

HPTM410 Combined Temperature & Pressure Transmitter



Nanjing Hangjia Electronic Technology Co., Ltd.

Overview

HPTM410 combined temperature and pressure transmitter adopts a fully sealed submersible structure and can obtain two signals of liquid level and temperature at the same time. This type of transmitter is composed of pressure and temperature sensors that have passed long-term stability and reliability tests and high-precision signal conditioning special circuits, which are packed into a stainless-steel shell. The integrated structure and standardized signals provide convenience for on-site use and automatic control. The special cable is sealed with the housing and can be used in liquids compatible with the transmitter structural material for a long time.

HPTM410 temperature and pressure integrated transmitter has small size, light weight, and good long-term stability. It is suitable for simultaneous measurement and control of liquid level and temperature in urban water supply and drainage, hydrological exploration, water affairs and chemical industry.

Application: Integrated temperature and pressure measurement of fluids in the field of industrial process control or scientific research

Feature

- ◆ Parallel measurement of temperature and pressure
- ◆ Probe submersible measurement, simple and convenient
- ◆ The sensor part put into the liquid is a fully sealed stainless steel structure
- ◆ Supports a variety of output signals

Technical Parameters

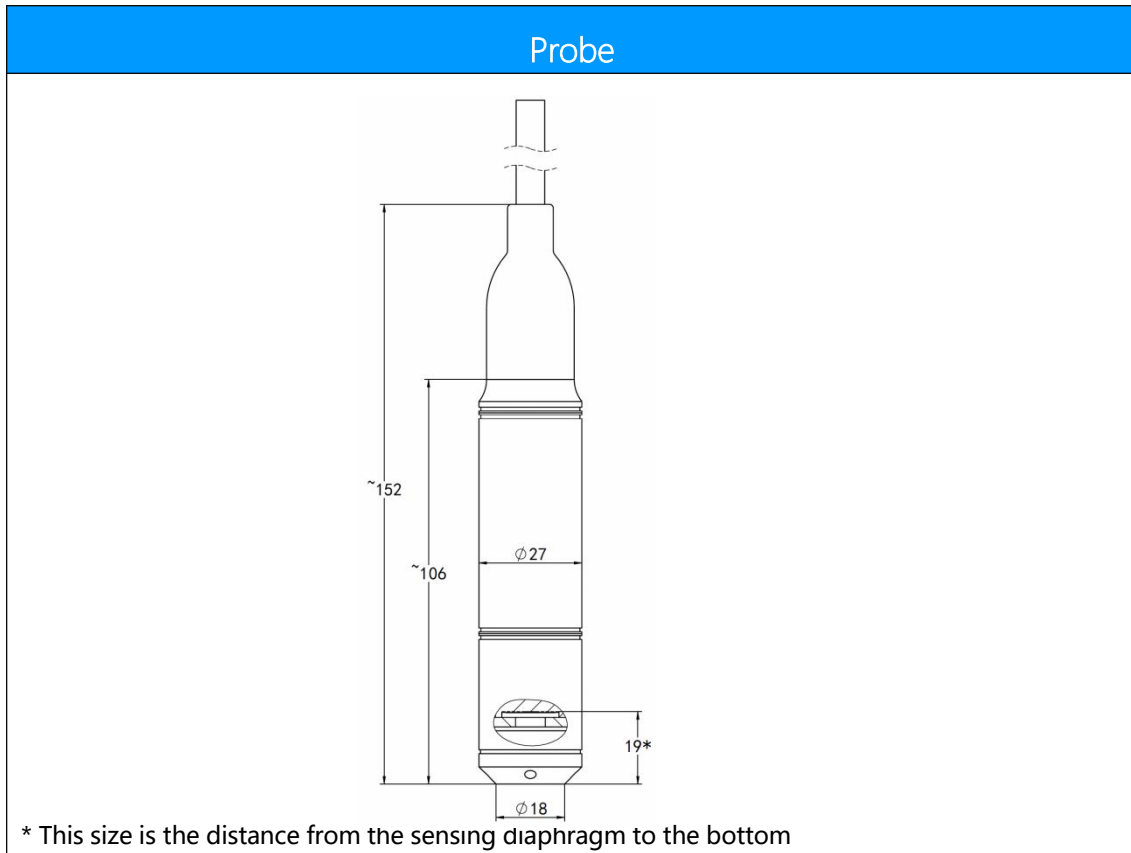
Level Range	0~1...500mH ₂ O Note: The measurement unit can be converted to mH ₂ O, inH ₂ O, m, mm, etc. When using m, mm, etc. as the unit, please give the density value of the measurement medium.
Temperature Range	-40~100℃ Note: Supports customized intermediate range, such as 0~60℃, etc.
Measuring Medium	Various liquids compatible with contact materials
Output Signal/Power Supply (1)	Level: 2-wire 4~20mADC/ Vs=10~30 VDC Temperature: 3-wire PT100/PT1000

