Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Low Volume Rotating Vane Flow Meter

measuring • monitoring • analysing

DPM

- Measuring ranges: 0.015 - 0.7 ... 05 - 5 l/min water
- Accuracy: ±1% (±2,5%) of full scale
- p_{max}: 16 bar; t_{max}: 80 °C
- Connection: G⅛, G¼ female ⅛" NPT, ¼" NPT female
- Material: brass nickle-plated or stainless steel
- Medium: infrared light transmissive

S4

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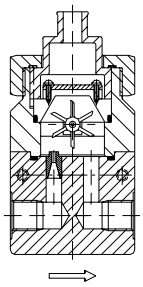
Application

The KOBOLD model DPM flow meters are used for measuring and monitoring liquids. Due to its compact construction the measuring instrument is suitable for use with machines with minimum available space. The system can be used in a wide variety of applications because the output pulses can be analysed in many different ways.



Areas of Application:

- low viscosity liquids
- non-conductive liquids
- volume dosing with external electronics
- filter aid

Technical Details

Accuracy:	
DPM..000, F300:	± 2.5% of full scale
DPM...F390, DPM...L, DPM..C, DPM..Z:	± 1% of full scale
Linearity:	1% of full scale
Repeatability:	0.5%
Medium temperature:	-40 ... +80 °C
Ambient temperature:	-30 ... +60 °C
Max. operating pressure:	16 bar
Protection:	IP 65

Materials:

Housing:	brass nickel-plated stainless steel 1.4404
Upper part:	brass nickel-plated stainless steel 1.4404
Union nut:	brass nickel-plated or stainless steel 1.4305
Orifice:	1.4404
Axle:	sapphire
Rotating vane:	polypropylene
Vane mount:	polysulfone
Gasket:	NBR (standard), FPM or EPDM (optional)

Operating Principles

The medium flows through a specially shaped flow housing and causes a vane to rotate. This rotary motion is sensed by optoelectronics in a non-contacting manner, and converted to an asymmetric frequency signal or an analogue signal. A frequency divider with symmetrical output is available as an option. The frequency is proportional to the flow velocity.

The vane is sapphire-supported: this ensures a high degree of linearity and long service life.

Electronics

Frequency output (OEM without CE-Sign)

Power supply:	4.5 - 12 V_{DC}
Supply current:	typ. 7 mA
Signal amplitude high:	approx. power supply
Signal amplitude low:	≤ 0.2 V
Transmitter cut-off voltage:	3 V max.
Transmitter supply current:	8 - 12 mA
Output loss:	max. 2.5 mWatt
Electrical connection:	solder pins
Pulse output:	NPN, Open Collect., max.10 mA

Frequency output (option frequency divider)

Power supply:	24 V_{DC} ±20%
Supply current:	40 - 50 mA
Signal amplitude high:	approx. power supply
Signal amplitude low:	≤ 0.2 V
Output loss:	max. 2.5 mWatt
Electrical connection:	plug M12x1 (option: 2 m PVC cable)
Division ratio (option):	1...$^1/_{128}$ factory set
Pulse output:	PNP, open collector, max. 20 mA

Analogue output (option plug-on display)

Power supply:	24 V_{DC} ±20%
Output:	0-20 mA or 4-20 mA, 3-wire technology
Max. load:	500 Ω
Electrical connection:	plug connector M12x1 or DIN 43 650
Option:	plug-on display (with plug connector DIN 43 650 only)

Compact electronics

Display:	3-position LED
Analogue output:	(0)4...20 mA adjustable, max. 500 Ω
Switching outputs:	1 (2) semiconductor PNP or NPN, set at the factory
Contact operation:	programmable N/C/ N/O contact
Setting:	via 2 buttons
Power supply:	24 V_{DC} ±20%, approx. 100 mA, 3-wire technology
Electrical connection:	plug connector M12x1

Pointer indication with analogue output

Housing:	aluminium (PA6 GF30)
Display:	moving coil instrument, 240° display
Power supply:	24 V_{DC} ±20%
Output:	(0)4...20 mA, set at the factory, 3-wire technology
Max. load:	250 Ω
Electrical connection:	plug connector M12x1

