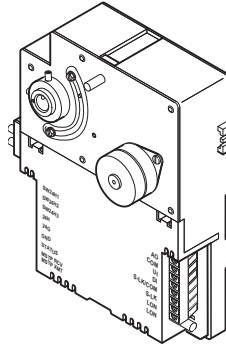


### Application

The TAC I/A Series® MicroNet™ BACnet™ VAV (Variable Air Volume) Controllers are interoperable controllers with native BACnet 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, below, for optional features.



- Spacer or shim for anti-rotation bracket (if needed)
- One #10 sheet metal screw for anti-rotation bracket
- Class 2 power transformer supplying a nominal 24 Vac, sized appropriately for the controller (15 VA) plus the anticipated Digital Output (DO) loads. In European Community, transformer must conform to EN 60742
- 0.170 in. (4.3 mm) I.D. FRPE polyethylene tubing or 0.125 in. (3.2 mm) I.D. Tygon® tubing for piping connections. Not more than 5 ft (1.52 m) long.

### Location

The MNB-Vx controllers are suitable for indoor use only.

### Caution:

- Avoid locations where excessive moisture, corrosive fumes, vibration, or explosive vapors are present.
- Avoid electrical noise interference. Do not install near large contactors, electrical machinery, or welding equipment.
- Locate where ambient temperatures do not exceed 131°F (55°C) or fall below 32°F (0°C) and relative humidity does not exceed 85% or fall below 5%, non-condensing.

### Model Chart

Model Number	Inputs and Outputs		
	UI	UO	DO (Triacs)
MNB-V1	3	0	0
MNB-V2	3	1	3

### Installation

#### Inspection

Inspect carton for damage. If damaged, notify carrier immediately. Inspect controllers for damage upon receipt.

#### Requirements

- Installer must be a qualified technician

The following items are *not provided*.

- Job wiring diagrams
- Tools:
  - 1/8 inch allen wrench
  - Screw drivers
  - 1/4 inch hex driver for travel adjustment screws
  - Pliers for turning damper shafts
  - Digital Volt-ohm meter (DVM)
  - Drill and bits for mounting screw
  - Static protection wrist strap
  - Torque wrench (capable of measuring at least 70 lb-in (8 N-m))
- MNA-FLO-1 enclosure for connecting to conduit (optional)
- AM-135, 3/8 in. (9.5 mm) to 1/2 in. (12.8 mm) shaft adapter (optional)
- MS/TP trunk end-of-line termination resistor kit, 120 Ω ±5%, part number 40-1758.

Mounting location must clear the maximum dimensions of the controller case and allow the controller to be mounted flush to the surface of the terminal box and perpendicular to the damper shaft.

### Dimensions

Mounting dimensions are shown in Figure-1.

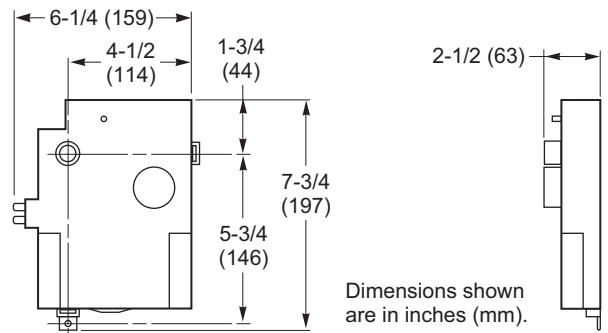


Figure-1 MNB-Vx Mounting Dimensions.

# Precautions



## General

---

**Warning:** Electrical shock hazard! Disconnect power before installing or removing the cover.

---

- Follow Static Precautions (below) when installing this equipment.
- Use copper conductors that are suitable for 167°F (75°C).
- Make all connections according to electrical wiring diagram, national and local electrical codes.

## Static Precautions

Static charges damage electronic components. The microprocessor and associated circuitry are extremely sensitive to static discharge. Use the following precautions when installing, servicing, or operating the system.

- Work in a static-free area.
- Discharge static electricity by touching a known, securely grounded object.
- Use a wrist strap connected to earth ground when handling the controller's printed circuit board.

## Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

## Canadian Department of Communications (DOC)

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

## European Community Directives

This equipment meets all requirements of European Community Directives for Low Voltage (72/23/EEC), General Safety (92/59/EEC), and Electromagnetic Compatibility (89/336/EEC).

