

MicroTREK

GUIDED MICROWAVE LEVEL TRANSMITTERS
FOR LIQUIDS & SOLIDS



dTSLLevel®

NIVELCO

5 YEARS WARRANTY

dTSLlevel - ELECTRÓNICA

REV. 01.25

MicroTREK HT-700 series guided microwave level transmitter is designed for continuous level and interface measurement of conductive and non-conductive liquids, pulps, and solids. This level transmitter operates based on measuring the transit time of measuring impulse and reflections (*TDR – Time Domain Reflectometry*). The electronics generate microwave pulses which are emitted along the probe with traveling speed of light.

Part of the impulse energy is reflected from the product surface depending on the material. Transit time of the reflected signals is measured and processed by the electronics, and then it is converted to a volume- and level-proportional signal. Reflections depend highly on the medium's dielectric constant ϵ_r , which must be at minimum 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

- The measurement is not affected by temperature, pressure and medium properties (e.g. density, dielectric constant, humidity, etc.)
- Measuring range up to 30 m (100ft)
- Tracking speed: 2000 m/h (555mm/s; 6561ft/hour; 22in/s)
- Accuracy: ± 5 mm (0.197")
- Rod, flexible, or coaxial probes
- Segmented rod probe version
- Lowest $\epsilon_r \geq 1.4$
- Interface measurement (optional)
- Dual current output for interface measurement (optional)
- Plug-in display
- Advanced threshold management
- False echo suppression
- Output Conversion Table (OCT, VMT) with up to 100 point pairs for accurate output linearization
- PACTware™ compatible
- 4...20 mA + HART® output + relay (optional)
- Process temperature range: $-30... +200$ °C ($-22...+400$ °F)
- Highest process pressure: 40 bar (580psi)
- IP67 (NEMA6 equivalent)
- 5 years warranty

CERTIFICATES

- | | |
|---------------------|-------------------------------|
| ■ ATEX (Ex ia G) | ■ INMETRO (Ex ia D) |
| ■ ATEX (Ex ia D) | ■ UKCA Ex (Ex ia G) |
| ■ ATEX (Ex ta/tb D) | ■ UKCA Ex (Ex ia D) |
| ■ IEC Ex (Ex ia G) | ■ UKCA Ex (Ex ta/tb D) |
| ■ IEC Ex (Ex ia D) | ■ FM Clas I, Div. 1 (pending) |
| ■ INMETRO (Ex ia G) | ■ FM Clas I, Div. 2 (pending) |



APPLICATIONS

Mono cable / Mono rod Mono segmented rod	Twin cable	Twin rod	Coaxial pipe
<ul style="list-style-type: none"> ■ Cement, limestone, fly ash, alumina, soot ■ All high-viscosity liquids ■ Mineral powders ■ Clean and contaminated liquids ■ For stilling wells and bypass applications (calibration required) ■ With plastic-coated probe for chemically aggressive substances ■ Slightly conductive foams ■ High-temperature applications 	<ul style="list-style-type: none"> ■ Tank plants with solvents, oil and fuels ■ Water storage tanks ■ Plastic granules ■ For products with low dielectric constant ($\epsilon_r > 1.8$) ■ For all liquids, light granules without any conductive sediments ■ For narrow tanks ■ Where minimum dead zone is requested ■ Mounting close to tank wall is possible 	<ul style="list-style-type: none"> ■ Plastic granules ■ Clean and moderately contaminated liquids ■ Where minimum dead zone is needed ■ For grains and fine powders in small hoppers ■ For small size and narrow tanks ■ For low dielectric media and slightly moving products 	<ul style="list-style-type: none"> ■ Up to 6 m high small vessels and tanks ■ 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 (ϵ_r) 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 (± 0.2 "), if probe length ≥ 10 m (33ft): $\pm 0.05\%$ of the probe length. For solids: ± 20 mm (± 0.75 "), if probe length ≥ 10 m (33ft): $\pm 0.2\%$ of the probe length			
	Resolution	1 mm (0.04")			
Lowest ϵ_r of medium		1.4 (depending on probe version)			
Supply voltage		12 ⁽²⁾ ...36 V DC, nominal 24 V DC, Ex version: 12 ⁽²⁾ ...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 (-22... +194°F); high-temperature version: -30...+200 °C (-22...+400°F) For plastic-coated probes, coated: see "Probe Properties"			
Highest process pressure		40 bar (580psi); with plastic lined flange: max. 25 bar (363psi)			
Ambient temperature		-30...+65 °C (-22...+149°F), with display: -20...+65 °C (-4...+149°F)			
Process connection		Threaded, flanged or sanitary connections (as per order code)			
Ingress protection		IP67 (NEMA6 equivalent)			
Electrical connection		2x M20x1.5 cable glands (for $\varnothing 6... \varnothing 12$ mm diameter cables) and 2x 1/2" NPT conduits Electric connection: Removable screw terminal, max. 1.5 mm ² (15 AWG)			
Electrical protection		Class III			
Housing material		Plastic (PBT)	Painted aluminum	Stainless steel (1.4571, 316Ti equivalent)	
Seal		FPM (Viton [®]), optional: FFKM (Kalrez [®]), EPDM			
Explosion protection		-		See "Ex Information"	
Weight (head unit)		1.3 kg (2.86lb)	22 kg (48.5lb)	3.9 kg (8.6lb)	

