Product model: HPM420W Submersible level transmitter

Manufacturer: Nanjing Hangjia Electronic Technology Co., LTD

Product category: liquid level transmitter

Application: liquid level measurement and control in petroleum, chemical industry, power plant, urban water supply and hydrologic exploration

Overview

HPM420W split-type submersible liquid level transmitter uses high performance silicon piezoresistive pressure sensor as a measuring element, which accurately measure the hydrostatic pressure that is proportional to the liquid level and depth and convert it into a standard (current or voltage) signal output through the signal conditioning circuit, establishing a linear correspondence between the output signal and the liquid depth, and realizing the measurement of the liquid depth.

The product has high precision and small size. Probe can be directly put into the liquid to measure the liquid height from the end of the transmitter to the liquid level. It is easy to use and is suitable for liquid level measurement and control in the fields of petroleum, chemical industry, power plants, urban water supply, and hydrological exploration etc. The product has been screened for long-term aging and stability before delivery. It is reliable and stable and can be used in open spaces with harsh environments.

Features

- Split structure
- The sensor part put into the liquid has multiple protection and sealing designs, IP68 protection
- The casing of the signal conditioning part is made of cast aluminum and is installed at a convenient wiring location for easy adjustment and wiring.
- Large measuring range, from 1 meter to 300 meters
- Various types of output signals are available
- On-site display
- Optional lightning strike protection

Technical Parameters

Pressure Range	0~1...300mH_2O Note: The measurement unit can be converted into ftH_2O@4℃, inH_2O@4℃, m, mm, etc. Gives the density value of the measuring medium when the unit is m, mm, etc.
Overload	1.5 times pressure range of full scale
Measuring Medium	various liquid compatibles contact materials
Output Signal/Power Supply (option 1)	4~20mA / Vs=8~30V
Output Signal/Power Supply (option 2)	4~20mA+HART / Vs=12~32V
Output Signal/Power Supply (option 3)	0～10V / Vs=12~30V
Output Signal/Power Supply (option 4)	Modbus-RTU/RS485 / Vs=12~30V
Output Signal/Power Supply (option 5)	2-way relay / Vs=18~32V
Note: Except for 4~20mA, the recommended range of other signal outputs is within 20 meters.	
Accuracy	±0.5%FS(typical, @25℃), ±0.2%FS(optional, @25℃)
Long-term Stability	±0.25%FS/year (0.5G); ±0.2%FS/year (0.2G);
*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)	
Compensation temperature range	0～70℃ (0.5G typical accuracy) -10～80℃ (0.2G optional accuracy) Note: Please consult for measuring range ≤20kPa
Temperature Coefficient of Zero	±1.0%FS (Reference 25℃,in compensation temperature range) （Range≤20kPa,±1.5%FS,0~70℃）
Temperature Coefficient of Full Scale	±1.0%FS (Reference 25℃,in compensation temperature range) （Range≤20kPa,±1.5%FS,0~70℃）
Operation Temperature	-20 ~ 80℃
Medium Temperature	-40 ~ 80℃

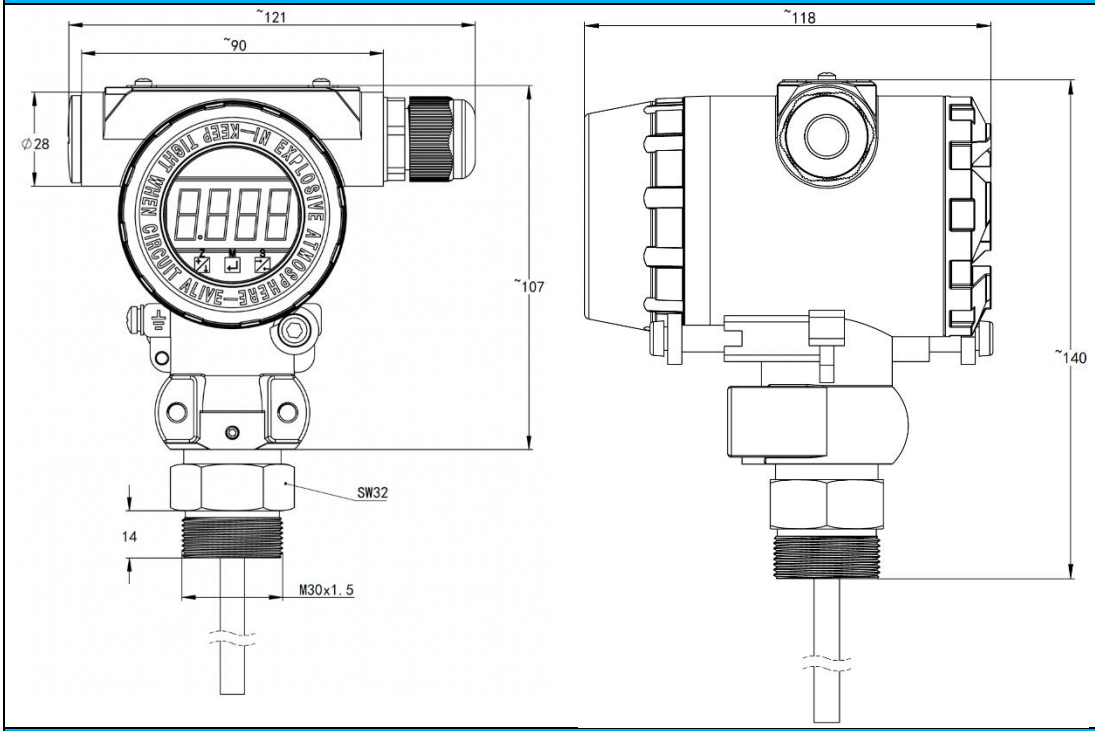
Storage Temperature	-20 ~ 85℃
Protection Grade	IP68(for probe); IP65(for junction box)
Insulation resistance	>20MΩ, 500VDC
Insulation strength	<2mA @ 500VAC (500VAC 50Hz test voltage applied, no breakdown or arcing for 1 minute)

