

permanent solutions

Digital 8-Stage Torque Rotary Paddle  
Level Limit Switch



Rotary 320 Series

Orion Magicap Level Transmitter



LHV 500 Series

Orion Vibrating Fork Level Switch



Vibro 320 Series

Radio Modem



RDM 505 Series

Orion Magicap Level Switch



LSH 300 Series

Orion Ultrasonic Level Transmitter



ECO 300 Series

Orion Ultrasonic Level Transmitter



ECO 200 Series



The power of a purpose ...  
To add value to life ...

[www.orionlevel.com](http://www.orionlevel.com)



Construction Industry  
Cement



Construction Industry  
Lime



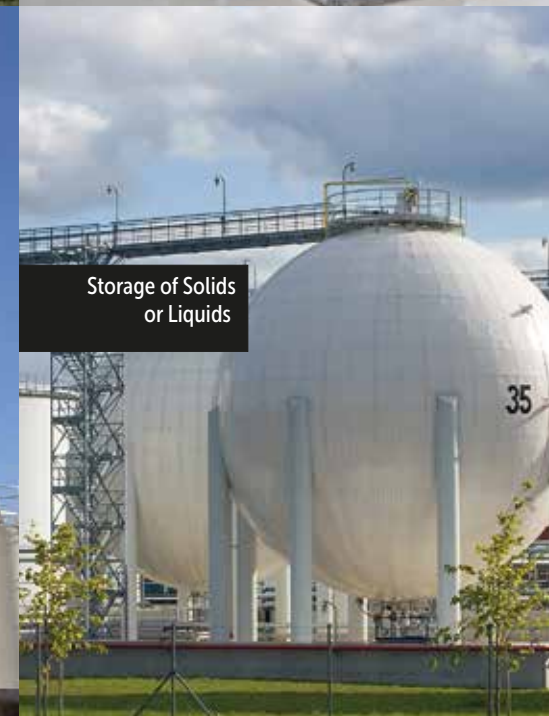
Food Industry  
Oil



Construction Industry  
Stone



Construction Industry  
Asphalt Plant



Storage of Solids  
or Liquids



Agriculture Industry  
Seed



SCADA & Telemetry  
Application



Wastewater  
Treatment Plant





**As the Orion family;** we want you to see change and renewal in our circle. The value given to man and nature is getting more and more every day. The quality of life is getting more and more important every day. Orion products are products that add maximum value to human and environmental health in an innovative perspective.

#### **Our Values:**

We continue to be the solution man with pioneering, entrepreneurial and innovative spirit. Whatever the geography, from the smallest factory to the largest production complexes, we offer the most accurate and best products on all scales.

#### **Our vision:**

Being a preferred and preferred company in automation and to continue this vision.



#### **Team power and intellectual project management:**

Especially, he has fulfilled all the responsibilities of the projects he has undertaken abroad and has achieved effective and highly calibrated projects. From America to Peru, from Africa to Morocco, Tunisia, Asia to the Turkic Republics, Kuwait, Qatar, China, Vietnam; It has reached production facilities in many countries in Europe as far as the Balkans. He has done universal work in the context of product management, entrepreneur project vision and improvement of industrial automation that shared his knowledge with the customers.

#### **Environmental policy:**

Orion; the waste generated during the production should be primarily reduced and decomposed in the source, recycled and the most appropriate methods environmental policy is based on disposal. In order to prevent environmental pollution; continuous improvement at all stages of production and all activities carried out, the conscious use of natural resources, and all legal compliance with this law.



Çamlıca Mahallesi Anadolu Bulvarı  
TİMKO No:20-I Blok:2  
Macunköy - Yenimahalle - Ankara

