



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).

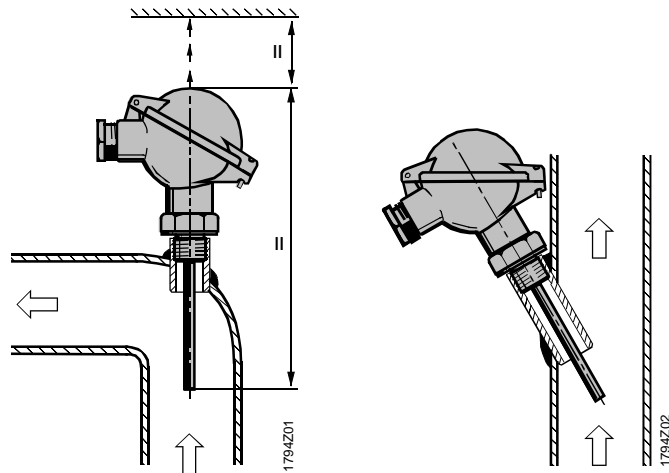
The terminal block for the electrical connections is located in the connecting head. The sensors have a 70 mm neck tube made of stainless steel and a G ½ threaded bushing with sensor sleeve. The sensing element is located at the end of the sensor sleeve. The sleeve is suited from operating pressures up to 40 bar.

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 (U_b)		DC 7.5...30 V
	Current draw		max. 20 mA
	Load / dummy load (R_b)		$R_b = (U_b - 7.5) \text{ V} / 0.022 \text{ A}$
	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	
	Mechanical	thread G½, SW24	
Connections	Electrical	screw terminals for max. 2 x 1.5 mm ²	
Degree of protection and safety class	Degree of protection	IP 65 to IEC 529	
	Safety class	III to EN 60 730 (only for SELV or PELV)	
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	
Norms and standards	Product safety		
	Automatic electrical controls for household and similar use	EN 60 730-1	
	Electromagnetic compatibility		
	Immunity	EN 61 326 industrial requirement	
	Emissions	EN 61 326 class B	
	CE conformity		
Weight	EMC directive	89/336/EEC	
	Low-voltage directive	73/23/EEC	
	Excl. packaging		
	QAE3010.010, QAE3075.010	0.37 kg	
	QAE3010.016, QAE3075.016	0.41 kg	

Mounting notes

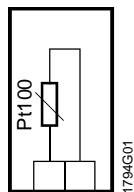
If possible, mount the sensor in a pipe bend facing the direction of flow. Make sure that the medium is properly mixed where the sensor is located.
Choose the mounting location so that the insert can be easily replaced.



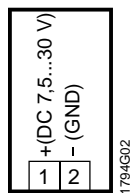
The sensor is supplied complete with Mounting Instructions.

Internal diagram

QAE3010...



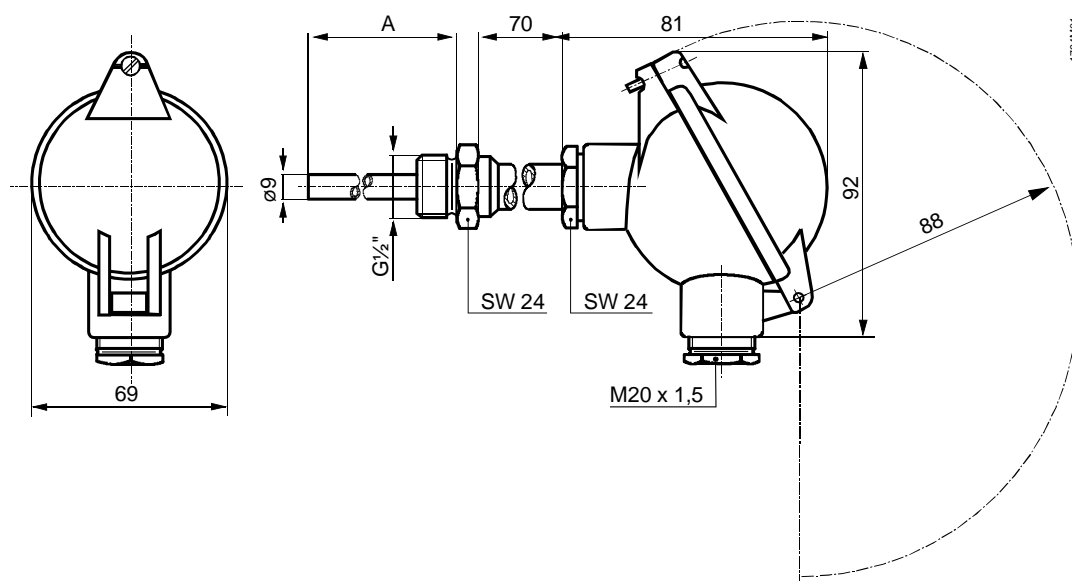
QAE3075



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