

HSH-D series

Duct Temp. & Relative Humidity Sensors

Honeywell HSH-D series duct temperature & relative humidity sensors are applied to measure the HVAC duct air temperature and relative humidity.

The HSH-D series duct temperature & relative humidity sensors have a variety of control signal outputs and can be compatible with a variety of automatic control systems



Basic Parameters

| | | |
|--|--------|--|
| Measuring Temp. Range | | -40°C to 60 °C |
| Working Environment | | -40°C to 60°C, 0 to 95%RH (Non condensation) |
| Humidity Accuracy @ 25°C and 24VDC | 2% | 20% to 80%: ±2%, 0 to 20% and 80% to 95% : ±3% |
| | 3% | 20% to 80%: ±3%, 0 to 20% and 80% to 95% : ±5% |
| | 5% | 20% to 80%: ±5%, 0 to 20% and 80% to 95% : ±9% |
| Power Supply | 0-10V | 24 VDC/24VAC±20% |
| | 4-20mA | 24 VDC ±20% |
| Output Load | | 0-10V output: ≥ 10K Ohms 4-20mA output: ≤500 Ohms |
| Current Consumption | | ≤70 mA |
| Response Time | | Temperature: ≤ 7 Minutes Humidity: ≤ 45 Seconds |
| Humidity Stability | | ±1%RH / Year |
| IP Rated | | IP65 |
| Storage Environment | | -40°C to 70 °C, 0 to 95%RH (Non condensation) |
| Housing Material | | PC (Fire rating: UL94-V0) |
| Electromagnetic Compatibility (Applications) | | EN IEC 61326-1:2021: For use in residential, commercial and light-industrial environments. |
| Certification | | EN IEC 61326-1:2021 |

Order information and Technical Specification

| SKU | RH Output | RH accuracy | Temp. Output | Temp. sensor element type | Temp. Accuracy* |
|------------|-----------|-------------|------------------|---------------------------|-----------------|
| HSH-DM2A | 4-20mA | 2% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DM2B | 4-20mA | 2% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DM2P | 4-20mA | 2% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DM2M-P | 4-20mA | 2% | 4-20mA | PT1000 | 0.3K @ 25°C |
| HSH-DM2M-E | 4-20mA | 2% | 4-20mA | Digital** | 0.3K @ 25°C |
| HSH-DM3A | 4-20mA | 3% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DM3B | 4-20mA | 3% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DM3P | 4-20mA | 3% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DM3M-P | 4-20mA | 3% | 4-20mA | PT1000 | 0.3K @ 25°C |
| HSH-DM3M-E | 4-20mA | 3% | 4-20mA | Digital | 0.3K @ 25°C |
| HSH-DM5A | 4-20mA | 5% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DM5B | 4-20mA | 5% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DM5P | 4-20mA | 5% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DM5M-P | 4-20mA | 5% | 4-20mA | PT1000 | 0.3K @ 25°C |
| HSH-DM5M-E | 4-20mA | 5% | 4-20mA | Digital | 0.3K @ 25°C |
| HSH-DV2A | 0-10V | 2% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DV2B | 0-10V | 2% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DV2P | 0-10V | 2% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DV2V-P | 0-10V | 2% | 0-10V | PT1000 | 0.3K @ 25°C |
| HSH-DV2V-E | 0-10V | 2% | 0-10V | Digital | 0.3K @ 25°C |
| HSH-DV3A | 0-10V | 3% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DV3B | 0-10V | 3% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DV3P | 0-10V | 3% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DV3V-P | 0-10V | 3% | 0-10V | PT1000 | 0.3K @ 25°C |
| HSH-DV3V-E | 0-10V | 3% | 0-10V | Digital | 0.3K @ 25°C |
| HSH-DV5A | 0-10V | 5% | Resistance Value | 10K NTC | 0.3K @ 25°C |
| HSH-DV5B | 0-10V | 5% | Resistance Value | 20K NTC | 0.3K @ 25°C |
| HSH-DV5P | 0-10V | 5% | Resistance Value | PT1000 | 0.2K @ 0°C |
| HSH-DV5V-P | 0-10V | 5% | 0-10V | PT1000 | 0.3K @ 25°C |
| HSH-DV5V-E | 0-10V | 5% | 0-10V | Digital | 0.3K @ 25°C |

