Immersion temperature sensors QAE22...

Immersion sensor for acquiring the water temperature in pipes or tanks.

Use

Acquisition of the water temperature for
- controlling or limiting the flow temperature
- limiting the return temperature
- controlling the d.h.w. temperature

Type summary

Type reference	*Outfit*	*Immersion length*	*Nominal pressure*
QAE22	With clamp for protection pocket [1]	110 mm	PN10
QAE22A	With protection pocket made of brass (Ms63) and threaded sleeve G ½ A	100 mm	PN10
QAE22.2	With compression ferrule union with threaded sleeve G ½ A	max. 130 mm [2]	PN16
QAE22.5A	With protection pocket made of brass (Ms63) and threaded sleeve G ½ A	150 mm	PN10

1) Protection pocket mandatory 2) Variable immersions length

Accessories (optional)

Designation	*Material*	*Nominal pressure*	*Kind of sealing*	*Immersion length*	*Part no.*
Protection pocket	Ms63	PN10	Threaded with sealing means	100 mm	**4 660 1600 0**
Protection pocket	Ms63	PN10	Threaded with sealing means	150 mm	**4 660 1601 0**
Protection pocket	St18/8/2.5	PN25	With flange for flat seal	100 mm	**4 660 1620 0**
Protection pocket	St18/8/2.5	PN25	With flange for flat seal	150 mm	**4 660 1621 0**

Ordering

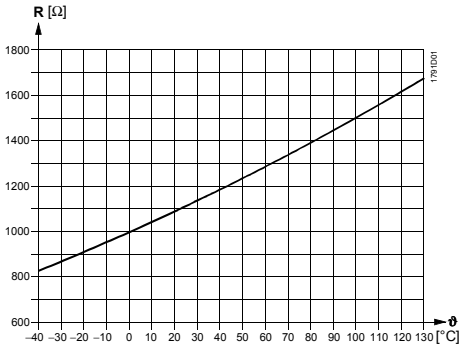
When ordering, please give name and type reference or part no.,
e.g.: immersion temperature sensor **QAE22A** or protection pocket **4 660 1621 0.**

Function

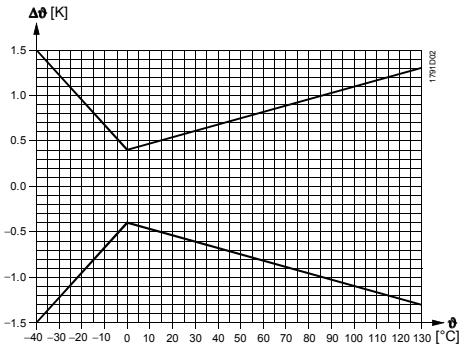
The sensor acquires the medium temperature in the solar panel with its nickel element. The resistance value of the element changes as a function of the temperature. It is delivered for further handling by a suitable controller.

Sensing element

Characteristic



Accuracy



Legend

R Resistance value in Ohm
ϑ Temperature in degrees Celsius
Δϑ Temperature differential in Kelvin

Mechanical design

The immersion temperature sensor consists of the following components:

- Two-sectional plastic housing comprised of base with connection terminals and removable cover (snap-on design)
- Immersion rod with LG-Ni 1000 sensing element
- Protection pocket made of brass with threaded sleeve G ½ A (only with QAE22A and QAE22.5A)
- Clamp for fitting the protection pocket (not with QAE22.2)
- Compression ferrule union with threaded sleeve G ½ A (only with QAE22.2)

The connection terminals can be accessed after removing the housing cover. Cable entry is made via a grommet (no tension relief). If required, the grommet can be replaced by a Pg 11 cable entry gland.

Technical data

General sensor data	Temperature range	−30...+130 °C
	Sensing element	LG-Ni 1000
	Time constant t_{63}	
	With protection pocket	approx. 30 s
	Without protection pocket	approx. 8 s
Materials	Immersion rod	stainless steel pipe to DIN 17 440 steel 1.4435, 1.4571
	Base	PA 66
	Housing cover	ASA Luran S
	Protection pocket	brass (Ms63)
	Compression ferrule union	stainless steel 1.4404, 1.4435, 1.4571
Colors	Base	silver-grey, RAL 7001
	Housing cover	light-grey, RAL 7035
Degree of protection and safety class	Degree of protection of housing	IP 42 to IEC 529
	Safety class	III to EN 60 730

