HPTM480 Integrated submersible temperature and pressure transmitter

Nanjing Hangjia Electronic Technology Co.,Ltd.

Overview

HPTM480 Temperature-pressure transmitter uses a high-quality, highly stable pressure core as its sensing element to accurately measure the hydrostatic pressure of the liquid, which is proportional to the liquid level. This pressure is then converted into a standard 4-20mA signal output through signal conditioning circuitry, enabling the measurement of liquid depth. The probe incorporates a high-precision temperature sensing element, allowing simultaneous measurement of the liquid temperature. Additionally, the product features a 4-digit dual-row LED display that shows both liquid level and temperature values simultaneously.

Having undergone long-term aging and stability testing, the product demonstrates reliable and stable performance, making it suitable for harsh outdoor environments. It has wide applications in groundwater, rivers, lakes, seas, surface water tanks, and storage tanks.

Application

- Water treatment industry
- Groundwater
- Rivers, lakes and seas
- Marine
- Industrial process control

Features

- Simultaneous measurement of liquid level and temperature
- Large LED screen display, simultaneously showing pressure and temperature
- Standard analog signal output
- Dual anti-condensation and anti-condensation technology

Technical Parameters

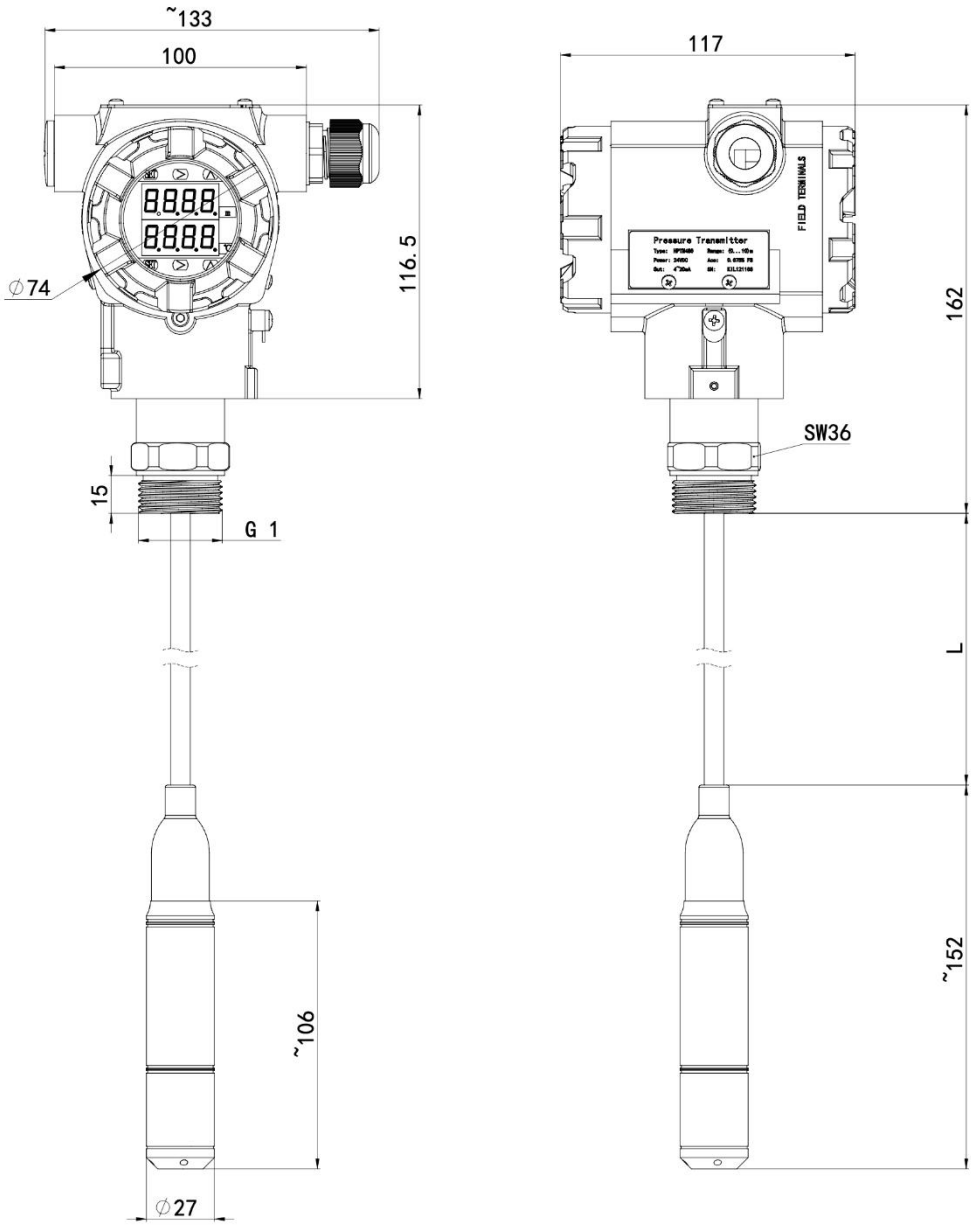
Liquid Level Range	
Liquid level measuring range	0~0.5…20mH_2O
Overload	1.5x of full range
Temperature range	
Temperature measuring range	-40~100℃
Note: Supports customized intermediate ranges, such as 0 to 60 ° C	
Service	
Medium type	Various liquids compatible with contact materials
Output signal/Power supply	
Standard	Liquid level:2-wire 4~20mA_{DC} Temperature:2-wire 4~20mA_{DC} Vs:24 V_{DC} (9~30V_{DC})
Performance	
Accuracy	±0.5%FS (liquid level) ±0.4℃ (temperature)
Long-term stability	±0.25%FS/year

