

HART – PROFIBUS

EchoTREK

ULTRASONIC LEVEL TRANSMITTERS



INATEC

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OUR PROFESSION IS YOUR LEVEL

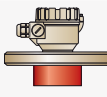
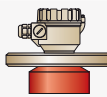
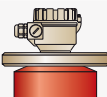
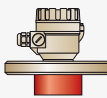
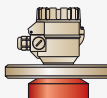
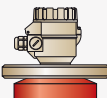
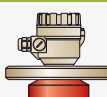
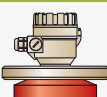
LEVEL TRANSMITTERS

EchoTREK LEVEL TRANSMITTERS FOR LIQUIDS

MAIN FEATURES

- Max. 25 m measuring range
- Digital communication
- Power relay output for control and alarm
- Full temperature compensation
- From water through chemical applications
- Complete open channel flow metering package
- 32 point linearization
- ATEX approval
- Data-logging facility. The data logger incorporated in the two-wire EchoTREK can store 10.000 sets of data. Recording can be triggered by a specific event or by time. The EchoTREK holds data available for downloading it via HART protocol as long as power is on, but retains data without power for one week.
- IrDA communication port on the programming module (Infrared communication for the data-logger)

SPECIFICATIONS

Type	SE/SG-39□-□	SE/SG-38□-□	SE/SG-37□-□	SE/SG-36□-□	SE/SG-34□-□	SE/SG-32□-□
EchoTREK level transmitters for liquids with plastic transducers (2-wire)						
Type	ST/SB-39□-□	ST/SB-38□-□	ST/SB-37□-□	ST/SB-36□-□	ST/SB-34□-□	ST/SB-32□-□
EchoTREK level transmitters for liquids with plastic transducers (4-wire)						
Type	ST/SB-49□-□	ST/SB-48□-□	ST/SB-47□-□	ST/SB-46□-□	ST/SB-44□-□	ST/SB-42□-□
EchoTREK level transmitters for liquids with plastic transducers (4-wire with 2 relays)						
Application	Small vessels with 1 ½" process connection	Small vessels with 2" process connection		Small vessels with flange	Mid-size vessels with flange	Tall vessels with flange
Max. measuring range	4 m / PTFE 3 m	6 m / PTFE 5 m	8 m / PTFE 6 m	10 m	15 m	25 m
Min. measuring range	0,2 / PTFE 0,25 m	0,25 m	0,35 m	0,35 m	0,45 m	0,6 m
Total beam angle	6°	5°	7°	5°	5°	7°
Process connection	1 ½" BSP / NPT	2" BSP / NPT	2" BSP / NPT	DN80 flange	DN125 flange	DN150 flange
Sensor material	PP , PVDF or PTFE			PP or PVDF		
Housing material	Flame retardant plastic or powder coated aluminium					
Accuracy*	± (0.2% of measured distance + 0.05% of range)					
Ingress protection	Sensor: IP 68 Housing: IP 67					
Process temperature	– 30°C ... + 90°C					
Output	SE/SG-3	4...20 mA max. 600 ohm, HART, Relay (SPDT) 30V DC, 1A DC				
	ST/SB-3	4...20 mA max. 600 ohm, HART, Relay (SPDT) 250V AC, 3A AC1, RS485				
	ST/SB-4**	4...20 mA max. 600 ohm, HART, Relay 1 (SPDT) 250V AC, 3 A AC1, Relay 2 (SPDT) 30 V DC, 1 A DC				
Power supply	SE/SG-3	12...36 V DC / 48 ...720 mW				
	ST/SB-3	85...255 V AC / 6 VA or 11,4...40 V DC / 3,6 W and 11,4...28 V AC / 4 VA				
	ST/SB-4	85...255 V AC / 2 VA or 20...28 V AC/DC / 3 VA / 3 W				
Electrical connection	Standard version: 2 x M20x1,5 plastic cable gland: Cable: Ø6 ... 12 mm Ex version: 2 x M20x1,5 metal cable gland: Cable: Ø7 ... 13 mm Wire cross section: 0,5 ... 1,5 mm²					
ATEX approval	ATEX  II 1 G EEx ia IIB T6 (only for 2-wire)					–

* Under optimum conditions and stabilized transducer temperature

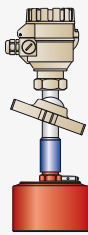
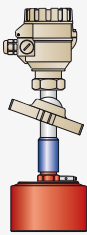
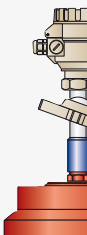
** Two parallel operating relays

