

ALSONIC Gas

Allengra's Versatile Ultrasonic Flow Meter Product Family

ALLENGRA
Flow meters



Overview

- Available in DN15 – DN32
- For Natural Gas, Nitrogen, Oxygen *and many others*
- Accuracy $\pm 3\%$ of measured value
- Almost **no pressure loss**
- Analogue & Bus communication
- Integrated **Temperature Sensor**
- Integrated absolute **Pressure Sensor**
- Gas Type **Identification**
- **Mass Flow** Determination

Operating conditions

Media	Natural Gas, Nitrogen, Oxygen <i>other gases on request</i>	
Medium temperature	-20 – 85°C <i>fluid in gaseous phase</i>	
Variant	Standard	Low Pressure
Operating Pressure	0.7 – 10 bar(a)	0.7 – 2 bar(a)
Burst pressure	20 bar(g)	3 bar(g)
Ambient temperature	-20 - +80 °C	
Relative humidity	< 95 % rh	
IP code	acc. to IP 44	
Storage temperature	-40 - +80 °C	
Lifetime	> 12 years	

Compliance

CE Marking	Compliant to all applicable EU Directives (EMC, RoHS, PED)
REACH Regulation	Compliant

Materials

Sensor Body	CW724R
Other wetted parts	Silica, FKM, Stainless Steel, Alumina Al ₂ O ₃
Non-wetted parts	ABS, PA-66 GF30

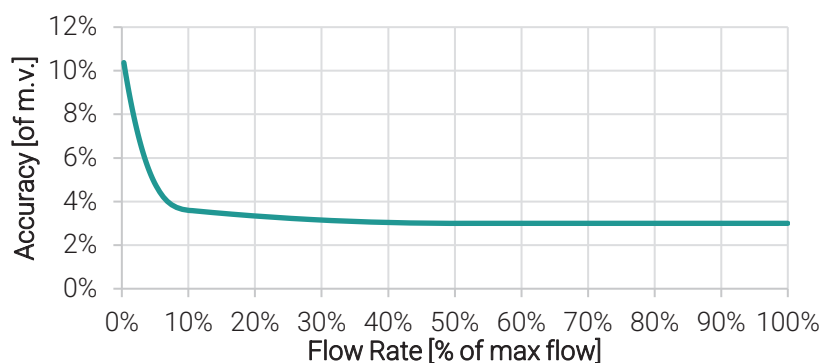
Features

Gas type Identification	Identify gases by evaluating sound propagation parameters.
Mass Flow Determination	Determine normalised volume (SLPM) and mass flows using the integrated temperature and pressure measurement.

Flow Measurement

Measurement technology	Ultrasonic			
Dimension	DN15	DN20	DN25	DN32
Measurement range	Air 4°C			
	[l/min]	0.25 – 125	0.33 – 160	0.42 – 200
	Butane 4°C			
	[l/min]	0.25 - 50	0.33 - 70	0.42 - 85
Measurement range	Methane 4°C			
	[l/min]	0.5 - 225	0.66 - 300	0.84 - 380
Other gases or mixtures	Measurement range provided on request			
Accuracy	±3 % of measured value ¹			
Repeatability	±1 % of measured value			
Response time	<0.5 s			

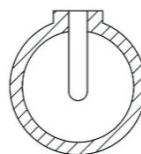
Accuracy funnel



¹Accuracy spec. for methane acc. to accuracy funnel, assuming turbulence-free flow conditions (refer to [installation notes](#)).

Internal Temperature Measurement

	Standard Contact Sensor
Measurement element	PT1000 class B
Measurement range	-20 – 110 °C
Accuracy	±1 K
Repeatability	± 0.5 K
Response time T ₉₀	< 10s

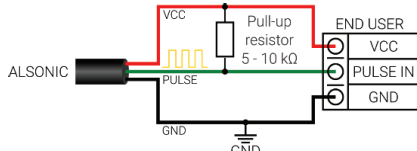


Pressure Measurement

Measurement element	Ceramic pressure sensor	
Type	Absolute Pressure	
Variant	Standard	Low Pressure
Measurement Range	0 – 10 bar(a)	0 – 2 bar(a)
Accuracy	0.2 % of full scale	
Response time	<0.5 s	

