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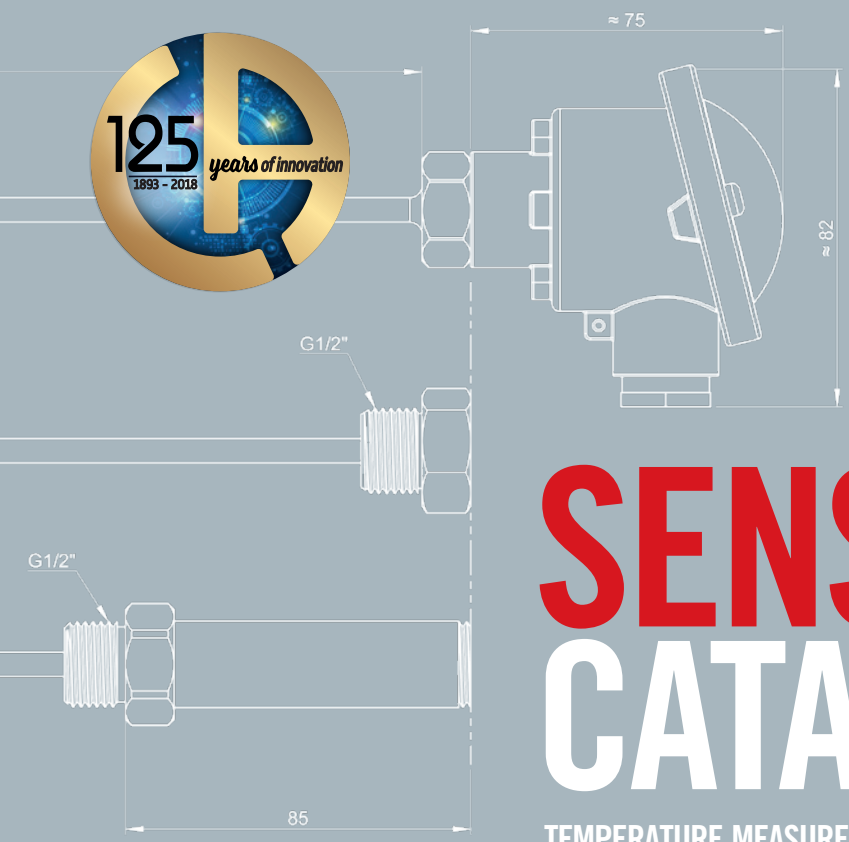
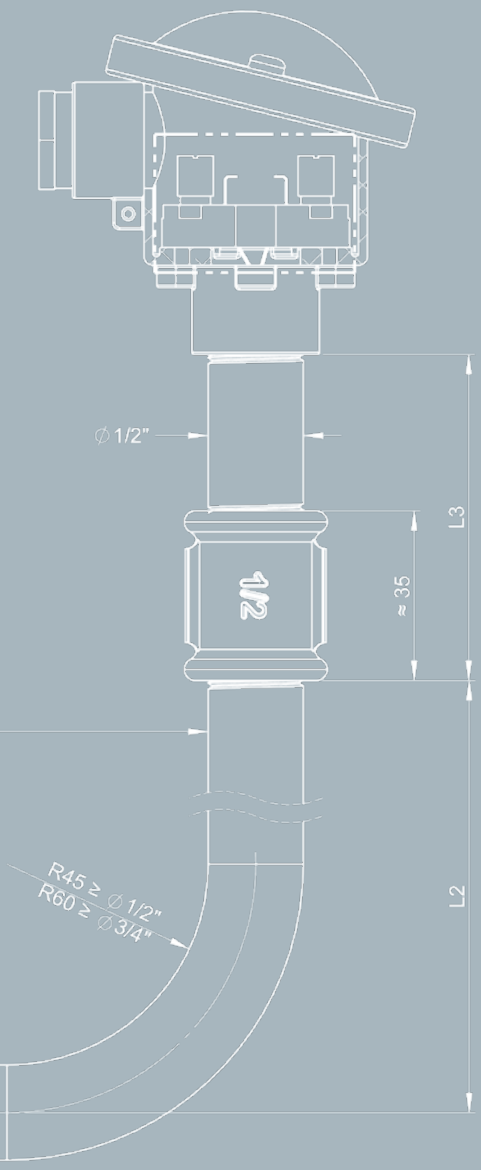
1893 - 2018

