РусАвтоматизация

MicroTREK

РЕФЛЕКСНЫЙ МИКРОВОЛНОВОЙ ПРЕОБРАЗОВАТЕЛЬ УРОВНЯ

5 YEARS WARRANTY

NIVELCO

LEVEL TRANSMITTERS

MicroTREK HT–700 guided microwave level transmitter is designed for the continuous level measurement of conductive and non-conductive liquids, pulps, and solids. The measuring speed of the **MicroTREK HT–700** is almost ten times that of its predecessor, the HT–700's measuring dead zone is significantly smaller, and its maximum measuring distance is longer! Furthermore, the supply voltage range of the device has been expanded. Its level gauge operates based on measuring the travel time of impulse reflections *(TDR – Time Domain Reflectometry)*. The electronic module generates microwave impulses in the sensor, which travel at the speed of light.

Part of the impulse energy is reflected from the surface depending on the material. The reflected signal's travel time is measured and processed by the module's electronics, and then it is converted to a volume- and level-proportional signal. Reflections depend heavily on the medium's dielectric constant (ε_r), which must be at least 1.4 for successful measurement. The propagation speed of microwave impulses in a vacuum, air, and other gases is virtually the same; distance measurement is therefore independent of the medium within the given limits.

FEATURES

- Measuring range up to 30 m
- Tracking speed: 900 m/h *(= 25 cm/s)*
- Accuracy: ±5 mm
- Measurement is independent of medium's dielectric constant, temperature, pressure and density
- Rod, cable, or coaxial probe
- Segmented rod probe version
- Lowest $\varepsilon_r \geq 1.4$
- Interface measurement
- Plug-in display
- Dual current output for interface measurement*(optional)*
- Advanced threshold management
- False echo suppression
- Probe Correction Table *(SCT)*
- PACT*ware*™ compatible
- 4…20 mA + HART® output + relay *(optional)*
- Process temperature range: –30… +200 °C
- Highest process pressure: 40 bar
- IP67
- 5 years warranty

HPA–726

HTD–730

CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex ia D)
- ATEX (Ex ta/tb D)
- IEC Ex (Ex ia G)
- IEC Ex (Ex ia D)
- INMETRO (Ex ia G)
- INMETRO (Ex ia D)
- UKCA Ex (Ex ia G)
- UKCA Ex (Ex ia D)
- UKCA Ex (Ex ta/tb D)

APPLICATIONS

Mono cable / Mono rod Mono segmented rod	Twin cable	Twin rod	Coaxial pipe
▪ Cement, limestone, fly ash, alumina, soot ▪ All high-viscosity liquids ▪ Mineral powders ▪ Clean and contaminated liquids ▪ For stilling wells (calibration required) ▪ With plastic-coated probe for aggressive substances ▪ Slightly conductive foams ▪ High-temperature applications ▪ Bypass applications	▪ Tank parks with solvents, oil and fuels ▪ Water storage tanks ▪ Plastic granules ▪ For products with low dielectric constant ($\varepsilon_r > 1.8$) ▪ For all liquids, light granules ▪ For narrow tanks ▪ Where minimum dead zone is needed ▪ Mounting close to tank wall is possible	▪ Plastic granules ▪ Coated tanks ▪ Clean and contaminated liquids ▪ Fine powders ▪ Where minimum dead zone is needed ▪ For narrow tanks ▪ For mediums with low dielectric constant and slightly moving products	▪ Small vessels and tanks up to 6 m high ▪ Solvents, liquefied gases ▪ LPG, LNG ▪ For clean liquids with low dielectric constant ▪ Agitated or flowing liquids – the probe acts as a stilling well ▪ Liquid or vapor spray near the probe ▪ Can be heated ▪ Contact possible with metallic object or tank wall ▪ Where no dead zone allowed

TECHNICAL DATA

Version		Plastic housing	Aluminum housing	Stainless steel housing
Measured values / calculated values		Distance, level; / Volume, Weight		
Measuring range		Depending on probe version and dielectric constant (εr) of the medium		
Probe versions		Mono cable, twin cable, mono rod, twin rod, coaxial pipe, segmented coaxial pipe and segmented rod		
Accuracy	Linearity error[1]	For liquids: ±5 mm, if probe length ≥ 10 m: ±0.05% of the probe length. For solids: ±20 mm, if probe length ≥ 10 m: ±0.2% of the probe length		
	Resolution	1 mm		
Lowest ε_r of medium		1.4 (depending on probe version)		
Supply voltage		12[3]…36 V DC, nominal 24 V DC, Ex version: 12[3]…30 V DC, transient overvoltage protection		
Output	Communication	4…20 mA + HART®		
	Display (optional)	SAP–300 graphic display unit		
	Relay (optional)	SPDT 30 V / 1 A DC; 48 V / 0.5 A AC		
Process temperature		–30…+90 °C; high-temperature version: –30…+200 °C		
		For plastic-coated probes, coated: see "Probe Properties"		
Highest process pressure		40 bar (4 MPa); with plastic lined flange: maximum 25 bar (2.5 MPa)		
Ambient temperature		–30…+65 °C, with display: –20…+65 °C		
Process connection		Threaded, flanged or sanitary connections (as per order code)		
Ingress protection		IP67		
Electrical connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6…12 mm (shielded cable is recommended), wire cross section: 0.5…1.5 mm²		
Electrical protection		Class III		
Housing material		Plastic (PBT)	Painted aluminum	Stainless steel (KO35)
Seal		FPM (Viton®), optional: FFKM (Kalrez®), EPDM		
Explosion protection		—	See "Ex Information"	
Weight (head unit)		1.3 kg	2.2 kg	3.9 kg

[1] Under reference conditions and constant temperature. *[2] The use of SAP–300 graphic displays is limited in hazardous environment. For further information, see "Ex Information".*
[3] In an industrial environment, reliable operation can be guaranteed with a terminal voltage >13 V.