⁽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⁾ Stable HART[®] communication can be guaranteed with terminal voltage > 13 V DC.

EX INFORMATION

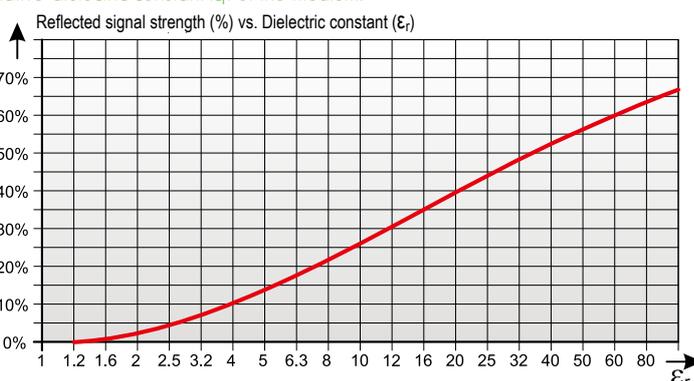
		H00-700-8 Ex / H00-900-8 Ex		H00-700-6 Ex H00-900-6 Ex	H00-700-5 Ex H00-900-5 Ex	H00-700-9 Ex H00-900-9 Ex
		Without probe coating, without display	With coated probe and/or display			
Protection		Ex ia G		Ex ia D	Ex ta/tb D	Ex ta D ⁽⁴⁾
Ex marking ⁽⁵⁾	ATEX	X II 1 GEx ia IIC T6...T3 Ga	X II 1 GEx ia IIB T6...T3 Ga	X II 1 DEx ia IIC T85°C...T180°C Da	X II 1/2 DEx ta/tb IIC T85°C...T180°C Da/Db	X II 1 DEx ta IIC T105°C Da
	IECEX ⁽⁶⁾	Ex ia IIC T6...T3 Ga	Ex ia IIB T6...T3 Ga	Ex ia IIC T85°C...T180°C Da	Ex ta/tb IIC T85°C...T180°C Da/Db	Ex ta IIC T105°C Da
Ex supply voltage and intrinsic safety data		$C_i \leq 25$ nF, $L_i \leq 300$ μ H, $U_i \leq 30$ V, $I_i \leq 100$ mA, $P_i \leq 0.75$ W		$C_i \leq 25$ nF, $L_i \leq 300$ μ H, $U_i \leq 30$ V, $I_i \leq 140$ mA, $P_i \leq 1$ W		$U_i = 30$ VDC, $I_i = 1$ A
Supply voltage		12 ⁽⁷⁾ ...30 V DC				
Electrical connection		2x M20x1.5 metal cable glands, cable outer diameter: $\varnothing 6... \varnothing 12$ mm ($\varnothing 0.23... \varnothing 0.47$ "), wire cross section: maximum 1.5 mm ² (15 AWG)				1.5 mm ² (15 AWG)
Ambient temperature		-30...+65 °C (-22...+149°F), with display: -20...+65 °C (-4...+149°F)				