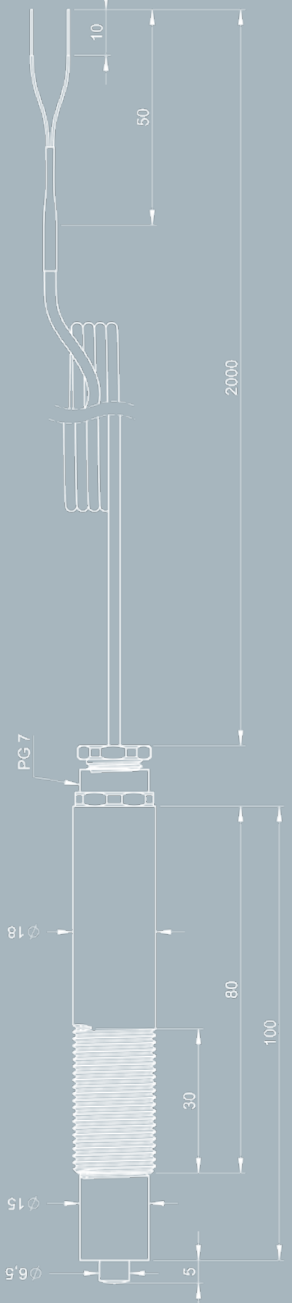
CHAUVIN ARNOUX
PYROCONTROLE

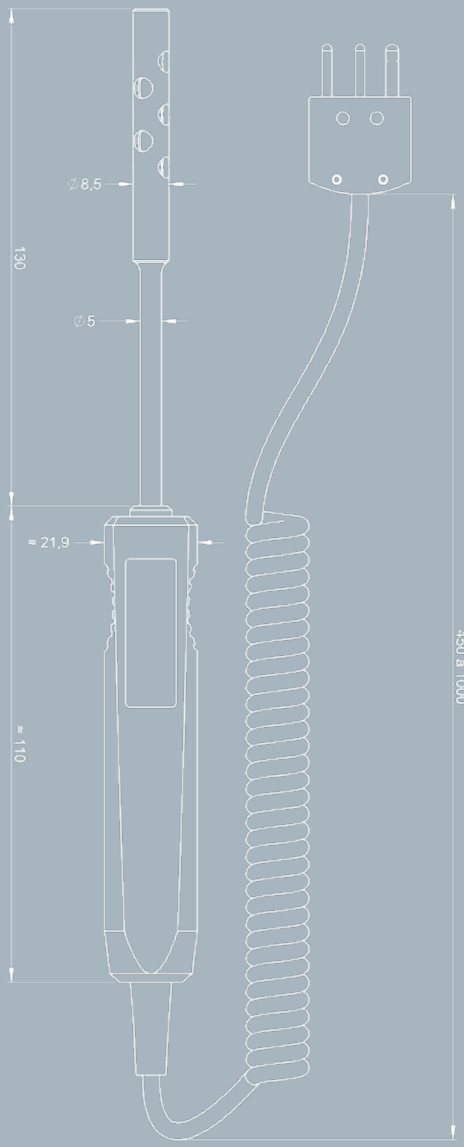
SENSORS CATALOGUE

TEMPERATURE MEASUREMENT IN INDUSTRIAL ENVIRONMENTS

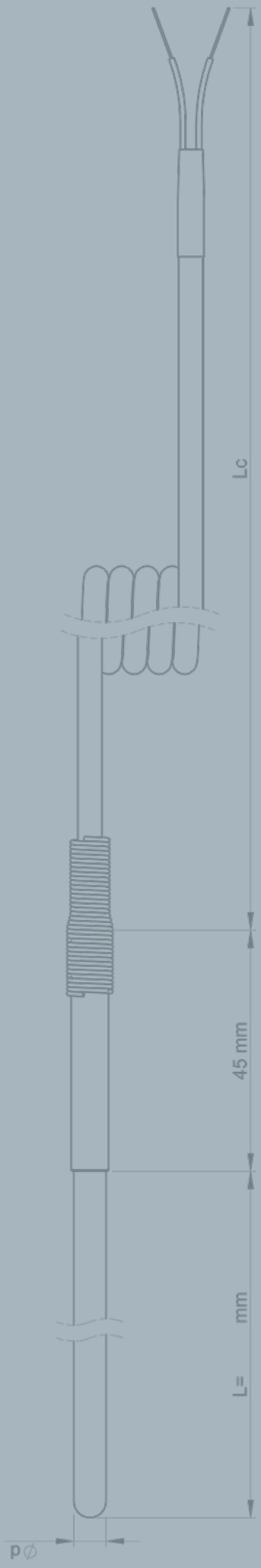


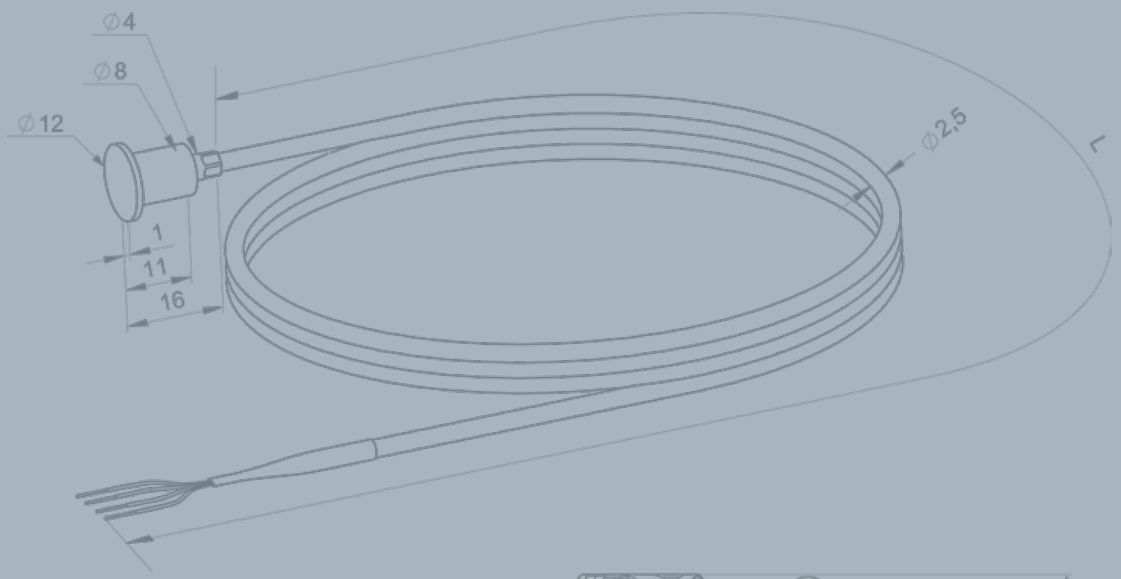


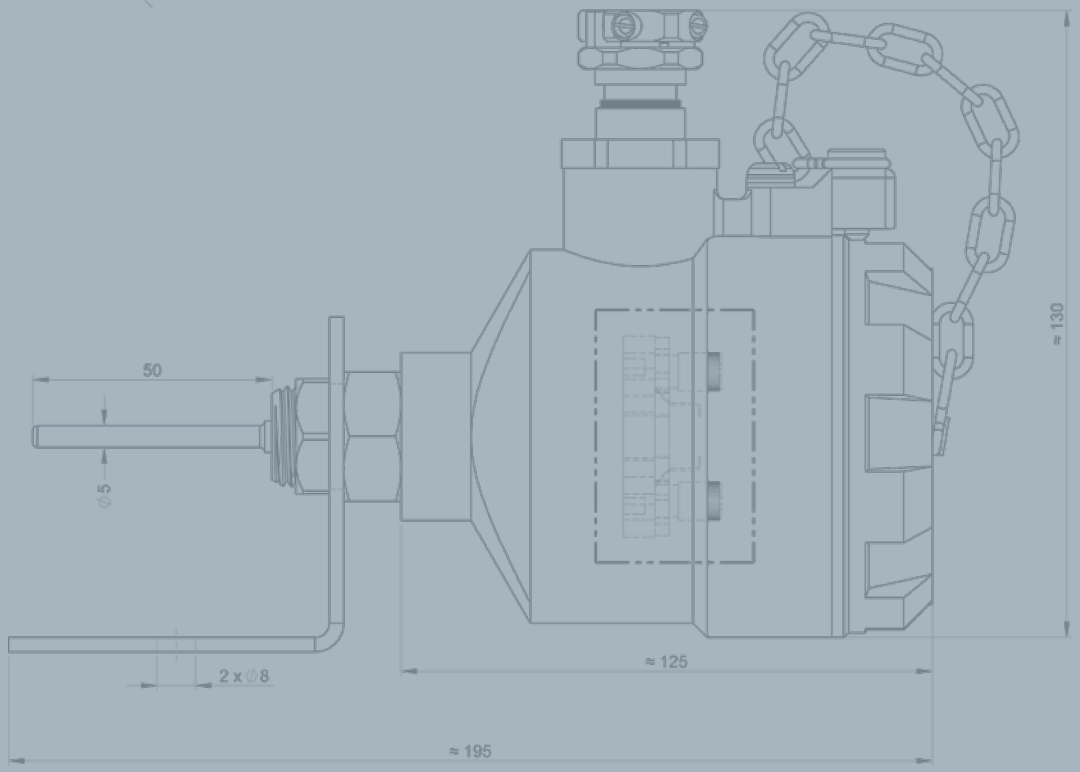




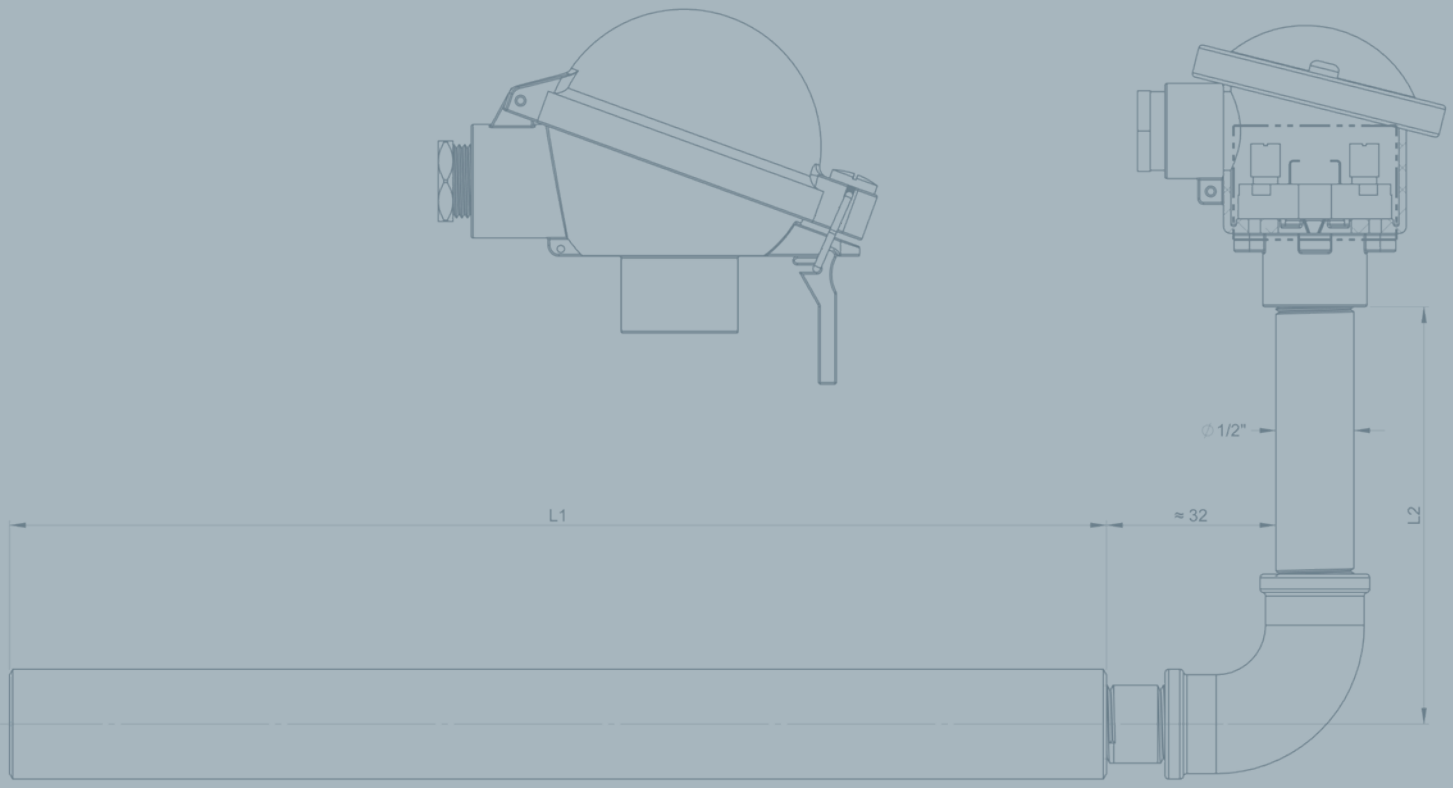
Measure up







LABORATORY



CALIBRATION SERVICE

FOR TEMPERATURE SENSORS

DESCRIPTION

Pyrocontrole is equipped with its own temperature metrology laboratory, enabling it to offer the following services:

- Calibration of new sensors from Pyrocontrole and other manufacturers.
- Periodic recalibration of sensors from Pyrocontrole and other brands.

Equipped with measuring instruments linked to the national and international reference standards, our laboratory performs high-quality calibration from -40 °C to +450 °C for resistance sensors and -40 °C to +1,550 °C for thermocouples, in accordance with the applicable standards.

