

Symaro™

Immersion Temperature Sensors

QAE1612.010, QAE1630.010



Immersion temperature sensors in pipes and tanks

- Passive sensors for acquiring the water temperature in pipes and tanks.

Use

The QAE16... immersion temperature sensors are for use in ventilation and air conditioning plants for:

- Controlling or limiting the flow temperature
- Limiting the return temperature
- Controlling the DHW temperature

Function

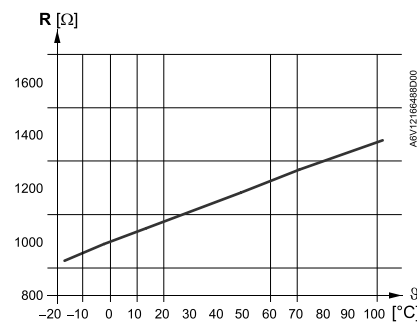
The sensor acquires the medium temperature via its sensing element whose resistance value changes as a function of the temperature.

The signal is delivered for further handling by a suitable controller.

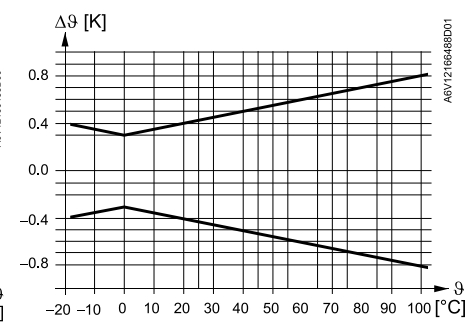
Sensing elements

Pt1000 (class B)

Characteristic

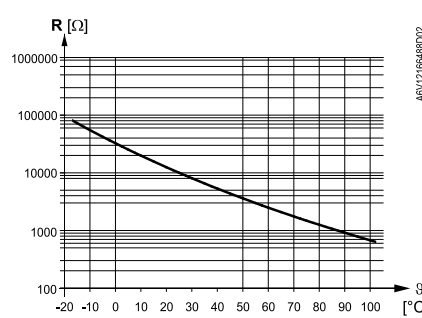


Accuracy

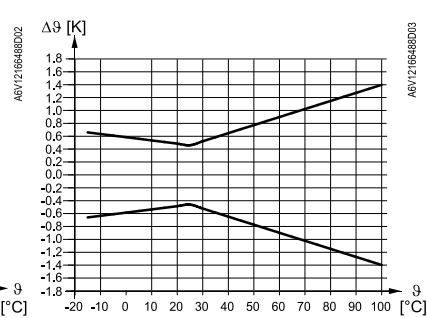


NTC 10k

Characteristic



Accuracy



Legend

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

Mechanical design

The immersion temperature sensors consist of the following components:

- Two-sectional plastic housing comprised of base with connection terminals and removable cover (snap-on design)
- Immersion rod complete with sensing element

The connection terminals can be accessed after removing the cover.

Type summary

Type	Outfit	Immersion length	Nominal pressure	Sensing element	Protection degree of housing
QAE1612.010	With clamp for protection pocket ¹⁾	100 mm	PN ²⁾	Pt 1000	IP42
QAE1630.010	With clamp for protection pocket ¹⁾	100 mm	PN ²⁾	NTC 10k	IP42

- 1) Protection pocket required (not included as standard)
- 2) Depending on the type of protection pocket used

Ordering

When ordering, please give name and type reference, e.g.: Immersion temperature sensor **QAE1612.010** or protection pocket **ALT-SS100**.

Accessories (not included in standard delivery)

Name	Material	Nominal pressure	Type of sealing	Immersion length	Type reference
Compression fitting	V4A (1.4571)	PN16	Threaded with sealing means	---	AQE2102
Protection pocket	Brass (CuZn37)	PN10	Threaded with sealing means	100 mm	ALT-SB100
Protection pocket	V4A (1.4571)	PN16	Threaded with sealing means	100 mm	ALT-SS100
Protection pocket	V4A (1.4571)	PN40	With flange for flat seal	100 mm	ALT-SSF100

For other protection pocket accessories, refer to datasheet N1194.

Equipment combinations

All systems or devices capable of acquiring and handling the sensor's passive output signal.

Notes

Engineering

Protection pockets made of Brass may not be used with nominal pressures over PN 10 or at temperatures over 130 °C. For higher nominal pressures or temperatures up to max. 135 °C the protection pocket is to omit (max. PN 16) or a protection pocket made of stainless steel (V4A) is required (see table accessories).

Mounting and installation

Depending on use, the sensor should 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 return temperature limitation:
 - In the return at a location where the temperature can be correctly acquired

The sensor should be installed in an elbow with the immersion rod or the protection pocket facing the direction of flow. The water must be well mixed where the temperature is acquired. This is downstream from the pump or, if the pump is mounted in the return, at least 1.5 m after the mixing point.

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

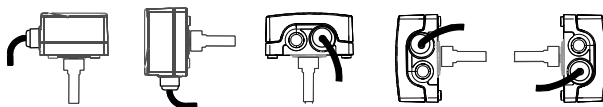
With all types of sensors, the immersion length must be a minimum of 60 mm!

The sensor must not be covered by lagging.

To fit the sensor, a threaded fitting or T-piece G ½ must be welded into the pipe.