Type	SQS-36□-□ SQM-36□-□	SQS-34□-□ SQM-34□-□	SQS-32□-□ SQM-32□-□
EchoTREK transmitters with stainless steel flush face transducers for liquids (2 or 4 wire)*			
Max. measuring range	7 m	12 m	15 m
Min. measuring range	0,4 m	0,55 m	0,65 m
Process connection	DN80 flange	DN125 flange	DN150 flange
Sensor material	Stainless Steel		
Housing material	Flame retardant plastic or powder paint coated aluminium		
Process temperature	-30°C ... +100°C (CIP 120°C for max. 2 hours)		

* Further specifications are identical with those of plastic transducers

EchoTREK ultrasonic transmitters offer the best in liquid level measurement in a compact simple package. Developed using the established SenSonic range of Narrow beam angle pulse echo transducers, EchoTREK units are available with measurement ranges up to 25 meters - with standard plastic, PTFE or stainless steel sensor faces. Installed on the tank roof, or above the liquid level surface to be measured, the transmitter gives an analogue output proportional to liquid level. Initial set-up is achieved using the simple plug-in display module: then the intelligent QUEST+ process adaptive signal processing software system ensures that the electronics identifies and validates the liquid surface signal, giving reliable level monitoring.

EchoTREK LEVEL TRANSMITTERS FOR SOLIDS (4-WIRE)

Type	STD/SBD-34□-□	STD/SBD-33□-□	STD/SBD-31□-□
EchoTREK transmitters for solids (four-wire)			
Application	Monitoring of small tanks, chutes, conveyor belts with narrow measuring range	Powders, powdery granules with narrow / medium measuring range. non-powdery granules with medium measuring range	Powders, powdery granules, non-powdery granules with wide measuring range
Max. measuring range	15 m	30 m	60 m
Min. measuring range	0,5 m	0,6 m	1 m
Total beam angle	5°		
Process connection	Flange with aimer		
Sensor material	Plastic or aluminium sensor with foam facing		
Housing material	Paint coated aluminium		
Accuracy *	± (0.2% of measured distance + 0.05% of range)		
Ingress protection	Sensor: IP 65 Housing: IP 67		
Process temperature	-30°C ... + 75°C		
Output	4...20 mA max. 600 ohm, HART, Relay (SPDT) 250V AC 3A AC1, RS485		
Power supply	85...255 V AC / 6,8 VA or 11,4...40 V DC / 4,1 W and 11,4...28 V AC / 4,6 VA		
ATEX approval	ATEX II 1/2 D IP65 T130°C		

* Under optimum conditions and stabilized transducer temperature

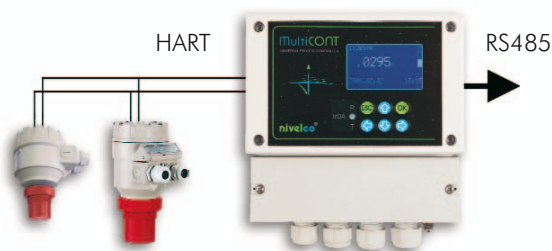
A surprise from NIVELCO - the experts in solids level measurement. EchoTREK compact level transmitters featuring SenSonic narrow beam angle transducers are offered for solids level monitoring - where previously only more complex, two part systems have performed. With the high efficiency SenSonic transducers, giving superb signal transmission, plus the QUEST+ software, using advanced process adaptive signal processing for reliable echo monitoring, EchoTREK units overcome filling noise, dusting and irregular surface formations in most cases to give a high performance, compact, powder and solids level measurement transmitter.

ECHOTREK SELECTION CHART

EchoTREK	Liquids			Solids
	SE/SG-300	ST/SB-300	ST/SB-400	STD/SBD-300
Magnetic programming	-	■	-	-
Relay	■	■	■	■
HART	■	■	■	■
RS485	-	■	-	■
Ex ia	■	-	-	-
Ex D	-	-	-	■
IrDa	■	-	■	-
Logger	■	-	■	-
Display	SAP-200	SAP-100	SAP-200	SAP-100

ECHOTREK IN MULTI-POINT SYSTEMS

The MULTICONT receives digital data from a maximum of 15 EchoTREK transmitters featuring HART communication then processes, displays or, if needed, transmits them to a PC via RS485 output. If visualization is needed, Nivelco's NIVISION software offers a solution.



