

Wirsbo CoSy

External temperature sensor

Assembly instructions

Wirsbo CoSy External temperature sensors can be used for maximum or minimum limitation of the floor temperature, regardless of the room thermostat settings. The setting range is 20 - 45°C and the maximum or minimum limitation is selected with a changeover switch inside the thermostat.

The maximum limitation can be used, for example, to prevent a sensitive floor covering from exposure to too high a temperature where there is a high heat demand. The minimum limitation can be used, for example, to keep a tile floor warm even when there is no general demand for heat supply to the room. The minimum limitation should not be set to a value higher than the required room temperature.

The sensing element of the sensor should be located as close as possible to the floor surface. To protect the sensor and simplify its replacement, the entire sensor including the sensing element, can be installed in an conduit. If the sensing element is also placed in the conduit allowance must be made for the disadvantages of greater inertia and lower precision.

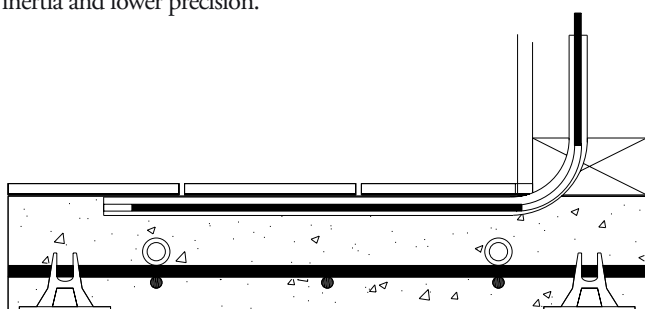


Fig 1 Embedding in concrete

If embedded in concrete (see Fig. 1), the sensing element should be installed directly underneath a tile. When installed in a wooden suspended floor (see Fig. 2) the sensing element can be positioned directly underneath the heat emission plate, close to

the floor heating pipe, in a recess in the batten. The recess should be made so deep that the sensing element is not deformed when the heat emission plates and floor covering are installed, but so that the sensing element is in contact with the plate.

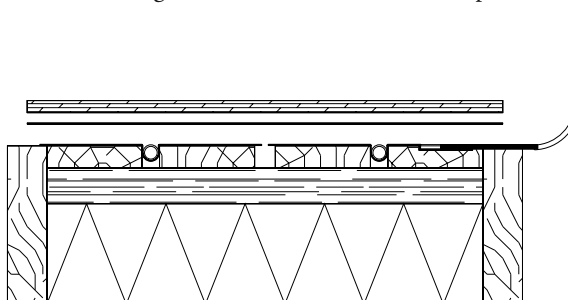


Fig 2 Installation in loose panel

When the sensor is installed in floor heating chipboard (see Fig. 3) both the cable and sensing element can be set into a groove which is cut into the chipboard. In all cases, avoid crossing the floor heating pipes.

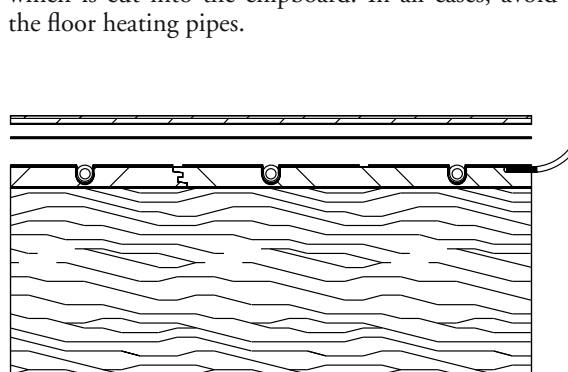


Fig 3 Installation in floor heating chipboard

Note: Mark on the drawing where in the floor the sensor has been installed.

