





# Submersible (Hydrostatic) Level Transmitter RP202L



-  Range up to 200 meters (H<sub>2</sub>O)
-  Reference Accuracy up to 0.5%
-  Sensor Housing (IP68 degree protection)
-  RoHS Approved

**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 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.



# CONTENTS

1. Introduction .....	3
2. Product .....	3
3. Specification .....	3
4. Size (mm) .....	4
5. Diagram .....	5
6. Model Selection Table .....	6
7. Pressure Conversion Table .....	7

## KEY APPLICATION INDUSTRIES

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

## 1. Introduction

Fully sealed Submersible Level Transmitter suitable for variety of industrial applications in water and liquids medium.

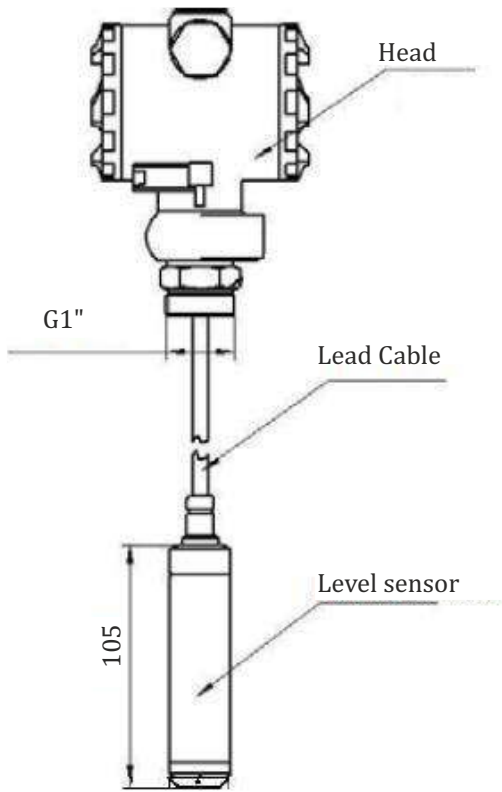
## 2. Product

- High Stability Silicon Piezoresistive Pressure Sensor
- Reference Accuracy up to 0.5% (standard), 0.2% & 0.1% (On customer demand)
- Integrated construction, No need for external adjustment
- Sensor Housing with IP68 degree protection
- 2-Wire/ 4-20 mADC Output
- Optional Display Unit for showing level value
- Stainless Steel Diaphragm & Housing
- RoHS Approved
- Range up to 200 meters (H<sub>2</sub>O)

