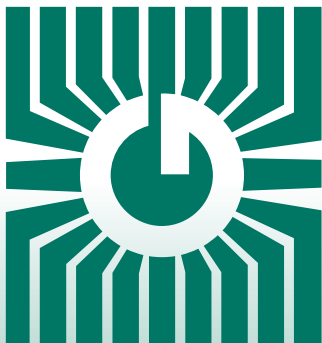


GREYSTONE ENERGY SYSTEMS INC



High Accuracy PROBE TEMPERATURE SENSORS HATS Series



Precision temperature control/sensing

FEATURES:

- Precision Thermistor or RTD
- Various configurations
- Compact ABS Enclosure

*Peace of mind
through reliable
temperature monitoring*

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM

SPECIFICATIONS:

Sensor.....	Several thermistors, platinum or nickel RTD's available. See product ordering information
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 NTC Thermistor Type 39: ±0.05°C, 0 to 70°C NTC Thermistor Type 55: ±0.03°C, 0 to 70°C NTC Thermistor Type 40/46: ±0.1°C, 0 to 70°C
Temperature Range.....	AP, RP, SO: -20 to 105°C (-4 to 221°F) DF, DR, FL, OS: -20 to 60°C (-4 to 140°F)
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: -50 to 100°C (-58 to 212°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
Enclosures.....	A: Hinged cover - ABS - UL94-V0 - IP65 (NEMA 4X) C: Hinged cover - ABS, with terminal block 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.....	A: Pigtail, 2 or 3 wire C & E: Terminal block, 2 or 3 wire
Country of Origin.....	Canada

TS - PROBE TEMPERATURE SENSOR CONFIGURATIONS

FEATURES:

The TS temperature sensors 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 & BB) Duct/Immersion Sensor – The AP & BB is for single point monitoring. Both are available with various probe lengths.

AP)



BB)



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)



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)



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)

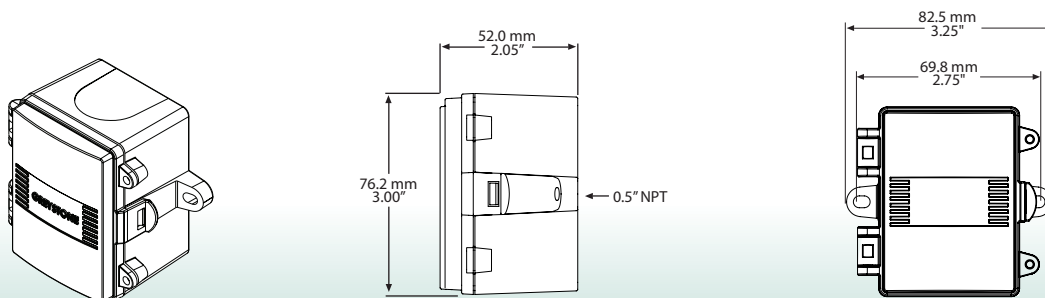


PRODUCT ORDERING INFORMATION:

MODEL	Product Description	
HATS	High Accuracy 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	
C	Same as A, with terminal block	
E	Same as C, with thread adapter and cable gland	
X	Not Applicable (mounting styles FL & GL)	
CODE	Sensor	
18	1000 Ω Platinum, 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	
41	1000 Ω, Platinum, 3 wire, IEC 751, 385 Alpha, thin film, Class A	
49	1000 Ω, Platinum, 3 wire, IEC 751, 385 Alpha, thin film, 1/3 DIN	
50	1000 Ω Platinum, 3 wire, IEC 751, 385 Alpha, thin film, 1/10 DIN	
39	10,000 Ω Type 2, NTC Thermistor, ±0.05°C	
55	10,000 Ω, Type 2, NTC Thermistor, ±0.03°C	
40	10,000 Ω, Type 3, NTC Thermistor, ±0.1°C	
46	20,000 Ω, NTC Thermistor, ±0.1°C	
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

HATS AP A 18 E

ENCLOSURE DIMENSIONS

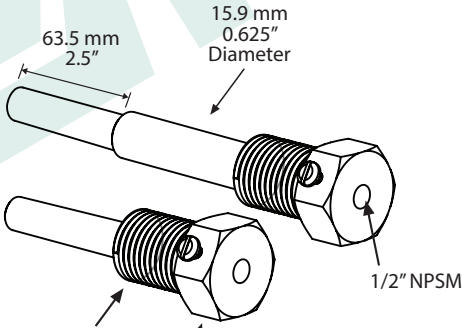
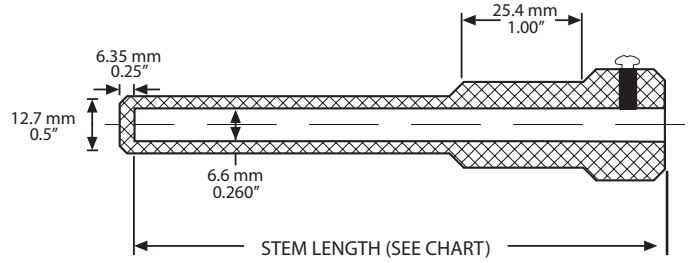


THERMOWELLS:



NOTE:

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



Process Thread: 1/2" NPT or BSP

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

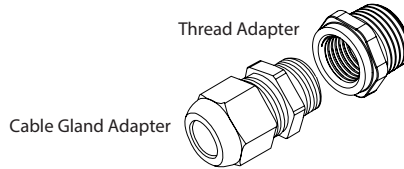
THERMOWELL PART NUMBERING SYSTEM

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.



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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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