Guided micropulse level indicators PulsFox® PMG 20

NEW

- **Level measurement independent of changes in pressure, temperature or density**
- **Stable, reliable measurement even with foam, vapour, dust or turbulent surfaces of the medium**
- **Robust housing for rough ambient conditions**
- **Maintenance-free, not subject to wear and tear**

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Application

For universal continuous level measurement in containers, tanks or silos. Suitable for liquid, powdery, electrically conductive or non-conductive media. Ideal fro changing media. FEP-coated and PFA-coated probes are available for corrosive, highly clean media or food. Also suitable for pressurised or vacuum tanks.
The device can be easily adjusted by means of the programming display with user-friendly menus; it also serves as a local display.

Description

PulsFox® PMG 20 level indicators operate on the basis of the guided micropulse principle (TDR, time domain reflectometry). A micropulse is emitted along a probe. The micropulse is surrounded by an electromagnetic field. Reflections of the pulses from objects and surfaces serve as the basis of distance measurement. The pulse's propagation time is directly proportional to the distance between the probe and the surface of the medium. The reflectance of materials depends on the dielectric constant εr. Changes of the medium such as, for example vapour, dust or a turbulent surface do not affect the measuring accuracy of this measuring principle. No recalibration is required when a different medium is used. Even if properties such as pressure, temperature and density change, the system operates with high reliability and precision. PulsFox® PMG 20 has no moving parts and is therefore maintenance-free and not subject to wear.

Application examples

- Cement silo
- Liquid bitumen
- Containers for construction materials such as mortar, plaster, gypsum
- Silos for additional fuels such as meat and bone meal or dried sewage sludge
- Tanks for liquefied gas such as LPG, LNG
- Tanks facilities for ethanol fuel
- Tank facilities for hydrochloric acid
- Storage of intermediate products, chemical industry
- Supply tanks for hydraulic oil
- Condensation tanks for liquids
- Water separators upstream of vacuum pumps
- Small in medium tanks for raw and finished products in refineries
- Level measurement in facilities for leachate treatment
- Supply water tanks of turbines
- Level measurement in bodies of water

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Probe selection

	Rigid mono probe MS	Flexible mono probe MF	Coax probe KX	Partially insulated probes	PFA Fully insulated probes	FEP Fully insulated probes
Low tanks ≤ 1,000 mm	o	-	+	-	-	-
Tanks > 1,000 mm / ≤ 2,000 mm	+	o	+	+	+	+
Tanks > 2,000 mm / ≤ 3,000 mm	-	+	-	+	-	+
High tanks > 3,000 mm	-	+	-	+	-	+
Liquids	+	+	+	+	+	+
Solids	+	+	-	-	-	+
High-viscosity or adhesive media	o	o	-	o	o	o
Low-viscosity media	+	+	+	+	+	+
Disturbing installations/ small distances	-	-	+	+	+	+
Conductive foam on the medium	+	+	-	+	+	+
Liquids in environments with condensing vapours	-	-	-	+	+	+
Corrosive and very clean liquids	-	-	-	-	+	-
Corrosive liquids and beverages	-	-	-	-	-	+

– Not suitable
O Limited suitability
\+ Suitable

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Technical data

Display
5-digit, 9 mm high,
yellow Matrix OLED
Resolution 128 x 64 pixels

Min. measuring range
0 / 100 mm, depending on probe

Max. measuring range
MS: ≤ 3,000 mm
with PFA-coating max. 2,000 mm
MF: ≤ 40,000 mm
with FEP coating max. 12,000 mm
KX: ≤ 3,000 mm
(please specify exact probe length when ordering)

Dielectric constant ε of medium
MS/MF: ≥ 2.1
KX: ≥ 1.8

Accuracy
MS/MF: ±4 mm ≤ 2 m
±2 mm ≥ 2 m
KX: ±3 mm ≤ 2 m
±2 mm ≥ 2 m

Operating temperature range
Medium: -40/+300 °C
(EX version up to +98 °C)
Flange: -40/+85 °C
(high temperature up to +200 °C)
Ambient: -30/+70 °C