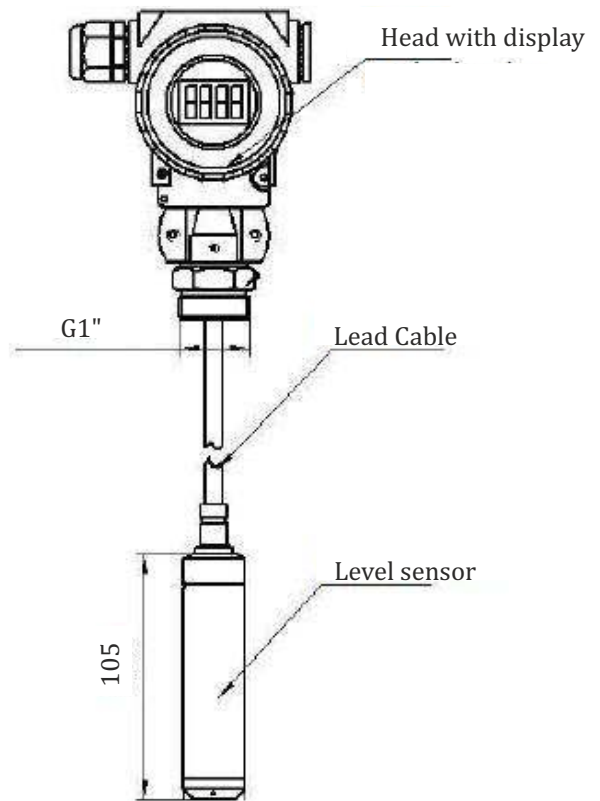
## 3. Specification

<b>Process fluid</b>	Pure water, sea water, chemical liquids compatible with SS316L
<b>Range</b>	0 ~ 0.5m - 200m
<b>Accuracy</b>	±0.1%/ ±0.2%/ ±0.5%
<b>Stability</b>	0.25% (%F.S. per year)
<b>Fluid/ Compensation Temp.</b>	0 to 70°C
<b>Over Pressure</b>	2x Max. Range
<b>Temperature Effect</b>	±1.5% FS (accuracy: ±0.2%)/ ±3.0% FS (accuracy: ±0.5%)/ ±5.0% FS (accuracy: ±1.0%)
<b>Power Supply</b>	14-36VDC (4-20Ma output)/ 12-36VDC (RS485 output)
<b>Zero Offset</b>	<0.5% of output range
<b>Zero &amp; Range Adjust</b>	+20% (only indicator type)
<b>Range Adjustable</b>	between Min. & Max. Range
<b>Load effect</b>	Negative
<b>Load resistance</b>	4-20mA, R≤1KΩ
<b>Baud rate</b>	9600/ 4800/ 19200
<b>Diaphragm Material</b>	316L SS, Tantalum
<b>Sensor (Probe) Material</b>	Stainless Steel
<b>Lead Cable Material</b>	Wear-proof & water-proof cable
<b>Housing Material</b>	Aluminum alloy with spraying painted
<b>Indicator</b>	4½ Digit LCD
<b>Output</b>	4-20mA/ RS485/ 4-20ma+RS485
<b>Installation</b>	Thread: G1" or Flange: DN25, DN32
<b>Thread, Flange Material</b>	Stainless steel
<b>Electrical Connector</b>	M20X1.5
<b>Standard Power Supply</b>	24VDC±5%, ripple less than 1%
<b>Power effect</b>	Less than 0.01%/V of output range
<b>IP protection</b>	IP68 (Transmitter)/ Indicator(IP65)
<b>Storage temperature</b>	(-)40 ~ 125°C
<b>Size</b>	105mm x 28mm (Lx D)
<b>Weight</b>	2.0kg /3m

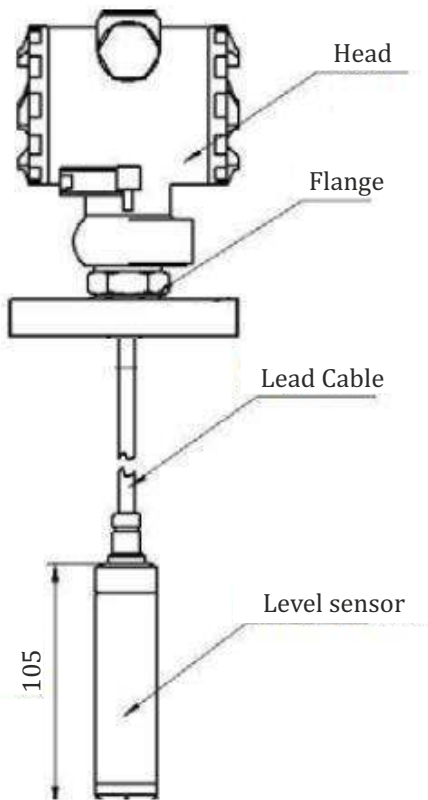
### 4. Size (mm)



