GREYSTONE ENERGY SYSTEMS INC

HIGH ACCURACY HUMIDITY TRANSMITTER
HAH Series

Precision humidity control/sensing

FEATURES:

- Highly stable RH sensor element
- Humidity range: 0-100%
- Accuracy available 1% or 2%
- Room, Duct, or Outside models
- Choice of precision temperature sensors
- LCD display available
- Optional override, setpoint & fan speed control
- Field selectable outputs
- Custom logo available

Peace of mind through reliable humidity/temperature monitoring

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

DESCRIPTION:

The HAHRC Series high accuracy room humidty transmitter uses a highly accurate and field-proven RH sensor in an attractive, low profile enclosure to monitor room relative humidity levels. Additional options include an occupancy override button, a communication jack, a fan speed switch, a slide-pot setpoint control, a resistive temperature sensor and a status LED or a LCD display. The RH output can be field selected as a linear 4-20 mA, 0-5 or 0-10 Vdc signal.

SPECIFICATIONS (HAHRC):

Sensor	Thermoset polymer based capactive
Accuracy	±1% (20 to 80% RH) or ±2% (5 to 95% RH)
Range	0 to 100% RH non-condensing
Hysteresis	± 3% RH
Response Time	15 seconds typical
Stability	±1.2% RH typical @ 50% RH in 5 years
Power Supply	24 Vac/dc ±10% (non-isolated half-wave rectified)
Consumption @ 24 Vdc	20 mA
Input Voltage Effect	Negligible over specified operating range
Output Signal	4-20 mA current loop, 0-5 Vdc or 0-10 Vdc - Jumper selectable
Output Drive @24 Vdc	550 ohm max. for current, 10K ohms min. for voltage
Output Resolution	10 bit PWM
Internal Adjustments	ZERO and SPAN pots
Protection Circuitry	Reverse voltage protected and output limited
Operating Conditions	0˚ to 50˚C (32˚-122˚F), 0-95% RH non-condensing
Enclosure	White ABS - IP30 (NEMA 1) 84mmW x 119mmH x 29mmD (3.3" x 4.7" x 1.15")
Wiring Connections	Screw terminal block (14 to 22 AWG)

OPTIONS:

Temperature

Sensor Type	Platinum RTD, 1000 Ω @ 0˚C, 385 Alpha NTC Thermistor, 10,000 Ω Type 2 & 3, 20,000Ω @ 25˚C
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 **Thermistor (39) :** ±0.05˚C, 0-70˚C **Thermistor (40/46) :** ±0.1˚C, 0-70˚C

Setpoint Adjustment

Type	Front panel slidepot, 2 wire resistance output
Range	0K to 10K Ω standard
Custom spans available	1K, 2K, 5K, 10K or 20K Ω

Manual Override

Type	Front panel, momentary pushbutton
Ratings	50 mA @12 Vdc, N.O., SPST

LCD Display

Display Range	00.0 to 99.9 %RH, 3 digit
Display Resolution	0.1˚ C/F
Display Size	38.1 mm W x 16.5 mm H (1.5" x 0.65")
Digit Height	11.43 mm (0.45")
Symbols	% RH

Status LED Input (N/A when LCD selected)

Signal Type	5 V current limited, 2-wire standard
LED Colors	Yellow (Y), Red (R) or Green (G),
Power Supply	5 Vdc standard, 10 or 24 Vdc optional

Communication Jacks

Molex	4 Pin header to 4 pin terminal block. Requires HHTA - Hand Held Adapter

Fan Speed Switch

Type	Side mounted, 5 position slide switch
Designators	Off, Auto, Low, Medium, High
Signal	2 wire, resistance output - 0, 2, 4, 6, 8 KΩ Custom ranges available, contact Greystone

PRODUCT ORDERING INFORMATION:

MODEL	Product Description
HAHRC	High Accuracy Room Humidity Transmitter

CODE	RH Accuracy
1	1 %
2	2 %

CODE	Outputs
N	No LCD
L	LCD

CODE	Sensor
18	1000 Ω Platinum, 385 Alpha, thin film, Class A
48	1000 Ω Platinum, 385 Alpha, thin film, 1/3 DIN
22	1000 Ω Platinum, 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	Options (Multiple selections can be made)
P	0-10K linear slide pot for set point control (Other ranges available, contact Greystone)
S	Front panel push button momentary switch (NO)
Y	Yellow LED (n/a when LCD is selected)
R	Red LED (n/a when LCD is selected)
G	Green LED (n/a when LCD is selected)
E	External jack for remote system access (4-pin header)
F	Fan Speed Switch, 5 position, (Off, Auto, Low, Mid, High)

