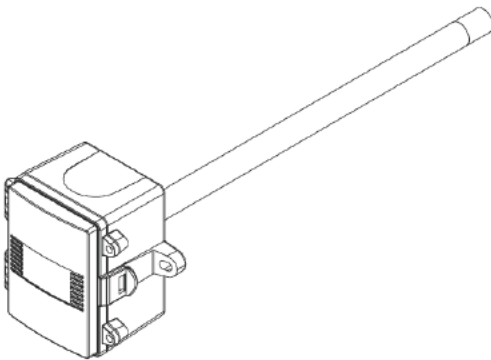


Introduction

The HT-69 Series Duct Probe Relative Humidity (RH) Transmitters use a highly accurate and reliable thermoset polymer-based capacitance humidity sensor and state-of-the-art digital linearization and temperature-compensated circuitry to monitor humidity levels in a duct. The humidity sensor is encapsulated in a 60 micron HDPE filter at the end of a 9 in. (230 mm) stainless steel (S/S) probe and a compact enclosure.

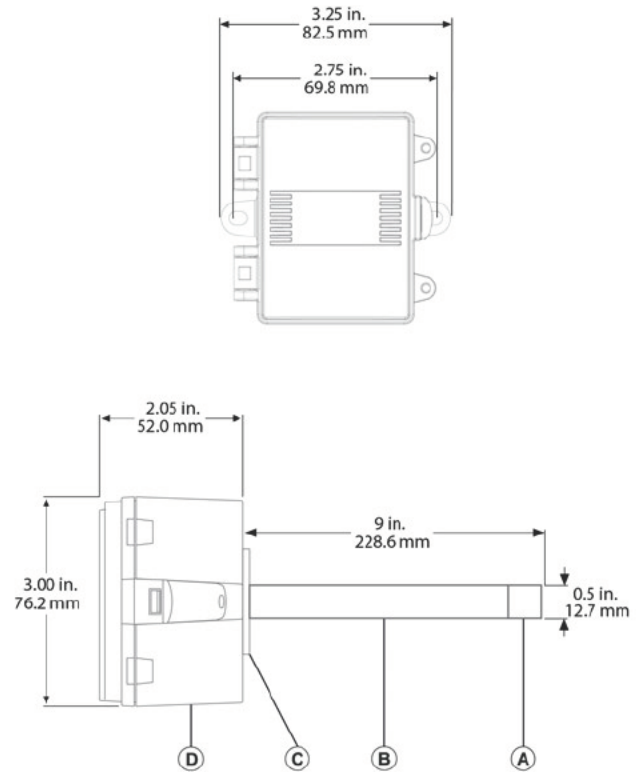
- **Important:** Read these instructions carefully before you install and commission the humidity transmitter. Failure to follow these instructions may result in product damage. Do not use in an explosive or hazardous environment, with combustible or flammable gases, as a safety or emergency stop device, or in any other application where failure of the product could result in personal injury. Take electrostatic discharge precautions during installation and do not exceed the device ratings.

Figure 1: HT-69 Duct Probe RH Transmitter



Dimensions

Figure 2: Dimensions of the HT-69 Duct Probe RH Transmitter



Callout	Description
A	60 micron HDPE filter
B	304 series S/S probe
C	Foam gasket
D	0.5 in. (12.7 mm) NPT



Mounting

About this task: The transmitter installs directly into any air duct with a minimum width or diameter of 10 in. (25.5 cm).

- Select a suitable installation area in the middle of the duct wall.
- To achieve the best reading, do not place in an area where air stratification may be present.
- Mount the sensor at least 5 ft. (1.5 m) in either direction from elbows, dampers, filters, or other duct restrictions.
- Avoid areas that expose the transmitter to vibrations or rapid temperature changes.