Process pressure
MS/KX: Max. 100 bar
(high temperature and MF max. 10 bar)

Process connection
G1B, stainless steel 316 Ti (1.4571)

Supply voltage
DC 18–36 V / 2-wire
for EX version DC 18–28 V

Output signal
4–20 mA/HART, 2-wire

Current input
Max. 22 mA

Housing
Aluminium die cast

Degree of protection
IP 67

Electrical connection
Cable gland M16 x 1.5

Probe material
Stainless steel 316 L (MF)
Stainless steel 316 Ti (MS/KX)

Options
- Other process connections
- PFA coating/FEP coating
- EX version
  Ex II 1/2 G Ex ia IIB T5 Ga/Gb

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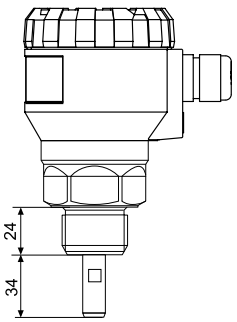
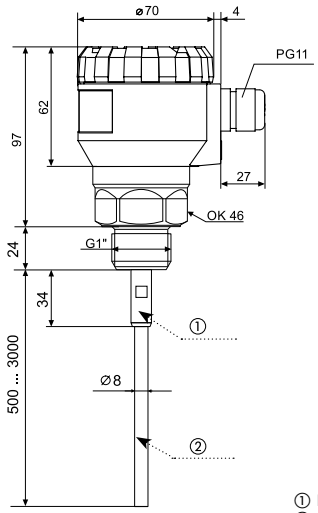
Types and dimensions (mm)

PulsFox® PMG 20 MO – 00, mono probe without electrode

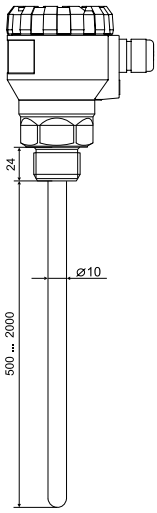


PulsFox® PMG 20 MS – 20 with rigid mono probe

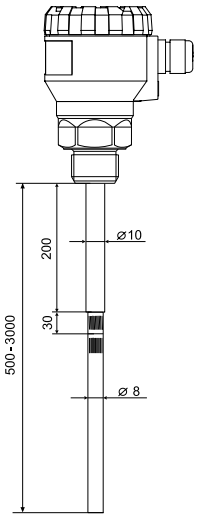


① Electrode holder
② Electrode

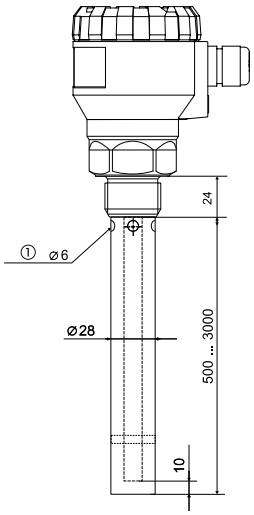
PulsFox® PMG 20 MS – 22, 23 with mono probe (PFA-insulated or FEP-insulated)



PulsFox® PMG 20 MS – 21 with rigid mono probe (partially insulated)

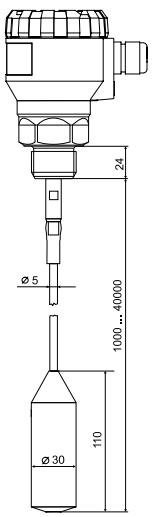


PulsFox® PMG 20 KX – 40 with coax probe



① 4 x opening

PulsFox® PMG 20 MF – 60, 62, 63 with flexible mono probe



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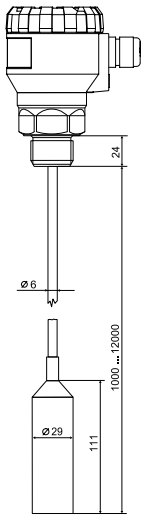
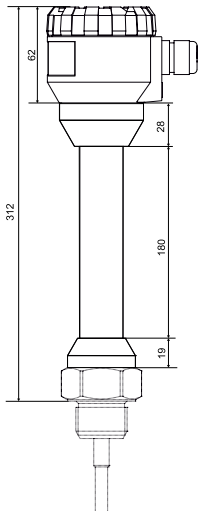
Types and dimensions (mm)

