



Echo 300 Series

Orion Ultrasonic Level Transmitter

APPLICATIONS

Orion Echo Ultrasonic Level Probe is used for continuous level measuring and volume measuring of liquid and solid materials in open and closed tanks without contact. Furthermore the device has an open channel flow measuring option. There is 4 key leak proof keypad and it can show the measured value as level, distance (cm, m, inch or feet) or volume (liter, m3, imp and gallon).



FUNCTIONS

Ultrasonic sensor sends short pulses of high frequency (50 KHz) ultrasonic sound with piezoelectric transducer. Some of the ultrasonic sound waves which are reflected by hitting to measuring surface are perceived by transducer, thus distance of the objects is determined depending on speed of signal in air.

MECHANICAL INSTALLATION

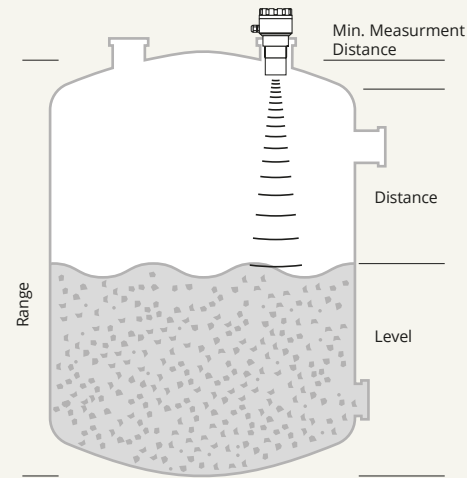
- It should be paid attention to make it perpendicular to the surface where measuring to be made in order to provide an accurate measuring
- Calculation of minimum distance of the device to the side during its assembly is half of value calculated by multiplying of distance from sensor end to the base with $\tan 12^\circ$.

FEATURES AND APPLICATION AREA

- Water treatment and process technology: Water, waste water etc.
- Food industry : Beverage, milk and milk products etc.
- Chemical and pharmaceutical industry: Oil, gasoline, diesel etc. (PVDF sensor)
- Distance and movement control : Woodworking, mechanical gineeringcal industry.

COMPLIANCE TO APPLICABLE NORMS CE COMPLIANCE

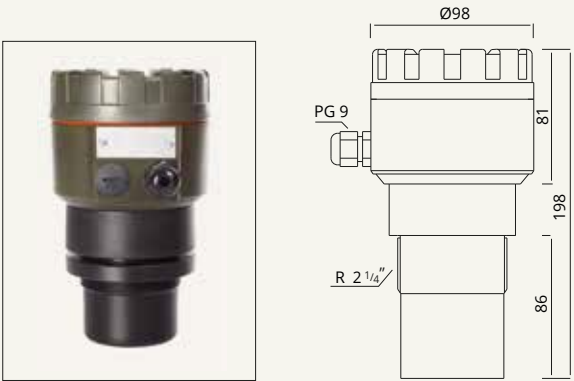
Legal Compliance (CE conformance)
EN 61000-6-4:2001 Generic emission standard. Industrial environment.
EN 61000-6-2:2005 Generic immunity standard. Industrial environment.
EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control and laboratory use.



Water Treatment



Chemical and Pharmaceutical Industry



ECHO 312 SERIES

TECHNICAL DATA

ELECTRICAL SPECIFICATIONS

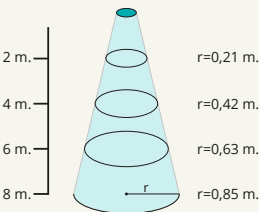
Connection Terminal	Max. 2 mm² (AWG 14) cross-sectioned cable inlet
Fitting	PG9
Supply Voltage	ECH3XX- 24V DC ±30% max. 4 W
Control Relay	2 pcs changeover NO contact AC max. 250 V, 1A
Analog Outlet	ECH3XX- 4-20 mA isolated (2 kV) 14bit ECH3XX- 4-20 mA isolated (2 kV) 14 bit/HART option
Serial Port	RS485 MODBUS RTU (38400 Bps max)
Protection Class	L: IP67, A: IP68 (when cover is full closed and fitting is exactly fastened by using cable having thickness of 4-8mm)

MECHANICAL SPECIFICATIONS

Box	A: Aluminum machining L: PC-ABS
Probe	PP: Polypropylene PVDF: polyvinylidene fluoride
Screw Size	ECH3XX - M63 x 2
Box Outer Surface	Electrostatic powder paint on alodine coating
Weight	ECH3XXL: 0,75 kg, ECH3XXA: 0,99 kg

WORKING CONDITIONS

Ambient Temper.	-20°C - +60 °C (Outdoor)
Action Temperature	-20°C - +80 °C (Sensor)
Solubility	1 mm (max.)
Linearity	% 0,2
Max. Measuring	ECH306X - 6 m ECH308X - 8 m ECH310X - 10 m ECH312X - 12 m ECH315X - 15 m ECH318X - 18 m
Min. Measuring	ECH306X - 30 cm ECH308X - 30 cm ECH310X - 30 cm ECH312X - 30 cm ECH315X - 40 cm ECH318X - 40 cm
Sensor Frequency	ECH3XX- 50 KHz
Beam width	Angle 10° at -3 dB
Compensation	Effect of change of ambient temperature on sound propagation
Vibration	5-500 Hz 3G RMS random vibration IEC-60068-2-64



ORDERING CODES

ECH306L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 6M, Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH308L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 8M, Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH310L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 10M, Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH312L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 12M, Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH315L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 15M Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH318L-24DC ULTRASONIC LEVEL TRANSMITTER & CONTROLLER
Supply Voltage: 24VDC, Signal Out: Analogue 4-20mA & 2 NO Relay Out 250V/1A & Modbus RS485, Accuracy: +/- 2 mm or +/- 0,2 % of set measuring range, Max Measurement Distance: 18M, Sensor Material: PP, Process Connection: M63X2, Process Temperature: -20°C to 80°C, Process pressure: 3Bar, Ambient Temperature: -20°C to 80°C, Sensor Protection class: IP68, Transmitter Protection Class: IP67, Transmitter Housing: PC-ABS

ECH-FLOW PARSHALL flow measurement software option Add on -F

ECH3XX-HART HART Communication option Add on -H

ECH3XX-PVDF PVDF Sensor material option Add on -PVDF Operating Temperature: -40°C to 90°C

ECH3XX-ALUMINIUM ALUMINIUM Housing material option Add on -A Protection Class: IP68

ECH3XX-S-70 Sensor wall mount kit option Add on L=70cm, SS304

ECH3XX-S-150 Sensor wall mount kit option Add on L=150cm, SS304

ECH-3XX-T Transmitter wall mount kit option Add on, SS304