HPTM410 Combined Temperature & Level Transmitter

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Overview

HPTM410 combined temperature and level 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 level integrated transmitter is 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.

Feature

- Parallel measurement of temperature and level 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

Application

- Hydrological exploration
- Water affairs
- Level and temperature measurement of various liquids at industrial sites

Technical Parameters

Level Range	0~1…500mH2O Note: The measurement unit can be converted to mH2O, inH2O, m, mm, etc. When using m, mm, etc. as the unit, please give the density value of the measurement medium.
Temperature Range	-40~80℃ 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

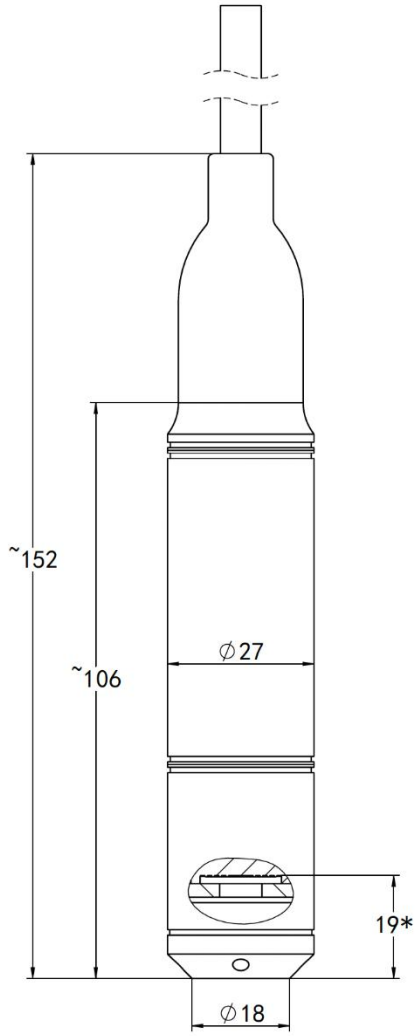
Output Signal/Power Supply（3）	Level:3-wire 0~5VDC / Vs=8.5~30 VDC Temperature:3-wire 0~5VDC / Vs=8.5~30 VDC
Output Signal/Power Supply（4）	Level:3-wire 0~10VDC / Vs=12~30 VDC Temperature:3-wire 0~10VDC / Vs=12~30 VDC
Output Signal/Power Supply（5）	4-wire Modbus-RTU/RS485 / Vs=10~30 VDC (Normal) / Vs=3.1~8 VDC (battery supply, low power consumption mode)
Accuracy	±0.5%FS (Level measure) ±0.4℃ (temperature measure)
Long-term Stability	±0.25%FS/year
Compensation temperature Range(level)	0~70℃
Temperature Coefficient of Zero (level)	±1.0%FS (Reference 25ºC, in compensation range); (Temperature drift of ≤20kPa range ±1.5%FS, 0~70℃)
Temperature Coefficient of Full Scale(level)	±1.0%FS (Reference 25ºC, in compensation range) (Temperature drift of ≤20kPa range ±1.5%FS, 0~70℃)
Medium Temperature	-40~80℃
Ambient Temperature	-40~80℃
Storage Temperature	-40~85℃
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℃)
NB		NBR (Applicable temperature range -40~120℃)
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)