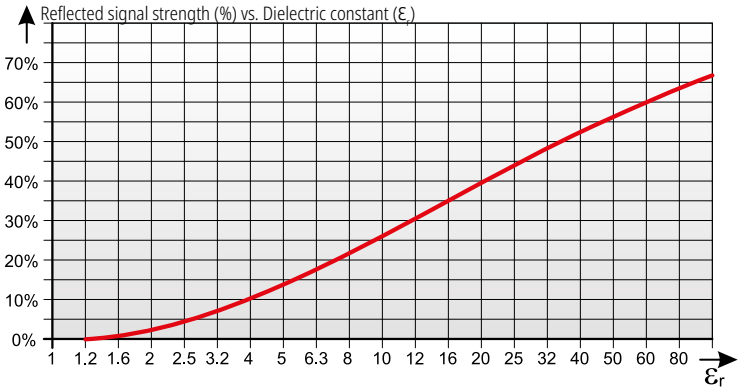
Ex INFORMATION

		H□□–7□□–8 Ex / H□□–9□□–8 Ex		H□□–7□□–6 Ex H□□–9□□–6 Ex	H□□–7□□–5 Ex H□□–9□□–5 Ex	H□□–7□□–9 Ex H□□–9□□–9 Ex
		Without probe coating, without display	With coated probe and/or display			
Protection		Ex ia G		Ex ia D	Ex ta/tb D	Ex ta D[4]
Ex marking[5]	ATEX	⟨Ex⟩ II 1 G Ex ia IIC T6…T3 Ga	⟨Ex⟩ II 1 G Ex ia IIB T6…T3 Ga	⟨Ex⟩ II 1 D Ex ia IIIC T85°C…T180°C Da	⟨Ex⟩ II 1/2 D Ex ta/tb IIIC T85°C… T180°C Da/Db	⟨Ex⟩ II 1D Ex ta IIIC T105°C Da
	IEC Ex[6]	Ex ia IIC T6…T3 Ga	Ex ia IIB T6…T3 Ga	Ex ia IIIC T85°C…T180°C Da	Ex ta/tb IIIC T85°C…T180°C Da/Db	Ex ta IIIC T105°C Da
Ex supply voltage and intrinsic safety data		C_i ≤ 25 nF, L_i ≤ 300 µH, U_i ≤ 30 V, I_i ≤ 100 mA, P_i ≤ 0.75 W	C_i ≤ 25 nF, L_i ≤ 300 µH, U_i ≤ 30 V, I_i ≤ 140 mA, P_i ≤ 1 W		U_i = 30 V DC, I_i = 1 A	
Supply voltage		12[7]…30 V DC				
Electrical connection		2× M20×1.5 metal cable glands, cable outer diameter: Ø6…Ø12 mm, wire cross section: maximum 1.5 mm²				
Ambient temperature		–30…+65 °C, with display: –20…+65 °C				

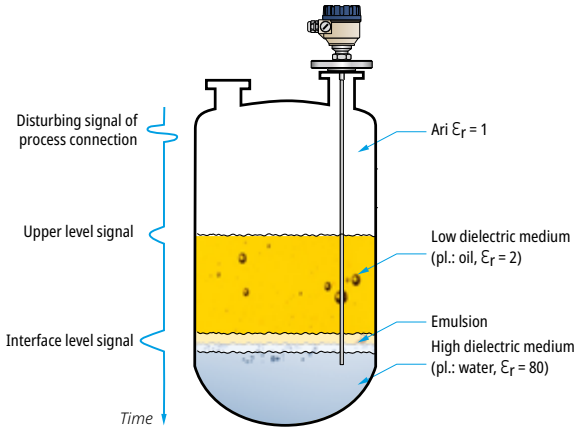
[4] Ex ta D protection class devices are available only with a windowless cap.
[5] In IIC environment SAP–300 graphic display must not be used!
[6] IEC Ex compliance is optional; must be requested in the order.
[7] In an industrial environment, reliable operation can be guaranteed with a terminal voltage >13 V.

MEASURABILITY OF THE MEDIUM

The measurability of the medium and the reflected signal strength depends on the relative dielectric constant of the medium.



Informative ε_r values			
Butane	1.4	Grain	3…5
Cement	1.5…10	Cooking oil	3.9
LPG	1.6…1.9	Limestone	6.1…9.1
Kerosene	1.8…2.1	Acetone	21
Crude oil	2.1	Ethanol	24
Diesel oil	2.1	Methanol	33.1
Gasoline	2.3	Glycol	37
Asphalt	2.6	Nitrobenzene	40
Clinker	2.7	Water	80
Resin	2.4…3.6	Sulphuric acid (T = 20 °C)	84