HAHRC	2	L	18	P	S	← Typical Model Number

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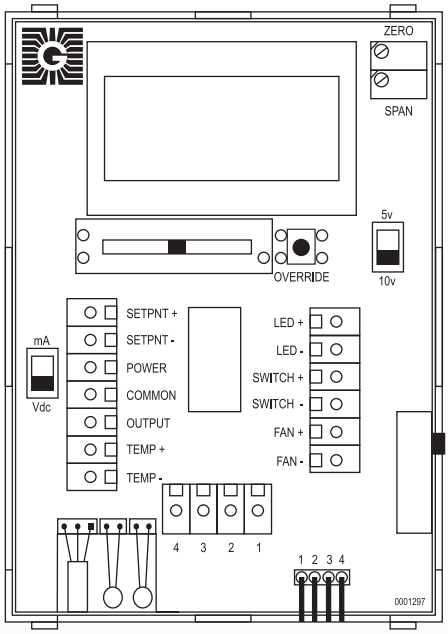
PCB/WIRING INFORMATION



Terminal	Function
POWER	From +24 Vac/dc of controller or power supply
COMMON	To GND or COMMON of controller (for 24 Vac power or voltage output signal only)
OUTPUT	RH output to analog input of controller 4-20 mA or 0-5/0-10 Vdc
SETPNT + SETPNT -	Slide-pot output to analog input of controller (resistive output)
TEMP + TEMP -	Temperature sensor output to analog input of controller (resistive output)
LED + LED -	Positive input to LED (anode) from digital output Negative input to LED (cathode), 5Vdc standard
SWITCH + SWITCH -	Override switch + to digital input of controller Override switch - to COMMON of controller
FAN + FAN -	Fan speed switch + to analog input of controller Fan speed switch - to COMMON of controller
1	To External Jack PIN 1
2	To External Jack PIN 2
3	To External Jack PIN 3
4	To External Jack PIN 4

* Some models do not have all these features
**To save on number of connection wires, all GND or COMMON may connected together.
***Illustration shows standard wiring configuration. Custom configurations are available. Please contact Greystone.

RoHS COMPLIANT

DESCRIPTION:

The HAH series of high accuracy duct and outside humidity transmitters are designed for use in environmental monitoring and control systems where high performance and stability are demanded. It's state-of-the-art design combines digital linearization and temperature compensation with a world class capacitive sensor for reliability and accuracy in even the most critical applications. Various models cover many aspects of RH measurement and several optional features are available to meet virtually all HVAC applications.

SPECIFICATION (HAHD & HAHO):

Sensor Type	Thermoset Polymer based capacitive
Accuracy	±1% (20 to 80% RH) or ±2% (5 to 95% RH)
Measurement Range	0 to 100% RH
Temperature Dependence	±0.05% RH/ ˚C
Hysteresis	±1.5% RH maximum
Repeatability	±0.5% RH typical
Linearity	±0.5% RH typical
Sensor Response Time	15 seconds typical
Stability	±1% RH typical at 50% RH in 5 yrs.
Operating Temperature	-40˚ to 85˚C (-40˚ to 185˚F)
Operating Humidity	0 to 95% RH non-condensing
Power Supply	18 to 30 Vdc, 15 to 26 Vac
Consumption	22 mA maximum
Input Voltage Effect	Negligible over specified operating range
Protection Circuitry	Reverse voltage protected and out limited
Output Signal	4-20 mA current loop, 0-5 or 0-10 Vdc (jumper-selectable)
Output Drive at 24 Vdc	550 ohms max for current output 10K ohms min for voltage output
Internal Adjustments	Clearly marked ZERO and SPAN pots
Wiring Connections	Screw terminal block (14 to 22 AWG)
Enclosures	A - Grey ABS - UL94-V0, IP61 (Nema 2),114x84x53mm (4.5"w x 3.3"h x 2.1"d) B - Round Grey ABS - UL94-V0, IP65 (Nema 4X), 91mm (3.6") diameter x 53mm (2.1") deep C - PVC, IP65 (Nema 4X), 102x63x58mm (4"w x 3.3"h x 2.1"d) D - Hinged Grey ABS - UL94-V0, IP61, IP65 (Nema 4X),122x112x63mm (4.8"w x 4.8"h x 2.5"d)
HAHD Probe	230 mm (9") probe length x 12.7 mm (1/2") diameter stainless steel with porous filter