Structure Material

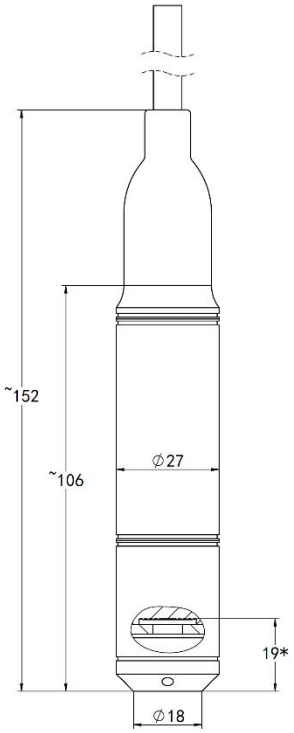
Code	Part	Note
S4	Probe shell	304
S6		316L
Ti		titanium or titanium alloy
Y2	Junction box	aluminum alloy
M1	Pressure sensor	Silicon Piezoresistive，316L
M2		Silicon Piezoresistive，titanium & titanium alloy
FK	Pressure sensor sealing ring	FKM（working temperature: -20 ~ 200℃）
NB		NBR（working temperature: -40 ~ 120℃）
C2U	Cable	PU，external diameter（7.2±0.2）mm
C2N		NBR，external diameter（7.2±0.2）mm
M	Filter cap	Metal Material
P		Plastic material

Structure Drawings

Junction box



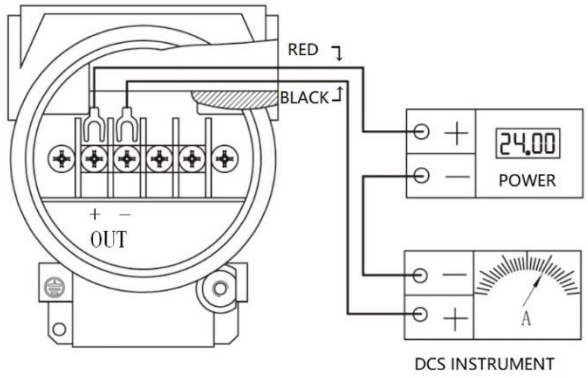
Probe



*This dimension is the distance from the sensing diaphragm to the base

Electrical Connection

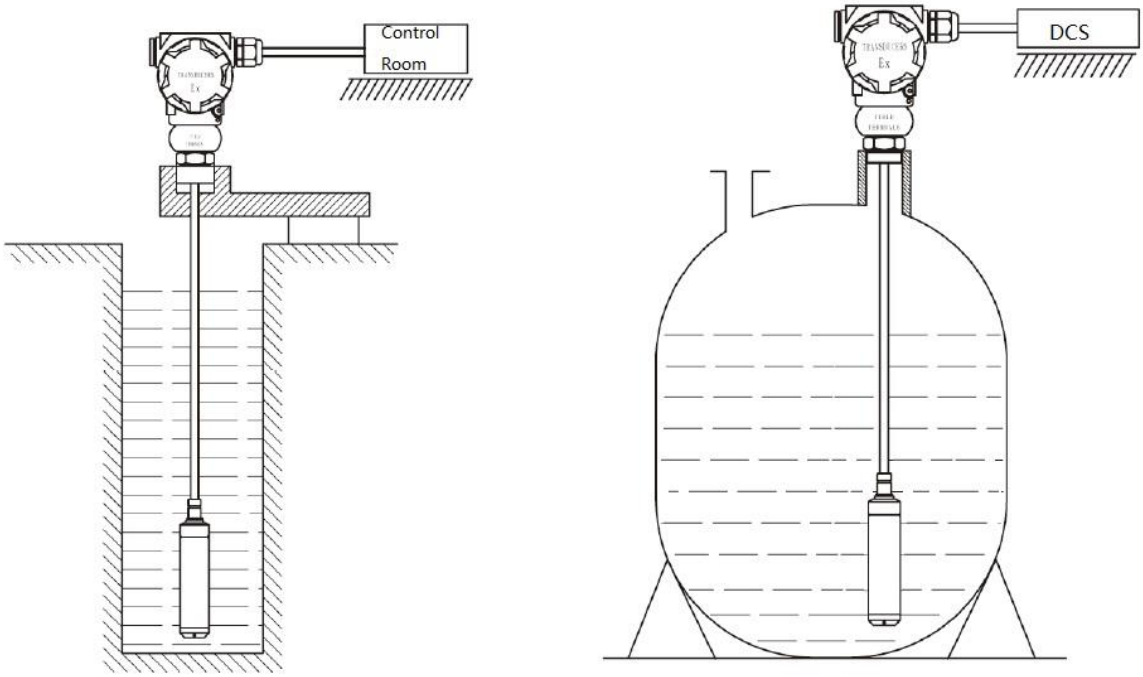
Electrical wiring diagram for 2-wire 4~20mADC output type transmitter