Environmental conditions	
Temperature condition	Medium working temperature: -40~100℃ Ambient temperature: -30~70℃ Storage temperature: -30~70℃
Protection grade	IP68(measuring probe) IP65(LED display part)
Temperature drift characteristic (liquid level)	
Compensation temperature scope	0~70℃
Temperature drift of zero	±1.0%FS reference 25℃, within the range of temperature compensation (≤20kPaTemperature drift of the range±1.5%FS, 0~70℃)
Temperature drift of full range	±1.0%FS reference 25℃, within the range of temperature compensation (≤20kPaTemperature drift of the range ±1.5%FS, 0~70℃)
Mechanical stability	
Vibration	20g(20~5000Hz)
Shock resistance	20g(11ms)
Insulation	
Insulation resistance	>100MΩ， 500VDC
Dielectric strength	Apply 500VAC 50Hz test voltage, lasting 1min without breakdown and flare-up phenomenon

Structural Material

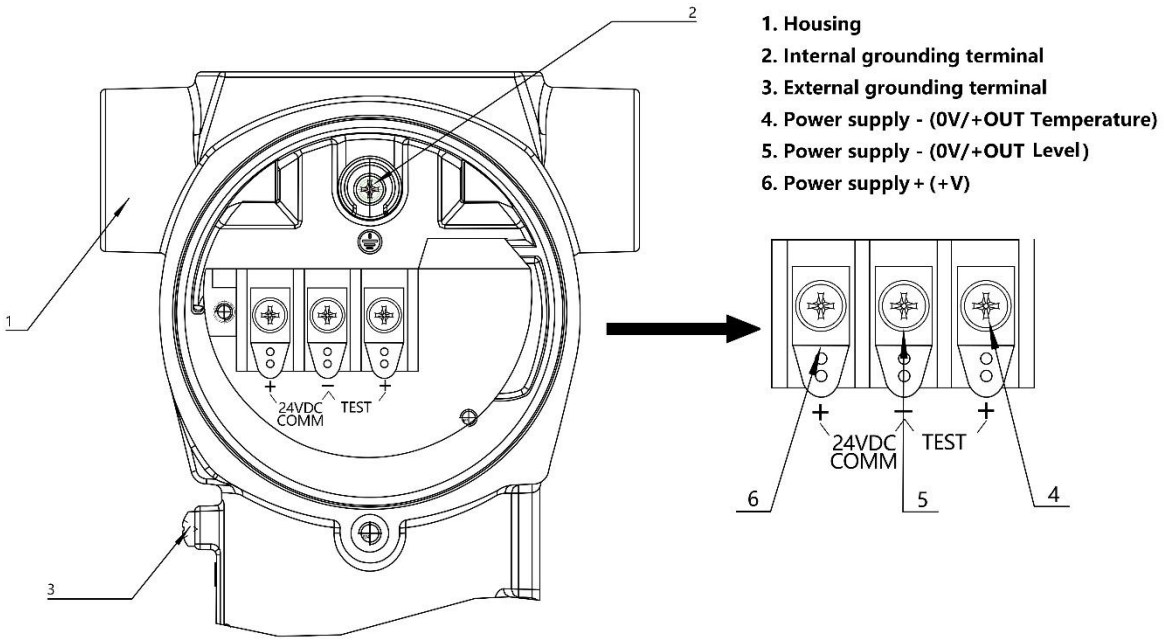
Ordering code	Part	Material
S4	Probe housing	SS304
S6		SS316L
M1	Pressure sensor	silicon piezoresistive, SS316L
FK	Sealing ring	FKM (Applicable temperature range -20~200℃)
NB		NBR (Applicable temperature range -40~120℃)
C2U	Cable	PU, outer diameter (7.2±0.2) mm
C2N		NBR, outer diameter (7.2±0.2) mm
C2F		Fluoroplastic cable, outer diameter (7.2±0.2) mm
A12	Transmitter housing	Cast aluminum alloy ADC12(default)

Dimension (unit: mm)



Note: The dimensions listed in the figure may change with the update of the process

Electrical Connections



1. Housing
2. Internal grounding terminal
