

## H7015A,B

### DUCT HUMIDITY SENSOR/ COMBINED HUMIDITY/TEMPERATURE SENSOR

#### PRODUCT DATA



### GENERAL

The H7015A Duct Humidity Sensor is a capacitance-type relative humidity sensor for duct mounting.

The H7015B Combined Humidity / Temperature Duct Sensor combines a capacitance type relative humidity sensor with a Pt 1000, BALCO 500 or 20k $\Omega$  NTC temperature sensor in one housing.

These sensors can be used

- for discharge, outside or return air control
- as high limit sensor e.g. for steam humidification

### Models

OS-No.	Temperature Sensor Type
H7015A1006	-
H7015B1004	Pt 1000
H7015B1012	BALCO 500
H7015B1020	20k $\Omega$ NTC

### FEATURES

- Pt 1000, BALCO 500, or 20k $\Omega$  NTC temperature sensing element
- Wide sensing range
- Capacitance type sensing element for relative humidity

### SPECIFICATION

Power supply	24 Vac, $\pm$ 20% (SELV) 15...30 Vdc
Current consumption	15 mA at 24 V
<b>Ambient Limits</b>	
Operating temperature	
- Terminal box	0...50 °C (32...122 °F)
- Transport and storage temperature	-25...+60 °C (-31...+158 °F)
Humidity	5...95% rh, non-condensing
<b>Safety</b>	
Protection class	III as per EN60730-1
Protection standard	
- Terminal box	IP54 as per EN60529
Flame retardant terminal box	V1 as per UL94 plastic (ABS)
Dimensions	see Fig. 2
Weight	300 g
Mounting	duct
<b>Temperature Sensor</b>	
Temperature sensing range	-30...+70 °C (-22...+158 °F)
Nominal value	
- Pt 1000	1000 $\Omega$ at 0 °C
- BALCO 500	500 $\Omega$ at 23.3 °C
- NTC	20 k $\Omega$ at 25 °C
Accuracy	
- Pt 1000	$\Delta T/K = \pm(0.3 + 0.005 \cdot  t )$ [t in °C] as per DIN IEC 751 Class B
- BALCO 500	$\pm 0.4$ K at 23.3 °C
- NTC	$\pm 0.3$ K at 25 °C
Sensitivity	
- Pt 1000	$\approx 3.85$ $\Omega/K$
- BALCO 500	2 $\Omega/K$
Characteristic	see EN0B-0476GE51
Response time at air velocity 5 m/s	
$\tau_{0.5}$ Pt 1000	< 60 s
$\tau_{0.5}$ Balco 500	< 45 s
$\tau_{0.5}$ NTC	< 85 s

**Relative Humidity Sensor**

Humidity sensing range	5...95% rh	
Output signal	0...1 Vdc / 0...10 Vdc	
	± 0...100% rh	
Output Impedance	1 V range	183 Ω
	10 V range	274 Ω
Outputs short circuit protected		

Sensitivity	10 mV / %rh or 100 mV / % rh
Accuracy	at 25 °C / 24 Vac
	5...10% rh ±10%
	10...30% rh ± 5%
	30...70% rh ± 3%
	70...90% rh ± 5%
	90...95% rh ±10%
Response time	τ <sub>0,5</sub> ≈ 6 s at air velocity 5 m/s

**OVERVIEW**

The following sensors can be employed for the listed control systems:

control systems	temperature			humidity	
	Pt 1000	20kΩ NTC	BALCO 500	0...1 Vdc	0...10 Vdc
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

**INSTALLATION**

**Wiring**

wiring run	maximum length
sensor to controller	200 m (660 ft)

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

type of wire	temperature offset		
	Pt 1000	BALCO 500	NTC
0.5 mm <sup>2</sup> (AWG20)	0.18 K (0.324 °F)	0.3 K (0.54°F)	
1.0 mm <sup>2</sup> (AWG17)	0.09 K (0.162 °F)	0.15 K (0.27°F)	negligible
1.5 mm <sup>2</sup> (AWG15)	0.06 K (0.108 °F)	0.1 K (0.1°F)	

**NOTE:** Installation of the sensor near high EMI-emitting devices may lead to faulty measurements.

Use shielded wiring in areas with high EMI.

Keep 15 cm (5.9") min. distance between sensor lines and 230 Vac power lines.

Use two transformers: one for sensors and actuators and one for the controller.

