# Dwyer®

# SERIES RHP | HUMIDITY/TEMPERATURE TRANSMITTERS

**Duct mount**

**OSA (outside air) with radiation shield**

**OSA (outside air) with sintered filter**

**OSA (outside air)**

## FEATURES/BENEFITS

• **Reduced installation cost with combined humidity and temperature**
• **Wide application environment from a large selection of temperature sensors and 2%, 3% and 5% accuracies**
• **Reduced system operating costs with radiation shield protecting the sensor from radiant heat**

## APPLICATIONS

• Air economizers
• Outdoor temperature and relative humidity reference for building systems
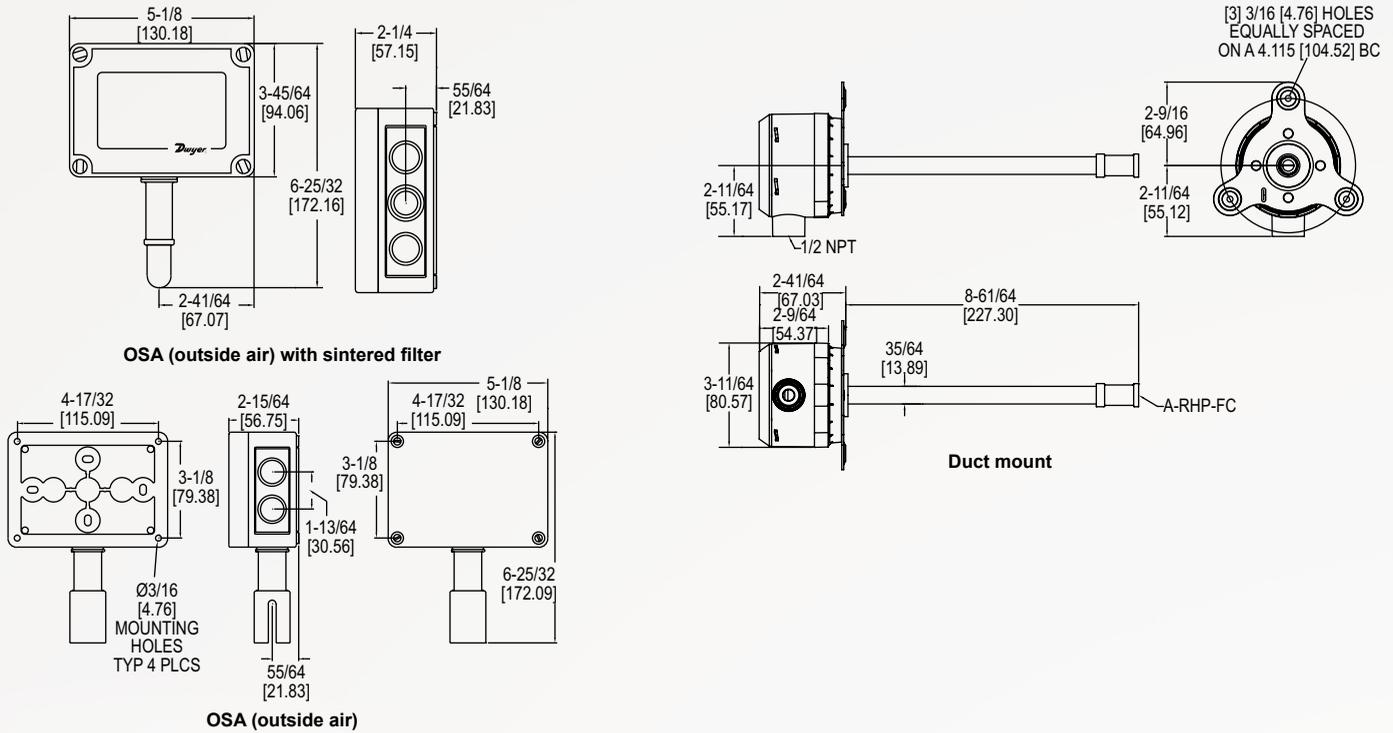
## DESCRIPTION

The **Series RHP Humidity/Temperature Transmitters** combine the voltage or current humidity transmitter output with a passive temperature thermistor or RTD output. The polymer capacitance humidity sensor reduces longterm affect of condensation, fog, or high humidity. The humidity sensors are available with 2%, 3% or 5% accuracies. Duct mounted transmitters are available with an optional two-line alpha numeric LCD display.