Mounting positions

Permitted

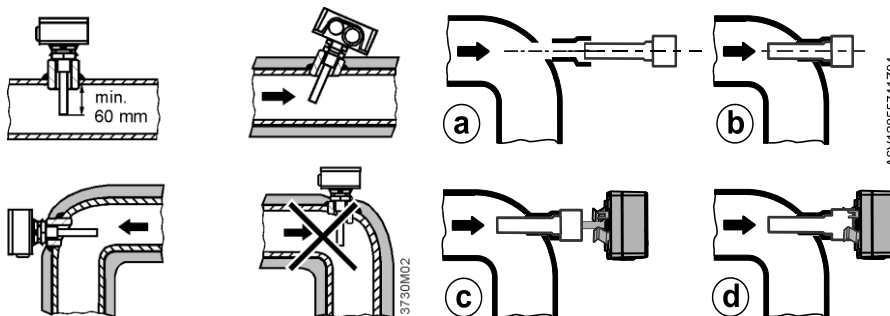


Not permitted



A6V12170263Z00

Mounting



A6V12055741Z04

NOTICE! For sensors with non-sealing threaded nipples G 1/2, sealing means must be used with the threaded connection (e.g., hemp, Teflon tape or similar).

Mounting instructions are enclosed in the package.

Disposal



The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Functional data	
Measuring range	-15...100 °C
Sensing element	Refer to Type summary [→ 2]
Time constant With protection pocket Without protection pocket	Approx. 30 s Approx. 8 s
Measuring accuracy	Refer to Function [→ 2]
Immersion length	100 mm
Nominal pressure	Refer to Type summary [→ 2]

Ambient conditions and protection classification	
Protection degree of housing	Refer to Type summary [→ 2] according to EN 60529
Protection class	III according to EN 60730-1
Environmental conditions	
Storage	
• Climatic conditions	
– Temperature	-10...50 °C
– Humidity	5...90 % r.h.
Transport	
• Climatic conditions	
– Temperature	-20...60 °C
– Humidity	5...95 % r.h.
Operation	
• Climatic conditions	
– Temperature (housing)	0...50 °C
– Humidity (housing)	10...90 % r.h.

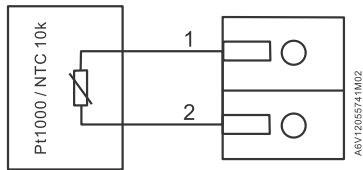
Standards, directives and approvals	
Product standard	EN 60730-1 Automatic electrical controls for household and similar use
EU conformity (CE)	A5W00040629 *)
Environmental compatibility	The product environmental declaration (A5W00146316A *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

General	
Perm. cable lengths	Refer to data sheet of controller
Electrical connections screw terminals for	1 × 2.5 mm ² or 2 × 1.5 mm ²
Cable entry via	Sealing ring
Materials and colors	
Immersion rod	Stainless steel
Base	PC (light-grey)
Cover	PC (light-grey)
Packaging	Corrugated cardboard
Weight including package	
QAE1612.010	Approx. 0.125 kg
QAE1630.010	Approx. 0.125 kg

*) The documents can be downloaded from <http://siemens.com/bt/download>.

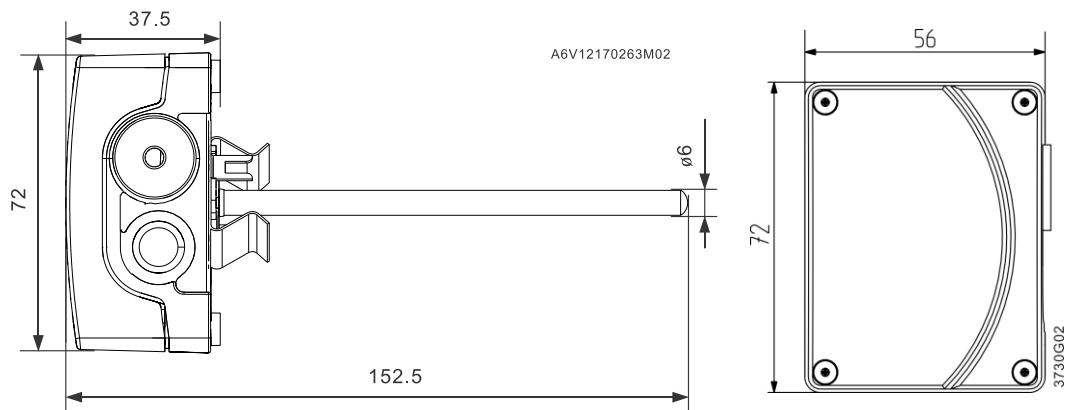
Diagrams

Connection terminals

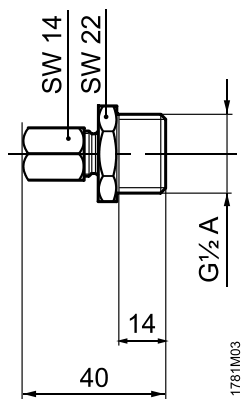


The output mode is passive, which means the sensing element is provided to customer directly with two-position connector.

Dimensions



Variable immersion length: with accessory AQE2102
Accessory compression fitting **AQE2102**



Dimensions in mm

