NIVETEC Instrumentação e Controle

Catálogo

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EchoTREK

ULTRASONIC LEVEL TRANSMITTERS
FOR LIQUIDS

NIVETEC

NIVELCO

LEVEL TRANSMITTERS

EchoTREK SE–300 high performance level transmitters represent more than four decades of NIVELCO's experience in ultrasonic level measurement. Whether measuring level of tanks, sumps or open channel flows, EchoTREK transmitters are the best choice. Installed on the top of the tank above the liquid surface, the transmitter produces standard analog signal proportional to the liquid level that is transmitted via HART® as well. The EchoTREK is an intelligent compact ultrasonic level transmitter with 4…20 mA output and optional HART® data. An optional removable plug-in display allows local reading. Programming is conducted through four keys. Both the keys and the display are protected by a removable cover.
EchoTREK transmitters use HART 7 compatible communication and can be used in HART multidrop systems connected to a **MultiCONT** process controller/display or a PC via a UNICOMM HART USB/RS485 modem or similar. EchoTREK transmitters are available with ranges up to 25 meters *(82 ft)*, making them suitable for a wide range of applications. These ultrasonic level transmitters utilize NIVELCO's SenSonic transducers with a full 5…7° beam angle, coupled to intelligent electronics with QUEST+ advanced signal processing algorithm.

FEATURES

- 2 or 4-wire compact level transmitter
- Non-contact level measurement
- Up to 25 m *(82 ft)* measuring distance
- Narrow (5°) beam angle
- Full temperature compensation
- IP67 *(NEMA 6 equivalent)*
- Plug-in display unit
- HART® communication
- PACTware™ compatible
- Ex versions
- 5 years warranty

APPLICATIONS

- For most liquids, including flammable liquids
- Open-channel flow metering
- Wide application range from wastewater to aggressive chemicals
- Level measurement in basins, wells, sumps, lift-stations
- Measuring hydrocarbons, acids, chemically aggressive liquids, any water-based media

SG□–380–4

CERTIFICATES

- ATEX (Ex ia G)
- INMETRO (Ex ia G)
- UKCA Ex (Ex ia G)

TECHNICAL DATA

		SE / SG–300	ST / SB–400
System		2-wire	4-wire
Accuracy[1]		± (0.2% of measured distance +0.05% of range)	
Resolution		Depending on measured distance: <2 m: 1 mm; 2…5 m: 2 mm; 5…10 m: 5 mm; >10 m: 10 mm (< 6.56 ft: 0.04"; 6.56…16.4 ft: 0.075"; 16.4…32.8 ft: 0.2"; > 32.8 ft: 0.4")	
Output	Analog	4…20 mA	
	Relay[2]	SPDT, 30 V DC, 1 A DC	#1 SPDT, 250 V AC, 3 A AC1 #2 SPDT, 30 V DC, 1 A DC
	Display	SAP–200: 6-digit plug-in display	
	Digital communication	HART®	
Ambient temperature		With plastic housing: –25…+70 °C (–13…+158 °F); with metal housing: –30…+70 °C (–22…+158 °F); with display: –25…+70 °C (–13…+158 °F)	
		Ex version: see "Ex Information"	
Process temperature		See Transducer Details / Ex version: see "Ex Information"	
Pressure[3] (absolute)		0.5…3 bar (7.5…43.5 psi), with stainless steel transducer: 0.9…1.1 bar (13…16 psi)	
Supply voltage		12[4]…36 V DC / 48…720 mW	85…255 V AC / 2 VA 20…28 V AC/DC / 3 VA / 3 W
Electrical protection		DC power supply: Class III	
			AC power supply: Class I (metal housing), Class II (plastic housing)
Housing		Plastic (PBT), painted aluminum or stainless steel	Plastic (PBT), painted aluminum
Seal		In the case of a PP transducer: EPDM; all the other transducers: FPM (Viton®)	
Electrical connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6…12 mm (Ø0.25…0.45") (shielded cable is recommended), wire cross section: 0.5…1.5 mm² (22…15AWG)	
Ingress protection		Transducer: IP68 (NEMA 6P equivalent), Housing: IP67 (NEMA 6 equivalent)	
Explosion protection		see "Ex Information"	–
Weight		1.3…2.3 kg (2.85…5 lb)	