MAIN FEATURES

- Measuring range up to 60m
- Power relay output for control and alarm
- Possibility of metering even during filling
- Full temperature compensation
- Narrow beam, highly efficient transducers
- Spurious echo rejection
- Dust-Ex approval



EchoTREK measures the level of any powder or free flowing solid, even under difficult circumstances - such as dust clouds caused by pneumatic filling, or constantly varying and uneven material surfaces. Simple to install and commission, a built-in aiming device aids initial setting up on the tank roof. EchoTREK offers a unique cost effective transmitter solution for single as well as multi-vessel applications.

ECHOTREK IN SYSTEMS WITH PC

Multichannel application with MODEM and PC
Using a PC and HART Modem, it is possible to create your own multi-drop HART network, where the PC displays all EchoTREK measurement data and also allows re-programming of the units as necessary. In this way the outputs - derived from the displayed data - can be programmed via the PC, which acts as the master. A maximum of 15 transmitters can be connected to one HART modem and Nivelco's EView configuration or NIVISION process visualization software can be applied.

ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

EchoTREK compact transmitters for liquids

EchoTREK S ■ ■ ■ - 3 ■ ■ ■ - ■¹

Type	Code	Sensor / Housing mat.	Code	Measuring range ²	Code	Output / Power Supply	Code
4-wire transmitter	T	PP / Aluminium	A	25 m	2	4...20 mA / Relay / 85-255 V AC	1
		PVDF / Aluminium	B	15 m	4	4...20 mA / Relay / 24 V AC/DC	2
4-wire transmitter w. local indicator	B	PTFE / Aluminium	T	10 m	6	4...20 mA / HART / Relay / 85-255 V AC	3
		St. st. / Aluminium	S	8 m	7	4...20 mA / HART / Relay / 24 V AC/DC	4
2-wire transmitter	E	PP / Plastic housing	P	6 m	8	RS485 / Relay / 85-255 V AC	5
		PVDF / Plastic h.	V	4 m	9	RS485 / Relay / 24 V AC/DC	6
2-wire transmitter w. local indicator	G	PTFE / Plastic h.	F				
		St. st. / Plastic h.	M				

¹ An "Ex" standing behind the order code marks an Ex unit

² PTFE (Teflon) and stainless steel sensors have different measuring range

³ The S ■ ■ ■ -39, -38, -37 types feature threaded process connections while the other versions are flanged or mounting bracket equipped. Separate mounting brackets or flanges can be ordered for threaded versions.

⁴ Under development

ACCESSORIES

SAP - 100 programming module, for 4-wire transmitter

SAP - 200 programming module, for 2-wire transmitter

SAS - 302 Eview HART software on CD

SAT - 304 HART modem

SAA - ■ ■ ■ - ■ flanges

Process connection ³	Code
BSP thread	0
NPT thread	N
DN80 PN16/PP	2
DN100 PN16/PP	3
DN125 PN16/PP	4
DN150 PN16/PP	5
DN200 PN16/PP	6
200 mm bracket	K
500 mm bracket	L
700 mm bracket	M

4-wire

2-wire

Output / Ex	Code
4...20 mA / LOGGER	1
4...20 mA	2
4...20 mA / HART / LOGGER	3
4...20 mA / HART	4
4...20 mA / LOGGER / Ex	5
4...20 mA / Ex	6
4...20 mA / HART / LOGGER / Ex	7
4...20 mA / HART / Ex	8
4...20 mA / LOGGER / Relay	L
4...20 mA / Relay	R
4...20 mA / HART / LOGGER / Relay	A
4...20 mA / HART / Relay	H
PROFIBUS PA	P ⁴
PROFIBUS PA / Ex	E ⁴

EchoTREK compact transmitters for liquids

EchoTREK S ■ ■ ■ - 4 ■ ■ ■ - ■

Type	Code	Sensor / housing mat.	Code	Measuring range ¹	Code	Output ³ / Power Supply	Code
4-wire transmitter	T	PP / Aluminium	A	25 m	2	4...20 mA / 2x Relay / 85-255 V AC	1
		PVDF / Aluminium	B	15 m	4	4...20 mA / 2x Relay / 24 V AC/DC	2
4-wire transmitter w. local indicator	B	PTFE / Aluminium	T	10 m	6	4...20 mA / HART / 2x Relay / 85-255 V AC	3
		St. st. / Aluminium	S	8 m	7		
		PP / Plastic housing	P	6 m	8	4...20 mA / HART / 2x Relay / 24 V AC/DC	4
		PVDF / Plastic h.	V	4 m	9		
		PTFE / Plastic h.	F			4...20 mA / HART / LOGGER / 2x Relay / 85-255 V AC	G
		St. st. / Plastic h.	M			4...20 mA / HART / LOGGER / 2x Relay / 24 V AC/DC	H

¹ PTFE (Teflon) and stainless steel sensors have different measuring range

² The S ■ ■ ■ -39, -38, -37 types feature threaded process connections while the other versions are flanged or mounting bracket equipped. Separate mounting brackets can be ordered for threaded versions.

