DM04

Compact Magnetic Inductive Flow Meter -all Metal Version-

- **for electrically conductive liquids**
- **regardless of viscosity, density, pressure or temperature**
- **virtually no pressure loss**
- **high measuring accuracy**
- **large measuring range span**
- **maintenance-free**
- **measuring range from 0,0083...1 l/min to 5...250 l/min**
- **max. pressure 16 bar, max. temperature 90 °C**

Description:

The magnetic inductive flow meter works without moving parts, is maintenance-free and has practically no pressure loss due to the free pipe cross-section. Measuring ranges from 0,0083 to 250 l/min are available for this device.

Three variants are available as output signals: Frequency output, frequency output with additional 4...20 mA analogue output or frequency output with additional 0...10 V analogue output.

Convenience:

- no moving parts, therefore the DM04 is maintenance- and wear-free.
- no components protrude into the measuring tube, thus the pressure loss is kept very small and is not greater than with a pipeline of the same length.
- the measurement is independent of temperature, viscosity, concentration and pressure under normal operating conditions
- universally applicable due to the very wide measuring span
- foreign bodies carried along in the flow and viscous media interspersed with solids are also unproblematic.
- due to the compact design and the low price the DM04 is suitable for serial applications.

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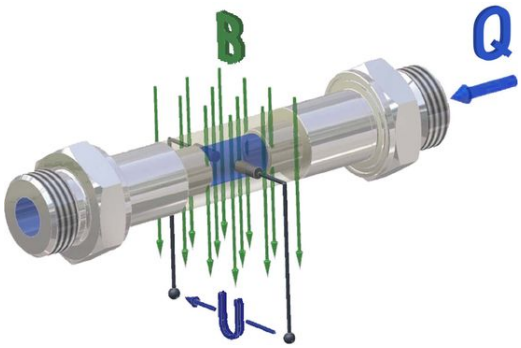
Operating Principle:

Magnetic-inductive flow measurement is based on Faraday´s law of induction. The liquid to be measured (electrically conductive) flows perpendicular to a magnetic field. This induces an electrical voltage in the liquid.
This is picked up by two electrodes inserted in the measuring tube and further processed by the downstream electronics. The voltage level is proportional to the flow velocity.



Materials:

Measuring tube:	PEEK-GF30
Process connections:	stainless steel 1.4571
Electrodes:	stainless steel 1.4571
O-rings	EPDM / FKM (optional)
Housing:	Aluminum die casting

Technical Data:

Characteristics	**Ø 2 mm**	**Ø 7 mm**	**Ø 10 mm**	**Ø 20 mm**
Nominal sizes	DN 02	DN 07	DN 10	DN 20
Process-connection	G ¼ male	G ½ male	G ½ male or G ¾ male	G 1 male
Measuring range	0,0083...1 0,05...2 l/min	0,1...30 l/min	0,2...60 l/min	5...250 l/min
Accuracy [1]	0...50 % of meas. range: ±1 % of FS 50...100 % of meas. range: ±2 % of FS	± (0,7 % of meas. value + 0,3 % of FS		±(1,5 % of meas. value + 0,3 % of FS)
Repeatability [1]	1 %			
Response time	<500 ms			
Conductivity of the medium	Min. 50 µS/cm			
T_{medium}	-20...+90 °C			
$T_{ambient}$	-10...70 °C			
Nominal pressure	PN 16			
Flow display	LED green, flashes proportional to flow rate			
Protection class	IP65 and IP67 (with attached coupling socket)			
Electrical Data				
El. connection	round plug M12x1			
Supply voltage	12...24 V_{DC} (±10 %) for analogue outp.: 0...10 V mind. 16 V_{DC}			24 V_{DC} (±10 %)
Power input	<150 mA			
Frequency output				
Pulse rate [3]: **[Pulses/l]**	10.000 optional: 1...20.000	1000 optional: 1...2000	500 optional: 1...1000	100 l optional: 1...200
Resolution [3] **[ml/Puls]**	0,1	1,0	2,0	10
Signal form	square-wave signal, duty cycle 50:50, Push-Pull scanning			
Signal current	<100 mA, current-limited			
Analogue output 4...20 mA:				
Corresponds to flow rate [2] **[l/min]**	0...1 or: 0...2	0...30	0...60	0...200 or 0...250
Max. load:	250 Ω against GND			
Analogue output 0...10 V				
Corresponds to flow rate [2] **[l/min]**	0...1 or: 0...2	0...30	0...60	0...200 or 0...250

