



- sensor for the non-invasive flow measurement of liquids
- for use in combination with the SonoTT™ aQuila I
- for use on medical tubing in all common sizes
- customer-specific calibration (up to seven tables per sensor)

## Technical Specification

<b>Size (H x W x D) &amp; Weight (incl. cable and plug)</b>	25 x 33 x 45 mm (all IDs except for ID 14002); 137 g 27 x 38 x 51 mm (ID 14002); 153 g
<b>Housing and Lid Material</b>	epoxy resin, aluminum, brass, plastic
<b>Cable Length</b>	2.9 m ±5 cm
<b>Safety class (IEC60601-1)</b>	Type BF applied part
<b>IP-Code</b>	IP67 (without connector and/or in mated condition)
<b>Compatibility</b>	to be used in combination with the SonoTT™ aQuila I
<b>Connector plug</b>	16-pin round plastic plug
<b>Acoustic Output Signal</b>	Frequency 2,25 MHz, pr < 1 MPa, Ispta < 20 mW/cm <sup>2</sup> , Iob < 100 mW/cm <sup>2</sup> , ΔT < 0.3 °C, TI < 1.0, MI < 1.0
<b>Expected Product Life</b>	5 years

## Accuracy\* and Drift (in Combination with the SonoTT™ aQuila I)

Flow Range	Accuracy
0 < flow < Qmin	not defined
Qmin to 1 000 ml/min	±70 ml/min
1 000 ml/min to Qmax	±7 % of the value (±30 ml/min within 2 hours)

**\*Please note:**

- The accuracy stated above can only be guaranteed if the parameters throughout the measurement are the same as the ones the sensor was adjusted and calibrated for (e.g. medium type, medium temperature, tube size, tube material).
- Qmin refers to the minimum flow value for which the accuracy is specified.
- Qmax refers to the maximum flow value for which the accuracy is specified.
- If the medium within the tube moves in the opposite direction of the arrow on the lid, the flow value is displayed as negative value (e.g. -250 ml/min instead of 250 ml/min). The accuracy and the flow range stated above is the same for positive as well as negative flow values.
- Negative flow values are only possible when the medium moves in the opposite direction of the arrow on the sensor lid (see previous point); i.e. if the medium moves in the direction the arrow is pointing to, there are no negative values possible.

## Adjustment and Calibration

<b>Recommended tube type</b>	PVC
<b>Medium type</b>	liquids such as water, purified water, salines solutions, blood, blood substitutes, and most dialysis-, infusion, and irrigation solutions <b>Please note:</b> Due to safety and hygienic reasons, the adjustment is carried out using water.
<b>Possible Adjustment Temperature Range</b>	4 °C to 41 °C (39 °F to 106 °F)
<b>Calibration Tables **</b>	up to seven calibration tables can be stored to each sensor plug for different applications <b>Please note:</b> Except for IDs 14007 and 14004 (which come with only table 1), all sensors come with two standard calibration tables: <ul style="list-style-type: none"> <li>• Table 1: tube = PVC; medium = blood; temperature = 37 °C</li> <li>• Table 2: tube = PVC; medium = blood; temperature = 20 °C</li> </ul> All additional tables must be specified at ordering.

## Range of SonoTT™ Clamp-On SLs and Their Flow Measurement Range

ID	Type	Qmin***	Qmax***	Tube Size (inner diameter (ID) x wall thickness (WT))
14007	ACT 5.7 mm U	25 ml/min	±1 000 ml/min	5.7 mm outer diameter
14004	ACT 6.8 mm U	25 ml/min	±1 500 ml/min	6.8 mm outer diameter
14006	ACT 3/16" x 1/16" U	100 ml/min	±6 000 ml/min	3/16" x 1/16"
14003	ACT 1/4" x 3/32" U	120 ml/min	±8 000 ml/min	1/4" x 3/32"
13999	ACT 1/4" x 1/16" U	120 ml/min	±8 000 ml/min	1/4" x 1/16"
14005	ACT 3/8" x 1/16" U	150 ml/min	±10 000 ml/min	3/8" x 1/16"
13874	ACT 3/8" x 3/32" U	150 ml/min	±10 000 ml/min	3/8" x 3/32"
14002	ACT 1/2" x 3/32" U	300 ml/min	±16 900 ml/min	1/2" x 3/32"

**\*\*\*Please note:**

While a measurement is generally possible for the flow range specified above, the accuracy is only defined for the flow values stated under "Accuracy and Drift (in Combination with the SonoTT™ aQuila I)".

## Ambient Conditions during Transport, Storage, and Operation

### Transport and Storage

Atmospheric Pressure	70 kPa to 106 kPa
Temperature Range	-20 °C to 55 °C (-4 °F to 131 °F)
Relative Humidity	10 % to 96 % (non-condensing)

### Operation

Atmospheric Pressure	70 kPa to 106 kPa
Operating Altitude	up to 3 000 m (9842 feet)
Temperature Range	10 °C to 40 °C (50 °F to 104 °F)
Relative Humidity	10 % to 96 % (non-condensing)

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