³ Two parallel operating relays

ACCESSORIES

SAP - 200 programming module

SAS - 302 Eview HART software on CD

SAT - 304 HART modem

SAA - ■ ■ ■ - ■ flanges

Process connection ²	Code
BSP thread	0
NPT thread	N
DN80 PN16/PP	2
DN100 PN16/PP	3
DN125 PN16/PP	4
DN150 PN16/PP	5
DN200 PN16/PP	6
200 mm bracket	K
500 mm bracket	L
700 mm bracket	M

4-wire

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E-mail: sales@nivelco.com http://www.nivelco.com

PROGRAMMING AND DISPLAY MODULE

CONNECTIONS



The SAP-100 is a combined display and programming module whereas the SAP-200 is just as a display aiding programming by keys on the EchoTREK's body.

ORDER CODES

EchoTREK compact transmitters for solids

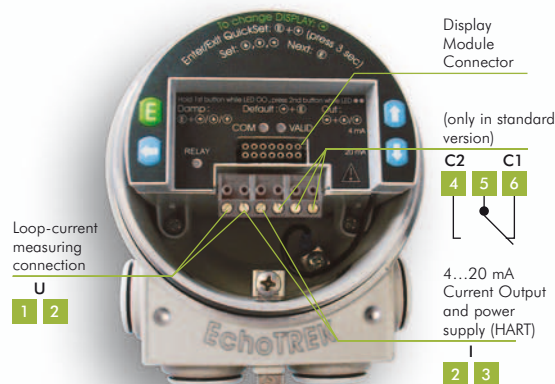
EchoTREK S ■ D - 3 ■ J - ■ ¹

Type	Code	Power Supply / Output / Ex	Code
4-wire transmitter	T	85...255 V AC	
4-wire transmitter w. local indicator	B	4...20 mA / Relay	1
		4...20 mA / HART / Relay	3
		4...20 mA / Relay / Ex	5
		4...20 mA / HART / Relay / Ex	7
Measuring range	Code	RS485 / Relay	A
		RS485 / Relay / Ex	E
60 m	1	11,4...40 V DC; 11,4...28 V AC	
30 m	3	4...20 mA / Relay	2
15 m	4	4...20 mA / HART / Relay	4
		4...20 mA / Relay / Ex	6
		4...20 mA / HART / Relay / Ex	8
		RS485 / Relay	B
		RS485 / Relay / Ex	F

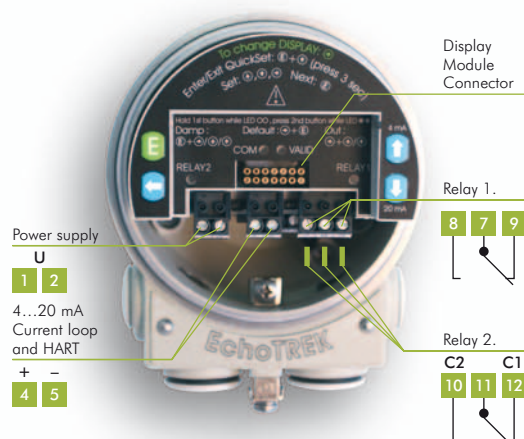
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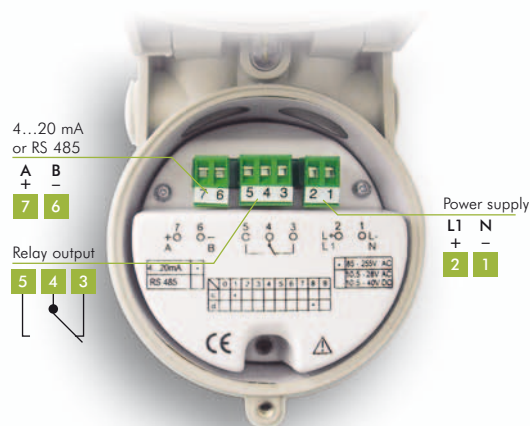
SAP - 100 programming module SAT - 304 HART modem
SAS - 301 EView HART software on CD SFA - □□□ flanges



SE/SG - 300



ST/SB - 400



ST/SB - 300