Tel : +90 312 472 33 57  
Fax : +90 312 472 33 58

**The power of a purpose ...  
To add value to life ...**

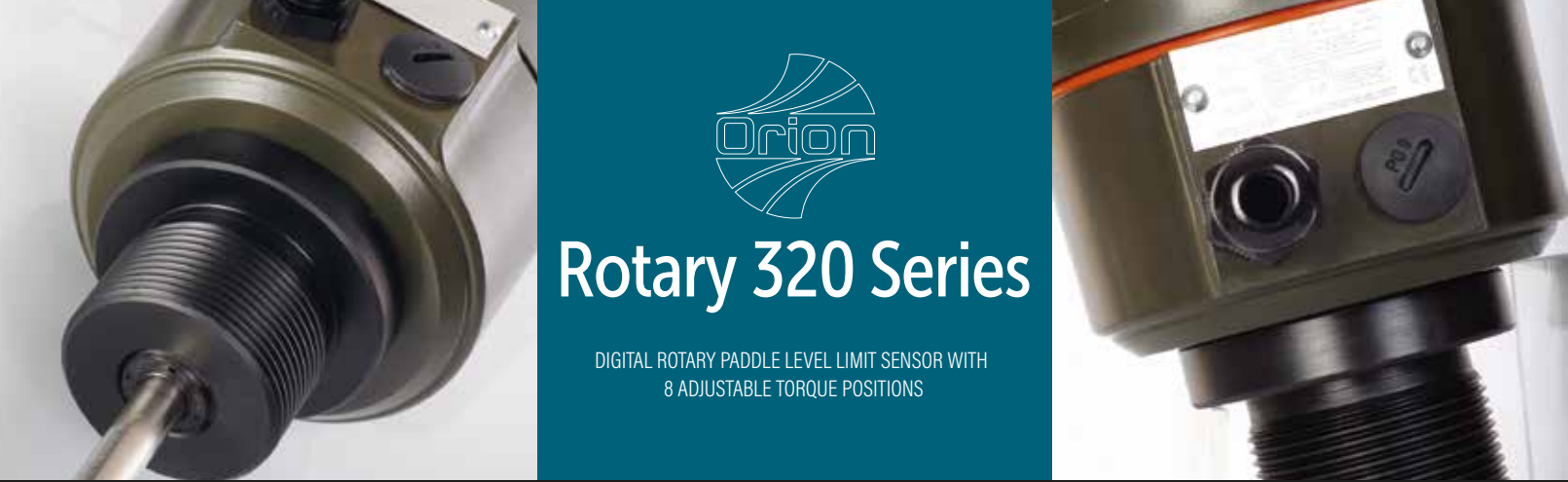
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Baskı tarihi: 15 Şubat 2018  
A-B Reklamcılık Mat. Tic. San. Ltd. Şti.  
[www.abreklam.com.tr](http://www.abreklam.com.tr)







# Rotary 320 Series

DIGITAL ROTARY PADDLE LEVEL LIMIT SENSOR WITH  
8 ADJUSTABLE TORQUE POSITIONS

### Applications

Orion Rotate is used with all powdery and granulated bulk materials of coarse grade, for level monitoring (detection) in all types of containers and silos. It has 8 different adjustable torque settings, which are adjusted using the three position DIP switch.



### A Selection of Fields of Application

- In Building Materials Industry; plaster, lime, fine sand, dolomite, calcite, perlite plaster, cement, rock, coal, pulverised coal dust, etc.
- In Food Industry; fodder, seed, flour, salt, sugar etc.
- In Plastics Industry; plastic granules etc.

### Function

When the rotary paddle part at the end of this motor -driven level switch becomes handicapped in its rotation, by granular material level; the caused reaction torque is detected by an optical sensor, which in turn gives a signal output. The torques can be set as required, depending on the specific weight of material used.

### Construction Industry / Leveling of Gypsum



### Construction Industry / Lime



### Construction Industry / Cement



### Construction Industry / Stone



### Food Industry / Seed



### Plastic Industry / Plastic Particles



### TECHNICAL DATA

#### ELECTRICAL SPECIFICATIONS

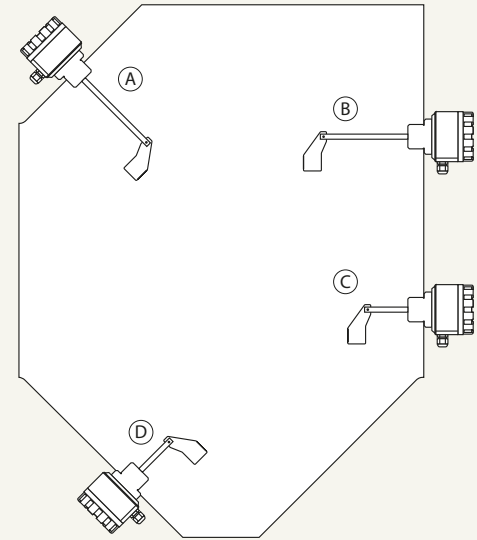
Connection Terminals	Max. 2mmÇ (AWG 14) cable entry
Sleeve	PG9
Power Supply (24V)	24V AC/DC ±30% max. 2.7W
Power Supply (220V)	85 - 270 V AC/DC max. 3.1 W
Signal Output	1 inverter relay AC max. 250V, 1A, 250 VA resistive load
Signal Delay	Max. 1.6 secs.
Protection Class	IP67/IP68 Opt. L: IP67, Opt. A: IP68

