ROCKSENSOR®

High Performance Smart Differential Pressure Transmitter

RP1001

- High Stability Silicon Sensor
- Reference Accuracy up to 0.035%
- Reverse Polarity & Surge Protection
- HART7 & ATEX, CE, SIL Certified

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.

ROCKSENSOR

CONTENTS

KEY APPLICATION INDUSTRIES

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

1. Salient Features

- High Stability Silicon Sensor with accuracy up to 0.035%
- Overload Pressure up to 60 MPa
- Packaged Temperature Sensor inside
- Static Pressure error up to 0.05%/10 MPa
- Inbuilt Reverse Polarity Protection
- Inbuilt Surge Protection
- Available with square root output function
- IP67 Grade Protection
- Integrated Push-button
- HART
- ATEX, CE, SIL Certified

2. Technical Specifications

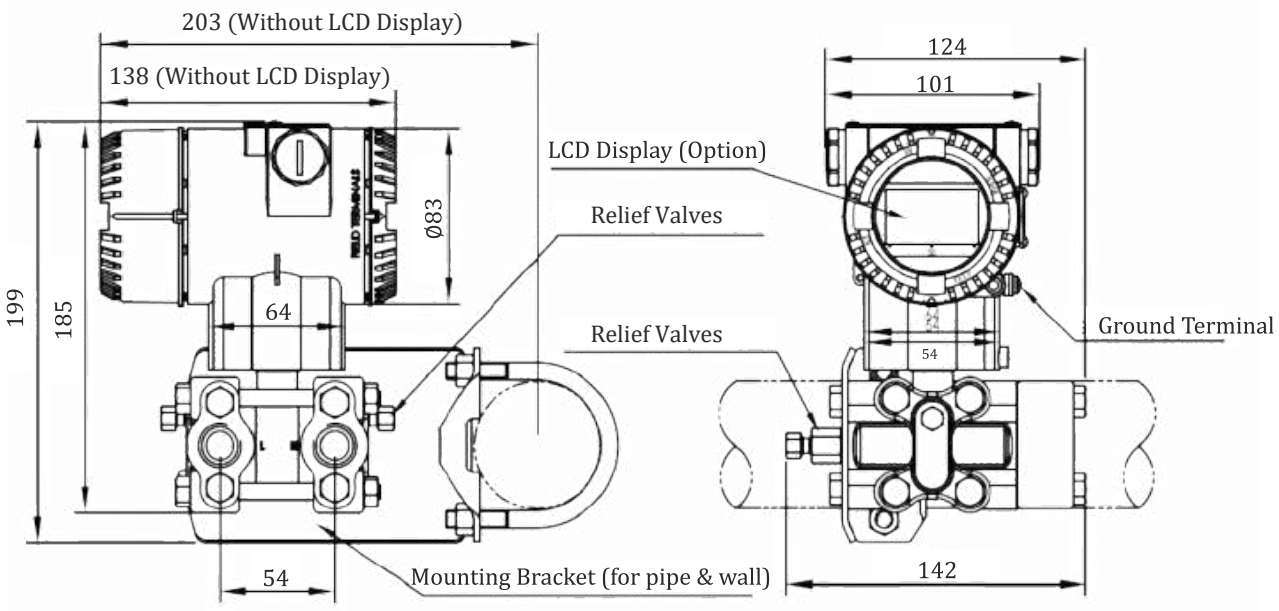
Parameter	Details
Medium	Gas, Steam, Liquid
Measurement Range	0 - 100 Pa ~ 3 MPa
Reference Accuracy	±0.035%/ ±0.06%/ ±0.1%
Square Root Output Accuracy	1.5 x Linear Output Accuracy
Ambient Temp. Effects	(-)25 ~ 65°C: ±(0.075%*TD + 0.025%)% x Span
Over Range Effects	±0.05% x Span
Static Pressure Effects	±(0.025%URL + 0.05%Span)/ 10 MPa
Over Pressure Effects	±0.05%URL/ 10 MPa
Stability	±0.15%URL/ 10 years
Power Supply Effects	±0.001%/ 10 V (12-36 VDC)
Zero Setting	Zero Point and range can be adjusted to any value within the measure range in the form as long as: Calibrating Span ≥ Maximum range
Span & Range	Randomly adjusted between Upper Range and Lower Range
Mounting Position Effects	Tilting up to 90°, zero shift up to 0.4 kPa (40 mmH2O) (This can be adjusted)
Output Options	2 Wire, 4-20 mA HART 7 (std.)
Output Signal Limit	Imin= 3.9mA, Imax = 20.5mA
Failure Alarm	NAMUR NE43 Compliant/ Low Mode: 3.6 mA/ High Mode: 21 mA
Response Time	Up to 100 ms; Amplifier damping time constant is adjustable from 0.1 to 60 sec
Turn ON time	<5s
$T_{Ambient}$	(-)40°C ~ 85°C/ (-)20°C ~ 65°C (With LCD, Fluorine O-ring)
$T_{Process}$	(-)30°C ~ 120°C; Up to 600°C available in Remote seal DPT available as an option
$T_{Storage/\ Transportation}$	(-)50°C ~ 85°C/ (-)25°C ~ 85°C (With LCD
Static Pressure Limit	3.5 kPa abs to Max. Working Pressure
Working Pressure	16MPa/ 25MPa/ 40MPa
Burst Pressure	1.5 x Working Pressure
One-way Overload Limit	Maximum Working Pressure Limit
Turn Down Ratio	Min. 10:1, Max. 100:1
EMC	Complaint to IEC61326-1
Explosion Proof	Intrinsic safety-II 2 G Ex ia IIC T4/T5/T6 Ga,
	Explosion Proof-II 2 G Ex db IIC T4/T5/T6 Gb,
	Dust Explosion Proof-II 2 D Ex tb IIIC T80°/T90°/T130° Db
Power Supply	24 VDC (9-36 VDC)
Load	$R \leq (U_s\text{-}12V)/I_{max}$ kΩ, I_{max} = 23mA
Overload Range for Digital Communication	230 ~ 600Ω

