

DM08

Magnetic Inductive Flowmeter

- for electrical conductive liquids
- independent of viscosity, density, pressure and temperature
- practically no pressure loss
- high measurement accuracy
- large measurement range span
- robust housing
- maintenance free
- compact- or separate version
- measuring ranges 0...6 m³/h to 0...1130 m³/h
- max pressure: 40 bar, max temperature: 180 °C



Description:

The magnetic inductive flowmeter operates without moving parts. It is maintenance free and there is because of a free tube cross section practically no pressure drop. Measuring ranges from 0,72 until 1131 m³/h with flange connections DN 32 until DN 200 are available.

The device comes as standard version with a dual digital display with a simple menu driven operation/programming (e.g. measuring range, pulse rate, low flow cut off). For example the flow volume, device status, limit values, flow direction, empty pipe detection can be displayed. The display electronic operates with a 16 bit microcontroller by what a fast reaction time <100 ms can be achieved. In addition to the frequency and analogue outputs, two alarm outputs are also available as output signals. The flowmeters are equipped with 3 independent totalisers to count partial and total amounts.

Typical applications:

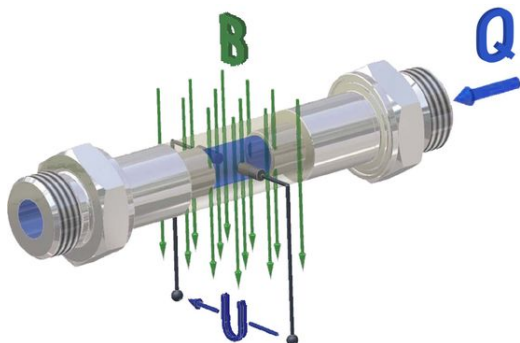
Because of the full bore and the various lining- and electrode material the flowmeter DM08 can be used for almost all media with the indicated minimum conductivity of 50 µS/cm. Viscosity, impurities in the media or density fluctuations have no impact for the measurement. Particularly for the following sectors the DM08 can be used:

- water and waste water
- mining, cement and mineral material
- cellulose- and paper industry
- acids and lyes
- agriculture
- energy industry and public utility
- paint industry

Operating principle:

The magnetic inductive flow measuring is based on the Faraday's induction principle. The to be measured liquid (electric conductive) flows perpendicular to a magnetic field. Thereby voltage is induced into the liquid.

The voltage is tapped by 2 electrodes which are inserted into the measuring tube and analysed by the electronic. The voltage level is proportional to the flow velocity.



Measuring ranges and dimensions:

Nominal size	measuring range [m³/h]	Factory set measuring range [m³/h] equates 4...20 mA	Pressure rate flange EN1092-1 *)	Installation length hard rubber and PTFE (with protective ring)
15	0...6	0...3	PN 40	200 (206)
25	0...17	0...10	PN 40	200 (206)
32	0...29	0...10	PN 40	200 (206)
40	0...45	0...10	PN 40	200 (206)
50	0...70	0...20	PN 40	200 (206)
65**)	0...119	0...50	PN 16/40	200 (206)
80	0...180	0...50	PN 16/40	200 (206)
100	0...280	0...70	PN 16/40	250 (256)
125	0...440	0...100	PN 16/40	250 (256)
150	0...636	0...150	PN 16/40	300 (306)
200	0...1130	0...250	PN10/16/25/40	350 (360)

*) Pressure rating ANSI B16.5 150RF 19,6 bar steel 15,9 bar st. steel

***) DN 65 / PN 16 is designed as 8-hole flange

Compact Design



Order Code:

Order number: **DM08. 32. 1. S. P. E. 0. K. 1. 0**

Magnetic-inductive flowmeter

Nominal size / mea. range:

15 = DN 15	0...6 m³/h
25 = DN 25	0...17 m³/h
32 = DN 32	0...29 m³/h
40 = DN 40	0...45 m³/h
50 = DN 50	0...70 m³/h
65 = DN 65	0...119 m³/h
80 = DN 80	0...180 m³/h
100 = DN 100	0...280 m³/h
125 = DN 125	0...440 m³/h
150 = DN 150	0...636 m³/h
200 = DN 200	0...1130 m³/h

Process connection:

D10 = EN1092-1 PN 10 ≥ DN 200
 D16 = EN1092-1 PN 16 ≥ DN 65
 D25 = EN1092-1 PN 25 ≥ DN 200
 D40 = EN1092-1 PN 40
 (standard up to and including DN 50)
 A150 = ANSI B16.5 150RF

Material process connection:

S = steel 1.0460
 E = stainless steel 1.4571

Lining:

P = PTFE
 H = hard rubber

Electrode material

E = stainless steel 1.4571
 H = Hastelloy C276

Grounding rings:

0 = without
 (see accessories)

Design:

K = compact design
 G = separate design

power supply:

1 = 230 VAC (-15 % / +10 %), 50/60 Hz, 15 VA
 2 = 24 VDC (19...36 VDC)
 3 = 115 VAC (-15 % / +10 %), 50/60 Hz, 15 VA

Options:

0 = without
 9 = please specify in plain text

Accessories:

Grounding ring (1 piece): DM08-Z.Erx (x = nominal size)
 Grounding rings (2 pieces): DM08-Z.Srx (x = nominal size)
 Sensor cable 5 m: DM08-Z.K5
 Sensor cable 10 m: DM08-Z.K10

Separate Design, Sensor and Electronic Device:



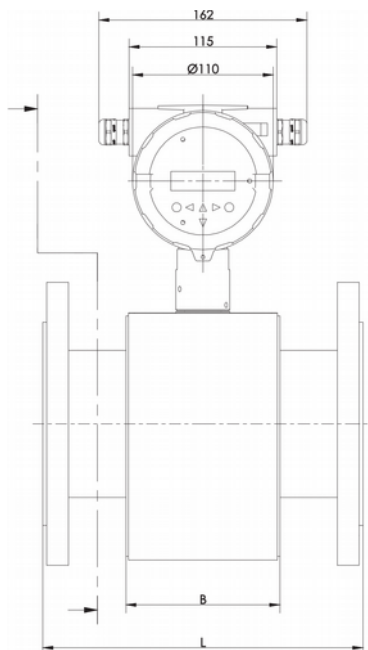
Technical Data:

Max. pressure:	see table Measuring ranges and Dimensions
Medium temperature:	PTFE: -20...100 °C at 40 bar -20...150 °C at 25 bar -20...180 °C at 16 bar hard rubber: 0...90 °C process connections steel: ≥ -10 °C process connections st. steel: ≥ -20 °C
Environment temperature:	PTFE: -20...100 °C hard rubber: 0...80 °C display electronics: -20...50 °C process connections steel: up to -10 °C process connections st. steel: up to -20 °C (below 0 °C the readability of the LCD display is limited)
Accuracy*:	$\pm 0,5$ % of m.V. ($v = 1...10$ m/s) $\pm 0,4$ % of m.V. ± 1 mm/s ($v < 1$ m/s) additionally for frequency output: $\pm 0,05$ % pro 10 K analogue output: $\pm 0,1$ % pro 10 K
Repeatability:	$\pm 0,15$ % of m.V.
Response time:	< 100 ms (depending on the setting of the electronics)
Min. conductivity of medium:	water and other conductive liquids ≥ 50 $\mu\text{S/cm}$
Flow display:	LCD with backlight optional units: m ³ , l, US Gallon, UK Gallon, ft ³ , kg, t. Display of instantaneous value and/or total quantity, 3 independent counters

* Reference conditions: media temp.. 10...30 °C, environment temp. 20...30 °C, warm-up time: 30 min, straight pipe lengths, inlet section 5 x DN, properly centered and emptied