Depending on the severity of the requirements, two levels of service are proposed:

- Pyrocontrole calibration with provision of a Calibration Certificate guaranteeing reliable measurements which meet the customers' requirements.
- Cofrac-accredited calibration; the Cofrac accreditation guarantees mastery of the resources, methods and expertise by the staff involved. All these points contribute to the provision of a top-level service acknowledged nationally and internationally.

Calibration Report or Cofrac? Our specialists can advise you according to your needs and how strict your requirements are.

cofrac
ETALONNAGE
Accréditation
N° 2-1385
Scope
available at
cofrac.fr

- **Cofrac-accredited metrology laboratory no. 2-1385**
- **Two possible services: Pyrocontrole calibration with calibration certificate**

Cofrac-accredited calibration

PYROCONTROLE CALIBRATION

Pyrocontrole's laboratory performs calibration by comparison with provision of a calibration certificate issued by our laboratory linked to the international SI Units system through its reference standards.

CALIBRATION OF RESISTANCE SENSORS (PT100)

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.07	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to + 90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to + 290 °C	± 0.12		Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to + 450 °C			Ø ≤11 mm – L > 350 mm	350 mm

CALIBRATION OF RESISTANCE SENSORS (PT100) AND TRANSMITTERS

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.10	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter - Standard resistance associated with a 4-20mA power supply	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to + 90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to + 290 °C	± 0.13		Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to + 450 °C			Ø ≤11 mm – L > 350 mm	350 mm

CALIBRATION OF THERMOCOUPLES

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.30	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to + 90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to + 290 °C			Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to + 450 °C	± 0.56		Ø ≤11 mm – L > 350 mm	350 mm
+450 °C to + 980 °C	± 1.5	Comparison with a standard "S" thermocouple -Multimeter	Ø ≤8 mm – L ≥ 400 mm	400 mm
+980 °C to + 1200 °C	± 1.6		Ø ≤8 mm – L ≥ 650 mm	650 mm
+1200 °C to + 1550 °C	± 2.7			
+400 °C to + 450 °C	± 0.56	Comparison with a standard "S" thermocouple -Multimeter	Ø ≤7 mm – L ≥ 280 mm	280 mm
+450 °C to + 980 °C	± 1.5			
+980 °C to + 1200 °C	± 1.6			

NOTES

Possibility of providing a table showing the correspondence between RESISTANCE and TEMPERATURE (Pt100)
Possibility of providing a table showing the correspondence between emf and TEMPERATURE (thermocouples)
Allow 50 mm more for the straight part of ≥ 90° elbowed sensors
We cannot calibrate rigid sensors more than 1 m long.

