

MicroNet BACnet™ Plant Controller

The I/A Series MicroNet BACnet Plant Controller is an interoperable controller with native BACnet, IP, and MS/TP communications support. The controller features Sensor Link (S-Link) support, LED status and output indication, two Ethernet ports, and screw terminal blocks.

Applications

The Plant Controller's sequence of operation and BACnet image are fully programmable using WorkPlace Tech Tool, and can be applied to a wide range of mechanical equipment. Typical applications include central station air handlers, VAV air handlers, and cooling towers.

Connectivity

The MicroNet BACnet Plant Controller can function either in a standalone mode or as part of a BACnet building automation system (BAS) network.

Features—

- The MicroNet BACnet Plant Controller's sequence of operation and BACnet image are fully programmable using WorkPlace Tech Tool.
- Capability to function in standalone mode or as part of an I/A Series building automation network.
- Extensive BACnet object and services support provides robust BAS integration and optimum use of network bandwidth.
- Integral MS/TP jack for direct connection of PC with WorkPlace Tech Tool Suite.
- Optional plenum-rated enclosure.
- DIP switch addressable.
- Service pin button for BACnet "I am" message broadcast.
- Isolated RS-485 transceiver for MS/TP communications.
- MS/TP baud rate selection from 9.6 up to 76.8 kbaud.
- LED indication of MS/TP and Ethernet IP communication activity, controller status, DO state, and UO state.
- Application-programmable LED provides on/off indication of a user-defined application parameter.
- Firmware upgradeable over the network.
- Non-volatile storage of point history data and unconfirmed alarms.
- 72 hour, battery-backed real time clock.



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Table-1 Model Chart.

Model	Inputs and Outputs			
	UI	DI	UO	DO (Triac)
MNB-1000	12	4	8	8

Hardware Specifications

Dimensions 10-15/16 in. H x 8-3/8 in. W x 2-9/32 in. D (277 mm x 213 mm x 58 mm).

Enclosure Conforms to NEMA-1. Meets UL 94-5V flammability ratings for plenum application use.

Mounting Panel mount.

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

Power Consumption 50 VA at 24 Vac.

Agency Listings

UL-916 File #E9429 Category PAZX.

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

FCC Part 15 Class A.

Australian Meets requirements to bear the C-Tick Mark.

European Community – EMC Directive 89/336/EEC
EN61326

Ambient Limits

Temperatures

Operating -40 to 140 °F (-40 to 60 °C).

Shipping and Storage -40 to 160 °F (-40 to 71 °C).

Humidity 5 to 95% non-condensing.

Wiring Terminals (Figure-1)

MS/TP Removable screw terminals; single AWG #14 (2.08 mm²) wire or up to two AWG #18 (0.823 mm²) or smaller wires.

Power Removable screw terminals; up to two AWG #14 (2.08 mm²) or smaller wires.