⁽⁴⁾ Ex ta D protection class devices are available only with a windowless cap.⁽⁵⁾ IEC Ex compliance is optional; must be requested in the order.⁽⁶⁾ In IIC environment SAP-300 graphic display must not be used!⁽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 (ϵ_r) 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 [+68 °F])	84



INTERFACE MEASUREMENT OF LIQUIDS

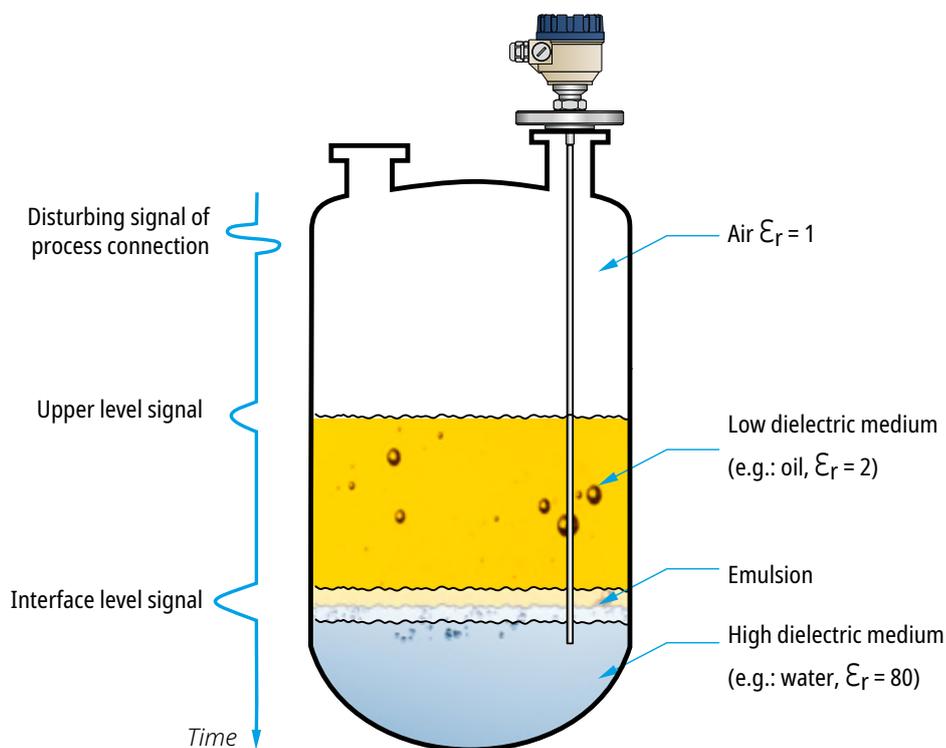
Non-conductive materials are semi-transparent to the microwave signal. Such materials only partially reflect the energy of the microwave signal. The non-reflected part of the emitted measuring signal energy passes through the non-conductive medium and is reflected from the phase boundary of the lower 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 12 cm (4.8in)
- 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 types	Max. measuring range	Dead zone ⁽¹⁾		Process connection	ϵ_r min.
		Upper (t) / lower (b) $\epsilon_r = 80$	Upper (t) / lower (b) $\epsilon_r = 2.4$		
Mono cable $\varnothing 4$ mm ($\varnothing 0.16$ ")	30 m (100ft)	250 mm / 20 mm (10" / 0.79")	350 mm / 100 mm (14" / 4")	1"; 1½ "	2.1
Mono cable $\varnothing 8$ mm ($\varnothing 0.315$ ")				1½ "	
Mono rod $\varnothing 8$ mm ($\varnothing 0.315$ ")	3 m (10ft)		1"		
Mono / segmented rod $\varnothing 14$ mm ($\varnothing 0.6$ ")	6 m (20ft)				
Twin cable $\varnothing 4$ mm ($\varnothing 0.16$ ")	30 m (100ft)	150 mm / 20 mm (6" / 0.79")	300 mm / 100 mm (12" / 4")	1½ "	1.8
Twin rod $\varnothing 8$ mm ($\varnothing 0.315$ ")	3 m (10ft)				
Coaxial pipe $\varnothing 28$ mm ($\varnothing 1.1$ ")	6 m (20ft)	0 mm / 10 mm (0" / 0.4")	0 mm / 100 mm (0" / 4")	1"; 1½ "	1.4
Segmented coaxial pipe $\varnothing 14$ mm ($\varnothing 0.6$ ")				1½ "	1.6
Coated cable $\varnothing 6$ mm ($\varnothing 0.24$ ")	30 m (100ft)	250 mm / 20 mm (10" / 0.79")	350 mm / 100 mm (14" / 4")	1"; 1½ " TriClamp; DN40 Milch, DN50 DN50	2.4
Coated cable $\varnothing 12 / 16$ mm ($\varnothing 0.5$ " / 0.63")	3 m (10ft)				

⁽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).