#### MECHANICAL SPECIFICATIONS

Housing	Option L: PC-ABS, Option A: Aluminum machining processing
Probe	IP66 EN60529
Bearing	Dust-tight double ball bearing
Sealing	Radially rotating shaft seal of NBR (or, optionally EPM material)
Screw Material	Delrin® POM-C EN 10204
Screw Size	R1½. DIN 259 whit worth threads
Rotary Shaft	Stainless Steel SS316
Housing Color	RAL 6014
Overall weight	1.16 kg

#### WORKING CONDITIONS

Ambient Temperature	-20°C.. +80°C
Process Temperature	-5°C.. +100°C
Min. Detection Intensity	250 g/l (with standard vane)
Max Output Torque	550 gcm
Shaft Rotating Speed	8 rpm
Max. Particle Size	12 mm (without the use of a shield)
Max. Mechanical Load	500 N laterally
Max. Mechanical Torque	Free rotating shaft
Max. Traction Force	1 kN
Max. Process Pressure	0.5 bars
Vibration Conformity	5-500Hz 3G RMS random vibration acc. to IEC-60068-2-64



#### MECHANICAL INSTALLATION

- Should be kept away from the point of material entry.
- Should be mounted vertical to the surface.
- Arrangements should be made to prevent the measuring vane's friction with the surface or any material clogging in between.
- It is better to have the cable entry in downward position, to prevent water intrusion.
- Where extremely heavy materials are processed, a shield should be provided to protect the shaft, thus reduce the amount of force exerted on the shaft.
- The device should be operated with its rear cover entirely closed, for watertightness.
- Mounting to the vibratory silos should not be made.
- For overflow checks at mounting spot A.
- For detecting maximum level at mounting spot B.
- For detecting minimum level at mounting spot C.
- For detecting no material level at mounting spot D.

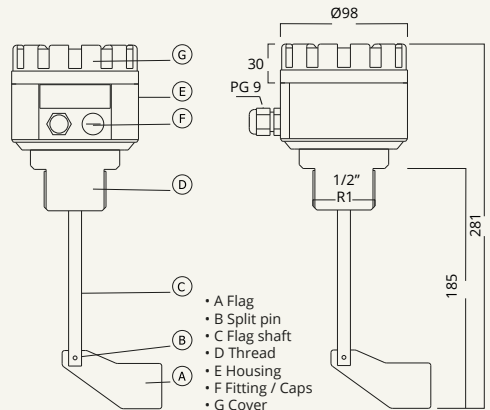
#### ORDERING CODES

The 4 versions currently available for sales are  
ROT 320L-24, ROT 320A-24 24V AC/DC supply type  
ROT 320L-220, ROT 320A-220 85-270V AC supply type.

#### COMPLIANCE TO APPLICABLE NORMS CE COMPLIANCE

Legal Compliance (CE conformance)

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







# Vibro 320 Series

VIBRATING FORK LEVEL LIMIT SWITCH  
(WITH PIEZO ELECTRIC CRYSTAL)



## APPLICATIONS

Orion Vibro is used with all powdery and granulated bulk materials of coarse grade, for level monitoring (detection) in all types of containers and silos. Vibrating level switch with capability to adjust sensing precision.



## A SELECTION OF FIELDS OF APPLICATION

- In Building Materials Industry; plaster, lime, fine sand, dolomite, calcite, perlite plaster, cement, rock, coal, pulverised coal dust, etc.
- In Food Industry; fodder, seed, flour, salt, sugar etc.
- In Plastics Industry; plastic granules etc.

## FUNCTIONS

Fitted to the vibrating level switch at its frontal end is a piezo-electrically stimulated oscillating fork, which electronically registers the loss of vibration and the damping thus generated if the probe is covered by the bulk material so that it can no longer vibrate and actuates a corresponding signal output. Detection settings can be made as required, depending on the specific weight of material processed.