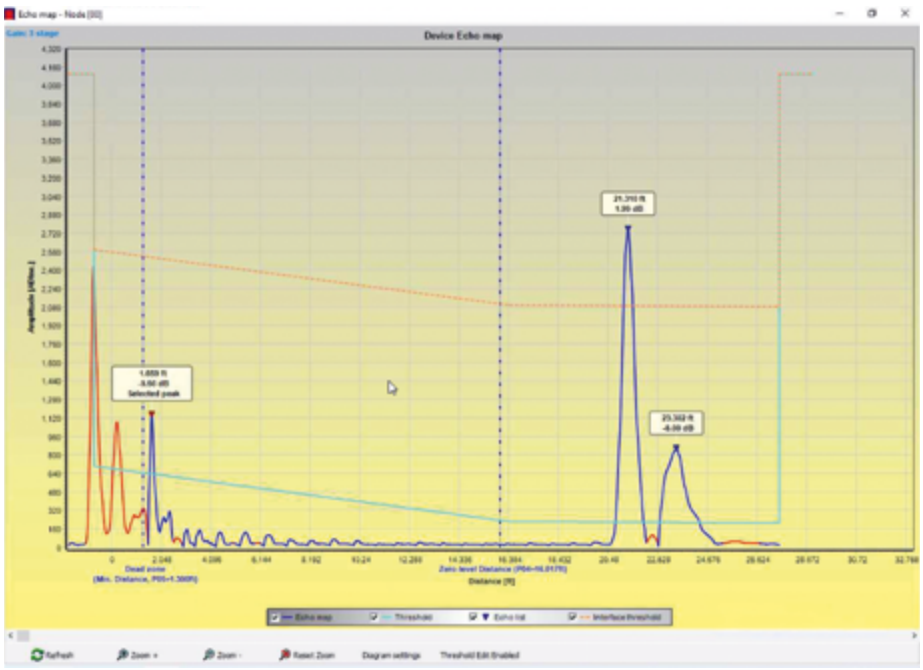
INTERFACE MEASUREMENT OF LIQUIDS

Non-conductive materials are semi-transparent to the microwave signal. Such materials only partially reflect the energy of the microwave signal. The non-reflected part of the emitted measuring signal energy passes through the non-conductive medium and is reflected from the phase boundary of the lower liquid. The versions of the MicroTREK suitable for interface measurement work on this principle.

TYPICAL APPLICATIONS FOR INTERFACE MEASUREMENT

Storage or separator tanks containing water, and oils or other low dielectric, non-conductive, water-insoluble liquid chemicals. Most often, we encounter guided microwave phase boundary measurement in the oil industry, which practically has displaced all other measurement methods. MicroTREK H–700 devices ordered with interface measurement option can measure the upper level of already separated liquids, the phase boundary *(interface)* level, or the thickness of the upper liquid layer. Depending on the setting, any of listed measured values can be assigned to the 4…20 mA and HART® outputs.

MicroTREK H–700 series with interface option are suitable for phase boundary *(interface)* measurement with any NIVELCO made probe. The use of more sensitive probes *(twin and coaxial)* is recommended for more critical applications.



The basic criteria for interface measurement

- The upper liquid layer must be electrically non-conductive
- The value of relative dielectric constant of the upper liquid layer must be known
- The upper liquid layer must be homogeneous, its composition and material structure must not change
- The upper layer of the fluid can only be measured if its layer thickness exceeds 120 mm
- The lower and upper liquids must be separated from each other, free from emulsion transition
- The lower liquid layer must be electrically conductive, or if it is not, than the difference in the relative dielectric constants of the two liquids must be greater than 10.*

**In the case of clean separation of the liquids and use of a most sensitive coaxial probe.*

PROBES

Reliable measurement with microwaves depends on selecting the appropriate probes and taking the medium's properties and other vessel conditions into consideration.

Probe	ε_r min.	Process connection	Max. measuring range	Dead zone[1]	
				Upper (t) / lower (b) ε_r = 80	Upper (t) / lower (b) ε_r = 2.4
Mono cable Ø4 mm	2.1	1"; 1½"	30 m	250 mm / 20 mm	350 mm / 100 mm
Mono cable Ø8 mm		1½"			
Mono rod Ø8 mm		1"	3 m		
Mono / segmented rod Ø14 mm		1½"	6 m		
Twin cable Ø4 mm	1.8		30 m	150 mm / 20 mm	300 mm / 100 mm
Twin rod Ø8 mm			3 m		
Coaxial pipe Ø28 mm	1.4	1"; 1½"	6 m	0 / 10 mm	0 / 100 mm
Segmented coaxial pipe Ø14 mm	1.6	1½"			
Coated cable Ø6 mm	2.4	1"; 1½" TriClamp; DN40 MILCH, DN50	30 m	250 mm / 20 mm	350 mm / 100 mm
Coated rod Ø12 / Ø16 mm		DN50	3 m		

[1] The unmeasurable upper and lower part of the tank, the lower dead zone is extended with the length of the counterweight (cable versions only)

PROBE PROPERTIES

Type	H□K, H□L H□V, H□W	H□R, H□P	H□S, H□Z	H□N, H□J	H□T, H□U	H□D, H□E	H□A, H□B H□C, H□H
Probe	Ø4 mm cable	Rod	Rod / segmented rod	Ø8 mm cable	Ø4 mm twin cable	Twin rod	Coaxial
Maximum measuring distance	30 m	3 m	6 m	30 m		3 m	6 m
Min. meas. dist. (ε_r = 80 / ε_r = 2.4)	250 mm / 350 mm				150 mm / 300 mm		0 m
Lowest ε_r of medium	2.1				1.8		1.4
Sensing space around the probe	Ø600 mm				Ø200 mm		0 mm
Process connection	1" BSP / NPT	1" BSP	1½" BSP				1" BSP / NPT
	1½" BSP / NPT	1" NPT	1½" NPT				1½" BSP / NPT
Probe material	1.4401	1.4571		1.4401		1.4571	
Probe nominal Ø	4 mm	8 mm	14 mm	8 mm	4 mm	8 mm	28 mm
Weight	0.12 kg/m	0.4 kg/m	1.2 kg/m	0.4 kg/m	0.24 kg/m	0.8 kg/m	1.3 kg/m
Separator material[2]	–				PFA, welded onto the cable	PTFE-GF25	PTFE
Weight dimensions	Ø25 × 100 mm	–		Ø40 × 260 mm	Ø40 × 80 mm	–	
Weight material	1.4571	–		1.4571		–	

