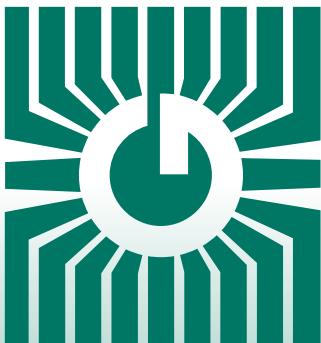# GREYSTONE ENERGY SYSTEMS INC

HIGH ACCURACY PROBE TEMPERATURE SENSORS
HATX Series

Precision temperature control/sensing

FEATURES:
- Precision RTD sensing element
- High Accuracy Transmitter
- Choice of scaled ranges and outputs
- Various configurations
- Compact ABS Enclosure

Peace of mind through reliable temperature monitoring

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

SPECIFICATIONS :

Sensor	1000 Ω Platinum, IEC 751, 385 Alpha, thin film
Sensor Accuracy	**RTD Class A:** ±0.15°C @ 0°C
	RTD 1/3 DIN: ±0.1°C @ 0°C
	RTD 1/10 DIN: ±0.03°C @ 0°C
Probe Sensing Range	**AP, RP, ES, GL:** -20 to 105°C (-4 to 221˚F)
	BB, DC, DF, DR, FL: -20 to 60˚C (-4 to 140˚F)
	OS: -40 to 50˚C (-40 to 122˚F)
Wire Material	**AP, DR, RP, SO, GL:** PVC insulated, parallel bonded, 22 AWG
	DC, DF, FL : FT-6 rated plenum cable, 22 AWG
Probe Material	**AP, BB, DR, FL, RP:** 6.00 mm (0.236") O.D., 304 series stainless steel
	DC: 7.94 mm (0.3125") O.D. soft copper
	DF: FT-6 rated plenum cable
	SO: 2" x 2" aluminum plate
	GL: 0.5" x 0.5" x 2" aluminum wafer
Output Signal	4-20 mA current loop, 0-5 Vdc, or 0-10Vdc (Factory Configured)
Transmitter Accuracy	±0.1% of span, including linearity
4-20 mA loop Power Supply	15-35 Vdc or 22-32 Vac
Minimum Loop Current	2 mA nominal (occurs with shorted sensor)
Maximum Loop Current	22.5 mA nominal (occurs with open sensor)
Maximum Loop Load	>600 ohms
0-5 Vdc Power Supply	10-35 Vdc or 10-32 Vac
0-10 Vdc Power Supply	15-35 Vdc or 15-32 Vac
Maximum Current (Voltage)	5 mA nominal
Maximum Output (Voltage)	Limited to <5.5 Vdc, <10.5 for 0-10 Vdc
Input Voltage Effect	Negligible over specified operating range
Protection Circuitry	Reverse voltage protected and output limited
Ambient Operating Range	**AP, DC, DF, DR, RP, SO, FL, GL:** 0 to 50°C (32 to 122°F)
	OS: -40 to 50°C (-40 to 122°F)
Enclosure	**A:** Hinged cover - ABS - UL94-V0 - IP65 (NEMA 4X)
	E: 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

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

HATX - HIGH ACCURACY PROBE TEMPERATURE SENSOR CONFIGURATIONS

FEATURES:

The HATX temperature transmitters offer a choice of precision platinum or nickel RTD's, or NTC Thermistors which can be interfaced with a computerized monitoring or control system. A wide variety of configurations are available such as:

AP Duct/Immersion Sensor – The AP is for single point monitoring. Both are 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 a 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)

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RoHS COMPLIANT

PRODUCT ORDERING INFORMATION:

MODEL	Product Description
HATX	High Accuracy Temperature Transmitter 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
18	1000 Ω, Platinum, wire 2, IEC 751, 385 Alpha, thin film, Class A
48	1000 Ω, Platinum, 2 wire, IEC 751, 385 Alpha, thin film, 1/3 DIN
22	1000 Ω, Platinum, 2 wire, IEC 751, 385 Alpha, thin film, 1/10 DIN

CODE	Probe Length	Lengths are applicable to these mounting styles
X	Not applicable	SO, OS, FL, & GL
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

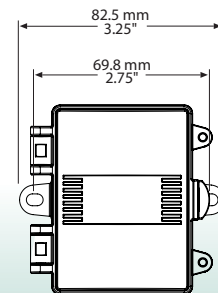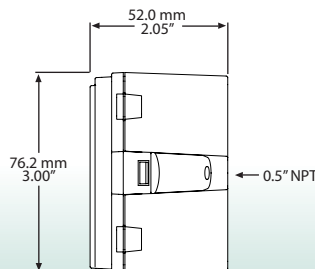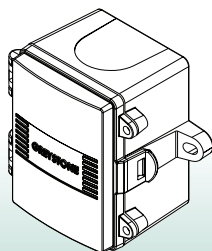| CODE	Output
A	4-20 mA 2 or 3 wire
D	0-5 VDC 3 wire
E	0-10 VDC 3 wire

CODE	Scaled Range
001	0°C to 35°C (32°F to 95°F)
002	0°C to 50°C (32°F to122°F)
003	0°C to 100°C (32°F to 212°F)
006	-50°C to 50°C (-58°F to 122°F)

HATX	AP	A	18	E	A	002

ENCLOSURE DIMENSIONS

GREYSTONE ENERGY SYSTEMS, INC.

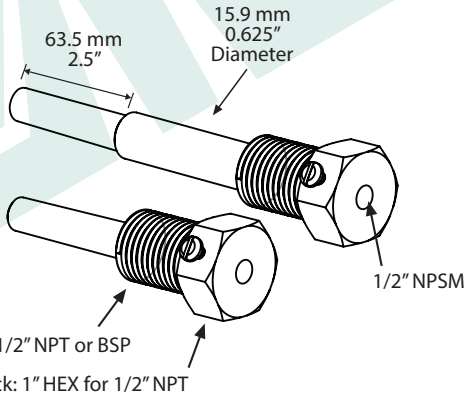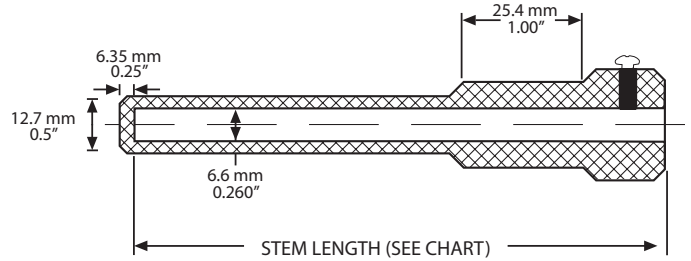RoHS COMPLIANT

THERMOWELLS:

NOTE:

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

25.4 mm
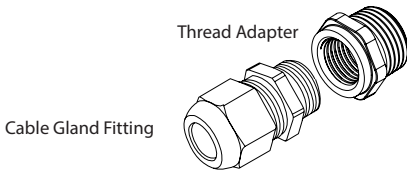1.00"

6.35 mm
0.25"

12.7 mm
0.5"

6.6 mm
0.260"

STEM LENGTH (SEE CHART)

63.5 mm
2.5"

15.9 mm
0.625"
Diameter

1/2" NPSM

Process Thread: 1/2" NPT or BSP

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

THERMOWELL PART NUMBERING SYSTEM

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

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.

Thread Adapter

Cable Gland Fitting

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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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