HPM413 Submersible level Transmitter

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Overview

HPM413 liquid level transmitter is a fully sealed submersible structure and uses an anti-corrosion ceramic piezoresistive pressure sensor. The probe put into the measured medium is made of 316L or titanium alloy. Cables are made of PTFE or polyurethane cables.

This product is mainly used in sewage, seawater and other media and all high-demand liquid level measurements. The shell of this product adopts a full welding process, and the connections of the shell, wires and other links are reliably sealed with multiple designs. The interior adopts a full potting process to ensure that the product has a long service life and is widely used in the chemical industry, water treatment, environmental protection, medicine, industrial process control and many other occasions.

Features

- Ceramic (96% Al_2O_3) piezoresistive sensor
- High-cost performance
- 22mm diameter, suitable for 1-inch pipe installation
- Quasi-flush membrane structure, anti-clogging
- Anti-corrosion, wear-resistant
- Full welding process
- Full potting process, containing polymer sieve to prevent condensation
- Multiple protection and sealing structure design

Applications

- Urban sewage and industrial wastewater
- Viscous media
- Chemical industry
- Water treatment industry
- Environmental protection industry
- Industrial process control

Technical Parameters

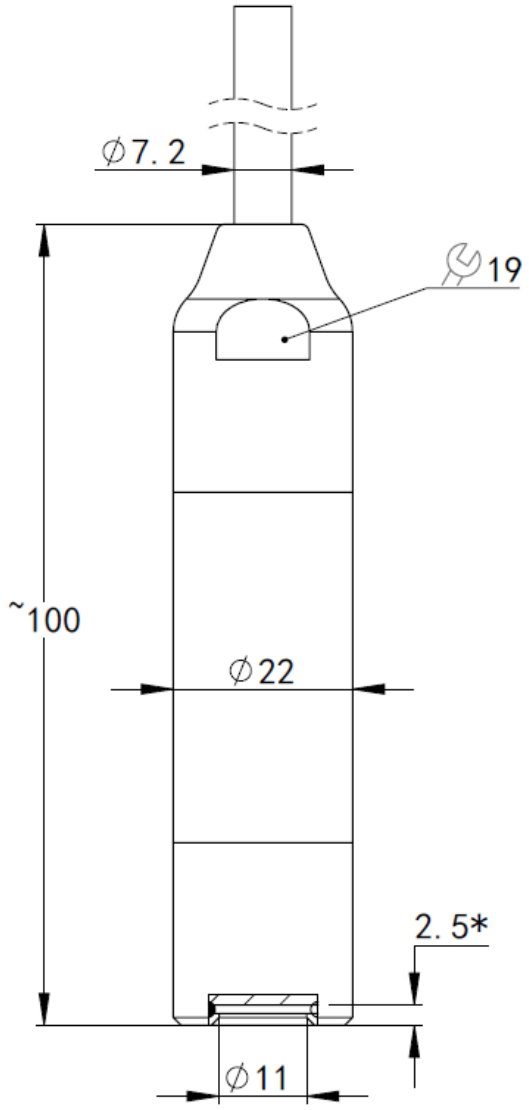
Measuring Range						
Rated range (Gauge pressure, kPa*)	50	100	200	500	1000	2000
Min Range (Gauge pressure, kPa)	20	60	120	250	500	1000
Overload(kPa)	100	200	400	1000	1500	3500
*The measurement unit can be converted to mH_2O@4℃, inH_2O@4℃, m, mm, etc. When using m, mm, etc. as the unit, please give the density value of the medium.						

Measuring Medium	Various liquids compatible with contact materials
Output Signal/Power Supply (1)	4~20mA$_{DC}$ / Vs=10~30 V$_{DC}$
Output Signal/Power Supply (2)	4~20mA$_{DC}$+HART / Vs=12~32 V$_{DC}$
Output Signal/Power Supply (3)	0~5V$_{DC}$ etc. /Vs=10~30 V$_{DC}$
Output Signal/Power Supply (4)	Modbus-RTU/RS485 /Vs =3~8 V$_{DC}$ or 10~30 V$_{DC}$
Accuracy *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)	±0.5%FS (typical)
Load characteristics	4~20mA$_{DC}$ 2-wire: R_L≤（U-10）/0.02Ω 4~20mA$_{DC}$+HART 2-wire: R_L≤（U-12）/0.02Ω Voltage output, 3-wire: R_L>10kΩ
Long-term Stability	±0.25%FS/year
Temperature Coefficient of Zero	≤±0.04%FS/℃ (25~70℃, ref 25℃)
Temperature Coefficient of Full Scale	≤±0.02%FS/℃ (-10~70℃, ref 25℃)
Operation Temperature	-20~80℃
Medium Temperature	-20~80℃
Storage Temperature	-20~80℃
Protection Grade	IP68
Short circuit protection	Permanent
Reverse polarity protection	No damage, circuit does not work
Electromagnetic	compatibility according to EN 61326
Insulation resistance	>100MΩ，500VDC
Dielectric strength	Apply 500VAC 50Hz test voltage, no breakdown or arcing for 1 minute.