[2] *There is no separator below 1.5 m length*

COATED PROBE PROPERTIES

Type	H□F, H□G	H□X	H□Y	H□M	H□Q	H□O	H□I
Probe	Ø4 mm FEP-coated cable			Ø4 mm fully FEP/PFA-coated cable	Fully PFA-coated rod		Fully PP-coated rod
Maximum measuring distance	30 m				3 m		
Min. meas. dist. (ε_r = 80 / ε_r = 2.4)	250 mm / 350 mm						
Lowest ε_r of medium	2.1						
Minimal sensory distance from sensor	Ø600 mm						
Process connection	1" BSP / NPT	1½" TriClamp	DN40 MILCH	DN50 PN25 flange		1½" TriClamp	DN50 PN25
Highest process temperature	+200 °C			+150 °C			+60 °C
Probe material	1.4401				1.4571		
Probe coating	FEP				PFA		PP
Probe nominal Ø	6 mm				12 mm		16 mm
Fillet coating	–			FEP / PFA	PFA		PP
Weight material	1.4571			1.4571 + PFA-coating	–		
Weight dimensions	Ø25 × 100 mm				–		
Weight	0.16 kg/m				0.5 kg/m		0.6 kg/m

MicroTREK H–700 with cable probe — 5 years

2-wire compact TDR level transmitter for liquids and free-flowing solids
with stainless steel mono or twin cable probe with or without plastic coating

Version / Temperature

H □■ – ■■■ – ■

T	Transmitter / Flange temperature max. +90 °C
H	High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)
B	Transmitter with plug-in display / Flange temperature max. +90 °C
P	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (M type only up to +150 °C)

Probe / Process connection

H ■□ – ■■■ – ■

K		Mono cable, Ø4 mm, 1.4401 / 1" BSP / max. 30 m
L		Mono cable, Ø4 mm, 1.4401 / 1" NPT / max. 30 m
V		Mono cable, Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
W		Mono cable, Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
1		Mono cable, Ø4 mm, 1.4401 / 1½" TriClamp / max. 30 m
2		Mono cable, Ø4 mm, 1.4401 / 2" TriClamp / max. 30 m
N		Mono cable, Ø8 mm, 1.4401 / 1½" BSP / max. 30 m
J		Mono cable, Ø8 mm, 1.4401 / 1½" NPT / max. 30 m
T		Twin cable, 2x Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
U		Twin cable, 2x Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
F	*	Mono cable, Ø4 mm, + FEP-coated / 1" BSP / max. 30 m
G	*	Mono cable, Ø4 mm, + FEP-coated / 1" NPT / max. 30 m
X	*	Mono cable, Ø4 mm, + FEP-coated / TriClamp 1½" / max. 30 m
Y	*	Mono cable, Ø4 mm, + FEP-coated / Sanitary DN40 / max. 30 m
M		Mono cable, Ø4 mm, + PFA/FEP fully coated / DN50, PN25, 1.4571 + PFA/FEP lining

* Only the cable probe is coated

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø8 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for twin cable / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401 + FEP

nn = 01...30 : 1.0...30.0 m

Output / Certificates

H ■■ – ■■■ – □

4	4...20 mA + HART®
5	4...20 mA + HART® / Ex ta/tb D (only for uncoated probe versions)
6	4...20 mA + HART® / Ex ia D (only for uncoated probe versions)
8	4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
9	4...20 mA + HART® / Ex ta D (only for uncoated probe versions)
H	4...20 mA + HART® + Relay

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P – 3 0 0 – 0	Graphic plug-in display module
S A T – 5 0 4 – ■	HART®-USB/Bluetooth® modem
S A K – 3 0 5 – ■	HART®-USB/RS485 modem

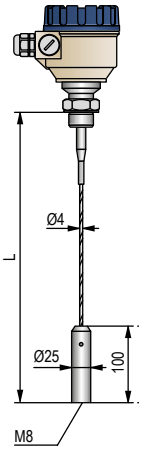
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

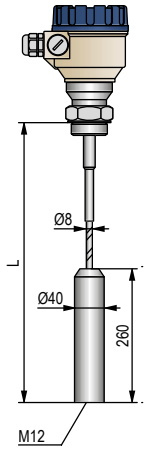
Process seal material (factory default: FPM)

- EPDM
- FFKM

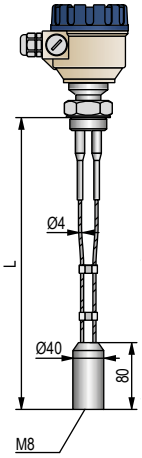
The above process connections and process seals are ordered separately and must be specified in the text part of the order



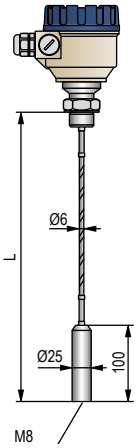
H□K / H□L / H□V / H□W–700 / 800



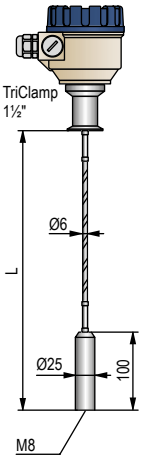
H□N / H□J–700 / 800



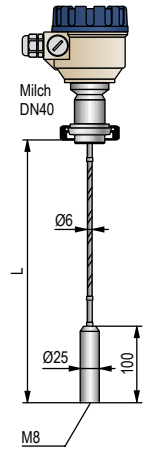
H□T / H□U–700 / 800



H□F / H□G–700 / 800



H□X–700 / 800



H□Y–700 / 800

MicroTREK H-700 with Ø8 mm rod probe — 5 years

2-wire compact TDR level transmitter for liquids and free-flowing solids
with stainless steel mono or twin rod probe with or without plastic coating

Version / Temperature

H □■ – ■■■ – ■

T	Transmitter / Flange temperature max. +90 °C
H	High-temperature transmitter / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)
B	Transmitter with plug-in display / Flange temperature max. +90 °C
P	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)

