



Low Volume Rotating Vane Flow Meter for Liquids



measuring
•
monitoring
•
analysing



Model: DPL

- Measuring ranges:
0.025-0.5 to 1-25 L/min water
- Linearity: $\pm 1\%$
- p_{\max} : 10 bar; t_{\max} : 70 °C
- Viscosity range: low viscosity
- Connection: G 1/2 male,
hose connector
- Material of case: PP
- Output: pulse
- without magnets or metal parts
- Medium: infrared light transmissive



Model: DPL
with pointer
indication



Model: DPL with
compact electronics



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Model:
DPL



Application

The KOBOLD flow meters model DPL are used to measure and monitor liquids. Its compact design allows it to be used in equipment where space is at a premium. The large number of pulse evaluation options offered means that the system is suited for a wide range of applications.



Areas of application

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

Technical details

Accuracy: $\pm 2.5\%$ f. s.
 $\pm 5\%$ f. s. (OEM version)

Linearity: 1% f. s.

Medium temperature: -40 to +70 °C

Ambient temperature: -30 to +60 °C

Max. operating pressure: 10 bar

Protection type: IP 65

Materials:

Housing: polypropylene

Rotating vane: polypropylene

Axle/bearing: sapphire

Vane mount: polysulfone

Gasket: NBR, FPM
 or EPDM

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: 15 mA - 25 mA
 Output loss: max. 2.5 mWatt
 Electrical connection: solder pins
 Pulse output: NPN, open collector,
 max. 10 mA

● **Frequency output (option frequency divider)**

Power supply: 24 V_{DC} $\pm 20\%$, (...F3*0; ...F5*0)
 12-28 V_{DC} (...F300; ...F500)
 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 connector M12x1
 (option: 2 m PVC cable)
 Division ratio (option): 1...1/128, factory setting
 Pulse output: PNP, open collector,
 max. 20 mA

● **Analogue output (option plug-on display)**

Power supply: 24 V_{DC} $\pm 20\%$
 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} $\pm 20\%$,
 3-wire technology, approx. 100 mA
 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} $\pm 20\%$
 Output: (0)4...20 mA, set at the
 factory, 3-wire technology
 Max. load: 250 Ω
 Electrical connection: plug connector M12x1



Order Details (Example: **DPL-1P05 G4 0000**)

Meas. range [L/min] water	approx. frequency [Hz] at max. value	approx. pressure loss [bar] at max. value	Gasket model			Connection	Electronic analyser
			NBR	FPM	EPDM		
0.025 - 0.5	272	0.77	DPL-1P05	DPL-1V05	DPL-1E05	G4.. = G 1/2 male S4.. = Hose connector for inner diameter of Hose 12 mm + 14 mm	Frequency output ..0000 = Frequency output, NPN, without cable (OEM), no CE ..F300 = Frequency output, plug connector M12x1, PNP ..F320 = Frequency divider 1:2, plug connector M12x1, PNP ..F340 = Frequency divider 1:4, plug connector M12x1, PNP ..F390 = divider 1... ¹ /128, plug connector 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 = divider 1... ¹ /128, 2 m PVC cable, PNP Analogue output ..L303 = 0-20 mA output, M12x1 plug connector ..L343 = 4-20 mA output, M12x1 plug connector ..L403 = 0-20 mA output, plug connector DIN 43 650 ..L443 = 4-20 mA output, plug connector DIN 43 650 Compact electronics* C30R = LED display, 2x open collector, PNP, plug connector M12x1 C30M = LED display, 2x open collector, NPN, plug connector M12x1 C34P = LED display, 4-20 mA, 1x open coll., PNP, plug con. M12x1 C34N = LED display, 4-20 mA, 1x open coll., NPN, plug con. M12x1 Pointer indication* Z300 = 240° pointer indication, 0-20 mA, plug connector M12x1 Z340 = 240° pointer indication, 4-20 mA, plug connector M12x1
0.05 - 1.8	471	0.77	DPL-1P10	DPL-1V10	DPL-1E10		
0.2 - 6	505	0.70	DPL-1P15	DPL-1V15	DPL-1E15		
0.4 - 12	265	1.0	DPL-1P20	DPL-1V20	DPL-1E20		
1 - 25	399	1.3	DPL-1P25	DPL-1V25	DPL-1E25		

*please specify flow direction in writing

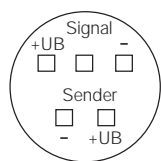
Plug-on display

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

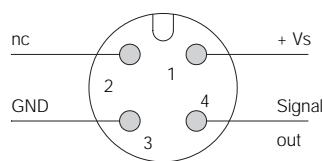
Description	Order number
3-position LED, Plug connector DIN 43 650, 3-wire, Power supply through analogue output	AUF-3000

Electrical connection

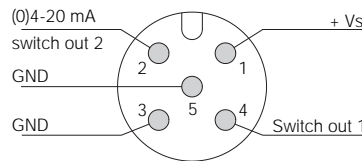
DPL..0000



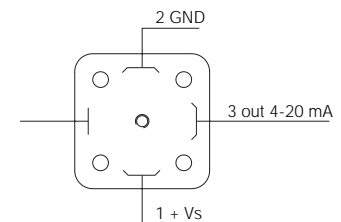
DPL..L3 / DPL..Z / DPL..F3



DPL..C



DPL..L4

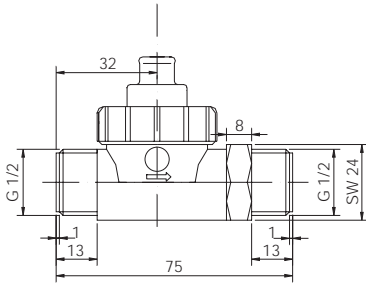


DPL...F5...

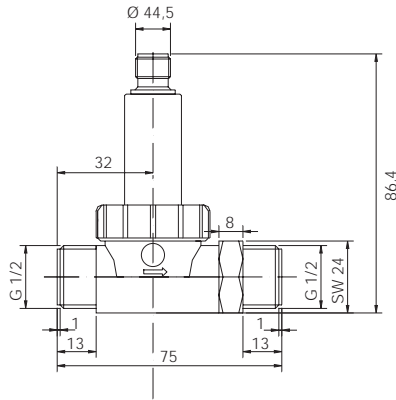
brown: +Vs
blue: GND
black: signal

Dimensions

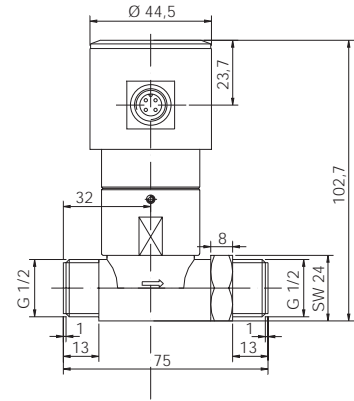
DPL-...0000



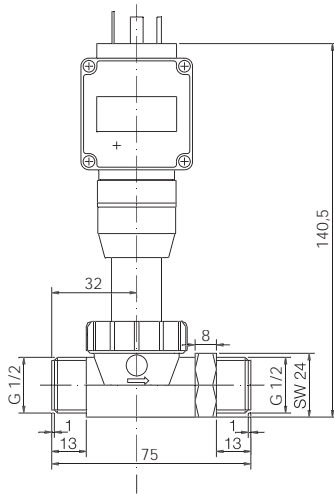
DPL-...F3...; DPL-...L3...



DPL-...C with compact electronics



DPL-...L4... with analogue output and plug-on display



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

