# GREYSTONE

**ACCURACY BY DESIGN**

## Precision humidity/temperature control/sensing

### FEATURES:

- Highly stable RH sensor element
- Humidity range: 0-100%
- Accuracy available 2%, 3%, & 5%
- Precision Platinum RTD for Temperature
- LCD display available
- Field selectable outputs
- AC/DC operation
- Custom logo available

*Peace of mind
through reliable
humidity monitoring*

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

## DESCRIPTION:

The RH series of humidity/temperature transducers 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 humidity sensor and platinum RTD for reliability and accuracy in even the most critical applications. Various models cover many aspects of RH and temperature measurement and several optional features are available to meet virtually all HVAC applications.

## SPECIFICATION:

| | |
|---|---|
| Humidity Sensor Type:................... | Thermoset Polymer based capacitive |
| Accuracy at 25˚C:............................ | ±2, 3, or 5% RH, (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. |
| Temperature Sensor Type:........... | Platinum RTD - PT1000 or PT100 |
| Accuracy:.......................................... | ±0.1% of span |
| | |
| Operating Temperature:............... | 0˚ to 50˚C (32˚ to 122˚F) for RH110 |
| | -40˚ to 70˚C (-40˚ to 158˚F) for RH210/RH310 |
| Operating Humidity:...................... | 0 to 95% RH non-condensing |
| Power Supply:.................................. | 18 to 35 Vdc, 15 to 26 Vac (RH110B is Vdc only) |
| Consumption:................................... | 22 mA maximum |
| Input Voltage Effect:...................... | Negligible over specified operating range |
| Protection Circuitry:...................... | Reverse voltage protected and output limited |
| Output Signal:................................. | 4-20 mA current loop, 0-1, 0-5 or 0-10 Vdc |
| | RH110B is only available with 4-20 mA, 2-wire output |
| 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) |
| | |
| Optional LCD Display:.................... | RH110A only |
| | 2 line x 8 character alpha-numeric LCD for 0 to 100% RH |
| | and 0 to 35˚C  or 32 to 95˚F (other ranges available) |
| | Display resolution is 1%RH or 0.5˚C or 0.5˚F |
| | Display size is 29 x 14mm (1.15"w x 0.55"h) |
| | |
| Enclosures:....................................... | RH110A (Executive), IP30 (Nema 1), 71x119x32mm (2.8"w x 4.7"h x 1.25"d) |
| | RH110B (Designer), IP30 (Nema 1), 70x114x30mm, (2.75"w x 4.5"h x 1.2"d) |
| | RH210A (ABS), IP64 (Nema 12),114x84x53mm (4.5"w x 3.3"h x 2.1"d) |
| | RH310A (ABS WP) IP65 (Nema 3R),122x112x63mm (4.8"w x 4.8"h x 2.5"d) |
| | |
| RH210 Probe:................................... | 230 mm (9") probe length x 12.7 mm (1/2") diameter |
| | stainless steel with porous filter |

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# RELATIVE HUMIDITY: PRODUCT ORDERING INFORMATION

| MODEL | Product Description (Dual transmitter - Humidity and Temperature) |
|---|---|
| **RH110** | Space |
| **RH210** | Duct |
| **RH310** | Outside Air |

| CODE | Style |
|---|---|
| **A** | Executive (RH110), ABS enclosure (RH210) and ABS enclosure weatherproof (RH310) |
| **B** | Designer space (RH110) |

| CODE | RH Accuracy |
|---|---|
| **02** | 2% |
| **03** | 3% |
| **05** | 5% |

| CODE | Temperature Sensor |
|---|---|
| **C** | PT1000-1000Ω Platinum, IEC 751, 385 Alpha, thin film |
| **L** | PT100-100Ω Platinum, IEC 751, 385 Alpha, thin film (N/A on RH110) |

| CODE | Power Supply |
|---|---|
| **1** | 24 Vdc (RH110B) |
| **2** | 24 Vac/dc (RH110A, RH210 and RH310) |

| CODE | Output Signal (RH and Temperature) |
|---|---|
| **A** | 4 - 20mA (RH110A, RH110B, RH210, and RH310) |
| **D** | 0 - 5 Vdc (RH110A, RH210 and RH310) |
| **E** | 0 - 10 Vdc (RH110A, RH210 and RH 310) |

