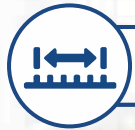


# Miniature Pressure Transducer

## RP202S



Reference Accuracy upto 0.25%



Pressure Range of upto 60MPa



Absolute, Gauge & Sealed Gauge Available



IP65, IP68 Grade Protection

# 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 and temperature transmitters with a prime focus to help our clients efficiently, safely and economically run complex industrial processes.

Rocksensor, headquartered in Switzerland, has its footprint in various geographical regions such as the US, Russia, South Korea, Italy, Germany, Singapore, Malaysia, Morocco, 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 the global market landscape and establish our footprints across the globe.



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## KEY APPLICATION INDUSTRIES

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

### 1. Introduction

RP202S is made from high-quality silicon piezoresistive sensor. The piezoresistive sensor is packaged in stainless steel housing. The RP202S is precision engineered to fit most industrial pressure measurement. The compact and rugged design makes these pressure transmitter suitable for applications including process control systems, hydraulic systems and valves, refrigeration and HVAC controls, level measurement and test equipment. A wide range of process connection and electrical connection options are available to meet almost requirement.

### 2. Key Applications

- Hydraulics
- Compressor
- Petroleum
- Pumps
- Refrigerator
- Metallurgy
- Constant Pressure Water Supply
- Air Conditioner etc. Machine
- Chemical Industry Process Control

### 3. Key Features

- Measuring ranges from -1bar to 1000bar
- Stainless steel construction
- Absolute, gauge and sealed gauge
- Piezoresistive pressure sensor design
- Accuracy:  $\pm 0.25\%FSO$  or  $\pm 0.5\%FSO$
- Variety of Pressure & Electrical connections
- Calibrated and temperature compensated
- Output 4...20mA, 0...10V, 0...5V and RS485

### 4. Standar Pressure Ranges

Nominal Pressure	Gauge	Sealed Gauge	Absolute
-1 ~ 0bar	●		
-0.35 ~ 0bar	●		
-0.2 ~ 0bar	●		
0 ~ 0.1bar	●		
0 ~ 0.2bar	●		
0 ~ 0.35bar	●		●
0 ~ 0.7bar	●		●
0 ~ 1bar	●		●
0 ~ 1.6bar	●		●
0 ~ 2.5bar	●		●
0 ~ 4bar	●		●
0 ~ 6bar	●		●
0 ~ 10bar	●	●	●
0 ~ 16bar	●	●	●
0 ~ 25bar	●	●	
0 ~ 60bar		●	
0 ~ 100bar		●	
0 ~ 250bar		●	
0 ~ 400bar		●	
0 ~ 1000bar		●	

**Note :** The above table shows which range can be covered in absolute, gauge and sealed transmitters

## 5. Performance Specifications

Parameter	Value		Units		Notes
<b>General</b>					
Pressure Range	(-)1 - 0 - 1000		Bar		1bar=14.5Psi
Over pressure	1.5xFS		Bar		
<b>Environmental</b>					
Operating Temperature Range	-20°C ~ 80°C		°C		-4°F ~ 176°F
Compensated Temperature Range	-10°C ~ 70°C		°C		14°F ~ 158°F
Storage Temperature Range	-40°C ~ 125°C		°C		-40°F ~ 257°F
Vibration	10		G		20 ~ 2000Hz
Shock	100		G		10ms
Cycles	10x10 <sup>6</sup>		Cycles		
<b>Electrical @ 25°C(77°F)</b>					
Output Signal	4 ~ 20mA		0 ~ 5VDC	0 ~ 10VDC	0.5. 4.5Vdc(ratiometric)
Power Supply(Vs)	12 ~ 30VDC	12~30VDC	12 ~ 30VDC	12 ~ 30VDC	5VDC
Load Resistance	<(Vs-12)/0.02A (For current output), >10kΩ (For voltage output)				
Insulation Resistance	100MΩ @50VDC				
<b>Physical Specifications</b>					
Media Compatibility	All media compatible with 316L stainless steel				
Housing	SS304/ SS316				
Diaphragm	SS316L				
Seal Ring	Viton or NBR				
Oil Filling	Silicone oil				
Protection	IP65(Standard), IP68(only for cable outlet)				
Net Weight	Approx.185g				
Parameter	Typical	Maximum	Units		Notes
<b>Performance</b>					
Accuracy	0.25	0.5	%FSO		1, 2
Temp Coeff - Zero	±0.75	±1.5	%FSO		3
Temp Coeff - Span	±0.75	±1.5	%FSO		3
Long-Term Stability	±0.2	±0.3	%FSO/year		1

### Notes :-

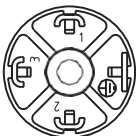
1. All values measured at 25°C(77°F)
2. Including non-linearity, hysteresis and repeatability.
3. -10°C ~ 70°C(14°F ~ 158°F) with reference to 25°C(77°F).

The listed specifications and dimensions are subject to change without prior notice.

