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

Turbine Wheel Flow Meter

for liquids

KOBOLD

measuring • monitoring • analysing

DPE

- Measuring ranges:
  5 - 30 ... 50 - 750 l/min water
- Measuring accuracy:
  ±2.5 % of full scale
- p_{max}: PN 40, t_{max}: 80 °C
- Connection: G ½ ... G 3 female
  ½" ... 3" NPT female

  Weld-on sleeves:
  DN 25 ... DN 80
- Material:
  brass, stainless steel
- Viscosity range:
  low viscous
- Output:
  pulses, 4 - 20 mA,
  LED display, contacts

S4

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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
Head Office:
+49(0)6192 299-0
+49(0)6192 23398
info.de@kobold.com
www.kobold.com

1/04-2016

Description

The KOBOLD flow meter model DPE is used for measuring and monitoring liquids. The device works according the well-known blade wheel principle. The six vane blade wheel is retained axially in a high quality sapphire bearing. The sensor is supplied ready-to-install with pipe fittings or with weld-on sleeves.

The blade wheel is set in motion by the flowing medium. Magnets are embedded hermetically sealed in the ends of the blade wheels. The magnets generate electrical pulses in a Hall-effect sensor mounted outside the flow area.

Fields of Application

- cooling water monitoring
- general mechanical engineering
- waste water treatment
- all heavy goods industry
- chemical industry

Technical Details

Measuring accuracy:	±2.5 % of full scale
Process temperature:	max. 80 °C
Ambient temperature:	max. 80 °C
Max. operating pressure:	PN40 / 20 °C
Max. pressure loss:	DPE-...05: 0.05 bar DPE-...10, ...15: 0.03 bar DPE-...20: 0.04 bar DPE-...25: 0.02 bar DPE-...30: 0.01 bar
Protection:	IP65

Materials

Housing:	brass stainless steel 1.4581
Seals:	brass version: NBR Stainless steel version: FPM
Turbine wheel:	PVDF
Axle:	hard metal
Bearing:	sapphire

Electronics

- **Frequency output (..F300)**

Power supply:	12-28 V_{DC}
Power consumption:	10 mA
Pulse output:	PNP, open collector, max. 25 mA
Electr. connection:	plug connector M12x1

- **Frequency output with frequency divider**

Power supply:	24 V_{DC} ±20 %
Power consumption:	15 mA
Pulse output:	PNP, open collector, max. 25 mA
Electr. connection:	plug connector M12x1
Division ratio:	1...$^{1}/_{128}$, factory set

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

Power supply:	24 V_{DC} ±20 %
Output:	0-20 mA or 4-20 mA, 2- or 3-wire
Max. load:	500 Ω
Electr. connection:	plug connector M12x1 or DIN 43 650
Option:	plug-on display (with plug connector DIN 43 650 and 4-20 mA output only)

- **Compact electronics**

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

- **Pointer indicator with analogue output**

Housing:	aluminium
Display:	moving-coil instrument, 240° display
Power supply:	24 V_{DC} ±20 %
Output:	0-20 mA or 4-20 mA, 3-wire
Max. load:	250 Ω
Electr. connection:	plug connector M12x1

- **ADI electronics**

Display:	bar graph and 5-digit digital display
Analogue output:	(0)4...20 mA, 0-10 V_{DC}
2 switching outputs:	relay /changeover contact, max. 250 V_{AC}/5 A resistive load, max. 30 V_{DC} / 5 A
Setting:	via 4 buttons
Supply:	100...240 V_{AC} ±10 % or 18...30 V_{AC} / 10...40 V_{DC}
Electr. connection:	pluggable terminal block via cable gland

- **DPE-...Exxx (Counter electronic)**

Display:	LCD, 2 x 8 digit, illuminated total, part and flow quantities, units selectable
Analogue output:	0(4)...20 mA adjustable
Load:	max. 500 Ω
Switching outputs:	2 relays, max. 250 V/5 A/1000 VA
Settings:	via 4 buttons
Functions:	Reset, Min./Max. memory, flow monitor, monitoring for part and total quantity, language
Supply:	24 V_{DC} ±20 %, 3-wire
Power consumption:	approx. 170 mA
Electr. connection:	pluggable screw terminals via cable gland

- **DPE-...Gxxx (Dosing electronic)**

Display:	LCD, 2 x 8 digit, illuminated total, part and flow quantities, units selectable
Analogue output:	0(4)...20 mA adjustable
Load:	max. 500 Ω
Switching outputs:	2 relays, max. 250 V/5 A/1000 VA
Settings:	via 4 buttons
Functions:	dosing (relay S2), start, stop, reset, fine dosing, correction amount, flow switch, total quantity, language
Supply:	24 V_{DC} ±20 %, 3-wire
Power consumption:	approx. 170 mA
Electr. connection:	pluggable screw terminals via cable gland

See data sheet ADI-1 for more technical details on ADI evaluating electronics.

