

## T 5220 EN

### Types 5207 to 5277 Temperature Sensors with Pt 1000 resistors

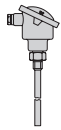
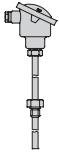
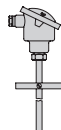
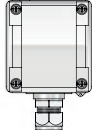



#### Application

Measurement of temperatures in HVAC systems.




Versions with Pt 1000 resistors. Basic values according to Class B of DIN EN 60751.

**Table 1:** Screw-in, duct, contact and outdoor sensors with Pt 1000 resistors

|  |   |                |                |   |                |                |   |   |   |
|--|---|----------------|----------------|---|----------------|----------------|---|---|---|
| Screw-in sensor                          | •   | •              | •              | •   | •              | •              |   |   |   |
| Duct sensor                              |   |                |                |   |                |                | •   |   |   |
| Contact sensor                           |   |                |                |   |                |                |   | •   |   |
| Outdoor sensor                           |   |                |                |   |                |                |   |   | •   |
| Number of resistors                      | 1   | 1              | 1              | 1   | 1              | 1              | 1   | 1   | 1   |
| Pt 1000 resistors                        | See Table 5   |                |                |   |                |                |   |   |   |
| Sensor length mm                         | 80  | 160            | 250            | 160   | 250            | 400            | 60 ... 280  |   | –   |
| Sensor shaft G ½ made of <sup>1)</sup>   | Brass   |                |                | 1.4571  |                |                | Nickel-plated brass   |   | –   |
| Pressure rating PN                       | 16  |                |                | 40  |                |                |   |   | –   |
| Permissible temperatures                 |   |                |                |   |                |                |   |   |   |
| Medium °C                                | –20 to +150   |                |                | –60 to +400   |                |                | –20 to +150   | –50 to +120   |   |
| Ambient °C                               | –20 to +70  |                |                | –20 to +70  |                |                | –20 to +70  | –50 to +100   | –50 to +90  |
| Degree of protection acc. to EN 60529 IP | 54  |                |                | 54  |                |                | 41  | 65  | 43  |
| Weight (approx.) kg                      | 0.4   | 0.4            | 0.5            | 0.4   | 0.5            | 0.6            | 0.6   | 0.04  | 0.04  |
| Conformity                               | <b>CE EAC</b>   |                |                |   |                |                |   |   |   |
| <b>Type</b>                              | <b>5207-21</b>  | <b>5207-27</b> | <b>5207-26</b> | <b>5207-47</b>  | <b>5207-46</b> | <b>5207-48</b> | <b>5217</b>   | <b>5267-3</b>   | <b>5227-4</b>   |
| Style                                    |  |                |                |  |                |                |  |  |  |
| Preferable scope of application          | Flow or return flow pipes, DHW applications, heating systems                        |                |                |   |                |                | Supply air, mixed air, exhaust air (non-corrosive air and gases)                      | Flow or return flow pipes   | Exterior walls of buildings   |

<sup>1)</sup> Flange connection with duct sensors instead of G ½

**Table 2: Room sensors with Pt 1000 resistors**


|   |  |   |  |   |
|---|--|---|--|---|
| Room sensor                                 |  | •   | •  | •   |
| with potentiometer and mode selector switch |  |   | •  | •   |
| Number of Pt 1000 resistors                 |  | 1   | 1  | 1   |
| Resistance values                           |  | See Table 5   |  |   |
| Permissible temperatures                    |  |   |  |   |
| Ambient °C                                  |  | -35 to +70  | -35 to +70   | -35 to +70  |
| Degree of protection acc. to EN 60529 IP    |  | 30  | 30   | 30  |
| Weight kg (approx.)                         |  | 0.05  | 0.07   | 0.07  |
| Conformity                                  |  | <b>CE EAC</b>   |  |   |
| <b>Type</b>                                 |  | <b>5257-11</b>  | <b>5257-51</b>   | <b>5257-71</b>  |
| Style                                       |  |  |  |  |
| Preferable site of installation             |  | Recreation rooms and offices  |  |   |

