

# Humidity Sensor      Temperature/Humidity Sensor

# ES2-HB      ES2-THB

CSM\_ES2-HB\_ES2-THB\_DS\_E\_3\_4

**Detect Humidity within an Accuracy of  $\pm 3\%$  in a Compact Body. Controller Set Provides Superior Humidity Control and Temperature/Humidity Control.**

- Employs high-polymer-resistive Sensor with superior durability.
- Compact and lightweight.
- Measurement ranges of 20% to 95% for humidity and 0 to 55°C for temperature.

## Ordering Information

Name	Model
Humidity Sensor	ES2-HB
Temperature/Humidity Sensor	ES2-THB
Humidity Sensor Module (See note.)	ES2-M

**Note:** This is a replacement item. One Module is provided with the ES2-HB/-THB. Always attach the Humidity Sensor Module when using the ES2-HB/-THB. Approximately 7 VDC will be output for the humidity output if the Module is not attached or is incompletely attached.

## Specifications

<b>Humidity Sensor section</b>	High-polymer resistive
<b>Humidity detection range</b>	20 to 95%
<b>Humidity detection accuracy</b>	$\pm 3\%$ (25°C, 40 to 80%)
<b>Power supply voltage</b>	24 VDC (See note 1.)
<b>Operating voltage range</b>	85% to 110% of power supply voltage
<b>Current consumption</b>	10 mA max.
<b>Humidity output</b>	1 to 5 V (for humidity of 0% to 100%) Permissible load impedance: 100 k $\Omega$ min. (Use a 1:1 connection when connecting to an E5CC/E5EC/E5AC.)
<b>Temperature Sensor Section (See note 2.)</b>	Platinum resistance thermometer
<b>Temperature detection range</b>	0 to 55°C
<b>Temperature output</b>	Pt100: 3 wire (See note 4.)
<b>Class</b>	JIS class B
<b>Communications cable length</b>	5 m
<b>Operating temperature and humidity range (See note 3.)</b>	0 to 55°C, humidity of 95% max.
<b>Storage temperature and humidity range (See note 3.)</b>	-20 to 60°C, humidity of 95% max.
<b>Degree of protection</b>	IP 20 equivalent
<b>Weight</b>	ES2-HB: Approx. 41 g (excluding cables) ES2-THB: Approx. 43 g (excluding cables)

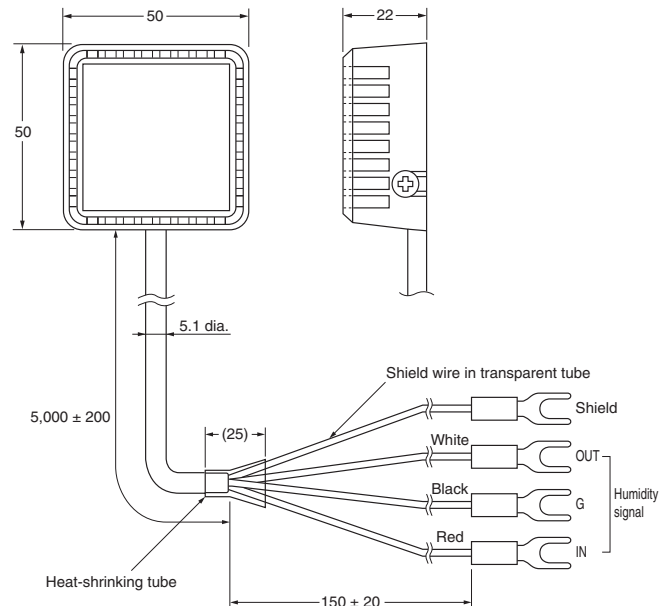
- Note:**
1. The maximum ripple voltage of 2% p-p max.  
The recommended power supply is the OMRON S8JX or S8VS.
  2. ES2-THB only.
  3. Do not use or store the Sensor for an extended period at a humidity of 90% or more.
  4. Pt100 (JIS C 1604-1989) is used for the measuring elements.  
Set Pt100 for input sensor type of the Temperature Controller.



