



MARUS-610 Technical Datasheet

Level Transmitter

Applications:

- Industrial automation
- Tanks
- Deep wells
- Oil and petrochemical industry



Level Transmitter

MARUS-610

Introduction:

The MARUS-610 level transmitter has been developed for continuous level measurement of liquids in the water and wastewater industry. This device is submerged in the liquid and compares the differential pressure within the liquid to the atmospheric pressure outside. It measures the pressure with high accuracy using a sensitive piezoresistive sensor.

Working principle:

The hydrostatic level transmitter operates on the principle of measuring the hydrostatic pressure exerted by a liquid column, which is directly proportional to the liquid's height according to Pascal's law ($P = \rho gh$, where P is pressure, ρ is density, g is gravity, and h is height). Specifically designed for water applications, this transmitter features a submersible pressure sensor installed at the bottom of the tank or vessel. Equipped with a vent tube for atmospheric compensation, it measures relative pressure to ensure accurate readings. The sensor converts this pressure into a standardized electrical signal, such as 4-20 mA or digital output, for precise level monitoring and control. Eliminating the need for conversion formulas, users simply map the 4-20 mA signal to the transmitter's working range (e.g., 0 to 6 meters of water column). This method provides accurate, continuous measurement independent of vessel geometry, delivering reliable performance in various industrial applications.

Technical Parameters			
Measuring Range	0 ... 4 up to 25 mH ₂ O (Relative Pressure)	Accuracy	0.5% F.S.
Overpressure Limit	2.0 x Range	Wetted Part Material	SS316L
Burst Pressure	5.0 x Range	Housing Material	SS304, SS316L
Degree of Protection	IP68	O-ring Material	NBR
Sensor Technology	Diffused Silicon	Long-term Stability	0.5% / year
Electrical Parameters			
Power Supply	8 ... 30 vDC	Load Resistance	$R[\Omega] = \frac{(U_{PS}[v] - 8v)}{0.02A}$
Output Signal	4-20 mA (two wire)	Response Time	< 1 ms
Performance			
Nonlinearity	Min: -0.3 %FS Nominal: ±0.2 %FS Max: +0.3 %FS	Hysteresis, Repeatability	Min: -0.05 %FS Nominal: ±0.03 %FS Max: +0.05 %FS
Thermal Hysteresis	Min: -0.075 %FS Nominal: ±0.05 %FS Max: +0.075 %FS	Operating Temp. Range	-20 ... 85°C



Wiring diagram:



2 Wire, 4-20 mA	
Red	U_{PS} (24v recommended)
Black	+I _{OUT}
Yellow	Earth
Blue	No Connection

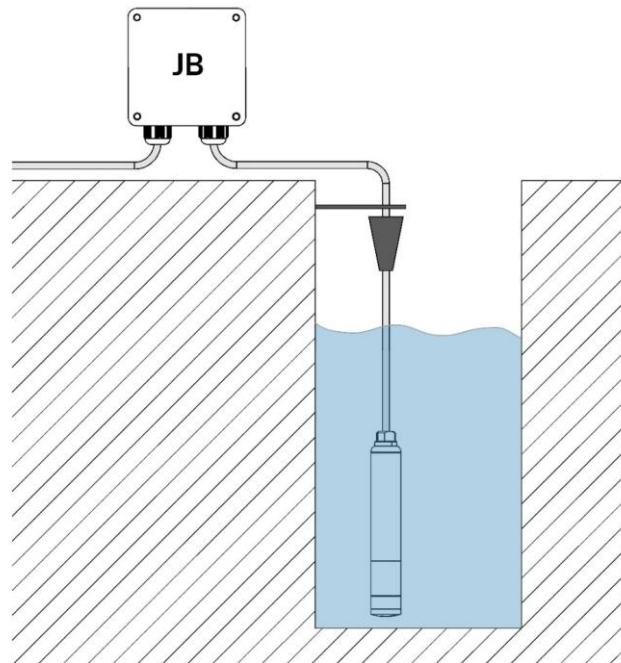
Recommendations regarding installation:

The instrument can be hung freely from the wire. A standard signal cable can be used to extend the capillary cable. Keep water or additional contaminants from entering the capillary tube. The instrument wire should not be bent to a diameter smaller than 30 cm, and it should be shielded from any mechanical harm. If turbulence is possible in the tank (for example, due to the mixer operating mixers or a turbulent inflow), the instrument should be installed inside a screening tube (e.g., made of PVC). Cleaning the probe diaphragm by mechanical means is absolutely prohibited. For more information, please refer to the product manual.