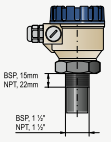
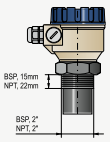
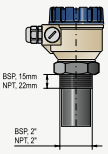
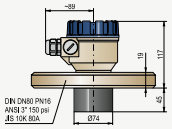
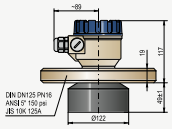
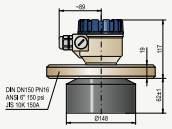
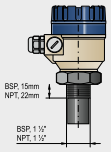
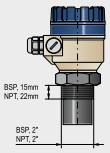
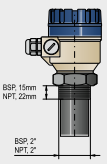
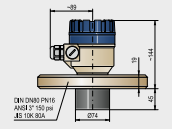
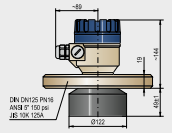
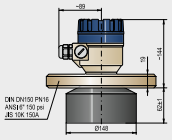
[1] Under optimal conditions and constant transducer temperature.
[2] 4-wire EchoTREK transmitters have two parallel operating relays.
[3] For pressures below 0.5 bar (7.25 psi), ask NIVELCO.
[4] At 12 V, only partial operation is possible. For unrestricted, reliable operation, 13.4 V is required.

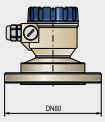
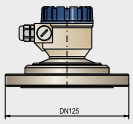
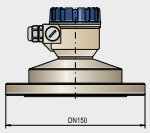
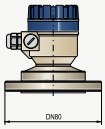
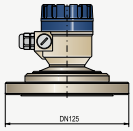
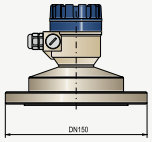
Ex INFORMATION

SE / SG–300		
Protection	Intrinsic safety	
Ex marking (ATEX)	⟨Ex⟩ II 1 G Ex ia IIB T6…T4 Ga	
Intrinsic safety data	C_i ≤ 15 nF, L_i ≤ 200 µH, U_i ≤ 30 V, I_i ≤ 140 mA, P_i ≤ 1 W	
Ambient temperature	plastic housing	–20…+70 °C (–4…+158 °F)
	metal housing	–30…+70 °C (–22…+158 °F)
	with display	–25…+70 °C (–13…+158 °F)
Process temperature	PP transducer	–20…+70 °C (–4…+158 °F)
	PVDF transducer	–20…+80 °C (–4…+176 °F)
	PTFE transducer	–30…+90 °C (–22…+194 °F)
	stainless steel transducer	–30…+100 °C (–22…+212 °F)
Electrical connection	2× M20×1.5 metal cable glands	

SEV–390–8 Ex
+ SFA–3☐6

TRANSDUCER DETAILS

	S☐☐–39 / 49	S☐☐–38 / 48	S☐☐–37 / 47	S☐☐–36 / 46	S☐☐–34 / 44	S☐☐–32 / 42
Beam angle	6°	5°	7°	5°		7°
Transducer material	PP / PVDF					
EchoTREK SE / SG 2-wire						
EchoTREK ST / SB 4-wire						
Process connection	1½" BSP / NPT	2" BSP / NPT		DN80 flange	DN125 flange	DN150 flange
Maximum measuring range[1]	4 m (13 ft)	6 m (19.7 ft)	8 m (26 ft)	10 m (32.8 ft)	15 m (49.2 ft)	25 m (82 ft)
Minimum measuring range[1]	0.2 m (7.9")	0.25 m (9.8")	0.35 m (13.8")		0.45 m (17.7")	0.6 m (23.6")
Process temperature	–30…+90 °C (–22…+194 °F)					
Recommended applications	Small vessels with 1½" or 2" process connection			Small vessels with flange	Medium-sized vessels with flange	Tall vessels with flange

Transducer material	PTFE			Stainless steel		
Maximum measuring range[1]	3 m (9.8 ft)	5 m (16.4 ft)	6 m (19.7 ft)	7 m (23 ft)	12 m (39.4 ft)	15 m (49.2 ft)
Minimum measuring range[1]	0.25 m (9.8")		0.35 m (13.8")	0.4 m (15.7")	0.55 m (21.6")	0.65 m (25.6")
Process temperature	–30…+90 °C (–22…+194 °F)			–30…+100 °C (–22…+212 °F) (CIP +120 °C for up to 2 hours)		
EchoTREK S☐S / S☐M 2-wire						
EchoTREK S☐S / S☐M 4-wire						

[1] *Under optimal conditions and constant transducer temperature.*

S☐T–490–4

NIVELCO

ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

2-wire version

EchoTREK S■■– 3■■–■[1]

Version	Code
Transmitter	E
Transmitter + display	G

Transducer material	Code
Aluminum housing	
PP	A
PVDF	B
PTFE	T
Stainless steel	S
Plastic housing	
PP	P
PVDF	V
PTFE	F
Stainless steel[2]	M
Stainless steel housing	
PP	K
PVDF	W
PTFE	L
Stainless steel	N