# Mounting

Mount the controller to the damper according to the instructions in Figure-2.

**Warning:** Electrical shock hazard! Disconnect power before installing or removing the cover.

① Slide the controller onto the damper shaft and mount the controller as shown, making sure it is on a plane that is perpendicular to the damper shaft. See notes ① through ④.

② Turn the damper shaft to the full CCW (closed) position.

**For CW (closed) position,** turn the damper shaft fully CW.

① Check that the position selected for the mounting hole does not interfere with the operation of the damper.

② Some terminal boxes have sheet metal screw heads or other protrusions near the damper shaft. In these cases, add a spacer or shim (not provided) under the controller's anti-rotation bracket to make the controller perpendicular to the shaft.

③ The anti-rotation bracket is pre-installed in the controller slot when shipped.

④ **Caution:** Use the anti-rotation bracket when direct-mounting the controller onto a damper shaft. Do not rigidly mount the controller to the damper. Position the anti-rotation bracket so that the controller can float, to ensure that the controller's output shaft can turn freely through its full stroke, without binding.

⑤ If necessary, loosen and slide the CW travel adjustment screw to the desired position, and then tighten the screw.

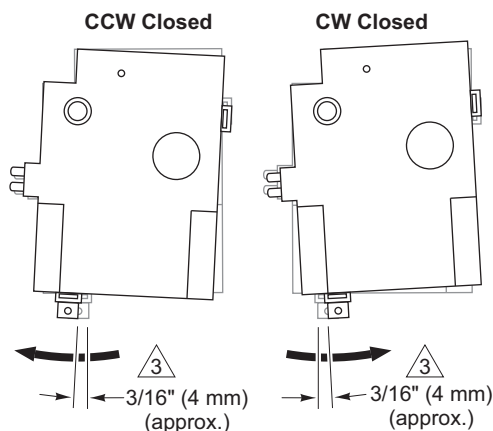
**For CW (closed) position,** reposition the CCW travel adjustment screw.

⑥ If preloading the damper for closed position is required, set the controller as follows:

- Rotate the controller CW approximately 3/16" (4 mm) off the centerline of the damper (see view below) and then tighten the output shaft set screws 60 - 70 lb-in. (6.8 - 7.9 N-m), using an 1/8" allen wrench.

**For CW (closed) position,** rotate the controller CCW (see view below).

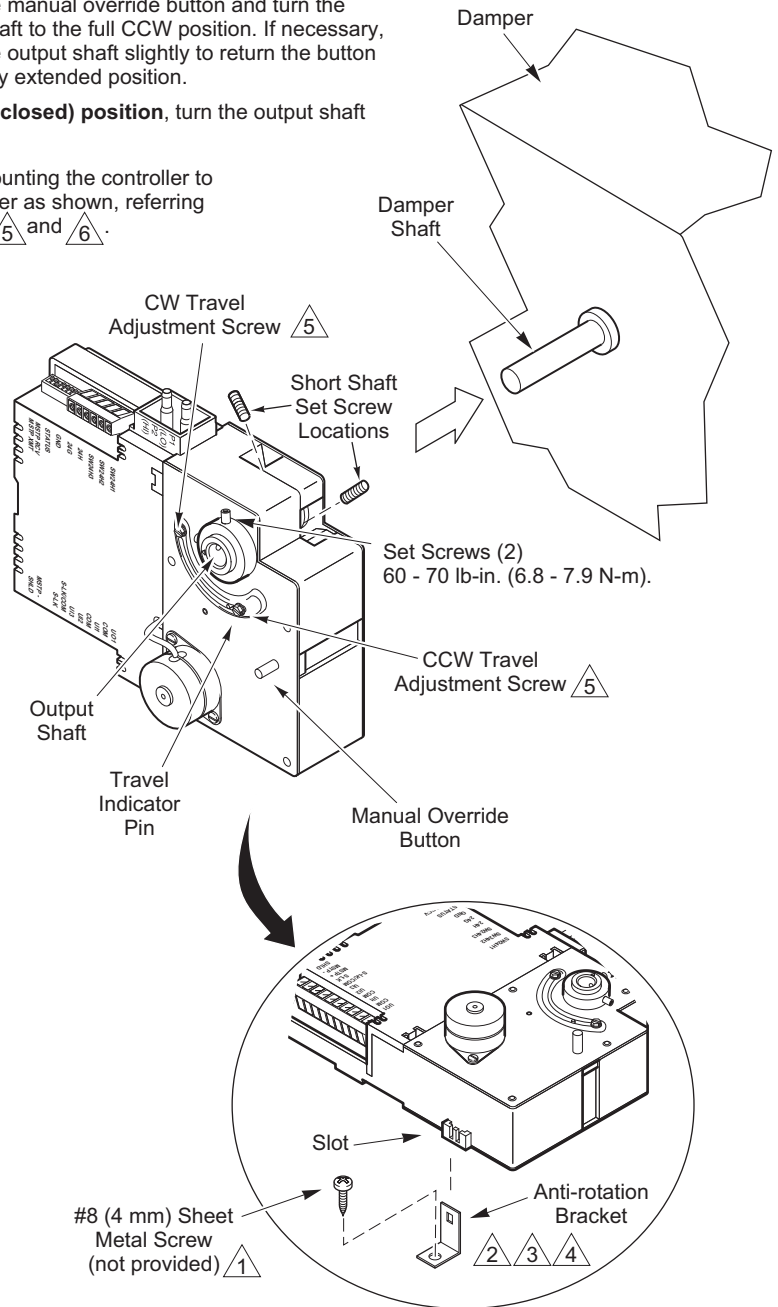
- Rotate the controller back into alignment with the centerline of the damper. This should ensure closure of the damper.



