

ALSONIC Plastic

Allengra's Versatile Ultrasonic Flow Meter Product Family



Overview

- Available in DN15 – DN50
- For Water, Water+Glycol, DI Water *and many others*
- Accuracy $\pm 2\%$ of measured value
- Almost **no pressure loss**
- Analogue & Bus communication
- Integrated **Temperature Sensor**
- Integrated **Pressure Sensor** *Optional*
- External Temperature Probe for heat metering *Optional*
- **Gas Bubble Detection**
- **Glycol Concentration Measurement & Compensation**

Operating conditions

Media	Water, Water-glycol mixtures, DI water <i>other media on request</i>
Medium temperature	-20 – 90 °C <i>fluid in liquid phase</i>
Medium over temperature	110 °C < 5 min
Operating pressure	0 – 10 bar
Burst pressure	20 bar
Ambient temperature	-20 - +80 °C
Relative humidity	< 95 % rH
IP code	acc. to IP 44 <i>on request IP66</i>
Storage temperature	-40 - +80 °C
Lifetime	> 12 years

Compliance

CE Marking	Compliant to all applicable EU Directives (EMC, RoHS, PED)
REACH Regulation	Compliant
Drinking Water	All materials compliant to the German FEA guidelines (UBA BWGL)
Electrical Safety	Acc. to EN 60335-1, EN 60335-2-40

Materials

Sensor Body	PPS 40% GF
Other wetted parts	EPDM
Non-wetted parts	ABS

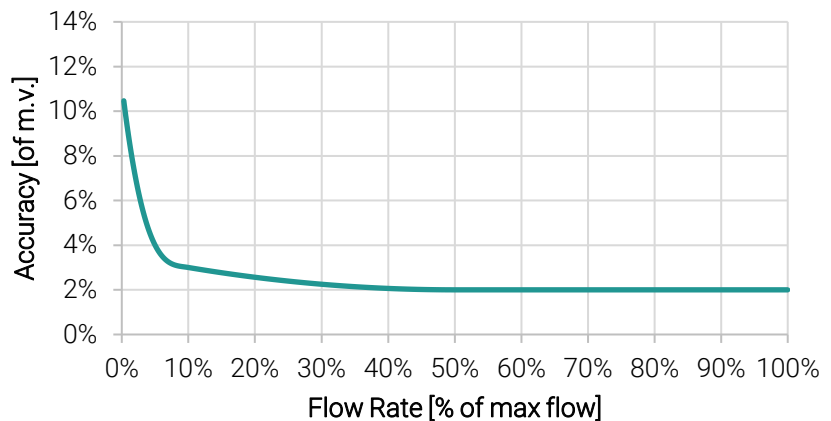
Features

Gas bubble detection	Identifies inefficiently vented heating systems and safety-relevant leaks in heat pumps using flammable refrigerants.
Glycol concentration	Measurement of glycol concentration , automatic volume flow compensation and freezing point estimation.
Consumption measurement	Measurement of water and heat consumption for efficient system operation, resource management and monitoring.

Flow Measurement

Measurement technology	Ultrasonic					
Dimension:	DN15	DN20	DN25 ¹	DN32 ¹	DN40 ¹	DN50 ¹
Measurement range [L/min]	0.15-50	0.3-100	0.6-200	1-360	1.5-540	2-1000
Measurement range [L/h]	9-3.000	18-6.000	36-12.000	60-21.600	90-32.400	120-60.000
Accuracy	±2 % of measured value ²					
Repeatability	±1 % of measured value					
Response time	<0.5 s					

Accuracy funnel



¹ Not yet in series production. Prototypes available.

² Accuracy specification per accuracy funnel, assuming turbulence-free flow conditions (refer to [installation notes](#)).

Internal Temperature Measurement

	Standard Contact Sensor		Immersion Sensor (Metal Sleeve)	
Measurement element	NTC		PT1000 class B	
Measurement range	-20 – 110 °C		-20 – 110 °C	
Accuracy	±3 K		±0.5 K	
Repeatability	± 0.3 K		± 0.3 K	
Response time T ₉₀	< 30 s		< 2 s	

Pressure Measurement *Optional*

Measurement element	Ceramic pressure sensor
Measurement range	0-10 bar
Accuracy	2 % of measured value
Repeatability	1 % of measured value
Response time	<0.5 s