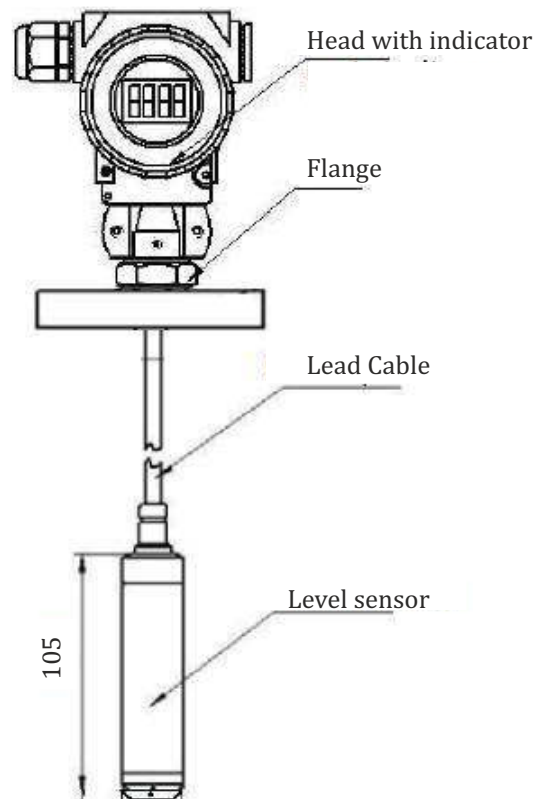
RP202L-AT, Thread Installation



RP202L-DT, Thread Installation

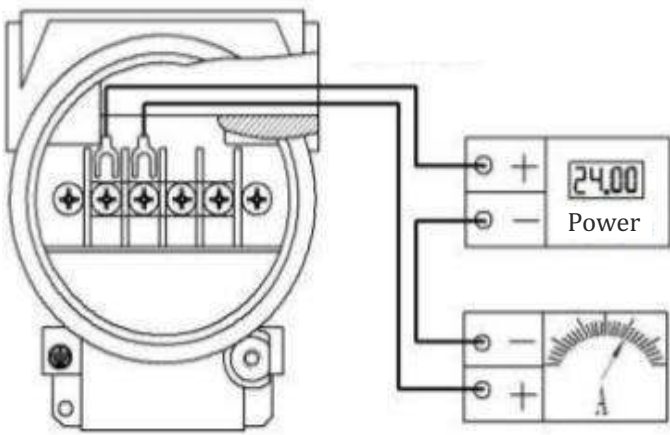


RP202L-AT, Thread Installation

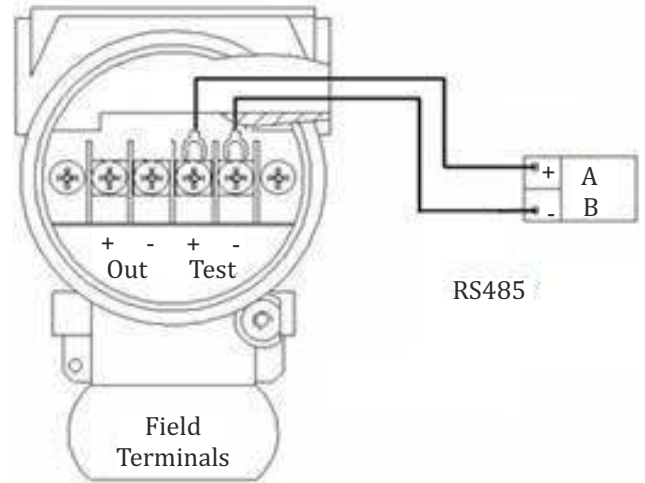


RP202L-DT, Thread Installation

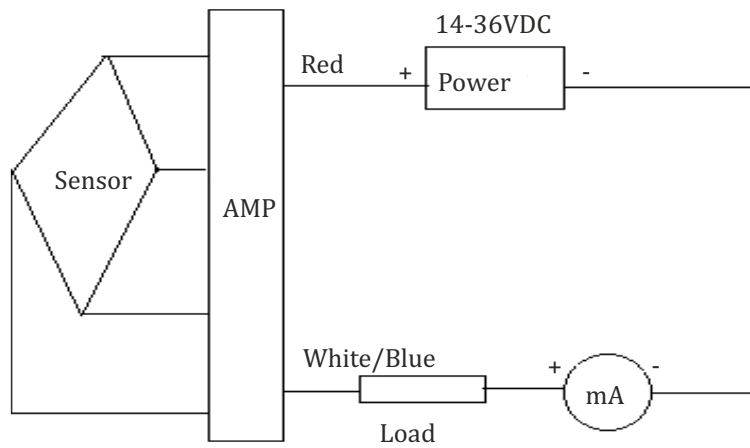
## 5. Diagram



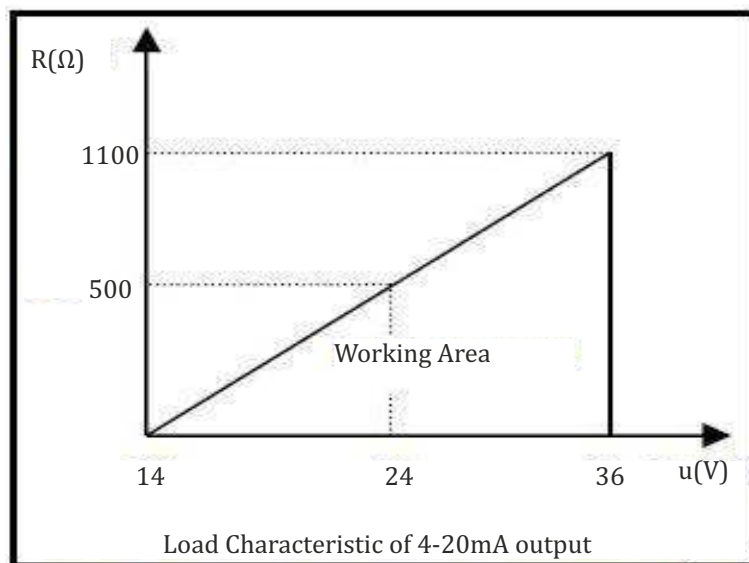
4-20mA Output Diagram (Loop powered 2- Wire)



RS485 Output, Standard Modbus-RTU protocol



E.g.: 4-20mA Output diagram



E.g. Load Resistor for 4-20mA Output

## 6. Model Selection Table

RP202L		Level Transmitter							
Code		1	2	3	4	5	6	7	8
<b>Accuracy</b>		←							
0.1%	A								
0.2%	B								
0.5%	C								
<b>Diaphragm Material</b>		←							
SS316L	A								
Tantalum	B								
<b>Local Display</b>		←							
None, without local indicator	N								
Yes, with local LCD indicator	D								
<b>Installation</b>		←							
None	N								
Thread installation, G1" default, if other size, please advise thread size	T								
Flange installation, please advise flange size, such as DN25, DN32...	F								
<b>Range</b>				←					
<b>Min.</b>	<b>Max.</b>	<b>Avg.</b>							
0-0.5m	0-1.0m	±0.5%	01						
0-1.0m	0-3.5m	±0.5%	02						
0-3.5m	0-10m	±0.5%	03						
0-10m	0-20m	±0.2%	04						
0-20m	0-70m	±0.2%	05						
0-70m	0-170m	±0.2%	06						
0-100m	0-200m	±0.2%	07						
<b>Lead Cable Length</b>								←	
Cable total length, same as ex-work range, please advise the range e.g. ex-calibration range :3m, so NX=N3								NX	
Sensor range + external cable length, please advise the exact sensor range & total lead cable length (such as L6: 6m cable, sensor range + external cable: 6m)								LX	
<b>Special Requirement</b>								←	
None								N	
Lighting surge protection								S	
Accuracy: 0.1% (only for range: >30m)								A1	
<b>Output</b>								←	
4-20ma, 2 wire, default								A	
