SonoTT™ Clamp-On SL

em·tec MEDICAL

- OEM sensor for the non-invasive flow measurement of liquids
- for use on medical tubing in all common sizes
- hanging installation
- high level of customization
- customer-specific calibration (up to seven tables per sensor)

Technical Specification

Size (H x W x D) & Weight (depending on ID)	25 x 33 x 45 mm; 137 g 27 x 38 x 51 mm; 153 g
Housing and Lid Material	epoxy resin, aluminum, brass
Cable Length	2.9 m ±5 cm
Safety class (IEC60601-1)	dependent on integration and complete system
IP-Code	sensor head and cable: IP67 sensor connector: IP67 in mated condition
Compatibility	to be used in combination with a flow measurement board of the SonoTT™ SkyLark Series
Connector plug	dependent on application and device (D-Sub or round plug)
Acoustic Output Signal	Frequency 2,25 MHz, pr < 1 MPa, Ispta < 20 mW/cm^2, Iob < 100 mW/cm^2, ΔT < 0.3 °C, TI < 1.0, MI < 1.0
Expected Product Life	10 years

Accuracy* and Drift (in Combination with a SonoTT™ SkyLark)

Flow Range	**Accuracy**
0 < flow < Qmin	not defined
Qmin to 1000 ml/min	±100 ml/min
> 1000 ml/min	±7 % of the value ±30 ml/min

***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 speficied.
- Qmax refers to the maximum flow value for which the accuracy is specified.

Adjustment and Calibration

Recommended tube type	flexible, non-reinforced tubing, e.g. silicone, PVC
Medium type	liquids such as water, purified water, salines solutions, blood, blood substitutes, and most dialysis-, infusion, and irrigation solutions **Please note:** Due to safety and hygenic reasons, the adjustment is carried out using water.
Medium Operating Temperature	4 °C to 45 °C (40 °F to 113 °F)
Calibration Tables	up to seven calibration tables can be stored to each sensor plug for different applications

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

Type	Qmin**	Qmax**	Tube Size (inner diameter (ID) x wall thickness (WT))
MCT 1/8″ x 1/16″	100 ml/min	2 500 ml/min	1/8″ x 1/16″
MCT 6.8 mm	100 ml/min	±6 000 ml/min	6.8 mm outer diameter
MCT 3/16″ x 1/16″	100 ml/min	±6 000 ml/min	3/16″ x 1/16″
MCT 1/4″ x 3/32″	120 ml/min	±8 000 ml/min	1/4″ x 3/32″
MCT 1/4″ x 1/16″	120 ml/min	±8 000 ml/min	1/4″ x 1/16″
MCT 3/8″ x 1/16″	150 ml/min	±10 000 ml/min	3/8″ x 1/16″
MCT 3/8″ x 3/32″	150 ml/min	±10 000 ml/min	3/8″ x 3/32″
MCT 1/2″ x 3/32″	300 ml/min	±20 000 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 in Combination with the SonoTT™ Skylark".

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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