HPTM420L Lower Power Consumption

Combined Temperature & Level Transmitter

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Overview

HPTM420L low-power integrated liquid level and temperature sensor uses a high-quality and high-stability pressure core as a sensing element, accurately measures the static pressure of the liquid proportional to the liquid level depth and converts it into a standard RS485 signal output through a signal conditioning circuit to achieve the measurement of the liquid depth. The probe part of the product has a built-in high-precision temperature sensing element that can simultaneously measure the temperature of the liquid. The product is powered by a built-in lithium battery, with extremely low power consumption and a long service life. In addition, the product has an on-site display that can alternately display the liquid level and temperature values and can also be networked through RS485 or connected to a wireless module for wireless transmission.

After long-term aging and stability screening, the product has reliable and stable performance and can be used in open-air places with relatively harsh environments. It is widely used in groundwater, rivers, lakes, seas, ground water tanks, and storage water tanks.

Features

- Simultaneous measurement of liquid level and temperature
- Built-in lithium battery for power supply
- Low power consumption
- On-site display, alternately displaying liquid level and temperature
- With 485 communications, can be adapted to wireless modules
- Double anti-condensation and condensation process

Applications

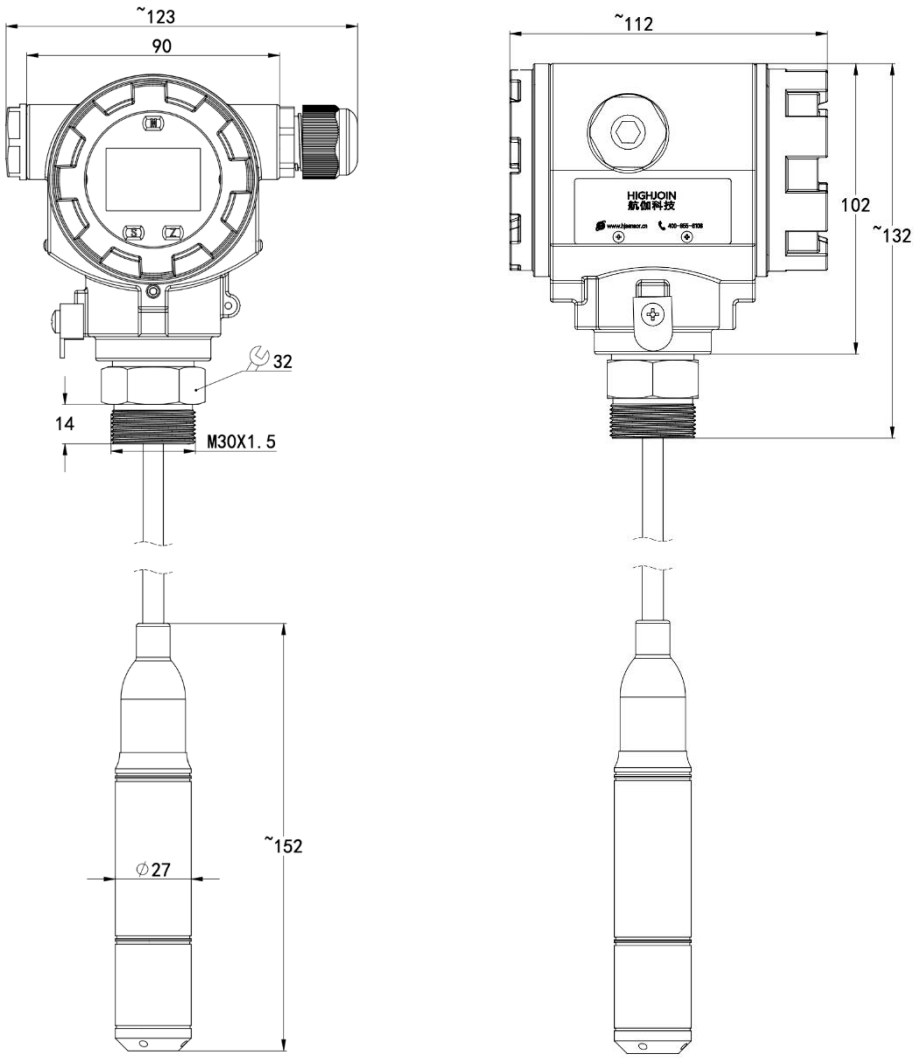
- Water treatment industry
- Groundwater
- Rivers, lakes and seas
- Marine
- Industrial process control