Note: Other output signals on request

Application

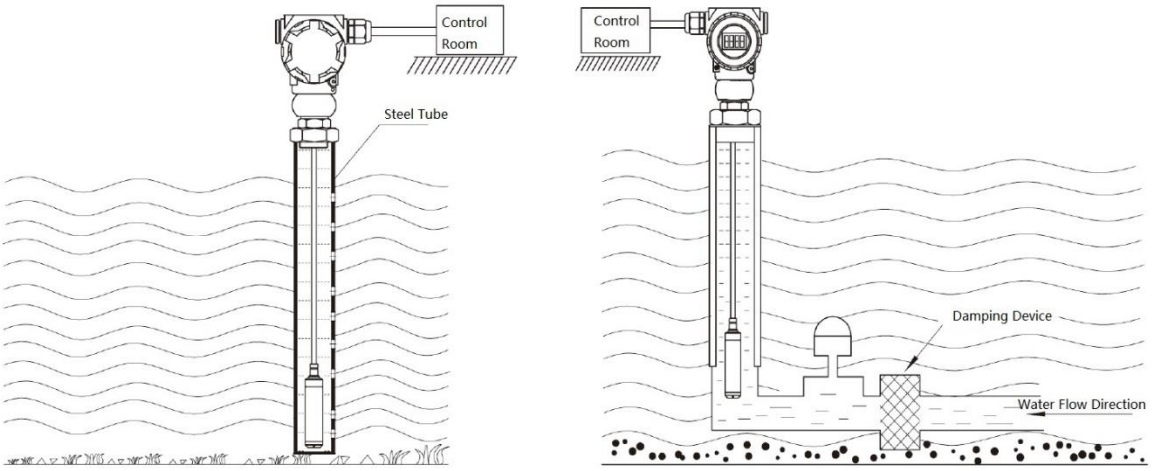
Installation in still water (liquid tank, pool, deep well, etc.)



Installation tips:

1. When measuring the static liquid level in an open tank, put the liquid level transmitter vertically into the bottom of the container, and fix the transmitter's cable and junction box at the top of the tank.
2. When installing in the open air, try to place the junction box of the liquid level transmitter in a ventilated and dry place to avoid direct sunlight and rain.

Install in running water



Installation tips:

1. When measuring the water level in flowing water, if the medium fluctuates greatly, a steel pipe with an inner diameter of about 50 cm can be inserted into the water, and several small holes of about Ø5 mm can be opened at different heights in the opposite direction of the flow direction to allow water to enter the pipe. Fix the cable wire and junction box at the opening of the tube.
2. When the medium fluctuates greatly and the sediment is large, you can also install a damping device to filter the sediment to eliminate the instability of dynamic pressure and waves.
3. When installing in the open air, try to place the junction box of the liquid level transmitter in a ventilated and dry place to avoid direct sunlight and rain.
4. When installed in areas with frequent thunderstorms, it is recommended that users install lightning protection devices and ensure that the product and power supply are reliably grounded to reduce the probability of product damage by lightning.

Ordering Guide

Model No.	Type								
HPM420W	Submersible Level Transmitter								
	Level Range	Measuring Range							
	(0 ~ X)mH_2O (Ln)	X is the level range Ln is the cable length							
		Code	Output Signal						
		B1	(4 ~ 20)mA						
		B3	(0 ~ 10)V						
		B7	RS485						
		B9	Relay						
			Code	Cable material					
			C2N	NBR Nitrile					
			C2U	PU polyurethane					
				Code	Mounting				
				M30	M30×1.5				
				F25	DN25 flange				
				F50	DN50 flange				
					Code	Sensor			
					M1	316L，silicone piezoresistive			
					M2	Titanium, Silicon piezoresistive			
						Code	Probe material		
						S4	304		
						S6	316L		
						Ti	Titanium or titanium alloys		
							Code	Others	
							QF	Factory report	
							R1	CE qualification	
							J5	0.5G	
							J2	0.2G	
							FL	lightning protection	
							M	Metal filter cap	
							P	plastic filter cap	
							FK	FKM sealing ring	
							NB	NBR sealing ring	
								Other customization requirements	
eg: HPM420W	(0 ~ 5)mH2O (L7)	B1	C2U	M30	M1	S4	J5 M FK		

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
Register No.	3Z200408.NHET098