



# 2% AND 3% HUMIDITY TRANSMITTER AND OPTIONAL TEMPERATURE SENSORS MODELS KHR, KHD, KHO

## DESCRIPTION

**Model KHR, KHD, and KHO Humidity Transmitters** are specifically designed for use in HVAC/BAS applications. These instruments measure relative humidity from 0% to 100%. The standard two-wire, 4-20 mA output provides low-cost humidity monitoring for building control. The RH transmitters are available with thermistor or RTD temperature sensors. They come in room (KHR), duct (KHD), and OSA (KHO) mounting styles.

## OPERATION

The transmitter converts the relative humidity into a 4-20 mA signal with the latest microprocessor capacitive design. Multi-point factory-automated calibration improves accuracy and repeatability. The optional temperature sensors, thermistor or RTD, offer direct connections to most automation systems.

## FEATURES

- Calibration-free interchangeable sensors
- Twelve-point computerized calibration
- $\pm 2\%$  or  $\pm 3\%$  accuracy (5% to 95% RH)
- Replaceable sensor probe (no re-calibration)
- No need to remove box to replace sensor probe
- Attractive room enclosure design
- Two-wire, 4-20 mA output, 0% to 100% RH



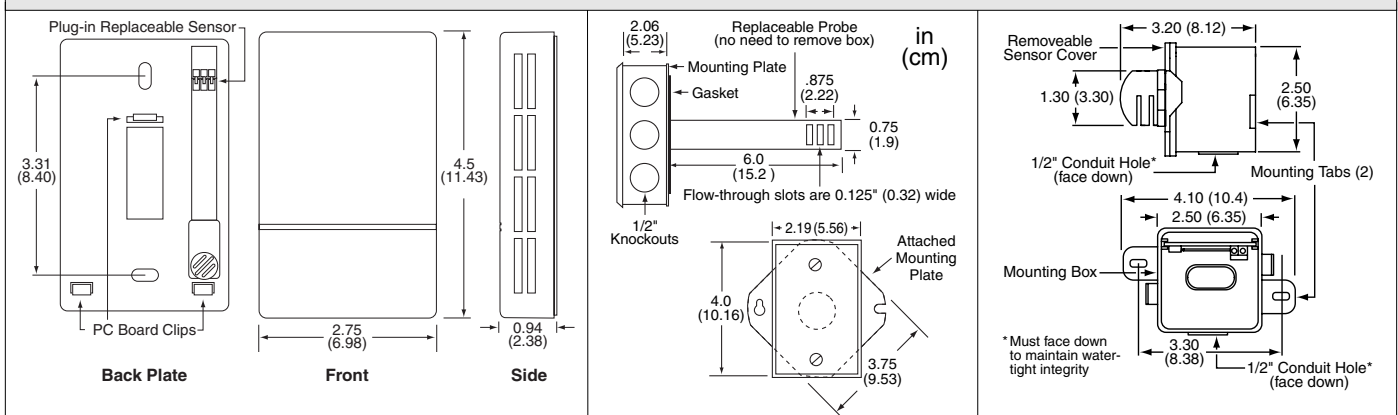
## OPTIONS

- Temperature thermistor / RTD
- Custom logo
- Weatherproof duct box
- Occupied button
- Communication jack
- LED

