

Micro Flow Meter

Mastering smallest volume flows with precision



Overview

- For Water, Sparkling Water, Milk, Coffee, Tea, Soft Drinks *and many others*
- Accuracy $\pm 2\%$ of measured value
- **Food Approved** Design & Materials
- **Hose Connection**
- **Analogue & Bus** Communication
- Integrated **Temperature Sensor**
- Ultrasonic **High-Speed Temperature** Measurement
- **Gas Bubble** Detection

Operating conditions

Media	Water, Sparkling Water, Milk, Coffee, Tea, Soft Drinks <i>and many others</i>
Operating temperature	0 – 105 °C
Operating pressure	0 – 10 bar
Over Pressure	16 bar
Burst pressure	32 bar
IP code	IP 44
Relative humidity	$\leq 90\%$ rh
Lifetime	> 8 years

Compliance

CE Marking	Compliant to all applicable EU Directives (EMC, RoHS)
REACH Regulation	Compliant
Food	All materials compliant with EU regulations 1935/2004, 10/2011, NSF51 and FDA
Drinking Water	All materials compliant with German FEA guidelines (UBA BWGL)

Materials

Wetted parts	PPS 40% GF, Stainless Steel 1.4301, EPDM
Non-wetted parts	ABS

Features

Gas Bubble Detection	Monitoring and identifying gas bubbles in liquid flow, allowing timely intervention to prevent issues such as empty tanks or reservoirs.
High-Speed Temperature Measurement	Monitor highly dynamic temperature changes due to the fast response time of ultrasound and the temperature dependence of the measured speed of sound.

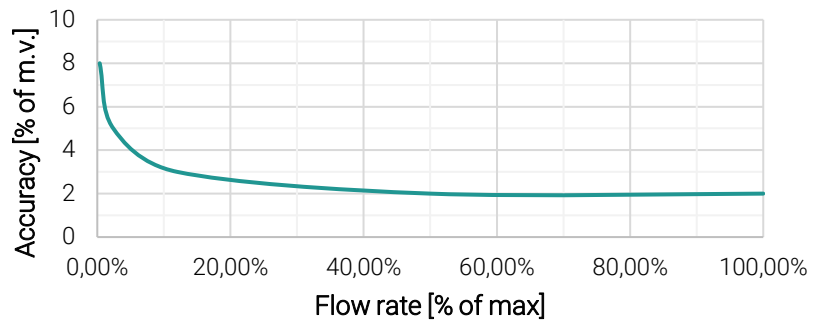
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Flow Measurement

Measurement technology	Ultrasonic		
Measurement range	3.6 - 180 l/h	0.06 - 3 l/min	1 - 50 ml/s
Accuracy	± 2 % of measured value *		
Repeatability	± 1 % of measured value		
Response time	< 0.1 s		

Accuracy funnel



* Accuracy specification per accuracy funnel, assuming turbulence-free flow conditions (refer to [installation notes](#)).

Temperature Measurement

Measurement element	PT1000 class B + Ultrasonic Transit Time
Measurement range	-5 - 50 °C
Accuracy	± 1 K
Repeatability	± 0.15 K
Response time T07	< 0.1 s
Response time T09	< 0.25 s

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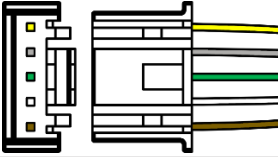
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Electrical data

Power Supply	4.5 – 5.5 VDC
Current consumption	< 20 mA @ 5 V

Electrical interface

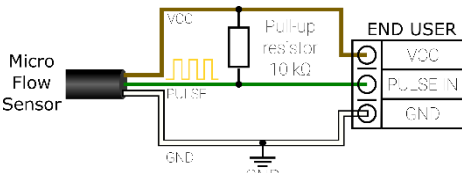
Cable length	150 mm
Electrical connection	JST PAP-05V-S

Cable color-coding Pinout		VOLTAGE (TEMPERATURE)	YELLOW
		CONFIDENTIAL	GREY
		(PULSE FLOW)	GREEN
		GND	WHITE
		VCC	BROWN

PULSE / PWM channel

Channel assignment	Flow
Type	Open collector

PLC connection



external 10 kΩ pull-up resistor required
Voltage level equal to VCC (voltage pull-up resistor)

