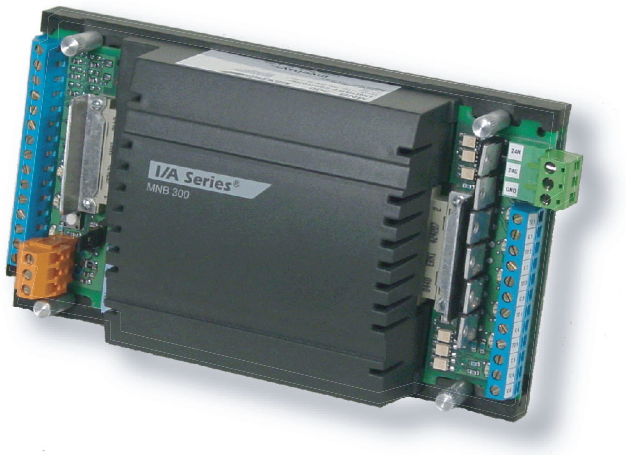
I/A Series®

MicroNet BACnet™ Unitary Controller



The I/A Series MicroNet BACnet Unitary 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, screw terminal blocks, as well as a panel mount sub-base with removable electronics module.

Applications

When programmed using WorkPlace Tech Tool, the Unitary controller provides a wide range of control strategies for packaged rooftop, heat pump, fan coil, unit ventilator, and similar applications.

Connectivity

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

Features—

- The MicroNet BACnet Unitary Controller's sequence of operation and BACnet image are fully programmable using WorkPlace Tech Tool. The controllers can be applied to all common unitary HVAC applications.
- 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.
- Removable electronics module mates with panel-mounted subbase.
- Optional plenum-rated enclosure.
- DIP switch addressable.
- Service pin button for BACnet "I am" message broadcast.
- Removable terminals for power and communications to facilitate commissioning.
- 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 communication activity, controller status, and UO and DO state.
- Firmware upgradeable over the network.
- Non-volatile storage of point history data and unconfirmed alarms.

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Table-1 Model Chart.

Model	Inputs and Outputs		
	UI	UO	DO (Triac)
MNB-300	6	3	6

Hardware Specifications

Dimensions 3-15/16 in. H x 7 in. W x 2-3/16 in. D (100 mm x 178 mm x 56 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 16 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)

I/O Points Fixed Screw terminals; up to two AWG #14 (2.08 mm^2) or smaller wires.

Power and MS/TP Removable screw terminals; single AWG #14 (2.08 mm^2) wire or up to two AWG #18 (0.823 mm^2) or smaller wires.

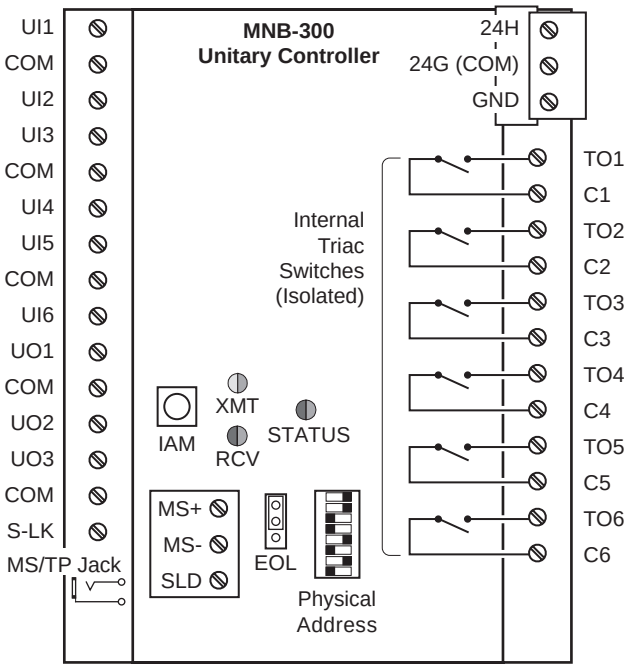

Figure-1 Unitary Controller Terminals.

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

10 kΩ Thermistor with 11 kΩ 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 kΩ Balco -40 to 250 °F (-40 to 121 °C), Invensys model TSMN-81011, TS-8000 series, or equivalent.

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

1 kΩ Resistive 0 to 1500 Ω.

10 kΩ Resistive 0 to 10.5 kΩ.

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 kΩ.

Standard Pulse Input (UI1-UI6)

Minimum Rate 1 pulse per 4 minutes.

