



# Echo 200 Series

Orion Ultrasonic Level Transmitter

## APPLICATION

Orion Echo Ultrasonic Level Probe is used for continuous level and/or volume measurement of liquid and solid matters in open/closed tanks with no contact.



## FUNCTIONS

Ultrasonic sensor sends high-frequency (100 KHz) short ultrasonic sound signal through piezoelectric transducer. Some part of the ultrasonic sound wave that reflects upon hitting on the measurement surface is detected by transducer, whereby the distance of objects is determined depending on the velocity of signal in the air.

## FEATURES AND APPLICATION AREAS

- Water refining and process technology: Water, waste water, etc.
- Food industry: Beverages, milk and dairy products, etc.
- Chemical and pharmaceutical industry: Oil, gasoline, diesel, etc. (fitted with PVDF sensor)
- Distance and motion control: Woodworking, mechanical engineering.



## TECHNICAL DATA

### ELECTRICAL SPECIFICATIONS

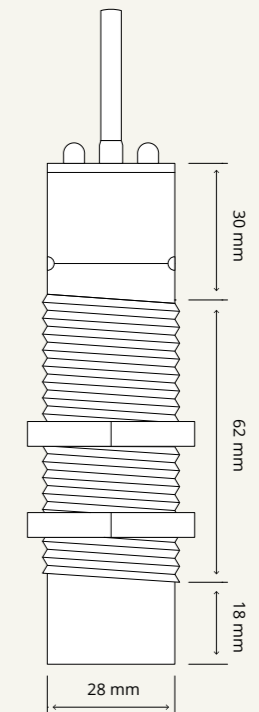
Connection Terminal	Complete with a 3m cord
Type of Cable	4x0.4mm <sup>2</sup> (22AWGx4C)
Supply Voltage	24V DC (12 – 30V DC)
Digital Output	PNP Max: 200mA
Analog Output	4-20 mA 14 bit (500ohm)
Protection Class	IP68

### MECHANICAL SPECIFICATIONS

Body / Probe	PP: Polypropylene (Option PVDF: Kynar® Sensor material)
Screw Size	M30 x 1.5
Weight	120 g

### WORKING CONDITIONS

Ambient Temperature	-20°C to +80 °C
Working Temperature	-20°C to +60 °C (PP Sensor) -20°C to +80 °C (PVDF: Kynar® Sensor material)
Resolution	1 mm (max.)
Linearity	0,2 %
Max. Measurement	ECH201-24DC - 1 m ECH202-24DC - 2 m ECH203-24DC - 3 m ECH204-24DC - 4 m
Min. Measurement	: ECH201-24DC - 10 cm ECH202-24DC - 15 cm ECH203-24DC - 15 cm ECH204-24DC - 20 cm
Sensor Frequency	100 KHz
Angle of Sound Con	Full angle 10° at -3 dB
Compensation	The effect of change in medium temperature on the speed of sound diffusion
Vibration	5-500 Hz 3G RMS random vibration IEC-60068-2-64



## ORDERING CODES

**ECH201-24DC** ULTRASONIC LEVEL SENSOR  
Supply voltage: 24VDC, Signal output: Analog 4-20mA & NPN/PNP 24V/0,2A, Accuracy: +/- 0,2% measurement range, Max. measurement range: 1M, Sensor material: PP, Sensor connection: M30X1,5, Working temperature: -10°C and 60°C, Working pressure: 1Bar, Protection Class: IP68

**ECH202-24DC** ULTRASONIC LEVEL SENSOR  
Supply voltage: 24VDC, Signal output: Analog 4-20mA & NPN/PNP 24V/0,2A, Accuracy: +/- 0,2% measurement range, Max. measurement range: 2M, Sensor material: PP, Sensor connection: M30X1,5, Working temperature: -10°C and 60°C, Working pressure: 1Bar, Protection Class: IP68

**ECH203-24DC** ULTRASONIC LEVEL SENSOR  
Supply voltage: 24VDC, Signal output: Analog 4-20mA & NPN/PNP 24V/0,2A, Accuracy: +/- 0,2% measurement range, Max. measurement range: 3M, Sensor material: PP, Sensor connection: M30X1,5, Working temperature: -10°C and 60°C, Working pressure: 1Bar, Protection Class: IP68

**ECH204-24DC** ULTRASONIC LEVEL SENSOR  
Supply voltage: 24VDC, Signal output: Analog 4-20mA & NPN/PNP 24V/0,2A, Accuracy: +/- 0,2% measurement range, Max. measurement range: 4M, Sensor material: PP, Sensor connection: M30X1,5, Working temperature: -10°C and 60°C, Working pressure: 1Bar, Protection Class: IP68

**ECH20X-PVDF** PVDF Kynar® Sensor material option -PVDF Working temperature: -20°C and 80°C

## COMPLIANCE TO APPLICABLE NORMS

### CE COMPLIANCE

- EN 61000-6-4:2001 Electromagnetic compatibility, Industrial environment
- EN 61000-6-2:2005 Electromagnetic compatibility, Industrial environment
- EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control and laboratory use