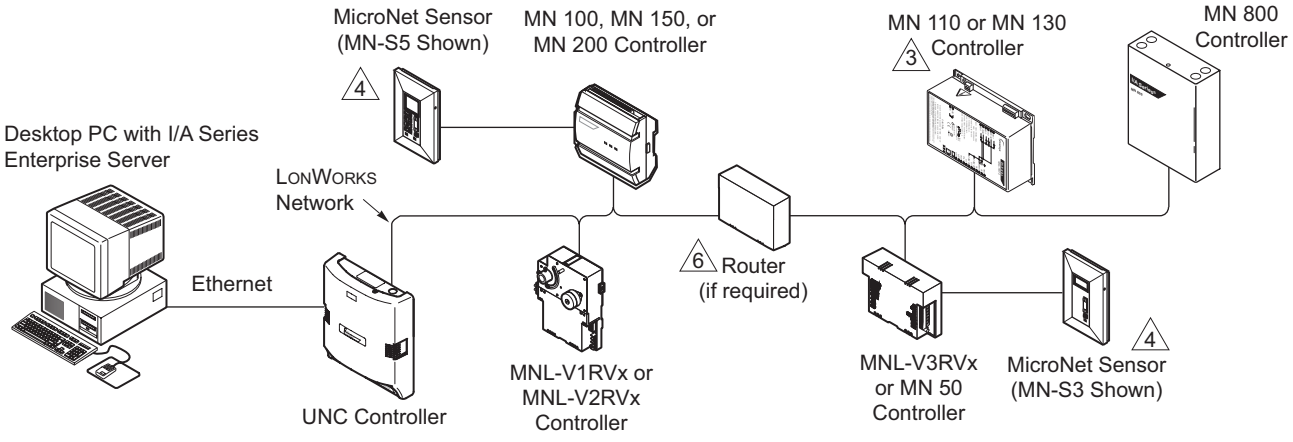


Figure-1 I/A Series MicroNet LONWORKS MN 800 Series Controller Connectivity.