③ Press the manual override button and turn the output shaft to the full CCW position. If necessary, rotate the output shaft slightly to return the button to the fully extended position.

**For CW (closed) position,** turn the output shaft fully CW.

④ Finish mounting the controller to the damper as shown, referring to notes ⑤ and ⑥.



⑤ When finished, verify free movement of the damper as follows:

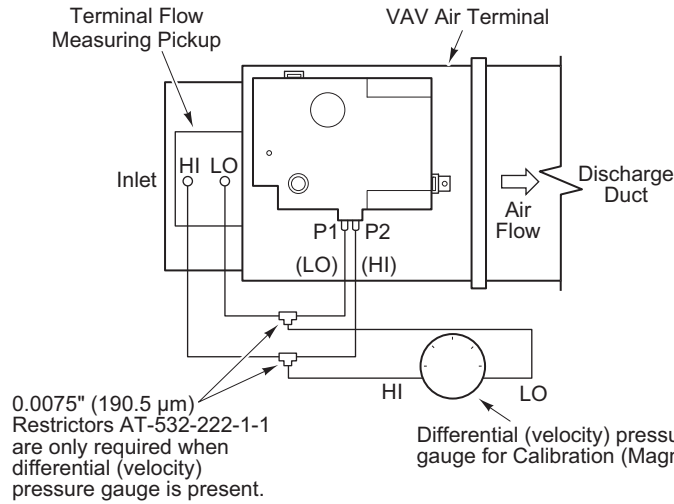
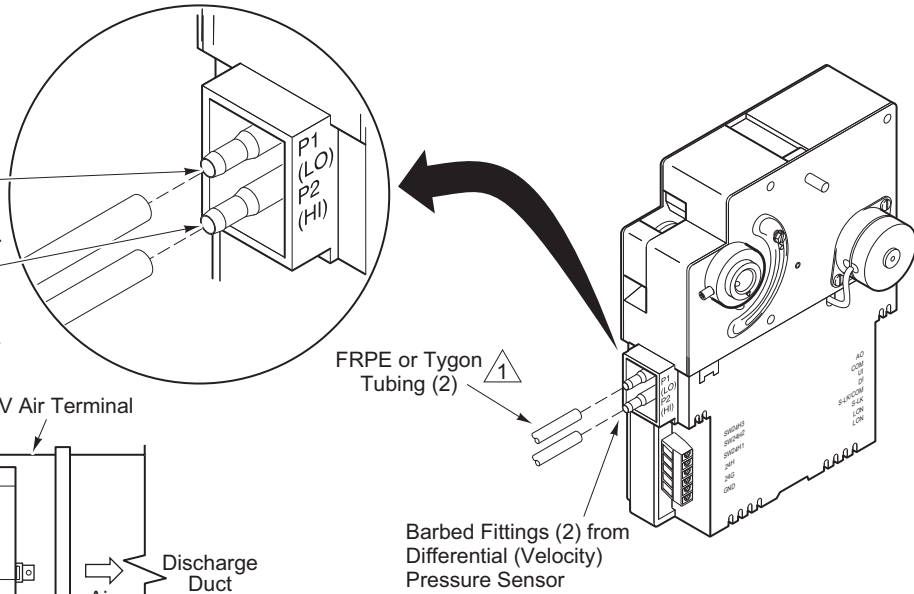
- Press and hold the manual override button.
- Verify that the damper can be freely positioned between full open and full closed. There must be no binding between the controller and damper, and the damper must be free of obstructions that may hinder its operation.
- Release the manual override button. If the button does not fully extend, it will do so automatically once power is applied to the controller. The button may also be made to fully extend by rotating the output shaft slightly.