Output Signal/Power Supply (2)	Level: 2-wire 4~20mADC / Vs=10~30 VDC Temperature: 2-wire 4~20mADC / Vs=10~30 VDC
Output Signal/Power Supply (3)	Level: 3-wire 0~5VDC / Vs=8.5~30 VDC Temperature: 3-wire 0~5VDC / Vs=8.5~30 VDC
Output Signal/Power Supply (4)	Level: 3-wire 0~10VDC / Vs=12~30 VDC Temperature: 3-wire 0~10VDC / Vs=12~30 VDC
Output Signal/Power Supply (5)	4-wire Modbus-RTU/RS485 / Vs=10~30 VDC (Normal) / Vs=3.1~8 VDC (battery supply, low power consumption mode)
Accuracy	±0.5%FS (Level measure), ±0.4°C (temperature measure)
Electrical Connection	DIN43650/ Hirschmann, cable outlet, M12*1
Long-term Stability	±0.25%FS/year
Compensation temperature Range(level)	0~70°C
Temperature Coefficient of Zero (level)	±1.0%FS(Reference 25°C, in compensation range); (Temperature drift of ≤20kPa range ±1.5%FS, 0~70°C)
Temperature Coefficient of Full Scale(level)	±1.0%FS(Reference 25°C, in compensation range) (Temperature drift of ≤20kPa range ±1.5%FS, 0~70°C)
Medium Temperature	-40~80°C
Ambient Temperature	-40~80°C
Storage Temperature	-40~85°C
Protection grade	IP68
Insulation resistance	>20MΩ @500VDC
Dielectric strength	<2mA 500VAC 1min