Construction Industry /  
Fine Sand



Construction Industry /  
Perlite



Construction Industry /  
Dolomite



Food Industry /  
Milk



## TECHNICAL DATA

### ELECTRICAL SPECIFICATIONS

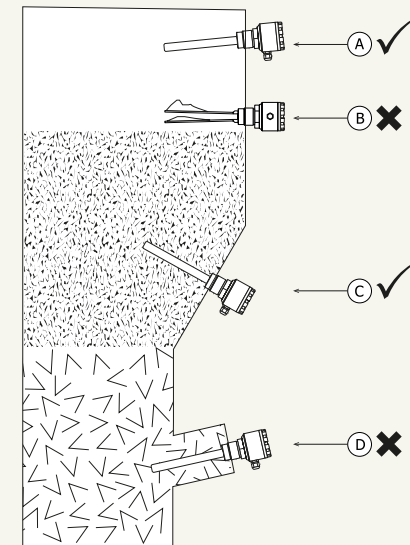
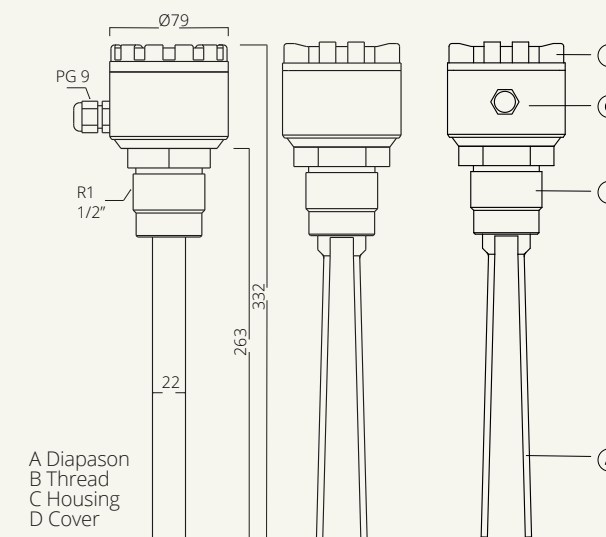
Connection Terminals	Max. 2mm² (AWG 14) cable entry
Sleeve	PG9
Power Supply 24V	24V AC/DC +-30% max. 2.0W
Signal Output	1 inverter relay AC max. 250V, 1A, 500VA resistive load
Signal Delay	Max. 1.0 sec.
Protection Class	IP68 (with cover in closed position and 4.... 8 mm thick rated cables used and sleeve fully torqued)

### MECHANICAL SPECIFICATIONS

Housing	Option L: PC-ABS, Option A: Aluminum machining processing
Probe	IP68
Screw Material	Stainless Steel SS316
Screw Size	R 1½. DIN 259 whit worth threads
Oscillating Fork	Stainless Steel SS316
Housing External Surfaces	Alodine coating finished with electrostatic powder paint RAL6014 (Option A)
Overall weight	1.16 kg

### WORKING CONDITIONS

Ambient Temperature	-20°C.. +60°C (outside)
Process Temperature	-20°C.. +100°C (material)
Min. Sensing Resolution	20 g/l
Vibrating Frequency	80 Hz
Max. Particle Size	6 mm (without a shield)
Max. Mechanical Load	500 N laterally
Max. Traction Force	1 kN
Max. Internal Silo Pressure	10 bars
Max. Vibration in operation	N/A



### MECHANICAL INSTALLATION

- Should be kept away from the point of material entry.
- It is better to have the cable entry in downward position, to prevent water intrusion.
- Where extremely heavy materials are processed, a shield should be provided to protect the shaft, thus reduce the amount of force exerted on the shaft.
- The device should be operated with its rear cover entirely closed, for water-tightness.
- Do not mount on vibrating surfaces or vibrating surfaces.

- A- For checking fullness at mounting spot.
- B- Wrong mounting procedure.
- C- For detecting minimum level at mounting spot.
- D- Wrong mounting procedure

### ORDERING CODES

VBR0320L-24VDC 24V supply type  
VBR0320A-24VDC with 24V supply type 2 types are sold.

### COMPLIANCE TO APPLICABLE NORMS

#### CE COMPLIANCE

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





# LSH 300 Series

Orion Magicap Level Switch



## APPLICATIONS

Orion Magicap is used to display (detect) levels of all kinds of powder and bulk solid materials in any type of container or silos. It is a magicap level switch with adjustable detection sensitivity.