1/04-2016

Order Details (Example: **DPE-1105 G4 F300**)

With pipe fittings

Measuring range max. 3 m/s [l/min water]	approx. Frequenz [Hz] at FS	Flow rate max. 10 m/s approx. [l/min water]	Model: Material brass	Model: Material st. steel	Connection: Standard female	Connection: Special female
5-30	80	100	**DPE-1105..**	**DPE-1205..**	**..G4..** = G ½	**..N4..** = ½ NPT
10-50	80	180	**DPE-1110..**	**DPE-1210..**	**..G5..** = G ¾	**..N5..** = ¾ NPT
20-80	65	230	**DPE-1115..**	**DPE-1215..**	**..G6..** = G 1	**..N6..** = 1 NPT
25-250	140	600	**DPE-1120..**	**DPE-1220..**	**..G8..** = G 1 ½	**..N8..** = 1 ½ NPT
30-350	135	1000	**DPE-1125..**	**DPE-1225..**	**..G9..** = G 2	**..N9..** = 2 NPT
50-750	110	1600	**DPE-1130..**	**DPE-1230..**	**..GB..** = G 3	**..NB..** = 3 NPT

With installation adapter

not available with compact / ADI electronics

Meas. range [m/s]	approx. frequency [Hz] at max. value	max. flow rate [m/s]	Model: Material brass	Model: Material st. steel	Connection for nominal pipe size
0-3	**65** (at DN 25) **140** (at DN 40) **135** (at DN 50) **110** (at DN 80)	10	-	**DPE-1200..**	**..W6..** = DN 25 **..W8..** = DN 40/DN 50 **..WB..** = DN 80

Evaluating electronics

Frequency output

..**F300** = frequency output, plug connector M12 x 1
..**F320** = frequency divider 1: 2, plug connector M12 x 1
..**F340** = frequency divider 1: 4, plug connector M12 x 1
..**F390** = frequency divider 1... $^{1}/_{128}$, plug connector M12x 1

Analogue output

..**L303** = 0-20 mA output, 3-wire, M12 x 1 plug connector
..**L342** = 4-20 mA output, 2-wire, M12 x 1 plug connector
..**L343** = 4-20 mA output, 3-wire, M12 x 1 plug connector
..**L442** = 4-20 mA output, 2-wire, plug connector DIN 43 650

Compact electronic*

..**C30R** = LED display, 2 x open collector, PNP, plug connector M12 x 1
..**C30M** = LED display, 2 x open collector, NPN, plug connector M12 x 1
..**C34P** = LED display, 4-20 mA, 1 x open collector PNP, plug connector M12 x 1
..**C34N** = LED display, 4-20 mA, 1 x open collector NPN, plug connector M12 x 1

Pointer indication, 240°*

..**Z300** = 240°-pointer indication, 0-20 mA, plug connector M12x1
..**Z340** = 240°-pointer indication, 4-20 mA, plug connector M12x1

Counter electronics

..**E34R** = LCD, 0(4)-20 mA, 2 x relays

Dosing electronics

..**G34R** = LCD, 0(4)-20 mA, 2 x relays

ADI electronics*

Display	Supply	Output	Contacts
K = bar graph/ digital display	**0** = 100-230 $V_{AC/DC}$ **3** = 18-30 V_{AC}, 10-40 V_{DC}	**0** = without **4** = 0(4)-20 mA, 0-10 V	**2** = 2 change-over contacts

* Please specify flow direction in writing.

Plug-on display
for model DPE...L442 (with 4-20 mA output and DIN connector)

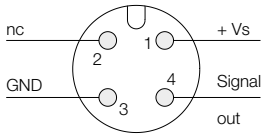
Description	Order number
4-digit LED, connector DIN 43650, 2-wire, supply through analogue output	**AUF-1000**
as above however with additional open collector output	**AUF-1001**

Weights

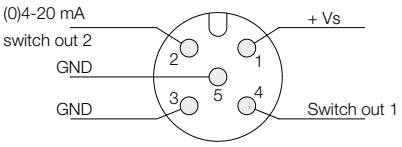
Sensor		Electronics	
Model	**Weight**	**Model**	**Weight**
½"	approx. 750 g	Frequency output	130 g
¾"	approx. 1050 g	Analogue output	130 g
1"	approx. 900 g	Compact electronic	approx. 650 g
1½"	approx. 1200 g	Pointer indication	550 g
2"	approx. 1500 g	ADI electronics	1400 g
3"	approx. 3000 g	E/G electronics	1400 g

Electrical connection

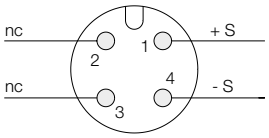
DPE-..F., DPE-..Z., DPE-..L3..3-wire



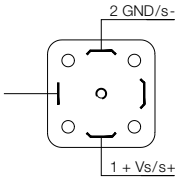
DPE-..C..