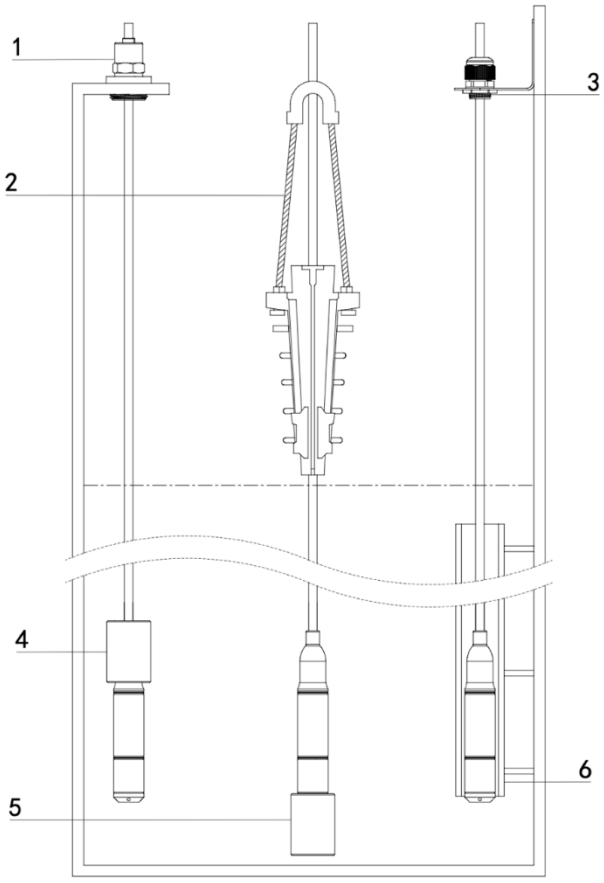
Probe



* It is the distance from the sensing diaphragm to the bottom

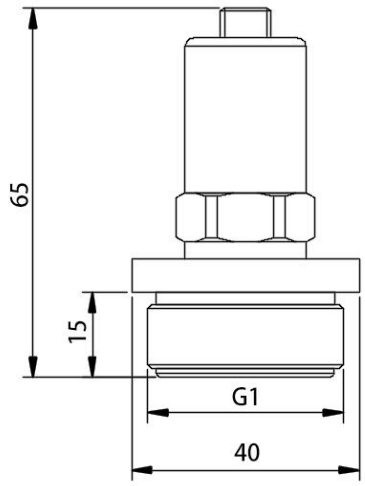
Installation(Unit:mm)

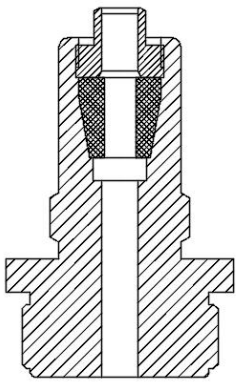
Installation diagram



1. Threaded Mounting Parts(W1)
2. Cable clip(W8)
3. Right-angle mounting bracket kit(W4)
4. Top connection heavy hammer(W2)
5. Bottom connection heavy hammer(W3)
6. Protective tube

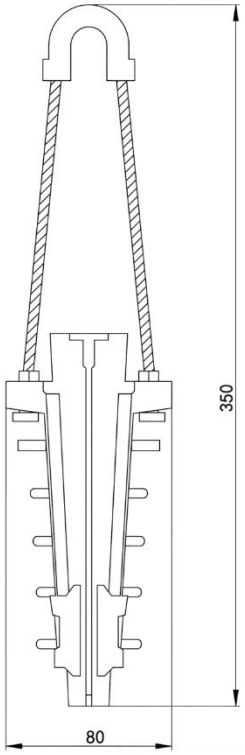
Threaded Mounting Parts (Code: W1)



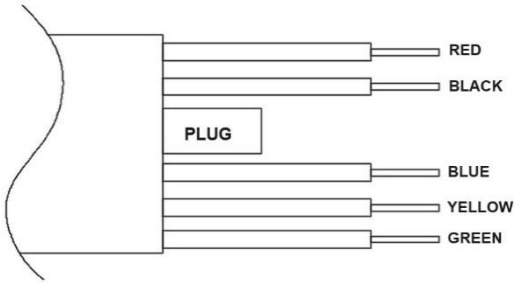


1. Used to fix the entire product at the top
2. Except for G1 threads, other threads can be customized if required

Weight: ~450g

Cable clip(Code:W8)	
	Used to fix the entire product at the top Weight: ~340g

Electrical Interface



Output signal	Level: 2-wire 4~20mA		Temperature: 2-wire PT100/PT1000		
Signal definition	Power supply+(+V)	Power supply-(0V/+OUT)	A	B	B
Cable outlet	red	black	blue	yellow	green