## SELECTION FOR APPLICATION AREA

In construction industry for leveling of gypsum, lime, fine sand, dolomite, calcite, perlite, cement, stone, coal, pulverized coal powder etc.

In food industry for leveling of feed, seed, flour, salt, sugar etc.

## FUNCTIONS

When the capacitive sensing type level switch's probe which is located at the bottom of the instrument is surrounded by the bulk solid material, there will be a decrease in emitted RF power. An output signal is generated when the amount of reduction is higher than the sensitivity setting. Detection sensitivity can be set up for all kind material depending on type and dielectric constant.



Construction Industry /  
Cement



Construction Industry /  
Lime



Construction Industry /  
Perlite



Food Industry /  
Provender



Food Industry /  
Oil



Food Industry /  
Beverage



## TECHNICAL DATA

### ELECTRICAL SPECIFICATIONS

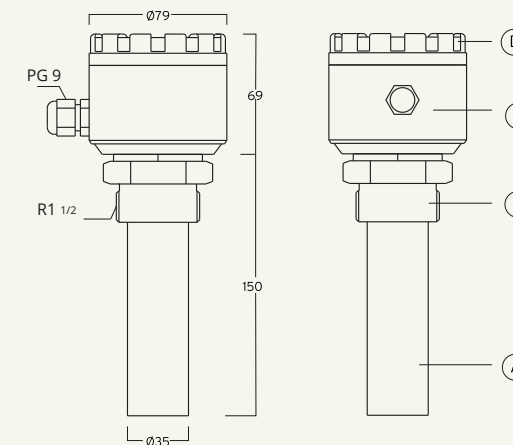
Connection Terminal	Max. 2 mm <sup>2</sup> (AWG 14) sectioned cable input.
Fitting	PG9
Supply Voltage	24V AC / DC + - 30% max. 1.2W
Signal Output	1 changeover contact AC max. 250V, 2A, 500VA resistive load
Signal Delay	Max. 1.0s
Protection Class	IP68 (cable cover fully closed and by using a fitting 4-8mm thick and full-bored)

### MECHANICAL SPECIFICATIONS

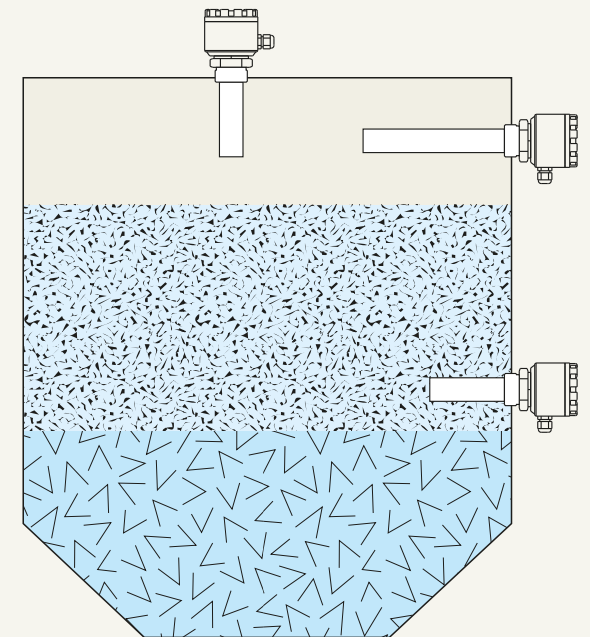
Casing	Aluminum machining process
Probe	IP68
Screw Material	Black anodized steel
Screw Size	R 1 1/2" Whitworth screw thread DIN259
Antenna Probe	DELFIN (+110°C stable) standard or TEFLON, VITON, PVDF option
Housing	Electrostatic powder paint RAL6014 over noncorrosive alodine coating
Weight	: 0.8 kg

### WORKING CONDITIONS

Ambient Temperature	-20°C ~ +60°C (ambient)
Operating Temperature	-20°C ~ +100°C (material)
Min. Sensing Density	40g / l
Probe Frequency	1.5 MHz
Max. Particle Size	18 mm (without using a guard)
Max. Mechanical Load	250 N from side
Max. Tensile Force	0.5 kN
Max. Silo Internal Pressure	10 bar
Max. Operating vibration	5-500Hz RMS random vibration 3G IEC-60068-2-64



- A Probe (Antenna)
- B Thread
- C Housing
- D Cover



### MECHANICAL INSTALLATION

- Instrument should be kept away from the material entrance.
- In order to prevent water leakage, cable entry should be positioned as downward.
- In case of exposure to extremely heavy materials a shield should be used to protect the probe, so that the force exerting onto spindle will be reduced.
- Housing should fully be closed to ensure that sealing appropriately maintained.
- Top installation location: To detect maximum level.
- Bottom installation location: To detect the minimum level.

