

5 YEARS WARRANTY

EasyTREK SP-500

ULTRASONIC LEVEL TRANSMITTERS FOR **LIQUIDS**



NIVELCO Process Control Co.
H-1043 Budapest, Hungary
EasyTREK SPA-590-4 No. 010000
Supply: 12-36V DC Year 2010
Output: 4-20 mA+HART P/N
Amb. temp.: -30...+80°C
Med. temp.: -30...+90°C
CE MADE IN EU

NIVELCO

LEVEL TRANSMITTERS

MAIN FEATURES

- 2-wire integrated transmitter
- Non-contact level measurement
- Can be powered from 12 V battery
- Max. 18 m (59 ft) measuring range
- Narrow (5°) beam angle
- Temperature compensated
- HART® 7
- Handheld compatibility
- IP68 protection

APPLICATIONS

- For liquid level measurement, open channel flow metering
- Wide application area from wastewater to aggressive chemicals
- Level measurement in basins, wells, sumps, lift-stations
- Suitable for level measurement of hydrocarbons, acids, water based media

GENERAL DESCRIPTION

The newest generation **EasyTREK** SP-500 series level transmitters are based on **NIVELCO**'s 35 years of experience with ultrasonic level measurement. The IP68 rated units have their transducer and processing electronics incorporated in one single housing. The new **EasyTREK** transmitters utilize HART® 7 communication so they can be used in multidrop systems connected to **MultiCONT** process controller/display, or to a PC with the help of the **UNICOMM** HART®-USB modem or similar. The transmitters can be remotely programmed also with Handheld Field Communicator, and can be connected wirelessly to a PC with the SAT-504 Bluetooth® HART® modem.

The members of the new **EasyTREK** SP-500 series can be recognised from the more compact size, the increased maximum measuring range and the decreased minimum measuring range.

OPERATION

The **EasyTREK** ultrasonic level transmitters can be utilized not only for measuring the level of liquids, but also for flow and tank volume measurement.

The ultrasonic level metering technology is based on the principle of measuring the time required for the ultrasound pulses to cover the distance from the sensor to the level to be measured and back. The echoes bounced back from the surface of the medium to be measured reach the sensor surface after the time of flight of the ultrasonic impulse. The time of flight of the reflected signal is measured and processed by the electronics, and then this is converted to distance, level, volume or flow proportional data using the customizable tank dimensions or the pre-programmed flume / weir parameters. The **EasyTREK** ultrasonic level transmitters are using **NIVELCO**'s established SenSonic range transducers with a full beam angle of 5 to 7 degrees connected to the intelligent electronics featuring the **QUEST+** advanced signal processing algorithm. The intelligent **QUEST+** process adaptive signal processing software system ensures that the electronics identifies and validates the liquid surface signal, giving reliable level monitoring.

TECHNICAL DATA

Type		EasyTREK SP-500
System		2-wire
Power supply		11 – 36 V DC
Accuracy (1)		± (0.1% of measured distance +0.025% of range) or ± (0.05% of range), whichever is greater
Resolution		Depending on the measured distance: <2 m (6.5 ft): 1 mm (0.04 in), 2 – 5 m (6.5 – 16.5 ft): 2 mm (0.075 in), 5 – 10 m (16.5 – 33 ft): 5 mm (0.2 in), >10 m (33ft): 10 mm (0.4 in)
Output	Analogue	4 – 20 mA
	Relay	SPDT, 30 V DC, 1 A DC
	Digital Communication	HART® 7
Ambient temperature		-30 °C ... +80 °C (-22 °F ... +176 °F)
Process temperature		PP, PVDF, PTFE transducers -30 °C ... +90 °C (-22 °F ... +194 °F)
Pressure (absolute)		0.05 – 0.3 MPa (0.5 – 3 bar; 7.25 – 43.5 psi)
Housing		PP or PVDF same as the transducer material; In case of Teflon (PTFE) transducer the housing material is PP
Electrical connection		LiYCY 6 x 0.5 mm ² (AWG20) shielded Ø6 mm (0.25 inch) cable; standard cable length: 5 m (16.5 ft) (can be ordered up to 30 m (100 ft))
Electrical protection		Class III
Ingress protection		IP68

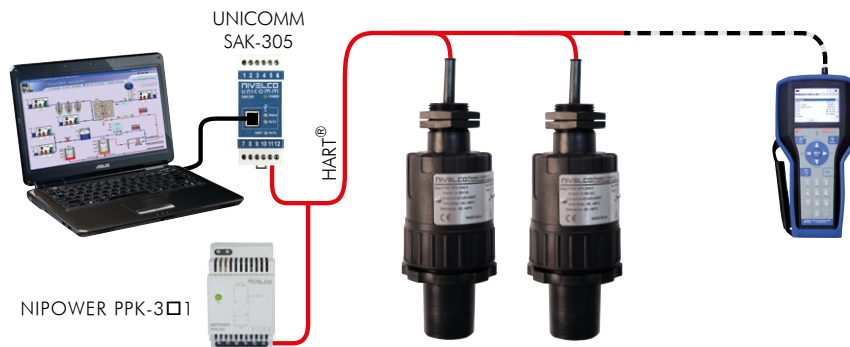
(1) Under optimum conditions and stabilized transducer temperature.

