

# Ultrasonic Level Transmitter

## RUL11XX Series



Measuring Range: 0 ~ 0.3 - 20m



Measurement Accuracy:  $\pm 0.25\%$  (full range)



Output Signal: 4-20 mA/ HART/ RS485 Modbus



Protection: IP67

**Product  
Datasheet**

# ROCKSENSOR AT A GLANCE (ABOUT US)

Rocksensor is one of the global leaders specializing in process Instrumentation, Research and Development and Designing of Industrial Automation Equipment. We provide highly precise pressure sensors and transmitters, flow metres, level transmitters & temperature transmitters with a prime focus to help our clients efficiently, safely and economically run complex industrial processes.

Rocksensor headquartered in Germany (originated in Switzerland), has its footprint in various geographical regions such as the US, Russia, South Korea, Italy, Germany, Singapore, Malaysia, China, Taiwan, Australia, UAE, Brazil, and India. Our clients come from some of the major industries such as Oil and Gas, Petrochemicals, Pharmaceuticals, FMCG, Automobiles, Water, Cement, Metal & Mining and mainly from the Power Industry like Nuclear, Thermal, Hydro and Solar.

Rocksensor deals in a wide range of highly accurate industrial automation instruments ensuring that even the complex industrial processes happen efficiently.

To fulfill the needs of our clients we make sure that our instruments work in even the harsh environmental conditions offering accurate recordings and communication.

We, at Rocksensor, believe in creating bonds that last a lifetime and create a success story for each and every client. Rocksensor aims to achieve a perfect fit in global market landscape and establish our footprints across the globe.



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KEY APPLICATION INDUSTRIES

Oil and Gas sector	Chemicals
Cement	Power
Metal	Water
Pulp and Paper	Pharmaceutical
Agriculture	Fertilizer
Textiles	Plastics and HVAC

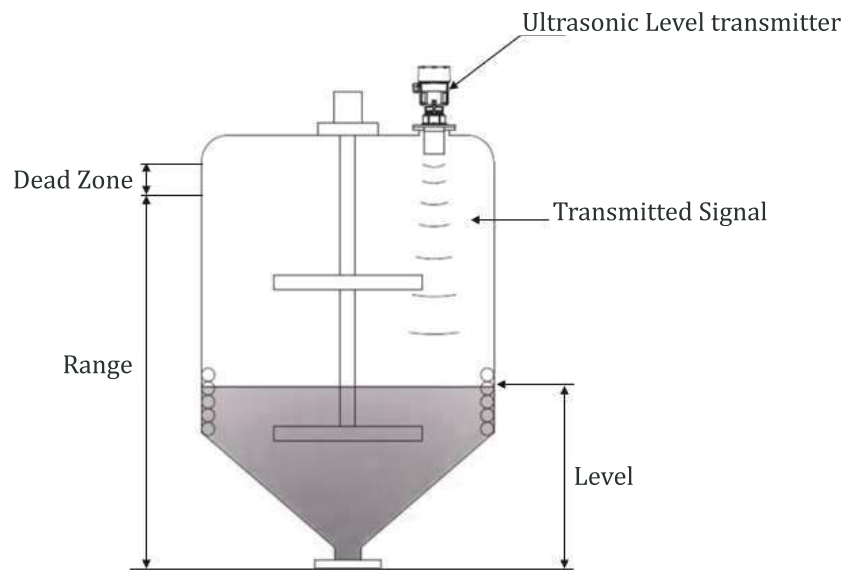
## 1. Overview

Ultrasonic level transmitter is a non-contact type, high reliability, cost-effective, easy to install and maintain level measurement instrument. It is used for measuring fluids like slurries, liquids and solids in industries like water/ water-treatment plants, municipal or sewage, Food & Beverages, Chemicals & Oil, Pharmaceutical, etc.

RULL11XX Series integrated Ultrasonic Level Sensor is available in 2-wire & 4-wire system.

## 2. Working Principle

Rocksensor Ultrasonic Level Transmitter works on the principle of “Time-of -Flight”. The sensor generates a pulse that sends ultrasound (mechanical) wave from the transducer face down to the fluid level. The media reflects the signal and the transit time delay between transmitting and receiving is converted into a 4/20mA output signal.