### ORDERING CODES

LSHD315-24VDC 24V-feed type Plunge Length 150mm  
LSHD325-24VDC 24V-feed type Plunge Length 400mm  
LSHD350-24VDC 24V-feed type Plunge Length 650mm  
LSHD3100-24VDC 24V-feed type Plunge Length 1150mm

### 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.





# LHV 500 Series

Orion Magicap Level Transmitter



## APPLICATIONS

Orion Capacitive is used to display (detect) levels of all kinds of powder and bulk solids material in any type of container or silos. It is a capacitive level switch with adjustable detection sensitivity.



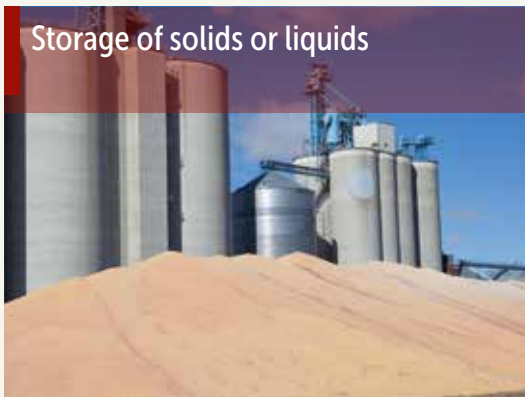
## SELECTION FOR APPLICATION AREA

In construction industry for leveling of gypsum, lime, fine sand, dolomite, calcite, perlite, gypsum, cement, stone, coal, pulverized coal powder, etc. In food industry for leveling of feed, seed, flour, salt, sugar, etc.

Water Treatment Plants

## FUNCTIONS

When the capacitive sensing type level switch's probe which is located at the bottom of the instrument is surrounded by the bulk solid material, there will be a decrease in emitted rf power. An output signal 4-20mA is generated according to the level. Detection sensitivity can be set up for all kind material depending on type and dielectric constant.



Storage of solids or liquids



Storage of solids or liquids



Storage of solids or liquids



Silo and Hoppers



Protection of overfilling



Protection of overfilling



## TECHNICAL DATA

### ELECTRICAL SPECIFICATIONS

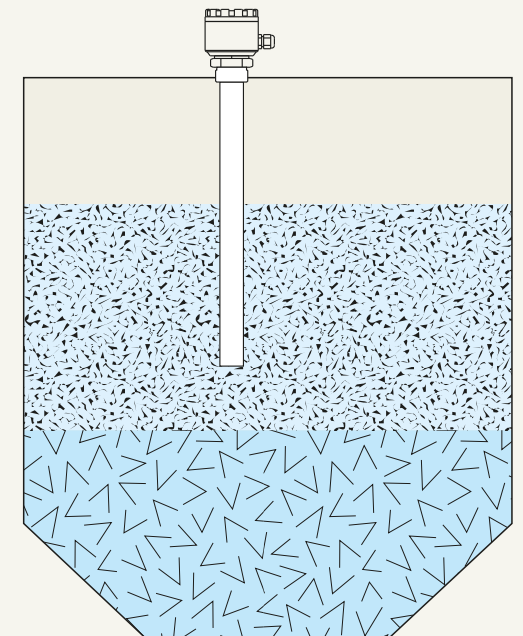
Connection terminals	Max. 2mm <sup>2</sup> (AWG 14) sectioned cable input.
	PG9
Signal delay	1 sec max
Sensitivity	Adjustable
Emitted frequency	1,5MHz
Power supply	15..35VDC 1.2W
Signal output	Analogue Out 4-20mA 10Bit / Control Relay out contact AC max. 250V, 2A, 500VA
Indicating light	Signal output and Diagnostic by built-in LEDs
Protection class	IP68 (cable cover fully closed, and by using a fitting 4 - 8mm thick and full-bored)