3. External grounding terminal
4. Power supply - (0V/+OUT Temperature)
5. Power supply - (0V/+OUT Level)
6. Power supply + (+V)

Output signal	Level: 2-wire 4~20mADC Temperature: 2-wire 4~20mADC		
Signal Definition	Power+ (+V)	Power-(0V/+OUT $_{Level}$)	Power-(0V/+OUT $_{Temperature}$)
Terminals	24VDC+	24VDC-	TEST+

Ordering Guide

Code	Type								
HPTM480	Temperature and pressure integrated Submersible transmitter								
	Liquid level range	Liquid level measurement range							
	(0 ~ X)mH$_2$O (Ln)	X is the liquid level range Ln is the length of the cable							
		Temperature range	Temperature measurement range						
		(T1 ~ T2)℃	T1 is the lower limit of the range T2 is the upper limit of the range						
			Code	Liquid level output signal	Temperature output signal				
			B1B1	(4 ~ 20)mA	(4 ~ 20)mA				
				Code	Cable jacket material				
				C2N	NBR nitrile cable				
				C2U	PU polyurethane cable				
				C2F	Fluoroplastic cable				
					Code	Top fixing method			
					M30	M30×1.5			
					G1	G1			
					F20	DN20 Flange			
						Code	Pressure core		
						M1	Silicon piezoresistor,316L		
							Code	Probe material	
							S6	SS316L	
								Code	Additional features
								FL	Lightning protection
								M	Metal filter cap
								P	Plastic filter cap
								FK	Fluororubber FKM seal ring
								NB	Nitrile NBR seal ring
								QF	Our factory inspection report
									Other custom requirements
eg: HPTM480	(0 ~ 1)mH2O (L2)	(0 ~ 50)℃	B1B1	C2N	G1	M1	S4	M FK QF	