MNB-VXXX
Data Sheet

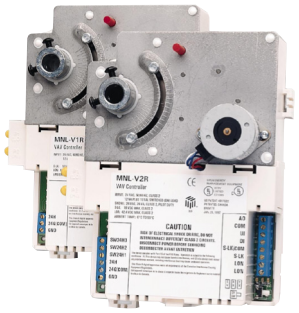
I/A Series®

Overview

The I/A Series MicroNet BACnet VAV (Variable Air Volume) Controllers are interoperable controllers with native BACnet, IP, and MS/TP communications support. All models incorporate: an integral actuator with manual override; an integral, patented, pressure transducer; three universal inputs; Sensor Link (S-Link) support; LED status indication; and over-the-shaft damper mounting. See the model chart (Figure-1) for optional features.

When programmed using WorkPlace Tech Tool, the controllers provide a wide range of control strategies for pressure-dependent and pressure-independent terminal boxes with or without reheat capabilities.

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



Designed for new or existing systems, the VAV series controllers may be applied to pressure independent terminal boxes with, or without, reheat capabilities.

Communications

BACnet Networks

The MicroNet BACnet VAV controllers incorporate 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 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 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

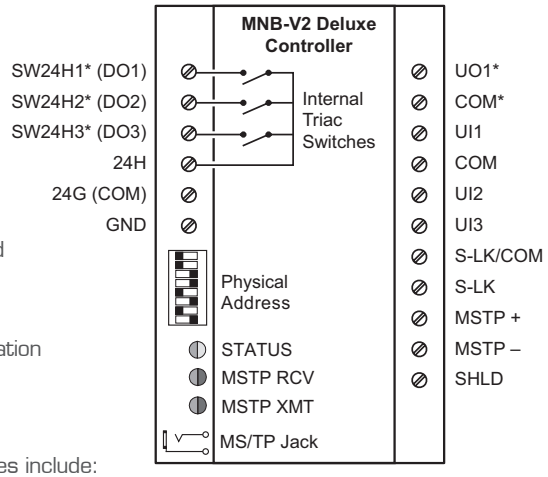
BACnet Application Specific Device (B-ASD).

Options

MNA-FLO-1 MicroNet™ enclosure, used if wiring to flexible conduit is required

MNB-BAL Flow Balance software

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



* Asterisks indicate terminals that apply to the MNB-V2 controller but not to the MNB-V1.

Flow Balancing

Provides flow balancing for networked and standalone VAV controllers. Features include:

- Local network control.
- Damper and fan adjustment.
- Setpoint monitoring and adjustment.
- Flow validation and calibration (two-point calibration).
- Sequence, calibration, and control setpoint log

Specifications

Hardware Specifications

Dimensions - 7-3/4 H x 6-1/4 W x 2-1/2 D in (197 x 159 x 63 mm).

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

Mounting - Shaft mount.

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

Power Consumption - 15 VA at 24 Vac plus DO loads.

Agencncy 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/EMC

EN61326

Ambient Limits

Operating Temperature - 32 to 131 °F (0 to 55 °C).

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

Humidity - 5 to 95% non-condensing.

Wiring Terminals

Fixed Screw terminals - single AWG #14 (2.08 mm2) wire or up to two AWG #18 (0.823 mm2) or smaller wires.

Velocity Pressure Input

Control Range - 0.004 to 1.5 in. of W.C.

Over Pressure Withstand - ±20 in. of W.C.

Accuracy - ±5% at 1.00 in. of W.C. with laminar flow at 77 °F (25 °C) and suitable flow station.

Sensor Type - Self-calibrating flow sensor (differential pressure).

Tubing Connections - Barb fittings for 0.170 in. I.D. FRPE polyethylene tubing or 1/4" O.D./0.125" I.D. Tygon® tubing (high and low pressure taps).

Tubing Length - 5 ft. (1.52 m) maximum, each tube.

Inputs from MN-Sx I/A Series MicicroNet 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

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), 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 W 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.

Standard Pulse Input Minimum Rate - 1 pulse per 4 minutes.

Maximum Rate - 1 pulse per second.

Actuator Outputs

Torque Rating - 53 lb-in. (6 N-m).

Stroke - Fully adjustable from 0° to 90°.

Timing - Approximately 3 minutes at 60 Hz (3.6 minutes at 50 Hz) for 90° rotation at 24 Vac.

Position Indication - Provides a visual indication of position.

Manual Override - Pushbutton to allow manual positioning of the damper.

Damper Linkage - 1/2 in. (12.75 mm) or 3/8 in. (9.5 mm) diameter round shaft extending 7/8 in. (22.23 mm) minimum from terminal box. 3/8 in. (9.5 mm) diameter shaft requires AM-135 adapter kit.

Digital Outputs – Triac

DO1 plus DO2 Rating - 24 VA total at 24 Vac, 50/60 Hz, high side switching.

DO3 Rating - 12 VA at 24 Vac, 50/60 Hz, high side switching.

Universal Output

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

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

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

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