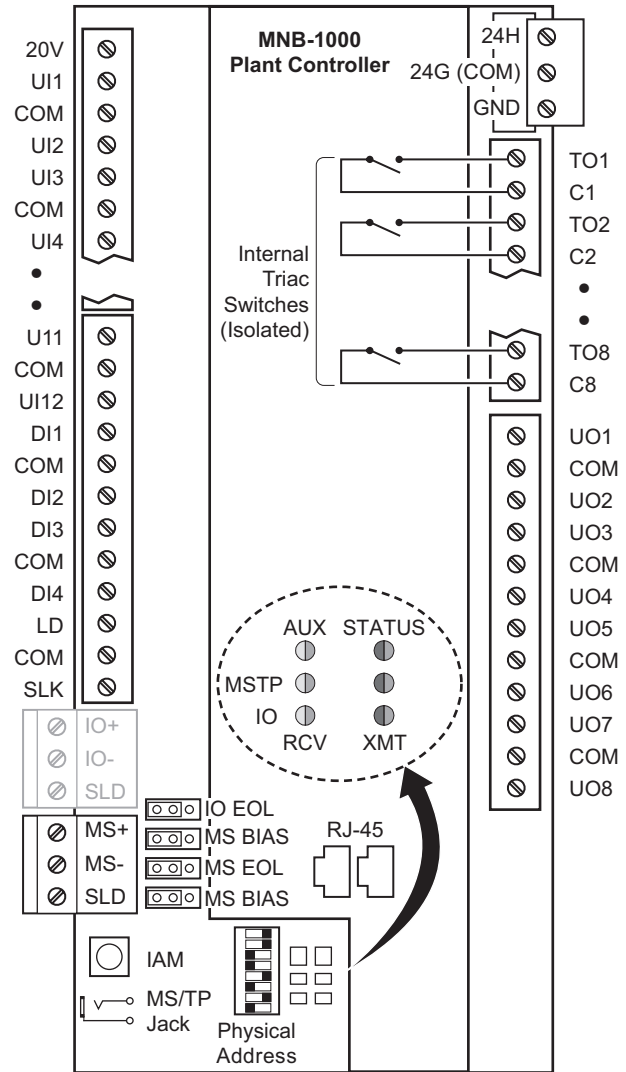


Figure-1 Plant Controller Terminals.

Inputs from MN-Sx MicroNet™ Sensor

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

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

Local Setpoint Adjustable within limits set by application programming tool.

Override Pushbutton For standalone occupancy control.

Fan Operation and Speed Mode On/off, speed (low/medium/high), or auto.

System Mode Heat, cool, off, or auto.

Emergency Heat Enable or disable.

Universal Inputs (12) Universal Input characteristics are software-configured to respond to one of the following input types:

10 k Ω Thermistor with 11 k Ω Shunt Resistor

Sensor operating range -40 to 250 °F (-40 to 121 °C), Invensys model TSMN-57011-850, TS-5700-850 series, or equivalent.

1 k Ω Balco -40 to 250 °F (-40 to 121 °C), Invensys model TSMN-81011, TS-8000 series, or equivalent.

1 k Ω Platinum -40 to 240 °F (-40 to 116 °C), Invensys model TSMN-58011, TS-5800 series, or equivalent.

1 k Ω Resistive 0 to 1500 Ω .

10 k Ω Resistive 0 to 10.5 k Ω .

Analog Voltage Range 0 to 5 Vdc.

Analog Current Range 0 to 20 mA; requires external 250 Ω shunt resistor (AD-8969-202).

Digital Dry switched contact; detection of closed switch requires less than 300 Ω resistance; detection of open switch requires more than 1.5 k Ω .

Standard Pulse Input

Minimum Rate 1 pulse per 4 minutes.

Maximum Rate 1 pulse per second.

Digital Inputs (4)

Dry Switched Contact detection of closed switch requires less than 300 Ω resistance; detection of open switch requires more than 1.5 k Ω .

Fast Pulse Input

Minimum Rate 1 pulse per 4 minutes.

Maximum Rate 10 pulses per second.

Universal Outputs (8)

0 to 20 mA Output load from 80 to 550 Ω .

0 to 10 V With external 500 Ω , 1/2 W, 1% resistor.

Capable of Driving Functional Devices RIBUI1C Relay UO configured for 0 to 20 mAdc, no external resistor.

Digital Outputs – Triac (8) 12 VA at 24 Vac, 50/60 Hz, each output individually isolated.

20 Vdc Output 20 Vdc \pm 10% at 100 mA.

Communications

BACnet Networks The MicroNet BACnet Plant Controller incorporates an isolated RS-485 transceiver for BACnet MS/TP communications at 9.6 up to 76.8 kbaud using standard MS/TP wiring methods. Up to 128 devices can be connected to an MS/TP sub-net without repeaters.

Ethernet Dual 10/100 Ethernet ports with modular RJ-45 jacks.

S-Link The Sensor Link (S-Link) communications wiring provides power and a communication interface for one 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 S-Link bus length is 200 ft (61 m).

BACnet Compliance

Conformance Class BACnet Application Specific Device (B-ASD).

