

Guided micropulse level indicators

PulsFox® PMG 10



- Level measurement independent of dielectric constant or changes in pressure, temperature or density
- Reliable, accurate 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



Application For continuous level measurement in containers, tanks or silos. Suitable for liquid, powdery, granular, electrically conductive or non-conductive media. Ideal for changing media. Also suitable for pressurised or vacuum tanks.

Description PulsFox® PMG 10 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 ϵ_r . Changes of the medium (e.g. 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 10 has no moving parts and is therefore maintenance-free and not subject to wear.

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- 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 located prior to vacuum pumps
 - Small and medium size 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

Guided micropulse level indicators

PulsFox® PMG 10

Probe selection

	Rigid mono probe MS	Flexible mono probe MF	Flexible dual probe DF	Coax probe KX
Low tanks ≤ 1,000 mm	o	-	-	+
Tanks > 1,000 mm / ≤ 3,000 mm	+	+	+	+
Tanks > 3,000 mm / ≤ 6,000 mm	-	+	+	o
High tanks > 6,000 mm	-	+	+	-
Liquids	+	+	+	+
Solids	+	+	+	-
High-viscosity or adhesive media	+	o	-	-
Low-viscosity media	+	+	+	+
Disturbing installations/small distances	-	-	+	+
Conductive foam on the medium	+	+	-	-

- Not suitable
- o Limited suitability
- + Suitable

Technical specifications

Measuring range

MS: ≤ 3,000 mm
 MF, DF: ≤ 24,000 mm
 KX: ≤ 6,000 mm

Dielectric constant (ϵ_r) of medium

MS, MF: ≥ 2.1
 DF: ≥ 1.8
 KX: ≥ 1.4

Operating temperature range

Medium: -30/+200 °C
 Flange: -30/+90 °C
 (High temperature: -30/+200 °C)
 Ambient: -30/ +60 °C
 (with display: -20/+60 °C)

Process pressure

MS: PN 16 or PN 25
 MF, DF, KX: PN 16

Process connection

See technical specifications of the individual versions

Supply voltage

4–20 mA, 2-wire (18–35 V)

Output signal

4–20 mA/HART, 2-wire

Housing

Aluminium die cast

Degree of protection

IP 65 (EN 60529)

Electrical connection

2 x cable gland

Option

- Local display/programming display PD 10 PMG
- Other process connections
- FEP/PFA/PP coatings



Plug-in local display/programming display

PD 10 PMG

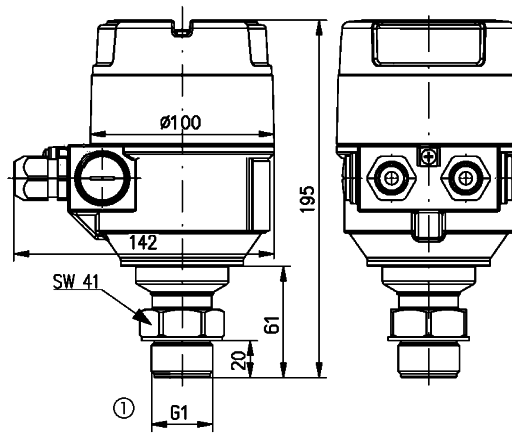
Part no. **53529**

DG: H, PG: 4

Guided micropulse level indicators PulsFox® PMG 10

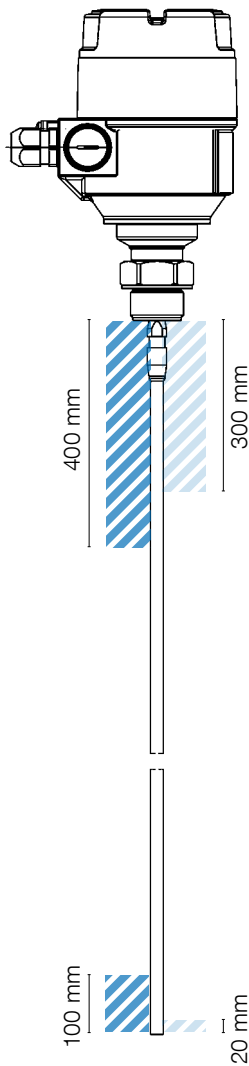
Types and dimensions (mm)

