

## HPM410-C Anti sand and waterweed type Level Transmitter



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## Overview

HPM410-C Anti sand and waterweed type liquid level transmitter adopts a fully sealed submersible structure. This type of transmitter uses a pressure sensor that has undergone long-term stability and reliability tests and a high-precision signal conditioning dedicated circuit installed in a stainless-steel shell. The integrated structure and standardized signal provide convenience for on-site use and automatic control. The shell of this product adopts a full welding process. At the same time, the connections of various links such as the shell and cable are reliably sealed with multiple designs. The internal full potting process ensures that the product has a good service life.

The unique design of this product is the use of a customized filter ring structure, which can effectively prevent the entanglement of impurities such as water plants in rivers and lakes and the blockage of granular impurities such as silt. The filter ring is easy to disassemble and clean and can be reused many times. This product can continuously and stably monitor the changes in liquid level in a long-term and stable environment of sedimentation and water plants.

## Application

- ◆ Rivers and Lakes
- ◆ Pools and water tanks
- ◆ Groundwater, water level monitoring, urban water supply and drainage, etc.
- ◆ Marine

## Features

- ◆ Filter ring structure
- ◆ Anti sand and waterweed design
- ◆ Liquids containing sand and other particulate impurities
- ◆ Multiple protection and sealing structure design, IP68 level
- ◆ Digital compensation in a wide temperature range, good stability
- ◆ Lightning protection optional

## Technical Parameters

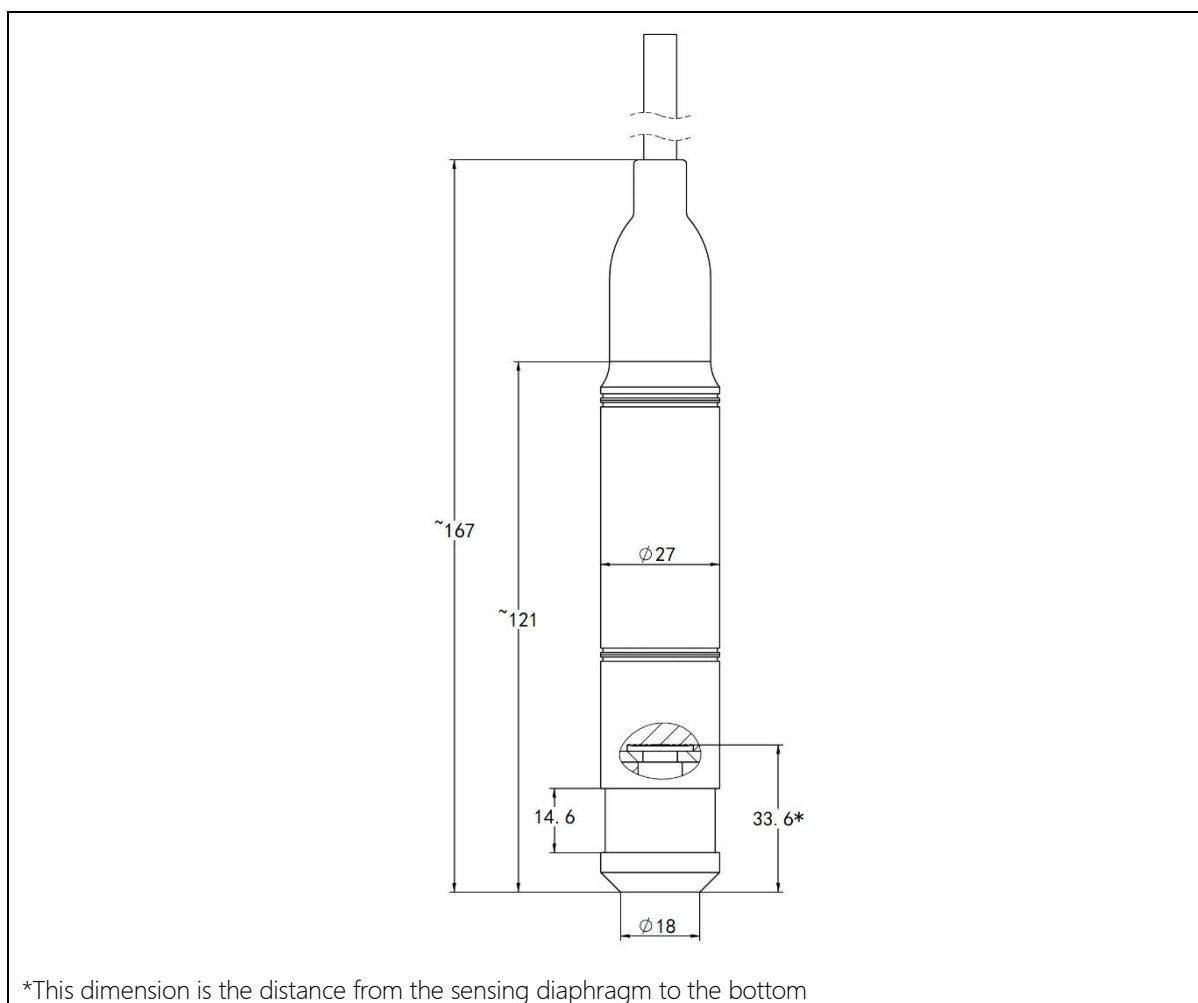
Measuring Medium	Various liquids or gases compatible with contact materials
Measuring Range	0~1...500mH <sub>2</sub> O Note: The measurement unit can be converted to

