MNB-300 BACnet Unitary Controller

I/A Series Micronet MNB-300
The TAC I/A Series™ MicroNet™ MNB-300 BACnet™ Unitary Controller is an interoperable controller with native BACnet 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.

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.

Stand Alone or Connected
The TAC I/A Series BACnet Unitary Controller can function either in a standalone mode or as part of a BACnet building automation system (BAS) network.

SPECIFICATIONS

HARDWARE
Dimensions
7.0 in. W x 3.94 in. H x 2.19 in. D
(178 mm x 100 mm x 56 mm)

Enclosure
Optional wall-mount enclosure conforms to NEMA-1 requirements.
Cover meets UL94V-0 flammability ratings.

Mounting
Panel mount.

Wiring Terminals
I/O Points
Fixed screw terminals: up to two AWG #14 (2.08 mm²) or smaller wire.

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

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

Maximum Power Consumption
16 VA at 24 Vac.

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
UL 864, Category UUKL, File #S5381 Smoke-Control Equipment

Canadian
UL Listed to Canadian Safety Standards (CAN/CSA 22.2)
CUL Listed to Standards ULC/ORD-C100-92 (Smoke Control System Equipment) and CAN-ULC-S527 (Control Units for Fire Alarm Systems)

Australian
Meets requirements to bear the C-Tick Mark

European Community
EMC Directive 89/336/EEC, EN61326

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

10k ohm Thermistor w/ 11k ohm Shunt Resistor
Sensor operating range -40 to 250 °F (-40 to 121 °C) range. TSMN-57011-850, TS-5700-850 Series or equivalent.

Specifications continued on next page.
Specifications continued from first page.

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 ohm Resistive
0 to 1.5k ohms.

10k ohm Resistive
0 to 10.5k ohms.

Analog Voltage
0 to 5 Vdc.

Analog Current
Range 0 to 20 mA, requires an external 250 ohm shunt resistor (AD-8969-202).

Digital Input
Dry switched contact. Detection of closed switch requires less than 300 ohms. Detection of open switch requires more than 2.5k ohms.

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)
  - Current
    0 to 20 mA (output load from 80 to 550 ohms).
  - Voltage
    0 to 10 V (with external 500 ohms, 1/2 W, 1% resistor).

Capability to Drive Functional Devices
RIBU1C Relay (UO configured for 0 to 20 mAdc, no external resistor).

COMMUNICATIONS

BACnet Networks
The TAC I/A Series MicroNet BACnet Unitary Controller incorporates an isolated EIA-485 (formerly 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 TAC I/A Series MicroNet BACnet controllers 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 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
BACnet Application Specific Controller (B-ASC).

FEATURES
- The TAC I/A Series 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 a TAC I/A Series building automation network.
- Integral MS/TP jack for direct connection of PC with WorkPlace Tech Tool.
- Removable electronics module mates with panel-mounted subbase.
- Removable terminals for power and communications to facilitate commissioning.
- Optional rugged, NEMA 1 plenum-rated sheet metal enclosure.
- MS/TP DIP switch addressable.
- Service pin button for BACnet “I am” message broadcast.
- Isolated EIA-485 (formerly 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.
- Support for S-Link Sensor.

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### Inputs from MN-SX I/A Series Micronet Sensors

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Description</th>
<th>MN-Sx Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Temperature</td>
<td>32 to 122 °F (0 to 50 °C)</td>
<td>MN-S1, MN-S1HT, MN-S2, MN-S2HT, MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S4FCS, MN-S4HTFCS, MN-S5 and MN-S5HT</td>
</tr>
<tr>
<td>Space Humidity</td>
<td>5 to 95% RH, Non-condensing</td>
<td>MN-S1HT, MN-S2HT, MN-S3HT, MN-S4HT, MN-S4HTFCS, and MN-S5HT</td>
</tr>
<tr>
<td>Adjustable Setpoint</td>
<td>Adjustable within limits set by application programming tool</td>
<td>MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S4FCS, MN-S4HTFCS, MN-S5, and MN-S5HT</td>
</tr>
<tr>
<td>Override Pushbutton</td>
<td>For standalone occupancy control or occupancy override</td>
<td>MN-S2, MN-S2HT, MN-S3, MN-S3HT, MN-S4, MN-S4HT, MN-S5, and MN-S5HT</td>
</tr>
<tr>
<td>Fan Operation and Speed</td>
<td>Fan mode selection: On/Off, Speed (Low/Medium/High), or Auto</td>
<td>MN-S4, MN-S4HT, MN-S4FCS, MN-S4HTFCS, MN-S5, and MN-S5HT</td>
</tr>
<tr>
<td>System Mode</td>
<td>System mode selection: Heat, Cool, Off, or Auto</td>
<td>MN-S4, MN-S4HT, MN-S5, and MN-S5HT</td>
</tr>
<tr>
<td>Emergency Heat</td>
<td>Emergency heat mode selection: Enable or Disable</td>
<td>MN-S5 and MN-S5HT</td>
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### Models

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Inputs/Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNB-300</td>
<td>TAC I/A Series MicroNet BACnet Unitary Controller</td>
<td>6 3 6</td>
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### Accessories

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<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MNB-300-ENC</td>
<td>Wall-mount enclosure</td>
<td>S-Link Sensors</td>
<td>Temperature and humidity wall sensors with digital communication</td>
</tr>
<tr>
<td>MNB-BASE-300</td>
<td>Controller base assembly only</td>
<td>TSMN Series</td>
<td>Room temperature sensors</td>
</tr>
<tr>
<td>MNB-CNTLR-300</td>
<td>Controller cover assembly only</td>
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