**Table 3: Application range of room sensors**

|  | 5257-11 | 5257-51 | 5257-71 |
|--|---------|---------|---------|
| <b>Controllers for HVAC systems</b>                |         |         |         |
| TROVIS 5573  | •       | •       |         |
| TROVIS 5573-1                                      | •       | •       |         |
| TROVIS 5575  | •       | •       |         |
| TROVIS 5576  | •       | •       |         |
| TROVIS 5578  | •       | •       |         |
| TROVIS 5578-E                                      | •       | •       |         |
| TROVIS 5579  | •       | •       |         |
| TROVIS 5430 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5431 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5432 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5433 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5475-2 <sup>1)</sup>                        | •       | •       |         |
| TROVIS 5476 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5479 <sup>1)</sup>                          | •       | •       |         |
| TROVIS 5571 (PLC) <sup>1)</sup>                    | •       | •       |         |
| <b>Electric actuators with process controllers</b> |         |         |         |
| TROVIS 5757-7                                      |         |         | •       |
| TROVIS 5725-7 <sup>1)</sup>                        |         |         | •       |

<sup>1)</sup> No longer available

**Table 4:** Immersion sensors with Pt 1000 resistors (can also be used as contact sensors)<sup>1)</sup>

|   |   |                |                |
|---|---|----------------|----------------|
| Immersion sensor with thermowell/<br>contact sensor | •   |                |                |
| Number of Pt 1000 resistors                         | 1   |                |                |
| Resistance values                                   | See Table 5   |                |                |
| Sensor length mm                                    | 50  |                |                |
| Permissible temperatures                            |   |                |                |
| Medium °C   | -50 to +180   |                |                |
| Ambient °C  | -50 to +180   |                |                |
| Degree of protection acc.<br>to EN 60529            | 67  |                |                |
| Weight kg (approx.)                                 | 0.065   | 0.101          | 0.165          |
| Connecting cable length m                           | 2   | 3              | 5              |
| Conformity  | <b>CE EAC</b>   |                |                |
| <b>Type</b>   | <b>5277-21</b>  | <b>5277-31</b> | <b>5277-51</b> |
| Style   |   |                |                |
| Preferable scope of application                     | Immersion sensor with connecting cable, thermowell required<br>Flow or return flow temperature measurement, DHW applications, heating systems |                |                |

<sup>1)</sup> **Accessories for Types 5277-21/-31/-51**- **Brass thermowell, G ½, PN 16**

Immersion length 80 mm  
Immersion length 160 mm

Order no. 1099-0807  
Order no. 8525-5005

- **Thermowell CrNiMo, G ½, PN 40**

Immersion length 80 mm  
Immersion length 160 mm  
Immersion length 250 mm

Order no. 1099-0805  
Order no. 8525-5011  
Order no. 1099-0806

- **Mounting kit**

To use an immersion sensor as a contact sensor

Material no.: 100000722

**i Note**

It is not necessary to calibrate the line with temperature sensors with Pt 1000 resistors. In cases where the length of line between sensor and controller exceeds 100 m, the cross-section of the wire must be at least 1.5 mm<sup>2</sup>. Route the sensor lines and other supply voltage lines separately.

The Type 5267-3 Contact Sensor is suitable for pipes with up to 60 mm diameter. On assembly, the supplied heat-conducting paste must be applied between the sensor (copper protective tube) and the pipe.

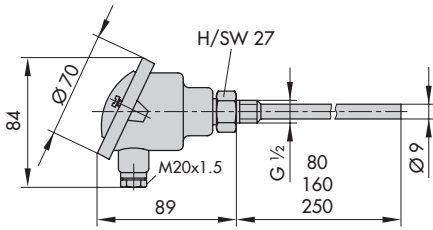
The maximum permissible wire cross-section is 1.5 mm<sup>2</sup> for terminals for sensors (Types 5227-4, 5257-xx and 5267-3).