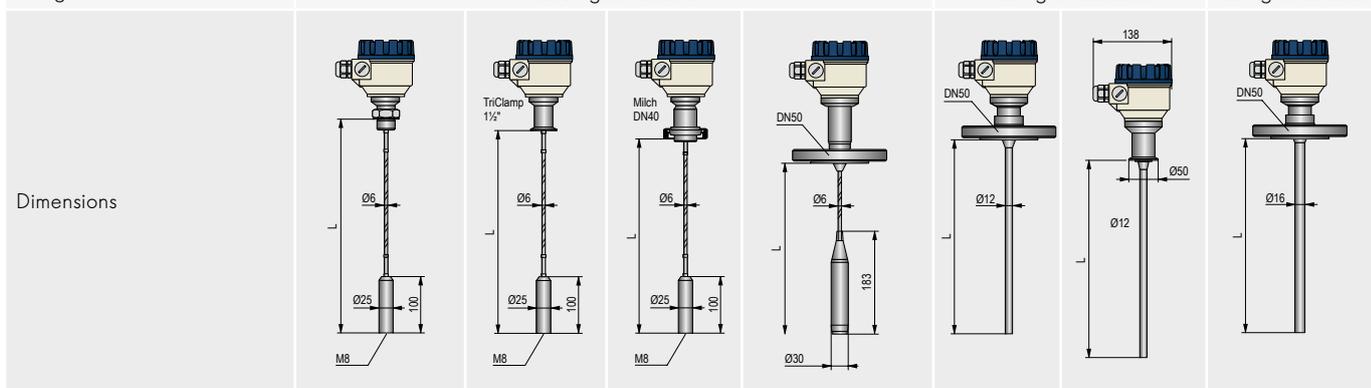
PROBE PROPERTIES

	Probe	$\varnothing 4$ mm cable	Rod	Rod / Segmented rod	$\varnothing 8$ mm cable	2x $\varnothing 4$ mm twin cable	Twin rod	Coaxial
Type		HOK, HOL HOV, HOW	HOR, HOP	HOS, HOZ	HON, HOJ	HOT, HOU	HOD, HOE	HOA, HOB HOC, HOH
Maximum measuring distance		30 m (100ft)	3 m (10ft)	6 m (20ft)	30 m (100ft)		3 m (10ft)	6 m (20ft)
Min. meas. dist. ($\epsilon_r = 80 / \epsilon_r = 2.4$)		250 mm / 350 mm (10" / 14")			150 mm / 300 mm (6" / 12")		0 m	
Lowest ϵ_r of medium		2.1			1.8		1.4	
Sensing area around probe		$\varnothing 600$ mm (24")			$\varnothing 200$ mm (8")		$\varnothing 0$ 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 (AISI 316)	1.4571 (316Ti equivalent)		1.4401 (AISI 316)		1.4571 (316Ti equivalent)	
Probe nominal diameter		4 mm (0.16")	8 mm (0.315")	14 mm (0.6")	8 mm (0.315")	2x 4mm(2x 0.16")	2x 8 mm (0.315")	28 mm (1.1")
Weight		0.12 kg/m (0.08 lb/ft)	0.4 kg/m (0.25 lb/ft)	1.2 kg/m (0.8 lb/ft)	0.4 kg/m (0.25 lb/ft)	0.24 kg/m (0.16 lb/ft)	0.8 kg/m (0.5 lb/ft)	1.3 kg/m (0.85 lb/ft)
Separator material ⁽²⁾		-			PFA, welded on the cable		PTFE-GF25	PTFE
Dimensions								
Weight dimensions		$\varnothing 25 \times 100$ mm ($\varnothing 1" \times 4"$)	-		$\varnothing 40 \times 260$ mm ($\varnothing 1.6" \times 10.4"$)	$\varnothing 40 \times 80$ mm ($\varnothing 1.6" \times 3.15"$)	-	
Weight material		1.4571 (316Ti equivalent)		-		1.4571 (316Ti equivalent)		-