Dimensions:

Compact Design:



Output Signal:

Frequency output

Configuration	pulse- or frequency signal available
Pulse significance	≤ 1000 Impulse/s
Pulse width	$\geq 0,1$ ms (max. 2 s), adjustable
Frequency	0...1 kHz
Signal form	square wave signal

Analogue output

Operating range:	0 ... 20 mA / 4 ... 20 mA, available
Current limitation:	21,6 mA
Max. burden:	600 Ω
Short circuit proof:	permanent

Alarm output

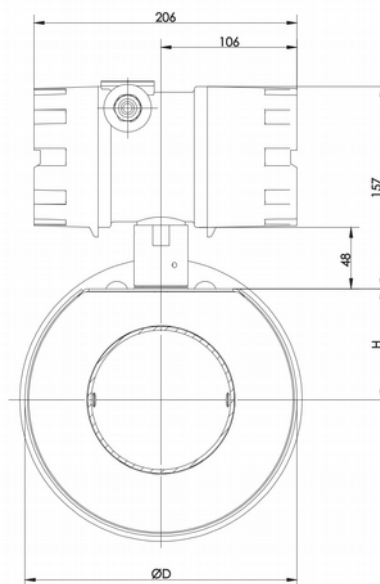
Quantity:	2
Version:	optocoupler
Function:	status output: preflow, backflow, MIN flow rate, MAX flow rate, alarm (adjustable)
Switching values:	U_{max} : 30 V; I_{max} : 60 mA; P_{max} : 1,8 W

Electrical Data

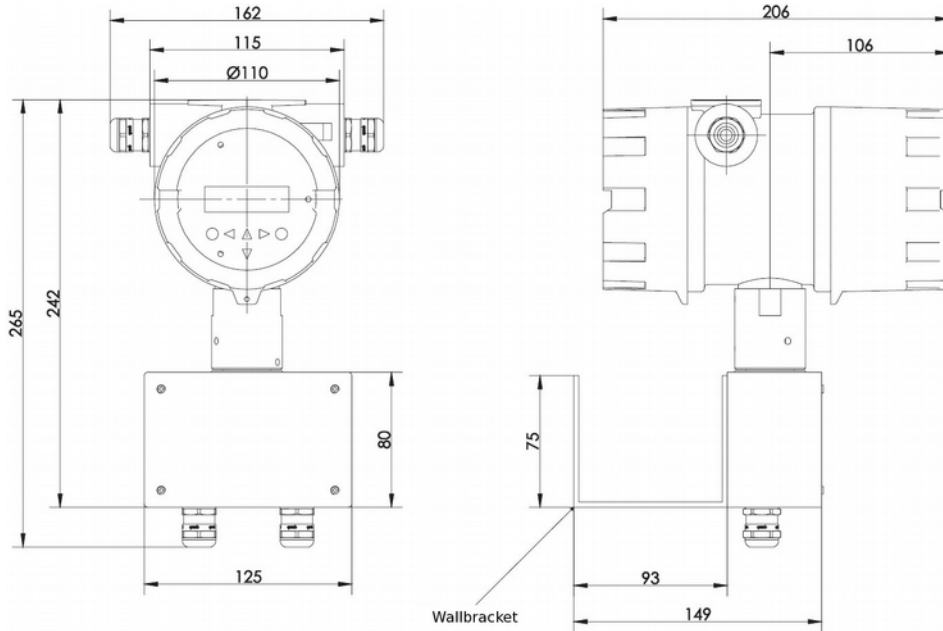
Electrical connection:	cable screw M20 x 1,5
supply voltage.:	230 VAC(-15 % / +10 %), 50/60 Hz, 19...36 VDC 115 VAC(-15 % / +10 %), 50/60 Hz 15 VA
Display:	two-line display
Prot. class EN 60529:	IP67