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Order Details (Example: **DPM-1107 G1 0000**)

Meas. range [l/min] water	approx. frequency [Hz] at max. value	approx. pressure [bar] at max. value	Gasket model		Connection	Electronic analyser
			Material brass	Material st. steel		
0.015 - 0.3	165	0.93	**DPM-1103**	**DPM-1503**	**G1..**= G⅛ female **G2..**= G¼ female **N1..**= ⅛" NPT **N2..**= ¼" NPT	**Frequency output** ..**0000** = Frequency output, NPN, without cable (OEM), no CE ..**F300** = Frequency output, plug M12x1, PNP ..**F320** = Frequency divider 1:2, plug M12x1, PNP ..**F340** = Frequency divider 1:4, plug M12x1, PNP ..**F390** = Freq. divider 1...$^1/_{128}$, plug M12x1, PNP ..**F500** = Frequency output, PNP, 2 m PVC cable ..**F520** = Frequency divider 1:2, 2 m PVC cable, PNP ..**F540** = Frequency divider 1:4, 2 m PVC cable, PNP ..**F590** = Freq. divider 1...$^1/_{128}$, 2 m PVC cable, PNP **Analogue output** ..**L303** = 0-20 mA output, M12x1 plug ..**L343** = 4-20 mA output, M12x1 plug ..**L403** = 0-20 mA output, plug DIN 43 650 ..**L443** = 4-20 mA output, plug DIN 43 650 **Compact electronics*** ..**C30R** = LED display, 2x open collector, PNP, plug M12x1 ..**C30M** = LED display, 2x open collector, NPN, plug M12x1 ..**C34P** = LED display, 4-20 mA, 1x open collector, PNP, plug M12x1 ..**C34N** = LED display, 4-20 mA, 1x open collector NPN, plug M12x1 **Pointer indication*** ..**Z300** = 240° pointer indication, 0-20 mA, plug M12x1 ..**Z340** = 240° pointer indication, 4-20 mA, plug M12x1
0.05 - 0.7	228	1.16	**DPM-1107**	**DPM-1507**		
0.05 - 1.0	217	0.53	**DPM-1110**	**DPM-1510**		
0.05 - 2.0	344	0.91	**DPM-1120**	**DPM-1520**		
0.05 - 3.0	372	0.61	**DPM-1130**	**DPM-1530**		
0.05 - 4.0	415	0.57	**DPM-1140**	**DPM-1540**		
0.05 - 5.0	439	0.57	**DPM-1150**	**DPM-1550**		

* Please specify flow direction in writing

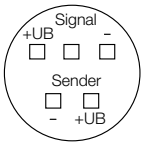
Plug-on Display

for model DPM...L443... (with 4 -20 mA output and DIN plug connector)

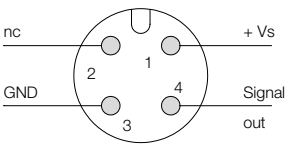
Description	Order number
4-position LED, plug connector DIN 43 650, 3-wire, power supply through analogue output	**AUF-3000**