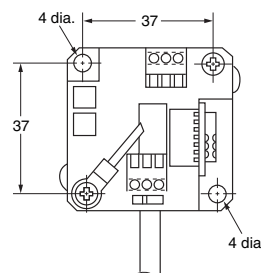
## Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

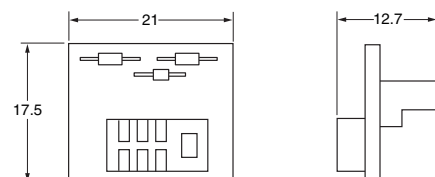
**ES2-HB Humidity Sensor**  
**ES2-THB Temperature/Humidity Sensor**



### Cover



### ES2-M Humidity Sensor Module



**Note:** Firmly insert the connector all the way in when mounting the ES2-M to the Sensor.

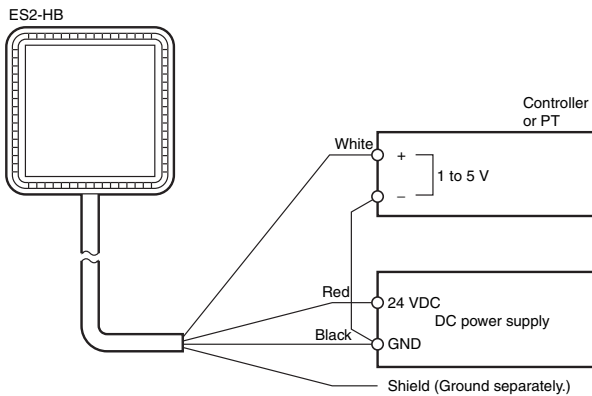
## Precautions for Safe Use

Do not use the product in the following locations:

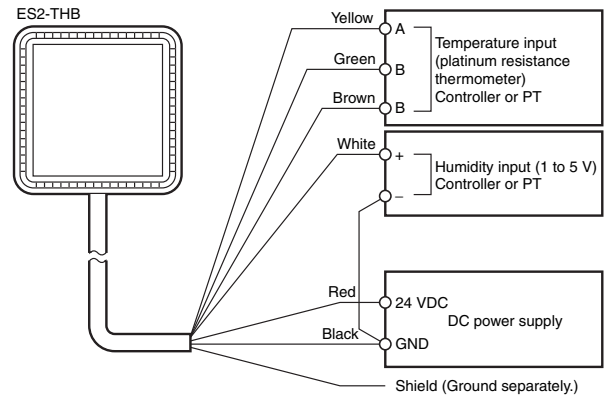
- Locations subject to water splashing or oil contact
- Locations subject to dust or corrosive gases
- Locations subject to icing or condensation
- Locations subject to direct sunlight