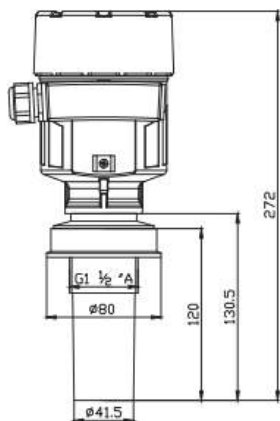
## 3. Application

1. Solids, Liquids
2. Buffer & storage tank levels
3. Open channel flow
4. Effluent pits
5. Reservoir level
6. Sanitary applications with CIP

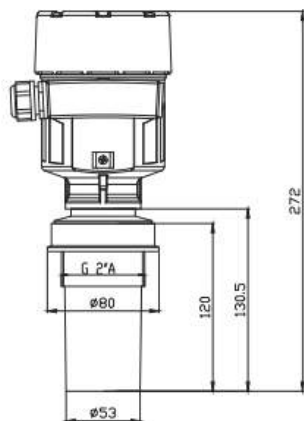
## 4. Advantages

1. Non-contact type continuous level measurement with no moving parts & less maintenance.
2. Simple set-up, With integral 4 digit LCD display and buttons for on-site Configuration
3. Measures liquid or Solid Level in the Tank
4. Automatic power adjustment, gain control, temperature compensation.
5. Various output forms: programmable relay output, 4-20mA current output, digital HART®, RS-485 digital communication output.
6. Advanced detecting technology, rich software functions to adapt to a variety of complex environment.
7. Good directivity, strong penetrability, easy to obtain more concentrated sound energy for further transmission distance.
8. Easy to install and configure
9. Rugged metal or plastic housing, with Corrosion resistant PVDF wetted material & with IP67 enclosure

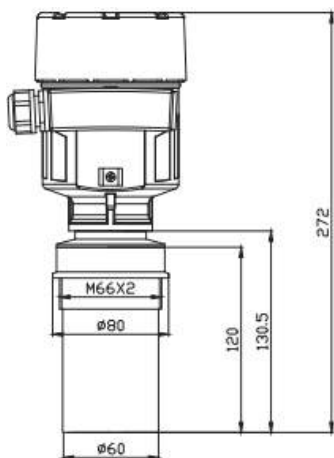
5. Dimensions (in mm)