### MECHANICAL SPECIFICATIONS

Housing	Cast aluminium enclosure IP68
Enclosure	IP 67 or EN 60529
Screw Material	Black anodized steel
Screw size	R 1½. Whitworth screw thread DIN 259
Probe Material	Delrin® POM-C EN 10204
Surface treatment	Electrostatic powder paint RAL6014 over Noncorrosive alodine coating
Weight	0,8 kg

### WORKING CONDITIONS

Ambient temp. (housing)	-20°C.. +60°C
Process temperature	-40°C.. +100°C
Min. density	50 g/l
Grain size	18mm Max.
Mechanical load	500N laterally (on probe)
Max. Tensile force	0.5kN
Max process pressure	10 bar
Max. Operating vibration	5-500Hz RMS random vibration 3G
	IEC-60068-2-64



### ORDERING CODES

LVH500-0500-DELRIN-24VDC

LVH500-0500-TEFLON-24VDC

LVH500-0500-PVDF-24VDC

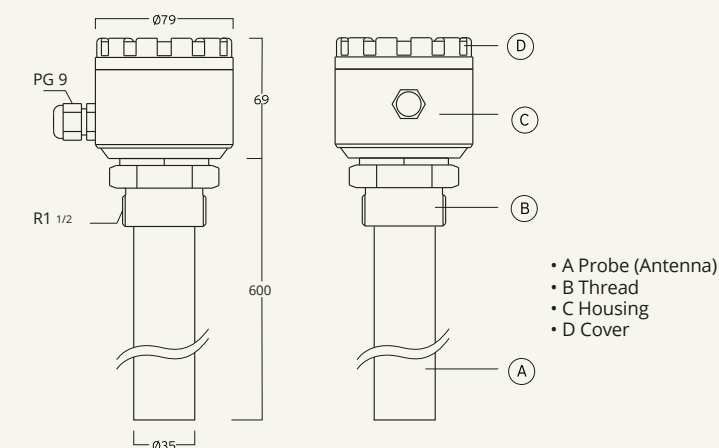
### COMPLIANCE TO APPLICABLE NORMS

#### CE COMPLIANCE

EN 61000-6-4:2001 Generic emission standard. Industrial environments.

EN 61000-6-2:2005 Generic immunity standard. Industrial environment.

EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control, and laboratory use.







APLICATION

The RDM Series is the ideal solution for digital data radio communications in SCADA and Telemetry applications at the competitive cost.



The RDM505 is a Half-Duplex data radio modem and Telemetry interface that is simple to configure and use. RDM505, ISM G3 Band 27dBm (500m Werp) radio modem, is used as the wireless data transmission in long distance up to 15km

With the small size, weight and low power consumption. It has the function of transperan data transmission, smart repeater, telemtry network managment support, I/O copy function, Remote firm-ware upgare function and remote self test function. It is used for wireless Telemetry and SCADA applications.

In addition; RDM505 has an enhanced Sleep Modes & Fast Wake-up Time function to allow use with “on demand” operation in Water flow meter and similar low power applications.

FEATURES

- Radio transmission power less than of 500mW
- High receiving sensitivity -112dbm
- ISM G3 frequency band carrier frequency of 869,40 to 869,65 MHz.
- High anti-interference and low BER ( Bit error Rate )
- Working Temprature -25°C to +85°C
- Long transmission distance
- Transparent data comunication
- Networked data communication
- Smart repeater
- 5 bidirectional I/O and Smart I/O copy function
- 10 channel and RF comunication speed up to 57600bps
- High speed wireless communication and large data buffer
- Low-power consumption
- RS232/485 Serial Interface



SPECIFICATIONS

Serial Interface	RS232/485
Serial interface speed rate	up to 115200 bps
Parity	None , Ode , Even
Speed rate in air	up to 57600 bps

CHANNEL AND FREQUENCY LIST

Channel	Frequency (MHZ)	Channel	Frequency (MHZ)
1	869,4000	9	.....
2	869,4250	10	869,6500
3	.....		
4	.....		
5	.....		
6	.....		
7	.....		
8	.....		

