

## Low Volume Rotating Vane Flow Meter for Liquids



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:	± 2.5% f. s. ± 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:	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 <sub>DC</sub>
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 <sub>DC</sub> ± 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 connector M12x1 (option: 2 m PVC cable)
Division ratio (option):	1 ... 1/28 factory set
Pulse output:	PNP, open collector, max. 20 mA

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

Power supply:	24 V <sub>DC</sub> ± 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 <sub>DC</sub> ± 20%, 3-wire technology, app. 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 <sub>DC</sub> ± 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		
						<b>G4..=</b> G 1/2 male  <b>S4..=</b> Hose connector (for inner diameter of hose 12 mm + 14 mm)	<p><b>Frequency output</b></p> <p><b>..0000</b>=Frequency output, NPN, without cable (OEM), no CE</p> <p><b>..F300</b>=Frequency output, plug connector M12x1, PNP</p> <p><b>..F320</b>=Frequency divider 1:2, plug connector M12x1, PNP</p> <p><b>..F340</b>=Frequency divider 1:4, plug connector M12x1, PNP</p> <p><b>..F390</b>=divider 1...1/128, plug connector M12x1, PNP</p> <p><b>..F500</b>=Frequency output, PNP, 2 m PVC cable</p> <p><b>..F520</b>=Frequency divider 1:2, 2 m PVC cable, PNP</p> <p><b>..F540</b>=Frequency divider 1:4, 2 m PVC cable, PNP</p> <p><b>..F590</b>=divider 1...1/128, 2 m PVC cable, PNP</p> <p><b>Analogue output</b></p> <p><b>..L303</b>=0-20 mA output, M12x1 plug connector</p> <p><b>..L343</b>=4-20 mA output, M12x1 plug connector</p> <p><b>..L403</b>=0-20 mA output, plug connector DIN 43 650</p> <p><b>..L443</b>=4-20 mA output, plug connector DIN 43 650</p> <p><b>Compact electronics*</b></p> <p><b>C30R</b>=LED display, 2x open collector, PNP, plug connector M12x1</p> <p><b>C30M</b>=LED display, 2x open collector, NPN, plug connector M12x1</p> <p><b>C34P</b>=LED display, 4-20 mA, 1 x open coll., PNP, plug con. M12x1</p> <p><b>C34N</b>=LED display, 4-20 mA, 1 x open coll., NPN, plug con. M12x1</p> <p><b>Pointer indication*</b></p> <p><b>Z300</b>=240° pointer indication, 0-20 mA, plug connector M12x1</p> <p><b>Z340</b>=240° pointer indication, 4-20 mA, plug connector M12x1</p>
0.025 - 0.5	272	0.77	<b>DPL-1P05</b>	<b>DPL-1V05</b>	<b>DPL-1E05</b>		
0.05 - 1.8	471	0.77	<b>DPL-1P10</b>	<b>DPL-1V10</b>	<b>DPL-1E10</b>		
0.2 - 6	505	0.70	<b>DPL-1P15</b>	<b>DPL-1V15</b>	<b>DPL-1E15</b>		
0.4 - 12	265	1.0	<b>DPL-1P20</b>	<b>DPL-1V20</b>	<b>DPL-1E20</b>		
1 - 25	399	1.3	<b>DPL-1P25</b>	<b>DPL-1V25</b>	<b>DPL-1E25</b>		

\*Please specify flow direction in writing

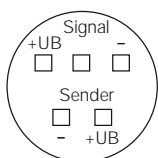
**Plug-on display**

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

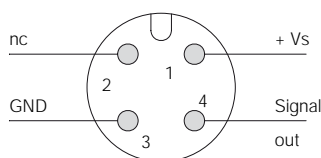
Description	Order number
3-position LED, Plug connector DIN 43 650, 3-wire, Power supply through analogue output	<b>AUF-3000</b>

**Electrical connection**

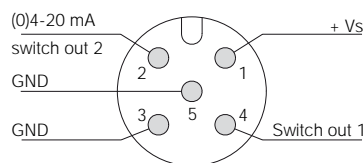
**DPL...0000**



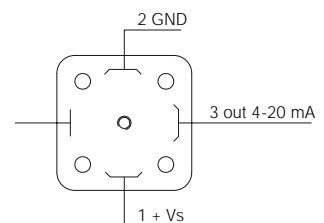
**DPL...L3 / DPL...Z / DPL...F3**



**DPL...C**



**DPL...L4**



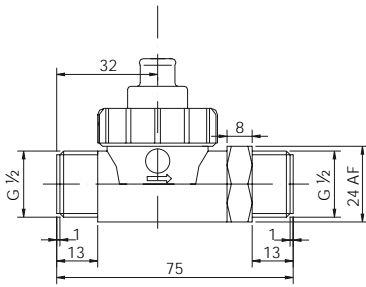
**DPL...F5...**

brown: +Vs  
blue: GND  
black: signal

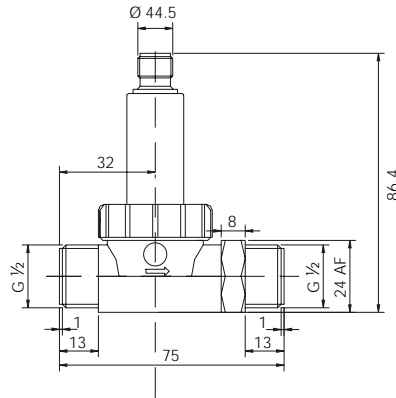


**Dimensions**

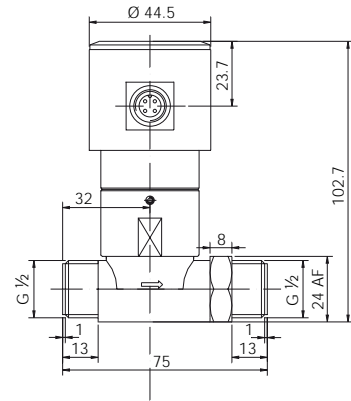
**DPL-...0000**



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

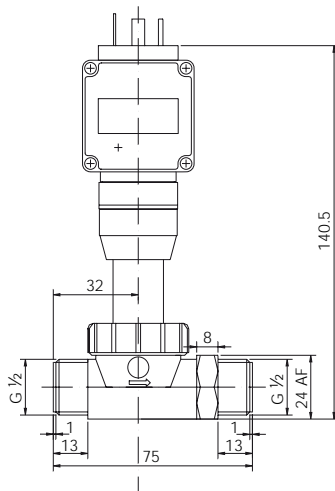


**DPL-...C with compact electronics**



**DPL-...L4...**

with analogue output and plug-on display



**DPL-...Z**

with analogue output and pointer indication

