

Model RHA Humidity Sensor



Model List	Power Voltage
RHA	12 V to 24 V DC
RHA-5V	5 V DC

Application

- Humidity control in food processing facilities
- Humidity control in air-conditioning equipment
- Humidity control in pharmaceutical factories
- Humidity control in greenhouses/fermentation chambers
- Humidity control in museums, sample chambers, warehouses
- Humidity control in clean rooms
- Humidity control for musical instruments
- Humidity control in plant factories

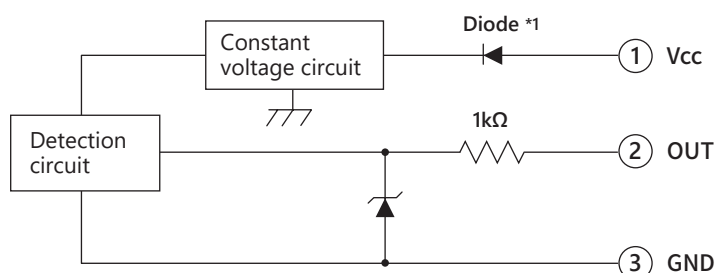
Features

- A small-sized humidity sensor.
- Outputs a linear voltage from 0.5 V to 4V DC corresponding to the humidity level.
- Easy to maintain connector type is used.
- M3 screws facilitate easy installation.

Rating / Performance

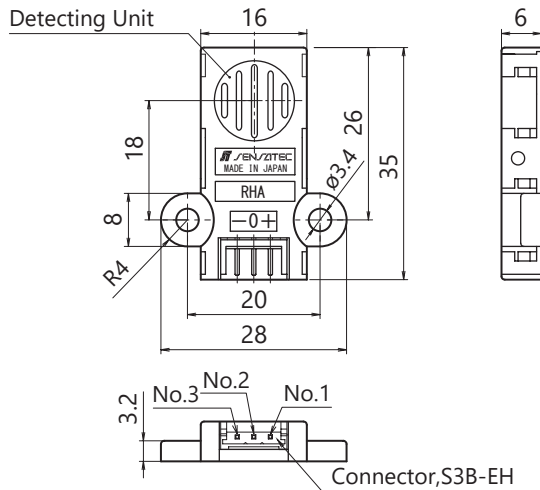
Model	RHA	RHA-5V
Detection Sensor	Humidity	
Temperature Range	-10 to 60 °C (Without dew condensation or freezing)	
Humidity Range	0 to 85 % RH (Without dew condensation)	
Measurable Humidity Range	0 to 100 % RH (Short-time measurement without dew condensation only)	
Standard Humidity Accuracy	± 5 % in the RH 25 °C (20 to 80 % RH)	
Humidity Response Time	60 sec (τ 63 %)	
Power Voltage	12 V to 24 V DC	5 V DC
Operating Voltage Range	10 V to 26.4 V DC	4.5 V to 5.5 V DC
Power Consumption	1 mA DC or less	0.5 mA DC or less
Resistance Output Impedance	1 kΩ	
Load Resistance	100 kΩ or more	
Storage Temperature	-10 to 60 °C (Without dew condensation or freezing)	
Storage Humidity	80 % RH or less (Without dew condensation)	
Breakdown Voltage	500 V AC, 50/60 Hz for 1 min (Between live parts and the case)	
Insulation Resistance	50 MΩ or more, at 500 V DC megger (Between live parts and the case)	
Vibration Resistance	Durability : 10 to 55 Hz, Double amplitude: 1.5 mm in X-, Y-, and Z-direction, each 2 hours (Device not powered)	
Shock Resistance	Durability : 200 m/s ² (Approx. 20 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)	
Ingress Protection	IP50	
Case Material	Polyarylate	
Connector	Connector : S3B-EH (3-pin) (From J.S.T. Mfg. Co., Ltd.) [Connections] Housing : EHR-3, Contact : SEH-001T-P0.6 (From J.S.T. Mfg. Co., Ltd.)	
Weight	Approx. 5 g	
Options (Sold Separately)	Connector harness : CNH-S3B03S26-300	

Output Circuit



*1 : The 5V DC type does not have a built-in backflow prevention diode.
Be sure to check the polarity of the power supply and connect it correctly.

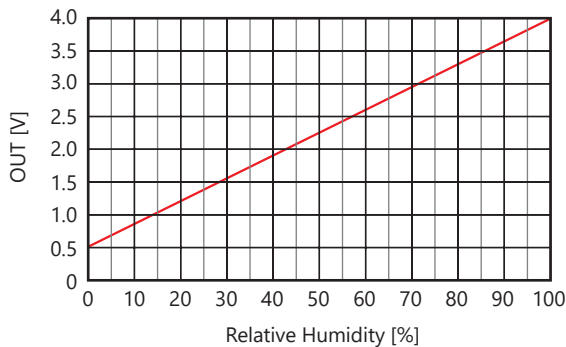
Dimensions



Pin No.	Signal Name	Function
1	Vcc	Power Supply Voltage
2	OUT	Output Signal
3	GND	GND

Characteristics Graph (Typical Example)

Humidity Characteristics



Output Voltage (V) and RH (%)

Output Voltage = 0.5 + (RH × 0.035) (V)

$$RH = \frac{\text{Output Voltage} - 0.5}{0.035} (\%)$$

Precautions During Use

- When the sensor is not used, to maintain the precision, it is recommended to store it in the delivered package (in the closed anti-static bag) without opening under the following conditions :
 - Temperature range : 10 to 50 °C
 - Humidity range : 20 to 60 % RH
 Do not use antistatic polyethylene bags (light blue, pink or rose pink color).
- The relative humidity value greatly depends on the humidity condition. When measuring the surrounding temperature/humidity, be sure to confirm there is no heated part on the installation surface.
- Use M3 pan head screws for mounting. The tightening torque for the case should be 0.5 N·m or less.
- This sensor has output impedance of 1kΩ to avoid damage due to external noise. The impedance attenuates according to the input impedance of the signal input device. Use a device with as high input impedance as possible - at least 100kΩ.
- The 5V DC type does not have a built-in backflow prevention diode. Be sure to check the polarity of the power supply and connect it correctly.
- This sensor cannot be used in dew condensation conditions. If this is the case, refer to the RHT series.
- Do not use the sensor in the following environmental conditions:
 - Where there is water or moisture
 - Where there are corrosive gases
 - Where there is oil
 - In freezing temperatures or dew condensation
 - Dusty locations
 - A place exposed to direct sunlight or radiated heat
- Vacuum away any serious dust contamination or else a malfunction may result.
- For other precautions, refer to "General Precautions" for infrared temperature sensors.

*For other detailed specifications, refer to the specification sheet of the corresponding model.