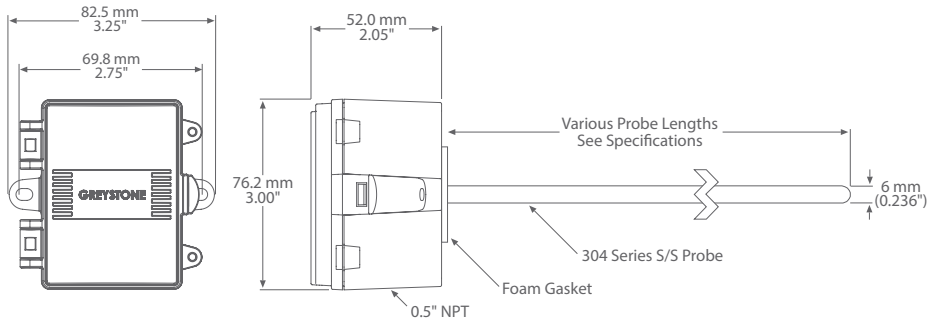
GREYSTONE
ENERGY SYSTEMS INC

RIGID DUCT AVERAGE NETWORK TEMPERATURE SENSOR



TNDR SERIES

PRODUCT DESCRIPTION

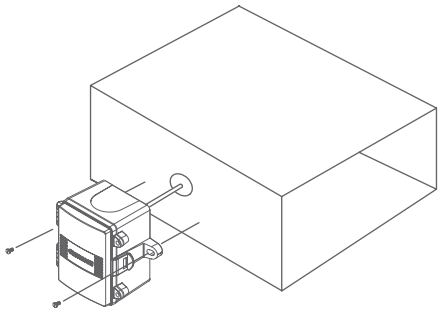
The multi point rigid duct average network temperature sensor incorporates numerous precision sensors at equal distances and encapsulated in a 6 mm (0.236") OD, 304 series stainless steel probe and is available in various lengths. All probes provide excellent heat transfer, fast response and resist moisture penetration. The transmitter provides a BACnet® or Modbus signal for network connection. A compact ABS enclosure with a hinged and gasketed cover is provided for ease of installation.

TYPICAL INSTALLATION

For complete installation and wiring details, please refer to the product installation instructions.

The rigid duct average type probes are installed in the side of the duct to monitor the average temperature within the duct. Select a probe length that allows the probe to span the duct width. Install the probe in a straight section of duct at a suitable distance downstream from any heating, cooling, or humidification devices.

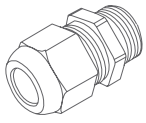
The enclosure provides mounting tabs for ease of installation.



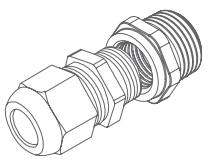
SPECIFICATIONS

POWER SUPPLY	**BACnet®:** 24 Vac/dc ±10% (non-isolated half-wave rectified) **Modbus:** 24 Vac/dc ±20% (non-isolated half-wave rectified)
CONSUMPTION	**BACnet®:** 25 mA max @ 24 Vdc **Modbus:** 10 mA max @ 24 Vdc
OPERATING ENVIRONMENT	-40 to 50°C (-40 to 122°F), 5 to 95 %RH non-condensing
PROBE MATERIAL	304 series stainless steel
PROBE DIAMETER	6mm (0.236")
STANDARD LENGTHS	450mm, 600mm, 900mm (18", 24", 36")
WIRE MATERIAL	PVC insulated, parllel bonded (22 AWG)
WIRING CONNECTIONS	Screw terminal block (14 to 22 AWG)
ENCLOSURE	**A:** ABS, UL94-V0, IP65 (NEMA 4X) **E:** Same as A, with thread adapter (1/2" NPT to M16) and cable gland fitting
COUNTRY OF ORIGIN	Canada
TEMPERATURE	**Sensing Element:** NTC thermistor **Accuracy:** ±0.2°C (±0.36°F) @ 0 to 70°C (32 to 158°F) **Probe Sensing Range:** -40 to 60°C (-40 to 140°F) **Resolution:** 0.1°C/°F
BACnet® COMMUNICATIONS INTERFACE	**Hardware:** 2 wire RS-485 **Software:** Native BACnet® MS/TP protocol **Baud Rate:** 9600, 19200, 38400, 57600, 76800, or 115200 (auto-detect) **Network Address Range:** Locally set to 0-127 **Serial Configuration:** 8N1
MODBUS COMMUNICATIONS INTERFACE	**Hardware:** 2 wire RS-485 **Software:** Native Modbus MS/TP protocol (RTU) **Baud Rate:** 9600, 19200, 38400, 57600, 76800, or 115200 (auto-detect) **Network Address Range:** Locally set to 1-255 (switch selectable) **Parity:** None **Stop Bits:** 1 **Error Checking:** A001 (CRC-16 reverse)
INPUT VOLTAGE EFFECT	Negligible over specified operating range
PROTECTION CIRCUIRTY	Reverse voltage protected and transient protected

ACCESSORIES - INCLUDED WITH E ENCLOSURE OPTION



CABLE GLAND FITTING



THREAD ADAPTER 1/2" NPT TO M16

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BACnet® COMMUNICATION

BACnet® is a data communication protocol for building automation and control networks. The sensor communicates on a standard 2-wire RS-485 MS/TP network designed to run at speeds from 9600 to 115200 baud over twisted pair wiring.

BACnet® is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of BACnet® listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet® International (BI). BTL is a registered trademark of BI.

MODBUS COMMUNICATION

Modbus is a network protocol for industrial manufacturing environments. The sensor communicates on a standard Modbus network using the RTU (Remote Terminal Unit) transmission mode. The hardware interface is RS-485.

ORDERING			PART NUMBER
PRODUCT	**TNDR**	Rigid Duct Average Network Temperature Sensor	**TNDR**
ENCLOSURE	**A** **E**	ABS, with hinged and gasketed cover Same as A, with thread adapter (1/2" NPT to M16) and cable gland fitting	
SENSOR	**20**	NTC Thermistor, ±0.2°C	
PROBE LENGTH	**F** **G** **H**	450mm (18") 600mm (24") 900mm (36")	
COMMUNICATION OUTPUT	**B** **M**	BACnet® Modbus	

NOTE: Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

RoHS COMPLIANT

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