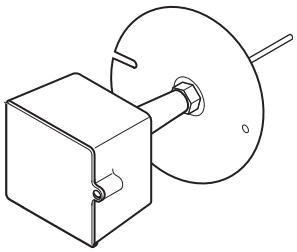
MN-SDT

MicroNet 2000 Duct/Immersion Temperature Transmitter

Application

The MicroNet 2000 Duct/Immersion Temperature Transmitter (MN-SDT) is used for electronic sensing of temperature in ducts, liquid lines, and tanks. A general purpose Digital Input (DI) is available for monitoring the status of a dry contact. The MN-SDT sends this information to MicroNet 2000 Controllers via U-Link.



Features

- Adjustable 4 to 8 in. (102 to 203 mm) stainless steel probe and wiring housing.
- Self-compensating temperature conversions eliminate the need for periodic calibration.
- Precision thermistor provides temperature measurement range of -40°F to 250°F (-40°C to 121°C).
- Digital Input (DI) provides remote contact status to Energy Management System (EMS).

Applicable Literature

- MicroNet 2000 VAV Controller Reference Manual, F-25720
- MicroNet 2000 Family Fundamentals Guide, F-25711
- Environmental Controls Reference Manual, F-21683
- Pneumatic Products Catalog, F-25683

SPECIFICATIONS

Sensing Element: See Table 1.
Output Type: Digital indication of temperature and/or Digital Input (DI) status,
Mounting: Duct or Immersion,
Ambient Temperature Limits:
Shipping & Storage, -40 to 160°F (-40 to 71°C)
Sensor Operating, -40 to 250°F (-40 to 121°C)
Electronics Operating, 32 to 158°F (0 to 70°C)
Wiring Enclosure: 3-1/2 H x 2-1/4 W x 2-1/4 D in. (89 x 57 x 57 mm) with 2-1/2" (64 mm) extension to element, 1/2" (13 mm) conduit hole on one end of enclosure
Agency Approvals: US 916 Energy Management Equipment listed, meets Canadian Standard C22.2, No. 24-93.
See Tables 1 through 3 for additional specifications.

Table-1 Model Chart.

Model	Sensing Element	Sensing Element Dimensions
MN-SDT	10KΩ thermistor, ± 0.36°F (± 0.2 C°) @ 77°F (25°C)	1/4" dia. x 4" to 8" (102 to 203 mm) adjustable length

ACCESSORIES

AT-225	Stainless steel bulb well for immersion applications (4 in.)
AT-226	Stainless steel high pressure bulb well for immersion applications (6 in.)
MNA-STAT-4	Digital input connector assembly (12 per bag)

TYPICAL APPLICATION

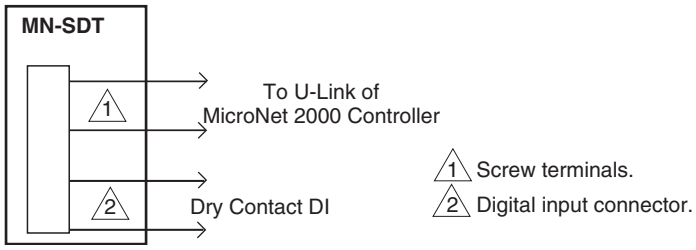


Figure-1 Functional Wiring Diagram.

INSTALLATION

Inspection

Visually inspect the carton for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the carton and visually inspect the device for obvious defects. Return damaged or defective products.

Requirements

- Job wiring diagrams
- Tools (not provided):
  - DVM (digital volt/ohm meter)
  - Appropriate drill and drill bit for mounting screws
  - Appropriate screwdrivers for mounting screws and terminal connections
  - Wire nuts for DI connector assembly
  - Wrist grounding strap
- Mounting screws, two #10 x 3/4"sheet metal screws (provided)
- Training: Installer must be a qualified, experienced technician

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Note: Use of any other sensing element is not recommended as damage to the circuitry may occur and temperature accuracy may be affected.

Precautions

General

WARNING

- Electrical shock hazard! Disconnect power before installation to prevent electrical shock or equipment damage
- Make all connections in accordance with the electrical wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.