1) Test conditions: Water 23 °C at 150 ±100 µS/cm; standard pulse rate.
2) other ranges available on request
3) factory configurable

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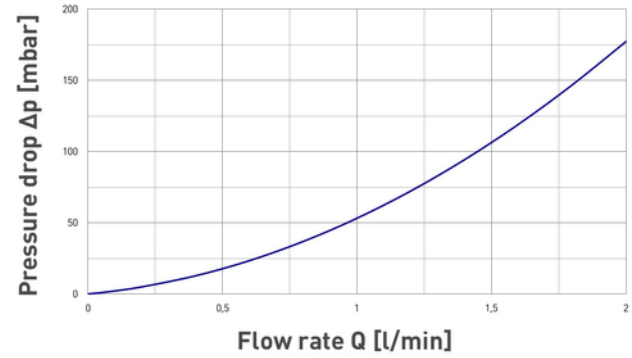
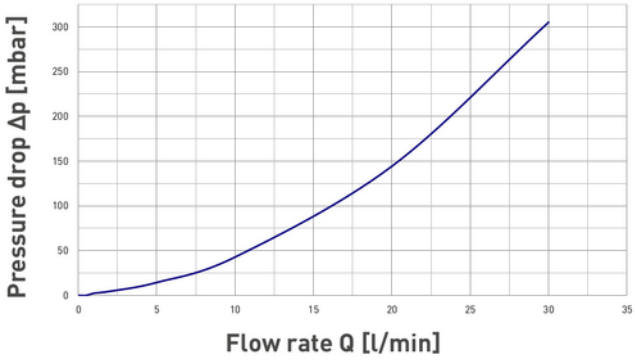
Typical Pressure Loss:

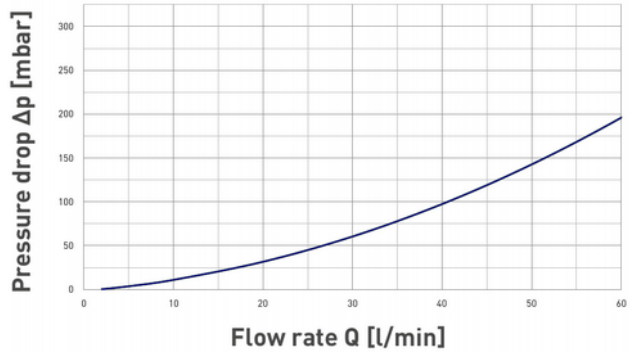
DM04.0… / DN 02:



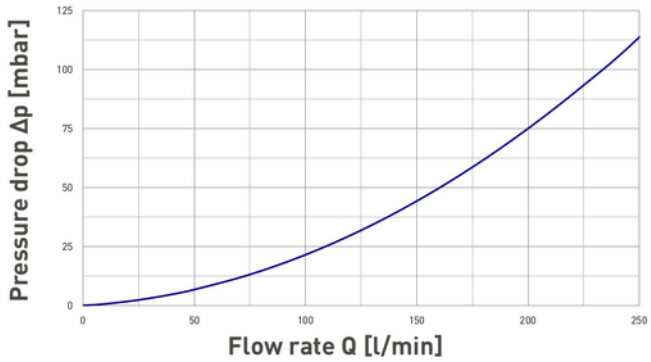
DM04.1… / DN 07:



DM04.2…, DM04.3... / DN 10:



DM04.4… / DN 20:



Order Code:

Order number:	DM04.	0.	F.	0A.	0.	E.	1.	0

Compact magnetic inductive flow meter -all metal version-

Connection / inner size:
0 = G ¼ male / DN 02
1 = G ½ male / DN 07
2 = G ½ male / DN 10
3 = G ¾ male / DN 10
4 = G 1 male / DN 20

Output signal:
F = frequency
A = frequency and analogue (4...20 mA)
V = frequency and analogue (0...10 V)

