

## GENERAL DESCRIPTION

4-wire **EchoTREK** compact ultrasonic level transmitters are offered for solids level monitoring tasks where previously only more complex, two part systems have performed adequately. **NIVELCO's** high efficiency SenSonic narrow beam angle transducers, giving superb signal transmission, make possible that the **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. This is provided by the **QUEST+** software, using advanced process adaptive signal processing for reliable echo monitoring, offering a best-in-class solution.

## MAIN FEATURES

- Non-contact level measurement
- 4-wire compact transmitters
- Maximum 60 m measuring range
- Narrow (5°) beam angle
- Full temperature compensation
- IP65 protection
- Plug-in display unit
- HART® communication
- Dust Ex version

## APPLICATIONS

- Level, volume and weight calculation
- Wide application range: light powders to coarse bulk solid materials
- Reliable measurement in challenging applications such as dusting during filling

## CERTIFICATIONS

- ATEX (Dust Ex)

## TECHNICAL DATA

Type		EchoTREK S□D-300
System		4-wire
Accuracy <sup>(1)</sup>		± (0.2% of measured distance + 0.1% of range)
Resolution		10 mm
Output	Analogue	4 – 20 mA
	Relay	SPDT, 250 V AC / 3 A, ACI
	Display	SAP-100 plug-in display unit
	Digital comm.	HART®
Ambient temperature		-30 °C ... +60 °C with display: -25 °C ... +60 °C
Process temperature		-30 °C ... +75 °C
Process pressure		0.07 – 0.11 MPa (0.7 – 1.1 bar) P <sub>absolute</sub> and ±0.01 MPa (0.1 bar) difference between ambient and tank pressure
Power supply		I. version: 85 – 255 V AC / 6.8 VA II. version: 11.4 – 40 V DC / 4.1 W and 11.4 – 28 V AC / 4.6 VA
Electrical protection		Class I
Housing		Paint coated aluminium
Electrical connection		2x M20x1.5 cable glands + internal thread for 2x ½" NPT cable protective pipe, cable outer diameter: Ø6 – 12 mm, wire cross section: maximum 1.5 mm² Ex version: See: "Special data for Ex certified models" table
Ingress protection		IP65
Explosion protection		See: "Special data for Ex certified models" table
Mass		5 kg

<sup>(1)</sup> Under optimum conditions and stabilized transducer temperature

## TRANSDUCERS

Transducer material	EchoTREK
	STD / SBD-300
PP (Normal version)	■
Aluminium (Ex version)	■

## PROPERTIES

Functions	EchoTREK
	STD / SBD-300
Relay	■
HART®	■
Dust Ex version	■
Display	SAP-100

## SPECIAL DATA FOR Ex CERTIFIED MODELS

Type	EchoTREK S□D-300
Protection type	Dust Ex
Ex marking	Ⓔ II 1/2 D Ex ma ta/tb IIIC T85°C...T130 °C Da/Db
Ambient temperature	-30 °C ... +60 °C, with display: -25 °C ... +60 °C
Process temperature	-30 °C ... +75 °C
Electrical connection	2x M20x1.5 metal cable glands, internal thread for 2x ½" NPT cable protective pipe



SAP-100 Display



SBD-300

# TRANSDUCER DATA AND DIMENSIONS

Transducer type	S□D-34	S□D-33	S□D-31
Recommended applications	Small tanks, hoppers, conveyor belts. Both powders and granules.	Medium sized silos containing all kinds of bulk solids.	Larger silos containing all kinds of bulk solids. Due to its power and low frequency recommended if dust generation is significant.
EchoTREK (normal type)			
EchoTREK (Ex type)			
Transducer material	Normal type: PP and aluminium, Ex type: Paint coated aluminium		
Surface of the transducer	Closed cell Polyurethane foam sensor face (PUR)		
Beam angle	5°		
Max. measuring range <sup>(1)</sup>	15 m	30 m	60 m
Min. measuring range <sup>(1)</sup>	0.6 m		1 m

