MicroNet

BACnet Remote I/O Module

The TAC I/A Series® MicroNet™ BACnet™ Remote I/O Module is designed to be an extension of the MNB-1000 Plant Controller, so as to expand the controller's I/O count.

When programmed using WorkPlace Tech Tool, each module increases the count by 15 inputs and outputs. Up to eight modules can be connected to a given MNB-1000 controller, for a potential increase of 120 I/O points, total. In this way, the controller's existing 32 onboard I/O can be expanded to 47 I/O points (with one module), up to a maximum total of 152 I/O points (with eight modules).

The Remote I/O Module features: LED indication of compatibility, communication status, and output indication; screw terminal blocks; a panel-mount sub-base with removable electronics module; a fallback I/O function; a DIP switch for addressing; and automated, over-the-network firmware upgrades.

SPECIFICATIONS

HARDWARE

Dimensions
3-15/16 H x 7 W x 2-3/16 D in
(100 x 178 x 56 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
16 VA at 24 Vac.

AGENCY LISTINGS

US
UL 916, File #E71385 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

I/O Points
Fixed screw terminals; single AWG #14 (2.08 mm^2) wire or up to two AWG #18 (0.823 mm^2) or smaller wires.

Remote I/O
Removable screw terminals; single AWG #14 (2.08 mm^2) wire or up to two AWG #18 (0.823 mm^2) or smaller wires.

Power
Removable screw terminals; up to two AWG #14 (2.08 mm^2) or smaller wires.

Specifications continued on next page.

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Specifications continued from first page.

UNIVERSAL INPUTS (6)

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

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

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

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

1k ohm Resistive
0 to 1500 ohms.

10k ohm Resistive
0 to 10.5k 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 2.5k ohms.

Standard Pulse Input (UI1-UI6)
Minimum Rate
1 pulse per 4 minutes.
Maximum Rate
1 pulse 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 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.

MODEL

Model	Description	Inputs and Outputs		
		UI	UO	DO (Triac)
MNB-1000-15	Remote I/O Module	6	3	6

OPTIONS

MNB-BASE-15	Controller Base Assembly Only
MNB-CNTLR-15	Controller Cover Assembly Only
MNB-300-ENC	Wall-mount Enclosure
TSMN Series	Room Temperature Sensors

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FEATURES

- Removable electronics module mates with panel-mounted subbase.
- Optional NEMA 1 enclosure.
- Removable terminals for power and communications, to facilitate commissioning.
- LED indication of compatibility, UO and DO (TO) state, and communication state (with the MNB-1000 controller).
- Fallback I/O function, in case of loss of communication between the Remote I/O Module and the MNB-1000 controller.
- DIP switch addressable (the MNB-1000 controller has a fixed address on the remote I/O network).
- Firmware upgraded automatically whenever the connected MNB-1000 controller's firmware is upgraded. Also, when a Remote I/O Module is physically connected to the MNB-1000 controller, its firmware is automatically upgraded if needed.

COMMUNICATIONS

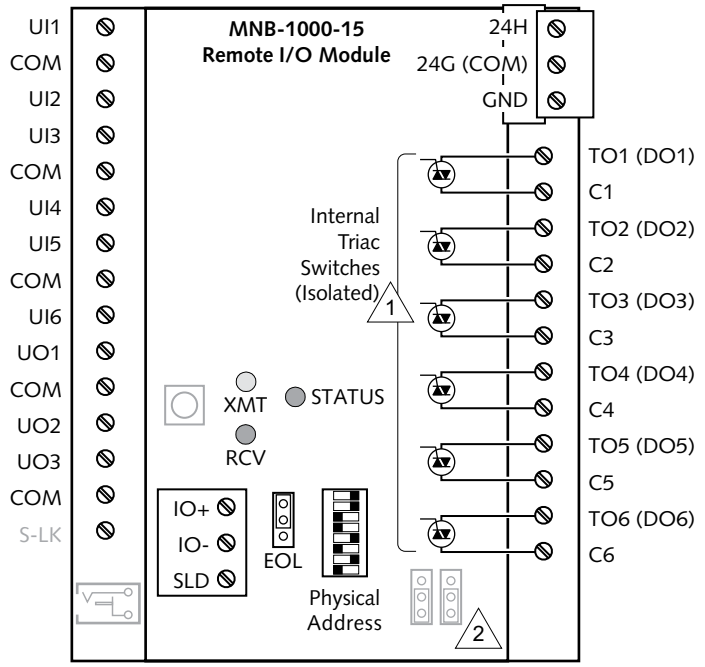
Remote I/O

The remote I/O communications wiring provides an interface between the MNB-1000-15 Remote I/O Module and the MNB-1000 Plant Controller.

