

TS-200 industrial temperature sensor

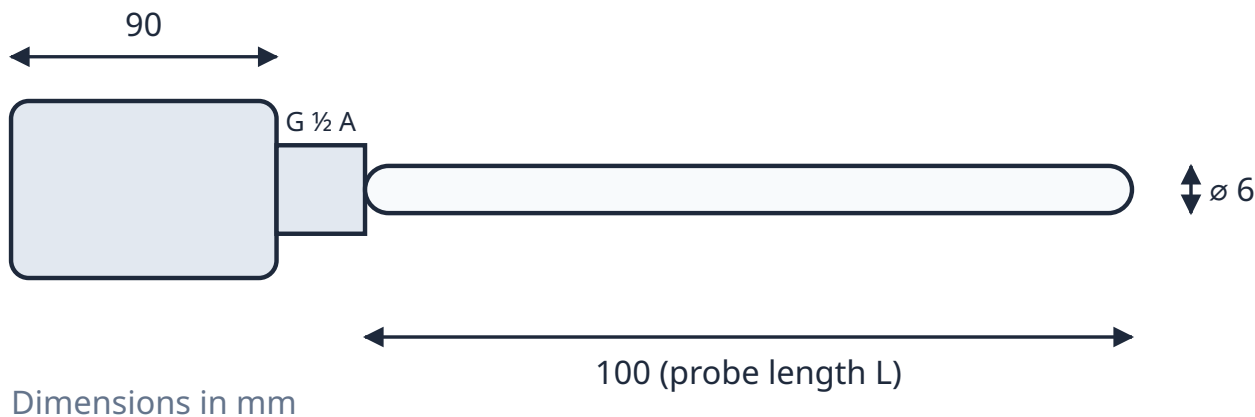
Platinum resistance sensor, 4 to 20 mA output, stainless steel probe. Revision C, April 2026.

The TS-200 measures the temperature of liquids and gases from -50 °C to +200 °C and reports it as a current loop signal. It is intended for process plants, cold stores and heating networks, and is approved for use in hazardous areas when installed with a certified barrier.

Specifications

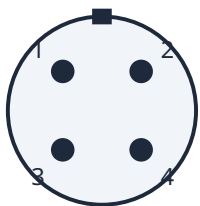
Parameter	Value	Condition
Measuring range	-50 °C to +200 °C	configurable in 10 K steps
Accuracy	±0.15 °C	at 0 °C, class A element
Output	4 to 20 mA, two-wire	24 V DC loop
Response time	8 s	t_{90} in water at 0.4 m/s
Supply voltage	10 to 30 V DC	reverse polarity protected
Probe	ø 6 mm, 100 mm, stainless 316L	other lengths on request
Process connection	G ½ A	
Ingress protection	IP67	connector mated
Ambient temperature	-40 °C to +85 °C	housing
Mass	180 g	with 100 mm probe

Dimensions



Electrical connection

M12 connector, A-coded, 4 pins. Pins 3 and 4 are not connected.



- Pin 1: loop +, 10 to 30 V DC
- Pin 2: loop -, 4 to 20 mA
- Pin 3: not connected
- Pin 4: not connected

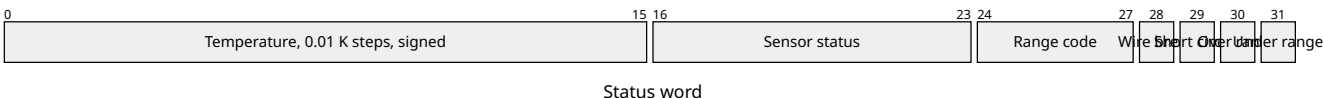
The temperature is read from the loop current I in milliamperes as

$$T = T_{\min} + \frac{I - 4}{16} (T_{\max} - T_{\min}), \quad \text{so with the default range } T = -50 + 15.625 (I - 4) ^\circ\text{C}.$$

The maximum loop resistance at supply voltage U is $R_{\max} = \frac{U - 10 \text{ V}}{0.022 \text{ A}}$, which is $636 \, \Omega$ at 24 V .

Digital register map

The optional serial interface exposes one 32-bit status word:



Ordering

Order code	Probe length	Range	Approval
TS-200-100-S	100 mm	-50 to +200 °C	general purpose
TS-200-150-S	150 mm	-50 to +200 °C	general purpose
TS-200-100-X	100 mm	-50 to +200 °C	hazardous area, zone 1
TS-200-250-X	250 mm	-50 to +200 °C	hazardous area, zone 1

Each sensor carries a laser-marked Data Matrix with its order code and serial number:



Warning

In a hazardous area the sensor must be installed with a certified intrinsic safety barrier and the cable screen earthed at one end only. See the installation manual, document IM-TS200-C.

All organizations and products in the sample documents are invented. Names and figures are illustrative.