CALIBRATION OF THERMOCOUPLES WITH TRANSMITTERS

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to +30 °C	± 0.30	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter - Standard resistance associated with a 4-20mA power supply	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to +90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to +290 °C			Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to +450 °C	± 0.56		Ø ≤11 mm – L > 350 mm	350 mm
+980 °C to +1200 °C	± 1.5	Comparison with a standard "S" thermocouple - Current generator - Channel scanner - Multimeter - Standard resistance associated with a 4-20mA power supply	Ø ≤8 mm – L ≥ 400 mm	400 mm
+1200 °C to +1550 °C	± 1.6		Ø ≤8 mm – L ≥ 650 mm	650 mm
+400 °C to +450 °C	± 2.7			
+450 °C to +980 °C	± 0.56		Ø ≤7 mm – L ≥ 280 mm	280 mm
+980 °C to +1200 °C	± 1.5			
+980 °C à + 1200 °C	± 1.6			

COFRAC-ACCREDITED CALIBRATION

The Pyrocontrole laboratory performs calibration by comparison with provision of a calibration certificate issued by our Cofrac-accredited metrology department (Accreditation no. 2-1385)

- Calibration by comparison of resistance sensors (Pt100, Pt1000, etc.)
- Calibration by comparison of thermocouples
- Calibration by comparison of Pt100 Ω sensors with current-output transmitters

cofrac
ETALONNAGE
Accréditation
N° 2-1385
Scope
available at
cofrac.fr

CALIBRATION BY COMPARISON OF RESISTANCE SENSORS

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.07	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to +90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to +290 °C	± 0.12		Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to +450 °C			Ø ≤11 mm – L > 350 mm	350 mm

CALIBRATION BY COMPARISON OF PT100 Ω SENSORS WITH TRANSMITTER WITH CURRENT OUTPUT

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.10	Comparison with a standard platinum resistance thermometer - Current generator - Channel scanner - Multimeter - Standard resistance associated with a 4-20mA power supply	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to + 90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to + 290 °C	± 0.13		Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to +450 °C			Ø ≤11 mm – L > 350 mm	350 mm

NOTES:

We cannot calibrate sensors more than 1 m long.
Possibility of calibrating 2 and 3-wire platinum resistance thermometers.
Allow 50 mm more for the straight part of ≥ 90° elbowed sensors.

CALIBRATION BY COMPARISON OF THERMOCOUPLES

Measurement range	Uncertainty	Methods and resources implemented	Dimensions of sensors to be calibrated	Immersion possible
- 40 °C to + 30 °C	± 0.30	Comparison with a standard platinum resistance thermometer - Current generator - Multimeter	Ø ≤10 mm – L ≥ 100 mm	100 mm to 200 mm
+30 °C to + 90 °C			Ø ≤11 mm – L ≥ 120 mm	120 mm
+90°C to + 290 °C			Ø ≤14 mm – L ≥ 120 mm	120 mm to 200 mm
+290 °C to + 450 °C	± 0.56		Ø ≤11 mm – L > 350 mm	350 mm
+450 °C to + 980 °C	± 1.5	Comparison with a standard "S" thermocouple - Multimeter	Ø ≤8 mm – L ≥ 400 mm	400 mm
+980 °C to + 1200 °C	± 1.6		Ø ≤8 mm – L ≥ 650 mm	650 mm
+1200 °C to + 1550 °C	± 2.7			
+400 °C to + 450 °C	± 0.56	Comparison with a standard “S” thermocouple - Multimeter	Ø ≤7 mm – L ≥ 280 mm	280 mm
+450 °C to + 980 °C	± 1.5			
+980 °C to + 1200 °C	± 1.6			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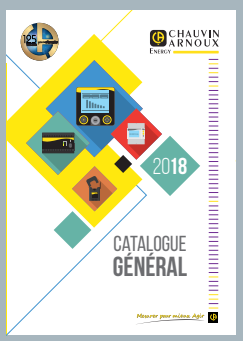

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