### 6. Connection Diagrams

#### Connector DIN43650

2-wire(current) 3-wire(voltage)

	Supply+	1	1
	Signal+	2	3
	Gnd	-	2

#### Cable outlet

2-wire(current) 3-wire(voltage)

	Supply+	Red	Red
	Signal+	Yellow	Blue
	Gnd	-	Yellow

#### Connector M12x1(4-pin)

2-wire(current) 3-wire(voltage)

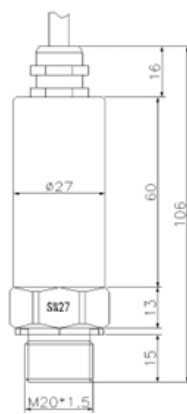
	Supply+	1 Brown	1 Brown
	Signal+	3 Blue	4 Black
	Gnd	-	3 Blue

### 7. Dimensions

Dimensions in (mm)



Hirschmann

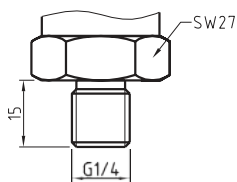


Cable outlet with PVC-cable

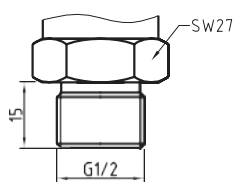


M12x1, 4-pin

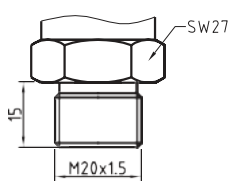
Mechanical Connection in (mm)



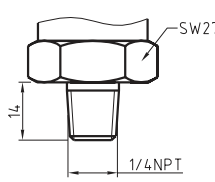
G1/4



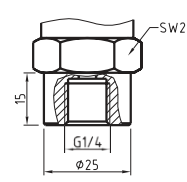
G1/2



M20x1.5



1/4NPT



G1/4(F)

### 5. Model Selection Table

RP202S	Miniature Press. Transducer									
Code	1	2	3	4	5	6	7	8	9	10

Pressure Range	
-1 ~ 0bar	N1*
-0.35 ~ 0bar	N2*
-0.2 ~ 0bar	N3*
0 ~ 0.1bar	1
0 ~ 0.35bar	2
0 ~ 0.7bar	3
0 ~ 1bar	4
0 ~ 1.6bar	5
0 ~ 2.5bar	6
0 ~ 4bar	7
0 ~ 6bar	8
0 ~ 10bar	9
0 ~ 16bar	10
0 ~ 25bar	11
0 ~ 60bar	12
0 ~ 100bar	13
0 ~ 250bar	14
0 ~ 400bar	15
0 ~ 600bar	16
Negative pressure range	17
Customizable (*Special cases to be discussed)	18

\*The range mentioned in for Code N1, N2, N3 is the minimum negative range can be offered. Other negative pressure range can be selected in Code 17

Accuracy	
0.25%	D
0.5%	E

Pressure Type	
Gauge	G
Absolute	A
Sealing	S

Power Supply	
24VDC	1
5 VDC	2

Output	
Analog 4-20 mA	S1
0-10V	S3
1-5V	S4
0-5V	S5
0.5-4.5V	S6

Input Pressure	
P	Positive Pressure Only
N	Negative Pressure
C	Compound Pressure (Negative to Positive)

Explosion Proof Protection	
N	None
D	Exd

Electrical Connection	
J01	Cable outlet with PVC cable Length - 1.5m
J02	M12x1, 4-pin
J03	Hirschman Connector
J00	Customizable (* special cases to be discussed)

ProcessConnection	
C01	G1/8(M)
C02	G1/4(M)
C03	G1/2(M)
C04	NPT1/8(M)
C05	NPT1/4(M)
C06	NPT1/2(M)
C07	M20x1.5(M) Flat Diaphragm
C08	G1/2" Flush
C09	G1" Flush
C10	Customizable (* special cases to be discussed)

Diaphragm Material	
1	SS316L
2	Hastelloy C - 276

**Example: RP202S-N1EA1S11C05J02NP**

RP202S - Miniature Pressure Transducer

N1\* - Pressure Range : -1 ~ 0bar

E - Accuracy : +/- 0.5%

A - Pressure Type : Absolute

1 - Power Supply : 24 VDC

S1 - Output : Analog 4-20 mA

1 - Diaphragm Material : SS316L

C05 - Process Connection : NPT1/4(M)

J02 - Electrical Connection : M12 Navigation Plug

N - Explosion proof protection: None

P - Input pressure : Positive Pressure Only

## 6. Pressure Conversion Table

	psi	atms	"H <sub>2</sub> O	mm H <sub>2</sub> O	cm H <sub>2</sub> O	oz/in <sup>2</sup>	Kg/cm <sup>2</sup>	"Hg	mmHg (Torr)	cmHg	mbar	bar	Pa (N/m <sup>2</sup> )	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 <sub>2</sub> O	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 <sub>2</sub> O	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 <sub>2</sub> O	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 <sup>2</sup>	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 <sup>2</sup>	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

## 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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