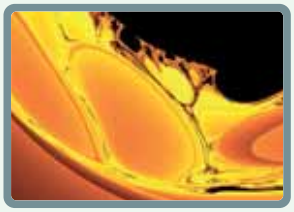
Echo 306, 312, 318, 324 Series

Orion Ultrasonic Level Transmitter

APPLICATIONS

Orion Echo Ultrasonic Level Sensors Transmitter offer non-contact measurement of liquids and solid levels and volume. The transmitter is four-wire type and uses keypad and LCD display to set up parameters of the level, distance and volume range to be measured. Fault indication keeps you informed of the operational and fault status at the transmitter. Orion Echo is a cost effective ultrasonic level transmitter for measuring and monitoring liquid levels in open and closed tanks. Its small size makes it compact, combining sensor and electronics in one housing.



FUNCTIONS

Ultrasonic level sensors are used for non-contact level sensing of highly viscous liquids, as well as bulk solids. They are also widely used in water treatment applications for pump control and open channel flow measurement. The sensors emit high frequency (30 kHz to 75 kHz) acoustic waves that are reflected back and detected by the emitting transducer.

Ultrasonic level sensors are also affected by the changing speed of sound due to moisture, temperature and pressures. Correction factors can be applied to improve the accuracy of measurement.

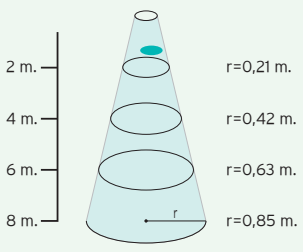
FEATURES AND APPLICATION AREA

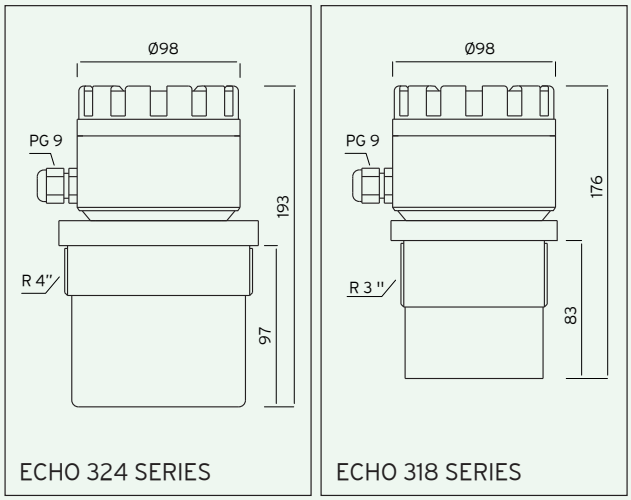
- The transmitter is powered with 24 VDC; features a 4-20 mA output, RS485 Modbus serial port for PLC, or for monitoring
- Two relays can be configured as latched for automatic fill or empty operations.
- The transmitter ECH-0300 series includes a range of fail-safe features. Signal loss, power supply failure, level alarm can be activated with an adjustable time delay.
- A range of filter functions control the return echoes and automatically eliminate all interference.
- Easy and fast commissioning is guaranteed with the "Simulation" functions. Different tank shapes (cylindrical, cubic, spherical) can be easily programmed via fixed default shapes .
- The measured value can be shown as level, distance (in cm, m, inch or feet), or direct as volume (litter, m^3, Imp. Gal, U.S. Gal).
- The simulation functions allow the system to be tested under dry-run conditions.
- Non-contact continuous level or volume measurement with all liquids in open or closed vessels.
- Distance and movement supervision.
- Waste engineering, water treatment and process technology.
- Food industry.
- Chemical and pharmaceutical industry.