Range / Frequency	Code
0.4…10 m (16"…33 ft) / 60 kHz (flange size: DN80)	6
0.45…15 m (18"…50 ft)/ 40 kHz (flange size: DN125)	4
0.6…25 m (24"…82 ft) / 20 kHz (flange size: DN150)	2
0.2…4 m (8"…13 ft) / 80 kHz (only for 1½" process connection)	9[5]
0.25…6 m (10"…20 ft) / 80 kHz (only for 2" process connection)	8[4]
0.35…8 m (14"…26 ft) / 60 kHz (only for 2" process connection)	7[3]
Stainless steel transducer	
0.4…7 m (16"…23 ft)/ 60 kHz (flange size: DN80)	6
0.55…12 m (21.5"…40 ft) / 40 kHz (flange size: DN125)	4
0.65…15 m (25.5"…50 ft) / 20 kHz (flange size: DN150)	2[2][6]

Process connection	Code
BSP tread	0
NPT tread	N
PP DIN flanges (PN16 size)	
DN80	2
DN100	3
DN125	4
DN150	5
DN200	6
PP ANSI flanges (150 psi size)	
3" FF	A
4" FF	B
5" FF	C
6" FF	D
8" FF	E
PP JIS flanges (10K size)	
80A	G
100A	H
125A	P
150A	R
200A	S
With mounting brackets (powder-coated steel)	
200 mm (8")	K
500 mm (20")	L
700 mm (28")	M

Output / Certificates			Code
Without data logger	4…20 mA		2
		+ HART®	4
		Ex ia G	6
		HART® / Ex ia G	8
		Relay	R
		HART® + Relay	H
With data logger			1
		HART®	3
		Ex ia G	5
		HART® / Ex ia G	7
		Relay	L
		HART® + Relay	A

[1] For explosion-proof devices, the article number is followed by "Ex" on the data plate.
[2] Ex version not available.
[3] With PTFE transcuder: 6 m (20 ft).
[4] With PTFE transcuder: 5 m (16.5 ft).
[5] With PTFE transcuder: 3 m (10 ft).
[6] With stainless steel sensor: 15 m (50 ft).

4-wire version

EchoTREK S■■– 4■■–■[1]

Version	Code
Transmitter	T
Transmitter + display	B

Transducer material	Code
Aluminum housing	
PP	A
PVDF	B
PTFE	T
Stainless steel	S
Plastic housing	
PP	P
PVDF	V
PTFE	F
Stainless steel[2]	M

Range / Frequency	Code
0.35…10 m (14"…33 ft) / 60 kHz (flange size: DN80)	6
0.45…15 m (18"…50 ft) / 40 kHz (flange size: DN125)	4
0.6…25 m (24"…82 ft) / 20 kHz (flange size: DN150)	2
0.35…8 m (14"…26 ft) / 60 kHz (only for 2" process connection)	7[3]
0.25…6 m (10"…20 ft) / 80 kHz (only for 2" process connection)	8[4]
0.2…4 m (8"…13 ft) / 80 kHz (only for 1½" process connection)	9[5]
Stainless steel transducer	
0.4…7 m (16"…23 ft) / 60 kHz (flange size: DN80)	6
0.55…12 m (21.5"…40 ft) / 40 kHz (flange size: DN125)	4
0.65…25 m (25.5"…82 ft) / 20 kHz (flange size: DN150)	2[2][7]

Process connection	Code
BSP tread	0
NPT tread	N
PP DIN flanges (PN16 size)	
DN80	2
DN100	3
DN125	4
DN150	5
DN200	6
PP ANSI flanges (150 psi size)	
3" FF	A
4" FF	B
5" FF	C
6" FF	D
8" FF	E
PP JIS flanges (10K size)	
80A	G
100A	H
125A	P
150A	R
200A	S
With mounting brackets (powder-coated steel)	
200 mm (8")	K
500 mm (20")	L
700 mm (28")	M

Supply voltage / Output			Code
85…255 V AC	4…20 mA + 2× relay (DPDT)[8]		1
		HART®	3
		HART® + Logger	G
		Logger	K
24 V AC/DC			2
		HART®	4
		HART® + Logger	H
		Logger	L

[1] For explosion-proof devices, the article number is followed by "Ex" on the data plate.
[2] Ex version not available.
[3] With PTFE transcuder: 6 m (20 ft).
[4] With PTFE transcuder: 5 m (16.5 ft).
[5] With PTFE transcuder: 3 m (10 ft).
[7] With stainless steel sensor: 15 m (50 ft).
[8] Two simultaneously operating relays.

EchoTREK S–300/400 – CONFIGURATION & REQUEST FOR QUOTE

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