Probe / Process connection

H ■□ – ■■■ – ■

R	Mono rod, Ø8 mm, 1.4571 / 1" BSP / max. 3 m
P	Mono rod, Ø8 mm, 1.4571 / 1" NPT / max. 3 m
3	Mono rod, Ø8 mm, 1.4571 / 1½" TriClamp / max. 3 m
D	Twin rod, 1.4571 / 1½" BSP / max. 3 m
E	Twin rod, 1.4571 / 1½" NPT / max. 3 m
Q	Mono rod + PFA-coated / DN50, PN25, 1.4571 + PFA lining
I	Mono rod + PP-coated / DN50, PN25, 1.4571 + PP lining (up to a maximum flange temperature of +60 °C)
O	Mono rod + PFA-coated / 1½" TriClamp PFA-coated
7	Mono rod + PFA-coated / 2" TriClamp PFA-coated

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571
n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571, PP-coated
n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571, PFA-coated
n n	1.0...3.0 m (each 0.1 m), for twin rod / 1.4571

nn = 10...30 : 1.0...3.0 m

Output / Certificates

H ■■ – ■■■ – □

4	4...20 mA + HART®
5	4...20 mA + HART® / Ex ta/tb D (only for uncoated probe versions)
6	4...20 mA + HART® / Ex ia D (only for uncoated probe versions)
8	4...20 mA + HART® / Ex ia G (in the case of plastic-coated probes, only Ex ia IIB)
9	4...20 mA + HART® / Ex ta D (only for uncoated probe versions)
H	4...20 mA + HART® + Relay

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P – 3 0 0 – 0	Graphic plug-in display module
S A T – 5 0 4 – ■	HART®-USB/Bluetooth® modem
S A K – 3 0 5 – ■	HART®-USB/RS485 modem

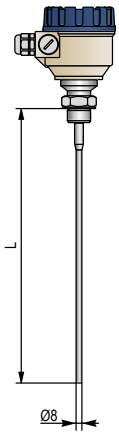
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

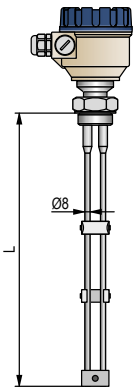
Process seal material (factory default: FPM)

- EPDM
- FFKM

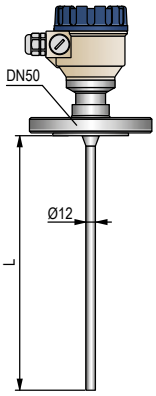
The above process connections and process seals are ordered separately and must be specified in the text part of the order



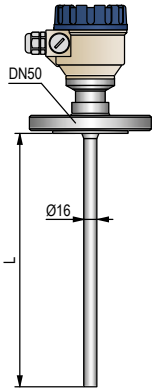
H□R / H□P–
700 / 800



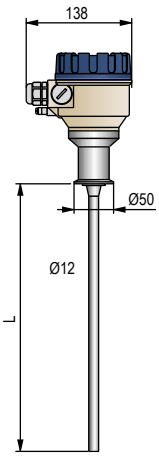
H□D / H□E–
700 / 800



H□Q–700 / 800



H□I–700 / 800



H□O–700 / 800

MicroTREK H–700 with Ø14 mm rod or coaxial probe — 5 years

2-wire compact TDR level transmitter for liquids and free-flowing solids
with stainless steel Ø14 mm rod or coaxial probe

Version / Temperature

H □■ – ■■■ – ■

T	Transmitter / Flange temperature max. +90 °C
H	High-temperature transmitter / Flange temp. max. +200 °C
B	Transmitter with plug-in display / Flange temperature max. +90 °C
P	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C

Probe / Process connection

H ■□ – ■■■ – ■

S	*	Mono rod, Ø14 mm, 1.4571 / 1½" BSP / max. 6 m
Z	*	Mono rod, Ø14 mm, 1.4571 / 1½" NPT / max. 6 m
4		Mono rod, Ø14 mm, 1.4571 / 2" TriClamp / max. 6 m
A		Coaxial, 1.4571 / 1" BSP / max. 6 m
B		Coaxial, 1.4571 / 1" NPT / max. 6 m
C	*	Coaxial, 1.4571 / 1½" BSP / max. 6 m
H	*	Coaxial, 1.4571 / 1½" NPT / max. 6 m
5		Coaxial, 1.4571 / 1½" TriClamp / max. 6 m
6		Coaxial, 1.4571 / 2" TriClamp / max. 6 m

* Can be ordered with segmented probe which must be specified in the text of the order. The length of a probe section is 1 m.

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...6.0 m (each 0.1 m), for mono rod / 1.4571
n n	1.0...6.0 m (each 0.1 m), for coaxial / 1.4571
n n	1.0...6.0 m (each 0.1 m), for segmented mono rod / 1.4571
n n	1.0...6.0 m (each 0.1 m), for segmented coaxial / 1.4571

nn = 10...60 : 1.0...6.0 m

Output / Certificates

H ■■ – ■■■ – □

4	4...20 mA + HART®
5	4...20 mA + HART® / Ex ta/tb D
6	4...20 mA + HART® / Ex ia D
8	4...20 mA + HART® / Ex ia G
9	4...20 mA + HART® / Ex ta D
H	4...20 mA + HART® + Relay

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

SAP–3000–0	Graphic plug-in display module
SAT–504–■	HART®-USB/Bluetooth® modem
SAK–305–■	HART®-USB/RS485 modem

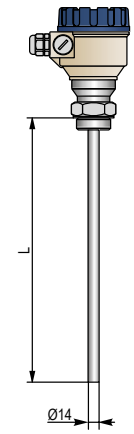
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

