Immersion Temperature Sensors

QAE3010...
QAE3075...

Use

The sensors are used for acquiring the temperature of liquid or gaseous media (e.g. heating water) in heating, ventilation or air conditioning plants.
They are designed for use in connection with automation equipment, display and logging devices.

Type summary

Type reference	*Measuring range*	*Immersion length*	*Type of measurement, output*	*Max. speed of flow*		
				With water 200 °C, 40 bar	*With steam 200 °C, 40 bar*	*With steam 100 °C, 10 bar*
QAE3010.010	−50...+200 °C	100 mm	Passive	9 m/s	11 m/s	100 m/s (39.1 m/s) [1)]
QAE3010.016	−50...+200 °C	160 mm	Passive	4.5 m/s	6 m/s	65 m/s (14.2 m/s) [1)]
QAE3075.010	0...200 °C	100 mm	Active, 4...20 mA	9 m/s	11 m/s	100 m/s (39.1 m/s) [1)]
QAE3075.016	0...200 °C	160 mm	Active, 4...20 mA	4.5 m/s	6 m/s	65 m/s (14.2 m/s) [1)]

1) Resonance frequency

Ordering

When ordering, please give name and type reference according to "Type summary", e.g. immersion temperature sensor **QAE3010.010**

Mechanical design

The sensor consists of an exchangeable insert with sensing element and connecting head with a removable cover made of aluminum. The inserts are not available as replacement parts, but can be removed from a new sensor with the identical apparatus item number (ASN).
The terminal block for the electrical connections is located in the connecting head. The sensors have a 70 mm neck tube made of stainless steel and a G ½ threaded bushing with sensor sleeve. The sensing element is located at the end of the sensor sleeve. The sleeve is suited from operating pressures up to 40 bar.

Disposal

The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

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

Technical data

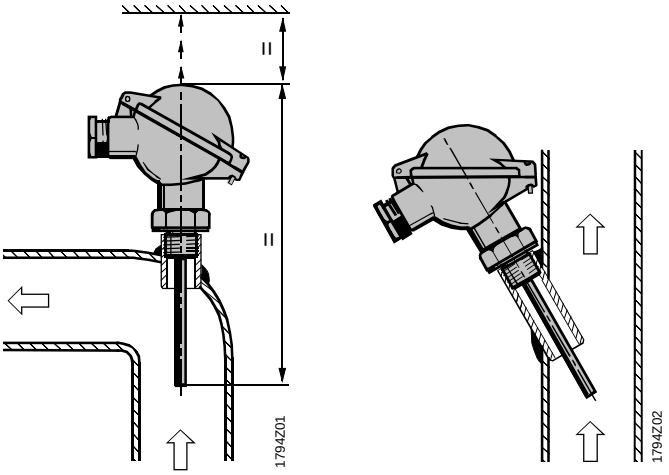
	Type of sensor	**QAE3010...**	**QAE3075...**
General sensor data	Measuring range, immersion length	refer to "Type summary"	
	Sensing element	Pt100 (class B)	Pt100 (class B)
	Measuring tolerance	±0.3 K at 0 °C	±1 % of measuring range
	Time constant t_{63}	25 s	25 s
	Type of measurement and output	passive	active, 4...20 mA
	Power supply (Ub)		DC 7.5...30 V (SELV)
	Current draw		max. 20 mA
	Load / dummy load (Rb)		Rb = (Ub – 7.5) V / 0.022 A
	Perm. amb. temp. at connecting head	max. 100 °C	max. 85 °C
	Perm. amb. hum. at connecting head	<95 % r.h. (noncondensing)	
	Measuring medium	gaseous or liquid	
	Max. speed of flow	refer to "Type summary"	
	Nominal pressure	PN 40	
Connections	Mechanical	thread G½, SW24	
	Electrical	screw terminals for max. 2 x 1.5 mm^2	
Degree of protection	Protection degree of housing	IP65 according to EN 60529	
	Protection class	III to EN 60730-1	
Materials and colors	Connecting head, type BUZ	die-cast aluminium; similar to white-aluminium RAL 9006	
	Neck tube and threaded bushing	stainless steel 1.4571	
	Sensor tube	stainless steel 1.4571, pipe dia. = 9 mm	