TECHNICAL DATA

SPECIFICATIONS	ECH306	ECH312
Power	24V DC +- %30 / 4 W max	24V DC +- %30 / 4 W max
Control relay	250VAC/1A NO 2 Set	250VAC/1A NO 2 Set
Fail safe relay	Control relay can be configured as a fail safe relay	Control relay can be configured as a fail safe relay
Serial port	RS485/232 MODBUS RTU up to 38400 Bps	RS485/232 MODBUS RTU up to 38400 Bps
Process out	4-20mA optically isolated (2kv) 14bit	4-20mA optically isolated (2kv) 14bit / HART option
Operating condition	Transmitter:-10 °C to +60 °C Sensor:-20 °C to +90 °C PVDF option Sensor:-40 °C to +90 °C	Transmitter:-10 °C to +60 °C Sensor:-20 °C to +90 °C PVDF option Sensor:-40 °C to +90 °C
Operating Presure	3Bar	3Bar
Sensor acoustic window	Glass reinforced epoxy / PVDF option	Glass reinforced epoxy / PVDF option
Sensor housing	Delrin® POM-C EN 10204 / PVDF option	Delrin® POM-C EN 10204 / PVDF option
Protection class	IP68	IP68
Resolution	1mm max	1mm max
Linearity	%0.2	%0.2
Max Measuring Distance	6m (Liquid surface)	12m (Liquid surface)
Min Measurement Distance	0,2m	0,4m
Sensor Frquency	75Khz	50Khz
Beamwidth	-3 dB Full angle 10 degree	-3 dB Full angle 10 degree
Compensation	Temperature compensated	Temperature compensated
Vibration test	5-500Hz 3G RMS random vibration IEC-60068-2-64	5-500Hz 3G RMS random vibration IEC-60068-2-64

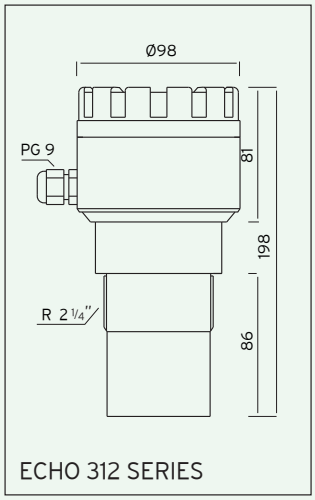
SPECIFICATIONS	ECH318	ECH324
Power	24V DC +- %30 / 5 W max	24V DC +- %30 / 5 W max
Control relay	250VAC/1A NO 2 Set	250VAC/1A NO 2 Set
Fail safe relay	Control relay can be configured as a fail safe relay	Control relay can be configured as a fail safe relay
Serial port	RS485 MODBUS RTU up to 38400 Bps	RS485 MODBUS RTU up to 38400 Bps
Process out	4-20mA optically isolated (2kv) 14bit / HART option	4-20mA optically isolated (2kv) 14bit / HART option
Operating condition	Transmitter:-10 °C to +60 °C Sensor: -20 °C to +80 °C	Transmitter:-10 °C to +60 °C Sensor:-20 °C to +80 °C
Operating Presure	2Bar	2Bar
Sensor acoustic window	Glass reinforced epoxy	Glass reinforced epoxy
Sensor housing	Delrin® POM-C EN 10204	Delrin® POM-C EN 10204
Protection class	IP68	IP68
Resolution	1mm max	1mm max
Linearity	%0,5	%0,5
Max Measuring Distance	18m (Liquid surface)	24m (Liquid surface)
Min Measurement Distance	0,5m	0,5m
Sensor Frquency	40Khz	30Khz
Beamwidth	-3 dB Full angle 10 degree	-3 dB Full angle 10 degree
Compensation	Temperature compensated	Temperature compensated
Vibration test	5-500Hz 3G RMS random vibration IEC-60068-2-64	5-500Hz 3G RMS random vibration IEC-60068-2-64



