

MNB-1000 Data Sheet

I/A Series®

TAC MicroNet BACnet™ Plant Controller

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

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.

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

Communications

BACnet Networks

The TAC MicroNet BACnet Plant Controller incorporates a fully functional BACnet router between its 3 fully configurable communications ports.

MS/TP

Isolated RS-485 transceiver, providing support for up to 128 MS/TP devices communicating at 9.6 up to 76.8 kbaud using standard MS/TP standard wiring methods.

Ethernet/IP

Dual 10/100 Ethernet ports with modular RJ-45 jacks. Both ports are set to be an Ethernet Bridge, saving on network wiring.

BACNET Ethernet

Standard BACnet Ethernet communications.

BACnet/IP

Communications choices are Standard BACnet/IP, BBMD, or Foreign Device.

S-Link

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

Options

MNB-1000-ENC Wall-mount enclosure

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

TSMN Series Room temperature sensors

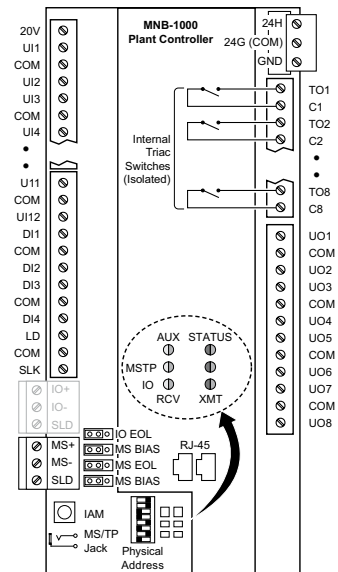


Figure-1 Plant Controller Terminals.

Features

- » The TAC 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 TAC I/A Series building automation network.
- » Integral MS/TP jack for direct connection of PC with WorkPlace Tech Tool Suite.
- » Optional plenum-rated enclosure.
- » MS/TP 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.
- » 72 hour, battery-backed real time clock.
- » BBMD, remote connectivity across subnets.
- » IP/Ethernet bridge.
- » BACnet router functionality.

Specifications

Hardware Specifications

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

Enclosure - Optional 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.

Agencency Listings

US - UL 916, File #E9429 Category PAZX FCC Part 15, Class A.

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

Australian - Meets requirements to bear the C-Tick Mark.

European Community - EMC Directive 89/336/EEC EN61326

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% 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.

Inputs from MN-Sx TAC 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.

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 ohm Thermistor with 11 k ohm Shunt Resistor

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

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

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

1 k ohm Resistive - 0 to 1500 ohms.

10 k ohm Resistive - 0 to 10.5 k ohms.

Analog Voltage - Range 0 to 5 Vdc.

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

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

Digital Inputs (4)

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

Digital Output – Triac (8)

12 VA at 24 Vac, 50/60 Hz, each output individually isolated.

Universal Outputs (8)

0 to 20 mA - Output load from 80 to 550 ohms.

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

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

20 Vdc Output

20 Vdc ±10% at 100 mA.