Temperature drop in floor covering

The difference between the temperature on the floor surface and the temperature of the sensor depends on the heat flow and heat resistance in the intermediate layers. Moreover, there is a temperature variation in the layer between the pipes.

$$\Delta t = q(d_1/\lambda_1 + d_2/\lambda_2 + \dots)$$

Δt = temperature difference °C

q = heat output, W/m²

d = thickness, m

λ = thermal conductivity, W/m°C

Calculation example

Required maximum floor surface temperature 27°C, installation in a wooden suspended floor with heat emission plates, 55 W/m², floor covering consisting of 22 mm chipboard, $\lambda = 0,14$ W/m°C and 7 mm laminate, $\lambda = 0,12$ W/m°C.

$$\Delta t = 55 (0,022/0,14 + 0,007/0,12) = 11,9^\circ\text{C}$$

The temperature on the underside of the chipboard should not therefore exceed 27 + 11.9 = 38.9 °C.

In view of temperature variations in the horizontal direction in the floor and the drop in temperature between the chipboard and the temperature sensor, the maximum limitation is set at approximately 40°C.

Technical data

Length: 3 m

Sensor element: NTC, resistance

Precision: +/- 0,2°C @ 0°C to 70°C

Power consumption (25°C): < 75mW

Thermal time constant: < 10 secs. in stationary air.

Article numbers

Please note that not all items are available on every market concerned.

Sensor, separate:

Wirsbo CoSy External temperature sensor, 3 m, Art no 80463

The sensor can be connected to:

Wirsbo CoSy Room thermostat, Public, 24V, Art no 80464 and

Wirsbo CoSy Room thermostat, Switch, 24V, Art no 80465

Thermostat, complete with sensor:

Room thermostat with temperature lowering, including external sensor Art no 804651

Resistance of the temperature sensor

Resistance , kV

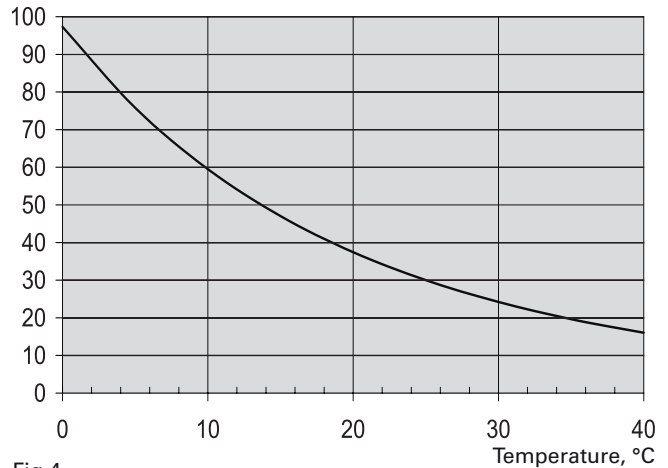


Fig 4

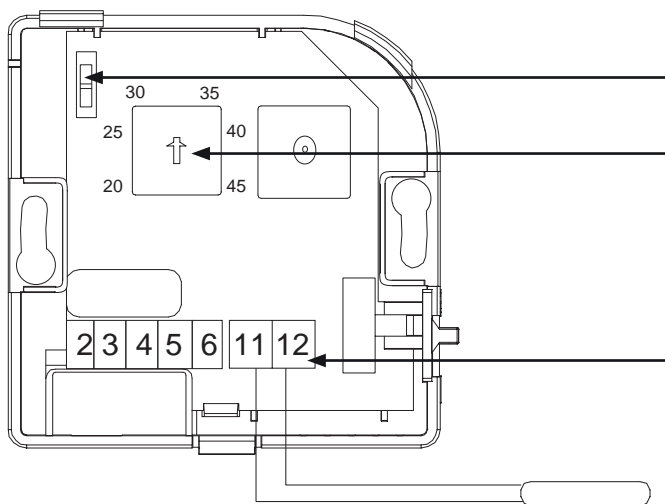


Fig 5 Electrical connection and settings

Setting button for max or min. limitation.

Adjustment knob for the limitation temperature of the external temperature sensor.

The external temperature sensor is connected to terminal 11 and 12. The sensor can be extended by a maximum of 5 metres, using 0.5 mm² cable. Joining cables must be carried out safely, e.g. in a box on the wall.