WxS8800-311142

LoRaWAN High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal

Product Highlights

- LoRaWAN High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
- 2-in-1 smart sensor(s) and RTU terminal product
- Optional DC 12V power supply
- Optional Battery power supply (ER34615H 19,000mAh/ER34615M 13,500mAh)
- Liquid level height can be monitored (0-10 m), support customization, and the maximum depth can be measured to 50 m
- Expandable with 2 of 14 types PSS gas sensors with aluminum Sleeve enclosure
- Up to 8 working simultaneously including sensors and controllers; Customization needed if more than 8 working at the same time
- RTU controlling signal and interfaces OD/PWR triggered by sensor(s) data or OTA command for solenoid valve or other devices
- Optional (Public/Private) IoT cloud platform PolySuite iView and LoRaWAN network iServer
- LoRaWAN Compliance

Products includes following parts:

- WxS8800 LoRa Smart IoT and RTU 2-in-1 Terminal
- ENC-102001 WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67)
- PSS-311142 High Temperature Immersed liquid level sensor(120℃,Range:0-10 Meter,Accuracy:0.3%FS,12VDC)

Configuration Tool

- iEdge4.0 WxS IoT Terminal products can be configured with PolySuite software-visual based Configuration Tool or CLI interface command or OTA via IoT platform, such as PolySuite PaaS platform iView.
- Download link http://ota.polysense.online/wincc/ConfigurationTool.rar

Product Image

- The shell is WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67) , as shown in the figure below
- The sensor is externally connected. See the following document PSS-311142 for the sensor picture


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WxS8800

LoRa Smart IoT and RTU 2-in-1 Terminal

Related Products

Product .	Interf.	Descriptions
WxS8800	11MPI+RS485+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx00, PSB-BD01, & Enclosure)
WxS8801	RS485+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx01, PSB-BD01, & Enclosure)
WxS8802	0-20mA*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx02, PSB-BD01, & Enclosure)
WxS8803	0-20mA*4+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx03, PSB-BD01, & Enclosure)
WxS8804	0-3.3V*2+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx04, PSB-BD01, & Enclosure)
WxS8805	0-3.3V*4+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx05, PSB-BD01, & Enclosure)
WxS8806	0-10V*2+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx06, PSB-BD01, & Enclosure)
WxS8807	0-10V*4+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx07, PSB-BD01, & Enclosure)
WxS8808	PT100*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx08, PSB-BD01, & Enclosure)
WxS8809	PT100*5+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx09, PSB-BD01, & Enclosure)
WxS880A	Switch*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0A, PSB-BD01, & Enclosure)
WxS880B	Switch*5+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0B, PSB-BD01, & Enclosure)
WxS880C	Unibus*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0C, PSB-BD01, & Enclosure)
WxS880D	Unibus*18+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0D, PSB-BD01, & Enclosure)
WxS880E	IIC*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0E, PSB-BD01, & Enclosure)
WxS880F	SPI*1+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0F, PSB-BD01, & Enclosure)
WxS880G	Uart*2+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0G, PSB-BD01, & Enclosure)
WxS880H	Uart*3+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0H, PSB-BD01, & Enclosure)
WxS880J	Uart*1+RS485+OD*2+PWR*2	LoRa Smart IoT and RTU 2-in-1 Terminal (Inc. WxS88xx, PSM-xx0J, PSB-BD01, & Enclosure)
WxS8850	Ai/Ao/Di/Pi/Ro/IIC/SPI/Ci + RS232/485/Ro/RJ45	LoRa Smart RTU

Product Highlights

- Interfaces supported:
  - MPI:(AIN(0-20mA)*2, PT100*1, VIN(0-10V/0-3.3V)*2, Switch*1 ,Unibus*1, IIC *1， SPI*1, Uart(3.3V TTL)*2), RS485*1
  - RTU interfaces
    - OD*2 output for external devices controlling
    - PWR*2 output for external devices/sensors power supply or customization usage
- 2-in-1 DC(5V/12V)+Battery(3.6V Li-SOCl2 ER34615H/M) Power Supply, DC in priority
- Up to 8 working simultaneously including sensors and controllers; Customization needed if more than 8 working at the same time
- Built-in sensor options including:
  - PSS-403011 IIC Temperature and Humidity Sensor (Indoor)
  - PSS-403012 RS485 Temperature and Humidity Sensor (Indoor)
  - PSS-403013 IIC Temperature and Humidity Sensor (IP67,Outdoor)
  - PSS-403014 RS485 Temperature and Humidity Sensor (IP67,Outdoor)
  - PSS-403015 IIC Temperature and Humidity Sensors (Indoor)
  - PSS-403016 RS485 Temperature and Humidity Sensors (Indoor)