Electrical Connection	M20x1.5, suitable for wire cross-section up to 2.5sq. mm, 1/2"NPT
Isolating Diaphragm MOC	SS316L Stainless Steel/ Hastelloy C/ Gold plated on SS316L/ FEP plated on SS316L/ Tantalum
Process Connection & MOC	Flange with thread 7/ 16" UNF and 1/4 NPT, SS316
Filling Fluid	Silicone Oil/ Fluorine Oil
Housing	Die Cast Aluminium with Epoxy Resin Coat
	Stainless Steel Housing available as an option
Housing Gasket	Perbunan (NBR)
Tag Plate	SS304/ SS316 (optional)
Nut & Bolt MOC	SS304/ SS316 (with SS housing)
Ingress Protection	IP67
Mounting Bracket	Galvanised Carbon steel (Std.)/ SS304/ SS316 (optional)
Surge Protection	Available
Lightening Protection	Optional
Display	$5^{1/2}$ Digit LCD Backlit Display (Std.)/ OLED
Sensor	Piezoresistive
Reverse Polarity Protection	Available
Configuration	Through in-built Push-button/ Handheld HART Communicator/ Rocksensor Software
Safety Integrity	SIL2 Certified
Certification	CE certified
Weight	3.5kg (including Aluminum housing,mounting bracket and process connection)
Over Protection Range	150%
Voltage for LCD/ OLED	13.5 VDC

