GREYSTONE
ENERGY SYSTEMS INC

OUTSIDE NETWORK TEMPERATURE SENSOR

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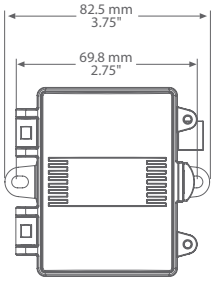
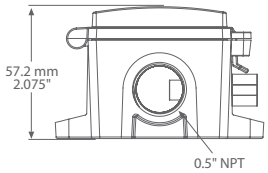




TNOS SERIES

PRODUCT DESCRIPTION

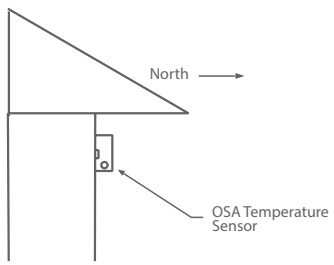
The single point outside network temperature transmitter sensor incorporates a precision sensor housed in a protective sun/wind shield. All probes are constructed to provide excellent heat transfer, fast response and are potted to resist moisture penetration. The transmitter provides a BACnet® or Modbus 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 60°C (-40 to 140°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
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 CIRCUITRY	Reverse voltage protected and transient protected
PROTECTION CLASS	III
POWER SOURCE UL	24VAC/DC, 50/60HZ, 25mA, SELV, Class 2
EU CONFORMITY	CE
CERTIFICATION	UL 60730 & CSA E60730
PURPOSE OF CONTROL	Operating Control
ENCLOSURE	UL Enclosure Type 3R, Raintight
TYPE OF ACTION	Type 1
IMPULSE VOLTAGE	330V
POLLUTION DEGREE	4
COUNTRY OF ORIGIN	Canada

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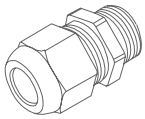
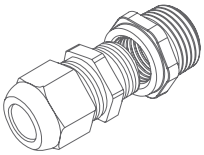
ACCESSORIES - INCLUDED WITH E ENCLOSURE OPTION

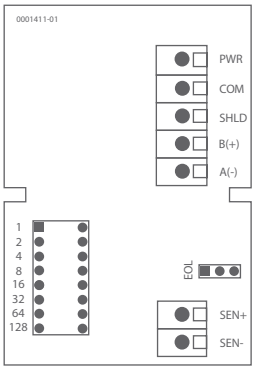


CABLE GLAND FITTING



THREAD ADAPTER 1/2" NPT TO M16

WIRING INFORMATION



TERMINAL	FUNCTION
PWR	Power Supply
COM	Common
SHLD	Digital Output
B (+)	Digital Output
A (-)	Digital Output
SEN +	Digital Output
SEN -	Digital Output

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

PRODUCT	**TNOS**	Outside Network temperature Sensor
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

PART NUMBER

TNOS

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

RoHS COMPLIANT

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