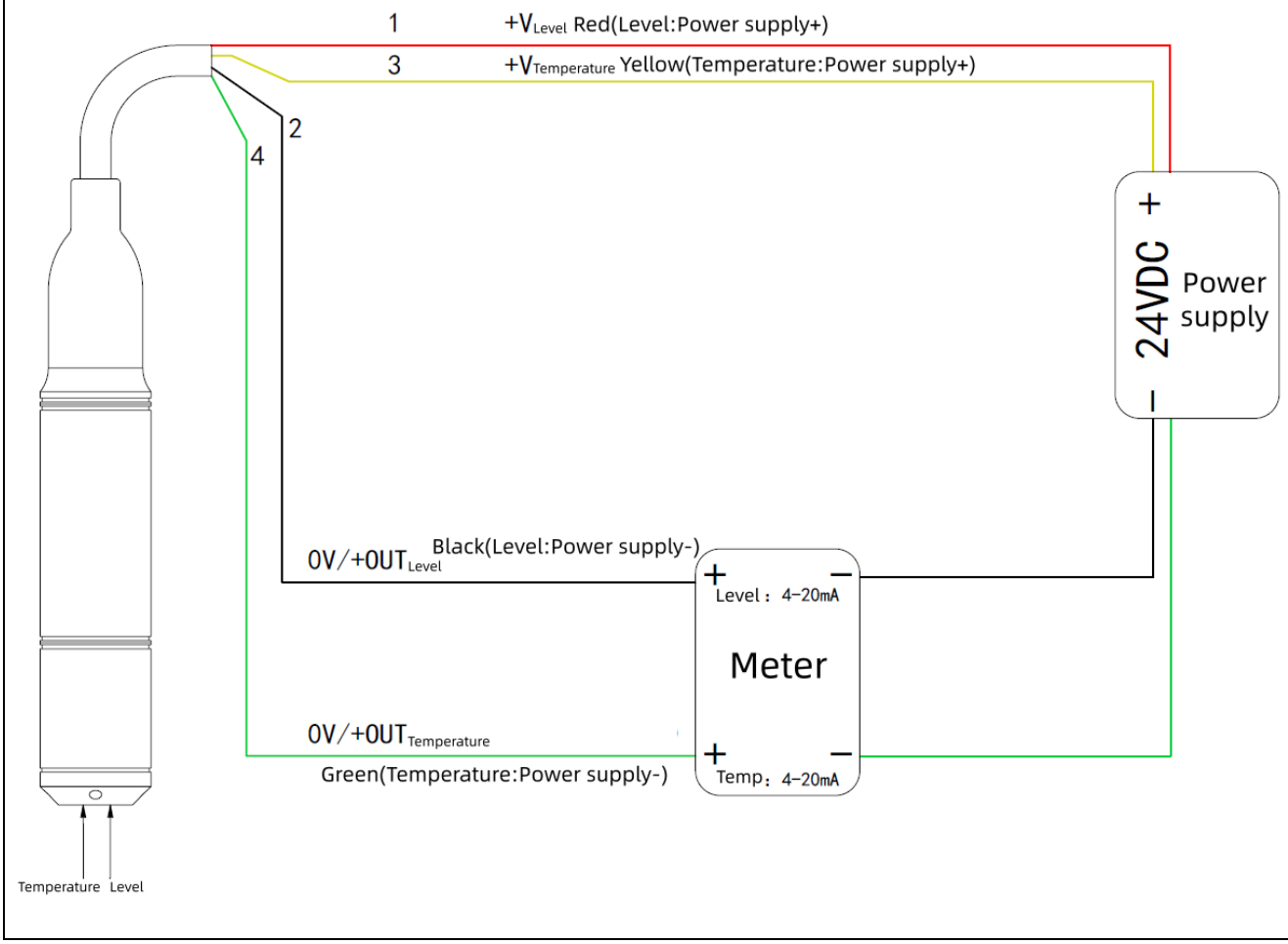
Output signal	Level: 2-wire 4~20mA		Temperature: 2-wire 4~20mA	
Signal definition	Power supply+(+V)	Power supply-(0V/+OUT)	Power supply+(+V)	Power supply-(0V/+OUT)
Cable outlet	red	black	yellow	green

Output signal	Level: 3-wire voltage Temperature: 3-wire voltage			
Signal definition	Power supply+(+V)	Common port (GND)	Level output ($+OUT_{Level}$)	Temperature output ($+OUT_{Temp}$)
Cable outlet	red	black	yellow	green