Material

Measuring tube:	stainless steel
Process connections:	steel or stainless steel
Lining:	PTFE or hard rubber
Electrodes:	st. steel 1.4571 or Hastelloy C276

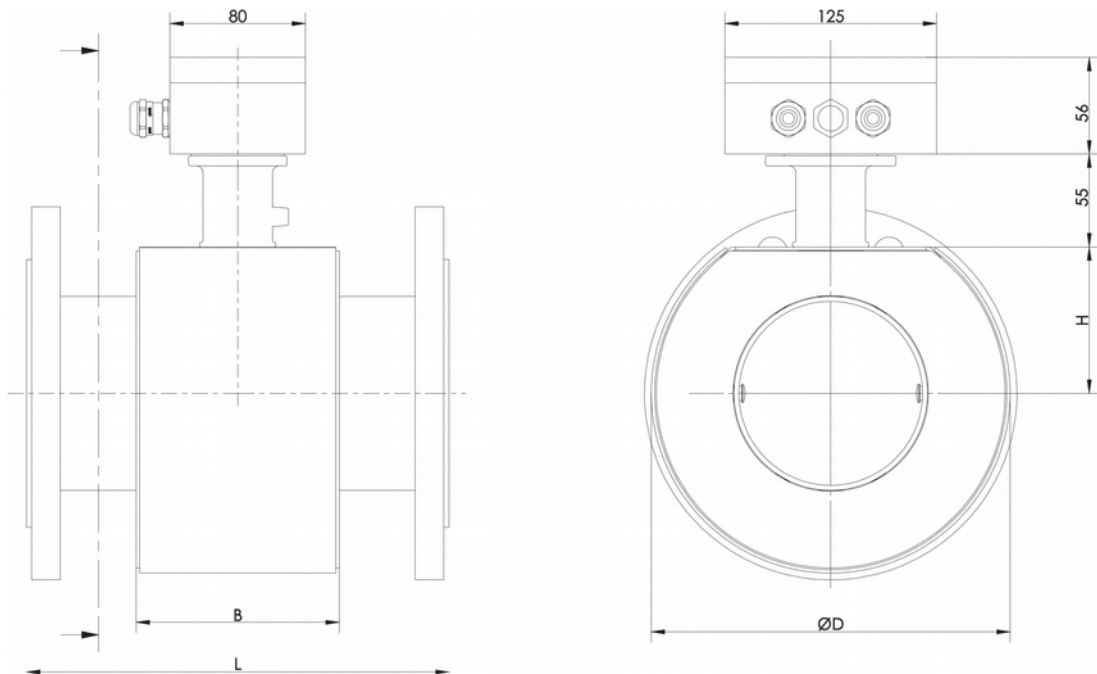


Separate design, display electronics:



Flow

Separate design, display electronics:



Process connection	Installation length L				Sensor			Weight EN 1092-1 [kg]	
	hard rubber	PTFE without protective ring	PTFE with protective ring	tolerance	B	D	H	sensor	compact
EN 1092-1/ ANSI B16.5									
DN 15/ 1/2"	200	200	206	+0/-3	80	130	53	5	8
DN 25/ 1"	200	200	206	+0/-3	80	130	53	6	9
DN 32/ 1 1/4"	200	200	206	+0/-3	80	130	53	7	10
DN 40/ 1 1/2"	200	200	206	+0/-3	80	130	53	7,5	10
DN 50/ 2"	200	200	206	+0/-3	80	140	57	9	12
DN 65/ 2 1/2"	200	200	206	+0/-3	80	155	63	10	13
DN 80/ 3"	200	200	206	+0/-3	80	170	70	13	16
DN 100/ 4"	250	250	256	+0/-3	120	210	86	15	18
DN 125/ 5"	250	250	256	+0/-3	120	240	98	19	22
DN 150/ 6"	300	300	306	+0/-3	120	285	117	23	26
DN 200/ 8"	350	350	360	+0/-3	200	350	143	36	39

