

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

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

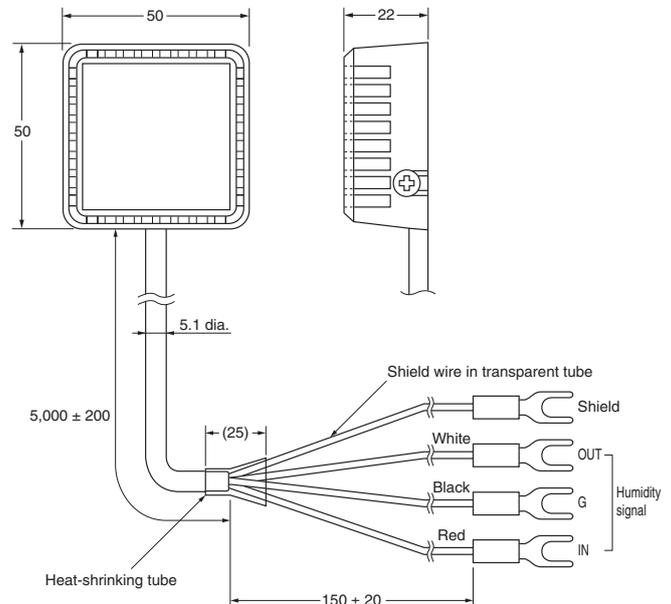
- Note:**
1. The maximum ripple voltage of 2% p-p max.
The recommended power supply is the OMRON S8JX or S8VS.
 2. ES2-THB only.
 3. Do not use or store the Sensor for an extended period at a humidity of 90% or more.
 4. Pt100 (JIS C 1604-1989) is used for the measuring elements.
Set Pt100 for input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



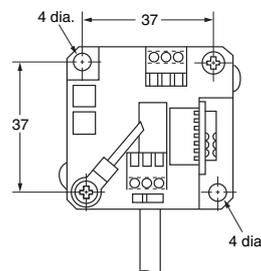
Dimensions

Note: All units are in millimeters unless otherwise indicated.

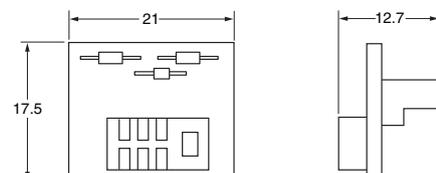
ES2-HB Humidity Sensor
ES2-THB Temperature/Humidity Sensor



Cover



ES2-M Humidity Sensor Module



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

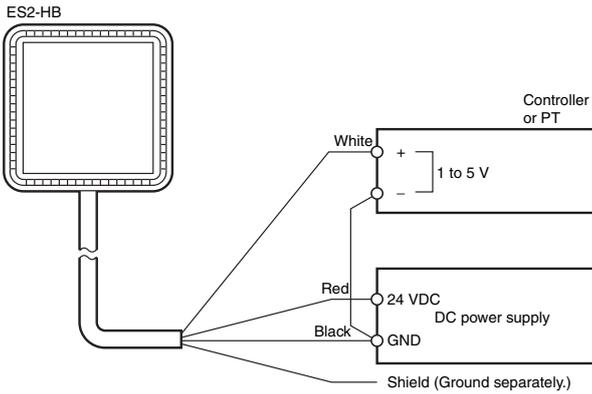
Precautions for Safe Use

Do not use the product in the following locations:

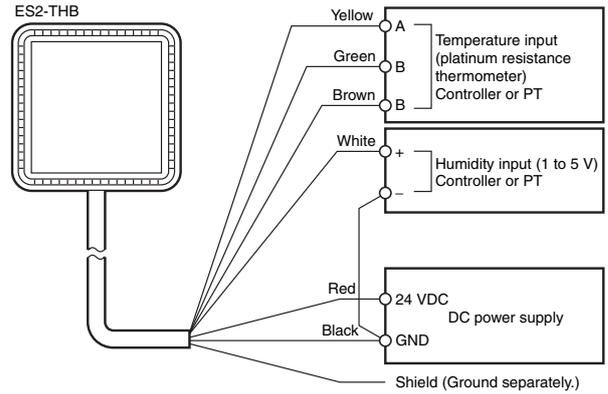
- Locations subject to water splashing or oil contact
- Locations subject to dust or corrosive gases
- Locations subject to icing or condensation
- Locations subject to direct sunlight