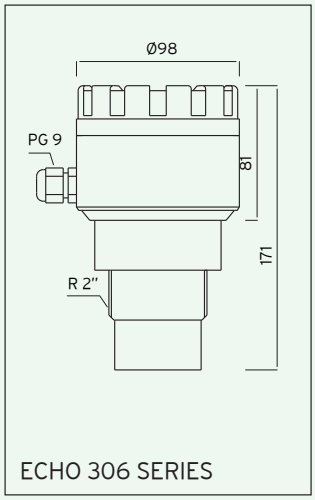


ECHO 324 SERIES

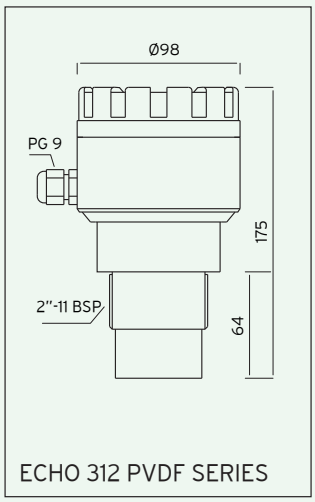
ECHO 318 SERIES



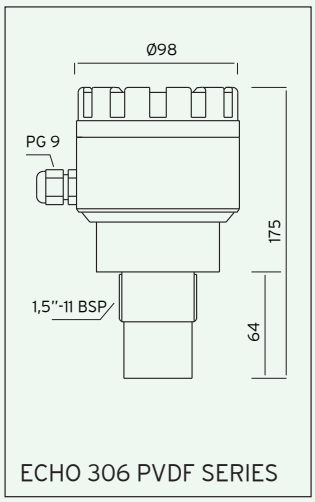
ECHO 312 SERIES



ECHO 306 SERIES



ECHO 312 PVDF SERIES

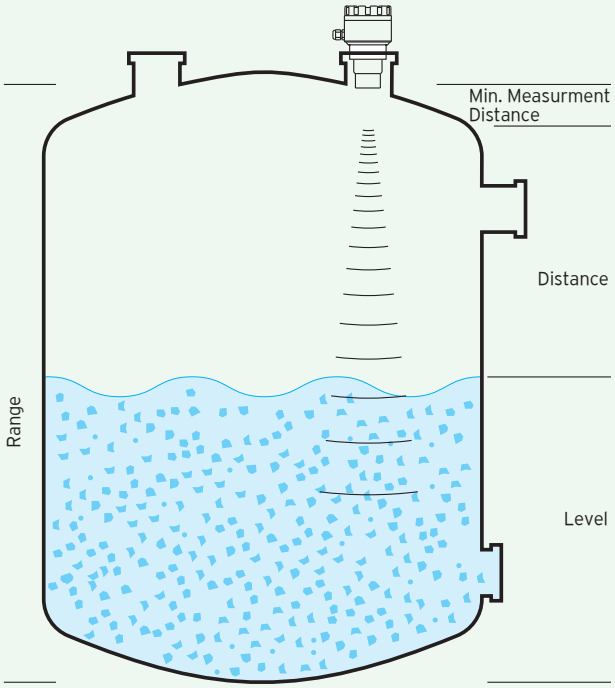


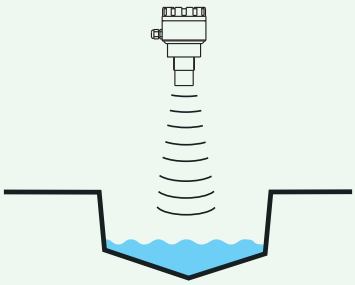
ECHO 306 PVDF SERIES

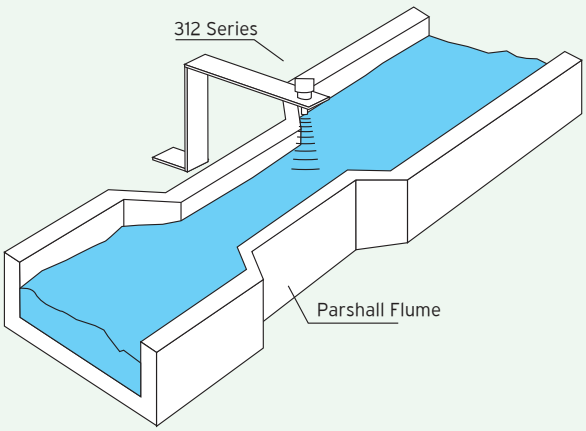
All dimensions are in mm.

ORDERING CODES

ECH306-24VDC
ECH306PVDF-24VDC
ECH312-24VDC
ECH312PVDF-24VDC
ECH306S-24VDC
ECH306PVDFS-24VDC
ECH312S-24VDC
ECH312PVDFS-24VDC
ECH312HART-24VDC
ECH312PVDF/HART-24VDC
ECH312FLOW-24VDC
ECH312FLOW/PVDF-24VDC
ECH312FLOW/PVDF/HART-24VDC
ECH318-24VDC
ECH318HART-24VDC
ECH324-24VDC
ECH324HART-24VDC







COMPLIANCE TO APPLICABLE NORMS

CE COMPLIANCE

EN 61000-6-4:2001	Generic emission standard. Industrial environments.
EN 61000-6-2:2005	Generic immunity standard. Industrial environments.
EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory use.