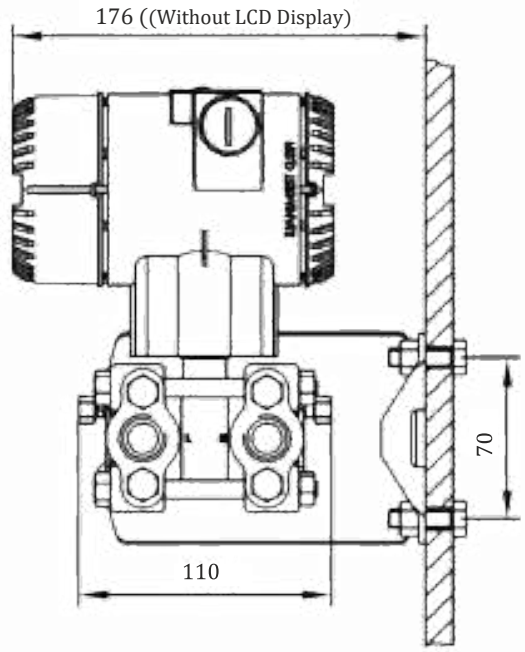
Span & Range

Span A Table		**kPa**	**inH_2O**	**mbar**	**mmH_2O**
B	Span	0.2 ~ 6	0.8 ~ 24	2 ~ 60	20 ~ 600
	Range	(-)6 ~ 6	(-)24 ~ 24	(-)60 ~ 60	(-)600 ~ 600
C	Span	0.4 ~ 40	1.6~ 160	4 ~ 400	40 ~ 4000
	Range	(-)40 ~ 40	(-)160 ~ 160	(-)400 ~ 400	(-)4000 ~ 4000
D	Span	2.5 ~ 250	10 ~ 1000	25~ 2500	0.25 ~ 25mH_2O
	Range	(-)250 ~ 250	(-)1000 ~ 1000	(-)2500 ~ 2500	(-)25 ~ 25mH_2O
F	Span	30 ~ 3000	120 ~ 12000	0.3~ 30 bar	3 ~ 300mH_2O
	Range	(-)500 ~ 3000	(-)2000 ~ 12000	(-)50 ~ 30bar	(-)50 ~ 300mH_2O

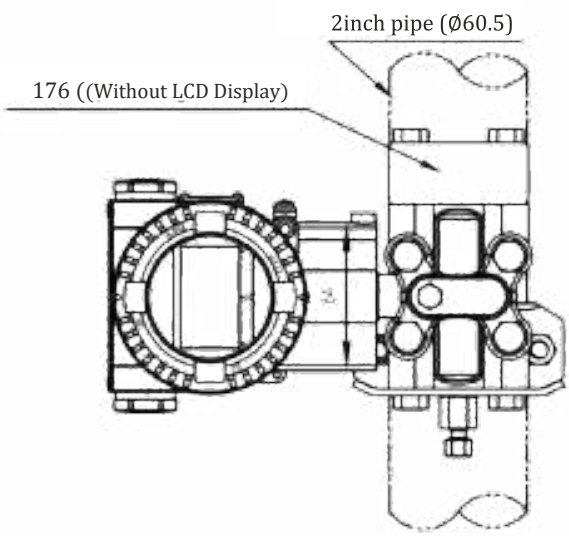
3. Dimensions (mm) & Installations



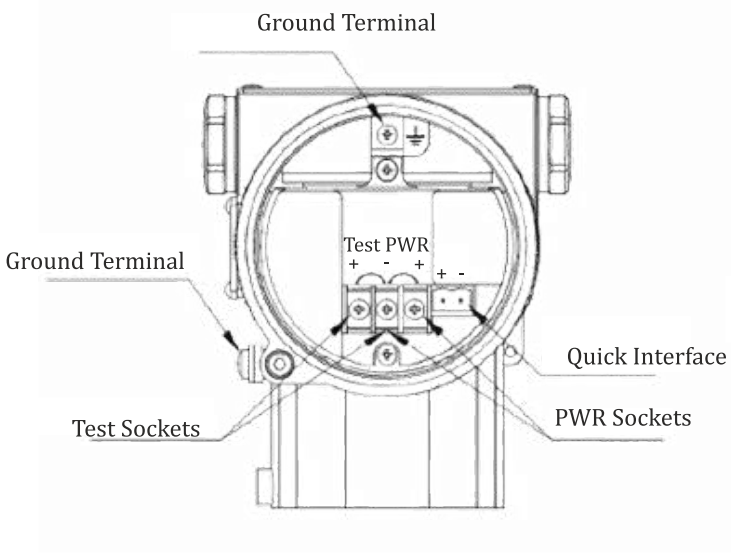
Horizontal Piping Connection Type (Side) **Horizontal Piping Connection (Front)**



