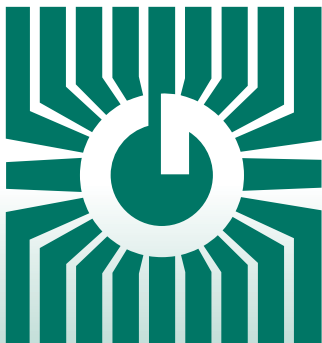


# GREYSTONE

## ENERGY SYSTEMS INC



## NETWORK PROBE TEMPERATURE SENSORS TN Series



### Precision temperature control/sensing

#### FEATURES:

- Precision Thermistor sensing element
- High Accuracy Transmitter
- BACnet® or Modbus Communication
- Various configurations
- Compact ABS Enclosure

*Peace of mind  
through reliable  
temperature monitoring*

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM

## SPECIFICATIONS:

Power Supply.....	<b>BACnet</b> : 24 Vac/dc $\pm 10\%$ (non-isolated half-wave rectified) <b>Modbus</b> : 15 - 30 Vac/dc (non-isolated half-wave rectified)
Consumption.....	<b>BACnet</b> : 25 mA max @ 24 Vdc <b>Modbus</b> : 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
<b>TEMPERATURE</b>	
Sensor .....	20,000 $\Omega$ NTC Thermistor, $\pm 0.2^\circ\text{C}$
Sensor Accuracy .....	$\pm 0.2^\circ\text{C}$ ( $\pm 0.4^\circ\text{F}$ ) curve matched
Probe Sensing Range.....	<b>AP, GL, RP, SO</b> : -20 to 100°C (-4 to 212°F) <b>DC, DF, DR, FL</b> : -20 to 60°C (-4 to 140°F) <b>OS</b> : -40 to 50°C (-40 to 122°F)
Resolution.....	0.1°C/°F
Wire Material.....	<b>AP, DR, RP, SO, GL</b> : PVC insulated, parallel bonded, 22 AWG <b>DC, DF, FL</b> : FT-6 rated plenum cable, 22 AWG
Probe .....	<b>AP, DR, FL, RP</b> : 6.00 mm (0.236") O.D., 304 series stainless steel <b>DC</b> : 7.94 mm (0.3125") O.D. soft copper <b>DF</b> : FT-6 rated plenum cable <b>SO</b> : 2" x 2" aluminum plate <b>GL</b> : 0.5" x 0.5" x 2" aluminum wafer
Enclosure .....	<b>A</b> : Hinged cover - ABS - UL94-V0 - IP65 (NEMA 4X) <b>E</b> : Hinged cover - ABS with thread adaptor (1/2" NPT to M16) and cable gland fitting Conduit connection - 1/2" NPT threaded connection
Wiring Connections.....	Screw terminal block (14, 20, 22 AWG)
Country of Origin .....	Canada

## BACnet® COMMUNICATIONS

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

## MODBUS COMMUNICATIONS

Hardware.....	2-wire RS-485
Software.....	Native Modbus MS/TP protocol (RTU)
Baud Rate.....	4800, 9600, 19200, 38400, 57600, 76800, or 115200 (auto-detect)
Network Address Range.....	Locally set to 1-255
Parity .....	None
Stop Bits .....	1
CRC.....	A001 (CRC-16 reverse)

\*This product is factory calibrated and any field adjustment will void the warranty.  
NOTE: For higher temperature applications please contact Greystone.

## TN - PROBE TEMPERATURE SENSOR CONFIGURATIONS

### FEATURES:

The TN Series network temperature sensors offer several configurations to cover a wide variety of applications. Standard configurations available:

**AP Duct/Immersion Sensor** – The AP is for single point monitoring. It is available with various probe lengths.

AP)



**DC, DF & DR) Duct Averaging Sensor** – All models incorporate numerous sensors along the assembly and act as a single sensor averaging the temperature across the sensors. They are available in various lengths. The DF probe is constructed of FT-6 rated plenum cable which allows for easy installation. The DC probe is constructed of bendable soft copper and the DR is constructed of rigid stainless steel.

DC)



DF)



DR)



**RP) & SO) Strap-on Sensor** – The RP comes with stainless steel probe and is available in several lengths and 1.5 m (5') of cable for remote mounting. The SO has an aluminum plate with an expandable 10" clamp assembly to strap directly to a pipe. Various enclosures are available.

RP)



SO)



**OS (Outside Sensor)** – Comes in a weather-proof enclosure which incorporates a sun/windshield to protect the sensor.

OS)



**FL) Flying Lead** – The sensor is encapsulated in a 2" S/S probe with 6' of FT-6 rated cable and can be used in almost any application where temperature monitoring is required.

