H7012A,B

ROOM HUMIDITY SENSOR/ COMBINED ROOM HUMIDITY/TEMPERATURE SENSOR

PRODUCT DATA

GENERAL

The H7012A Room Humidity Sensor is a capacitance type relative humidity sensor for wall mounting.

The H7012B Combined Room Humidity/Temperature Sensor incorporates a capacitance type relative humidity sensor with a Pt 1000, BALCO 500 or 20kΩ NTC temperature sensor in one housing.

These sensors are used for control, indication and alarm monitoring in room air conditioning installations.

Models

OS-No.	Temperature Sensor Type
H7012A1009	-
H7012B1007	Pt 1000
H7012B1015	BALCO 500
H7012B1023	20kΩ NTC

FEATURES

- **Pt 1000, BALCO 500 or 20kΩ NTC temperature sensing element**
- **Wide sensing range**
- **Capacitance type sensing element for relative humidity**
- **Plug-in design**

SPECIFICATIONS

General:

Power supply	24Vac, +20...-30%; 50/60Hz, 34Vdc, +20...-30%
Current consumption	20mA @ 24V
Ambient operating limits	0...50°C (+32...122°F), 5...95%rh non condensing
Ambient storage limits	-25...70°C (-13...158°F), 5...95%rh non condensing
Dimensions	see Fig. 2
Weight	130g
Case	Plastic (ABS) flame retardend acc. to UL94-V0
Mounting	Wall, surface or wall outlet box
Protection Standard	IP 30 acc. to EN60529
Safety	Class II acc. to EN60730-1

CE

Temperature:

Temperature sensing range	0...50°C (32...122°F)
Nominal value	
Pt 1000	1000Ω @ 0°C
BALCO 500	500Ω @ 23.3°C
NTC	20kΩ @ 25°C
Accuracy	
Pt 1000	±0.3K acc. to DIN IEC 751 Class B
BALCO 500	±0.4K @ 23.3°C
NTC	±0.2K at 25°C
Sensitivity	
Pt 1000	≈3.85Ω/K
BALCO 500	2Ω/K
Characteristic	see EN0C-0603
Response time @ air velocity 0.02...0.07m/s	
$\tau_{0.5\ Pt\ 1000}$	=50s
$\tau_{0.5\ Balco\ 500}$	=140s
$\tau_{0.5\ NTC}$	=134s

Relative Humidity:

Humidity sensing range	5...95%rh
Output signal	0...1V / 0...10V ≙ 0...100%rh
Output Impedance	
1V range	183Ω
10V range	274Ω
Outputs short circuit protected	
Sensitivity	10mV / %rh or 100mV / %rh
Accuracy	
5...10%rh	±10%
10...30%rh	± 5%
30...70%rh	± 3%
70...90%rh	± 5%
90...95%rh	±10%
Response time	$\tau_{0.5}$=20s

Overview

Following sensors can be applied for the following control systems:

Control systems	Temperature			Humidity	
	Pt 1000	20kΩ NTC	BALCO 500	0...1Vdc	0...10Vdc
Excel Classic	X		X	X	X
Excel Plus	X		X	X	X
High Performance Excel Plus	X		X	X	X
Excel EMC	X		X	X	X
Excel 500/600 (XF521)	X	X			X
Excel 500/600 (XF526)	X	X	X		X
Excel 20 & 50		X			X
Excel 80B & 100B	X	X			X
Excel IRC Multicontroller R7451A1030		X		X	
MicroniK 100			X	X	
MicroniK 100 “NEW“ R7420B1036/R7420F1045	X		X	X	
MicroniK 200	X	X	X		X