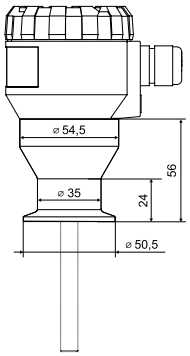
PulsFox® PMG 20 MF – 61 with flexible mono probe (PTFE-insulated)



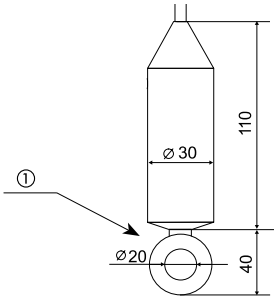
PulsFox® PMG 20 as high temperature version



PulsFox® PMG 20 with process connection TriClamp 1"



PulsFox® PMG 20 – 62, 63 mounting eye



① Mounting of version PMG 20-62 (63)

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Ordering data

DG: H, PG: 4

		Price €
1	**guided micropulse level indicator**	
56540	PulsFox® PMG 20	
2	**Probe type/process connection/max. measuring range**	
00	Mono probe without electrode, PMG 20 MO, G1B, probe connection M8 female thread Electrode provided by customer, probe length max. 40,000 mm	
20	Mono probe rigid without insulation, PMG 20 MS, G1B, max. 3,000 mm	
21	Mono probe with partially insulated probe, PMG 20 MS, G1B, max. 3,000 mm	
22	Mono probe rigid with PFA insulation PMG 20 MS, G1B, max. 2,000 mm	
23	Mono probe rigid with FEP insulation PMG 20 MS, G1B, max. 2,000 mm	
40	Coax probe, PMG 20 KX, G1B, max. 3,000 mm	
60	Mono probe flexible, without insulation, with weight Ø 30 mm, PMG 20 MF, G1B, max. 40,000 mm	
61	Mono probe flexible, with FEP insulation and weight Ø 29 mm (PTFE insulation), PMG 20 MF, G1B, max. 12,000 mm	
62	Mono probe flexible, without insulation, with mounting eye, PMG 20 MF, G1B, max. 40,000 mm	
63	Mono probe flexible, with PA insulation and mounting eye (not insulated), PMG 20 MF, G1B, max. 40,000 mm	
3	**Display/temperature range**	
D	With local display, housing lid with window	
HTD	High temperature version with local display , housing lid with window (flange temperature: MS + KX up to 200°C; MF up to 130°C)	
O	Without local display, housing lid without window	
HTO	High temperature version without local display, housing lid without window (flange temperature: MS + KX up to 200 °C; MF up to 130 °C)	
4	**Probe lengths (L)** **Extra charge for each metre probe length for lengths > 2,000 mm**	
02000	Length in mm e.g. 2,000 mm	
	Rigid mono probe without insulation for PMG 20 MS	
	Rigid, partially insulated mono probe for PMG 20 MS	
	Coax electrode for PMG 20 KX	
	Flexible mono probe without insulation for PMG 20 MF	
	Flexible mono probe with FEP insulation or PFA insulation for PMG 20 MF	
	Flexible mono probe with PA insulation for PMG 20 MF	
5	**Process connection**	
1	G1B	
2	1" NPT	
3	Tri-Clamp 1"	
6	**Output signal/interface**	
01	4–20 mA + HART / 2-wire / DC 18–36 V	
02	RS-485 Modbus RTU	
EX	4–20 mA (ia) + HART/ 2-wire / DC 18–28 V Ui=30 V DC; Ii=132 mA; Pi=0.99 W; Ci=370 nF; Li=0.9 mH	

Ordering code example

56540	22	D	01500	1	01

Accessories	DG	PG	Part no.	Price €
Programming display/local display PD 20 UST/PMG	H	4	**56225**	
Housing lid with window	H	4	**56224**	
Housing lid without window	H	4	**56226**	

Blue part no. = in-stock items