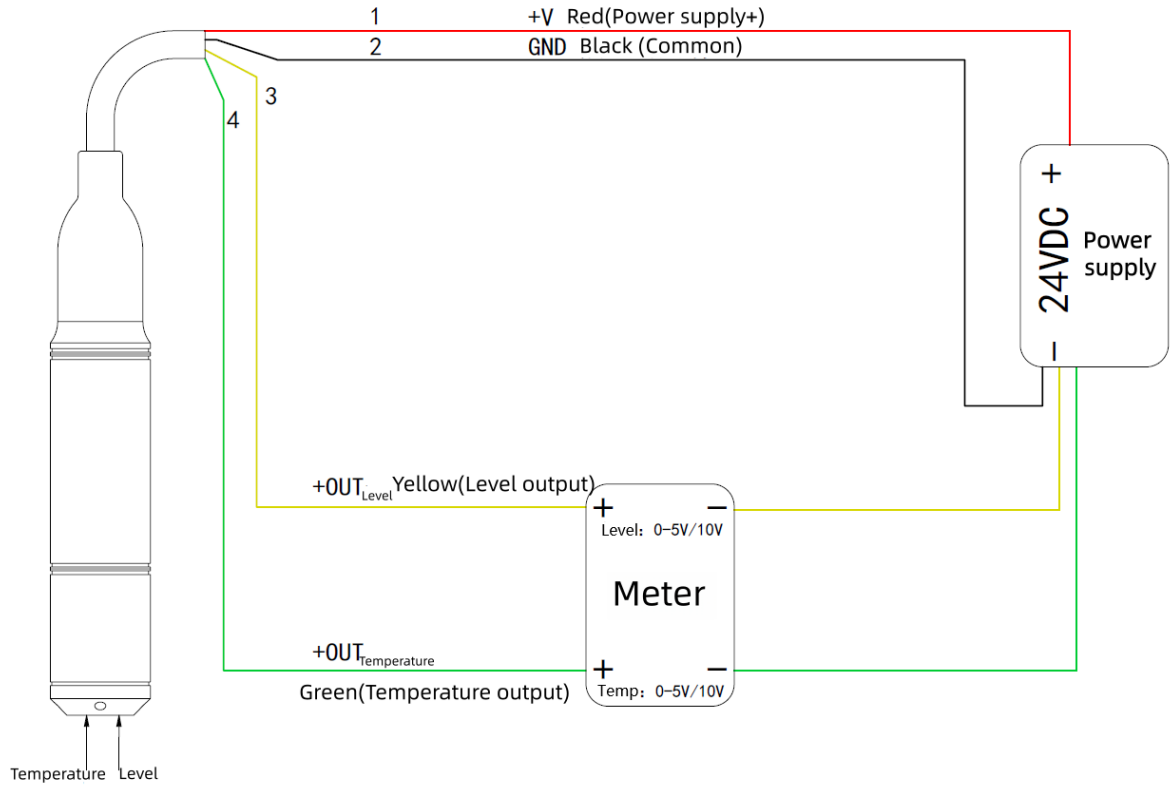
Output signal	4-wire Modbus-RTU/RS485			
Signal definition	Power supply+(+V)	Power supply-(-V)	RS485A	RS485B
Cable outlet	red	black	yellow	green

Electrical Connection

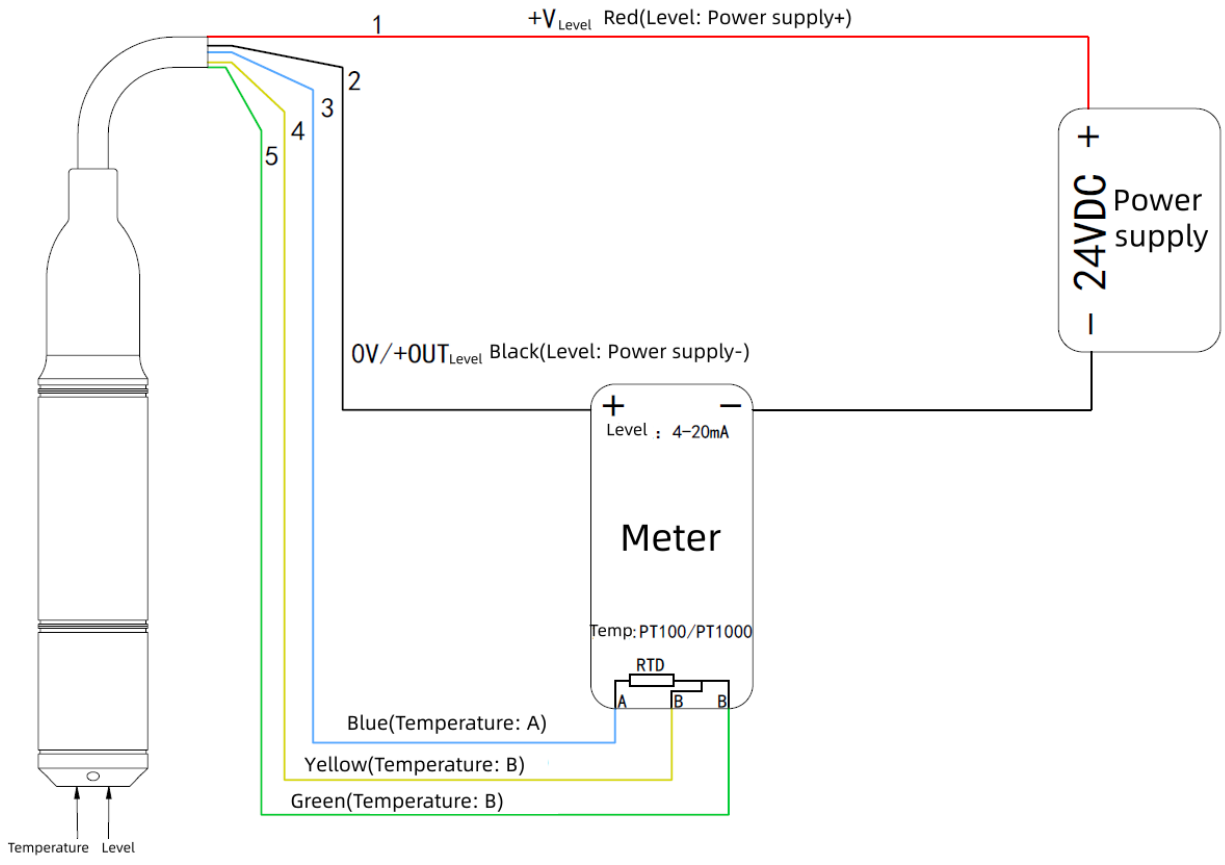
Level: 2-wire 4~20mA current Temperature: 2-wire 4~20mA current