http://www.honeywell-bj.cn 010-59799400

DIMENSIONS

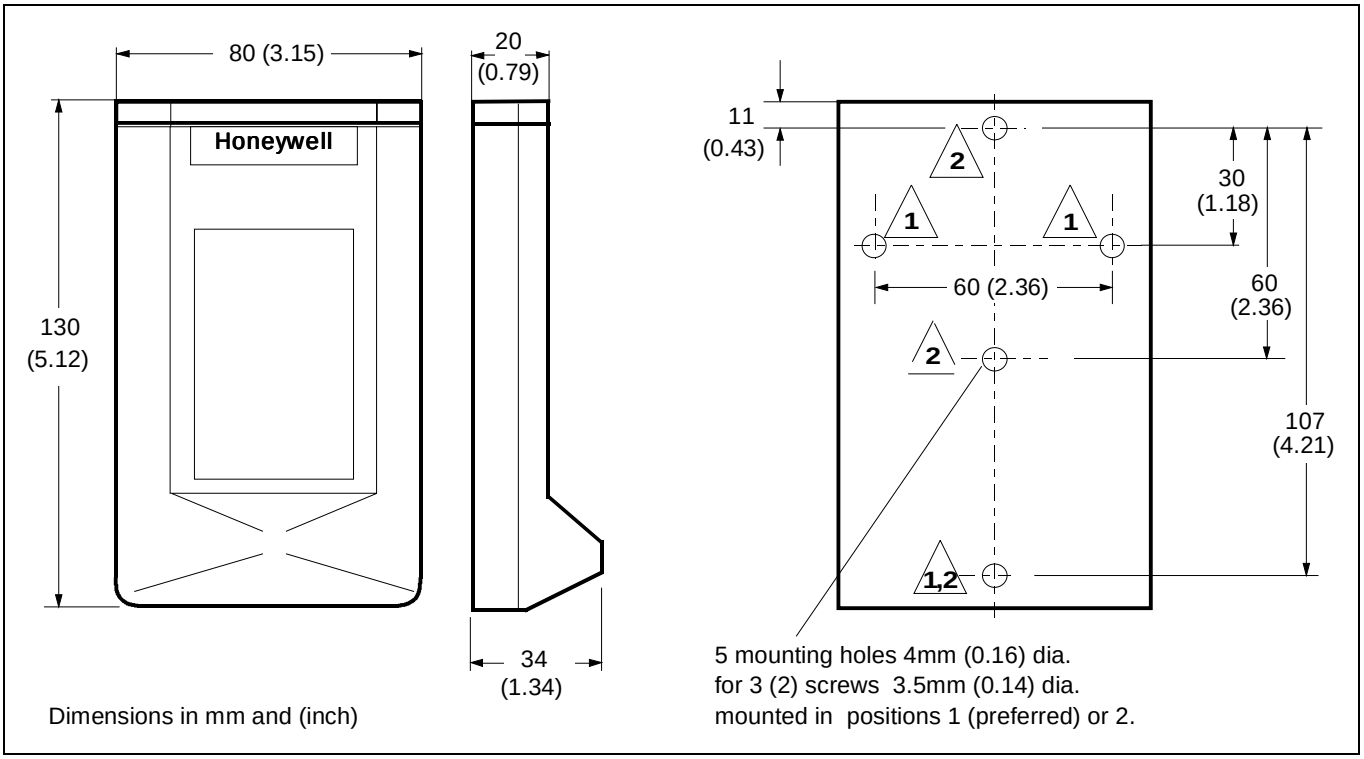

Fig. 1 Dimensions

INSTALLATION

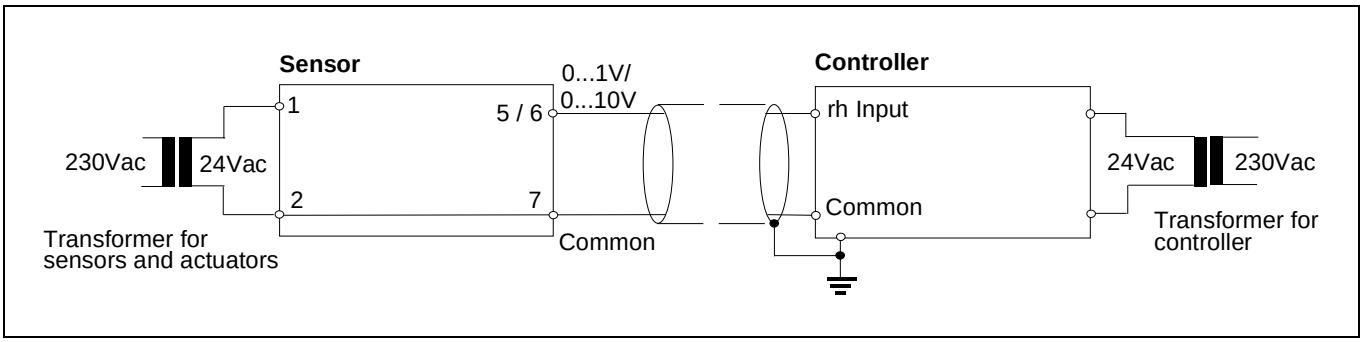

Fig. 2 Installation Example

Mounting and Installation Advice:

- Mount these units at the inside wall of the room to be heated or air conditioned, away from doors, windows and heat sources.
- Do not mount in niches, book shelves, behind cabinets or curtains or where it could be exposed to solar radiation.
- Seal the conduit opening to avoid false measurement due to draught from the conduit.
- Provide sufficient air circulation.

NOTE

Use shielded wiring in areas with high EMI. Keep 15cm (5.9'') minimum distance between sensor lines and 230Vac power lines.

Use two transformers: one for sensors and actuators and one for the controller (see Fig. 3).

Offset due to wire resistance per 10m distance from sensor to controller:

Type of wire	Temperature offset		
	Pt 1000	BALCO 500	NTC
0.5mm^2 (AWG20)	0.18°C (0.324°F)	0.3°C (0.54°F)	negligible
1.0mm^2 (AWG17)	0.09°C (0.162°F)	0.15°C (0.27°F)	
1.5mm^2 (AWG15)	0.06°C (0.108°F)	0.1°C (0.1°F)	

Wiring run	Maximum length
Sensor to controller	200m (660ft)

Wiring connection

1	24V~	POWER SUPPLY
2	24V⊥	
3	Pt 1000/NTC/ BALCO 500	TEMPERATURE SENSOR
4		
5	0...1V	REL. HUMIDITY SENSOR
6	0...10V	
7	COM = 24V⊥	
8		
9		
10		

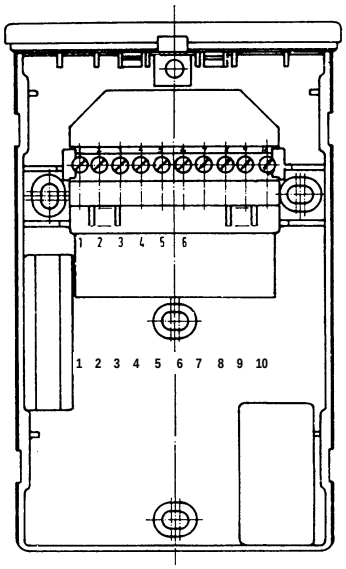

Fig. 3 Installation