GREYSTONE ENERGY SYSTEMS INC

STRAP-ON NETWORK TEMPERATURE SENSOR
TNSO Series

The single point strap-on network temperature sensor incorporates a precision sensor bonded to a 38.1 mm x 38.1 mm (1.5" x 1.5") aluminum plate and adhered to a 25.4 mm (1") compressible foam. A 25.4 cm (10") S/S pipe clamp is provided to secure the assembly to various sizes of pipes. 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 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), 5 to 95 %RH non-condensing
Probe Material ..... Aluminum plate with compressible foam backing
Probe Dimensions ..... 38mm (1.5") square
Pipe-Strap ..... 25.4mm (10") stainless steel
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 ..... -20 to 100°C (-4 to 212°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, 5700, 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
TNSO	Strap-On Network Temperature Sensor

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

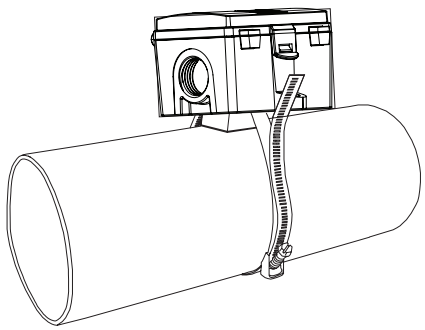
CODE	Sensor
20X	NTC Thermistor, ±0.2°C

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 strap-on temperature transmitter series can be mounted directly to various sizes of pipes and secured using a 254 mm (10") S/S pipe clamp. If necessary, remove a section of insulation from the pipe. The 254 mm (10") S/S pipe clamp is a "Quick Release" type and can be separated by moving the tightening screw so that it is perpendicular to the clamp and slide the clamp apart. Postion the aluminum plate on the pipe so it makes the best contact, wrap the clamp around the pipe and re-assemble and tighten. Any excess clamp may be cut off. For best results, thermal conductive compound should be applied to pipe prior to mounting the probe.

Wiring connections are made inside the enclosure.

BACnet® COMMUNICATION

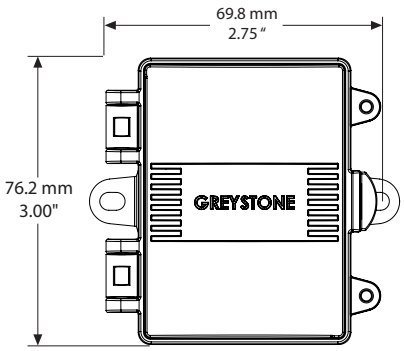
BACnet® is a data communication protocol for building automation and control networks. The sensor communicates on a standard 2-wire RS-485 MS/TP network designed to run at speeds from 9600 to 115200 baud over twisted pair wiring.

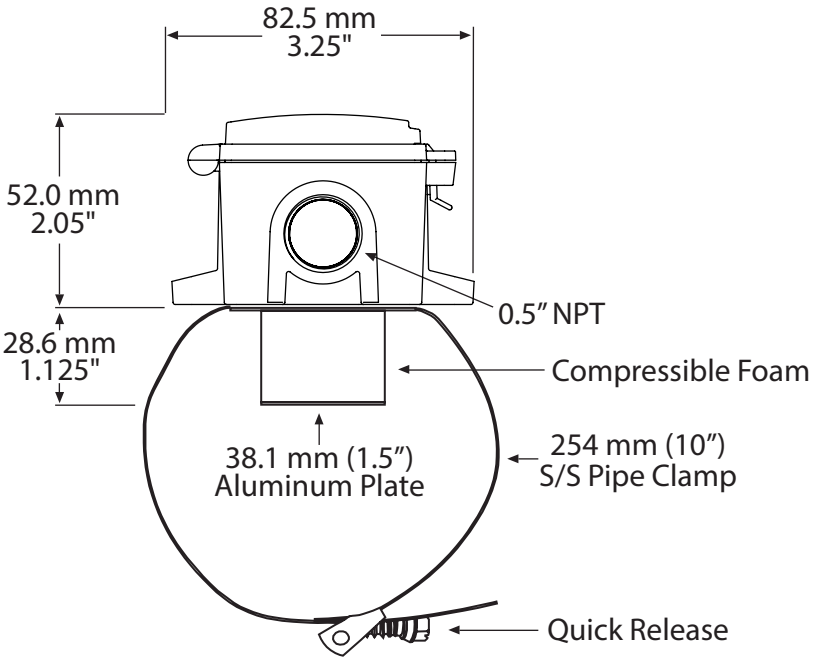
BACnet® is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of BACnet® listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet® International (BI). BTL is a registered trademark of BI.

MODBUS COMMUNICATION

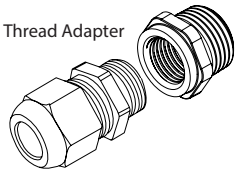
Modbus is a network protocol for industrial manufacturing environments. The sensor communicates on a standard Modbus network using the RTU (Remote Terminal Unit) transmission mode. The hardware interface is RS-485.

DIMENSIONS:





Included with E style enclosure



GREYSTONE
ENERGY SYSTEMS INC
Greystone Energy Systems, Inc.
150 English Drive, Moncton,
New Brunswick, Canada E1E 4G7
(506) 853-3057 Fax: (506) 853-6014
North America: 1-800-561-5611
e-mail: mail@greystoneenergy.com
www.greystoneenergy.com

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

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