

3D Radar Scanner ROCK3DR



Frequency: 120GHz ~ 140GHz



Accuracy: $\pm 2\text{mm}$



Power Supply: 24VDC



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. Introduction

3D Radar Scanner is based on single-point radar terahertz frequency modulation continuous wave technology. Using motors to drive the radar sensor to rotate in multiple dimensions. The rotation position & angles of target can be obtained. The level & volume measurement information is obtained through the cloud server then forms a visual 3D image.



2. Key Features

- Highly accurate results
- Independent of buildup & noise
- Real time surface level, volume & mass values
- Generate a 3D image of the material photograph
- Reports minimum, maximum & average distances
- User-friendly software system
- Wide range of applications
- Simple installation



3. Key Applications

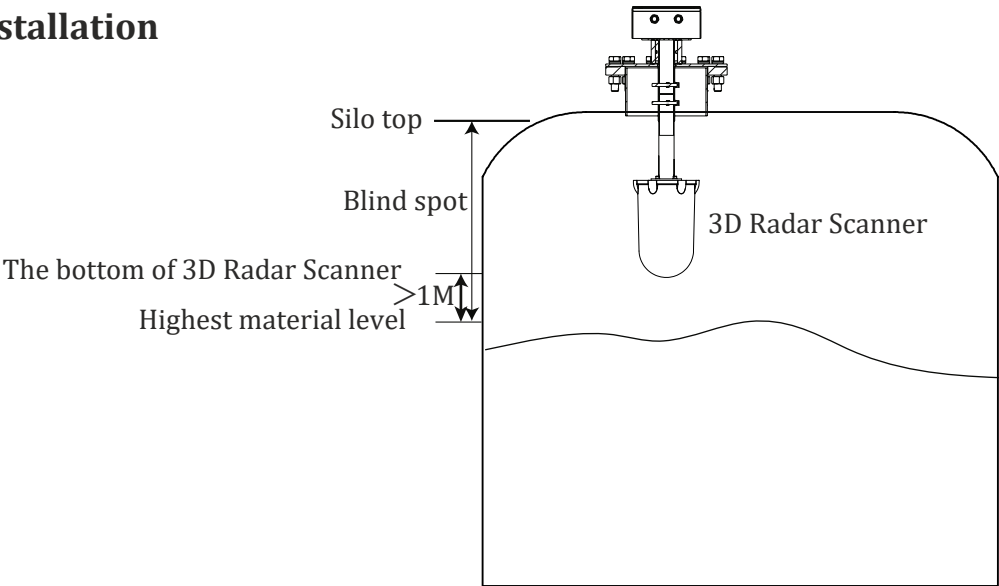
- Grain, Seed & Feed
- Food & Beverage processing
- Ethanol & Bioenergy
- Power plants
- Aggregates & cement
- Concrete batch plants
- Mining operations
- Metal manufacturing
- Chemical processing
- Plastics & resins
- Pulp, paper or wood pellets