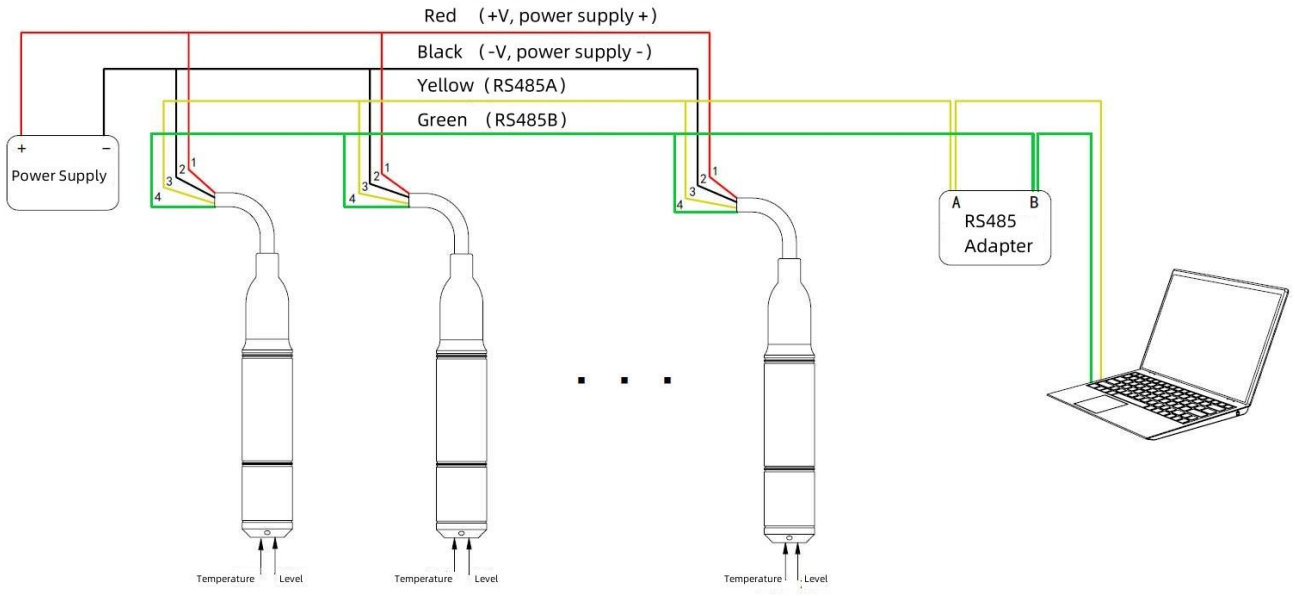
Level: 3-wire voltage output Temperature: 3-wire voltage output



Level: 2-wire 4 to 20mA current Temperature: 3-wire PT100/PT1000



4-wire Modbus-RTU/RS485



Ordering Guide

Model Name	Type							
HPTM410	Combined temperature and pressure Submersible transmitter							
	Level Range	Measuring Range						
	(0 ~ X)mH$_2$O (Ln)	X is the level range Ln is the cable length						
		Temperature Range	Measuring Range					
		(T1 ~ T2)℃	T1 is the lower limit T2 is the upper limit					
			Code	Output Signal(Level)	Output Signal(temperature)			
			B1PT100	(4 ~ 20)mA	2-wire PT100			
			B1PT1000	(4 ~ 20)mA	2-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		
					W4	Right-angle mounting bracket kit		
					W8	Cable clip		
						Code	Sensor	
						M1	silicon piezoresistive, 316L	
							Code	Probe material
							S4	304
							S6	316L
								Code	Others
								FL	Lightning protection
								W9	Waterproof and breathable junction box
								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)mH2O (L2)	(0 ~ 50)℃	B7	C2N	W1	M1	S4	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