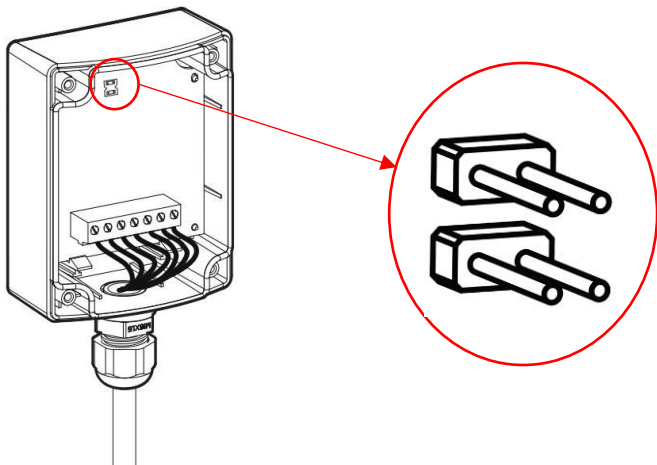
* 1. For the passive output type sensors, the temperature accuracy is the sensing element temperature accuracy. For the current and voltage signal output type sensors, the temperature accuracy is the transmitter accuracy when the power supply is 24VDC.

* 2. The temperature accuracy in the table above is the accuracy of the specified temperature point.

** Temperature sensor element type is **Digital** refers to the sensor type is PN junction type digital temperature sensing element, **Digital** is for short.

Temperature range setting and Wiring diagrams

1. Measure Temperature range setting (only for 0-10V and 4-20mA output)



| Jumper | Temp. Range |
|--------|---------------------------|
| | -40℃ to 60 ℃ (default) |
| | -20℃ to 50 ℃ |
| | 0℃ to 50 ℃ |

2. Wiring Diagrams: Wiring according to the wiring diagram corresponding to the model.

| SKU |
|----------|
| HSH-DV2A |
| HSH-DV2B |
| HSH-DV2P |
| HSH-DV3A |
| HSH-DV3B |
| HSH-DV3P |
| HSH-DV5A |
| HSH-DV5B |
| HSH-DV5P |

| | | |
|-----|--|---|
| V+ | | 24 V DC / AC |
| GND | | 电源 (-) / Power (-) |
| RH | | 相对湿度 / R.H. (0-10 V) |
| T | | |
| GND | | 输出信号接地 Output Signal Ground |
| | | NTC10K/NTC20K/PT1000电阻 NTC10K/NTC20K/PT1000 Resistor |
| | | |








| SKU |
|----------|
| HSH-DM2A |
| HSH-DM2B |
| HSH-DM2P |
| HSH-DM3A |
| HSH-DM3B |
| HSH-DM3P |
| HSH-DM5A |
| HSH-DM5B |
| HSH-DM5P |

| | | |
|-----|--|---|
| V+ | | 24 V DC |
| GND | | |
| RH | | 相对湿度 / R.H. (4-20 mA) |
| T | | |
| GND | | |
| | | NTC10K/NTC20K/PT1000电阻 NTC10K/NTC20K/PT1000 Resistor |
| | | |

| SKU |
|------------|
| HSH-DM2M-X |
| HSH-DM3M-X |
| HSH-DM5M-X |

| | | |
|-----|--|-----------------------|
| V+ | | 24 V DC |
| GND | | |
| RH | | 相对湿度 / R.H. (4-20 mA) |
| T | | 温度 / Temp. (4-20 mA) |
| GND | | |
| | | |
| | | |

| SKU |
|------------|
| HSH-DV2V-X |
| HSH-DV3V-X |
| HSH-DV5V-X |

| | | |
|---|---|--------------------------------|
| V+ |  | 24 V DC / AC |
| GND |  | 电源 (-) / Power (-) |
| RH |  | 相对湿度 / R.H. (0-10 V) |
| T |  | 温度 / Temp. (0-10 V) |
| GND |  | 输出信号接地 Output Signal Ground |
|  |  | |