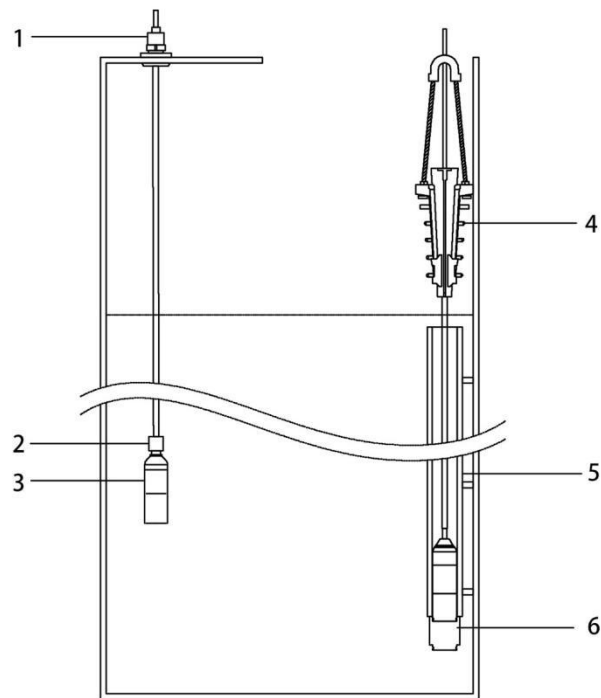
Housing Material

Code	Part	Material
S4	Shell	304
S6		316L
M1	Pressure sensor	silicon piezoresistive type, 316L
FK	O-ring	FKM(Applicable temperature range -20 ~ 200°C)
NB		NBR(Applicable temperature range -40 ~ 120°C)
C2U	Cable	PU polyurethane cable, outer diameter (7.2±0.2) mm
C2N		NBR nitrile cable, outer diameter (7.2±0.2) mm
C2F		Fluorine plastic cable, outer diameter (7.2±0.2) mm

Structure Drawings (unit: mm)



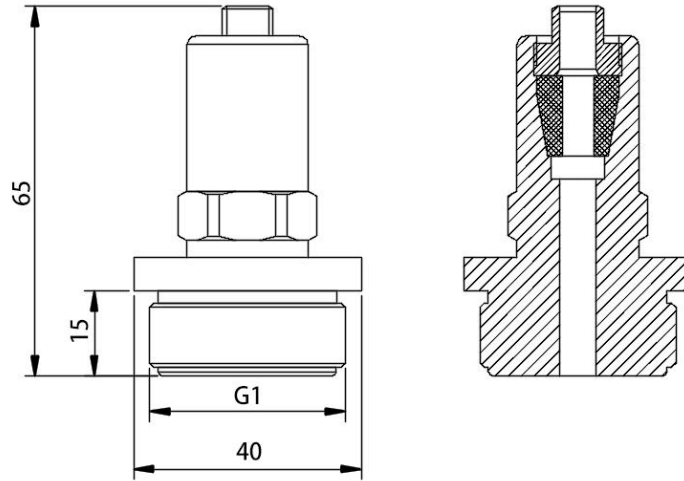
Installation



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)

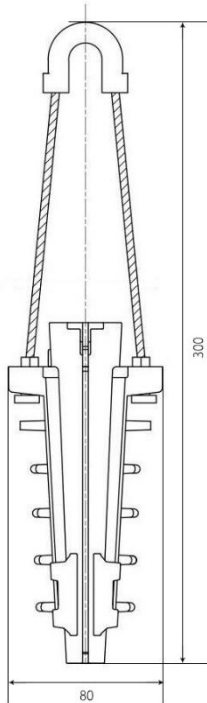
Notes:

- 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.
- The weight hammer can be customized according to user requirements

Threaded Mounting Parts (Code: W1)

Weight: ~450g

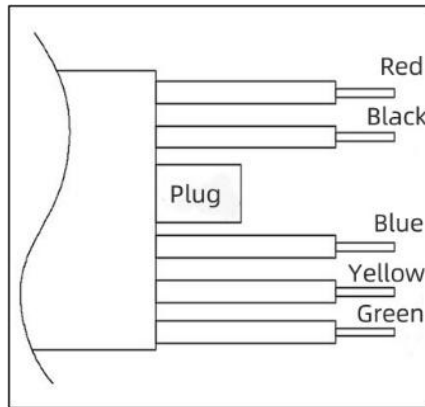
1. Used to fix the entire product at the top
2. Except for G1 thread, other threads can be customized if required

Cable clip(Code:W8)