Electrical connections	Screw terminals for	max. 1 x 2.5 mm^2
	Cable entry Pg 11 cable entry gland	grommet for cable of 5.5...7.2 mm dia can be fitted
	Permitted cable lengths	refer to Data Sheet of controller
Environmental conditions	Operation Climatic condition Temperature (housing) Humidity (housing)	to IEC 721-3-3 class 3K5 –5...+50 °C 5...95 % r.h.
	Transport Climatic condition Temperature Humidity Mechanical environmental conditions	to IEC 721-3-2 class 2K3 –25...+70 °C <95 % r.h. class 2M2
Weight incl. packaging	QAE22	0.155 kg
	QAE22.2	0.178 kg
	QAE22A	0.198 kg
	QAE22.5A	0.215 kg

Engineering notes

If the nominal pressure exceeds PN10 or the temperature exceeds 100 °C, a protection pocket with a flat seal is required.
The permissible cable lengths depend on the type of controller used.

Mounting and installation notes

Depending on the application, the sensor is to be located as follows:

- For flow temperature control:
  In the heating flow:
  – Directly after the pump if the pump is located in the flow
  – 1.5 to 2 m after the mixing valve if the pump is located in the return
- For limiting the return temperature:
  In the return at a location where the temperature can be correctly acquired

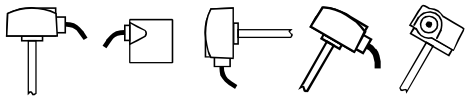
The sensor should be installed in an elbow such that the immersion rod or the protection pocket faces the direction of flow. The water must be well mixed where the temperature is acquired.

With all types of sensors, the immersion length must be a minimum of 50 mm!

The sensor may not be covered by lagging.
Before mounting the sensor, a threaded fitting or T-piece G ½ must by welded in the pipe.

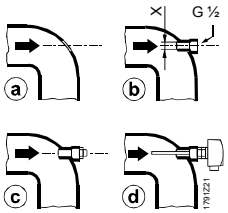
The sensor should be mounted such that the cable does not enter from the top.

Permitted mounting positions



Not permitted

Mounting in an elbow



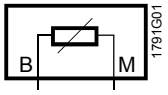
X = 7.5 mm dia. with **QAE22.2**
X = 10 mm dia. with **QAE22A, QAE22.5A**

Note

- For sensors with nonsealing threaded sleeves G ½ A, sealing means must be used (e.g. hemp, Teflon band or similar
- Tighten compression ferrule union of the QAE22.2 on the sensor's immersion rod
  - *When tightening for the first time:*
    Turn the nut about 1 ½ turns until strong resistance is felt. Slacken off the nut again and retighten ¼ turn
  - *For preassembled compression ferrule union or repeated fitting:*
    Screw the nut on until finger-tight. Then, tighten with a spanner ¼ turn for the final fit

Mounting Instructions are printed on the packaging.

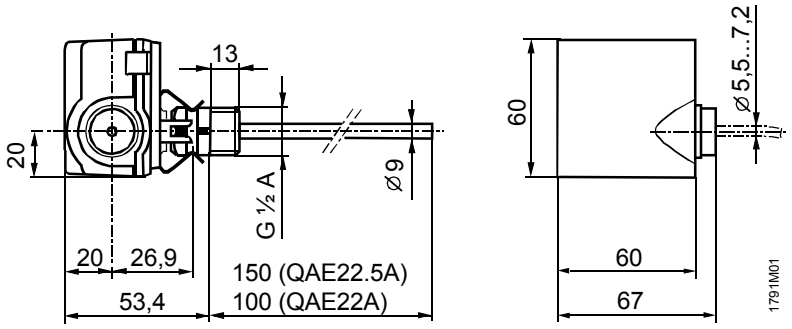
Internal diagram



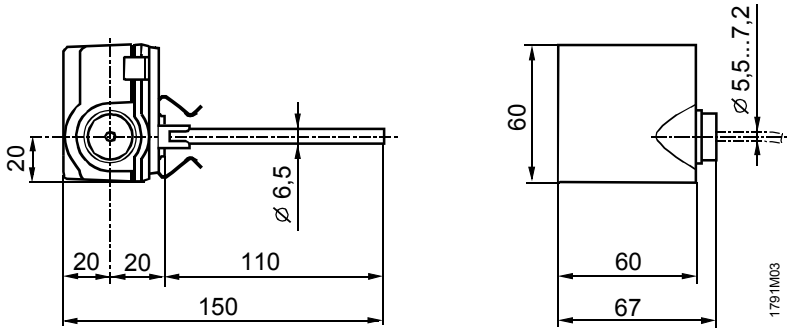
The internal diagram is identical for all types of immersion sensors covered by this Data Sheet.
The connecting wires are interchangeable.

Dimensions (in mm)

QAE22A, QAE22.5A



QAE22



QAE22.2