## SPECIFICATIONS

| | |
|---|---|
| **Relative Humidity Range** | 0 to 100% RH. |
| **Temperature Range** | -40 to 140°F (-40 to 60°C). |
| **Accuracy, RH** | RHP-2XXX ±2% 10-90% RH @ 25°C; RHP-3XXX ±3% 20-80% RH @ 25°C; RHP-5XXX ±5% 20-80% RH @ 25°C. |
| **Accuracy, Thermistor Temp Sensor** | ±0.2°C @ 25°C (±0.36°F @ 77°F). |
| **Accuracy, RTD Temp Sensor** | DIN Class B; ±0.3°C @ 0°C (±0.54°F @ 32°F). |
| **Accuracy, Solid State Band Gap** | ±0.9°F @ 77°F (±0.5°C @ 25°C). |
| **Hysteresis** | ±1%. |
| **Repeatability** | ±0.1% typical. |
| **Temperature Limits** | -40 to 140°F (-40 to 60°C). |
| **Storage Temperature** | -40 to 176°F (-40 to 80°C). |
| **Compensated Temperature Range** | -4 to 140°F (-20 to 60°C). |
| **Power Requirements** | 4-20 mA loop powered models: 10-35 VDC; 0-5/10 V output models: 15-35 VDC or 15-29 VAC. |
| **Output Signal (Model Dependent)** | 4-20 mA; 0-5/10V @ 5 mA max. |
| **Response Time** | 15 s. |
| **Electrical Connections** | Removable screw terminal block. |
| **Conduit Connection** | Duct mount: 1/2″ NPS; OSA: PG11 or PG16 (1/2″ conduit) knockouts. |
| **Drift** | < 1% RH/year. |
| **RH Sensor** | Capacitance polymer. |
| **Temperature Sensor** | Types 1, 2, 3: Solid state band gap; Curves A, B, C: Thermistor; Curves D, E: Platinum RTD DIN 385. |
| **Enclosure Material** | Duct mount sensor tube: PVC-UL 94 V-0; Duct mount sensor cap: Polycarbonate ABS blend-greater than UL 94 V-0; Duct mount electronics housing and cover: Makrolon® polycarbonate-UL 94V-HB; OSA: Polycarbonate. |
| **Enclosure Rating** | Duct mount: NEMA 4X (IP66) for housing only; OSA: NEMA 4X (IP66). |
| **Display** | Duct mount only, optional 2-line alpha numeric, 8 characters/line. |
| **Display Resolution** | RH: 0.1%; 0.1°F (0.1°C). |
| **Weight** | Duct mount: .616 lb (.3 kg); OSA: 1 lb (.45 kg). |
| **Compliance** | CE. |

## DIMENSIONS



**OSA (outside air) with sintered filter**



**OSA (outside air)**



**Duct mount**

## HOW TO ORDER

Use the **bold** characters from the chart below to construct a product code.

| RHP | -2 | D | 1 | A | -LCD |

**SERIES**
**RHP:** RH/passive temperature sensor transmitter

**ACCURACY**
**-2:** 2% accuracy
**-3:** 3% accuracy
**-5:** 5% accuracy

**HOUSING TYPE**
**D:** Duct mount with plastic hydrophobic filter
**O:** OSA (outside air)
**S:** OSA with sintered filter*
**R:** Radiation shield

*Use OSA with sintered filter models when purchasing Series RHRS separately.

**OPTIONS**
**-LCD:** LCD display
**-NIST:** NIST traceable calibration certificate

**TEMPERATURE SENSOR**
**0:** None
**1:** 4-20 mA
**2:** 0-10 VDC
**3:** 0-5 VDC
**A:** 10K @ 25°C thermistor type III
**B:** 10K @ 25°C thermistor type II
**C:** 3K @ 25°C thermistor
**D:** 100 Ω RTD DIN 385
**E:** 1K Ω RTD DIN 385
**F:** 20K Ω @ 25°C thermistor

**RH OUTPUT**
**1:** 4-20 mA
**2:** 0-10 V
**3:** 0-5 VDC

## ACCESSORIES

| Model | Description |
|---|---|
| **A-RHP-FC** | Replacement plastic hydrophobic filter |
| **A-RHP-RT** | Retrofit tool for fitting O-ring on RHP-D/M models for new filter A-RHP-FC |

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