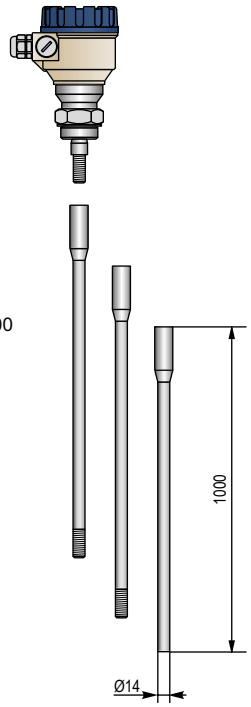
Process seal material (factory default: FPM)

- EPDM
- FFKM

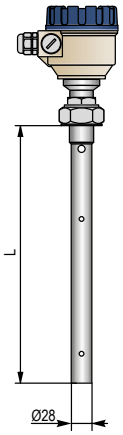
The above process connections and process seals are ordered separately and must be specified in the text part of the order



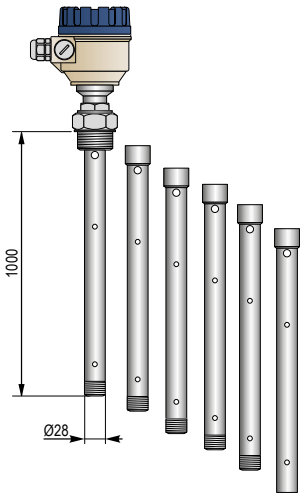
H□S / H□Z–700 / 800



H□S / H□Z–700 / 800
with segmented
probe



H□A / H□B / H□C / H□H–700 / 800



H□C / H□H–700 / 800
with segmented probe

MicroTREK H–700 with cable probe, with interface function — 5 years

2-wire compact TDR level transmitter with interface function
with stainless steel mono or twin cable probe with or without plastic coating

Version / Temperature

H □■ – ■■■ – ■

C	Transmitter / Flange temperature max. +90 °C
E	High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)
D	Transmitter with plug-in display / Flange temperature max. +90 °C
F	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (M type only up to +150 °C)

Probe / Process connection

H ■□ – ■■■ – ■

K		Mono cable, Ø4 mm, 1.4401 / 1" BSP / max. 30 m
L		Mono cable, Ø4 mm, 1.4401 / 1" NPT / max. 30 m
V		Mono cable, Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
W		Mono cable, Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
1		Mono cable, Ø4 mm, 1.4401 / 1½" TriClamp / max. 30 m
2		Mono cable, Ø4 mm, 1.4401 / 2" TriClamp / max. 30 m
N		Mono cable, Ø8 mm, 1.4401 / 1½" BSP / max. 30 m
J		Mono cable, Ø8 mm, 1.4401 / 1½" NPT / max. 30 m
T		Twin cable, 2x Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
U		Twin cable, 2x Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
F	*	Mono cable, Ø4 mm, + FEP-coated / 1" BSP / max. 30 m
G	*	Mono cable, Ø4 mm, + FEP-coated / 1" NPT / max. 30 m
X	*	Mono cable, Ø4 mm, + FEP-coated / TriClamp 1½" / max. 30 m
Y	*	Mono cable, Ø4 mm, + FEP-coated / Sanitary DN40 / max. 30 m
M		Mono cable, Ø4 mm, + PFA/FEP fully coated / DN50, PN25, 1.4571 + PFA/FEP lining

* Only the cable probe is coated

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø8 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for twin cable / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401 + FEP

nn = 01...30 : 1,0...30,0 m

Output / Certificates

H ■■ – ■■■ – □

4		4...20 mA + HART®
8		4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
H		4...20 mA + HART® + Relay
T	**	2x 4...20 mA + HART®
U	**	2x 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P – 3 0 0 – 0	Graphic plug-in display module
S A T – 5 0 4 – ■	HART®-USB/Bluetooth® modem
S A K – 3 0 5 – ■	HART®-USB/RS485 modem

Process connections (price information on request)

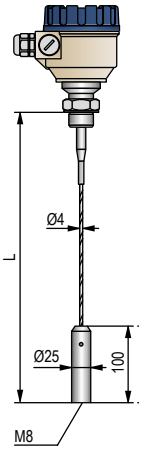
- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (factory default: FPM)

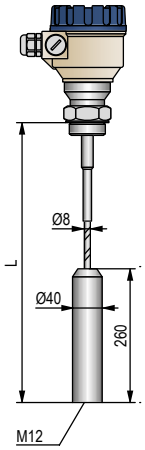
- EPDM
- FFKM

The above process connections and process seals are ordered separately and must be specified in the text part of the order

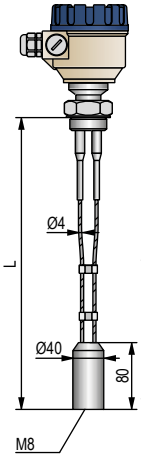
** Under development



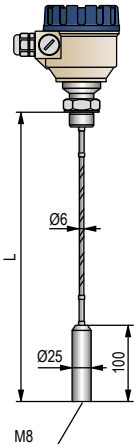
H□K / H□L / H□V / H□W–700 / 800



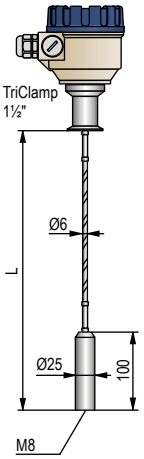
H□N / H□J–700 / 800



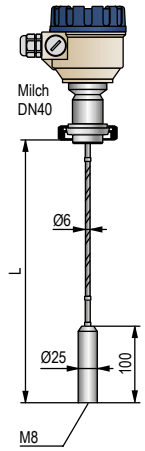
H□T / H□U–700 / 800



H□F / H□G–700 / 800



H□X–700 / 800



H□Y–700 / 800

MicroTREK H–700 with Ø8 mm rod probe, with interface function — 5 years

2-wire compact TDR level transmitter with interface function
with stainless steel mono or twin rod probe with or without plastic coating

