



- non-invasive flow measurement of liquids
- no additional shear stress
- for use on flexible tubing
- fully compatible with the BioProTT™ FlowMCP Series
- economical—designed for long-term use

Technical Specification

	up to OD 5/8"	up to OD 3/4"	up to OD 1-1/8"	up to OD 1-5/8"
Size (H x W x D)	25 x 33 x 45 mm	28 x 38 x 51 mm	35 x 43 x 69 mm	46 x 56 x 84 mm
Weight Transducer Head	52 g	72 g	140 - 160 g	295 - 315 g
Total Weight (incl. cable and plug)	137 g	153 g	225 - 245 g	380 - 400 g
Housing and Lid Material	epoxy resin, aluminium, brass		polymeric compound, aluminum, brass	
Cable Length	2.9 m ±5 cm			
IP-Code	<p>Please note: It is possible to adjust the cable length as long as the total cable length does not exceed 4 m (incl. the extension cable).</p> sensor head and cable: IP67 sensor connector: IP67 in mated condition			
Compatibility	BioProTT™ FlowMCP Series			
Connector plug	16-pin round plug			
Expected Product Life	10 years			
Cleaning and Disinfection	disinfect easily using alcohol based surface cleaners			

Accuracy* (in Combination with a BioProTT™ FlowMCP)

Outer Tubing Diameter (OD)	Accuracy	Resolution
up to OD 3/4"	±3 % of reading ±20 ml/min	The resolution depends on the respective measurement system.
up to OD 7/8"	±3 % of reading ±80 ml/min	
up to OD 1-1/8"	±3 % of reading ±200 ml/min	
up to OD 1-5/8"	±3 % of reading ±400 ml/min	

***Please note:**

The accuracy largely depends on the calibration parameters. The specified accuracies were determined under the following conditions: Medium: Water; Medium Temperature: Calibration Temperature; Straight Inlet Section: 15 x Inner Diameter (ID) of the tube; fully developed flow profile (i.e. system was given time to adjust to atmosphere temperature; tube was fully filled with liquid; steady flow); Tubing: Raumedic ECC Blood Line™ PVC (3/8" x 3/32"). The installation position of the BioProTT™ Clamp-On SL as well as the positioning of pumps and valves within the circuit impact the measurement and must be taken into account when it comes to the accuracy of the BioProTT™ FlowMeasurement System.

Adjustment and Calibration

Recommended tube type	flexible, non-reinforced tubing, e.g. silicone, PVC
Medium type	liquids including buffer solutions, cell culture media, fermentation media, hydrocarbons, nutrition media, salines solutions, water, blood, blood substitutes Please note: Due to safety and hygienic reasons, we can only carry out the adjustment using water or, in some cases, glycerol.
Medium Operating Temperature	4 °C to 45 °C (40 °F to 113 °F)
Calibration Tables	<ul style="list-style-type: none"> • up to seven calibration tables can be stored to each sensor plug for different applications • on-site calibration is possible, as is the use of a customer-specific calibration factor to enhance accuracy

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

Size*	Qmin**	Qmax**	Tube Size***		
			ID [in]	WT [in]	OD [in]
PCT 1/8" x 1/16"	300 ml/min	2 500 ml/min	1/8	1/16	1/4
PCT 11/64" x 3/64"	300 ml/min	6 000 ml/min	11/64	3/64	17/64
PCT 3/16" x 1/16"	300 ml/min	6 000 ml/min	3/16	1/16	5/16
PCT 1/4" x 1/16"	300 ml/min	8 000 ml/min	1/4	1/16	3/8
PCT 1/4" x 3/32"	300 ml/min	8 000 ml/min	1/4	1/16	7/16
PCT 3/8" x 1/16"	300 ml/min	10 000 ml/min	3/8	1/8	1/2
PCT 3/8" x 3/32"	300 ml/min	10 000 ml/min	3/8	3/32	9/16
PCT 1/8" x 1/8"	300 ml/min	10 000 ml/min	1/8	1/8	5/8
PCT 1/2" x 3/32"	300 ml/min	20 000 ml/min	1/2	3/32	11/16
PCT 1/2" x 1/8"	300 ml/min	20 000 ml/min	1/2	1/8	3/4
PCT 1/2" x 3/16"	300 ml/min	20 000 ml/min	1/2	3/16	7/8
PCT 3/4" x 1/8"	1 500 ml/min	50 000 ml/min	3/4	1/8	1
PCT 3/4" x 3/16"	1 500 ml/min	50 000 ml/min	3/4	3/16	1-1/8
PCT 1" x 1/8"	4 000 ml/min	up to 100 000 ml/min	1	1/8	1-1/4
PCT 1" x 3/16"	4 000 ml/min	up to 100 000 ml/min	1	3/16	1-3/8
PCT 1-1/4" x 3/16"	4 000 ml/min	up to 100 000 ml/min	1-1/4	3/16	1-5/8

* Custom sizes are available upon request.

**Please note:

- While a measurement is possible outside the given flow measurement range, the accuracy indicated above is only valid within that range.
- The possible Qmax depends on the tubing.

*** ID = Inner Diameter; WT = Wall Thickness; OD = Outer Diameter

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 (9 842 feet)
Temperature Range	10 °C to 40 °C (50 °F to 104 °F)
Relative Humidity	10 % to 96 % (non-condensing)

em-tec

em-tec GmbH
 Lerchenberg 20
 86923 Finning, Germany
 P: +49 8806 9236 0
 F: +49 8806 9236 50
 E: em-tec-info@psgdover.com
 em-tec.de