## Connection Examples

### ES2-HB Humidity Sensor



### ES2-THB Temperature/Humidity Sensor

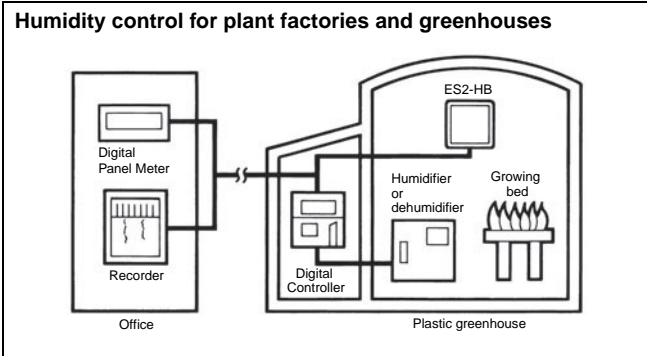
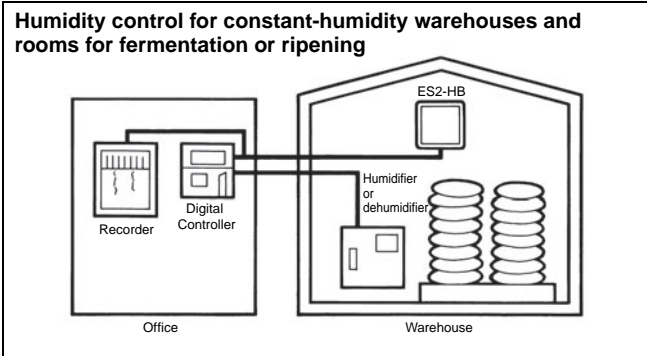
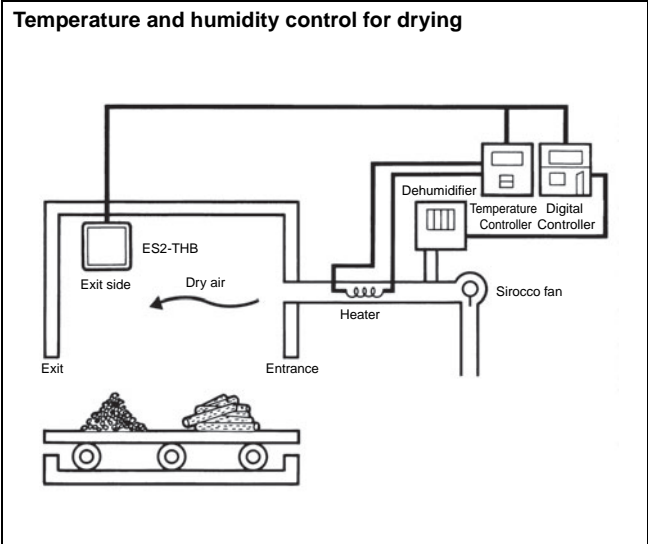
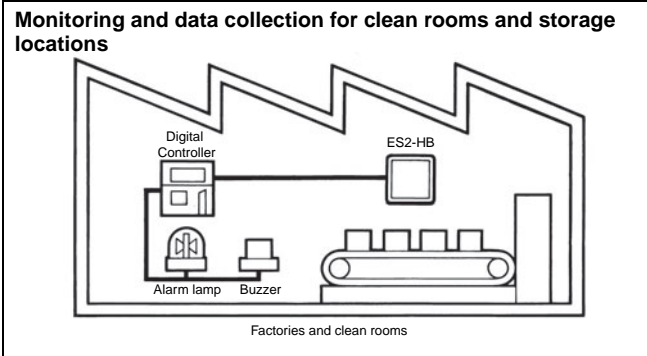
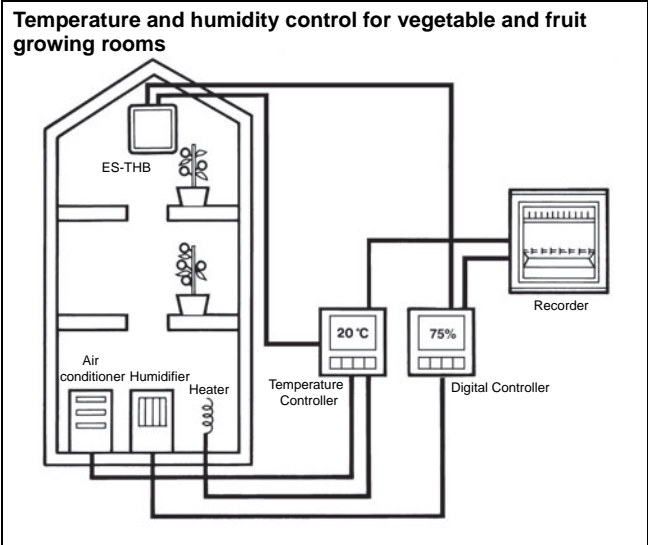


## Cable Conditions

Item	Model	ES2-HB	ES2-THB
Diameter		AWG22	AWG24
Number of conductors		3	6
Shield		Braided	Braided
Maximum conductive resistance (20°C)		60 Ω/km max.	92 Ω/km max.
Finished outer cable diameter		5.1 mm	5.8 mm

**Note:** Provide a separate cable according to the details listed at the left if the length of the supplied cable is insufficient. The cable can be extended to a maximum of 50 m.

# Application Examples



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
 To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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