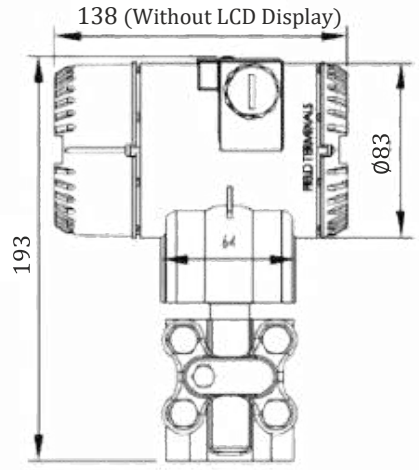
Wall Mounting Connection Type



Vertical Piping Connection Type

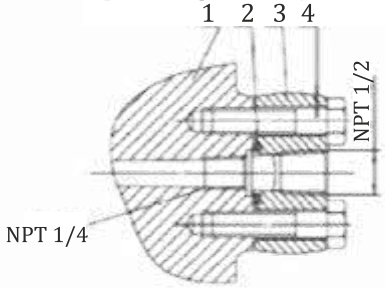
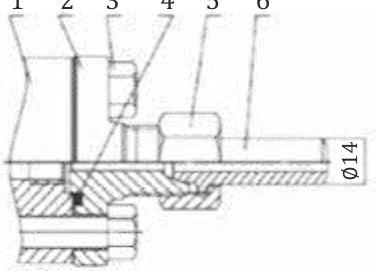


Terminal Configuration



Vertical Mounting Flange (Code V)

4. Process Connection Description

Process Connections	
Oval-shaped flange with 1/4-18 NPT female thread (code1) 1 2 3 4  1 Flange 2 O Ring 3 Oval-shaped Flange 4 Bolt	D-shaped connector with M20x1.5 male thread 1 2 3 4 5 6  1 Flange 2 D- shaped connector 3 Bolt 4 O ring 5 M20x1.5 Nut 6 Joinig Pipe

RKS ROCKSENSOR®

5. Model Selection Table

RP1001	Differential Pressure Transmitter													
Code	1	2	3	4	5	6	7	8	9	10	11	12	...	18

Accuracy	
±0.035% of span	A
±0.06% of span	B
±0.1% of span	C

Sensor Type	
Piezo-resistive Silicone Sensor	1

Output	
4-20mA with HART7	B

Static Pressure Sensor	
None	0
40 MPa (only applicable to 7MPa rated working pressure, only for span A)	1

Span	
0-100Pa ~ 1kPa (0-10 ~ 100mmH_2O/ (0-1 ~ 10mbar) (Accuracy 0.1%)	A
0-200Pa ~ 6kPa (0-20 ~ 600mmH_2O/ (0-2 ~ 60mbar)	B
0-4kPa ~ 40kPa /(0-400 ~ 4000mmHMO) / (0-40 ~ 400mbar)	C
0-2.5kPa~250kPa(0-0.25~25mH_2O/ (0-25~2500mbar)	D
0-30kPa~3Mpa (0-3~300 mH2O/ (0-0.3~30bar)	F

Diaphragm Material	
SS316L Stainless Steel	S
Hastelloy C	H
Gold plated on SS316L	G
FEP plated on SS316L (Silicone Oil)	F
Tantalum (Silicone Oil)	T

Filling Fluid	
Silicone oil	S
Fluorine oil	F

Mounting Bracket	
N	None
1	SS304 Bracket
2	Carbon steel galvanized
3	SS316 Bracket

Special Function	
N	None
F	Square root output
O	Degrease cleansing treatment (Oxygen measurement must be with fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa, <60°C
P	Anti-lightning Function