Figure-2 MNB-Vx Damper Mounting.

## Differential (Velocity) Pressure Sensor Connections

Connect the MNB-Vx controller's built-in pressure sensor to the VAV terminal as shown in Figure-3.

- ① Remove the plastic caps from the barbed fittings.
- ② Connect the tubing to the two barbed fittings on the controller.
- ③ Connect the tubing from the controller's P1 fitting to the low pressure tap on the VAV terminal. <sup>②</sup>
- ④ Connect the tubing from the controller's P2 fitting to the high pressure tap on the VAV terminal. <sup>②</sup>



0.0075" (190.5  $\mu$ m) Restrictors AT-532-222-1-1 are only required when differential (velocity) pressure gauge is present.

- ① Use either 0.170 in. (4.3 mm) I.D. FRPE polyethylene tubing, or 0.125 in. (3.2 mm) I.D. Tygon tubing, for piping connections. Maximum length of tubing is 5 ft (1.52 m).
- ② Use a differential (velocity) pressure gauge to calibrate and verify that the central system is providing adequate pressure. The diagram, below, shows connections for attaching the gauge. When removing the gauge, be sure to plug the restrictors or remove them from the tubing.

Figure-3 Connection of Differential Pressure Sensor.

## Controller Addressing

### DIP Switch

Each MicroNet BACnet controller is equipped with a DIP switch for setting the controller's MS/TP network address. Once the address is set, the network is properly wired, and all routers are configured, WorkPlace Tech Tool (must be version 5.0 or greater) and other Schneider Electric tools will be able to "see" and work with all the networked BACnet devices. For guidance in assigning a DIP switch setting that will optimize system performance, refer to the *WorkPlace Tech Tool 5.0 Engineering Guide Supplement*, F-27356.

### Other BACnet Devices

The UNC and other BACnet devices on the network can work with the MicroNet BACnet controller once they are assigned unique identifiers and names. MicroNet BACnet controllers are configured in this way through the Commissioning Tool.

---

**Note:** The logical addressing of devices (i.e. the assignment of unique identifiers and names) is not a prerequisite for using Schneider Electric network management tools. It is, however, a prerequisite for using the UNC and third-party BACnet devices with MicroNet BACnet controllers.

---

### EOL Termination

If the controller is at the end-of-line on the MS/TP trunk, set termination according to the *MicroNet BACnet Wiring and Networking Practices Guide*, F-27360, using an end-of-line termination resistor kit, 120  $\Omega$   $\pm$ 5%, part number 40-1758.

## Installation Completion

Finish installing the MNB-Vx controller by performing the wiring and network configuration tasks outlined in the *MicroNet BACnet Wiring and Networking Practices Guide*, F-27360. Information covered in this Guide include:

- Communications wiring
  - MicroNet BACnet wiring
  - Sensor Link (S-Link) wiring
- Input/Output wiring
- Power supply wiring
- Mechanical hardware checkout
- Logical addressing of devices
- Configuration of routers
- Communications hardware checkout
- Troubleshooting
- A list of related documentation

## California Proposition 65



---

**Warning:** This product can expose you to chemicals including lead, which is known to the state of California to cause cancer and which is known to the state of California to cause birth defects or other reproductive harm. For more information, go to <https://www.P65Warnings.ca.gov>.

---





---

All brand names, trademarks and registered trademarks are the property of their respective owners. Information contained within this document is subject to change without notice.

**Schneider Electric | Energy Management Business** [www.schneider-electric.com/buildings](http://www.schneider-electric.com/buildings)

F-27346-5

May 2019 ptm