Electrical data				
Power Supply	6-28 VDC			
Current consumption	< 10 mA (<i>< 40 mA during power up for 100 ms</i>)			
Protection class	III			
Electrical reliability				
	Power Supply	0 – 5 V	Pulse	Modbus
Reverse voltage	Yes	N/A	N/A	N/A
ESD Protection	Yes	Yes	Yes	Yes
Overvoltage protection	Up to 30 V	N/A	N/A	N/A
EMI Protection	Yes	Yes	Yes	Yes
Short Circuit of VCC over output interfaces	N/A	up to 13 V	up to 28 V	up to 15 V
Electrical interface				
Cable length options	0.3 m	0.5 m	1.0 m	1.5 m
Max. perm. wire extension	Modbus < 50 m, Pulse 0-5 V < 10 m			
Electrical Connection	Open Wires			
Pinout	VCC	RED		
	GND	BLACK		
	PULSE	GREEN		
	0.5 – 4.5 V	YELLOW		
	MODBUS A/D-	ORANGE		
	MODBUS B/D+	BROWN		

PULSE / PWM channel

Channel assignment	Flow
Type	Open collector
PLC connection	 external 5 – 10 kΩ pull-up resistor required Voltage level equal to VCC (voltage pull-up resistor)

Dimension	DN15	DN20	DN25	DN32
Pulse Rate [Pulses/L] <i>other on request</i>	1000	1000	1000	1000
Conversion	$\text{Volume Flow [L/h]} = \text{Frequency [Hz]} \cdot \frac{3600}{\text{Pulse Rate [Pulses/L]}}$ $\text{Frequency [Hz]} = \frac{\text{Pulse Rate [Pulses/L]} \cdot \text{Volume Flow [L/h]}}{3600}$			

0 – 5 V channel *Supply Voltage > 5.5 V mandatory*

Channel assignment options	Flow	Temperature	Pressure
Measuring range <i>others on request</i>	0 – max flow	0 – 90 °C	0 – 20 bar
Voltage range	0.5-4.5 V		
Conversion	$\text{meas.value} = \frac{(\text{max} - \text{min})}{4 \text{ V}} \cdot (\text{meas.voltage} - 0.5 \text{ V})$		

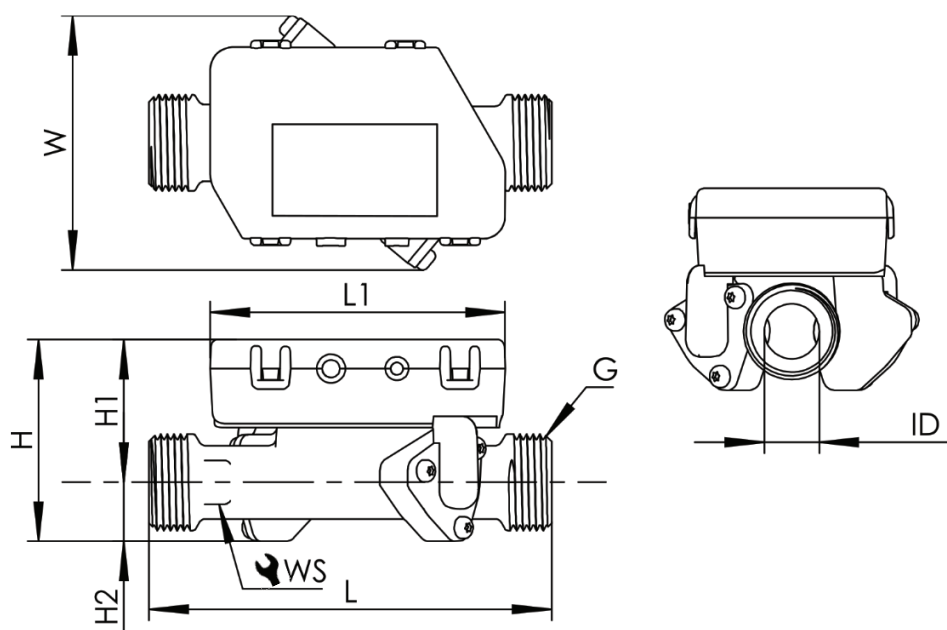
Modbus channel

Communication Protocol	Modbus RTU
Medium	RS-485
Speed	Up to 115.2 kbps
Channel assignment	- Flow - Temperature - Pressure
Additional features	- Normalized Volume Flow (SLPM) - Mass Flow - Gas Type Identification - Diagnostics

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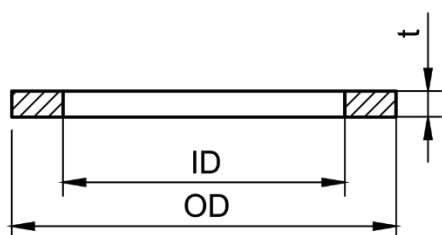
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Flow meters