Measuring range
DM04.0 (G ¼ male / DN 02):
0A = 0,0083...1 l/min
0B = 0,05...2 l/min
DM04.1 (G 1/2 male / DN 07):
2A = 0,1...30 l/min
DM04.2 (G 1/2 male / DN 10):
4A = 0,2...60 l/min
DM04.3 (G 3/4 male / DN 10):
6A = 0,2...60 l/min
DM04.4 (G 1 male / DN 20):
7A = 5...200 l/min
8A = 5...250 l/min

Mounting straps:
0 = without
1 = with

Material O-ring:
E = EPDM (standard)
F = FKM

Electrical connection:
1 = connector M12x1, 4-wire

Options:
0 = without
1 = please specify in plain text

Accessory Connector with Cable:

Order number:	SM12.	4.	2.	G.	0

M12-plug with PVC cable

Number of poles:
4 = 4-pole

Cable length:
0 = without cable for self assembly
2 = 2 m PVC-cable (standard)
5 = 5 m PVC-cable
10 = 10 m PVC-cable

Type:
G = straight
W = angled

Options:
0 = without
9 = please specify in plain text

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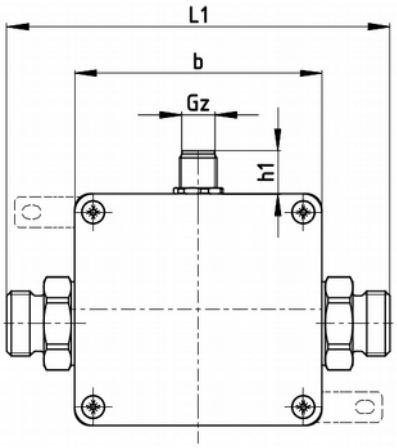
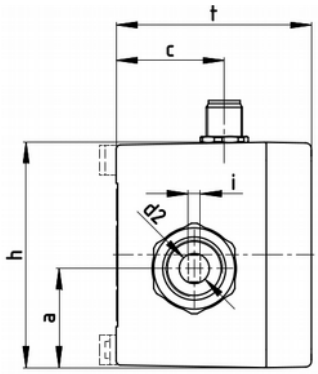
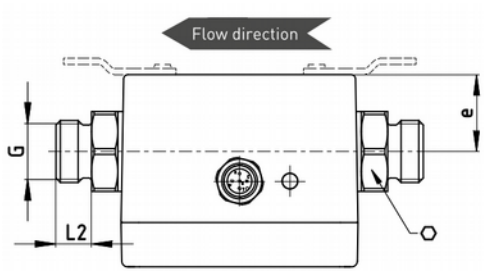
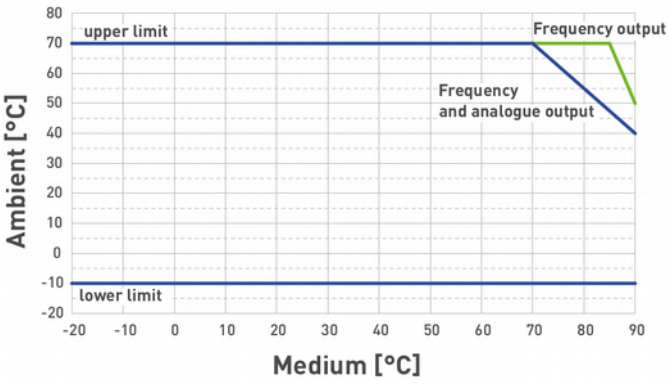
Dimensions:







Temperature operating limits:



Dimension Table [mm]:

	DM04.0	DM04.1	DM04.2	DM04.3	DM04.4
L1 ±0,5	120	124	124	124	140
L2 ±0,5	12	12	12	12	18
G	G ¼ male	G ½ male	G ½ male	G ¾ male	G 1 male
⬡	17	27	27	27	36
d2	Ø 3	Ø 10	Ø 10	Ø 10	Ø 20
i	1,9	4	/	/	/
b	80	80	80	80	80
h	75	75	75	75	75
t	65	65	65	65	65
a	34	33	33	33	35,5
c	36	36	36	36	36
e	26	36	36	36	29
Gz	M12x1	M12x1	M12x1	M12x1	M12x1
h1	14	14	14	14	14

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