Structure Material

Code	Part	Note
S6	Probe shell	316L
TI		Titanium alloy
M6	Pressure sensor	Ceramic, Al_2O_3 96%
FK	Pressure sensor sealing ring	Fluorine rubber FKM（working temperature: -20 ~ 200℃）
FF		Perfluoro rubber FFKM(More corrosion resistant, working temperature: -25 ~ 300℃）
C2U	Cable	PU polyurethane cable，external diameter（7.2±0.2）mm
C2F		PTFE cable，external diameter（7.2±0.2）mm

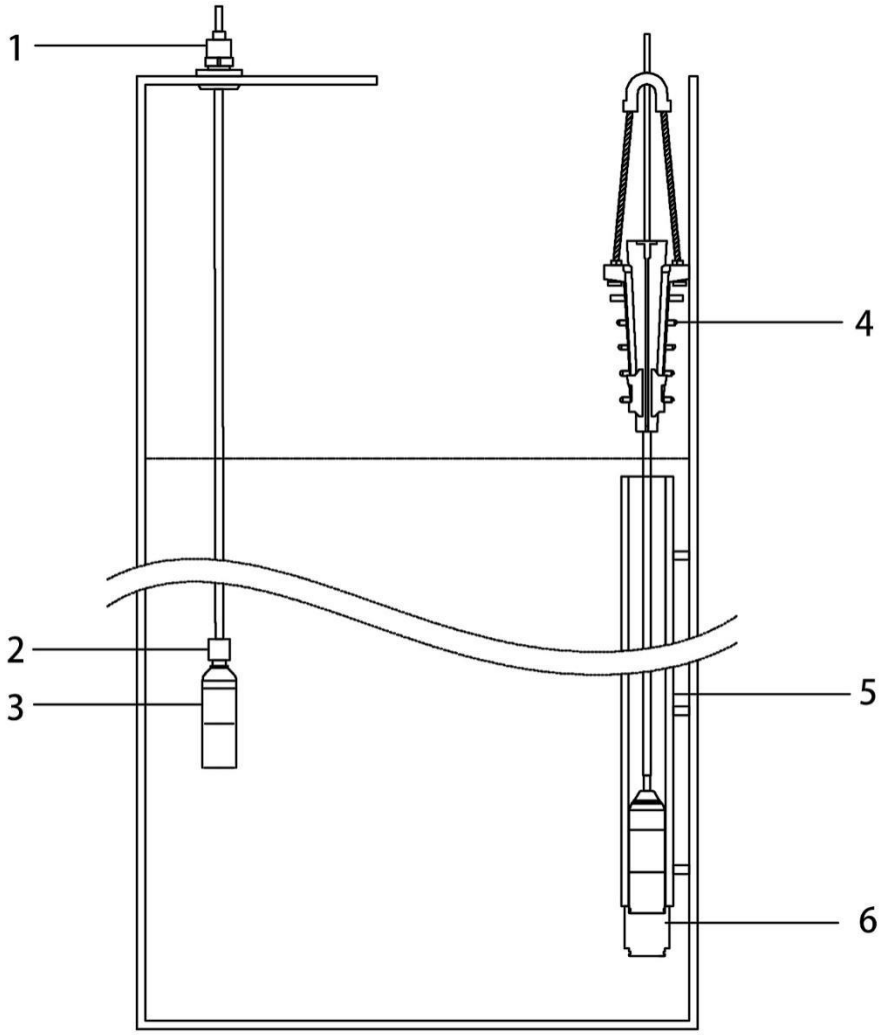
Structure Drawings (Unit: mm)



* This size is the distance from the sensing diaphragm to the bottom

Installation (Unit: mm)

Installation Diagram

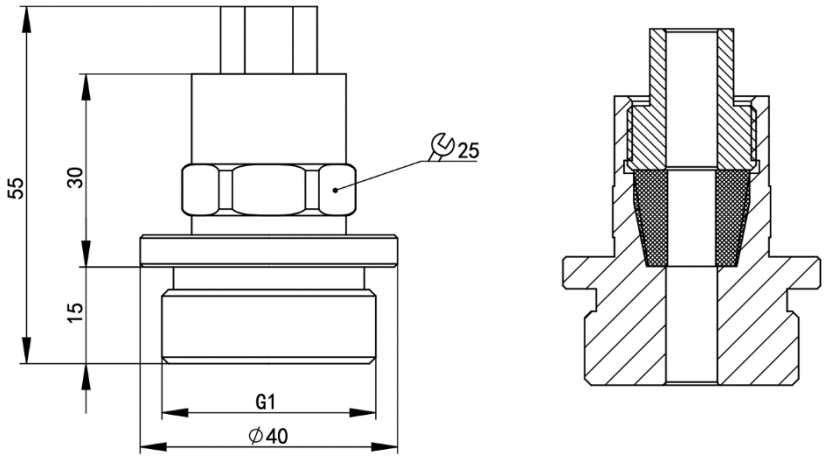


1. Threaded Mounting Parts(W1)
2. Top connection heavy hammer(W2)*
3. Level transmitter
4. Cable clip(W8)
5. Protective tube
6. Bottom connection heavy hammer(W3)*

* Hammer can be customized according to user requirements.

