



Low Volume Rotating Vane Flowmeter for liquids



measuring
•
monitoring
•
analysing

DPL



Model: DPL

- Measuring ranges:
0.025-0.5...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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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
☎ Head Office:
+49(0)6192 299-0
☎ Sales DE:
+49(0)6192 299-500
☎ +49(0)6192 299-23398
info.de@kobold.com
www.kobold.com



Application

The KOBOLD flowmeters 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 and transparent liquids
- Non-conductive liquids
- Volume dosing with external electronics
- Filter aid
- Beverage industry

Technical Details

Accuracy:	±2.5% f. s. ±5% f. s. (OEM version)
Linearity:	1% f. s.
Medium temperature:	-40...+70 °C
Ambient temperature:	-30...+60 °C
Max. operating pressure:	10 bar
Protection:	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:	typically 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 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
Transmitter cut-off voltage:	max. 2.5 mWatt
Output loss:	plug connector 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

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 ½ 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 = frequency 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 = frequency 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* C3R = 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

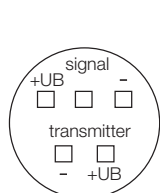
Plug-on Display

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

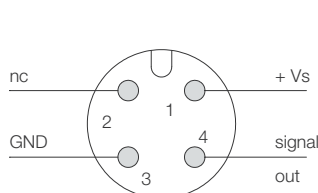
Description	Order number
3-position LED, plug connector DIN 43 650, 3-wire, power supply through analogue output	AUF-3000

Electrical Connection

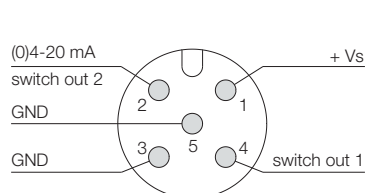
DPL..0000



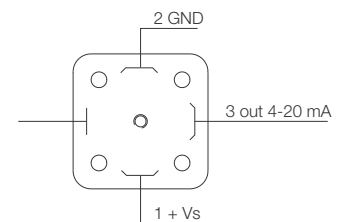
DPL..L3 / DPL..Z / DPL..F3



DPL..C



DPL..L4



DPL...F5...

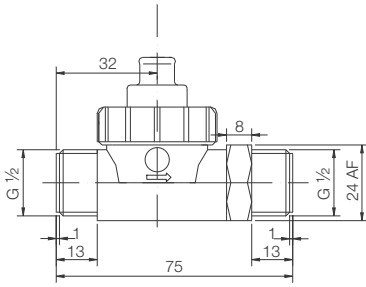
- brown: +Vs
- blue: GND
- black: signal



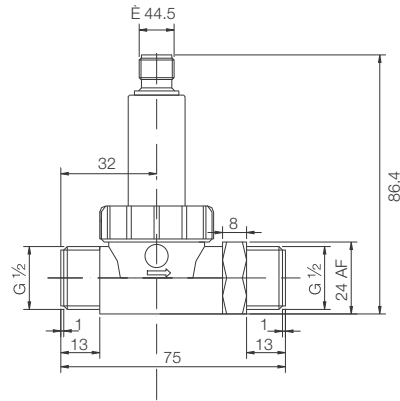
Low Volume Rotating Vane Flowmeter Model DPL

Dimensions

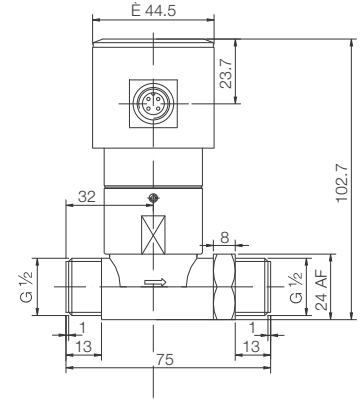
DPL-...0000



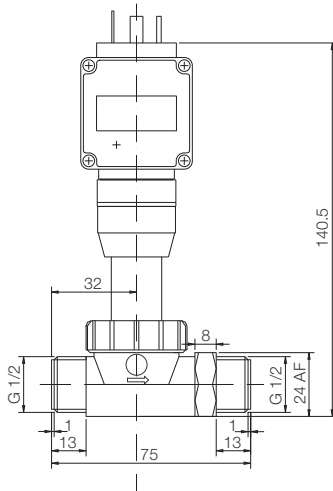
DPL-...F3.; DPL-...L3...



DPL-...C with compact electronics



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



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