	ftH <sub>2</sub> O@4℃, inH <sub>2</sub> O@4℃, m, mm, etc. When using m, mm, etc. as the unit, the density value of the measured medium needs to be given
<b>Overload</b>	1.5 times of full range scale
<b>Output Signal/Power Supply(option1)</b>	2-wire 4~20mA / Vs=8~30V
<b>Output Signal/Power Supply(option2)</b>	2-wire 4~20mA+HART / Vs=12~32V
<b>Output Signal/Power Supply(option3)</b>	3-wire 0~5V / Vs=8.5~30V or Vs=3.1~8V (needs to be 0.4V higher than the maximum output voltage.)
<b>Output Signal/Power Supply(option4)</b>	3-wire 0~10V / Vs=12~30V
<b>Output Signal/Power Supply(option5)</b>	4-wire Modbus-RTU/RS485 / Vs=10~30V
<b>Output Signal/Power Supply(option6)</b>	One way relay output/ Vs=18~30V
<b>Accuracy</b>	±0.5% FS@25℃(typical) ±0.2% FS@25℃(optional)
<b>Long term stability</b>	±0.25%FS/year(typical accuracy)  ±0.2%FS/year(optional accuracy)
*Accuracy conforms to IEC 60770 (non-linear error, hysteresis, repeatability)	
<b>Compensation temperature range</b>	0~70℃ (0.5G accuracy) -10~80℃ (0.2G accuracy)  Note: Please consult if the measuring range is ≤20kPa
<b>Temperature Coefficient of Zero</b>	±1.0%FS Reference 25℃, within temperature compensation range  (≤20kPa range, temperature drift ±1.5%FS, 0~70℃)
<b>Temperature Coefficient of Full Scale</b>	±1.0%FS Reference 25℃, within temperature compensation range  (≤20kPa range, temperature drift ±1.5%FS, 0~70℃)
<b>Working Temperature</b>	-40~80℃
<b>Measuring medium temperature</b>	-40~80℃
<b>Storage Temperature</b>	-40~85℃
<b>Protection level</b>	IP68
<b>Reverse polarity protection</b>	No damage, circuit does not work
<b>Electromagnetic Compatibility</b>	Compliant with EN 61326
<b>Insulation resistance</b>	>20MΩ, 500VDC
<b>Dielectric strength</b>	<2mA @500VAC (Apply 500VAC 50Hz test voltage for 1 minute without breakdown or arcing)