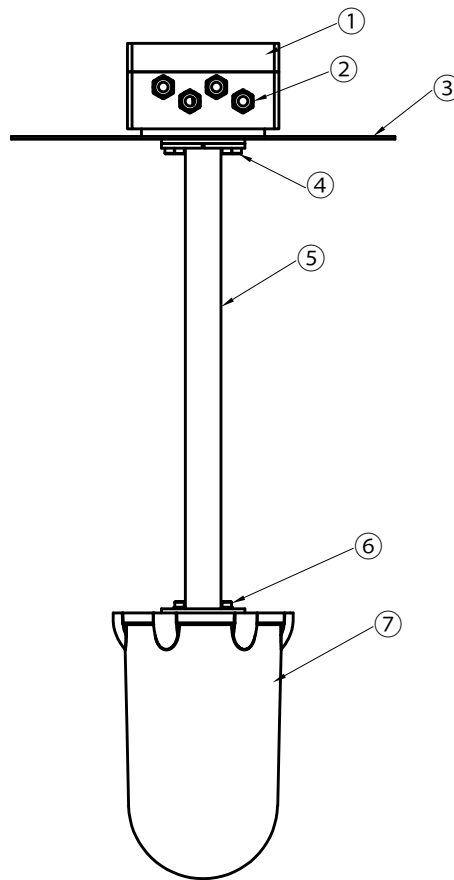
4. Technical Data

Parameters	Details
Frequency	120GHz ~ 140GHz
Application	Bulk, Grains, Powders
Measuring Range	20m, 40m, 80m, 120m
Measurement Accuracy	Level accuracy ±2mm; 3D modeling 0.5% ~ 2%
Beam Angle	1.5°
Horizontal rotation angle range	0 ~ 360°
Horizontal step angle	1° (adjustable)
Pitch measurement angle	single direction (-)90° ~ 90° (settable)
Pitch step angle	1° (adjustable)
Power supply	24V Power supply (Every 3D radar ensures a power supply current of 0.5A)
	220V Power supply (Including 220V to 24V conversion power supply)
Consumption	8W
Process temperature	-40°C ~ 75°C (customized for high temperature)
Process pressure	0 ~ 1bar (customized for high temperature)
Process connection	≥ DN200 flange
Communication	MODBUS RS485; Ethernet; FDDI; 4G; 5G; TCP/OPC/WebAPI
Housing material	6061 Aluminium Alloy or Nylon
Protection	IP67
Installation Method	The instrument flange is directly connected and fixed to the top of the compartment/ via Riser/ Customizable
Dimension	308.50x185mm
Weight	5kg