## DIMENSIONS

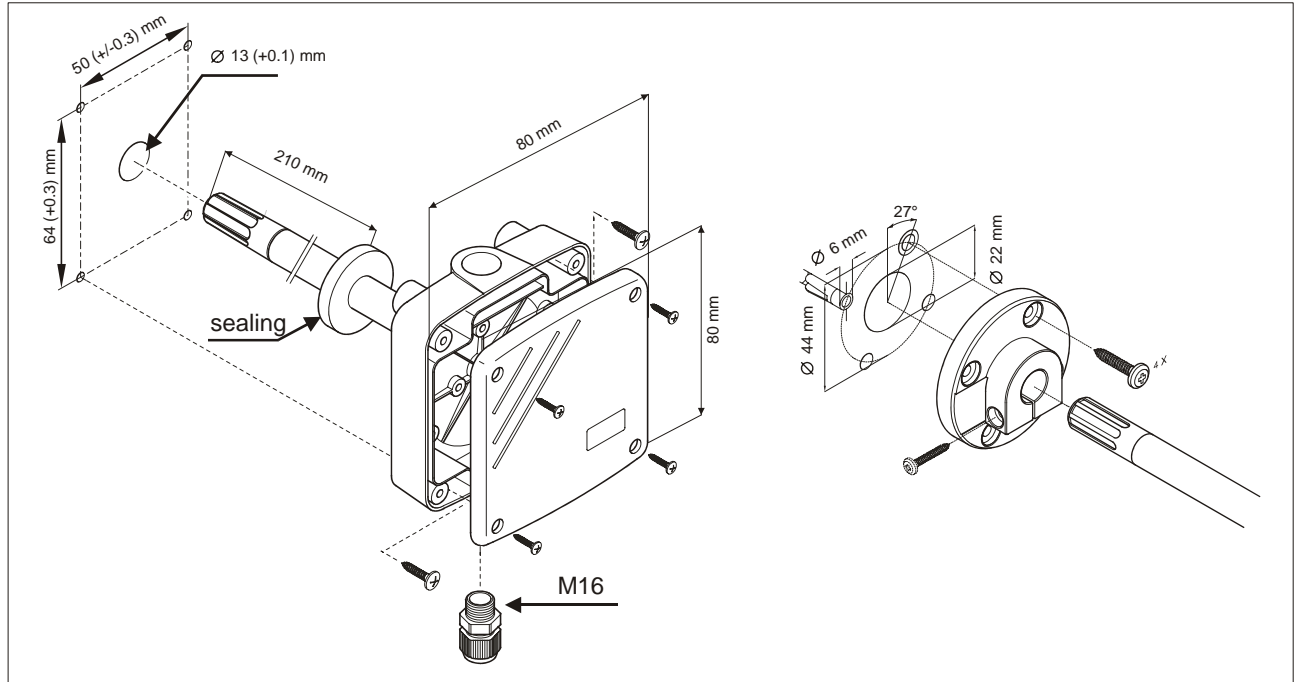


Fig. 1. Dimensions

## TERMINAL ASSIGNMENTS

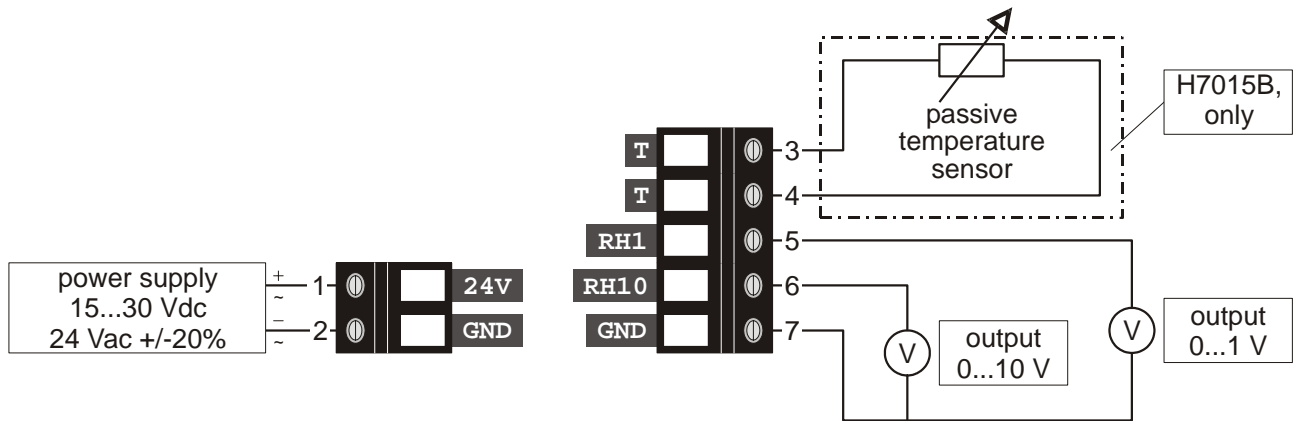


Fig. 2. Connection diagram

**Honeywell**

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