External temperature sensor for heat metering *Optional*

Configuration	Internal PT1000 option mandatory	
Measurement element	PT1000 class B	
Measurement range	-20 – 110 °C	
Accuracy Repeatability <i>Ext. Temp.</i>	±0.5 K ±0.3 K	
Accuracy Repeatability <i>Temp. Diff</i>	±0.5 K ±0.3 K <i>Internal and external sensor paired</i>	
Accuracy Heat Measurement	±3 % at a temp. diff. ΔT = 30 K	±5 % at a temp. diff. ΔT = 10 K
Response time T ₉₀	< 2 s	
Wetted materials	Stainless steel, EPDM	

Electrical data

Power Supply	4.5-28 VDC
Current consumption	< 10 mA (< 40 mA during power up for 100 ms)
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

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			

	Standard	Optional
Electrical connection	Open cable ends	JST PHR-6 <i>other plugs on request</i>
Cable color-coding Pinout		

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 ¹	DN32 ¹	DN40 ¹	DN50 ¹
Pulses/Liter	1000	1000	500	250	100	100

¹ Not yet in series production. Prototypes available.

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 – 10 bar
Voltage range	0.5-4.5 V		

Conversion

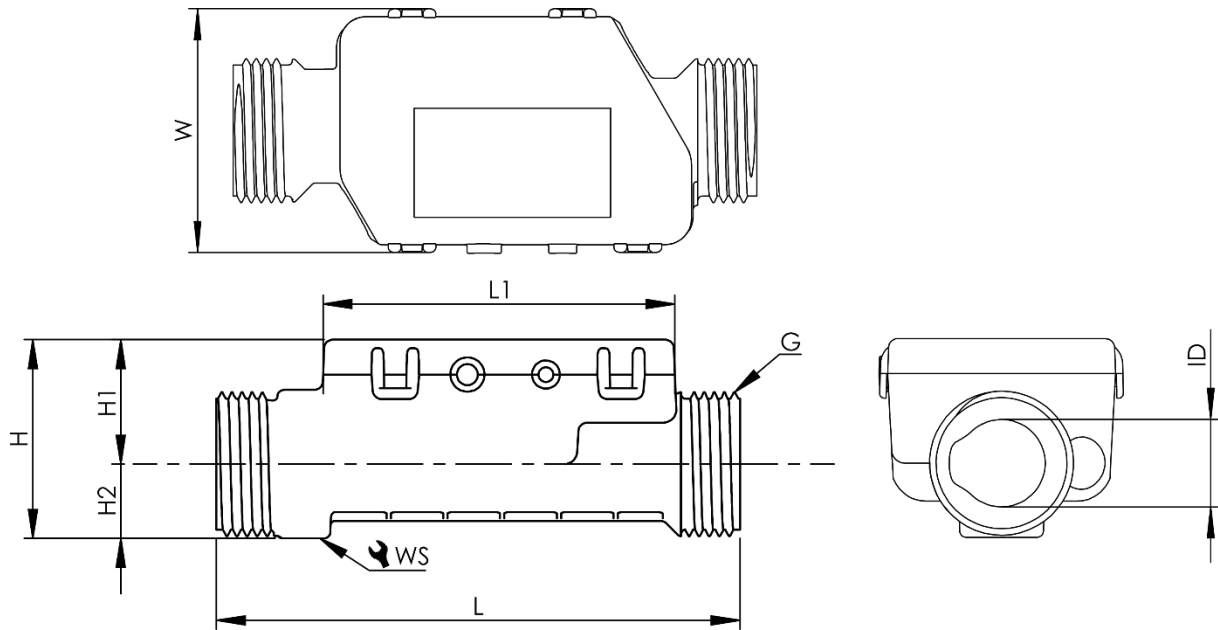
$$\text{meas. value} = \frac{(\text{max} - \text{min})}{4 \text{ V}} \cdot (\text{meas. voltage} - 0.5 \text{ V})$$

ModBus channel

Channel assignment	Flow, Temperature, Pressure and Diagnostics
Additional features	Bubble detection, Heat metering, Freezing point estimation for water-glycol mixtures, Consumption measurement, High-speed temperature measurement

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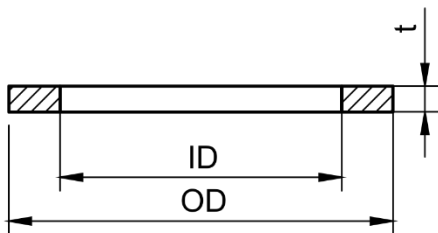