## Structure Material

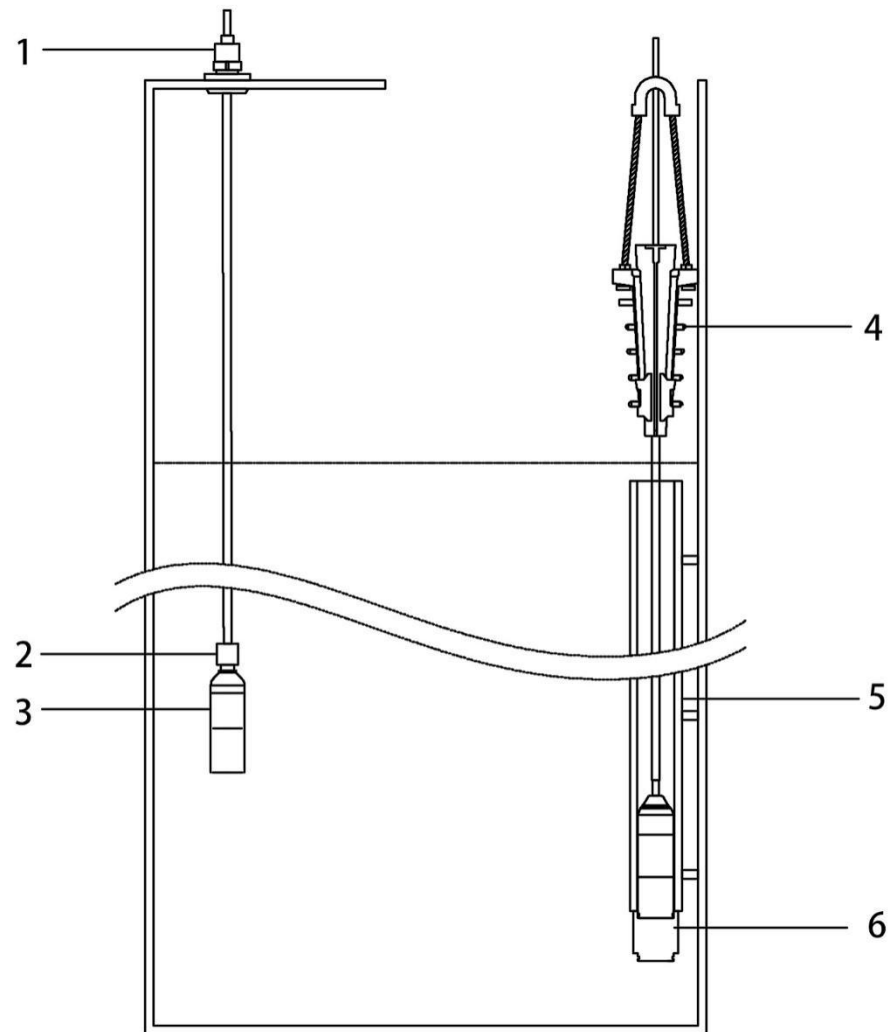
Code	Part	Note
S4	Probe shell	304
S6		316L
Ti		titanium or titanium alloy
M1	Pressure sensor	Silicon Piezoresistive, 316L
M2		Silicon Piezoresistive, titanium & titanium alloy
FK	Pressure sensor sealing ring	Fluorine rubber FKM (working temperature: -20 ~ 200°C)
NB		Nitrile rubber NBR (working temperature: -40 ~ 120°C)
C2U	Cable	PU polyurethane cable, external diameter (7.2±0.2) mm
C2N		NBR nitrile cable, external diameter (7.2±0.2) mm
MS6	Filter ring	SS316L material
P		Ceramic material

## Structure Drawings (Unit: mm)



## Installation (Unit: mm)

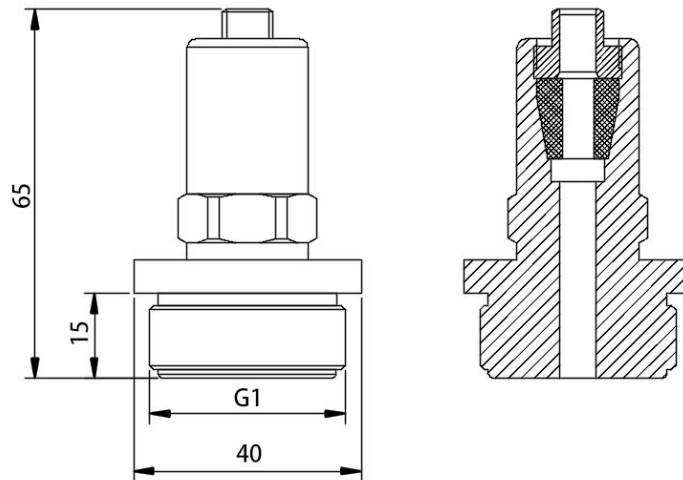
Installation Diagram



1. Threaded Mounting Parts(W1)
2. Top connection heavy hammer(W2)
3. Level transmitter
4. Cable clip(W8)
5. Protective tube
6. Bottom connection heavy hammer(W3)

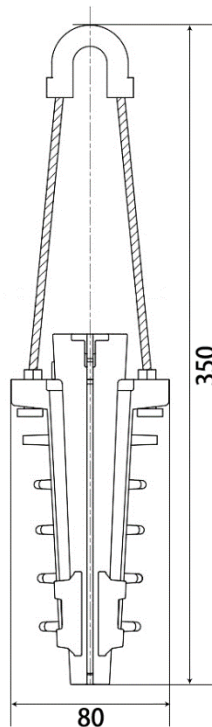
\*The measurement results need to consider the effect of the height of the bottom weight on the height from the sensing diaphragm to the bottom of the measuring medium

Note: The weight can be customized according to user requirements

**Threaded Mounting Parts (Ordering Code: W1)**

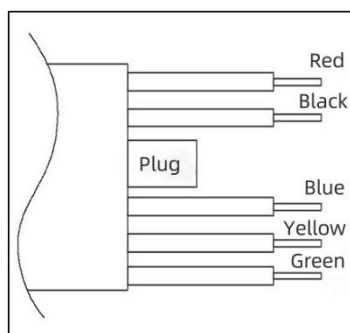
1. Used to fix the entire product at the top
2. Except for G1 thread, other threads can be customized if required