5. Installation



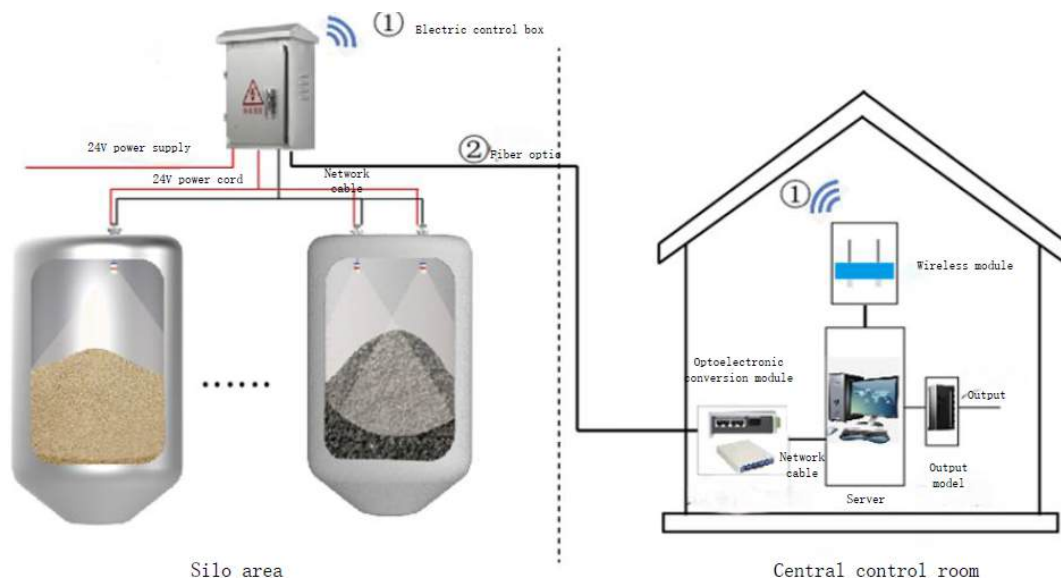
6. Assembly Diagram



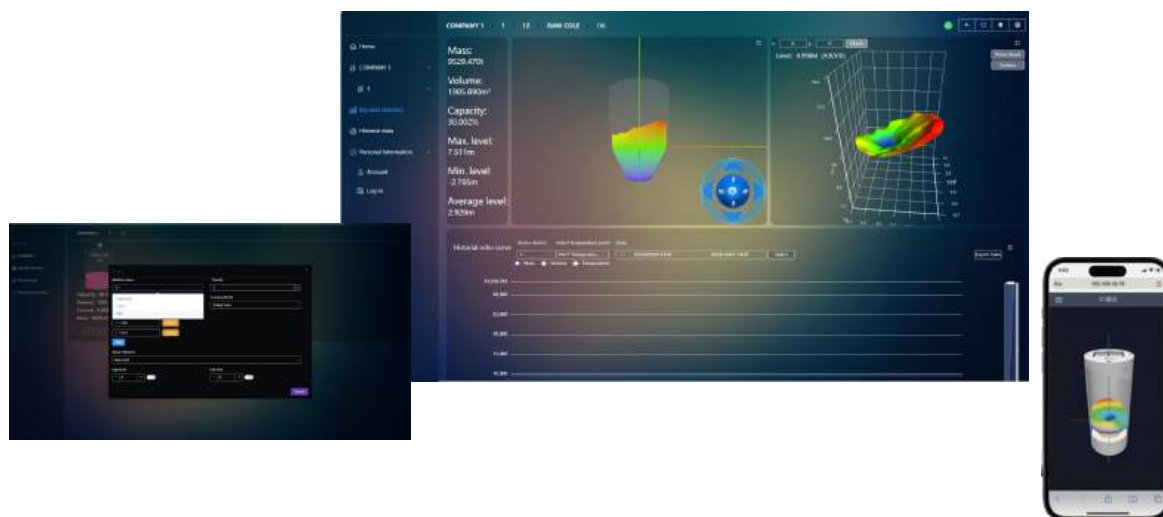
Dust explosion-proof 0.5m Annotation for sinking assembly number		
No.	Name	Quantity
1	Junction box	1
2	Outgoing connector	4
3	Instrument flange	1
4	M6 bolt	6
5	0.5m sinking bracket	1
6	M6 bolt	4
7	3D Radar Scanner	1

7. ROCK3DR Radar Communication

The ROCK3DR Radar Scanner transmits the measurement data to the host through fiber optic/4G/5G (wireless). The data can be calculated, processed, analyzed, & modeled by the computing center in the host's local server in conjunction with the installation position of the 3D device to obtain three-dimensional point cloud coordinate information, material level, & volume. Then, based on the volume & the density of the material, the quality information is calculated & presented on the upper computer interface. In addition, measurement data can also be uploaded to the cloud, & real-time data from different locations can be collected, viewed, & summarized through mobile devices (such as mobile phones, PADs, etc.) to monitor the material situation in silos at any time & anywhere, & remotely control the 3D Radar Scanner. Multiple output mode optional: Output relevant information such as material height, quality, volume, point cloud, etc. to the customer control system through 4-20mA, RS485, serial port, network port, OPC form, & participate in chain control or integrated display.



8. Software



- One click to login
- Manage multiple silos
- Good user experience
- Permanent free upgrade