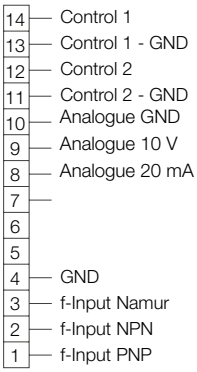


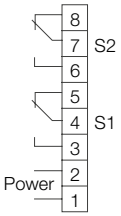
DPE-..L342 2-wire



DPE-..L442





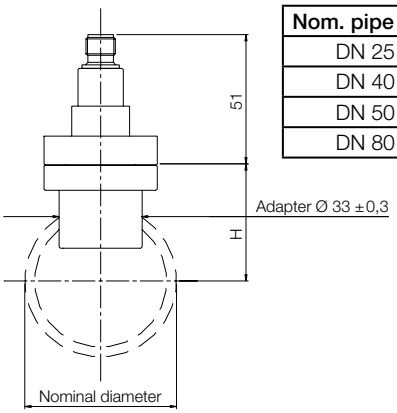


Analogue GND
Analogue 10 V
Analogue 20 mA

1/04-2016

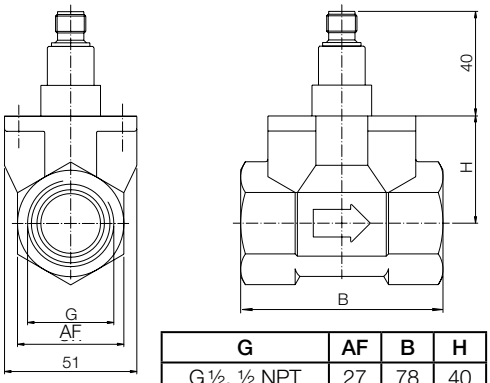
Dimensions

Model: DPE-..W.. (with weld-on sleeve)



Nom. pipe size	H
DN 25	30
DN 40	44
DN 50	46
DN 80	63

Model: DPE-...L3.. / DPE-..F.. (with analogue output)



G	AF	B	H
G ½, ½ NPT	27	78	40
G ¾, ¾ NPT	41	78	42
G 1, 1 NPT	41	78	42
G 1 ½, 1 ½ NPT	55	78	57
G 2, 2 NPT	70	81	58
G 3, 3 NPT	100	106	75

Model: DPE-..L4..
(with analogue output and plug-on display option)

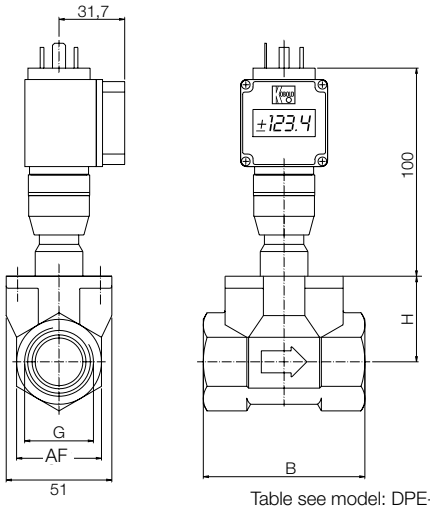


Table see model: DPE-..L3..

Model: DPE-..C.. (with compact electronic)

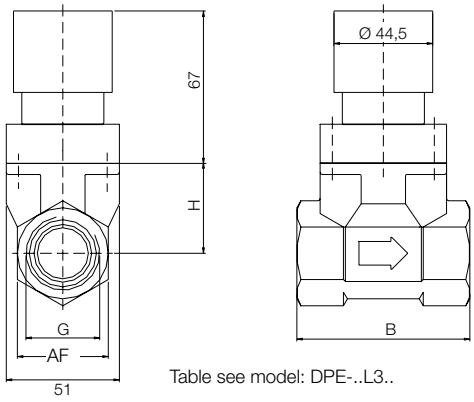


Table see model: DPE-..L3..

Model: DPE-..K.., ..G.., ..E..
(with ADI evaluating, counter or dosing electronic)

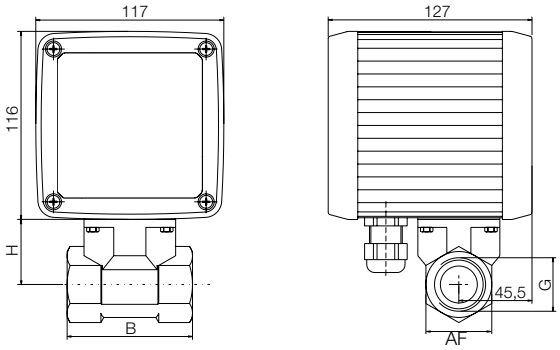


Table see model: DPE-..L3..

Model: DPE-..Z.. (with pointer indication)

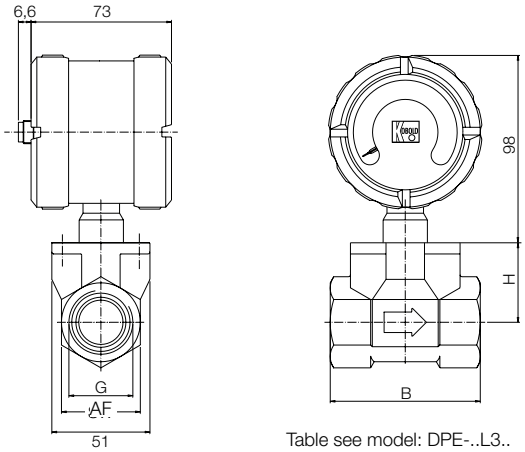


Table see model: DPE-..L3..