SPECIAL DATA OF THE TRANSDUCERS

Transducertype	SP□-5A□-□	SP□-59□-□	SP□-58□-□	SP□-57□-□	SP□-56□-□	SP□-54□-□
Beam angle	5°	6°	5°	7°	5°	5°
Transducer material	PP, PVDF	PP, PVDF PTFE	PP, PVDF PTFE	PP, PVDF PTFE	PP, PVDF	PP, PVDF
EasyTREK SP 2-wire						
Process connection	1" BSP / NPT	1" BSP and 1 1/2" BSP / NPT	1" BSP and 2" BSP / NPT	1" BSP and 2" BSP / NPT	1" BSP	1" BSP
Max. measuring range (1)	3 m (10 ft)	5 m (16 ft) 4 m (13 ft)	8 m (26 ft) 6 m (20 ft)	10 m (33 ft) 7 m (23 ft)	12 m (39 ft)	18 m (59 ft)
Min. measuring range (1)	0.15 m (0.49 ft)	0.18 m (0.59 ft) 0.25 m (0.82 ft)	0.2 m (0.65 ft) 0.25 m (0.82 ft)	0.25 m (0.82 ft) 0.35 m (1.2 ft)	0.25 m (0.82 ft)	0.35 m (1.2 ft)

(1) Under optimum conditions and stabilized transducer temperature.

EASYTREK TRANSMITTERS IN SYSTEM WITH A PC



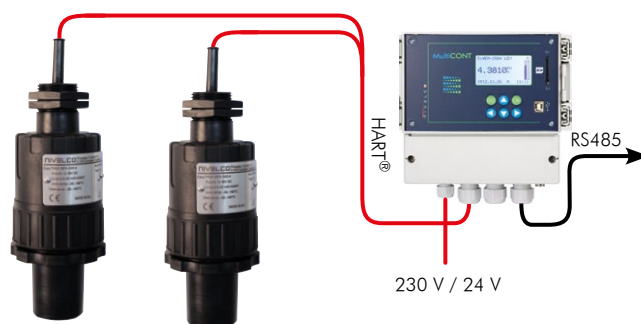
The instruments with HART® output can be connected to a PC using a **UNICOMM SAK-305** HART®-USB modem. All measured values of the **EasyTREK** level transmitters can be visualized and/or the instruments can be remotely programmed via digital HART® communication. Applicable software for PC: **EView2** configuration software or **NIVISION** process visualization software.

EASYTREK IN SYSTEM WITH A PC CONNECTED VIA BLUETOOTH®



The instruments with HART® output can be connected to a PC via Bluetooth® wireless connection using a **UNICOMM** HART®-USB-Bluetooth® modem (**SAT-504**). We can provide power supply for the system with a USB power bank connected to the **UNICOMM** modem.

EASYTREK LEVEL TRANSMITTERS IN HART MULTIDROP LOOP



The **MultiCONT** multichannel process controller processes and displays measurement data supplied by **NIVELCO**'s HART® equipped transmitters connected to a Multidrop loop. The transmitters (also mixed models) can be connected and remote programming can be also performed through the **MultiCONT**. Re-transmission of the data is possible via RS485 communication line to a PC or PLC when needed. The visualisation of the data can be done by **NIVISION** process visualization software.

With the help of **MultiCONT** different useful functions can be achieved such as configuring and optimizing the measurement, or displaying the special echo map of the process environment.

ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

EasyTREK SP-500 integrated compact ultrasonic level transmitters for liquids

EasyTREK SP ■ - ■ - ■ - ■

Transducer material	Code
PP	A
PVDF	B
PTFE (1)	T

Output	Code
4 – 20 mA / HART®	4
4 – 20 mA / relay / HART®	H

Measuring range	Code
18 m (59 ft)	4
12 m (39 ft)	6
7 m (23 ft); 10 m (33 ft) (2)	7
6 m (20 ft); 8 m (26 ft) (2)	8
4 m (13 ft); 5 m (16 ft) (2)	9
3 m (10 ft)	A

Process connection	Code
BSP thread	0
NPT thread	N

(1) Only for SP-59/58/57.

(2) Measuring range depends on the material of the transducer.

ACCESSORIES TO ORDER

Accessories	Code
Flanges	SFA-3□□-0
HART®-USB (Bluetooth®) modem	SAT-504-2
HART®-USB / RS485 modem	SAK-305-2
HART®-USB / RS485 modem / Ex ia	SAK-305-6
200 mm (7 7/8 in) mounting bracket for process connection BSP 1"	SAA-107-0
500 mm (1.65 ft) mounting bracket for process connection BSP 1"	SAA-108-0
700 mm (2.3 ft) mounting bracket for process connection BSP 1"	SAA-109-0
Fast connecting gland for pipe mounting devices with 1" process connection, PP	SAA-101-0
Damping gland for mounting SP devices to thin metal roofs, PP	SAA-106-0

TRANSDUCERS

Transducer material	PP	PVDF	PTFE
SP□-5A□-□	■	■	—
SP□-59□-□	■	■	■
SP□-58□-□	■	■	■
SP□-57□-□	■	■	■
SP□-56□-□	■	■	—
SP□-54□-□	■	■	—