Electrical Connection

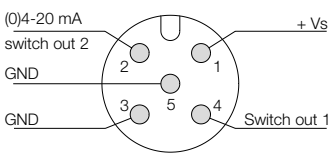
DPM..0000



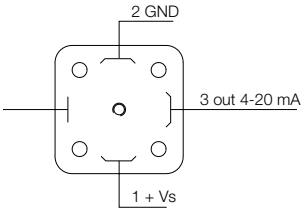
DPM..L3 / DPM..Z / DPM..F



DPM..C

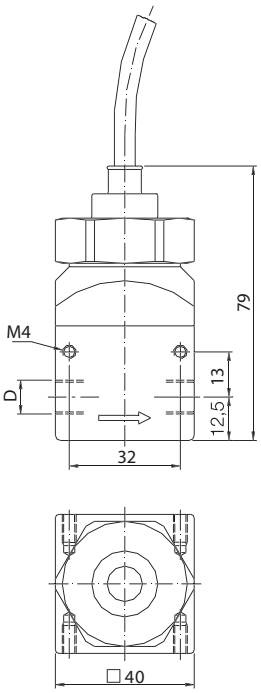


DPM..L4

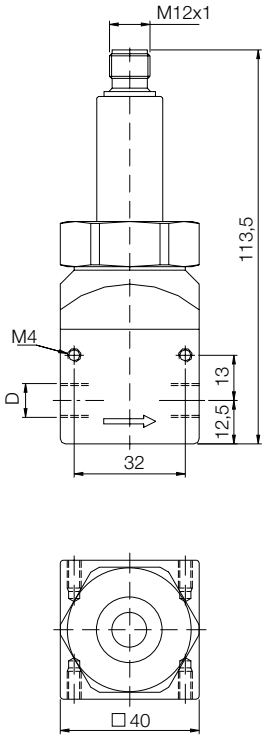


Dimensions [mm]

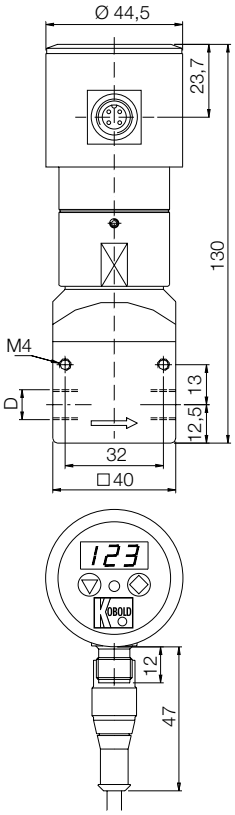
DPM-...0000 (OEM)



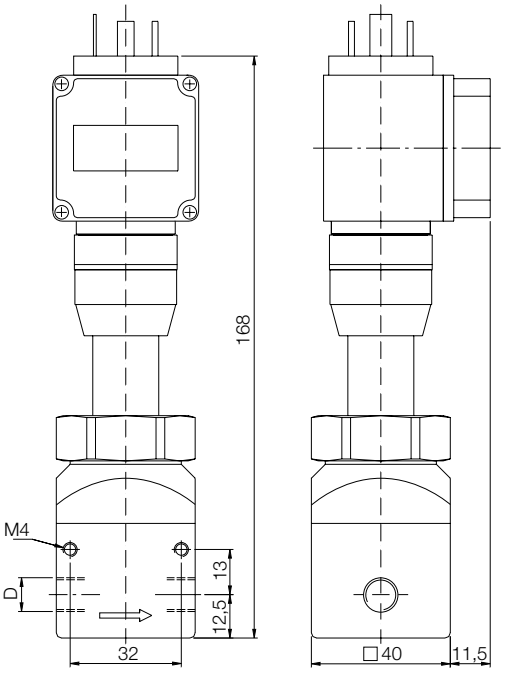
DPM-...F with frequency output
DPM-...L with analogue output



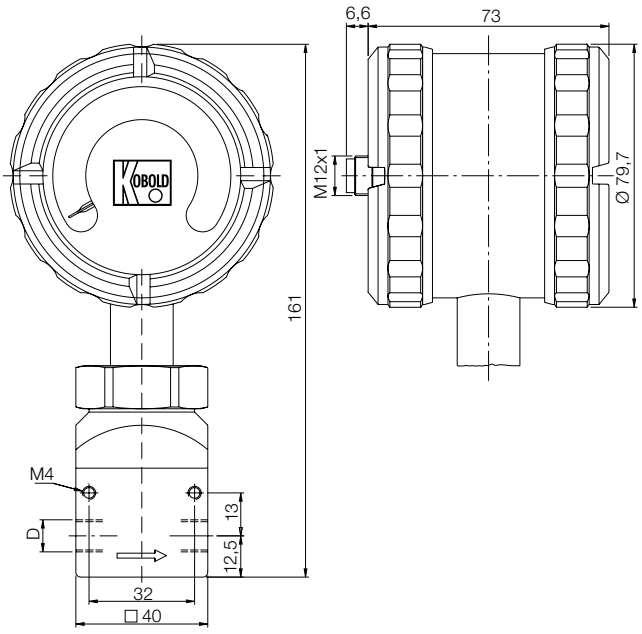
DPM-...C with compact electronics



DPM-...L with analogue output and plug-on display



DPM-...Z with analogue output and pointer indication



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