**Table 5:** Resistance values for Types 5207 to 5277 Sensors with Pt 1000 resistors

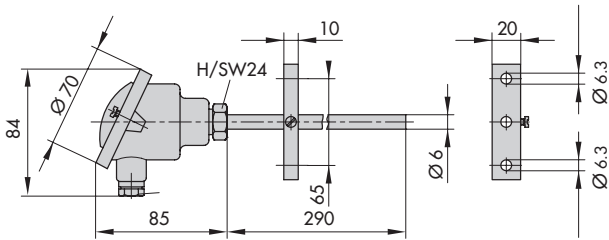
|                |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Temperature °C | -35    | -30    | -25    | -20    | -15    | -10    | -5     | 0      | +5     | +10    | +15    | +20    |
| Resistance Ω   | 862.5  | 882.2  | 901.9  | 921.6  | 941.2  | 960.9  | 980.4  | 1000.0 | 1019.5 | 1039.0 | 1058.5 | 1077.9 |
| Temperature °C | +25    | +30    | +35    | +40    | +45    | +50    | +55    | +60    | +65    | +70    | +75    | +80    |
| Resistance Ω   | 1097.3 | 1116.7 | 1136.1 | 1155.4 | 1174.7 | 1194.0 | 1213.2 | 1232.4 | 1251.6 | 1270.8 | 1289.9 | 1308.9 |
| Temperature °C | +85    | +90    | +95    | +100   | +105   | +110   | +115   | +120   | +125   | +130   | +135   | +140   |
| Resistance Ω   | 1328.0 | 1347.1 | 1366.1 | 1385.1 | 1404.0 | 1422.9 | 1441.8 | 1460.7 | 1479.5 | 1498.3 | 1517.1 | 1535.8 |
| Temperature °C | +145   | +150   | +155   | +160   | +165   | +170   | +175   | +180   | +185   | +190   | +195   | +200   |
| Resistance Ω   | 1554.6 | 1573.3 | 1591.9 | 1610.5 | 1629.1 | 1647.7 | 1666.3 | 1684.8 | 1703.3 | 1721.7 | 1740.2 | 1758.6 |

Screw-in sensors

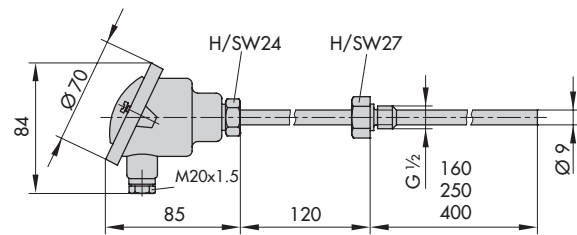
Types 5207-2x



Type 5217; immersion depth adjustable between 60 and 280 mm



Type 5207-4x



Sample application

Pipe installations:

- a) On elbows, against the direction of flow
- b) In smaller pipes, positioned at an angle against the direction of flow
- c) At a right angle to the flow

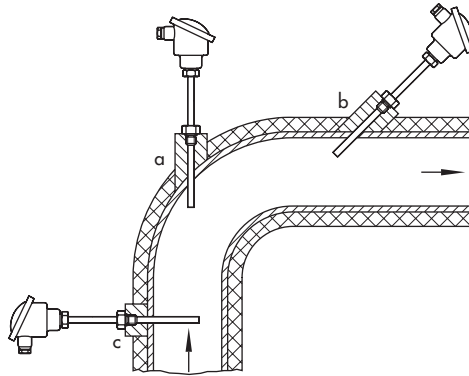


Fig. 1: Dimensions in mm · Screw-in sensors

Contact sensor

Type 5267-3

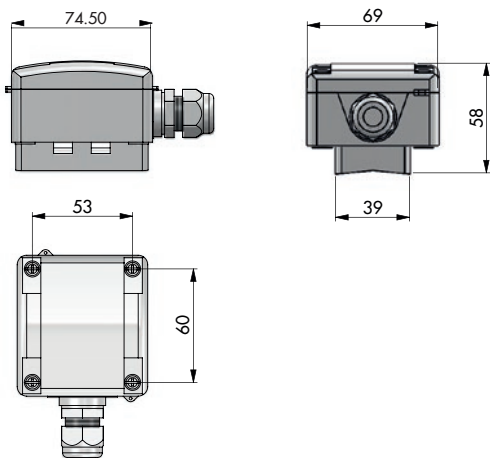


Fig. 2: Dimensions in mm · Contact sensor

Outdoor sensor

Type 5227-4

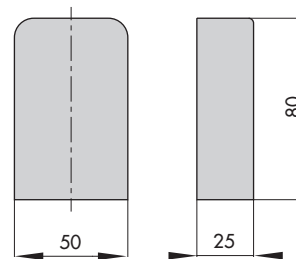


Fig. 3: Dimensions in mm · Outdoor sensor

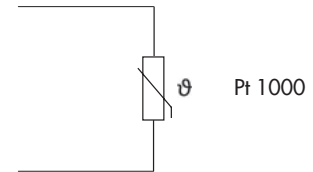
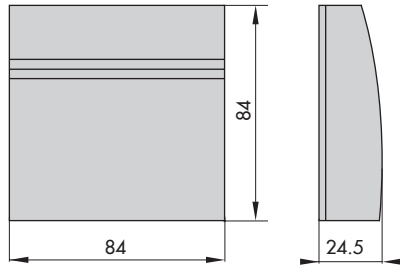
## Room sensors