FL)



**GL)** – The sensor is encapsulated in a 1/2" square x 2" aluminum wafer that can be affixed to any surface. It comes with 5' of zip cable.

GL)



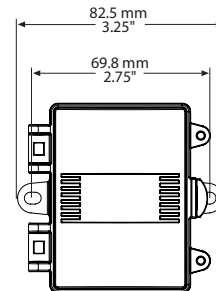
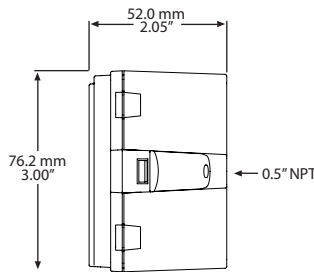
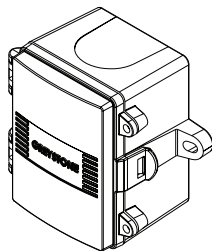
# PRODUCT ORDERING INFORMATION:

MODEL	Product Description	
TN	Network Temperature Sensor Series	
CODE	Mounting Style	
AP	All Purpose Duct/Immersion	
DC	Duct Average, copper probe	
DF	Duct Average, flexible cable	
DR	Duct Average, rigid stainless steel probe	
RP	Remote Probe – strap-on	
SO	Strap-On – assembly clamps around pipe with aluminum plate with 254 mm (10") stainless clamp	
OS	Outside Air	
FL	Flying Lead	
GL	Glass	
CODE	Enclosure	
A	ABS, with hinged and gasketed cover	
E	ABS, with hinged and gasketed cover, with thread adapter and cable gland fitting	
CODE	Sensor	
20	NTC Thermistor	
CODE	Probe Length	Lengths are applicable to these mounting styles
X	Not applicable	FL, GL, SO, OS,
A	50 mm (2")	AP & RP
B	100 mm (4")	AP & RP
C	150 mm (6")	AP & RP
D	200 mm (8")	AP & RP
E	300 mm (12")	AP
F	450 mm (18")	AP & DR
G	600 mm (24")	DR
H	900 mm (36")	DR
I	1800 mm (6')	DC & DF
J	3600 mm (12')	DC & DF
K	6100 mm (20')	DC & DF
L	7300 mm (24')	DC & DF
CODE	Communication Output	
B	BACnet®	
M	Modbus	

TN	AP	A	20	E	B
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## ENCLOSURE DIMENSIONS

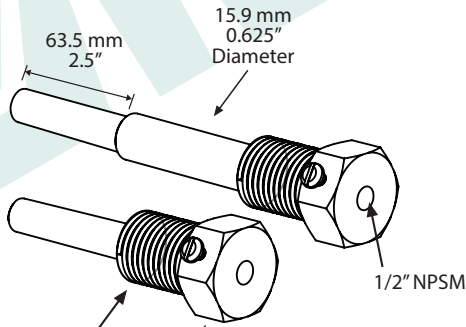
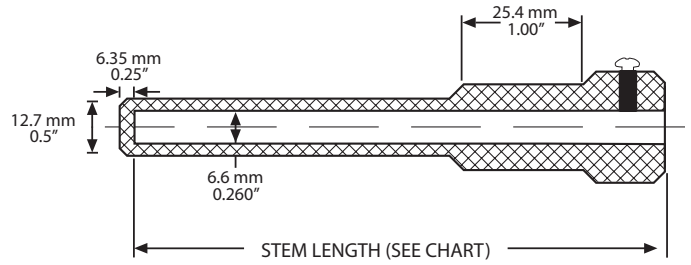


## THERMOWELLS:



NOTE:

6" and up machined thermowells have a two step stem as shown. Welded construction and have a 9.5 mm (0.375") diameter



Process Thread: 1/2" NPT or BSP

HEX Stock: 1" HEX for 1/2" NPT

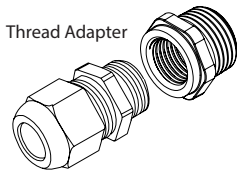
### THERMOWELL PART NUMBERING SYSTEM

SERIES NUMBER	NPT THREAD SIZE		STEM LENGTH	MATERIAL
T2	1/2"	N = NPT B = BSP	2" 4" 6" 8" 12" 18"	P - 304 SS R - 316 SS

EXAMPLE: T2 1/2 N P 4  
4" 304 STAINLESS THERMOWELL  
WITH 1/2" NPT PROCESS THREAD

## ACCESSORIES:

Thread adapter and cable gland fitting are included with the E style enclosure option.



Cable Gland Fitting



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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.

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