Dimensions

Dimension	DN15	DN20	DN25 ¹	DN32 ¹	DN40 ¹	DN50 ¹
Inner Diameter ID	15	20	25	32	40	50
Thread G for flat seal	G3/4"	G1"	G1 1/4"	G 1 1/2"	G 2"	G 2 1/2"
Wrench Size WS	27	34	44	50	60	70
Length L	110	120	130	140	150	170
Length L1	74	80.6	78.9	82.9	98.1	112.4
Width W	53.8	56.0	59.2	68.8	80.1	90.1
Height H	39.5	45.5	53.0	60.0	69.0	82.9
Height H1	26.0	28.5	31.0	35.0	39.0	45.5
Height H2	13.5	17.0	22.0	25.0	30.0	37.4

¹ Not yet in series production. Prototypes available.

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 ¹	DN32 ¹	DN40 ¹	DN50 ¹
Recommended Flat Seal dimensions	24x17x2	30x22x2	39x28x2	44x35x2	55x43x2	70x59x2

¹ Not yet in series production. Prototypes available.

Permissible Tightening Torque for Hydraulic Thread Connection

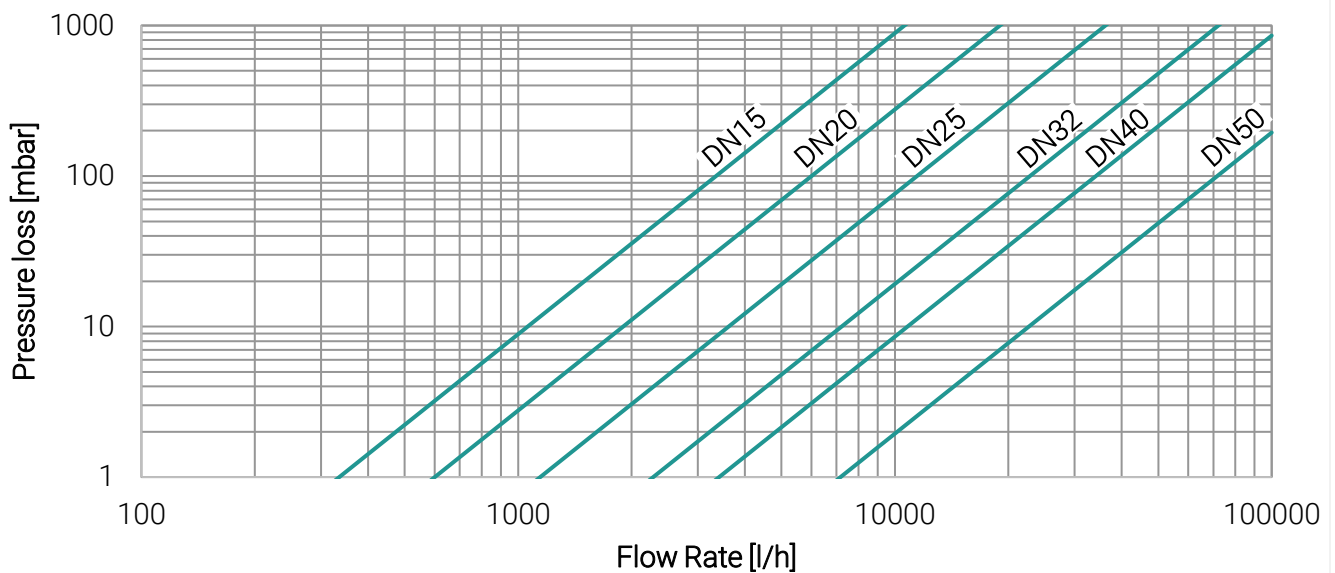
Dimension:	DN15	DN20	DN25 ¹	DN32 ¹	DN40 ¹	DN50 ¹
M _{max} [Nm]	12	12	12	12	12	12

External Temperature Sensor

	Probe	Counterpart dimensions	Assembly	Cable length
Wet Probe				700 mm
				1100 mm
Dry Probe		-	-	300 mm
				500 mm