### Installation

- On the wall of the room concerned at a height of 1.5 m
- Do not mount the sensor in alcoves or close to appliances which give off heat

#### Type 5257-11 Room Panel

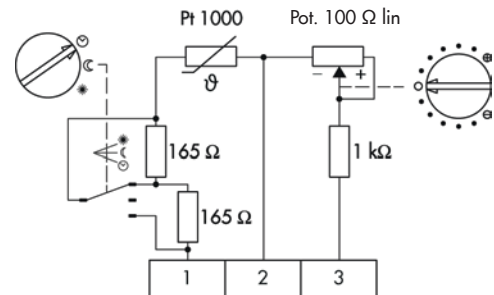
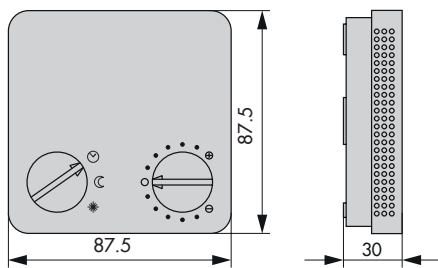
Room sensor for measuring the room temperature



#### Type 5257-51 Room Panel

Remote control of heating controllers

Room sensor for measuring the room temperature; changing the room temperature set point with the mode switch

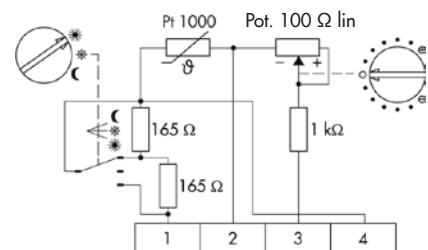
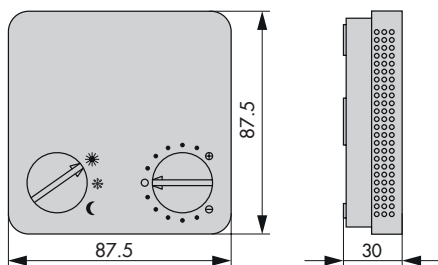


- ☉ Automatic mode
- ☾ Night mode (reduced operation)
- ☀ Day mode (rated operation)

#### Type 5257-71 Room Panel

Remote control of electric actuators with process controller

Room sensor for measuring the room temperature; changing the room temperature set point with the mode switch

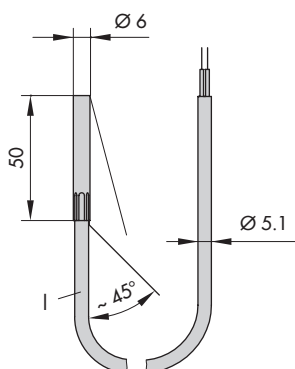


- ☀ Day mode (rated operation)
- ❄ Off/frost protection
- ☾ Night mode (reduced operation)

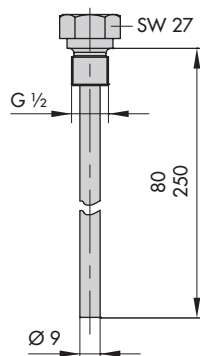
Fig. 4: Dimensions in mm · Room panels

## Immersion sensors

### Types 5277-21/-31/-51



### Thermowell



#### Connecting cable length

Type 5277-21: l = 2 m, silicone connecting cable

Type 5277-31: l = 3 m, silicone connecting cable

Type 5277-51: l = 5 m, silicone connecting cable

Fig. 5: Dimensions in mm · Immersion sensors

## Disposal



SAMSON is a producer registered at the following European institution  
► <https://www.ewrn.org/national-registers/national-registers>  
WEEE reg. no.:  
DE 62194439/FR 025665

- Observe local, national and international refuse regulations.
- Do not dispose of components, lubricants and hazardous substances together with your other household waste.

### **i** Note

We can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at [aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com) giving details of your company address.

### **T** Tip

On request, we can appoint a service provider to dismantle and recycle the product.

## Associated Information Sheet

- For temperature sensors and thermostats ► T 5200