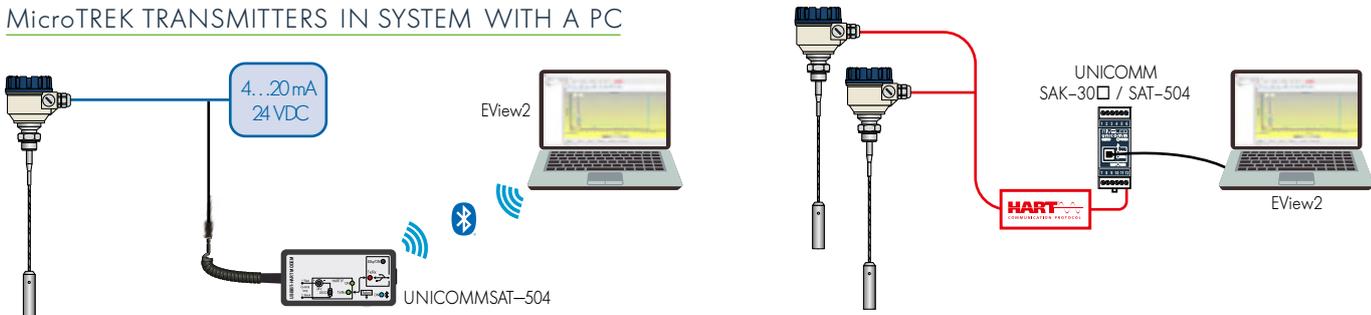
⁽²⁾ There is no separator mounted up to 1.5 m (5 ft) probe length.

COATED PROBE PROPERTIES

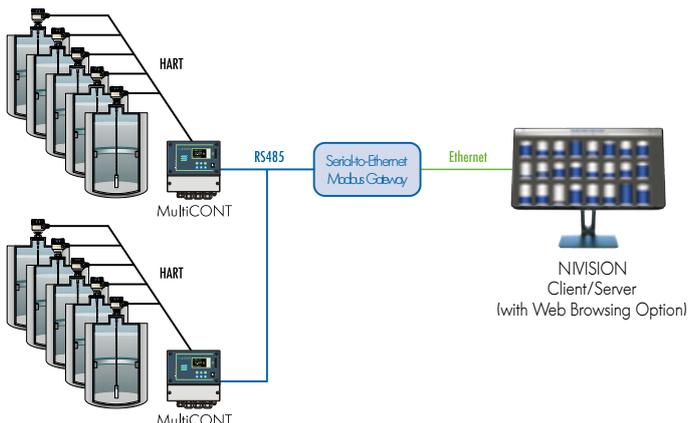
Probe	Ø4 mm (Ø0.16") FEP-coated cable			Ø4 mm (Ø0.16") fully FEP/PFA-coated cable	Fully PFA-coated rod		Fully PP-coated rod
	H□F, H□G	H□X	H□Y	H□M	H□Q	H□O	H□I
Maximum measuring distance	30 m (100ft)				3 m (10ft)		
Min. measuring distance ($\epsilon_r = 80 / \epsilon_r = 2.4$)	250 mm / 350 mm (10" / 14")						
Lowest ϵ_r of medium	2.1						
Sensing area around probe	Ø600 mm (24")						
Process connection	1" BSP; 1" NPT	1½" TriClamp	DN40 Milch	DN50 PN25 flange		1½" TriClamp	DN50 PN25
Highest medium temperature	+200 °C (+392°F)			+150 °C (+302°F)			+60 °C (+140°F)
Probe material	1.4401 (AISI 316)			1.4571 (316Ti equivalent)			
Probe coating	FEP			FEP / PFA		PFA	PP
Probe nominal diameter	6 mm (0.24")			12 mm (0.5")		16 mm (0.63")	
Probe coating	-			PFA		PP	
Weight material	1.4571 (316Ti equivalent)			1.4571 (316Ti equivalent) + PFA coating		-	
Weight dimensions	Ø25 × 100 mm (Ø1"×4")			-			
Weight	0.16 kg/m (0.1lb/ft)			0.5 kg/m (0.33lb/ft)		0.6 kg/m (0.4lb/ft)	



