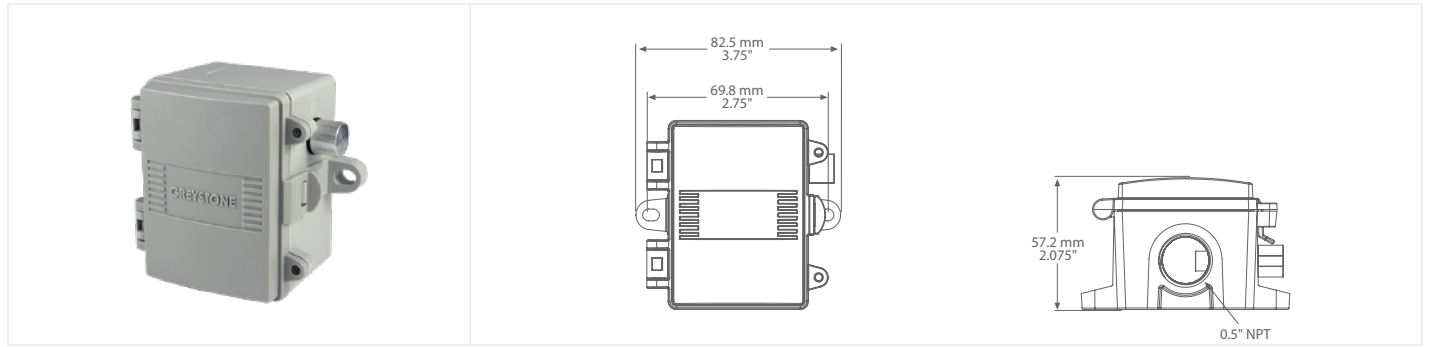




OUTSIDE NETWORK TEMPERATURE SENSOR



TNOS SERIES

PRODUCT DESCRIPTION

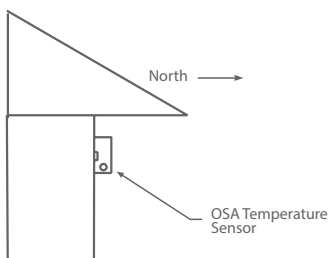
The single point outside network temperature transmitter sensor incorporates a precision sensor housed in a protective sun/wind shield. All probes are constructed to provide excellent heat transfer, fast response and are potted to resist moisture penetration. The transmitter provides a BACnet® or Modbus signal for network connection. A compact, weatherproof 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 outside temperature transmitter should be mounted on an outside North facing wall, under the eaves which will provide protection from direct sunlight.

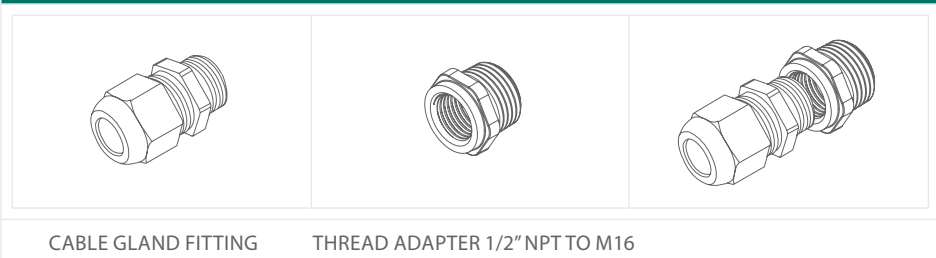
The outside temperature sensor can be mounted directly to the building's wall face using the provided mounting holes. There is one 0.85" hole for conduit connection.



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
OUTPUT SIGNAL	MS/TP 2-wire RS-485 (BACnet® or Modbus)
OPERATING ENVIRONMENT	-40 to 50°C (-40 to 122°F), 5 to 95 %RH non-condensing
PROBE MATERIAL	Machined aluminum
WIRE MATERIAL	PVC insulated, parallel bonded (22 AWG)
WIRING CONNECTIONS	Screw terminal block (14 to 22 AWG)
ENCLOSURE	A: Polycarbonate, 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 50°C (-40 to 122°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 CIRCUITRY	Reverse voltage protected and transient protected

ACCESSORIES - INCLUDED WITH E ENCLOSURE OPTION

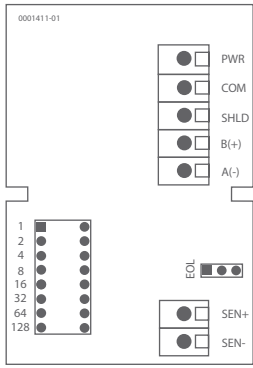


CABLE GLAND FITTING

THREAD ADAPTER 1/2" NPT TO M16



WIRING INFORMATION

	<table border="1"> <thead> <tr> <th>TERMINAL</th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>PWR</td> <td>Power Supply</td> </tr> <tr> <td>COM</td> <td>Common</td> </tr> <tr> <td>SHLD</td> <td>Digital Output</td> </tr> <tr> <td>B (+)</td> <td>Digital Output</td> </tr> <tr> <td>A (-)</td> <td>Digital Output</td> </tr> <tr> <td>SEN +</td> <td>Digital Output</td> </tr> <tr> <td>SEN -</td> <td>Digital Output</td> </tr> </tbody> </table>	TERMINAL	FUNCTION	PWR	Power Supply	COM	Common	SHLD	Digital Output	B (+)	Digital Output	A (-)	Digital Output	SEN +	Digital Output	SEN -	Digital Output
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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	TNOS	Outside Network temperature Sensor	TNOS
ENCLOSURE	A E	Polycarbonate, weatherproof with hinged and gasketed cover Same as A, with thread adapter (1/2" NPT to M16) and cable gland fitting	
SENSOR	20X	NTC Thermistor, ±0.2°C	
COMMUNICATION OUTPUT	B M	BACnet® Modbus	

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