

H7508A

COMBINED OUTSIDE AIR HUMIDITY/
TEMPERATURE SENSOR

PRODUCT DATA



Fig. 1 Outside Air Humidity / Temperature Sensor

GENERAL

The H7508A Combined Outside Air Humidity / Temperature Sensor incorporates a capacitance type relative humidity sensor with a Pt 1000, BALCO 500 or NTC temperature sensor in one housing.

The H7508A can be used for control, indication and alarm monitoring in commercial or industrial installations.

Models

OS-No.	Temperature Sensor Type
H7508A1026	Pt 1000
H7508A1034	BALCO 500
H7508A1042	20k Ω NTC

FEATURES

- Pt 1000, BALCO 500 or NTC temperature sensing element
- Wide sensing range
- Capacitance type sensing element for relative humidity
- Special housing for outside application

SPECIFICATION

General:

Power supply	24Vac, +20...-30%; 50/60Hz, 34Vdc, +20...-30%
Current consumption	20mA @ 24V
Ambient operating limits	-30...50°C (-22...122°F), 5...95%rh non condensing (below 0°C the humidity measurement is inaccurate)
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-HB
Mounting	Wall, surface or wall outlet box
Protection Standard	IP 34 acc. to EN60529
Safety	Class III acc. to EN60730-1

This product meets the requirements of **CE**

EN0C-0795 0497R0-MA

Temperature:

Temperature sensing range	-30...70°C (-22...158°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	
τ _{0.5} Pt 1000	<≈9min
τ _{0.5} Balco 500	<≈9min
τ _{0.5} NTC	<≈11min