Weight: ~340g

Used to fix the entire product at the top

Electrical Interface



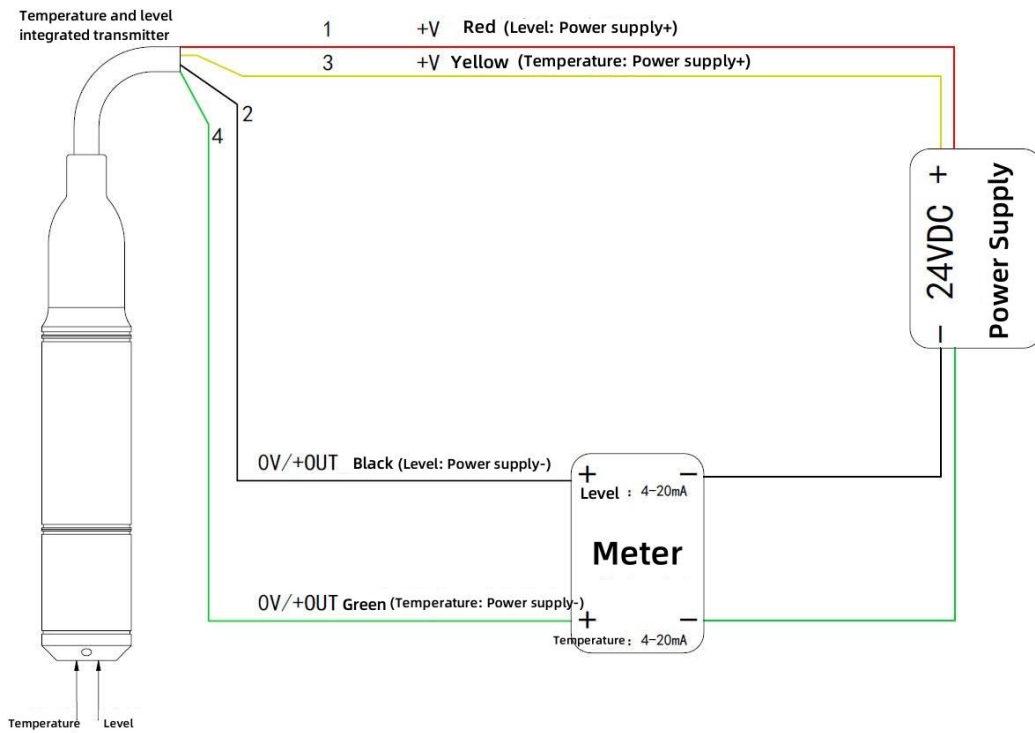
Output signal	Level: two-wire 4 ~ 20mA current		Temperature: three-wire PT100/PT1000		
	Power supply+(+V)	Power supply-(0V/+OUT)	A	B	B
Cable outlet	red	black	blue	yellow	green

Output signal	Level: two-wire 4 ~ 20mA current		Temperature: two-wire 4 ~ 20mA current	
	Power supply+(+V)	Power supply-(0V/+OUT)	Power supply+(+V)	Power supply-(0V/+OUT)
Cable outlet	red	black	yellow	green

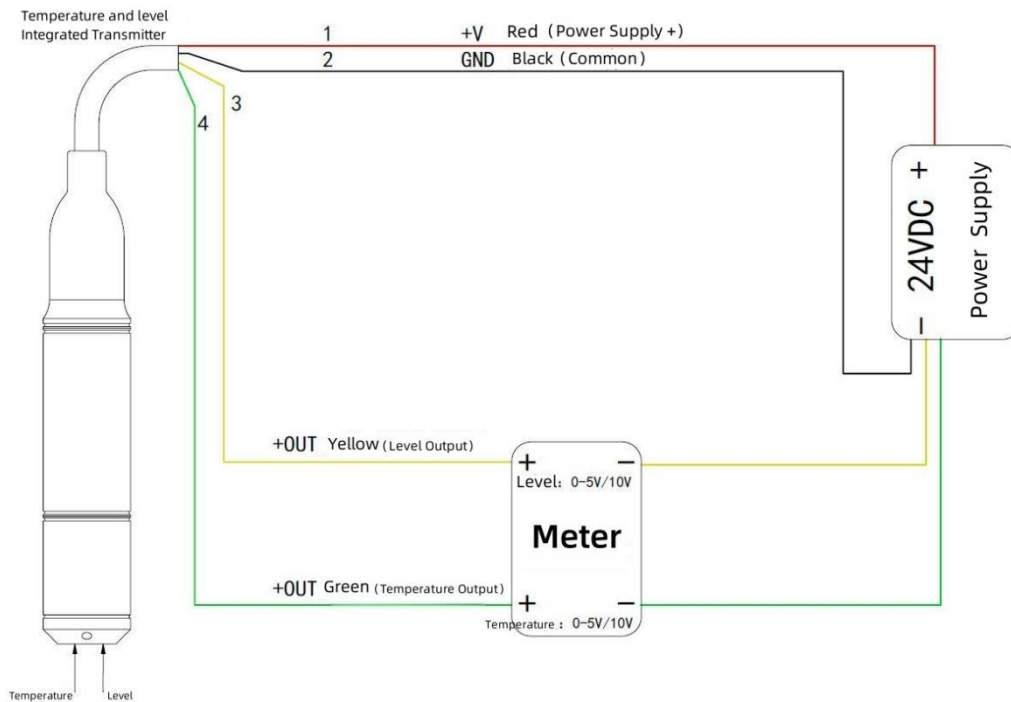
Output signal	Level: three wire voltage		Temperature: three wire voltage	
	Power supply+(+V)	Common port (GND)	Level output (+OUT _{Level})	Temperature output (+OUT _{Temp})
Cable outlet	red	black	yellow	green