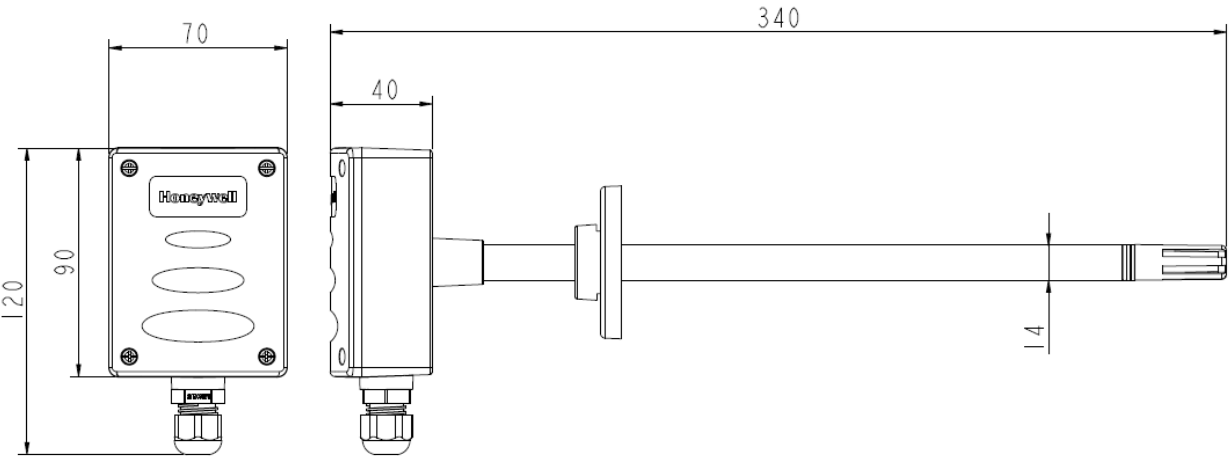
Tips:

1. Connection terminals are suitable for AWG15 to AWG22.
2. Due to the influence of wire resistance, the length of the cable between the sensor and the controller will cause the temperature drift. The details are as follows.

| Wire gauge | permissible cable length | PT1000 Temp. drift every 10 meters cable | NTC10K / NTC20K Temperature shift |
|------------|--------------------------|--|--------------------------------------|
| AWG 22 | 50m | 0.272K | Negligible |
| AWG 20 | 150m | 0.173K | |
| AWG 18 | 150m | 0.109K | |
| AWG 17 | 150m | 0.086K | |
| AWG 16 | 300m | 0.069K | |
| AWG 15 | 300m | 0.054K | |

Dimension

Unit: mm



Installation and Application Instructions

1. Install the sensor in the center of the air duct.
2. When the sensor is used with a steam humidifier, the minimum distance behind the humidifier is 3 meters.
3. The seal between the bottom box and the cover cannot be removed, the screws need to be installed in place after wiring, and the outlet position needs to be sealed, otherwise the IP65 protection level will no longer be guaranteed.
4. The sensing element in the probe is highly sensitive to impact, and any such impact should be avoided during installation.
5. The humidity sensor is a very sensitive measuring device, and it is very important to choose the correct installation location and environment. It should be avoided that the sensor is installed in an environment containing volatile chemicals, strong acids, strong alkalis, detergents, etc. Certain chemicals substances and substance groups can cause contamination to the sensor, resulting in accuracy deviation, measurement value offset or permanent damage. Special attention should be paid to the following substances, but not limited to the following substances:
 - Volatile (polar) molecules, such as methanol, ethanol, acetone, isopropanol, etc.;
 - Glues, adhesives, plasticizers and other materials that may release volatile molecules