RS485 output, standard MODBUS-RTU protocol								R	
4-20ma +RS485 output								AR	

### Note:

1. Please make sure that the media is compatible with the wetted parts. Before placing order, kindly confirm the density of the media (except water).
2. Two kinds of cables are available – Polyurethane and Polyethylene. Default selection is Polyethylene. More durable and flexible Polyurethane cable can be selected based upon the requirement.
3. Use suitable measures to protect the Device and Power grounding reliably in case of installation in Thunder Storm Area.
4. At standard conditions (@4°C,  $g = 9.80665 \text{ m/s}^2$ )  $1 \text{ mH}_2\text{O} = 9.80665 \text{ kPa}$
5. For any special requirement, contact Rocksensor.

## 7. 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
<b>psi</b>	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
<b>atms</b>	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
<b>"H<sub>2</sub>O</b>	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
<b>mm H<sub>2</sub>O</b>	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
<b>cm H<sub>2</sub>O</b>	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
<b>oz/in<sup>2</sup></b>	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
<b>Kg/cm<sup>2</sup></b>	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
<b>"Hg</b>	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
<b>mmHg</b>	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
<b>cmHg</b>	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
<b>mbar</b>	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
<b>bar</b>	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
<b>Pa</b>	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
<b>kPa</b>	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
<b>MPa</b>	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