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	τ _{0.5} = 80s

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

DIMENSIONS

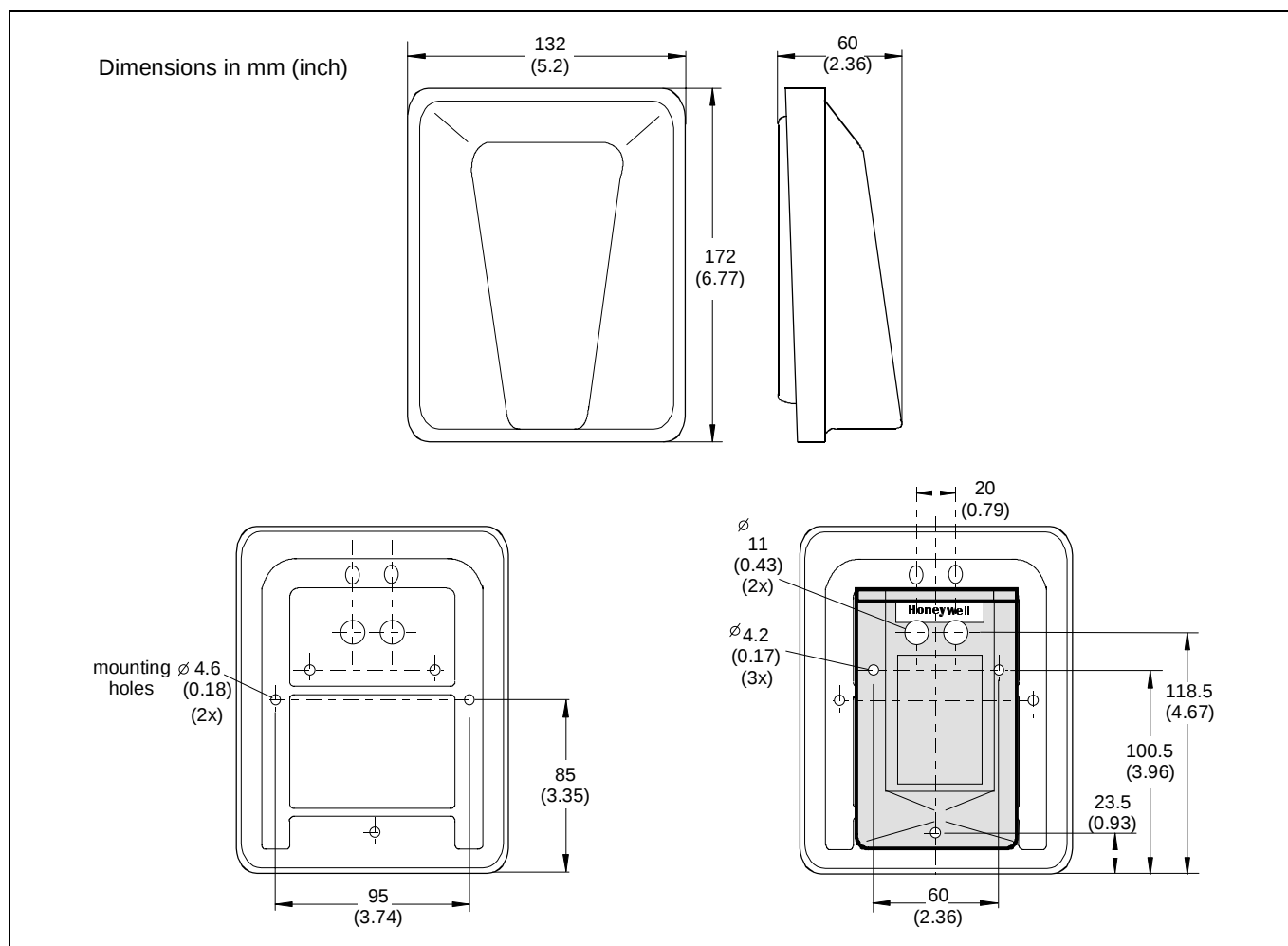


Fig. 2 Dimensions of special housing

INSTALLATION

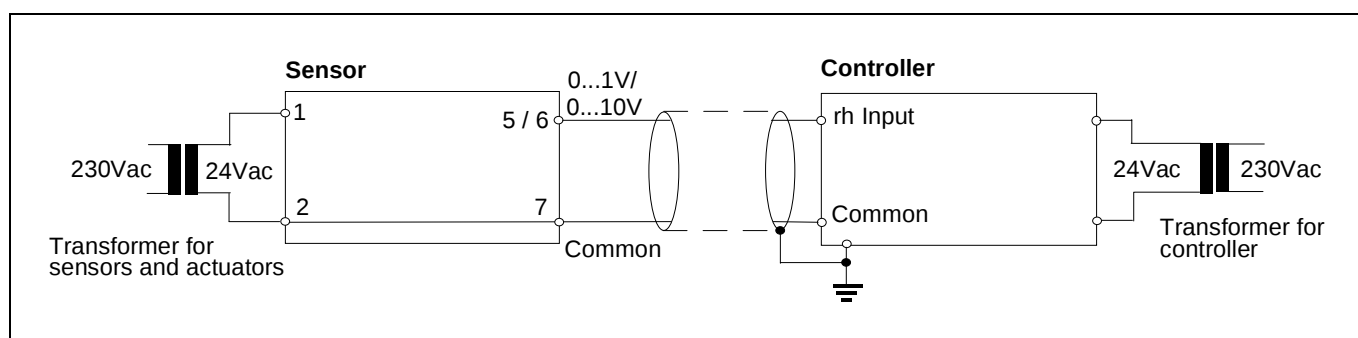


Fig. 3 Installation Example

Mounting and Installation Advice:

- Mount the sensor where it is protected against rain and direct sun radiation, preferably on the north side of the building. If this is not practical, it should be shielded from sun's rays.
- Mount the sensor preferably on that outside wall of the buildings having windows of the main occupancy rooms to be controlled.
- Provide sufficient air circulation for accurate measurement.
- Seal the cable conduit to avoid false measurement due to draught of warm air from the conduit.
- Ensure that the cable inlet holes on the sensor housing are sealed properly and that the cable runs from the bottom to the top into the cable entry as shown in Fig. 4 below to prevent that rain water enters the sensor housing.
- Do not mount the sensor over windows, doors, air extractors or other heat sources or underneath the eaves of the roofs or a balcony.

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		

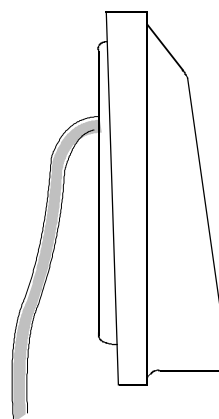


Fig. 4 Installation

Honeywell