Static

CAUTION

- Static charges produce voltages high enough to damage the electronic components. The microprocessor and associated circuitry within the MN-SDT transmitter are extremely sensitive to static discharge. Follow static electricity precautions when installing, servicing, or operating the system.
- Work in a static-free area.
- Discharge any static electricity you may have accumulated. Discharge static electricity by touching a known, securely grounded object.
- Use a wrist strap when handling the MN-SDT transmitter electronic assembly. The wrist strap clamp must be secured to earth ground.

Federal Communications Commission (FCC)

Note: 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 digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

MOUNTING

CAUTION

- Avoid locations where excessive moisture, corrosive fumes or vibration are present.

Duct Transmitter Mounting

To mount the MN-SDT to a duct:

1. Determine the transmitter mounting location on the duct. The sensing element of the MN-SDT is located within 1 inch of the end of the sensing probe. The MN-SDT should be located in the air stream typical of the temperature requiring sensing.
2. Use the mounting plate supplied as a template (or refer to Figure-4 for duct mounting dimensions) for mounting hole locations.
3. Drill appropriate holes in duct.
4. Mount the transmitter to the duct using the two #10 x 3/4 in. sheet metal screws provided.

Immersion Transmitter Mounting (requires AT-225 or AT-226 bulb well)

To mount the MN-SDT for immersion sensing:

1. Remove the lock nut and duct mounting plate from the transmitter (Figure-2).
2. Thread the MN-SDT transmitter into the AT-225 bulb well that has been installed in a liquid line or tank.

Note: The AT-225 or AT-226 bulb well should be filled with a temperature conductive grease prior to element insertion for optimum temperature sensing.

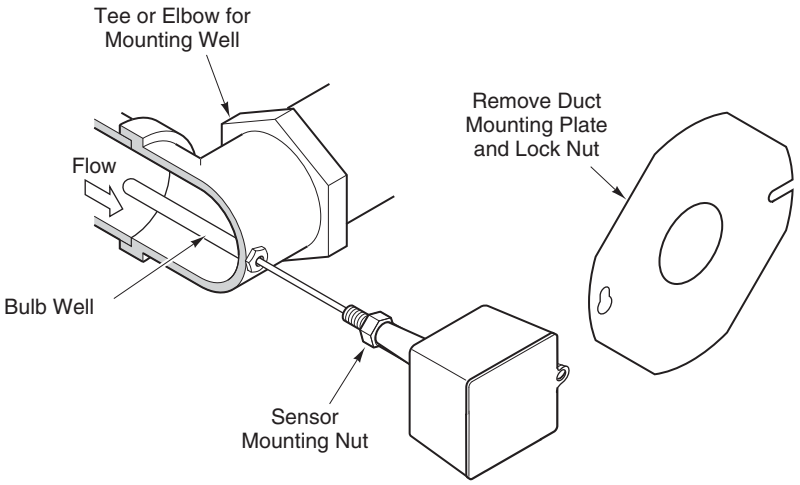

Figure-2 MN-SDT Immersion Mounting.

CAUTION

- The MN-SDT is a Class 2 only device and must be connected only to the MicroNet 2000 U-Link.

Power is supplied to the MN-SDT from the MicroNet Controller via the U-Link. Minimum wire requirement for U-Link is 24 gage, voice grade telephone wire. The capacitance between conductors should be no greater than 32 pF per foot. If shielded cable is used, the capacitance between any one conductor and the others, connected to the shield, should be no greater than 60 pF per foot. See Table-2 or maximum wire length.

Table-2 Maximum U-Link Length.

Number of MicroNet Sensors	Maximum U-Link Length
Single	200 ft. (61 m) from sensor to controller.
Multiple	400 ft. (122 m) total segment from sensor to controller to sensor. 200 ft. (61 m) from controller to any one sensor.

Note: The U-Link wire pairs must be dedicated to MicroNet communications. They cannot be part of an active, bundled telephone trunk.

To connect the MN-SDT transmitter to the U-Link:

1. Strip 1/4" (6 mm) of insulation from the U-Link wires.
2. Connect the wires to the screw terminals (Figure-3). No polarity maintenance is required.
3. If used, connect two wire nuts to join the MNA-STAT-4 connector leads to the DI field wiring. Connect the MNA-STAT-4 Digital Input Connector Assembly to the Digital Input (DI) connection.

Digital Input (DI) Connection

CAUTION

- Do not connect the Digital Input to any voltage/current source as damage to the MN-SDT may occur.