MicroTREK TRANSMITTERS IN SYSTEM WITH A PC



Instruments with HART® output can be connected to a PC interfaced by a UNICOMMHART®-USB modem, or can be connected wirelessly with the SAT-504 HART®-Bluetooth® modem. Up to 15 standard instruments can be connected to a single HART® multidrop loop. All measured values can be visualized and/or the instruments can be remote programmed via digital communication. Applicable software: EView2 configuration software or NIVISION process visualization software.



MicroTREK TRANSMITTERS IN HART® MULTIDROP LOOP

The MultiCONT can handle up to of 15 standard (or 4 Ex certified) MicroTREK HART® capable GWR transmitters. The digital information is processed, displayed and can be transmitted to a PC via an RS485 communication line if required. Remote programming of transmitters is also available. Visualization on a PC can be accomplished with NIVISION process visualization software.

CABLE PROBE VERSIONS

Type		Probe / Process connection		Probe length ⁽⁶⁾			Output / Ex					
Code		Code		Code	Probe length ⁽⁶⁾	Code	Code					
Transmitter ⁽²⁾	T	Mono cable, Ø4 mm (Ø0.16"), 1.4401	1" BSP	K	0	0m	0m	0	4...20 mA +HART ⁽⁸⁾	Code	4	
High-temperature transmitter ⁽³⁾	H		1" NPT	L	1	10 m	1m	1			Ex ta/tbD ⁽⁷⁾	5
Transmitter + display ⁽²⁾	B		1½" BSP	V	2	20 m	2m	2			Ex iaD ⁽⁷⁾	6
High-temperature transmitter + display ⁽³⁾	P		1½" NPT	W	3	30 m	3m	3			Ex iaG ⁽⁸⁾	8
With interface function			1½" TriClamp	1			4m	4			Ex taD ⁽⁷⁾	9
Transmitter ⁽²⁾	C	Mono cable, Ø8 mm (Ø0.315"), 1.4401	2" TriClamp	2		5m	5	+ Relay	H	Code	U	
High-temperature transmitter ⁽³⁾	E		1½" BSP	N		6m	6	Ex iaG ⁽⁸⁾	T			
Transmitter + display ⁽²⁾	D	Twin cable, 2x Ø4 mm (Ø0.16"), 1.4401	1½" NPT	J		7m	7			Code		
High-temperature transmitter + display ⁽³⁾	F		1½" BSP	T		8m	8					
Housing		Mono cable, Ø4 mm (Ø0.16"), FEP-coated ⁽⁹⁾										
Painted aluminum	7		1" BSP	F								
Plastic, PBT, fiberglass-reinforced ⁽⁴⁾	8		1" NPT	G								
Stainless steel	9		TriClamp 1½"	X								
			DN40 Milch	Y								
			Mono cable, Ø4 mm (Ø0.16"), PFA/FEP fully coated / DN50, PN25, 1.4571 flange, PFA/FEP lining		M							

⁽¹⁾For explosion-proof devices, the article number is followed by "Ex" on the data plate!
⁽²⁾Flangetemperature max. +90 °C(+194 °F).
⁽³⁾Flangetemp. max. +200 °C(+400 °F) (M' type only upto +150 °C(+302 °F)). ⁽⁴⁾Ex version not available.
⁽⁵⁾Only the cable probe is coated. ⁽⁶⁾Max. 30 m (98.5 ft) probe length.
⁽⁷⁾ Only for uncoated probe versions. ⁽⁸⁾ Plastic-coated probes Ex iaII B only.
⁽⁹⁾ Only for interface measurement types, under development.