Technical Parameters

Level Range	0~0.5...10mH_2O Notes: Can also use mH2O, inH2O, m, mm, etc. as unit Need to highlight the density of liquid to be measured when using length units such as m, mm etc.
Overload	1.5 times of Full scale
Temperature Range	-40~100℃ Notes: Customized intermediate ranges are supported, such as 0~60℃, etc.

Measuring Medium	Liquid which applicable with the contact material
Output Signal	RS485
Power Supply	Vs=3.1~8 V_{DC} (lithium-ion battery inside ER14250，3.6V 1200mAh) Vs=5V_{DC} (External power supply supported) Vs=24V_{DC} (External power supply supported)
Power consumption	Standby current <20uA Date collection cycle 0~65535s Power Consumption: About 300uA with data collection cycle as 1s About 110uA with data collection cycle as 3s About 75uA with data collection cycle as 5s … Note: Longer data collection cycle, lower consumption
Accuracy	±0.5%FS (level); ±0.4℃(temperature)
Long term stability	±0.25%FS/year
Medium temperature	-40~100℃
Ambient Temperature (LCD display)	-30~70℃
Storage Temperature	-30~70℃
Protection grade	IP68 (Probe part) IP65 (Transmitter part)
Compensated Temperature	-10~70℃
Zero-point temperature drift	±1.5%FS (reference 30℃, within compensated temperature range)
Full scale point temperature drift	±1.5%FS (reference 30℃, within compensated temperature range)
Reverse polarity protection	No damage. Product will not work.
Vibration	20g(20~5000Hz)
Shock	20g(11ms)
Insulation resistance	>100MΩ @500VDC
Insulation strength	500VAC 50Hz test voltage, no breakdown or arcing for 1min

Structure Drawings (Unit: mm)



Material

Code	Part	Note
S4	Probe shell	304
S6		316L
M1	Pressure sensor	Silicon Piezoresistive,316L
FK	Sealing rings	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
C2F		Fluoroplastic cable, external diameter (7.2±0.2) mm
A12	Protection housing	Cast aluminum alloy ADC12(by default)

Electrical Connection

Output signal	4-wires Modbus-RTU/RS485			
Definition	Supply+(+V)	Supply-(-V)	RS485A	RS485B
Battery compartment/ Terminal	Battery+	Battery-	485A	485B

Ordering Guide

Model No.	Type							
HPTM420L	Low power consumption combined liquid level temperature transmitter							
	Level Range	Level Range						
	(0 ~ X)mH$_2$O (Ln)	X is the measurement range for level Ln is the length of the cable						
		Temperature Range	Temperature Range					
		(T1 ~ T2)℃	T1 is the lower limit of the range T2 is the upper limit of the range					
			Code	Output signal				
			B7	RS485				
				Code	Material of Cable			
				C2N	NBR/nitrile -butadiene rubber			
				C2U	PU/polyurethane			
				C2F	Fluoroplastic cable			
					Code	Top cable fixing		
					M30	M30×1.5		
					G1	G1		
					F20	DN20 Flange		
						Code	Pressure sensor	
						M1	Silicon Piezoresistive, 316L	
							Code	Probe material
							S4	304
							S6	316L
								Code / Others
								VL36 / 3.6V lithium-ion battery (Default)
								V5 / 5V DC supply
								V24 / 24V DC supply
								QF / With factory test report
								Other customized requests
eg:HPTM420L	(0 ~ 1)mH2O (L2)	(0 ~ 50)℃	B7	C2N	M30	M1	S4	VL36 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