Gaskets (Sealing Material)	
N	Perbunan (NBR)
F	Viton (FKM)
P	Teflon (PTFE)

Process Connections	
N	7/16-20 UNF and 1/4-18 NPT female thread, No relief valve
B	7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at end of flanges
U	7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at the upper part of the flange side.
D	7/16-20 UNF and 1/4-18 NPT female thread, Relief valve at the lower part of the flange side.
V	Vertical mounting flange, 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at the upper part of flange side
L	Level
R	Remote Seal

Working Pressure	
0	0.2MPa (only for Span-A)
7	7MPa (only for span-A)
1	16MPa
2	25MPa
3	40MPa

RP1001	Differential Pressure Transmitter							
Code	1	...	13	14	15	16	17	18

Process Connector Accessory	
None	N
Stainless steel oval-shaped flange with 1/2 NPT female thread	1
Stainless steel D-shaped connector with M20x1.5 male thread	2

Integral Indicator	
None	N
LCD Backlit Display	2

Explosion-Proof Option	
None	N
Intrinsic Saftey (Exia) - ATEX	I1
Intrinsic Saftey (Exia) - IECEx	I2
Isolated Explosion/ Flameproof(Exd) - ATEX	D1
Isolated Explosion/ Flameproof(Exd) - IECEx	D2
Intrinsically Safe & Flameproof - ATEX	E1
Intrinsically Safe & Flameproof - IECEx	E2

Additional Options	
N	None
A	Exd Cable Entry (Ex-Proof Cable Gland)
E	Hanging Stainless Steel Tag Plate

Enclosure Material	
A1	Die Cast Aluminum
S2	SS316

Electrical Connection	
M	M20*1.5
N	1/2" NPT

Example: RP1001-A1B0CSS1NNN1N2E1MA1A

RP1001 – Differential Pressure Transmitter

A - Reference Accuracy 0.035%

1 – Piezoresistive Silicon Sensor

B – 4-20 mADC HART7 Output

0 – Static Pressure Sensor None

C-Span 0-4kPa ~ 40kPa /(0-400 ~ 4000mmHMO) / (0-40 ~ 400mbar)

S – SS316L Diaphragm Material

S – Filling Fluid Silicon Oil

1 – Working Pressure 16 MPa

N – 7/16-20 UNF and 1/4-18 NPT female threads, No relief valve

N – Gasket NBR (Perbunan)

N – Special Function None

1 – SS304 Mounting Bracket

N – Process Connector Accessory None

2 – Backlit LCD Display

E1 – Intrinsically safe and flameproof enclosure with ATEX Certificate

M - M20*1.5 Electrical Connection

A1 – Die Cast Aluminium Housing

A – Exd cable entry (Explosion proof cable glands)

***For any customisation, contact our sales team**

6. Electromagnetic Compatibility (EMC)

No.	Test Items	Basic Standard	Test Conditions	Performance Level
1	Radiated Interference (Housing)	IEC61000-4-20, EN61326-1	30MHz ~ 1000MHz	Qualified
2	Conducted Interference (DC power port)	CISPR:11:2009+A1, EN61326-1	0.15MHz ~ 30MHz	Qualified
3	Electrostatic Discharge (ESD) Immunity	IEC61000-4-2, EN61326-1	4kV(Line), 8kV(Air)	B
4	RF Electromagnetic Field Immunity	IEC61000-4-3, EN61326-1	10V/m (80MHz ~ 1GHz)	A
5	Frequency Magnetic Field Immunity	IEC61000-4-8, EN61326-1	30A/m	A
6	Electrical Fast Transient Burst Immunity	IEC61000-4-4, EN61326-1	2kV (5/50ns, 5kHz)	B
7	Surge Immunity	IEC61000-4-5, EN61326-1	500V (line to line 1kV (line to ground, 1.2us/50us)	B
8	Conducted Interference Immunity induced by RF field	IEC61000-4-20, EN61326-1	3V (150KHz ~ 80MHz)	A

Note:

A: No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer (or what the user may reasonably expect) when the equipment is used as intended.