| CODE | Temperature Transmitter Range |
|---|---|
| **1** | 0˚C - 35˚C (32˚F - 95˚F) |
| **2** | 0˚C - 50˚C (32˚F - 122˚F) |
| **3** | 0˚C - 100˚C (32˚F - 212˚F) |
| **6** | -50˚C - 50˚C (-58˚F - 122˚F) |

| CODE | Options |
|---|---|
| **AC** | Dual LCD display (Celcius for RH110A) |
| **AF** | Dual LCD display (Fahrenheit for RH110A) |

| RH110 | A | 03 | C | 2 | A | 1 | AC |
|---|---|---|---|---|---|---|---|

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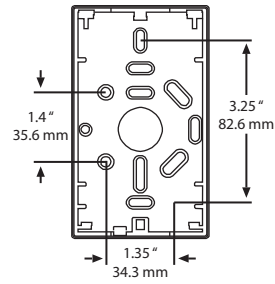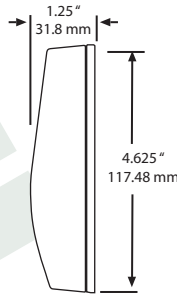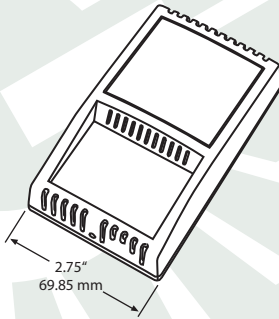
## EXAMPLE:

**RH110A03C2A1AC**

3% Space executive humidity c/w temperature transmitter with 1000Ω RTD, 24 Vac/dc power supply, 4 - 20mA output over 0˚C - 35˚C (32˚F - 95˚F)and dual LCD displaying both humidity and temperature (˚C).
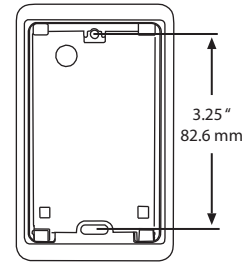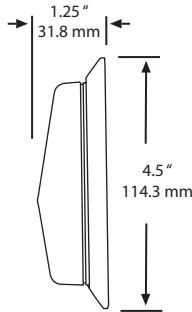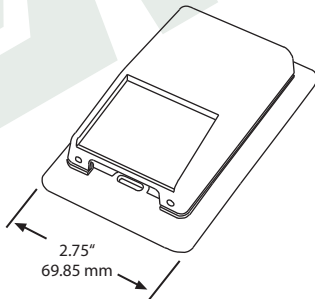
**Note:** Remote display option also available, see Miscellaneous Control Devices data sheet.

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# ENCLOSURE DIMENSIONS

## RH110A
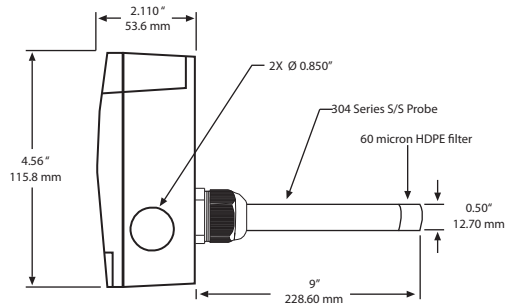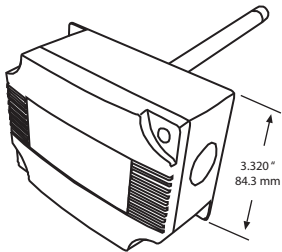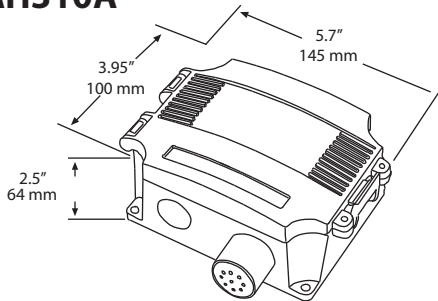
1.25″
31.8 mm

4.625″
117.48 mm

2.75″
69.85 mm

1.4″
35.6 mm

3.25″
82.6 mm

1.35″
34.3 mm

## RH110B

1.25″
31.8 mm

4.5″
114.3 mm

2.75″
69.85 mm

3.25″
82.6 mm

## RH210A

3.320″
84.3 mm

2.110″
53.6 mm

2X Ø 0.850″

304 Series S/S Probe

60 micron HDPE filter

4.56″
115.8 mm

0.50″
12.70 mm

9″
228.60 mm

## RH310A

5.7″
145 mm

3.95″
100 mm

2.5″
64 mm

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*Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC sensors and transducers 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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