

# 140GHz Radar Level Transmitter

## RLT6401-C



**FMCW 140GHz Radar**



**Response time: < 2s**



**Measuring Range: upto 35m**



**Protection level: 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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## 1. Typical application

Continuous level measurement of liquids and solid with lower demands of pressure and temperature ranges. It's particularly suitable for applications with small mounting space.


## 2. Advantages and features

- Isolated emitting and receiving signal enable full range measurement without dead zone. Unaffected by buildup near sensor.
- Real time self-monitoring on voltage, current and chip. Output warning when abnormality present.

## 3. Measuring principle

The radar uses 140GHz Frequency Modulated Continuous Wave. The FMCW radar emits a high frequency signal whose frequency increases linearly during the measurement phase (called the frequency sweep). The signal is emitted, reflected from the measuring surface and received with a time delay, (t). Delay time,  $t=2d/c$ , where (d) is the distance to the product surface and (c) is the speed of light in the gas above the product. For further signal processing the difference  $\Delta f$  is calculated from the actual transmit frequency and the receive frequency. The difference is directly proportional to the distance.

## 4. Technical data

Parameters	Details
Application	Measurement of liquid & solid with simple process condition
Measuring range	0 ~ 35m
Power	< 0.5 W
Response time	< 2s
Resolution	1mm
Wetted parts materials	Antenna: PVDF; Seal: PTFE
Repeatability	±1mm
Frequency	140GHz
Process fitting	Thread G1½ (2" flange) - Beam angle: 8°; (Mounting strap optional)
Process temperature	(-)40°C ~ 100°C (upto 130°C optional with G3 Thread) 
Process pressure	-1bar ~ 3bar
Protect level	IP67
Accuracy	±2mm
Signal output	4 ~ 20mA/ RS485/ HART
Display and Adjustment	Tank side display, Software (MODBUS RS485), smartphone
Electrical connection	2×M20*1.5 (Cable diameter 9 ~ 13 mm) ½NPT
Ex information	Ex ia IIC T6 Ga
Housing	Plastic (only)

## 5. Electrical Connection

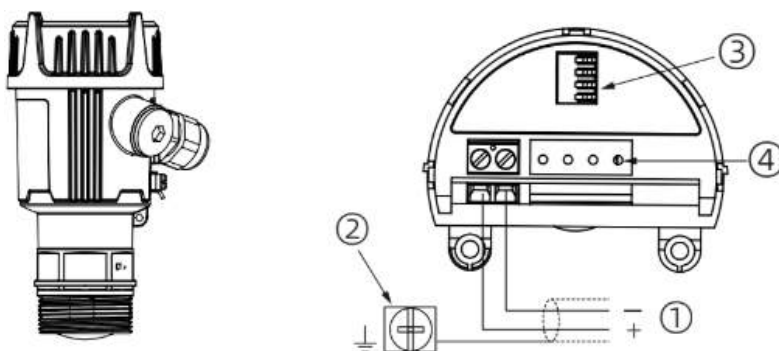
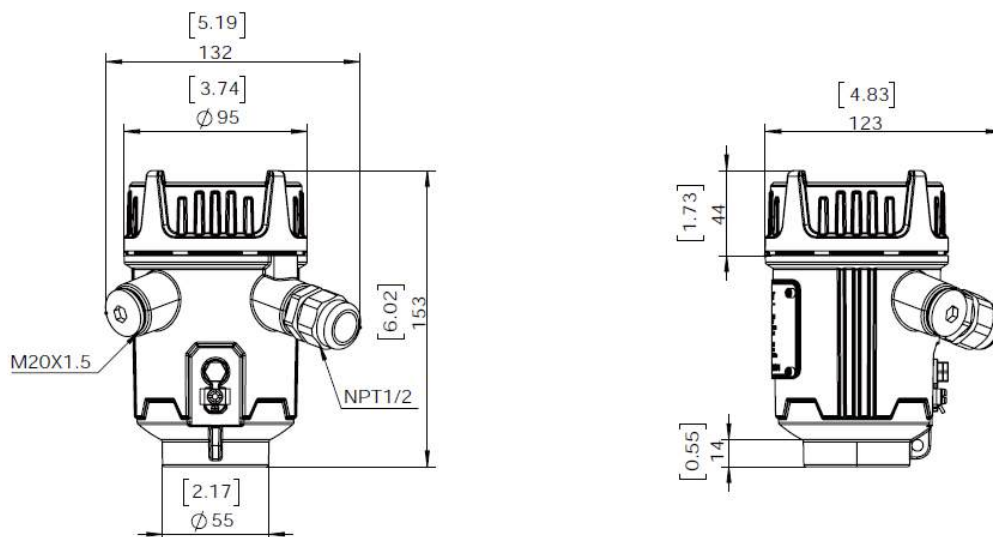