Pulses/Liter	5000
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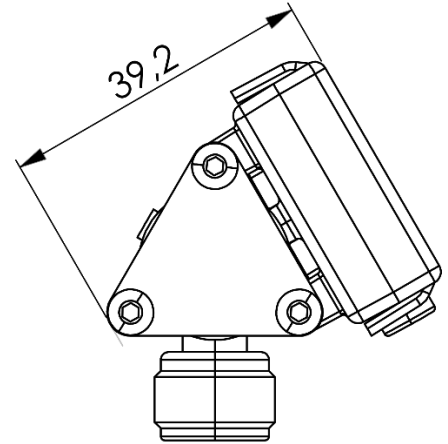
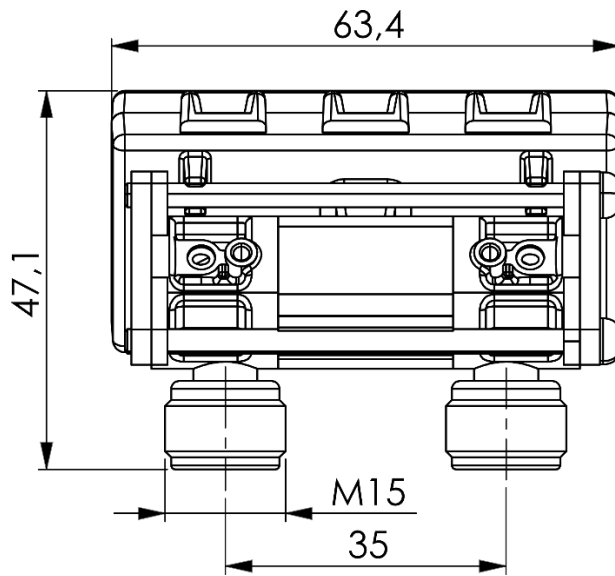
Voltage channel

Channel assignment	Temperature
Voltage range	0.3 – 2.2 V
Measuring range	-5 – 50 °C
Conversion	$meas. value = \frac{55\text{ °C}}{1.9\text{ V}} \cdot (meas. voltage - 0.3\text{ V}) - 5\text{ °C}$

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Dimensions



Length	63,4 mm
Height	47,1 mm
Width	39,2 mm
Connection	M15 Male Thread Hose Connection

Installation notes

Orientation	Installable in any orientation
Calming section	Ensure accurate readings with a calming section upstream and downstream of the sensor.

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ALLENGRA
Flow meters



About Us

Allengra GmbH, with headquarters in Germany and Romania, was established in 2005 and specializes in the design and production of standard or OEM ultrasonic flow sensors and control valves for liquids and gases, tailored to meet the specific needs of each end client application. Our company manages the entire development process, from concept to serial production, with various engineering departments and prototyping skills at our disposal.

Allengras core technology, ultrasonic metering, has been refined over the years to a level where both high-end device integration and cost-effective applications are achievable. Allengra provides metering and regulating solutions for various industries, including gas heating boilers, automatic coffee machines, robotic scrubbers, and industrial automation, among others.

Über Uns

Die 2005 gegründete Allengra GmbH mit Sitz in Deutschland und Rumänien entwickelt und produziert sowohl Standard- als auch maßgeschneiderte Ultraschall-Durchflusssensoren und Regelventile für Flüssigkeiten und Gase. Allengra vereint alle notwendigen Engineering und Prototyping Fähigkeiten, um die Produkte interdisziplinär und ganzheitlich zu entwickeln. So können auch neue und innovative Ideen schnell und flexibel in robuste Serienprodukte überführt werden.

Allengras Kernkompetenz, die Ultraschall-Durchflussmessung, kann durch die umfangreiche und langjährige Erfahrung mit der Technologie problemlos sowohl in High-End-Produkte als auch in robuste und kostengünstige Serienlösungen integriert werden. Allengra bietet Mess- und Regelungslösungen für Anwendungen in Gasheizkesseln, Kaffeefullautomaten, Bodenreinigungsmaschinen, dem Motorsport, der industriellen Automatisierung und vieles mehr.