



Cable Temperature
Sensors

QAP...

Use

The sensors are used in heating, ventilation and air conditioning plants to acquire the temperature. They are for use with the corresponding accessories as:

- strap-on sensors for pipework
- strap-on sensors for solar collectors
- immersion sensors
- Changeover (from heating to cooling or vice versa)

Type summary

Type reference	Sensor element	Cable length	Material connecting cable	Measuring range	Weight (incl. packaging)
QAP2010.150	Pt 100	1,5 m	silicone	-30...+130 °C	0,05 kg
QAP2012.150	Pt 1000	1,5 m	silicone	-30...+130 °C	0,05 kg
QAP2040.250	T1	2,5 m	silicone	-30...+130 °C	0,07 kg
QAP21.3	LG-Ni 1000	1,5 m	silicone	-30...+130 °C	0,05 kg
QAP21.3/8000	LG-Ni 1000	8 m	silicone	-30...+130 °C	0,23 kg
QAP22	LG-Ni 1000	2 m	PVC	-25...+ 95 °C	0,06 kg
QAP1030.200	NTC 10k	2 m	PVC	-25...+ 95 °C	0,06 kg

Accessories

Name	Part number/ type reference
Protection pocket, Ms63, PN10, immersion length 100 mm	ALT-SB100 ¹⁾
Cable holder for protection pocket mounting	4 213 1416 0
Changeover mounting kit For fitting on pipes (pipes of about 13...35 mm dia.), consisting of holding piece and cable ties (2x)	ARG22.1 ²⁾
Aluminium bar Consisting of bar with riveted holder and rubber grommet	ARG22.2

1) For other protection pocket accessories, refer to Data Sheet N1194.

2) Suited for max. 95 °C. Use cable ties made of metal for temperatures above 95 °C

Ordering and delivery

When ordering, please give type reference of sensor and part numbers / type reference of the accessories required.

Example: Cable temperature sensor **QAP2010.150**.

The cable temperature sensor is supplied without any mounting accessories. These must be ordered separately.

Equipment combinations

The cable temperature sensors are suited for use with all types of controllers that can handle the sensor's passive output signal.

Function

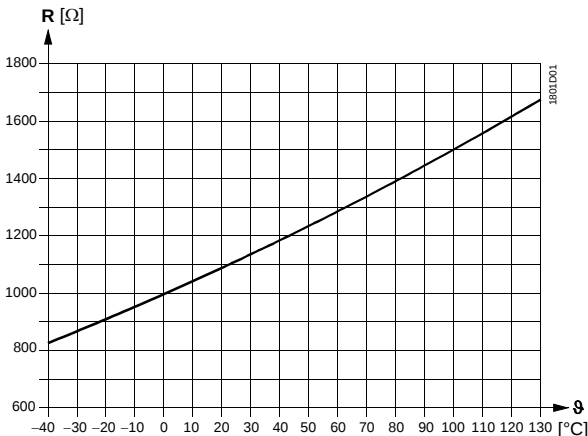
The sensor acquires the temperature via its sensing element. The resistance of the sensing element changes as a function of the ambient temperature.

The resistance value is used for further handling by a suitable controller.

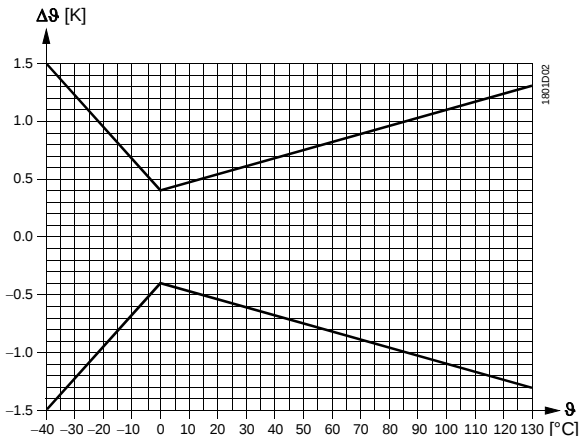
Sensing elements

LG-Ni 1000

Characteristic:

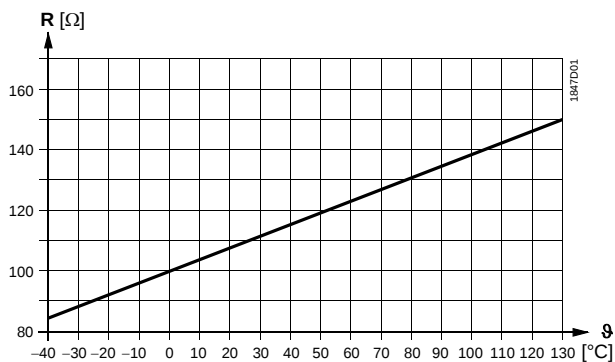


Accuracy:

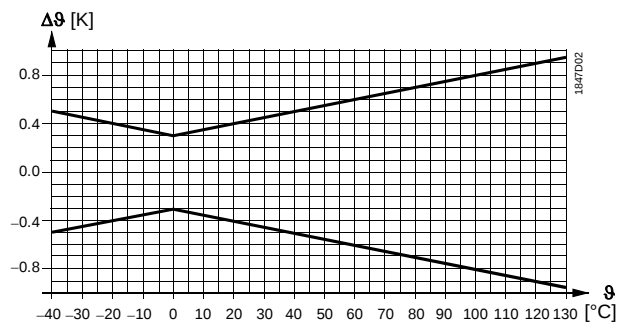


Pt 100 (class B)

Characteristic:

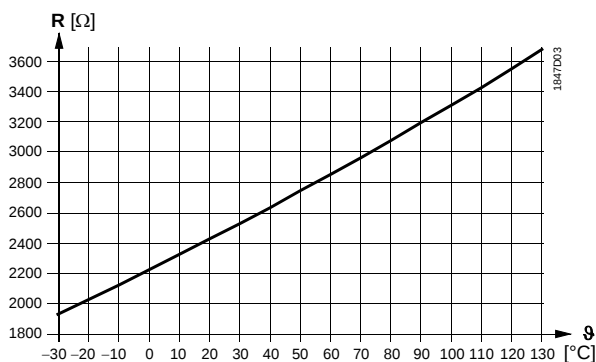


Accuracy:

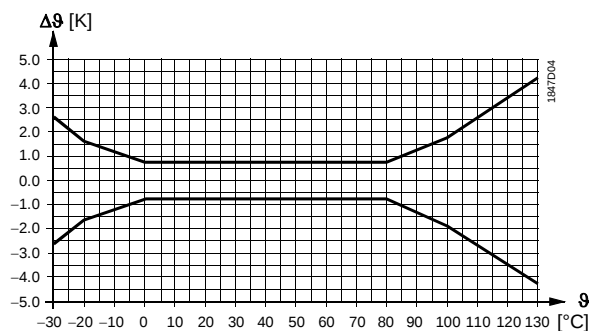


Pt 1000 (class B)

Characteristic:

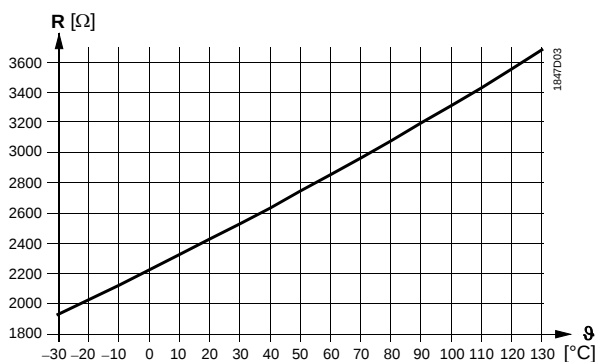


Accuracy:

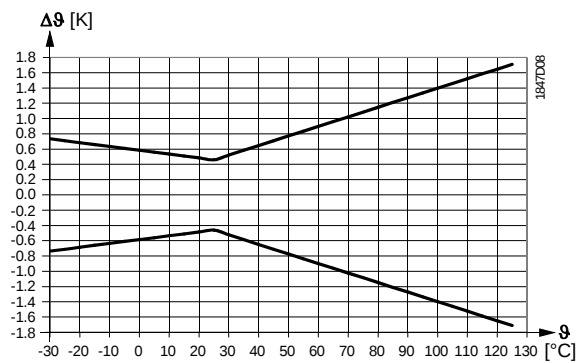
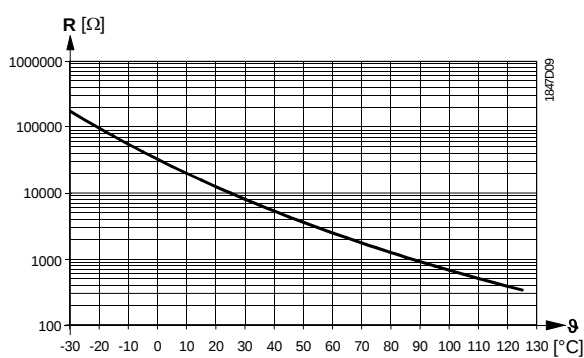
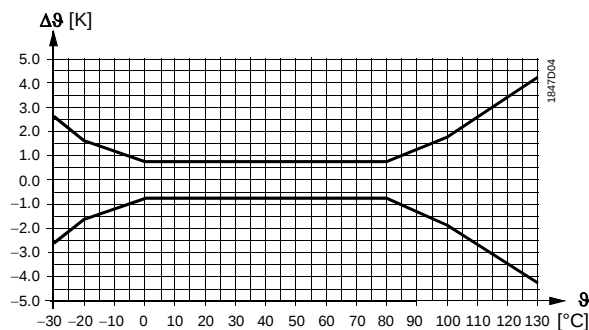


T1 (PTC)

Characteristic:



Accuracy:



Legend

R Resistance in Ohm
 θ Temperature in degrees Celsius
 $\Delta\theta$ Temperature differential in Kelvin

Mechanical design

The sensor consists of sleeve (40.5 mm in length), sensing element and 2-core connecting cable. The sensing element is encapsulated in the sleeve so that it is mechanically and electrically protected. The sleeve also ensures strain relief for the connecting cable. The end of the cable carries ferrules for easy connection.

