

DIGMESA
«SONIC»
- THE
ULTRASONIC
LIQUID
FLOW
SENSING
SOLUTION

For high-precision liquid flow rate measurements where contactless sensors are essential, Digmaesa offers the ideal solution for a measurement range of 0.1–20 l/min in the form of the «SONIC» product family.

The contactless ultrasound measurement procedure means that the medium being measured only comes into contact with a precisely defined, high-quality plastic material. Thanks to the innovative design of the measurement section with a straight flow path, the device generates little turbulence and no additional pressure loss. With no moving parts, the devices are wear and maintenance-free.

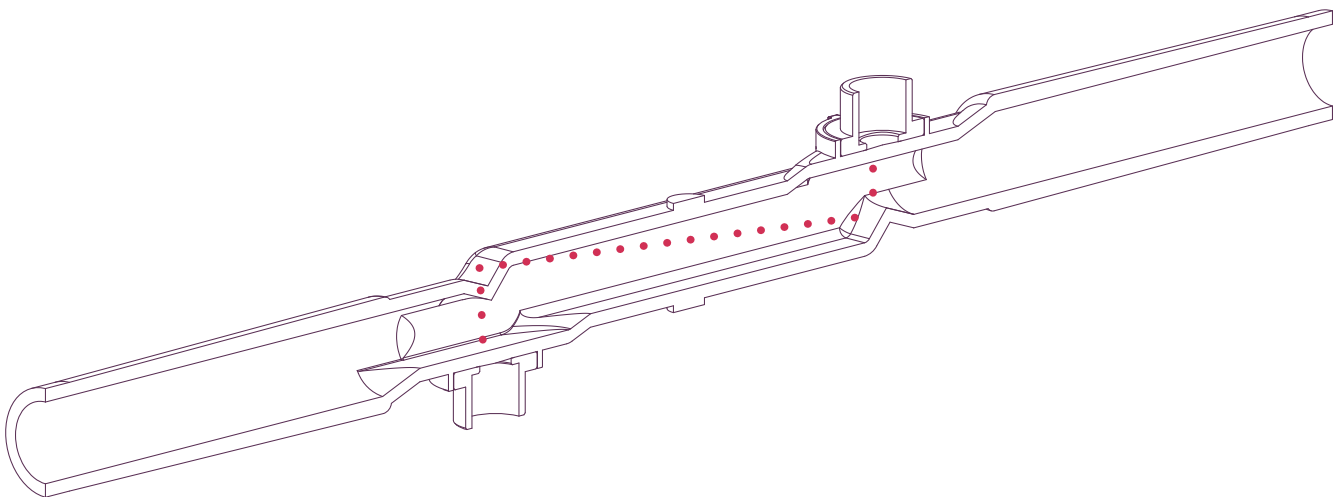
Maximum precision, good repeatability and fast response times are other important properties of the Digmaesa «SONIC» family. The many communication options allow easy integration into existing process systems.

The devices are used wherever liquids have to be measured and recorded with great accuracy. A range of different materials also offers the optimum choice for demanding measurement tasks. Applications include process monitoring in the semiconductor industry, dosing of highly aggressive chemicals in flow reactors and controlling of drinks dispensing systems.



The principle behind the «SONIC» sensors is based on transit-time differential measurement. The innovative measurement section concept enables maximum accuracy while retaining a straight flow path.

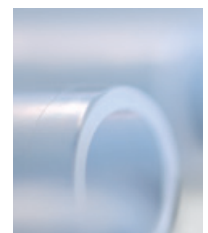
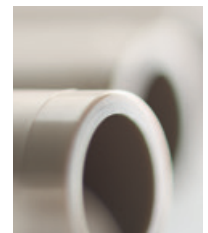
In the transit-time differential process, acoustic signals are sent in and against the direction in which the liquid is flowing. The excitation is produced at 1 MHz (PA measurement tube) or 2 MHz (PEEK and PFA measurement tubes). The transducers are permanently coupled with the measurement tube. Mirror-like surfaces ensure an optimum and interference-free transmission of the audio signal between the senders and receivers. The liquid accelerates the audio signal in the direction of flow and slows it in the opposite direction. The transit time velocity is determined using an advanced electronic evaluation system and the flow velocity of the medium calculated. This is directly proportional to the flow rate. The measurement result is extremely accurate and reproducible; the devices provide fast response times.