Directives and Standards	Product standard	EN 60730-1 Automatic electrical controls for household and similar use
	EU Conformity (CE)	CE1T1794xx *) (QAE3075.xxx)
	RCM Conformity	8000078879 *) (QAE3075.xxx)
	Electromagnetic compatibility (Applications)	For use in residential, commerce, light-industrial and industrial environments
Weight	Excl. packaging	
	QAE3010.010, QAE3075.010	0.37 kg
	QAE3010.016, QAE3075.016	0.41 kg

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

Mounting notes

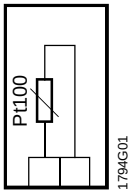
If possible, mount the sensor in a pipe bend facing the direction of flow. Make sure that the medium is properly mixed where the sensor is located.
Choose the mounting location so that the insert can be easily replaced.



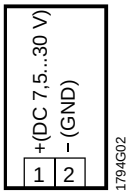
The sensor is supplied complete with Mounting Instructions.

Internal diagram

QAE3010...



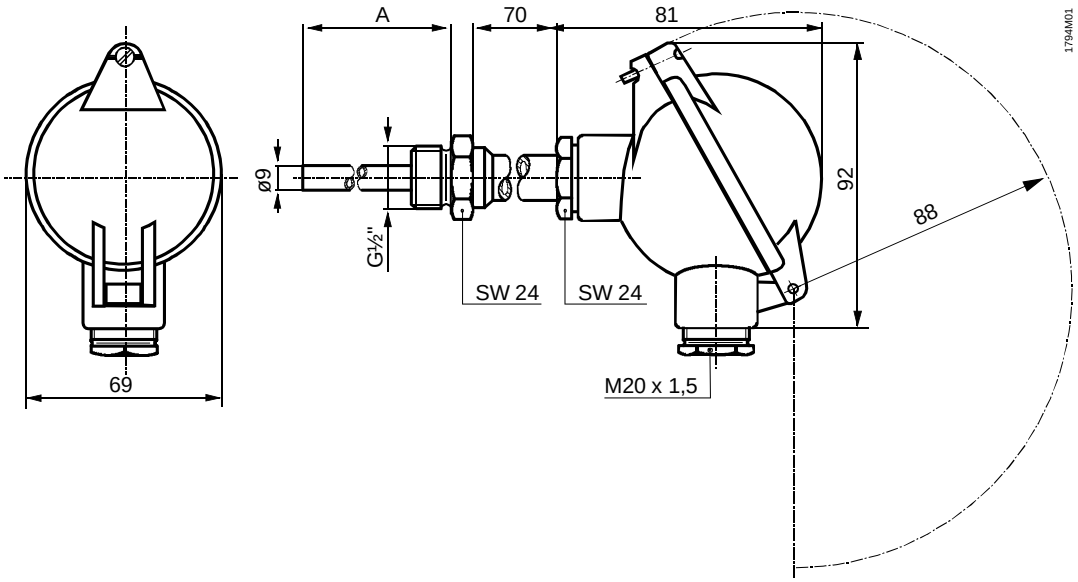
QAE3075



Resistance characteristic Pt100 (DIN EN 60 751, class B)

Temp. in °C	–50	–40	–30	–20	–10	0	+10	+20	+25	+30
Res. in Ω	80.306	84.271	88.222	92.160	96.086	100.00	103.903	107.794	109.735	111.673
Temp. in °C	+40	+50	+60	+70	+80	+90	+100	+110	+120	+130
Res. in Ω	115.541	119.397	123.242	127.075	130.897	134.707	138.506	142.293	146.068	149.832
Temp. in °C	+140	+150	+160	+170	+180	+190	+200	+210	+220	+230
Res. in Ω	153.584	157.325	161.054	164.772	168.478	172.173	175.856	179.528	183.188	186.836

Dimensions (in mm)



A = immersion length

Type reference	*A [mm]*
QAE3010.010	100
QAE3010.016	160
QAE3075.010	100
QAE3075.016	160

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