To install the transmitter, complete the following steps:

1. Once you select a suitable spot, drill a 0.6 in. to 0.75 in. (15 mm to 20 mm) hole for the probe.
2. Slide the probe into the drilled hole until the enclosure is flush against the duct. The airflow direction is not important.
3. Secure the enclosure to the duct with two No. 10 x 1 in. (25 mm) self-tapping screws (not provided).
4. Tighten the screws until the enclosure is tight against the duct so that there is no movement of the enclosure. A foam gasket on the back of the enclosure provides a tight seal against any air leaks. See Step 1 in Figure 3.
5. The enclosure includes a hinged cover with a latch. To open the cover, pull slightly on the latch on the right side of the enclosure. At the same time, pull on the cover as shown in Step 2 of Figure 3.
6. A 0.5 in. NPT threaded connection hole is in the bottom of the enclosure. Screw the EMT or cable gland connector into the threaded connection hole until tight. See Step 3 in Figure 3.
 - ① **Note:** Preferably use weatherproof EMT or cable gland fittings. The E-style enclosure includes 0.5 in. NPT to M16 thread adaptor and cable gland fitting.
7. Make wire connections as shown in the wire diagram in [Wiring](#).
8. Swing the door closed until it securely latches. For added security, install the two provided screws in the integrated screw tabs. See Step 4 of Figure 3.

Wiring

- Deactivate the 24 VAC/DC power supply before you make all connections to the device to prevent electrical shock or equipment damage.
- Use 14 AWG to 22 AWG shielded wiring for all connections and do not locate the device wires in the same conduit with wiring that supplies inductive loads such as motors. Make all connections in accordance with national and local codes.
- Pull at least 6 in. (15 cm) of wire into the enclosure, then complete the wiring connection according to the wire diagram for the applicable power supply and output signal type. See [Wiring](#).
- Place the output jumper in the required position to select the required signal output type (mA or VDC), as shown in Step 1 of Figure 4. The factory default setting is 4 mA to 20 mA.
- If you select mA, no further output set up is required. If you select VOLT output as shown in Figure 5, place Voltage Output Jumper to the required span position, that is 10 VDC = 0 VDC to 10 VDC. The factory default setting is 0 VDC to 10 VDC. See Step 2 of Figure 4.
- Connect the DC positive or the AC voltage hot side to the PWR terminal. For voltage output or AC power, connect the supply common to the COM terminal. The device is reverse voltage-protected and will not operate if you connect it backwards. The device contains a half-wave power supply so the supply common is the same as the signal common. See Step 3 of Figure 4.
- The analog output is available on the OUT terminal. Check the controller Analog Input to determine the correct connection before you apply power as shown in Step 3 of Figure 4.