With the «SONIC» DT30, DT300 and DT2020 products in the materials PFA, PEEK and PA, Digmesa offers specialised solutions for demanding measurement and dosing tasks in various areas.

The SONIC DT30 with PFA measurement tube can be employed in all applications where the purity of the process media and outstanding chemical resistance play an important role. The device is also more than adequate for the demanding requirements of the semiconductor industry. The Flare-compatible 1/2" connectors guarantee a safe and simple installation.

The SONIC DT300 with PEEK measurement tube is designed for use in the chemical and pharmaceutical industries. PEEK is renowned for its high resistance to organic and inorganic chemicals. This material is also frequently employed in medical technology. However, this robust and universally applicable product variant offers the perfect solution in industrial plants such as in the monitoring and control of cooling circuits for portioning, in dosing or for filling tasks.



The SONIC DT2020 with PA measurement tube provides an inexpensive entry to contactless measurement. Thanks to reduced functional scope and optimised material selection, this variant in PA is the perfect choice for price-sensitive measurement tasks with no need to forego the accuracy or the benefits of the process. The internal diameter of 9.8 mm permits easy passage of 10 mm sponge balls. The

device is thus ideally suited for use in beer dispensing systems on which chemical-mechanical cleaning is to be used. John Guest-compatible tube ends make the installation fast, secure and simple. Connection to existing evaluation units is straightforward by means of pulse output. The SONIC DT2020 detects foam in the pipework and indicates this by means of status LED and alarm output.





Flow range	SONIC DT30	SONIC DT300	SONIC DT2020
	0.1–20.0 l/min	0.1–20.0 l/min	0.1–12.0 l/min
	(zero flow cut-off at 100 ml/min)	(zero flow cut-off at 100 ml/min)	(zero flow cut-off at 100 ml/min)
Measurement Accuracy	± 50 ml/min or ±2.0%	± 50 ml/min or ±2.0%	± 50 ml/min or ±2.0%
	(of reading)	(of reading)	(of reading)
Response Time	~150 ms	~50 ms	~50 ms
Maxium Pressure	10 bar	10 bar	10 bar
Temperature Range	10–30°C	0–60°C	0–30°C

Wetted Materials	PFA	PEEK	PA (Fiberglass Reinforcement)
Fittings	1/2" flare-compatible pipe ends	12 mm straight pipe ends	1/2" (12.7 mm) John Guest-compatible pipe ends
		1/2" (12.7 mm) John Guest-compatible pipe ends	
		12 mm barbed fittings	
Size	180 mm x 36 mm x 78 mm	180 mm x 36 mm x 78 mm	180 mm x 36 mm x 78 mm
Weight	400 g	400 g	400 g
Protection Class	IP65	IP65	IP65
Power Supply	12–24VDC	12–24VDC	12–24VDC
Consumption	max. 240 mA	max. 180 mA	max. 100 mA

Analogue Output	4–20 mA (max. load resistance R = 600 Ω)	4–20 mA (max. load resistance R = 600 Ω)	-
Factory Setting	0 l/min = 4 mA	0 l/min = 4 mA	-
	12 l/min = 20 mA	12 l/min = 20 mA	-
Pulse Output	Open Collector, NPN (max. 30 V, 30 mA)	Open Collector, NPN (max. 30 V, 30 mA)	Open Collector, NPN (max. 30 V, 30 mA)
Factory Setting	1000 pulses per litre	1000 pulses per litre	1000 pulses per litre
Additional Inputs / Outputs	2 trigger inputs	2 trigger inputs	1 OC output (empty state detection)
	2 configurable OC outputs	2 configurable OC outputs	
	RS-485 (Modbus protocol)	RS-485 (Modbus protocol)	



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All measurements have been taken under ideal laboratory conditions.

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