Different accessories are available for fixing the sensor.

Engineering notes

The permissible cable lengths are dependent on the type of controller with which the sensor is used. They are specified in the Data Sheet of the relevant controller.

Mounting and installation notes

The connecting cable should always be connected to a conduit box.

When mounted in a protection pocket, the sensor must always be fixed in the pocket by means of the cable holder.

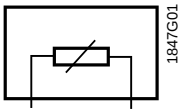
Instructions for mounting in induction or fan coil units:

The sensor should be fitted in the location specified by the manufacturer of the terminal unit. If there is no such specification, it must be fitted in the return air flow where it captures the temperature of the room air drawn in. It should be fitted as high as possible to minimize the floor effect. The sensor must be protected against heat radiation from the terminal unit.

Technical data

Functional data	Measuring range	refer to "Type summary"
	Sensing element	refer to "Type summary"
	Time constant	
	Sensor with ARG22.1 (attached to pipe)	approx. 25 s
	Sensor with protection pocket	<30 s
	Sensor with ARG22.2 in air at $v = 3 \text{ m/s}$	<1 min
	Measurement accuracy	refer to "Function"
Protective data	Type of measurement and output	passive
	Degree of protection	IP 65 to IEC 529
	Safety class	III to EN 60730
Electrical connections	Connecting cable	2-core, interchangeable
	Cross-sectional area	$2 \times 0.34 \text{ mm}^2$
	Length	see "Type summary"
Environmental conditions	Perm. cable lengths	refer to "Engineering notes"
	Permissible ambient temperature	
	for silicone cables	-30...+140 °C
	for PVC cables	-25...+95 °C, Short-time (2 h/d) +110 °C
Materials	Perm. ambient humidity	95 % r. h.
	Sensor sleeve	stainless steel 1.4571 (V4A)
	Connecting cables	refer to "Type summary"
	Packaging	corrugated cardboard
Weight	Incl. packaging	refer to "Type summary"

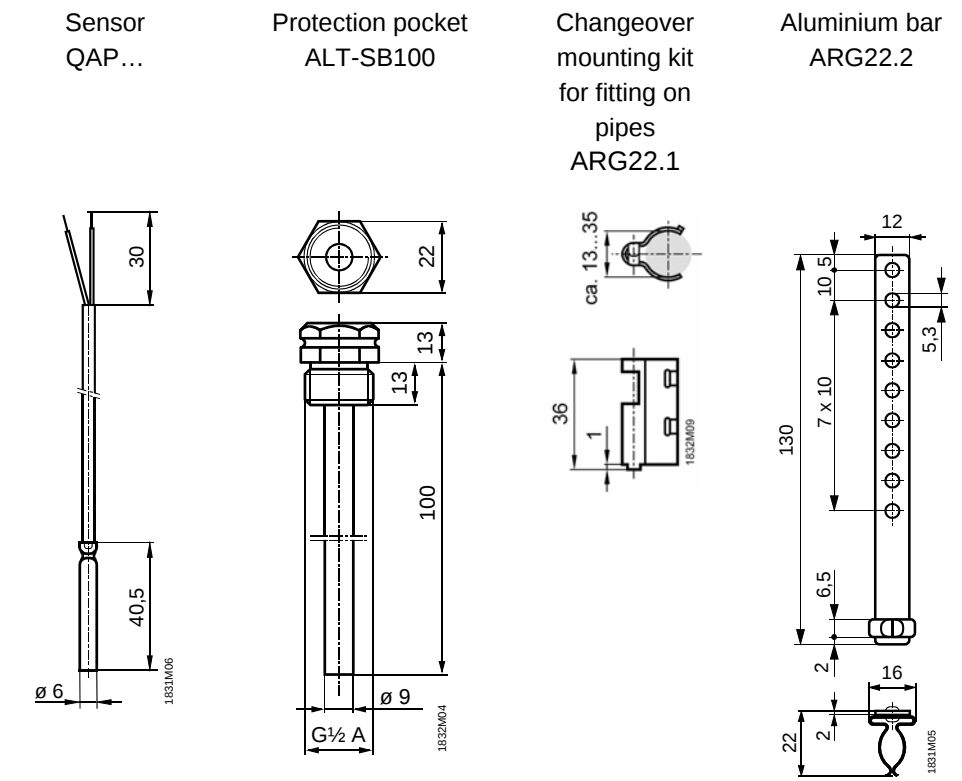
Internal diagram



The internal diagram is identical for all types of cable temperature sensors covered by this Data Sheet.

The connecting wires are interchangeable.

Dimensions



Dimension in mm