Connection Examples

ES2-HB Humidity Sensor



ES2-THB Temperature/Humidity Sensor

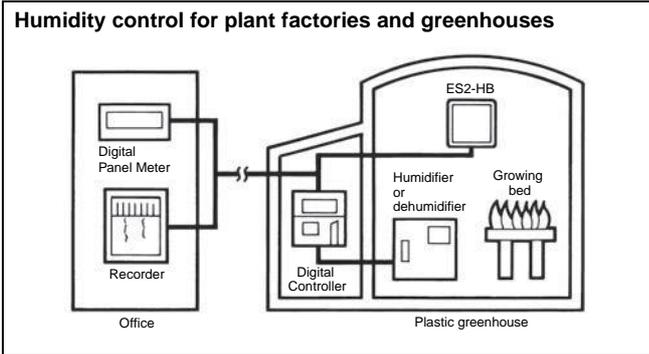
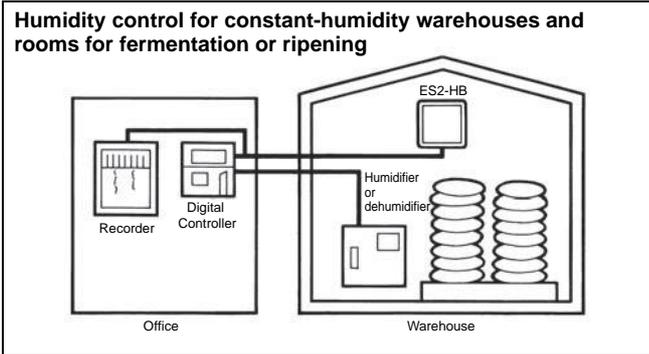
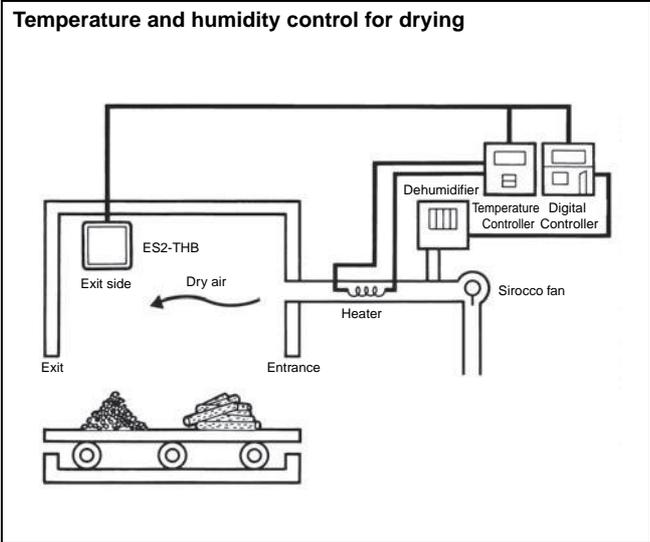
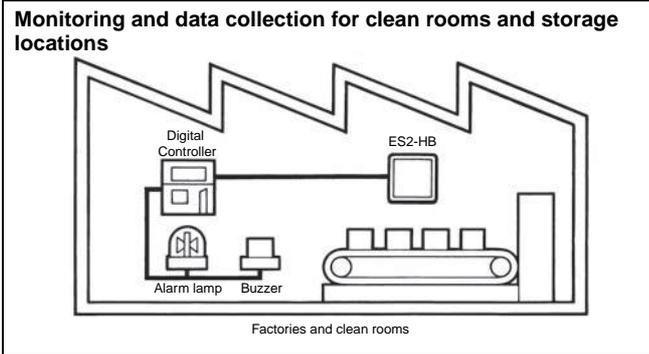
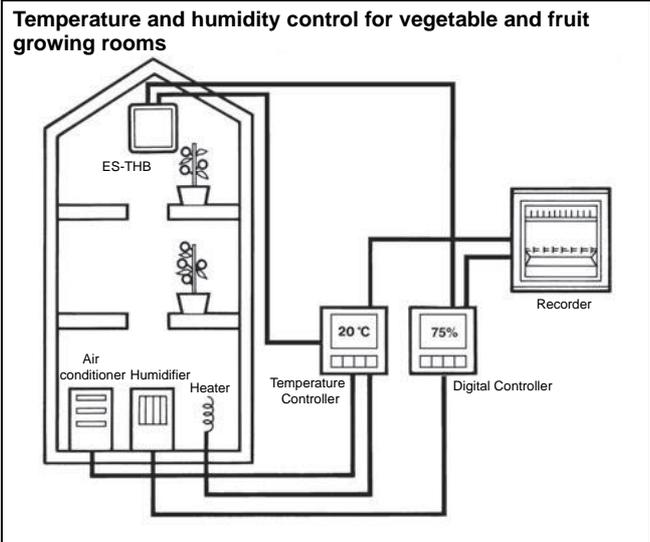


Cable Conditions

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.

In the interest of product improvement, specifications are subject to change without notice.

Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2016.7

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2016 All Right Reserved.