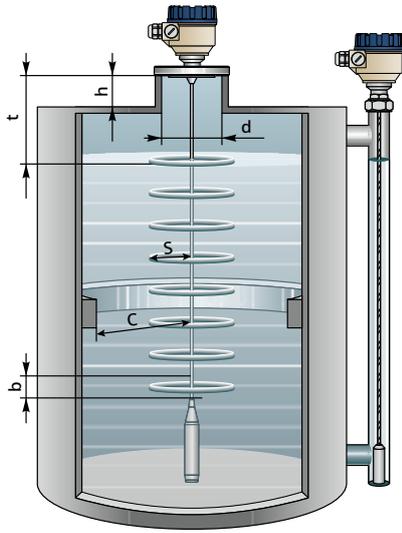
Ø8MM(Ø0.315") ROD PROBE VERSIONS

Type		Probe / Process connection		Probe length ⁽⁶⁾			Output / Ex					
Code		Code		Code	Probe length ⁽⁶⁾	Code	Code					
Transmitter ⁽²⁾	T	Mono rod, Ø8 mm (Ø0.315") 1.4571	1" BSP	R	0	0m	0m	0	4...20 mA + HART ⁽⁸⁾	Code	4	
High-temperature transmitter ⁽³⁾	H		1" NPT	P	1	1 m	0.1 m	1			Ex ta/tbD ⁽⁷⁾	5
Transmitter + display ⁽²⁾	B		1½" TriClamp	3	2	2m	0.2 m	2			Ex iaD ⁽⁷⁾	6
High-temperature transmitter + display ⁽³⁾	P	Twin rod, 1.4571	1½" BSP	D	3	3m	0.3 m	3	Ex iaG ⁽⁸⁾	8	Code	9
With interface function			1½" NPT	E	4	4m	0.4 m	4	+ Relay	H		
Transmitter ⁽²⁾	C	Mono rod PFA-coated	1½" TriClamp PFA-coated	O	5	5m	0.5 m	5	Ex iaG ⁽⁸⁾	U	Code	T
High-temperature transmitter ⁽³⁾	E		2" TriClamp PFA-coated	7	6	6m	0.6 m	6				
Transmitter + display ⁽²⁾	D		DN50, PN25, 1.4571 flange, PFA lining	Q		0.7 m	7					
High-temperature transmitter + display ⁽³⁾	F	Mono rod PP-coated / DN50, PN25, 1.4571 flange, PP lining ⁽⁵⁾				0.8 m	8					
Housing							0.9 m	9				
Painted aluminum	7	⁽¹⁾ For explosion-proof devices, the article number is followed by "Ex" on the data plate! ⁽²⁾ Flangetemperature max. +90 °C(+194 °F). ⁽³⁾ Flangetemp. max. +200 °C(+400 °F) (upto +150 °C(+302 °F) with plastic-coated probes). ⁽⁴⁾ Ex version not available. ⁽⁵⁾ Upto a maximum flange temperature of +60 °C(+140 °F). ⁽⁶⁾ Max. 3 m(10 ft) probe length. ⁽⁷⁾ Only for uncoated probe versions. ⁽⁸⁾ Plastic-coated probes Ex iaII B only. ⁽⁹⁾ Only for interface measurement types, under development.										
Plastic, PBT, fiberglass-reinforced ⁽⁴⁾	8											
Stainless steel	9											

