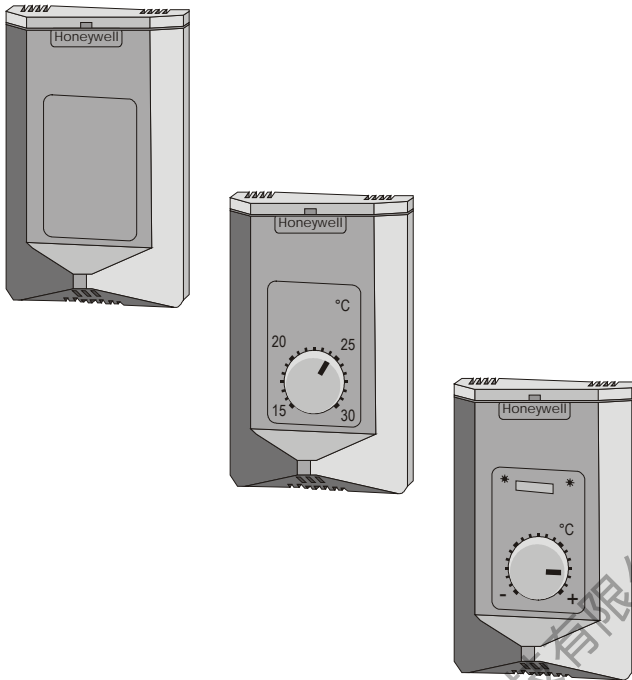


T7412A,B,C,D,E ROOM TEMPERATURE SENSOR

PRODUCT DATA



FEATURES

- PT1000, PT100, NTC20k Ω , or BALCO 500 temperature sensing element
- Sensing range 0...50 °C (32...122 °F)
- High-precision sensor elements
- Attractive housing
- Occupied/unoccupied slide switch
- Fan speed switch
- Push-button for time extension or other purposes and LED for status indication

SPECIFICATION

Ambient limits

Operating temperature	0...50 °C (32...122 °F)
Transport and storage temperature	-25...+70 °C (-13...+158 °F)
Humidity	5...95%rh, non-condensing

Safety

Protection class	II as per EN60730-1
Protection standard	IP30 as per EN60529
Flame retardant housing	V0 as per UL94

Housing

Dimensions (H x W x D)	Plastic (ABS) 130 x 80 x 34 mm (5.12 x 3.15 x 1.34")
Weight	100 g
Mounting	Wall, surface, or European outlet box

Connections

Screw terminals	for 2x1.5 mm ² conductors
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Potentiometer/Switches

CPA/SPA potentiometer circuit	see Fig. 1 on page 3
Occupancy switch or Occupancy extend push-button	Potential-free contact
- occupied	closed < 100 Ω
- unoccupied	open > 40k Ω
Fan speed switch	Resistor Network
- auto-OFF-I-II-III	

GENERAL

The T7412A,B,C,D,E Room Temperature Sensors are used for room temperature measurement and remote control-point adjustment (CPA) or remote setpoint adjustment (SPA) in heating, ventilating and air conditioning systems.

Models are available with PT1000, PT100, NTC 20k Ω , or BALCO 500 sensing elements and with or without remote control or setpoint adjustment.

They are suitable for the following control systems

- Excel IRC
- Excel Plus and High Performance Excel Plus
- Excel EMC
- Excel 5000
- Excel Classic
- MicroniK 100 and MicroniK 200

or other systems using PT1000, PT100, NTC 20k Ω , or BALCO 500 sensing elements.

Temperature Sensor

Sensing element	PT1000 PT100 BALCO 500 NTC 20kΩ
Characteristic	see EN0C-0603 for characteristic
Sensing range	0...50 °C (32...122 °C)
Response time	$\tau_{0.5} \approx 2.5$ min
Resistance	
- PT1000	1000Ω @ 0 °C
- PT100	100Ω @ 0 °C
- BALCO 500	500Ω @ 23.3 °C
- NTC 20kΩ	20Ω @ 25 °C
Sensitivity	
- PT1000	≈ 3.85Ω / K
- PT100	≈ 0.385Ω / K
- BALCO 500	≈ 2Ω / K
- NTC 20kΩ	non-linear characteristic
Accuracy	
- PT1000 / PT100	DIN IEC 751 Class B 0.3 K + 0.5% • t (t in °C)
- BALCO 500	±1Ω @ 23.3 °C
- NTC 20kΩ	0.3 K + 1% • t - 25 (t in °C)

Order Numbers

OS-no.	temp. sensing element*
T7412A1000	NTC 20kΩ
T7412A1018	PT1000
T7412A1026	BALCO 500
T7412A1059	PT100
T7412B1008	NTC 20kΩ + CPA
T7412B1016	PT1000 + CPA
T7412B1024	BALCO 500 + SPA 15...30 °C
T7412B1040	PT1000 + SPA 15...30 °C
T7412B1057	PT1000 + CPA
T7412C1006	NTC 20kΩ + CPA and occupied/unoccupied switch
T7412C1030	PT1000 + CPA and occupied/unoccupied switch
T7412D1004	NTC 20kΩ + CPA and Fan Speed Switch
T7412E1001	NTC 20kΩ + push-button + C-Bus Connector
T7412E1027	NTC 20kΩ + push-button + Indication LED

For potentiometer values and circuits, see Fig. 1.
* Other temperature sensing elements or different housing colors are available, on request.