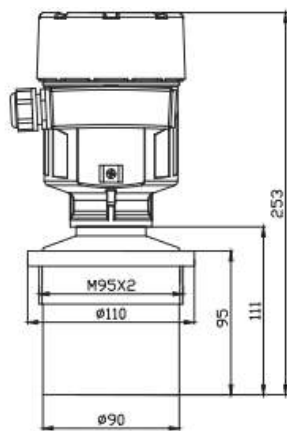
RUL1105



RUL1110

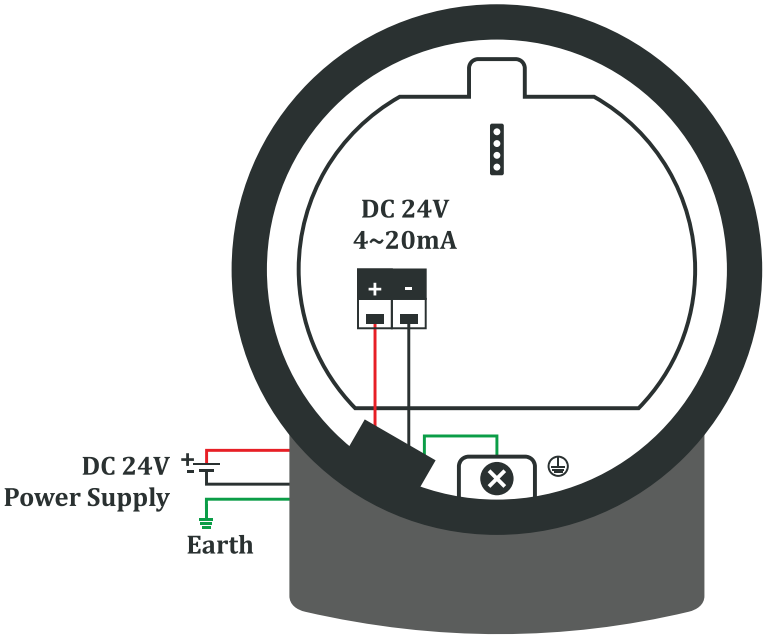


RUL1115



RUL1120

6. Electrical Connection



## 7. Technical Parameters

Model		RUL1105	RUL1110	RUL1115	RUL1120
Antenna Type	Standard Probe (Liquid)	(0.3 ~ 5m)	(0.4 ~ 10m)	(0.5 ~ 15m)	(0.6 ~ 20m)
	Probe Material	Open probe /PA66+GF30			
	Anticorrosive sealed probe (Liquid)	(0.3 ~ 4m)	(0.4 ~ 8m)	(0.5 ~ 10m)	(0.6 ~ 15m)
	Probe Material	PVDF			
	Standard probe & Anticorrosive sealed probe (solid)	(0.3 ~ 2m)	(0.4 ~ 4m)	(0.5 ~ 6m)	(0.6 ~ 8m)
	Probe Material	PVDF			
Beam Angle		5°			3°
Frequency		60kHz	50kHz	40kHz	28kHz
Measurement Accuracy		±0.25% (Full Range)			
Process Connection		G1 <sup>1</sup> / <sub>2</sub> "A or 1 <sup>1</sup> / <sub>2</sub> "NPT Thread	G2A or 2NPT Thread	M66*2 Thread	M95*2 Thread
Transducer Seal		Fluoride			
Weight		0.7KG	0.8KG	0.9KG	1.2KG
		(Final weight may depend on process connection & accessories)			
Process Temperature		(-)40 ~ 70°C			
Ambient Temperature		(-)20 ~ 70°C			
Process Pressure		(-)0.02 ~ 0.1MPa			
Output		4 ~ 20mA (24V DC 2-wire/ 4-wire system)/ 4 ~ 20mA (220V AC 4-wire system)			
Communication		HART (2-wire)/ RS485 (4-wire)			
Explosion proof rating		Exia IIB T6 Ga (Aluminium housing)			
Ingress Protection		Plastic Housing IP66/ Aluminium housing IP67			
Surge Protection		Optional			
Relative Humidity		<95%			
Resolution		1mm			
Repeatability		±3mm			
Damping Time		0 ~ 30s adjustable			
Fault Output		20.5mA; 22mA; 3.9mA			
Resistance To Vibration		10m/s <sup>2</sup> Mechanical vibration			
Housing Material		Plastic(PBT)/ Die cast aluminium			
Housing Seal		Fluoride			
Upper Cover Windows		Polycarbonate (PC)			
Ground Terminal		Stainless Steel (SS)			
Cable Inlet/ Plug		One M20×1.5 cable entry (cable diameter 5 ~ 9mm)/ 1 blind plug M20×1.5			
Spring Terminal Block		2.5 mm <sup>2</sup> for traverse cross section			
Power Supply	2-wire (Std.)	Standard Type	24VDC		
		Intrinsic Safety	21.5 ~ 26.5VDC		
		Power Consumption	Max. 22.5mA		
		Allowable Ripple	<100Hz - (100 ~ 100k)Hz		
	4-wire	Standard Type	24(1±10%)V DC/ 220(1±10%)V AC		
		Power Consumption	Max. 1VA, 1W		

## 8. Model Example

### Example: RUL1105

Explosion-proof grade: Non-explosion-proof (standard type)

Range: 0-5 meters

blindzone: 0.3 meters

Frequency 60KHZ

Antenna: C type anti-corrosion sealed type (material: PVDF)

Process connection: G1<sup>1</sup>/<sub>2</sub> Thread

Process temperature: (-)40 ~ 70°C

Process Pressure: (-0.02-0.1)MPA

Accuracy:  $\pm 0.25\%$

Signal output: (4-20)mA/ 24VDC

Electrical interface: M20\*1.5

Protection level: Aluminum housing IP67

Four-digit display programming



## Field Instrumentation Range



### Pressure Measurement

- Smart Differential Pressure Transmitter
- Smart Gauge Pressure Transmitter
- Smart Absolute Pressure Transmitter
- Miniature Pressure Transducer without display
- Sanitary Gauge/ Absolute Pressure Transmitter

- Submersible Pressure Transmitter
- Remote Seal Differential P.T. with capillary
- Remote Seal Differential P.T. Direct Mount
- Remote Seal Gauge/Absolute P.T. with capillary
- Remote Seal Gauge/Absolute P.T. Direct Mount



### Flow Measurement

- Coriolis Mass Flowmeter
- Thermal Gas Mass Flowmeter
- Positive Displacement Flowmeter
- Electromagnetic Flowmeter
- Vortex Flowmeter

- Turbine Flowmeter
- Variable Area Flowmeter
- Clamp On Ultrasonic Flowmeter
- Inline Ultrasonic Flowmeter
- Portable Ultrasonic Flowmeter



### Level Measurement

- RADAR Level Transmitter Horn Antenna
- Compact RADAR Level Transmitter
- RADAR Level Transmitter Sanitary
- RADAR Level Transmitter
- Guided Wave RADAR Level Transmitter
- Guided Wave RADAR Level Transmitter
- RADAR Level Transmitter Lens Antenna

- RADAR Level Transmitter Rod Antenna
- Ultrasonic Level Transmitter
- Microwave Barrier Level Switch
- Admittance Level Switch Series
- Vibrating Rod Level Switch Series
- Tuning Fork Level Switch Series



### Temperature Measurement

- Head Mount Temperature Transmitter
- Temperature Transmitter for Sanitary Applications

- DIN Rail Temperature Transmitter
- Field Mount Temperature Transmitter

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