Version / Temperature

H □■ – ■■■ – ■

C	Transmitter / Flange temperature max. +90 °C
E	High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)
D	Transmitter with plug-in display / Flange temperature max. +90 °C
F	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)

Probe / Process connection

H ■□ – ■■■ – ■

R	Mono rod, Ø8 mm, 1.4571 / 1" BSP / max. 3 m
P	Mono rod, Ø8 mm, 1.4571 / 1" NPT / max. 3 m
3	Mono rod, Ø8 mm, 1.4571 / 1½" TriClamp / max. 3 m
D	Twin rod, 1.4571 / 1½" BSP / max. 3 m
E	Twin rod, 1.4571 / 1½" NPT / max. 3 m
Q	Mono rod + PFA-coated / DN50, PN25, 1.4571 + PFA lining
I	Mono rod + PP-coated / DN50, PN25, 1.4571 + PP lining (up to a maximum flange temperature of +60 °C)
O	Mono rod + PFA-coated / 1½" TriClamp PFA-coated
7	Mono rod + PFA-coated / 2" TriClamp PFA-coated

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571
n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571, PP-coated
n n	1.0...3.0 m (each 0.1 m), for mono rod / 1.4571, PFA-coated
n n	1.0...3.0 m (each 0.1 m), for twin rod / 1.4571

nn = 10...30 : 1.0...3.0 m

Output / Certificates

H ■■ – ■■■ – □

4		4...20 mA + HART®
8		4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
H		4...20 mA + HART® + Relay
T	**	2x 4...20 mA + HART®
U	**	2x 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

SAP – 300 – 0	Graphic plug-in display module
SAT – 504 – ■	HART®-USB/Bluetooth® modem
SAK – 305 – ■	HART®-USB/RS485 modem

Process connections (price information on request)

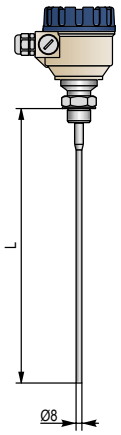
- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (factory default: FPM)

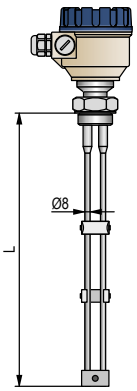
- EPDM
- FFKM

The above process connections and process seals are ordered separately and must be specified in the text part of the order

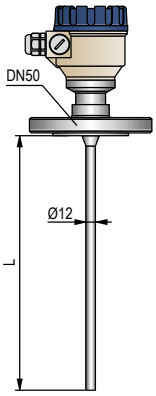
** Under development



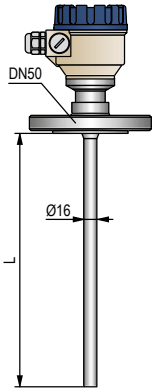
H□R / H□P–
700 / 800



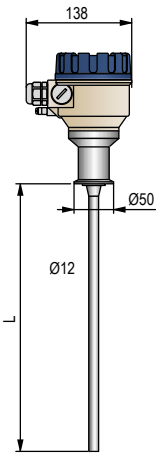
H□D / H□E–
700 / 800



H□Q–700 / 800



H□I–700 / 800



H□O–700 / 800

MicroTREK H–700 with Ø14 mm rod or coaxial probe, with interface function

5 years

2-wire compact TDR level transmitter with interface function
with stainless steel Ø14 mm rod or coaxial probe

Version / Temperature

H □■ – ■■■ – ■

C		Transmitter / Flange temperature max. +90 °C
E		High-temperature transmitter / Flange temp. max. +200 °C
D		Transmitter with plug-in display / Flange temperature max. +90 °C
F		High-temperature transmitter with plug-in display / Flange temp. max. +200 °C

Probe / Process connection

H ■□ – ■■■ – ■

S	*	Mono rod, Ø14 mm, 1.4571 / 1½" BSP / max. 6 m
Z	*	Mono rod, Ø14 mm, 1.4571 / 1½" NPT / max. 6 m
4		Mono rod, Ø14 mm, 1.4571 / 2" TriClamp / max. 6 m
A		Coaxial, 1.4571 / 1" BSP / max. 6 m
B		Coaxial, 1.4571 / 1" NPT / max. 6 m
C	*	Coaxial, 1.4571 / 1½" BSP / max. 6 m
H	*	Coaxial, 1.4571 / 1½" NPT / max. 6 m
S		Coaxial, 1.4571 / 1½" TriClamp / max. 6 m
6		Coaxial, 1.4571 / 2" TriClamp / max. 6 m

* Can be ordered with segmented probe which must be specified in the text of the order. The length of a probe section is 1 m.

Housing

H ■■ – □■■ – ■

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H ■■ – ■□□ – ■

n n	1.0...6.0 m (each 0.1 m), for mono rod / 1.4571
n n	1.0...6.0 m (each 0.1 m), for coaxial / 1.4571
n n	1.0...6.0 m (each 0.1 m), for segmented mono rod / 1.4571
n n	1.0...6.0 m (each 0.1 m), for segmented coaxial / 1.4571

nn = 10...60 : 1.0...6.0 m

Output / Certificates

H ■■ – ■■■ – □

4		4...20 mA + HART®
8		4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
H		4...20 mA + HART® + Relay
T	**	2x 4...20 mA + HART®
U	**	2x 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P – 3 0 0 – 0	Graphic plug-in display module
S A T – 5 0 4 – ■	HART®-USB/Bluetooth® modem
S A K – 3 0 5 – ■	HART®-USB/RS485 modem

Process connections (price information on request)