Notes：If heavy hammer in bottom, need to consider the influence of the height of the bottom hammer on the height from the sensing diaphragm to the bottom of the measurement medium.

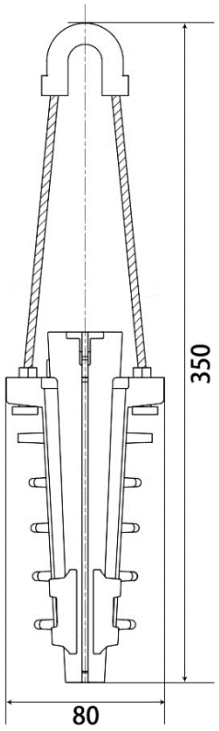
Threaded Mounting Parts (Ordering Code: W1)



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

Weight ~400g

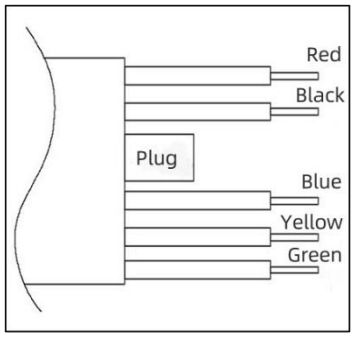
Cable clip (Ordering Code: W8)



Used to fix the entire product at the top.

Weight ~340g

Electrical Interface

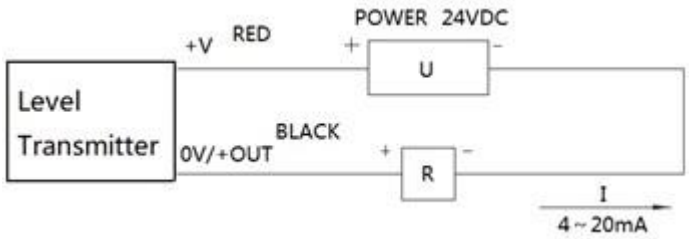


Wire color	2-wire 4～20mA	3-wire voltage	Modbus-RTU/RS485
Red	Power supply+ (+V)	Power supply+ (+V)	Power supply+ (+V)
Black	Power supply- (0V/+OUT)	Common (GND)	Power supply- (0V)
Blue	-	Output+(+OUT)	-
Yellow	-	-	RS485A
Green	-	-	RS485B

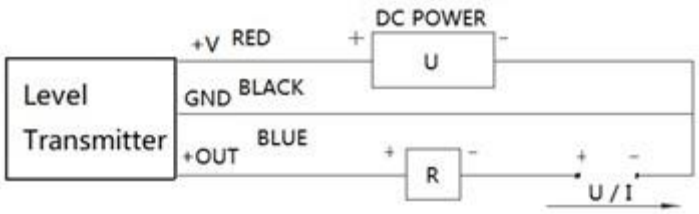
⚠Gauge pressure products should be referenced to current atmospheric pressure, and the breathable plugs should be kept dry and prevented from falling out.

Electrical Connection

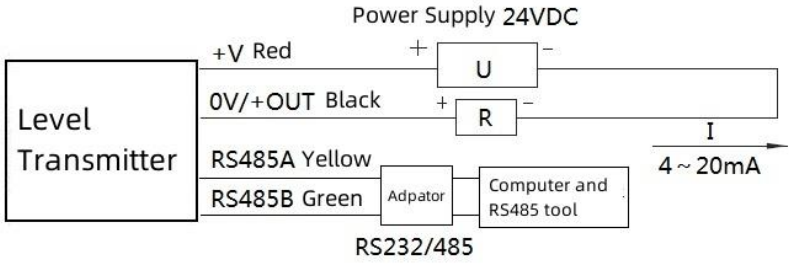
2-wire 4~20mA output



3-wire voltage output



Modbus-RTU/RS485 output



Ordering Guide

Item No.	Type							
HPM413	Submersible level Transmitter							
	Pressure Range	Measuring Range						
	[0 ~ X]mH$_2$O (Ln)	X is measuring range Ln is the length of cable						
		Code	Output Signal					
		B1	(4 ~ 20)mA					
		B4	(0 ~ 5)V					
		B7	Modbus-RTU/RS485					
		B8	(4 ~ 20)mA+HART					
			Code	Cable Material				
			C2F	PTFE				
			C2U	PU				
				Code	Mounting method			
				N	No			
				W1	Threaded mounting parts			
				W2	Top weight			
				W3	Bottom weight			
				W8	Clip			
					Code	Pressure sensor		
					M5	Ceramic piezoresistive		
						Code	Probe shell material	
						S6	316L	
						TI	Titaniumalloy	
							Code	Sealing ring material
							FK	FKM
							FF	FFKM
								Code / Additional Functions
								QF / Factory report
								Other requests
eg:HPM413	[0 ~ 3]mH$_2$O (4)	B1	C2F	N	M5	S6	FK	QF

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.	00223Q21711R1S

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