<sup>(1)</sup> Under optimum conditions and stabilized transducer temperature

## MOUNTING

Coning or arching is a general feature of solid material storage is caused by the filling / emptying process. Optimising the aiming by the SAA-102 joystick (part of the **EchoTREK** units) is recommended in these situations. The joystick aiming device offers a suitable solution to minimize most of the unfavourable effects of coning or arching. The optimal tilting position can be adjusted during operation and recommended to be checked at multiple levels during the filling / emptying process. As a general rule, best result is obtained by the transducer aimed towards the centre of the tank bottom.

SBD-34J-1



## EchoTREK S-34/33/31

5 years

4-wire compact ultrasonic level transmitters for solids with aiming device  
with PP or aluminium cast sensor housing with polyurethane foam face

## Range / Frequency

S ☒ D - 3 ☒ J - ☒

4	0.6-15 m (40 kHz)
3	0.6-30 m (30 kHz)
1	1-60 m (15 kHz)

## Programmer and local indicator (SAP-100)

S ☒ D - 3 ☒ J - ☒

T	Not included
B	Included

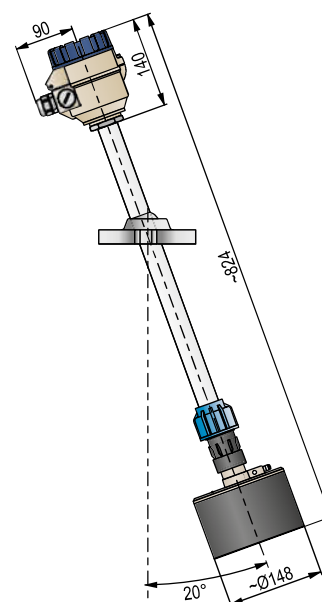
## Power supply / Output / Approval

S ☒ D - 3 ☒ J - ☒

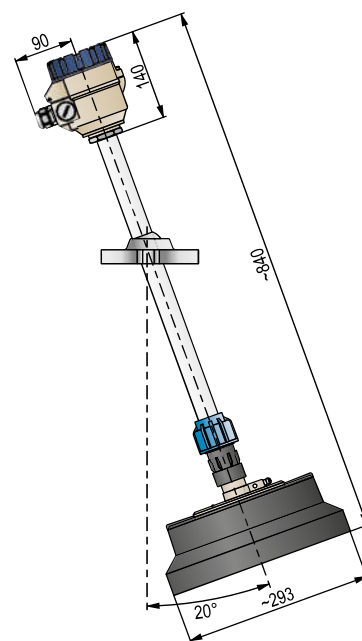
1	85-255 V AC / 4-20 mA + Relay
3	85-255 V AC / 4-20 mA + HART + Relay
5	85-255 V AC / 4-20 mA + Relay / Ex
7	85-255 V AC / 4-20 mA + HART + Relay / Ex
2	11.4-40 V DC and 11.4-28 V AC / 4-20 mA + Relay
4	11.4-40 V DC and 11.4-28 V AC / 4-20 mA + HART + Relay
6	11.4-40 V DC and 11.4-28 V AC / 4-20 mA + Relay / Ex
8	11.4-40 V DC and 11.4-28 V AC / 4-20 mA + HART + Relay / Ex

## Accessories to order (see relevant page for details)

S A P - 1 0 0 - 0	Plug-in Programmer/display module
S F A - 3 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> - 0	Flanges
S A T - 3 0 4 - 0	HART-USB modem
S A T - 5 0 4 - <input checked="" type="checkbox"/>	HART-USB/Bluetooth modem
S A K - 3 0 5 - 2	HART-USB/RS485 modem
S A K - 3 0 5 - 6	HART-USB/RS485 modem / Ex ia



STD-33J / 34J



STD-31J