I/O Fallback Function

The Remote I/O Module's outputs are driven directly by the MNB-1000 Plant Controller, in which the application resides. If communications between the module and the controller is lost, the module's outputs are set to fallback values that were previously sent to the module during normal communications.

REMOTE I/O MODULE TERMINALS



1 AC voltage for Triac switches must be supplied externally.

2 Bias for the remote I/O network is provided by the permanently enabled, built-in bias resistors on the MNB-1000 controller. The jumper-set bias resistors located under the cover of the Remote I/O Module are set to "Disabled" at the factory, and are not to be used for this purpose.

General Notes:

- Components are shown in their approximate locations.
- Features shown in gray, although present, are not used in the Remote I/O Module.

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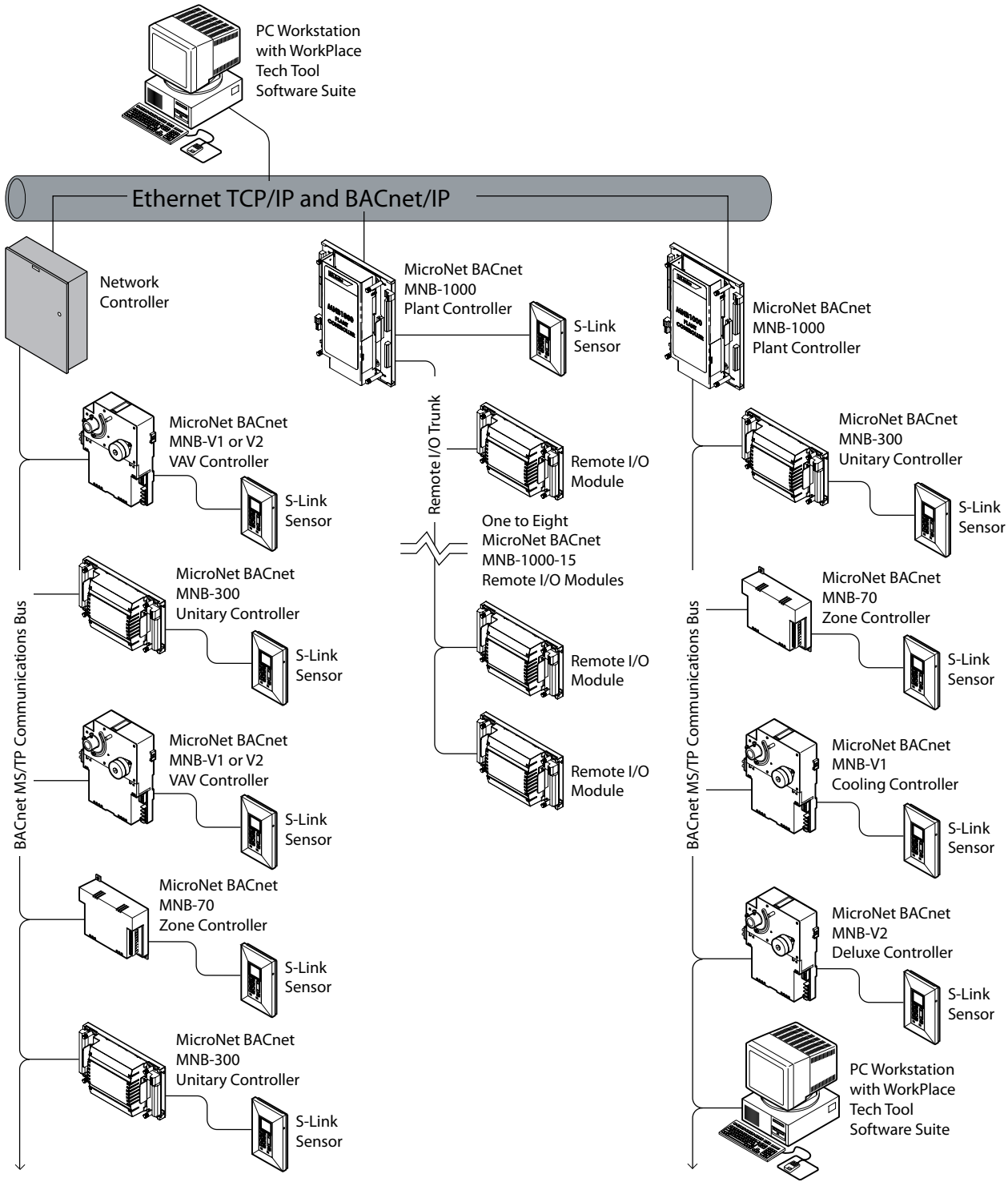
ARCHITECTURE



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