Figure 3: Mounting the HT-69 Duct Probe RH Transmitter

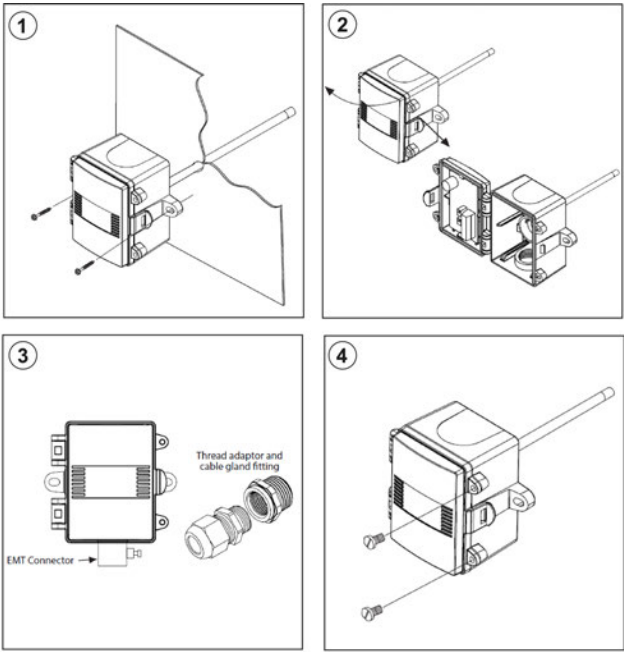
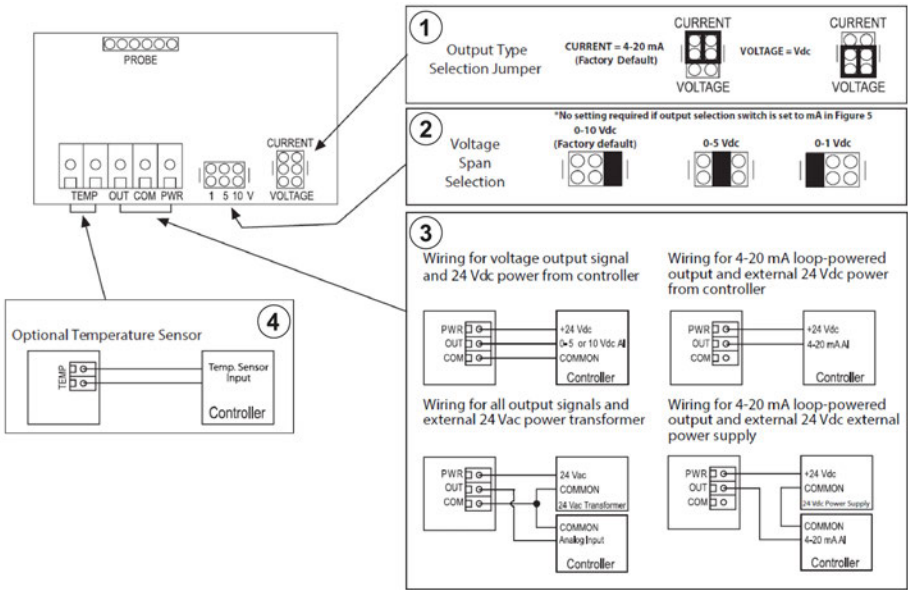


Figure 4: Wiring of the HT-60 Duct Probe Transmitter



Technical specifications

Table 1: HT-69020NP-0, HT-69030NP-0 Duct Probe RH Transmitter technical specifications

Specification	Description	
Sensor type	Thermoset polymer based capacitive	
Accuracy	±2% RH, 3% RH, or 5% RH from 5% RH to 95% RH	
Measurement range	0% RH to 100% RH noncondensing	
Temperature dependence	±0.05% RH/°C	
Hysteresis	±3% RH	
Repeatability	±0.5% RH	
Response time	15 seconds	
Stability	±1.2% RH at 50% RH in 5 years	
Power supply	24 VAC/DC ~ ±10%; 28 VAC/DC maximum	
Consumption at 24 VDC	20 mA	22 mA maximum
Input voltage effect	Negligible over specified operating range	
Output signal	4 mA to 20 mA current loop, 0 VDC to 5 VDC or 0 VDC to 10 VDC, jumper selectable	
Output drive at 24 VDC	Current: 550 ohm maximum Voltage: 10K ohm minimum	
Internal adjustments	ZERO and SPAN pot	
Protection circuitry	Reverse voltage-protected and output limited	
Ambient operating range	-40°F to 122°F (-40°C to 50°C)	
Operating humidity	5% RH to 95% RH noncondensing	
Storage temperature	-22°F to 158°F (-30°C to 70°C)	
Enclosure	A: ABS, UL94-V0, IP65 (NEMA 4X) E: Same as A, with thread adapter (0.5 in. NPT to M15) and cable gland fitting	
Dimensions (H x W x D)	3.00 in. x 3.24 in. x 2.05 in. (76.2 mm x 82.5 mm x 52.0 mm)	
Probe (L x D)	9 in. x 0.5 in. (230 mm x 12.7 mm), 304 S/S with porous filter	
Wiring connections	Screw terminal block (14 AWG to 22 AWG)	

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.