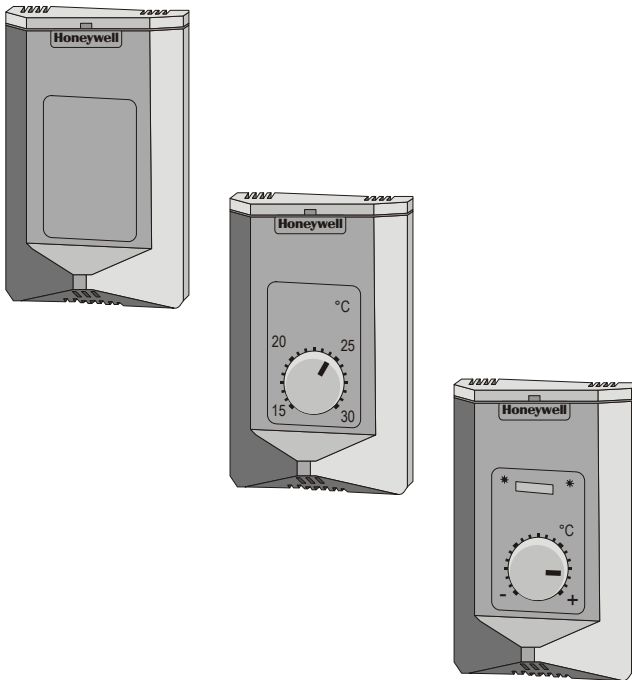


T7412A,B,C,D,E ROOM TEMPERATURE SENSOR

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 |
|-----------------|--------------------------------------|

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 EN0B-0476GE51 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 | 20kΩ @ 25 °C |
| Sensitivity | |
| - PT1000 | $\approx 3.85\Omega / K$ |
| - PT100 | $\approx 0.385\Omega / K$ |
| - BALCO 500 | $\approx 2\Omega / K$ |
| - 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 at 23.3 °C |
| - NTC 20kΩ | 0.3 K at 25 °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.

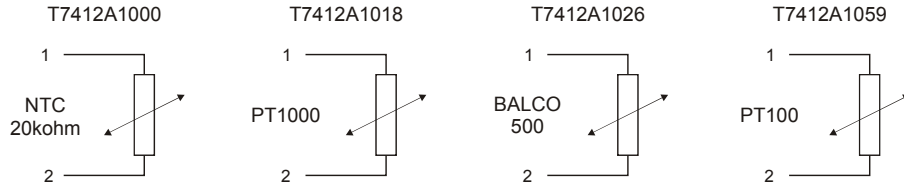
NOTE: Use shielded wiring in areas with high EMI. Keep 15 cm (5.9") minimum distance between sensor lines and 230 Vac power lines.

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

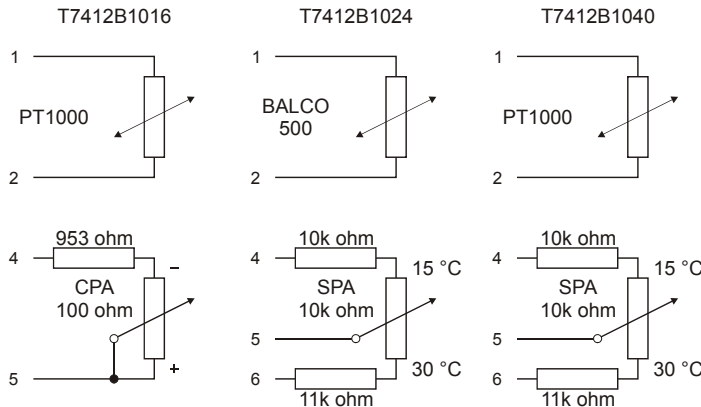
| type of wire | temperature offset | | |
|--------------------------------|-----------------------|---------------------|----------------------|
| | PT1000 | PT100 | BALCO 500 |
| 0.5 mm ² (AWG20) | 0.18 °C (0.324 °F) | 1.8 °C (3.24 °F) | 0.3 °C (0.54 °F) |
| 1.0 mm ² (AWG17) | 0.09 °C (0.162 °F) | 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) |

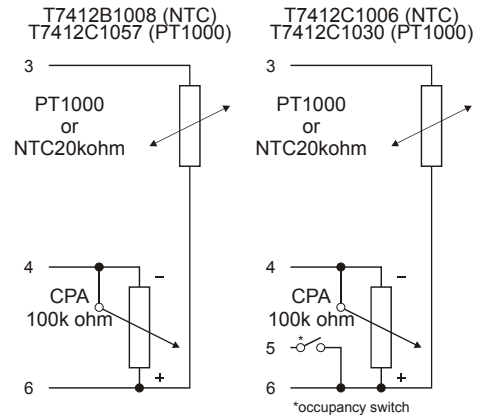
Connections for T7412A:



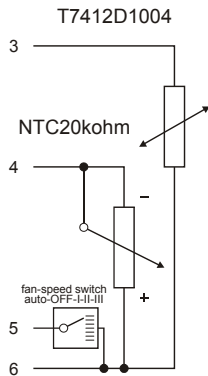
Connections for T7412B:



Connections for T7412C:



Connections for T7412D:



Connections for T7412E:

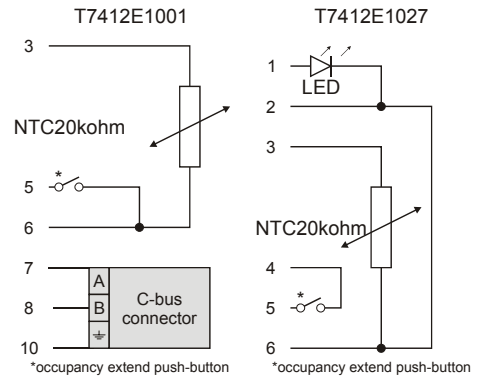


Fig. 1. Connections

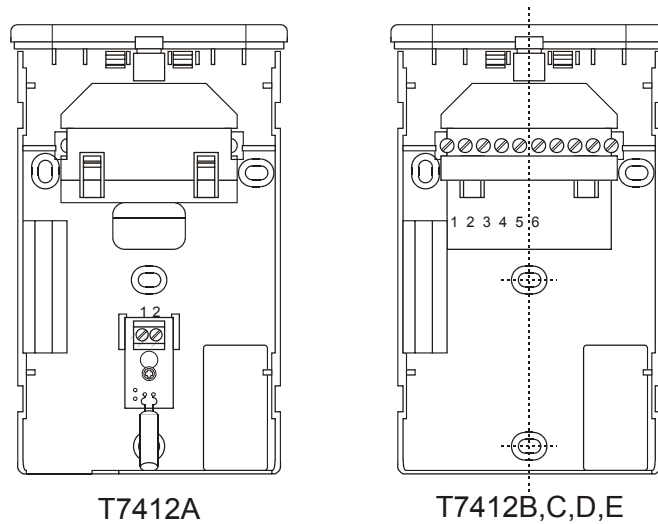


Fig. 2. Connector positions

MOUNTING AND DIMENSIONS

All dimensions in mm and (inches).

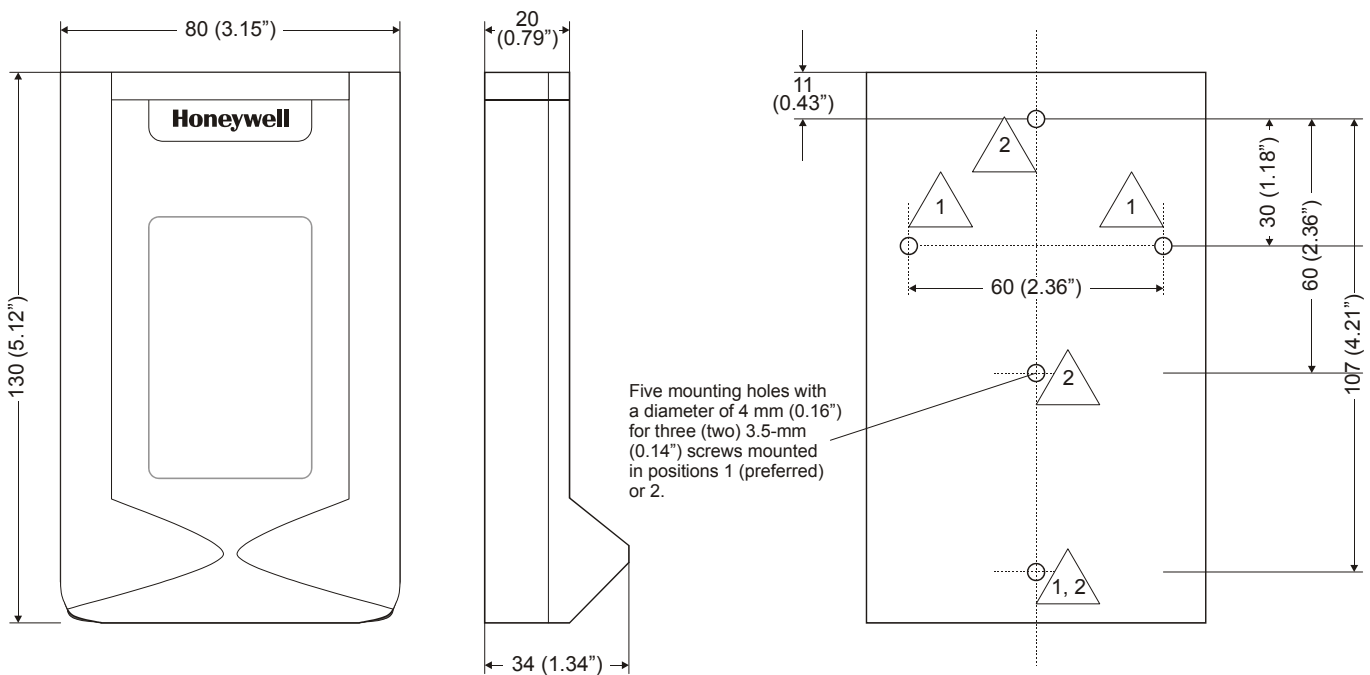


Fig. 3. Mounting and dimensions

Honeywell

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