Pressure Loss

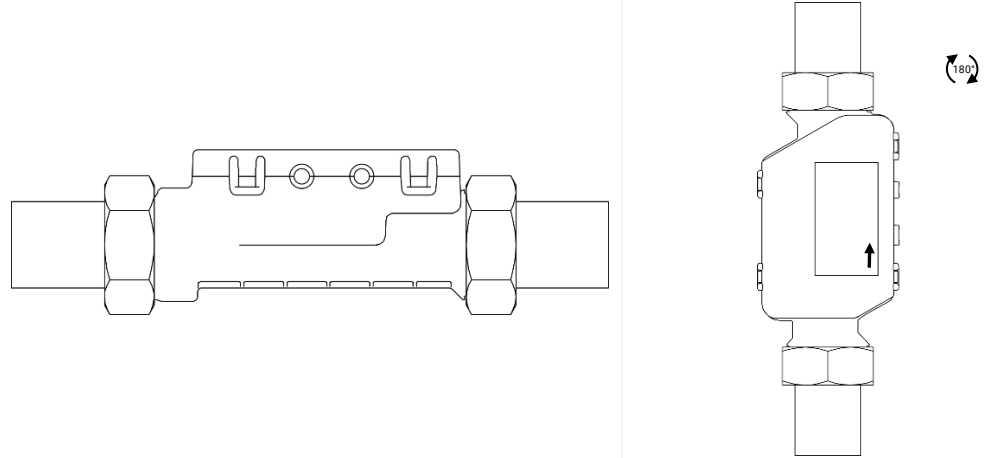
Dimension	DN15	DN20	DN25 ¹	DN32 ¹	DN40 ¹	DN50 ¹
Pressure Loss @ max flow [mbar]:	80	100	110	90	90	70
Kvs [m ³ /h]:	10.6	19.0	36.2	72.2	108.0	226.8



¹ Not yet in series production. Prototypes available.

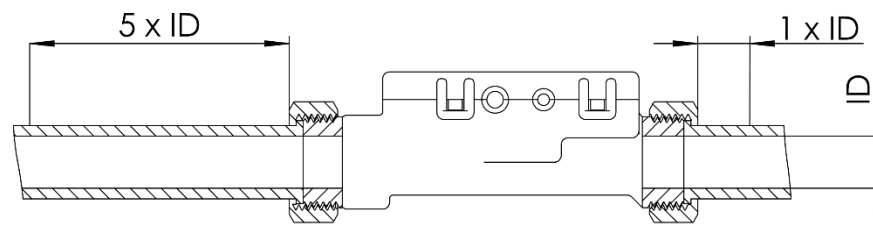
Installation notes

Orientation Recommended installation positions (*others on request*):
Horizontal (*housing cover parallel to ground*)
Vertical (*flow direction up and down permitted*)



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.



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Note: Not all variants and dimensions are yet in series production. Prototypes available.

Ordering Code		-	--	-	--	-	--	--	----	-	--	--
Material Body	Plastic	P										
	Brass	B										
	Other	O										
Size	DN15 (G3/4")		15									
	DN20 (G1")		20									
	DN25 (G1 1/4")		25									
	DN32 (G1 1/2")		32									
	DN40 (G2")		40									
	DN50(G2 1/2")		50									
Temperature Sensor	Standard Contact Sensor			1								
	Immersion Sensor (Metal Sleeve)			3								
	other			9								
Pressure Sensor	no pressure sensor				00							
	0 – 10 bar				10							
	other				99							
External temperature Sensor (heat metering)	no external temperature sensor					0						
	Wet probe					1						
	Dry probe					2						
	Other					9						
Data cable length	0.3 m						03					
	0.5 m						05					
	1.0 m						10					
	1.5 m						15					
	Other						99					
Connector	Open wires							0				
	JST PHR-6							1				
	Other							9				
Pulse rate	no pulse output								0000			
	100 Pulses/L <i>Standard DN40, DN50</i>								0100			
	250 Pulses/L <i>Standard DN32</i>								0250			
	500 Pulses/L <i>Standard DN25</i>								0500			
	1000 Pulses/L <i>Standard DN15, DN20</i>								1000			
	Other								9999			
Source 0 – 5 V output	no 0 – 5 V output									0		
	Temperature 0 – 90 °C									1		
	Pressure 0 – 10 bar									2		
	Flow 0 – max flow									3		
	Other									9		
ModBus Config	Device ID: 0x01 Baud: 115200 Parity: Even Stopbits: 1											01
	Device ID: 0x1E Baud: 19200, Parity: Even, Stopbits: 1											02
	Device ID: 0x03 Baud: 19200, Parity: None, Stopbits: 2											03
	Device ID: 0x3C Baud: 19200, Parity: Even, Stopbits: 1											04
	Other											99
External temperature cable length	0.3 m available for dry probe											03
	0.5 m available for dry probe											05
	0.7 m available for wet probe											07
	1.1 m available for wet probe											11
	Other											99



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.