The Digital Input (DI) must be connected to an electrically isolated, dry contact. When the DI contact is closed, the MN-SDT transmits a fixed 300°F (149°C) to the MN-FLO and MN-FLO3T controller, When the DI contact is open, the MN-SDT transmits duct temperature to the MN-FLO or MN-FLO3T controller (Table-3).

ADDRESSING

The MN-SDT transmitter is shipped with the default address setting of 2. For those installations where two MicroNet sensors are connected to a MicroNet controller, one sensor must be set to the address setting of 1 (control input) and one must be set to the address setting of 2 (indication input).

To change the address on the MN-SDT transmitter:

1. Locate the address switch on the top of the circuit board inside the MN-SDT transmitter (Figure-3).

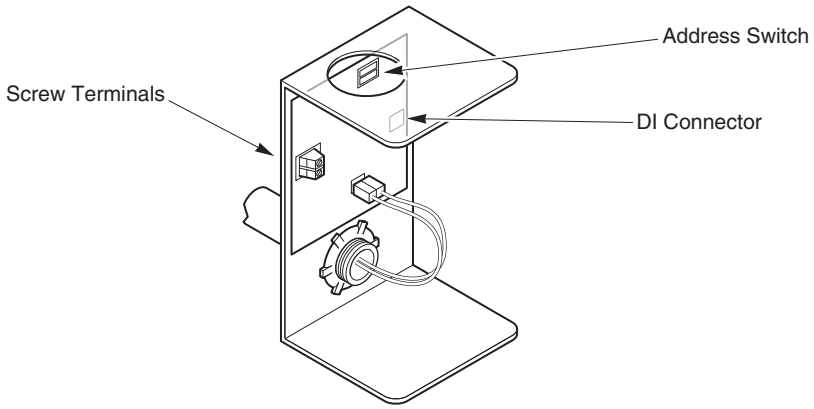

Figure-3 Internal View of MN-SDT.

2. With a small flat-blade screwdriver or small blunt instrument, push each address setting switch according to the address switch settings shown in Table-3.

Table-3 Typical MN-FLO and MN-FLO3T DI Input Applications and MN-SDT Address Switch Settings.

Address	Open DI Min. Resistance (Open) = 100K	Closed DI Max. Resistance (Closed) = 300Ω	Application
OFF	No Communications		
1	Actual Temperature	300°F (149°C)	Control Input
2	Actual Temperature	300°F (149°C)	Indication Input
3	For Future Use		

3. Replace the enclosure cover.

MAINTENANCE

Regular maintenance of the total system is needed to assure sustained optimum performance.

FIELD REPAIR

The MN-SDT transmitter is not field repairable. Replace the transmitter with a functional unit.

DIMENSIONAL DATA

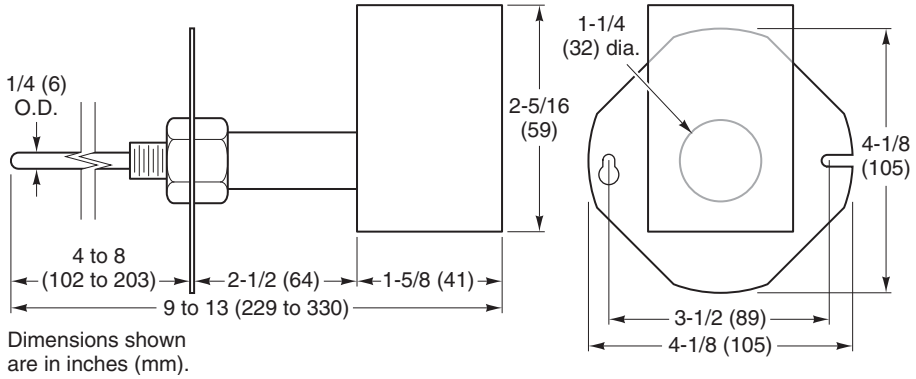

Figure-4 MN-SDT Mounting Dimensions.

On October 1st, 2009, TAC became the Buildings business of its parent company Schneider Electric. This document reflects the visual identity of Schneider Electric, however there remains references to TAC as a corporate brand in the body copy. As each document is updated, the body copy will be changed to reflect appropriate corporate brand changes.

Schneider Electric
1354 Clifford Avenue
P.O. Box 2940
Loves Park, IL 61132-2940

www.schneider-electric.com/buildings

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