Maximum Rate 1 pulse per second.

Fast Pulse Input (UI1)

Minimum Rate 1 pulse per 4 minutes.

Maximum Rate 10 pulses per second.

Digital Outputs – Triac (6) 12 VA at 24 Vac, 50/60 Hz, each output individually isolated.

Universal Outputs (3)

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.

Communications

BACnet Networks The MicroNet BACnet Unitary 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.

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-300-ENC: Wall-mount enclosure

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

TSMN Series: Temperature wall sensors

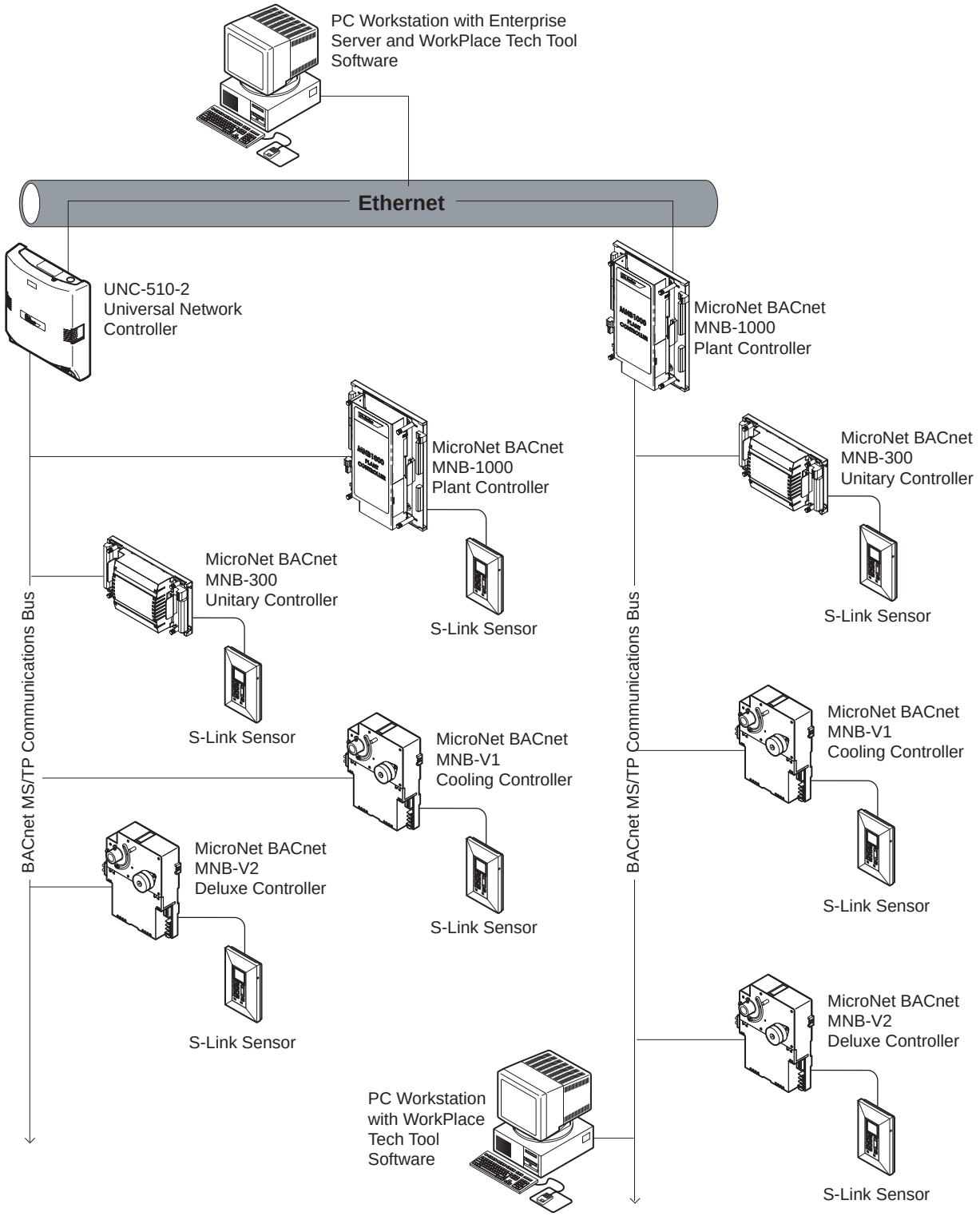

Figure-2 I/A Series BACnet Topology.