B: No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer (or what the user may reasonably expect) when the equipment is used as intended.

7. Pressure Conversion Table

	psi	atms	"H_2O	mm H_2O	cm H_2O	oz/in^2	Kg/ cm^2	"Hg	mmHg (Torr)	cmHg	mbar	bar	Pa (N/m^2)	kPa	MPa
psi	1	0.0681	27.71	703.8	70.38	16	0.0704	2.036	51.715	5.17	68.95	0.0689	6,895	6.895	0.0069
atms	14.7	1	407.2	10,343	1,034.3	235.1	1.033	29.92	760	76	1013	1.013	101,325	101.3	0.1013
"H_2O	0.0361	0.00246	1	25.4	2.54	0.5775	0.00254	0.0735	1.866	0.187	2.488	0.00249	248.8	0.249	0.00025
mm H_2O	0.001421	0.000097	0.0394	1	0.1	0.0227	0.0001	0.00289	0.0735	0.00735	0.098	0.000098	9.8	0.0098	0.00001
cm H_2O	0.01421	0.000967	0.3937	10	1	0.227	0.001	0.0289	0.735	0.0735	0.98	0.00098	98	0.098	0.0001
oz/in^2	0.0625	0.00425	1.732	43.986	4.40	1	0.0044	0.1273	3.232	0.3232	4.31	0.00431	431	0.431	0.00043
Kg/ cm^2	14.22	0.968	394.1	100,010	1,001	227.6	1	28.96	735.6	73.56	980.7	0.981	98,067	98.07	0.0981
"Hg	0.4912	0.03342	13.61	345.7	34.57	7.858	0.0345	1	25.4	2.54	33.86	0.0339	3,386	3.386	0.00339
mmHg	0.01934	0.001316	0.536	13.61	1.361	0.310	0.00136	0.0394	1	0.1	1.333	0.001333	133.3	0.1333	0.000133
cmHg	0.1934	0.01316	5.358	136.1	13.61	3.10	0.0136	0.394	10	1	13.33	0.01333	1,333	1.333	0.00133
mbar	0.0145	0.000987	0.4012	10.21	1.021	0.2321	0.00102	0.0295	0.75	0.075	1	0.001	100	0.1	0.0001
bar	14.504	0.987	401.9	10,210	1021	232.1	1.02	29.53	750	75	1,000	1	100,000	100	0.1
Pa	0.000145	0.00001	0.00402	0.102	0.0102	0.00232	0.00001	0.000295	0.0075	0.00075	0.01	0.00001	1	0.001	0.000001
kPa	0.14504	0.00987	4.019	102.07	10.207	2.321	0.0102	0.295	7.5	0.75	10	0.01	1,000	1	0.001
MPa	145.04	9.869	4019	102,074	10,207	2321	10.2	295.3	7500	750	10,000	10	1,000,000	1,000	1

ROCKSENSOR®

Sensing beyond the Vision

Field Instrumentation Range

Pressure Measurement

- Smart Differential Pressure Transmitter
- Smart Gauge Pressure Transmitter
- Smart Absolute PressureTransmitter
- 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

Rocksensor India Pvt. Ltd.

: B -36, Sector 67, Noida, Uttar Pradesh - 201301

For more details, contact us on:

+91 928 948 8117 | +91 1204121469 : info@rocksensor.in : www.rocksensor.in

Global Offices

Head Office
Rocksensor GmbH, Germany

North America:
Rocksensor Automation LLC, USA

APAC:
Rocksensor Automation Co.Ltd., Shanghai

For more updates, follow us on:

in: Rocksensor India : Rocksensor : Rocksensor : Rocksensor : Rocksensor India

©Rocksensor2026

DS/DPT/RP1001/26/01/v0

Disclaimer: Specifications & features are subject to continual improvement as an Organization Policy. Rocksensor reserves the right to make changes to the datasheet and its functions at any time without notice.