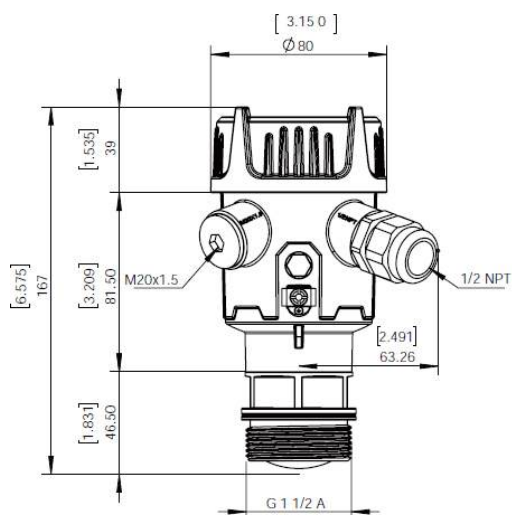
Diagram: Wiring compartment of the RLT6401-C radar level meter 24V single compartment housing

- (1) 24V Power supply line
- (2) Grounding screw inside the case
- (3) LCD connection module
- (4) Wiring terminal block

## 6. Dimensional Drawing



RLT6401-C (Housing Size)



RLT6401-C

## 7. Model Selection Table

RLT6401-C		140GHz Radar Level Transmitter									
Code		1	2	3	4	5	6	7	8	9	10
<b>Accuracy</b>											
±2mm	A										
<b>Approval</b>											
Standard	XX										
Ex ia IIC T6 Ga	CX										
<b>Antenna version/ Material</b>											
Compact antenna/ PVDF	A										
<b>Process Fitting</b>											
Thread G1½ (std.)	TG										
Thread G3	TH										
Flange DN50	FC										
Flange DN80	FD										
Flange DN100	FE										
Flange DN150	FK										
Flange ASME 2"	AM										
Flange ASME 3"	AN										
Flange ASME 4"	AP										
Flange ASME 6"	AR										
Customized	TT										
<b>Cable Entry</b>											
M20*1.5	M										
1/2" NPT	N										
<b>Flange Material</b>											
A	Without flange										
B	SS304										
G	PP										
T	Customized (PTFE/ PVC/ SS316)										
<b>Sealing Material/ Temp./ Pressure</b>											
M	FKM/-40 ~ +130°C/ -1~3bar										
N	FKM/-40 ~ +200°C/ -1~3bar										
O	EPDM/-40 ~ +130°C/ -1~3bar										
T	Customized										
<b>LCD Display</b>											
X	Without										
A	With										
<b>Electronics</b>											
H	Two-wire 4~20mA/ HART; 24 VDC										
A	Two-wire 4~20mA/ RS485; 24 VDC										
T	Bluetooth										
<b>Housing/ Protection</b>											
A	Single chamber/ Plastic / IP67										

codes need to change  
sequence need to change

### Example: RLT6401-C-ACXATGMAHXNC

RLT6401-C - 140GHz Radar Level Transmitter

A - Accuracy : ±2mm

CX - Approval : Ex ia IIC T6 Ga

A - Antenna version/ Material : Compact antenna PVDF

TG - Process Fitting : Thread G1½

M - Cable Entry : M20\*1.5

A - Housing/ Protection : Single chamber/ Plastic / IP67

H - Electronics : Two-wire 4~20mA/ HART; 24 VDC

X - LCD Display/ Bluetooth : Without/Without

N - Sealing Material/ Temp./ Pressure : FKM/-40 ~ +200°C/ -1~3bar

C - Flange Material : SS316

\*For any customisation, contact our sales team



## 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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