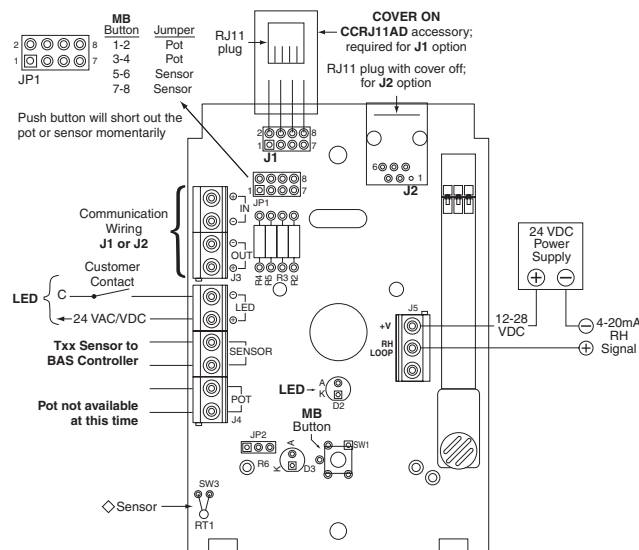
## SPECIFICATIONS

|                            |                                                                       |                       |                                                                                            |
|----------------------------|-----------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------|
| <b>Sensing element</b>     | Precon HS-2000 capacitive sensor                                      | <b>Probe Sensing</b>  | Interchangeable; no need to re-calibrate or remove mounting box                            |
| <b>Accuracy</b>            | $\pm 2\%$ or $\pm 3\%$ RH from 0° to 70°C, 5% to 95% RH noncondensing | <b>Room</b>           | HSR, plug-in module under cover                                                            |
| <b>Temp effect</b>         | Temperature compensated with $<0.008\%$ RH per °C                     | <b>OSA</b>            | HSO, 1/2" aluminum tube, plug-in wiring harness, 40 micron stainless steel sintered filter |
| <b>Long-term stability</b> | $\leq \pm 0.5\%$ drift per year                                       | <b>Duct</b>           | HSD, 1/2" aluminum tube with wiring plug and expanded Teflon® filter                       |
| <b>Output humidity</b>     | 4-20 mA = 0% to 100% RH, two-wire, loop-powered                       | <b>Options</b>        | N.O. button, RJ11 comm jack, LED-24V                                                       |
| <b>Supply voltage</b>      | 8.5-28 VDC                                                            | <b>Optional temp</b>  |                                                                                            |
| <b>Ambient temp</b>        | -22° to 185°F (-30° to 85°C)                                          | <b>Thermistor</b>     | Type 3, 21, 22, 24, 27, 42                                                                 |
| <b>Max load impedance</b>  | (Supply voltage - 8.5 VDC) / 0.02, 775Ω @ 24 VDC                      | <b>RTD (Platinum)</b> | Type 81, 85, 91                                                                            |
| <b>Enclosure</b>           |                                                                       | <b>Connections</b>    | Screw terminals                                                                            |
| <b>Room</b>                | White plastic, UL94HB                                                 | <b>Weight</b>         |                                                                                            |
| <b>Duct</b>                | Metal handy box (weatherproof box optional)                           | <b>Room/OSA</b>       | 0.2 lb (.084 kg)                                                                           |
| <b>OSA</b>                 | NEMA 3R plastic box                                                   | <b>Duct</b>           | 1 lb (0.45 kg)                                                                             |

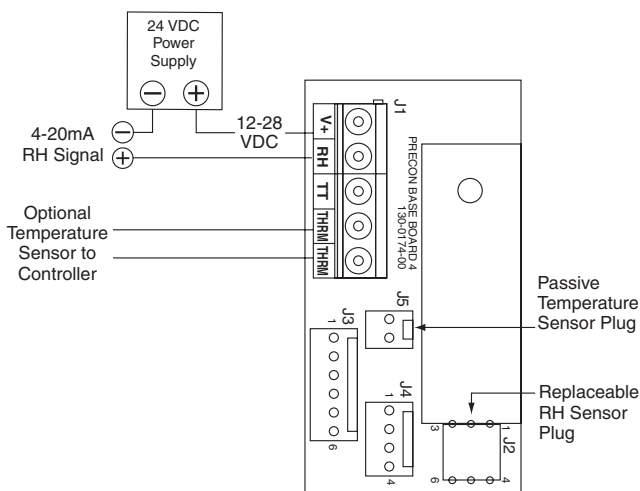
## DIMENSIONS



## WIRING — KHR



## WIRING — KHD and KHO



## ORDERING INFORMATION

| MODEL                                             | DESCRIPTION                                                    |
|---------------------------------------------------|----------------------------------------------------------------|
| KHR                                               | Room relative humidity transmitter                             |
| KHD                                               | Duct relative humidity transmitter                             |
| KHO                                               | OSA relative humidity transmitter                              |
| <b>RELATIVE HUMIDITY ACCURACY</b>                 |                                                                |
| 2                                                 | 2% accuracy                                                    |
| 3                                                 | 3% accuracy                                                    |
| <b>TEMPERATURE SENSOR and TRANSMITTER OPTIONS</b> |                                                                |
| --                                                | No temperature sensor                                          |
| CL1                                               | KHR custom logo, 1 color (CL2 = 2 color, CL3 = 3 color)        |
| J1                                                | RJ11 externally accessible communication jack (CCRJ11AD)       |
| J2                                                | RJ11 internal communication jack                               |
| LED                                               | LED lamp indicator, standard 24V (AC/DC) voltage               |
| MB                                                | Momentary push button switch, jumpered across sensor/pot (JP1) |
| T3                                                | 10,000Ω thermistor @ 77°F (25°C), Type III                     |
| T21                                               | 2252Ω thermistor @ 77°F (25°C), Type II                        |
| T22                                               | 3000Ω thermistor @ 77°F (25°C), Type II                        |
| T24                                               | 10,000Ω thermistor @ 77°F (25°C), Type II                      |
| T27                                               | 100,000Ω thermistor @ 77°F (25°C), Type II                     |
| T42                                               | 20,000Ω thermistor @ 77°F (25°C), Type IV                      |
| T81                                               | 100Ω RTD, 385 platinum curve                                   |
| T85                                               | 1000Ω RTD, 385 platinum curve                                  |
| T91                                               | 1000Ω RTD, 375 platinum curve                                  |
| WP                                                | KHD duct in weatherproof metal box                             |

### Sample orders:

**KHD2** 2% RH duct transmitter  
**KHR3T3** 3% RH room transmitter with 10kΩ Type III thermistor

### Custom Logo Color Chart

|  |              |  |              |
|--|--------------|--|--------------|
|  | Pantone 485  |  | Pantone 356  |
|  | Pantone 492C |  | Pantone 124C |
|  | Pantone 300  |  | Pantone 431C |
|  | Pantone 299  |  | Pantone 6C   |

Other Pantone colors available on request.

**HSR** Room replacement sensor  
**HSO\*** OSA replacement sensor

### ACCESSORIES

**HSD\*** Duct replacement sensor  
**HSD-WP\*** Duct replacement sensor for WP (metal box)

Note: All replacement sensors are 2% accuracy.

\*If a temperature sensor is included with an HS sensor, the temperature suffix must be added (T3, T21, T22, T24, T27, T42, T81, T85, or T91).