CAUTION: The medium must not be allowed to freeze in the immediate vicinity of the instrument.

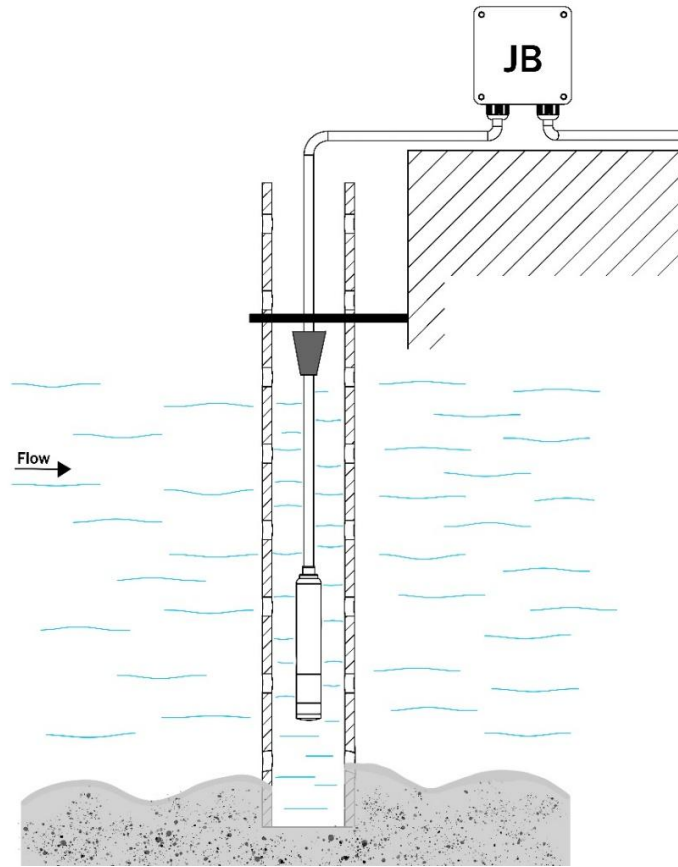
Static Liquid Environment:

In static or calm liquid conditions without flow or turbulence, suspend the submersible transmitter directly from the capillary cable into the tank. Ensure the probe hangs freely and vertically, avoiding contact with tank walls, bottom, or any obstructions to prevent measurement inaccuracies. This installation method provides reliable hydrostatic level sensing in non-turbulent media.

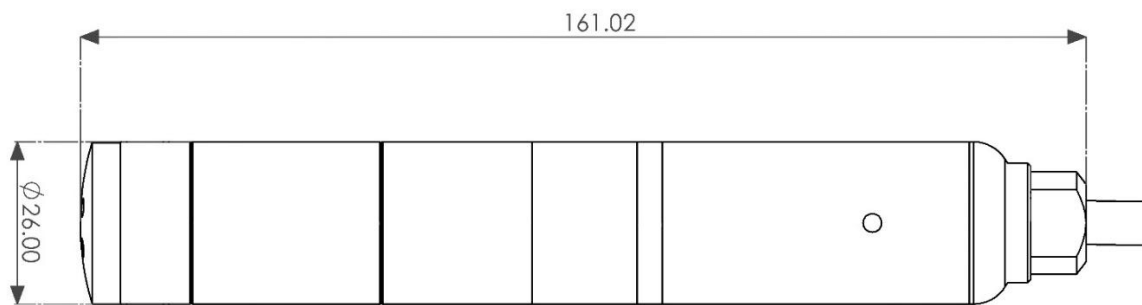


Dynamic Liquid Environment:

For applications with flowing or turbulent liquids, enclose the transmitter in a protective stilling tube or perforated pipe to isolate it from velocity-induced disturbances. The tube should allow liquid entry at the bottom while venting air at the top, extending below the minimum level for consistent submersion. This setup ensures stable and accurate readings by minimizing external flow effects.



Dimensions:



Ordering Procedure:

Model	MARUS-610				
Accuracy	0.5%FS				
	A5				
Pressure Range	3.5mH2O	7mH2O	10 mH2O	16 mH2O	25 mH2O
	H3.5	H7	H10	H16	H25
Electrical Output	4-20 mA				
	I				
Housing Material	Stainless Steel,304		Stainless Steel, 316L		
	S4		S16L		
O-ring Material	NBR				
	N				

Additional Options:

Cable Length	Cable Length (meter)
	/Lx
Certification	3rd Party Lab. Certificate (On Request)
	/C2

Example: MARUS610-A5-H10-I-S16L-N /L12/C2