Weight ~450g

**Cable clip (Ordering Code:W8)**

Used to fix the entire product at the top

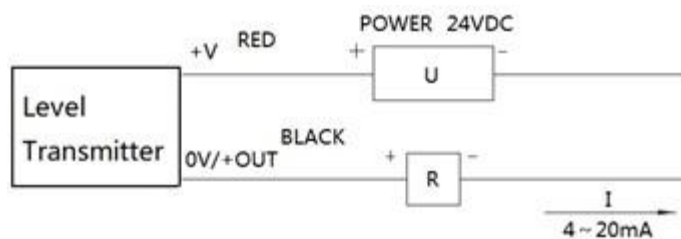
Weight ~340g



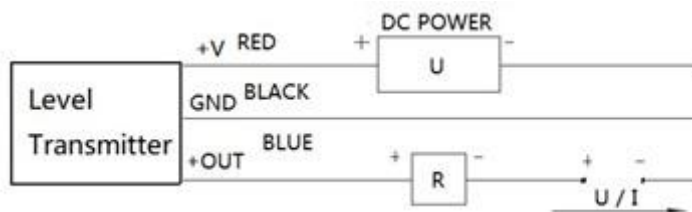
Wire color	2-wire 4 ~ 20mA	3-wire voltage	Modbus-RTU/RS485
Red	Power supply+ (+V)	Power supply+ (+V)	Power supply+ (+V)
Black	Power supply- (0V/+OUT)	Common (GND)	Power supply- (0V)
Blue	-	Output+ (+OUT)	-
Yellow	-	-	RS485A
Green	-	-	RS485B

⚠ Gauge pressure products should be referenced to current atmospheric pressure, and the breathable plugs should be kept dry and prevented from falling out.

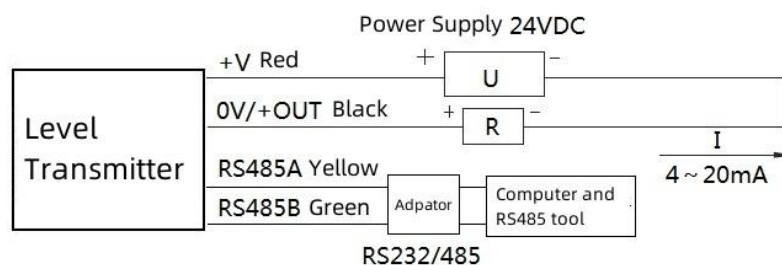
### 2-wire 4~20mA output



### 3-wire voltage output



### Modbus-RTU/RS485 output



## Ordering Guide

Item NO.	Type						
HPM410-C	Anti sand and waterweed type Level Transmitter						
Eg: HPM410-C	[0 ~ X]mH <sub>2</sub> O (Ln)	Pressure Range	Measuring Range				
				X is measuring range Ln is the length of cable			
		Code	Output Signal				
		B1	(4 ~ 20)mA				
		B3	(0 ~ 10)V				
		B4	(0 ~ 5)V				
		B6	(0.5 ~ 4.5)V				
		B7	RS485				
		B9	Relay switch signal				
		Code	Cable Material				
		C2N	NBR Nitrile				
		C2U	PU Polyurethane				
		Code	Mounting method				
		N	NA				
		W1	Threaded mounting parts				
		W2	Top weight				
		W3	Bottom weight				
		W8	Clip				
		Code	Pressure sensor				
		M1	316L silicon piezoresistive				
		M2	Titanium silicon piezoresistive				
		Code	Probe shell material				
		S4	304				
		S6	316L				
		Ti	Titanium or Titanium alloy				
		Code	Additional Functions				
		QF	Factory report				
		R1	CE				
		J5	0.5G				
		J2	0.2G				
		FL	Lightning protection				
		M56	316L filter ring				
		P	Ceramic filter ring				
		FK	FKM sealing ring				
		NB	NBR sealing ring				
		V24	Power supply 24VDC				
		V5	Power supply 5VDC				
			Other requests				
Eg: HPM410-C	[0 ~ 5]mH <sub>2</sub> O (L7)	B1	C2U	N	M1	S4	J5 M56 FK V24

## Certification Information

Factory certification	
Certification organization	CQM
Quality management system	ISO 9001:2015
Certification scope	Research, development and manufacture of pressure transmitter and temperature transmitter
Certificate No.	00223Q21711R15

CE	
Certification organization	ECM
Certification scope	Pressure Transmitter
Standard	EN61326-1:2013
	EN61326-2-3:2013
	EN61000-6-2:2005/AC:2005
	EN61000-6-4:2007+A1:2011
Certificate No.	3Z200408.NHET098