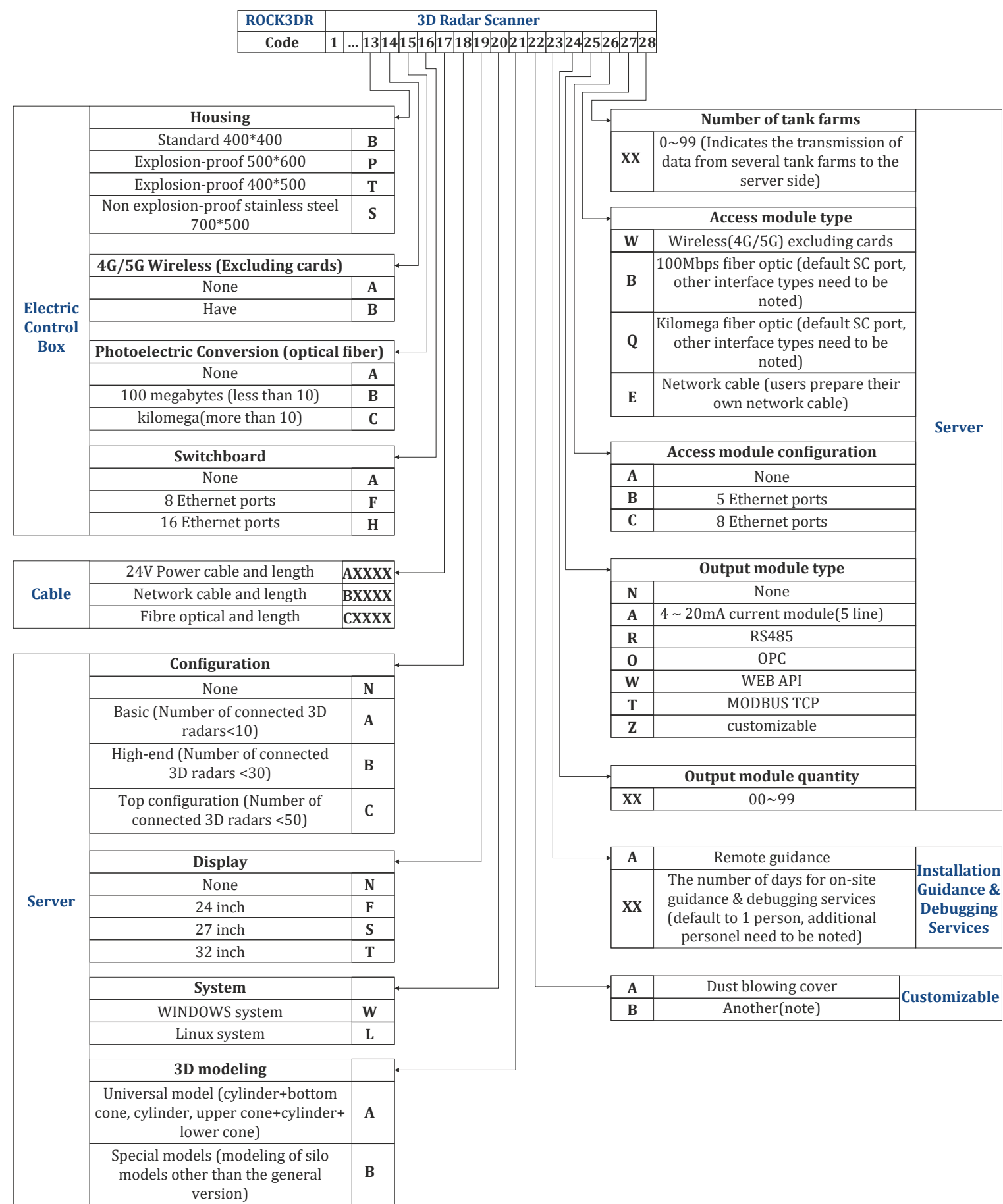
9. Model Selection Table

ROCK3DR		3D Radar Scanner																																					
Code		1	2	3	4	5	6	7	8	9	10	11	12	...	28																								
3D Radar Scanner (Probe)	Explosion-proof																																						
	Non explosion-proof	A																																					
	Dust explosion-proof 21 zone	B																																					
	Range																																						
	20m	1																																					
	40m	2																																					
	80m	3																																					
	120m	4																																					
	Housing material																																						
	Aluminium+plastic	A																																					
	Plastic housing	B																																					
	Process temperature/ Pressure/ Diameter/ Height																																						
	<65°C	N																																					
	65~150°C/1bar/350mm/1m	B																																					
	65~150°C/1bar/350mm/0.5m	A																																					
	150°C~250°C/1bar/350mm/1m	D																																					
	150°C~250°C/1bar/350mm/0.5m	C																																					
	250°C~450°C/0bar/400mm/1m	F																																					
	250~450°C/0bar/400mm/0.5m	E																																					
	450°C~1200°C/0bar/400mm/1m	H																																					
	450°C~1200°C/0bar/400mm/0.5m	G																																					
	Customizable	T																																					
	Environment temperature range																																						
	-20°C~60°C	A																																					
	-40°C~80°C	B																																					
	Supply voltage																																						
	24V Power supply	D																																					
	220V Power supply	A																																					
	Process Flange																																						
	None	N																																					
	DN200	A																																					
	DN250	S																																					
DN300	T																																						
DN350	F																																						
DN400	B																																						
Customizable	Z																																						
Flange material																																							
Carbon steel	C																																						
SS304	S																																						
Sinking bracket type and height																																							
Aluminum alloy version, a multiple of 50MM	AXXX																																						
Aluminum alloy spray paint version, a multiple of 50MM	BXXX																																						
Stainless steel version , a multiple of 50MM	CXXX																																						

Installation method	
A	Direct
B	Installation riser
C	Customizable

Junction box type	
A	Aluminum version 160x160
B	Aluminum version 200x300
C	Aluminum version 400x310
D	Explosion-proof version 300x300
E	Explosion-proof version 400x400

Junction box configuration	
A	Standard (Power interface、network cable interface)
B	Data aggregation version(including 5-port switch)
Z	Other(Customizable)



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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