Housing PMG 10

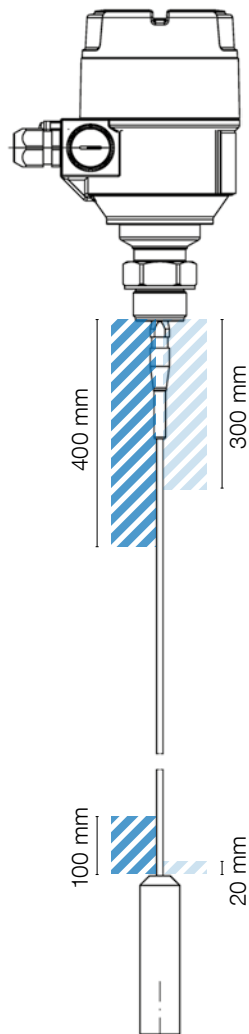


① Depending on version

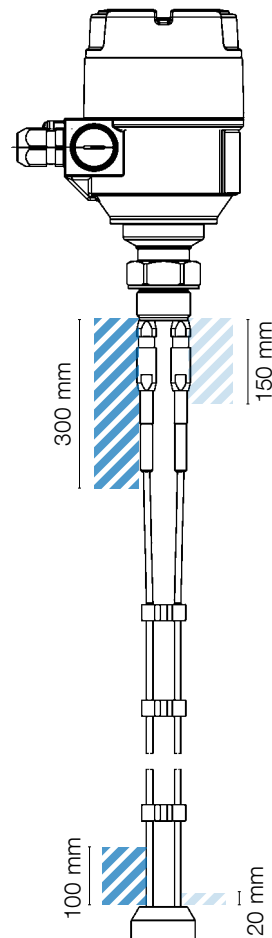
Pulsfox® PMG 10 MS
with rigid mono probe



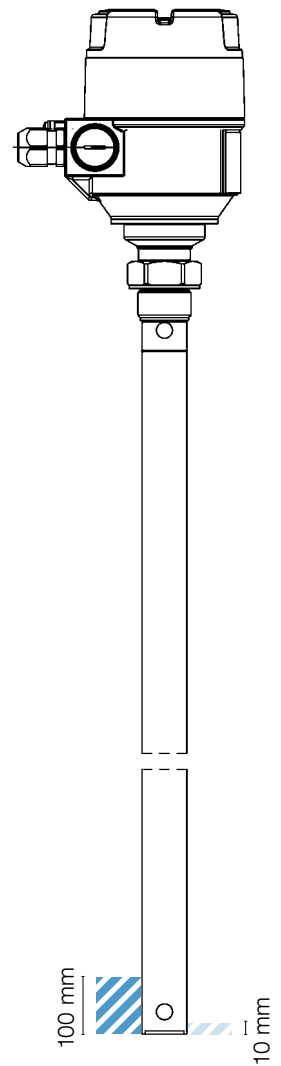
Pulsfox® PMG 10 MF
with flexible mono probe



Pulsfox® PMG 10 DF
with flexible dual probe



Pulsfox® PMG 10 KX
with coax probe



▨ Blocking distance with a medium with ϵ_r value = 2.4

▨ Blocking distance with a medium with ϵ_r value = 80

Guided micropulse level indicator with flexible dual PulsFox® PMG 10 DF

- Small minimum distances
- Also suitable for high tanks (> 6 m)
- Only for non-adhesive media

Technical specifications

Measuring range

Max. 24,000 mm

Dielectric constant (ϵ_r) of medium

≥ 1.8

Measuring accuracy

Better than: $\pm 0.05\%$ of probe length (min. ± 5 mm) in the case of liquids
 $\pm 0.2\%$ of probe length (min. ± 20 mm) in the case of powder/solids

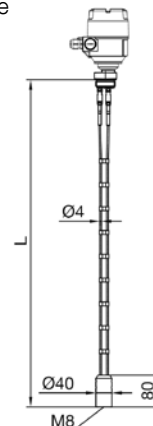
Probe material

Stainless steel 316

Wetted parts

Stainless steel 316, PTFE, FKM

Pulsfox® PMG 10 DF
with flexible dual probe



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Ordering data

DG: H, PG: 4

Price €

1 Probe type

53536 Dual probe flexible PMG 10 DF

2 Display and temperature range

O Without local display and without window, flange temperature max. **90 °C**

HT Without local display and without window, flange temperature max. **200 °C**

D With local display and with window, flange temperature max. **90 °C**

HTD With local display and with window, flange temperature max. **200 °C**

3 Housing

A Aluminium die cast IP 65 (EN 60529)

4 Process connection/probe material

40 G1½B PN 16 / stainless steel 316 / 4 mm

41 1½ NPT PN 16 / stainless steel 316 / 4 mm

5 Probe length (L)

03000 Length in mm, e.g. 3,000 mm

Length > 3,000 mm: extra charge for each metre probe length

6 Output signal and EX type

N 4 – 20 mA + HART / non-EX

Ordering code

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