TECHNICAL SPECIFICATIONS OF RDM 505

Modulation Mode	2GFSK
Working Frequency	868MHz ( 869.400 - 869.650 MHz EU user )
Channel Spacing	25Khz and 250Khz( EU user )
Transmission Power	27dBm / 500 mW
Number Of Channels	10
Frequency Error	< +/- 100ppm
Type Of Emission	F1D
Comunication Mode	Half-Duplex
Receiving Sensitivity	-112dBm
Transmitting Current	<400mA
Receiving Current	<30mA
Sleeping Current	<3uA
I/O	24Vdc bidirectional I/O, Output Current 50mA
I/O	Low Level Vcc x 0,2
I/O	High Level Vcc x 0,8
Power Supply	9-36VDC
Working Humidity	10%-90% relative humidity without condensation
Working Temprature	-25°C ~ 85°C
Dimension	110x70x25 mm ABS plastic enclosure

ORDERING CODES

RDM 505 - 24Vdc

COMPLIANCE TO APPLICABLE NORMS

CE COMPLIANCE

EN 60950-1:2006	For article 3.1 (a): Health and Safety of the User
EN 301 489-1 V1.9.2	For article 3.1 (b): Electromagnetic Compatibility
EN 301 489-3 V1.4.1	For article 3.1 (b): Electromagnetic Compatibility
EN 300 220-2 V2.4.1	For article 3.2: Effective use of spectrum





# 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

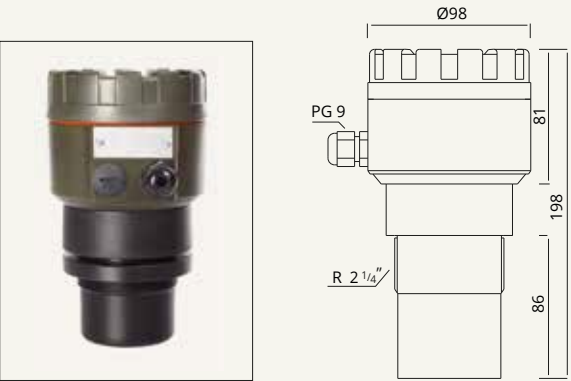
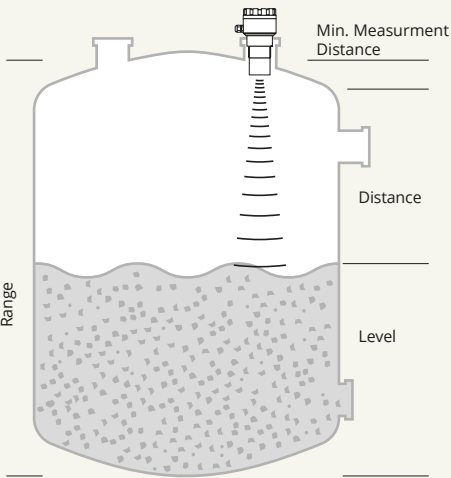
- It should be paid attention to make it perpendicular to the surface where measuring to be made in order to provide an accurate measuring
- Calculation of minimum distance of the device to the side during its assembly is half of value calculated by multiplying of distance from sensor end to the base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



ECHO 312 SERIES

### TECHNICAL DATA

#### ELECTRICAL SPECIFICATIONS

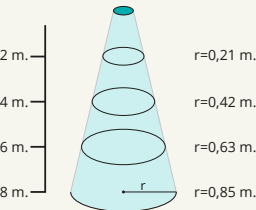
Connection Terminal	Max. 2 mm² (AWG 14) cross-sectioned cable inlet
Fitting	PG9
Supply Voltage	ECH3XX- 24V DC ±30% max. 4 W
Control Relay	2 pcs changeover NO contact AC max. 250 V, 1A
Analog Outlet	ECH3XX- 4-20 mA isolated (2 kV) 14bit ECH3XX- 4-20 mA isolated (2 kV) 14 bit/HART option
Serial Port	RS485 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





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	4x0.4mm2 (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

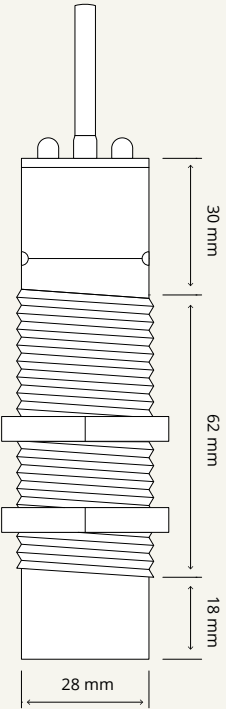
WORKING CONDITIONS

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

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



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