GREYSTONE ENERGY SYSTEMS INC

OUTSIDE NETWORK TEMPERATURE SENSOR
TNOS Series

The single point outside network temperature 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.

SPECIFICATION:

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
Protection Circuitry ..... Reverse voltage protected and over voltage protected
Operating Environment ... -40 to 50°C (-40 to 122°F), 10 to 95 %RH non-condensing
Wire Material ..... PVC insulated, parallel bonded (22 AWG)
Wiring Connections ..... Screw terminal block (14 to 22 AWG)
Enclosure ..... ABS - UL94-V0, IP65 (NEMA4X)
E style includes 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
Parity ..... None
Stop Bits 1
Error Checking ..... A001 (CRC-16 reverse)
Serial Configuration 8N1

PART NUMBER SELECTED

PRODUCT SELECTION INFORMATION:

MODEL	Product Description
TNOS	Outside Network Temperature Sensor

CODE	Enclosure
A	ABS, with hinged & gasketed cover
E	Same as A, with cable gland fitting

CODE	Sensor
20X	NTC Thermistor, ±0.2°C

CODE	Communication Output
B	BACnet®
M	Modbus

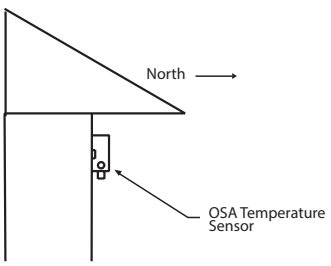
Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

TYPICAL INSTALLATION:

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

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



RoHS COMPLIANT

BACnet® COMMUNICATION

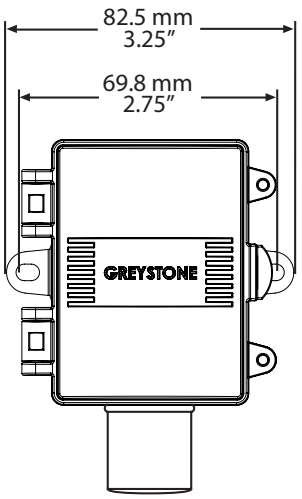
BACnet® is a data communication protocol for building automation and control networks. The sensor communicates on a standard 2-wire RS-485 MS/TP network designed to run at speeds from 9600 to 115200 baud over twisted pair wiring.

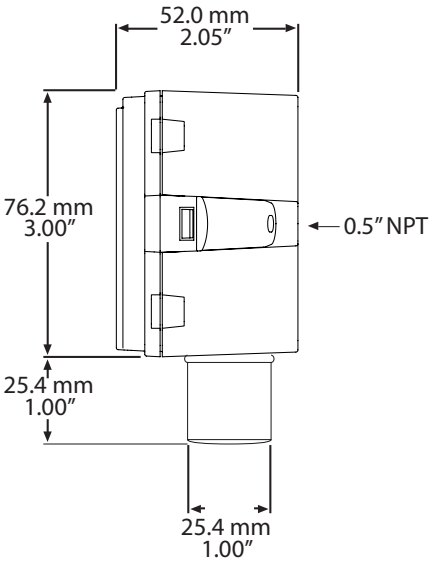
BACnet® is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of BACnet® listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet® International (BI). BTL is a registered trademark of BI.

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.

DIMENSIONS:





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RoHS COMPLIANT

Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC/R sensors and transmitters for Building Automation Management Systems. We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9001 certified, assuring our customers of consistent product reliability.

GREYSTONE HAS AN **ISO 9001** REGISTERED QUALITY SYSTEM