Options

MNB-1000-ENC: Wall-mount enclosure

S-Link Sensors: Temperature and humidity wall sensors with digital communication

TSMN Series: Wall sensors

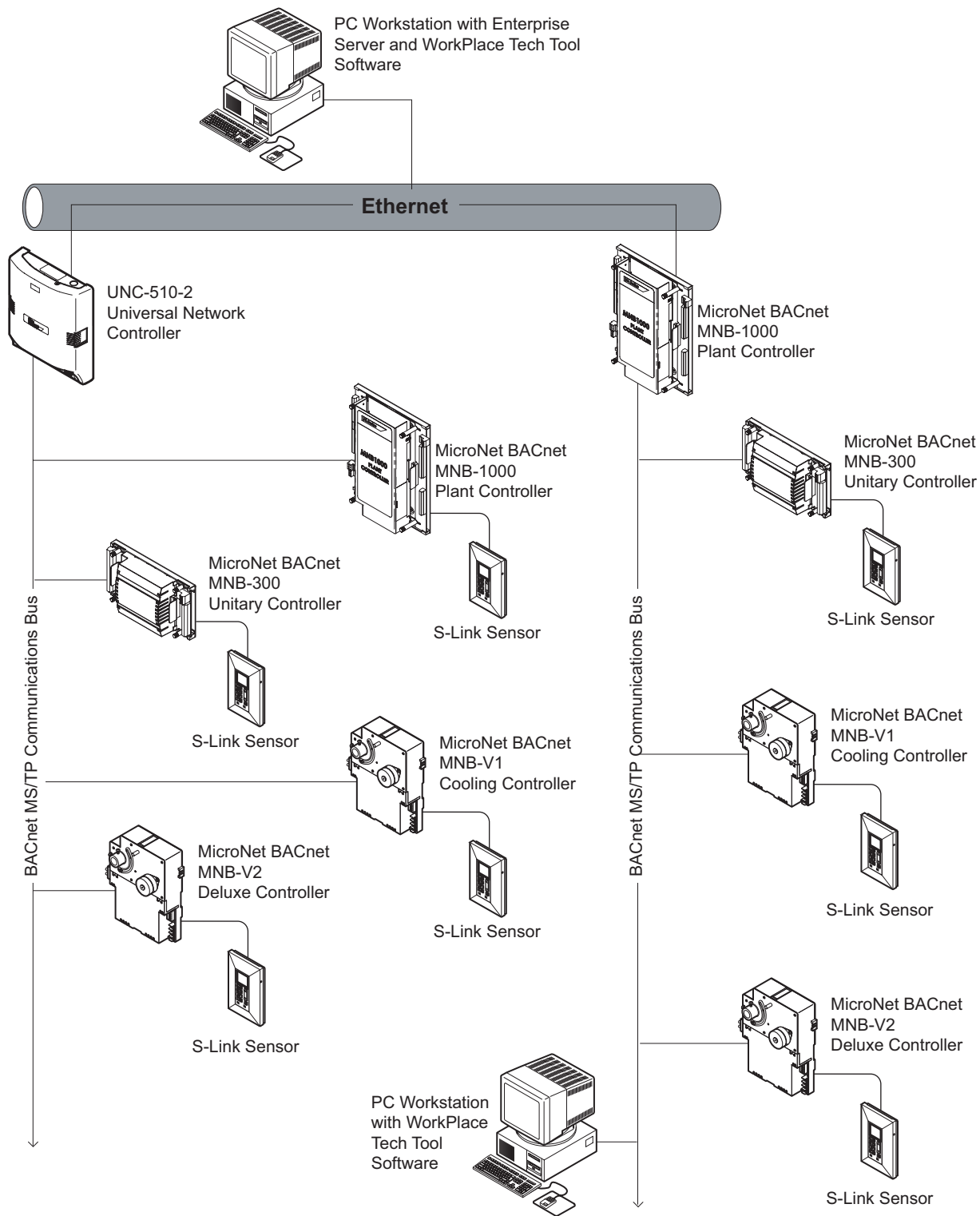


Figure-2 I/A Series BACnet Topology.

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