Models

model no. / function					
T7412A	T7412B		T7412C	T7412D	T7412E
temperature sensor					
	remote setpoint adjustment	control-point adjustment			occupancy extend push-button
			occupied/unoccupied switch	fan speed switch	LED or PIT C-Bus connector

INSTALLATION

- Mount these units at the inside wall of the room to be heated or air conditioned, away from doors, windows, and heat sources.
- They should be located approx. 1.5 m above the floor and at minimum 50 cm away from the nearest wall.
- 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 temperature measurement due to draft from the conduit.

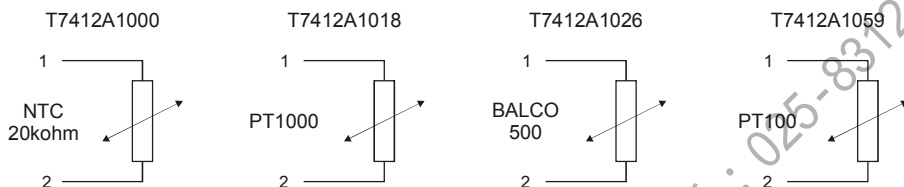
NOTE: Use shielded wiring in areas with high EMI. Keep 15 cm (5.9") minimum distance between sensor lines and 230 Vac power lines.

The offset due to wire resistance per 10 m of distance from the sensor to the controller is stated in the following table:

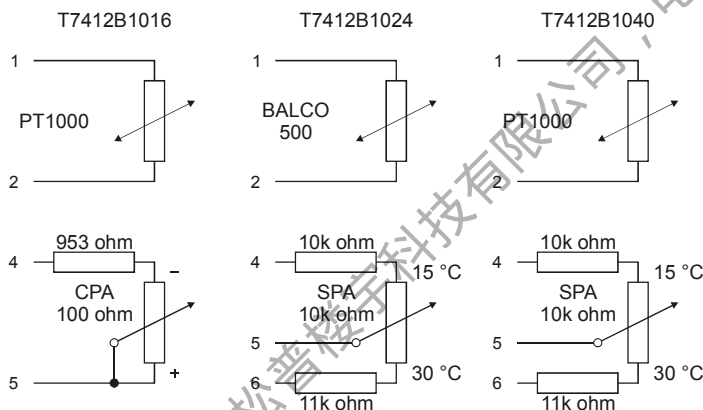
type of wire	temperature offset		
	PT1000	PT100	BALCO 500
0.5 mm ² (AWG20)	0.18 °C (0.324 °F)	1.8 °C (3.24 °F)	0.3 °C (0.54 °F)
1.0 mm ² (AWG17)	0.09 °C (0.162 °F)	0.9 °C (1.62 °F)	0.15 °C (0.27 °F)
1.5 mm ² (AWG15)	0.06 °C (0.108 °F)	0.6 °C (1.08 °F)	0.1 °C (0.1 °F)

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

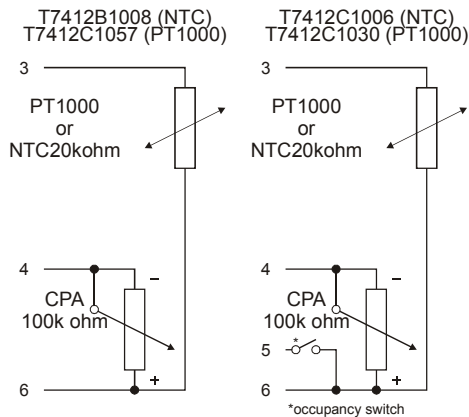
Connections for T7412A:



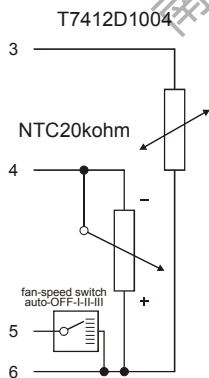
Connections for T7412B:



Connections for T7412C:



Connections for T7412D:



Connections for T7412E:

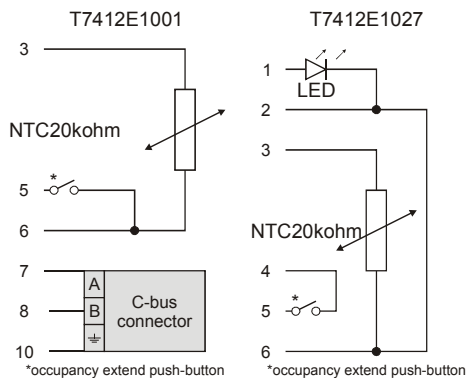


Fig. 1. Connections

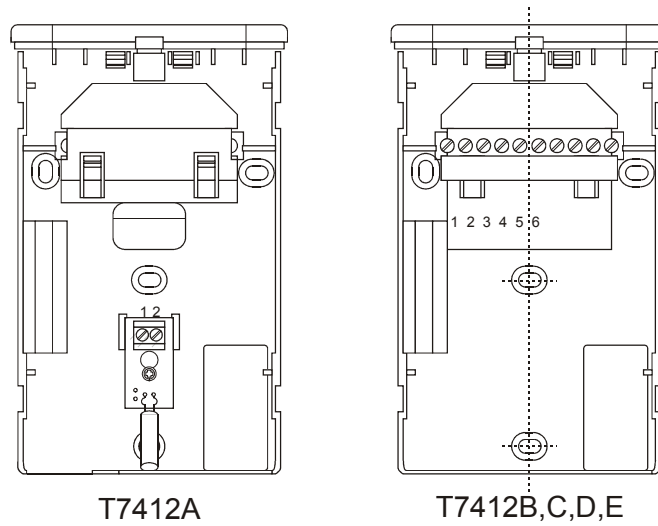


Fig. 2. Connector positions

MOUNTING AND DIMENSIONS

All dimensions in mm and (inches).

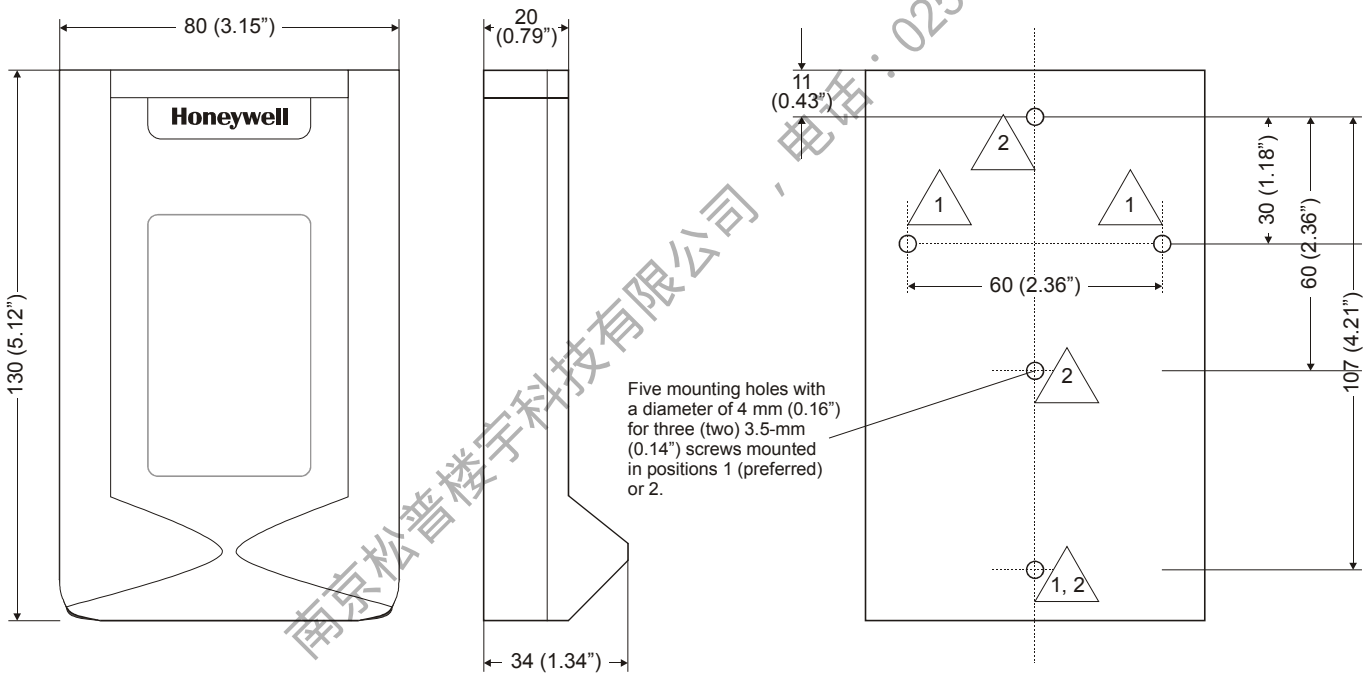


Fig. 3. Mounting and dimensions

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