OPTIONS:

High Accuracy Temperature Sensor

Sensor Type	Platinum RTD, 1000 Ω @ 0˚C, 385 Alpha NTC Thermistor, 10,000 Ω Type 2 & 3, 20,000 Ω @ 25˚C
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 **Thermistor (39) :** ±0.05˚C, 0-70˚C **Thermistor (40/46) :** ±0.1˚C, 0-70˚C **Thermistor (55) :** ±0.03˚C, 0-70˚C
LCD Display (HAHD Only)	3 digit for 00.0 to 99.9% RH, 24 x 11mm (0.95"w x 0.45"h)

PRODUCT ORDERING INFORMATION

MODEL	Product Description
HAHD	High Accuracy Duct Humidity Transmitter
HAHO	High Accuracy Outside Humidity Transmitter

CODE	Enclosure	Available With:
A	ABS Enclosure	Duct
B	Round ABS Enclosure	Duct
C	PVC Enclosure	Duct or Outside
D	Hinged Cover ABS Enclosure	Outside

CODE	RH Accuracy
1	1 %
2	2 %

CODE	Optional High Accuracy Temperature Sensor
18	1000 Ω Platinum, 385 Alpha, thin film, Class A
48	1000 Ω Platinum, 385 Alpha, thin film, 1/3 DIN
22	1000 Ω Platinum, 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	Options
L	LCD display (HAHDA Only)

HAH	D	2	18	-

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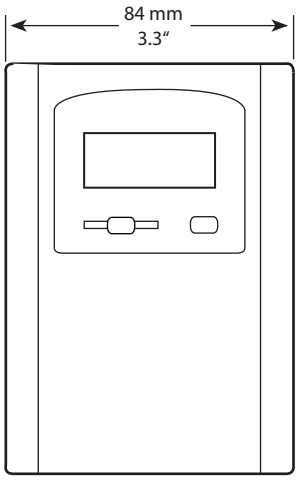
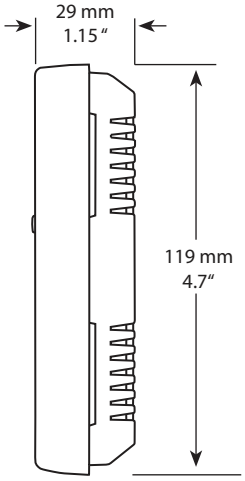
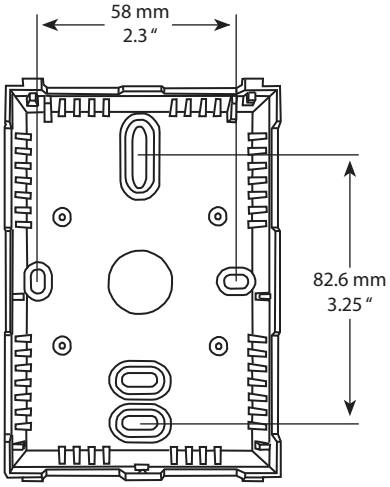
DIMENSIONS:



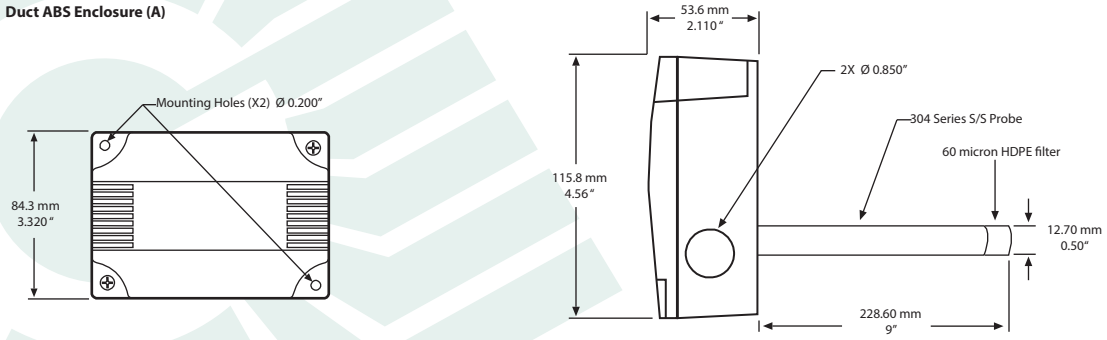




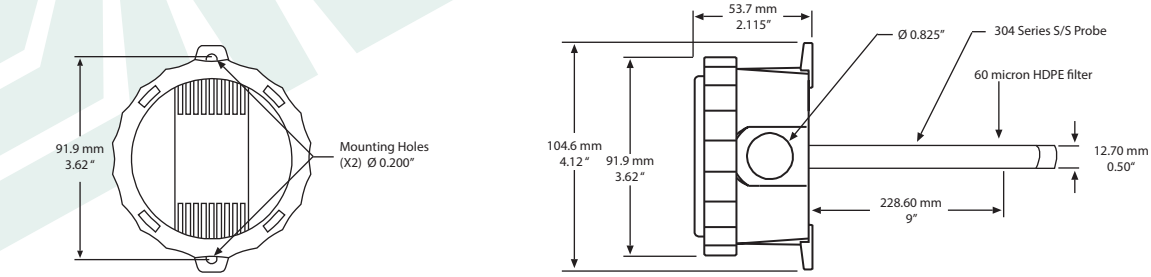
RoHS COMPLIANT

DIMENSIONS

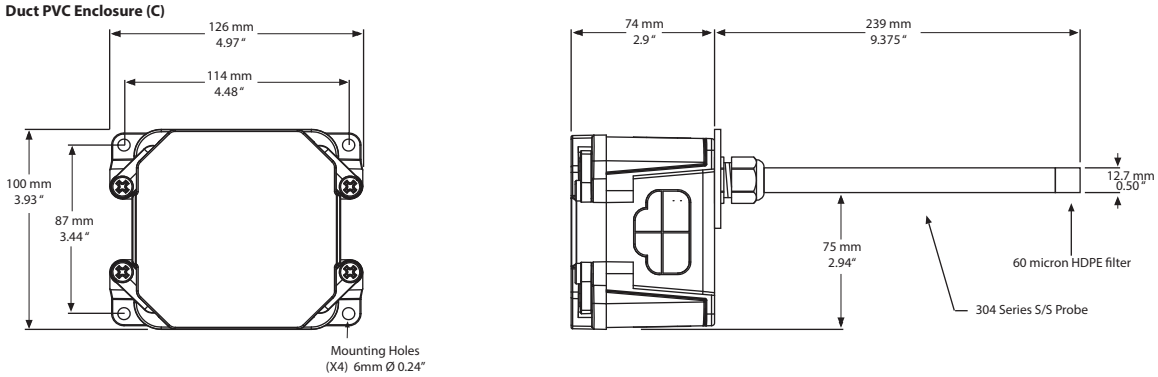
Duct ABS Enclosure (A)



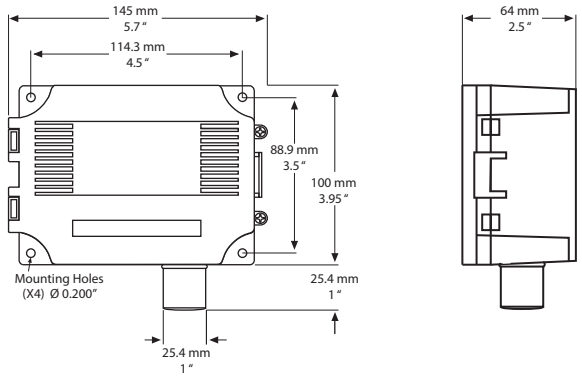
Duct Round ABS Enclosure (B)



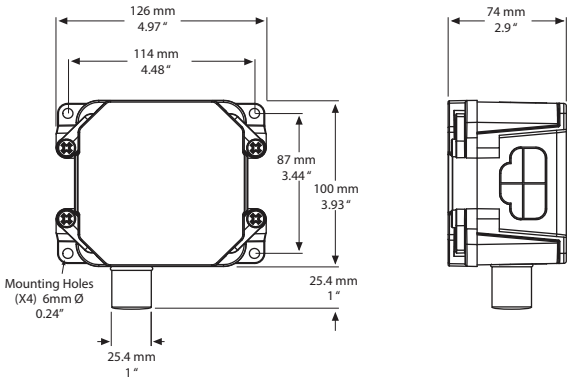
Duct PVC Enclosure (C)



Outside ABS Enclosure (D)



Outside PVC Enclosure (C)



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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

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