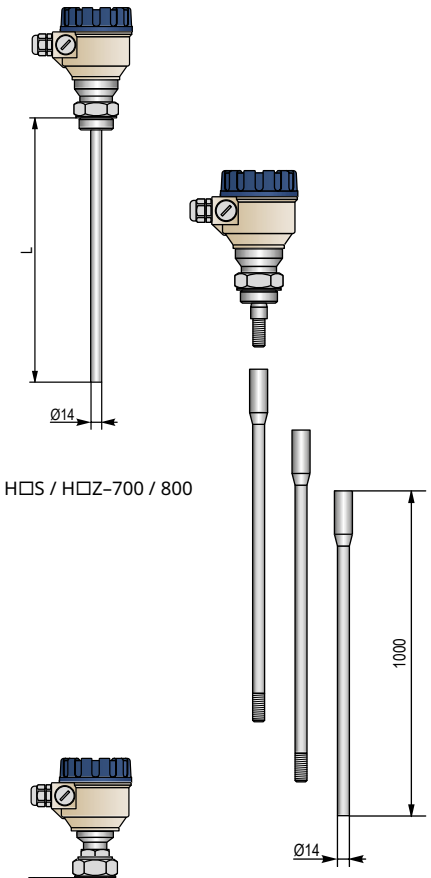
- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (factory default: FPM)

- EPDM
- FFKM

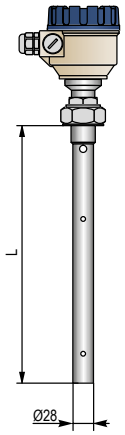
The above process connections and process seals are ordered separately and must be specified in the text part of the order

** Under development

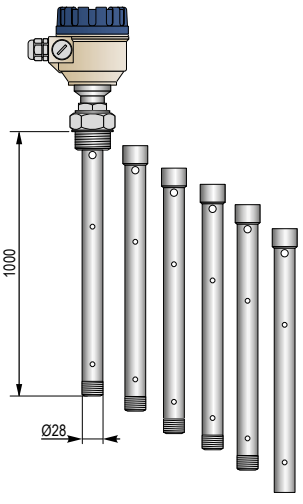


H□S / H□Z–700 / 800

H□S / H□Z–700 / 800
with segmented probe



H□A / H□B / H□C / H□H–700 / 800



H□C / H□H–700 / 800
with segmented probe

Capacitive Level Transmitters

NIVOCAP

NIVOCAP 2-wire capacitive level transmitters are an ideal solution for level measurement of conductive and non-conductive liquids. The device's probe and the reference probe *(which can be either the metal wall of the tank or a separate probe)* operate as opposing plates of a capacitor. Between the plates of this capacitor, the air is replaced by a medium with a higher dielectric constant, changing the capacitance proportionally to the material's level. The incorporated electronic circuitry measures the capacitance difference and converts it to an output signal.

FEATURES

- Maximum 20 m measuring range
- Vertical mounting
- Rod or cable probe versions
- –30…+200 °C process temperature
- Up to 40 bar process pressure
- 32-point linearization table
- Indirect assignment of 0% and 100%
- IP67
- 4…20 mA + HART® output
- PACTware™ compatible
- Ex version
- 5 years warranty

APPLICATIONS

- Level and volume measurement
- Level measurement of conductive and non-conductive materials
- Level measurement of liquids
- For high pressures and high-temperature mediums

CERTIFICATES

- ATEX (Ex ia G)

SAP–202
display

CHR–200

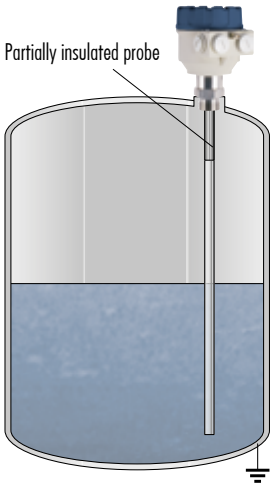
CAF–110

CFR–100

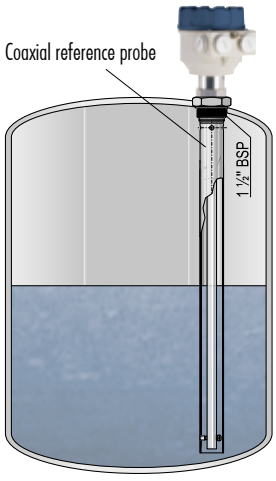
CBC–203–6 Ex

CTK–200

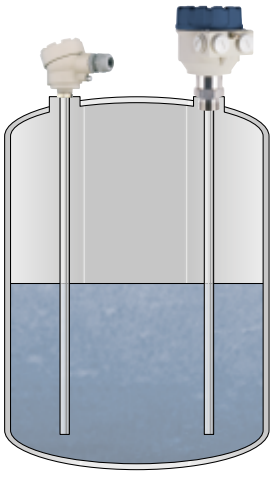
ARRANGEMENTS



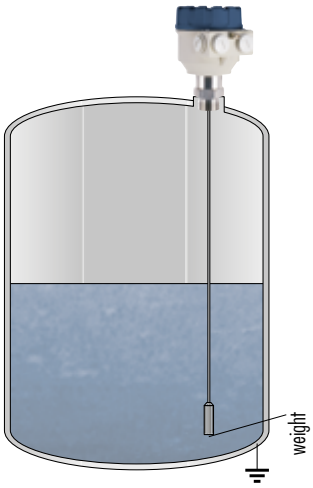
Rod probe
Metal tank and non-conductive medium. The rod probe is partially insulated at the process connection.



Rod probe
With coaxial tube reference probe



Rod probe
With reference rod probe



Cable probe with weight
Metal tank

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тел. 8-800-775-09-57 (звонок бесплатный), +7(351)799-54-26, тел./факс +7(351)211-64-57
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