Ø14 MM ROD (Ø0.6") OR COAXIAL PROBE VERSIONS

Type		Probe / Process connection		Probe length ⁽⁶⁾			Output / Ex					
Code		Code		Code	Probe length ⁽⁶⁾	Code	Code					
Transmitter ⁽²⁾	T	Mono rod, Ø14 mm (Ø0.6"), 1.4571	1½" BSP ⁽⁵⁾	S	0	0m	0m	0	4...20 mA + HART ⁽⁸⁾	Code	4	
High-temperature transmitter ⁽³⁾	H		1½" NPN ⁽⁵⁾	Z	1	1 m	0.1 m	1			Ex ta/tbD	5
Transmitter + display ⁽²⁾	B		2" TriClamp	4	2	2m	0.2 m	2			Ex iaD	6
High-temperature transmitter + display ⁽³⁾	P	Coaxial probe, 1.4571	1" BSP	A	3	3m	0.3 m	3	Ex iaG	8	Code	9
With interface function			1" NPT	B	4	4m	0.4 m	4	+ Relay	H		
Transmitter ⁽²⁾	C		1½" BSP ⁽⁵⁾	C	5	5m	0.5 m	5	Ex iaG	U		
High-temperature transmitter ⁽³⁾	E		1½" NPT ⁽⁵⁾	H	6	6m	0.6 m	6				
Transmitter + display ⁽²⁾	D		1½" TriClamp	5		0.7 m	7					
High-temperature transmitter + display ⁽³⁾	F	2" TriClamp	6		0.8 m	8						
Housing		Mono rod PP-coated / DN50, PN25, 1.4571 flange, PP lining ⁽⁵⁾				0.9 m	9					
Painted aluminum	7	⁽¹⁾ For explosion-proof devices, the article number is followed by "Ex" on the data plate. ⁽²⁾ Flangetemperature max. +90 °C(+194 °F). ⁽³⁾ Flange temperature max. +200 °C(+400 °F). ⁽⁴⁾ Ex version not available. ⁽⁵⁾ Can be ordered with segmented probe which must be specified in the text of the order. The length of the probe section is 1 m (3.3 ft). ⁽⁶⁾ Max. 6 m (20 ft) probe length. ⁽⁷⁾ Only for interface measurement types, under development.										
Plastic, PBT, fiberglass-reinforced ⁽⁴⁾	8											
Stainless steel	9											

INSTALLATION

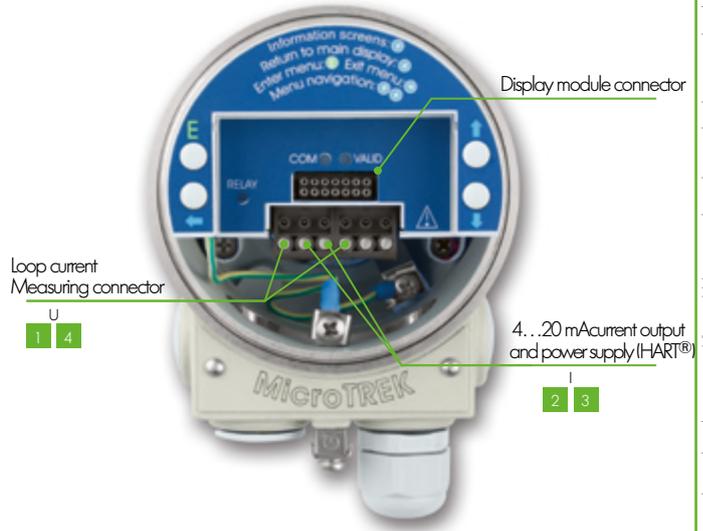


Except the plastic coated and the coax types the probes can be removed from the head unit and replaced by the user.

C = minimum distance from the internal disturbing objects. Objects that are parallel to probe do not disturb the measurement.

Mono Probe	S > 300 mm (12")	h ≤ d
Twin Probe	S > 100 mm (4")	t = upper dead zone
Coaxial Probe	S = 0 mm	b = lower dead zone

WIRING



ACCESSORIES

Plug-in graphical display module	SAP-300-0
HART®-USB modem for remote programming with PC	UNICOMM SAT-504-□
HART®-USB/RS485 modem for remote programming with PC, DIN rail mountable	UNICOMM SAK-305-□
HART®-USB/Bluetooth® modem for remote programming	UNICOMM SAT-504-2
eLink unit for software/firmware updates for datalogger reading	UNICOMM SAT-506-□
Multichannel process controller and display unit	MultiCONT PRW-2□□-□
24 V DC power supply, DIN rail mountable	NIPOWER PPK-431-□
Intrinsically safe isolator module, DIN rail mountable	UNICONT PGK-301-□ Ex
EView2 configuration software for remote programming with PC	FREE download



HHH / HHB-7□□-□

PROCESS CONNECTIONS⁽⁷⁾

DIN and ANSI flanges	MFT-□□□-□
DN40 Pipe coupling (DIN 11851)	
EPDM FFKM seals	

⁽⁷⁾The above process connections and special seals are ordered separately and must be specified in the text part of the order.

MicroTREK
- CONFIGURATION &
REQUEST FOR QUOTE

#NivelcoDevices
The general tolerances on the dimensions shown on the outline drawings is ±1 mm. We reserve the right to make changes to the dimensions.