Output signal	Four-wire Modbus-RTU/RS485			
	Power supply+(+V)	Power supply-(-V)	RS485A	RS485B
Cable outlet	red	black	yellow	green

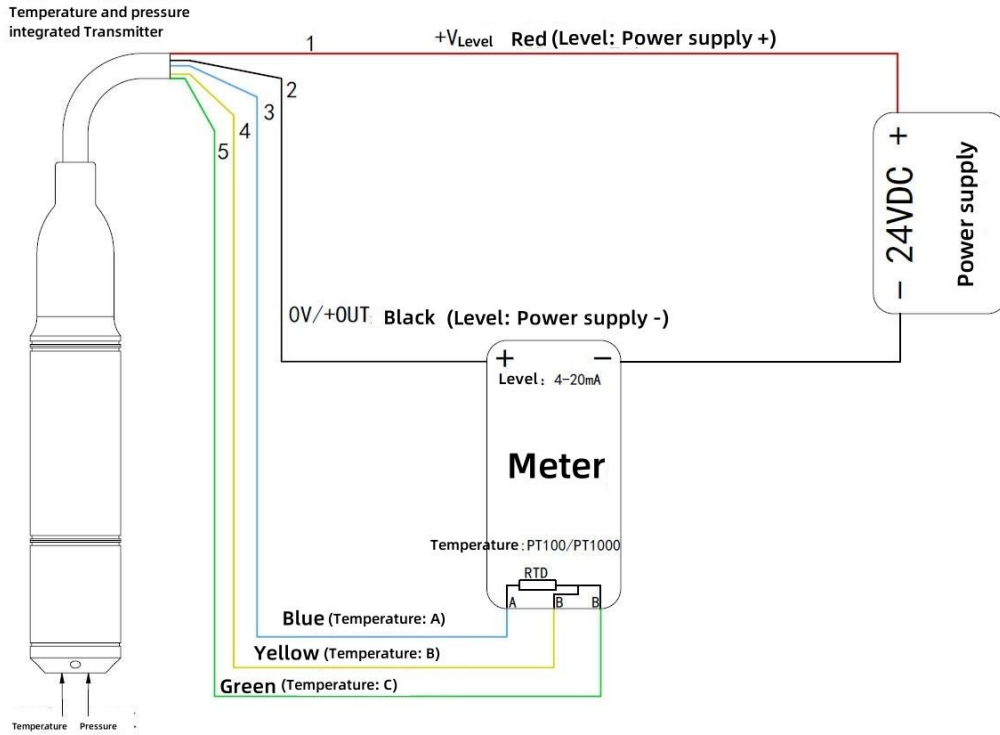
Electrical Connection



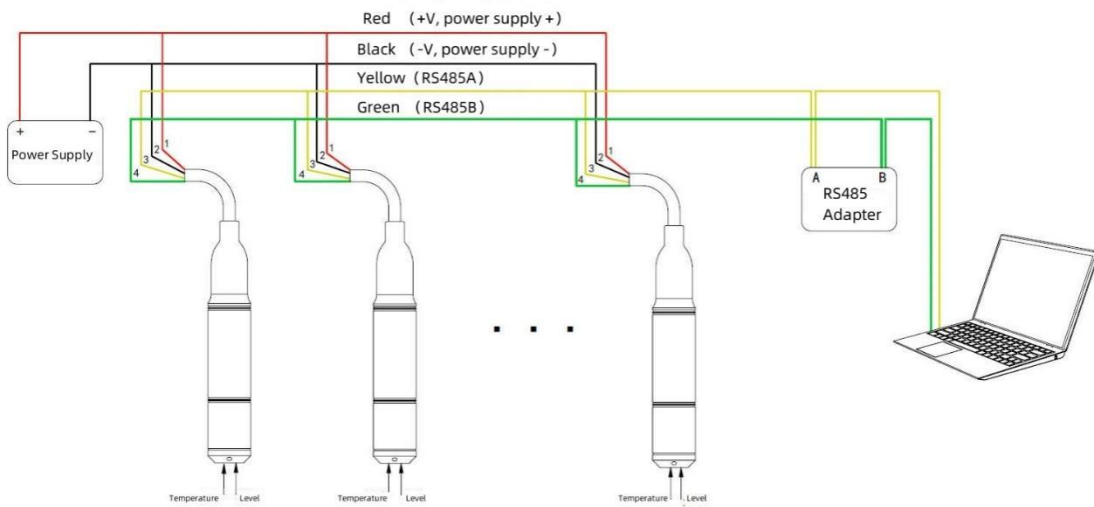
Level: 2-wire 4 to 20mA current
Temperature: 2-wire 4 to 20mA current



Level: 3-wire voltage output
Temperature: 3-wire voltage output



Level: 2-wire 4 to 20mA current
 Temperature: 3-wire PT100/PT1000 (cable outlet)



4-wire Modbus-RTU/RS485 (Hirschmann/DIN43650 Electrical Connection)

Ordering Guide

Model Name	Type										
HPTM410	Combined temperature and pressure Submersible transmitter										
	Level Range (0 ~ X)mH ₂ O (Lx)	Measuring Range X is the level range Lx is the cable length									
		Temperature Range (T1 ~ T2)°C	Measuring Range T1 is the lower limit T2 is the upper limit								
				Code	Output Signal(Level)	Output Signal(temperature)					
				B1PT100	(4 ~ 20)mA	3-wire PT100					
				B1PT1000	(4 ~ 20)mA	3-wire PT1000					
				B1B1	(4 ~ 20)mA	(4 ~ 20)mA					
				B3B3	(0 ~ 10)V	(0 ~ 10)V					
				B4B4	(0 ~ 5)V	(0 ~ 5)V					
				B7	Modbus-RTU/RS485						
				Code	Cable material						
				C2N	NBR Nitrile cable						
				C2U	PU Polyurethane cable						
				C2F	Fluoroplastic cable						
				Code	Mounting						
				N	NA						
				W1	Threaded mounting parts						
				W2	Top hammer						
				W3	Bottom hammer						
				W8	Cable clip						
				Code	Sensor						
				M1	silicon piezoresistive, 316L						
				Code	Probe material						
				S4	304						
				S6	316L						
				Code	Others						
				FL	Lightning protection						
				M	Metal filter cap						
				P	plastic filter cap						
				FK	FKM sealing ring						
				NB	NBR sealing ring						
				QF	Factory report						
					Other requests						
eg: HPTM410	(0 ~ 1)mH ₂ O (L2)	(0 ~ 50)°C	B7	C2N	W1	M1	S4	M FK			