Dimensions

Dimension	DN15	DN20	DN25	DN32
Inner Diameter ID	15	20	25	32
Thread G for flat seal	G3/4"	G1"	G1 1/4"	G 1 1/2"
Wrench Size WS	21	26	31	38
Length L	110	120	130	140
Length L1	80.6	80.6	80.6	80.6
Width W	69.4	74.1	79.1	86.2
Height H	55.1	57.5	64.3	71.3
Height H1	39.0	41.5	44.0	47.5
Height H2	16.1	16.1	20.3	23.8

Seals



Hydraulic connection with flat seals *not included*
Choose ID of seal larger than sensor *see recommendation*
Align flat seal concentrically *no interference with free cross-section*

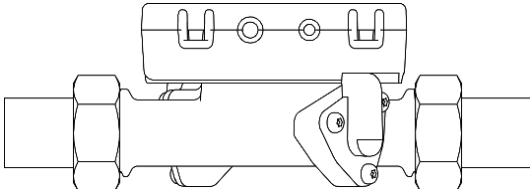
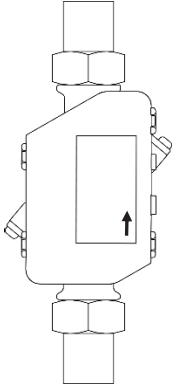
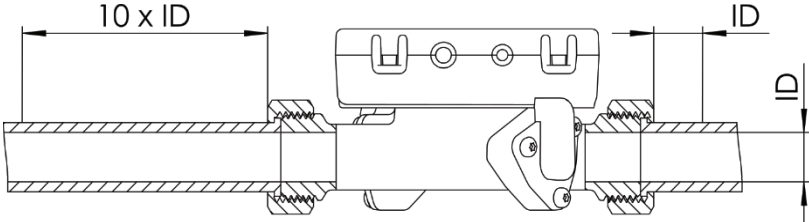
Dimension	DN15	DN20	DN25	DN32
Recommended Flat Seal dimensions ⁵	24x17x2	30x22x2	39x28x2	44x35x2

⁵ Flat seal's inner diameter must not intrude into the flow path.

Permissible Tightening Torque for Hydraulic Thread Connection

Dimension:	DN15	DN20	DN25	DN32
M _{max} [Nm]	12	12	12	12

Installation notes

Orientation	Recommended installation positions <i>(others on request)</i> : Horizontal <i>(housing cover parallel to ground)</i> Vertical <i>(flow direction upwards recommended)</i>
A side-view technical drawing of the ALSONIC Gas flow meter installed horizontally. The meter's body is cylindrical with two flange-like connection points on either side. The top cover is rectangular with two latches and two circular sensor ports. The flow direction is indicated by an arrow on the side of the meter body pointing to the right. A side-view technical drawing of the ALSONIC Gas flow meter installed vertically. The meter's body is cylindrical with two flange-like connection points at the top and bottom. The top cover is rectangular with two latches and two circular sensor ports. The flow direction is indicated by an upward-pointing arrow on the side of the meter body.	
Calming section	Ensure accurate readings with a calming section upstream and downstream of the sensor. Select the pipe ID according to the sensor dimensions. Other installation conditions on request with special calibration. A side-view technical drawing of the ALSONIC Gas flow meter installed in a pipe. The meter is centered within the pipe. Upstream of the meter, a section of the pipe is labeled '10 x ID', indicating a calming section. Downstream of the meter, a section of the pipe is labeled 'ID', indicating the pipe's internal diameter. The pipe is shown with hatching to represent its cross-section. The meter's body and cover are shown in detail, with the flow direction indicated by an arrow on the side of the meter body pointing to the right.

Order Code							
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Material Body	Brass	B					
	Stainless Steel	S					
Size	DN15 (G3/4")	15					
	DN20 (G1")	20					
	DN25 (G1 1/4")	25					
	DN32 (G1 1/2")	32					
Pressure Variant	Standard	10					
	Low Pressure	02					
Data Cable Length	0.3 m			03			
	0.5 m			05			
	1.0 m			10			
	1.5 m			15			
Pulse Rate	no pulse output				0000		
	1000 Pulses/L				1000		
Source 0-5 V Output	no 0 – 5 V output					0	
	Temperature 0 – 90 °C					1	
	Pressure 0 – max pressure					2	
	Flow 0 – max flow					3	
Modbus	Device ID: 0x01 Baud: 115200 Parity: Even Stopbits: 1					1	
	Custom					X	



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, Kaffeevollautomaten, Bodenreinigungsmaschinen, dem Motorsport, der industriellen Automatisierung und vieles mehr.