- PSS-403017 IIC Temperature and Humidity Sensors (IP67,Outdoor)
- PSS-403018 RS485 Temperature and Humidity Sensors (IP67,Outdoor)
- PSS-403019 IIC Temperature and Humidity Sensors (Indoor)
- PSS-40301A RS485 Temperature and Humidity Sensors (Indoor)
- PSS-40301B IIC Temperature and Humidity Sensors (IP67,Outdoor)
- PSS-40301C RS485 Temperature and Humidity Sensors (IP67,Outdoor)
- PSS-403021 IIC Temperature + Humidity + Barometric Pressure Sensors(Indoor)
- PSS-403022 RS485 Temperature + Humidity + Barometric Pressure Sensors(Indoor)
- PSS-403023 IIC Temperature + Humidity + Barometric Pressure Sensors (IP67,Outdoor)
- PSS-403024 RS485 Temperature + Humidity + Barometric Pressure Sensors (IP67,Outdoor)
- PSS-33B011 RS485 illumination Sensor(Indoor)
- PSS-423011 Uart AQI(PM2.5/10, SO2,NO2, O3, CO,Temp,Humidity) PPM Level Sensors
- PSS-423031 Uart IAQ(PM2.5/10, CO2, HCHO, Temp,Humidity) Sensors
- PSS-423041 Uart IAQ(PM2.5/10, CO2, TVOC, Temp,Humidity) Sensors
- PSS-423051 Uart IAQ(PM2.5/10, CO2, HCHO, TVOC,Temp,Humidity)Sensors
- PSS-318711 Uart GPS/Beidou Positioning Sensor
- PSS-318712 RS485 GPS/Beidou Positioning Sensor
- PSS-319311 0-3.3V Tilt / Inclination Sensor (SHM- Structure Health Monitoring)
- PSS-333051 0-3.3V PIR Sensor (3-4 Meters)
- PSS-333052 0-3.3V PIR Sensor (up to 20 Meters)
- PSS-334061 0-3.3V UV Sensor (Range:0-15 grade, outdoor)
- PSS-355051 Switch Uni-Call Button & Controller
- PSS-362011 Uart Sound/Noise Sensor (30~130dB range, Indoor)
- All Gas Sensors with Product No. PSS-21xxxx

❖ Support 1-8 enclosure externally connected sensors

- All enclosure external PSS sensors w/o separate power supply

❖ RTU OD & PWR(PWM) output control inerfaces

- OD output control interface for controlling external devices such as electric relay,AC contactor, beeper, draught fan, lamps and lantern etc.
- PWR*2 output, one default for external devices/sensors power supply voltage output, one with 3.3V voltage; or customization usage,such as for PWM port
- PWR port signal can be used as PWM output to control stepper moter or lamp
- Sensor(s) data or OTA Command triggered OD/PWR controlling signal & interfaces

❖ Power supply options:

- PSB-BT01 WxS Terminal Battery Power (3.6VDC Output) (3.6V Li-SOCl2 ER34615H/M)
- PSB-BT02 WxS Terminal Battery Power Board (3/5/9/12VDC Output) (3.6V Li-SOCl2 ER34615H/M)
- PSB-DC01 WxS Terminal DC Power Board (Inc. PSP-DC012V)
- PSB-BD01 WxS Terminal Battery (3.6V Li-SOCl2 ER34615H/M) & DC Power Board(Inc. PSP-DC012V)
- Battery capacity ER34615H: 19000mAh/ER34615M: 13500mAh

- iEdge 4.0 terminal enclosure options
  - ENC-102001 WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67)
  - ENC-102002 WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm)
  - ENC-102003 WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)

- Terminal and sensor parameters configurable with Configuration Tool running on PC
  - LoRaWAN ISM Global Bands Supported and SW Configurable
  - LoRaWAN Uplink Transmission Cycle Configurable
  - Sensor Parameters Configurable
  - Sensor Data Report Cycle Configurable

- FOTA (Over The Air) firmware upgrade, including to upgrade loader and application images
- OTA (Over The Air) terminal running parameters supported including output signal
- Low power consumption, years of battery operational life with 3.6V Li-SOCl2 ER34615H/M Battery with various scenarios
- Integrated internal antenna, or optional external SMA/IPEX antenna
- The transmission reaches 5km in NLoS (non-line of sight) and 18km in LoS (line of sight) environment
- LoRaWAN Compliance

Specifications

Parameters	Value
Smart Terminal	
Interfaces	MPI Interfaces-Any Mixture of Following: MPI:(AIN(0-20mA) *2, PT100 *1, VIN(0-10V/0-3.3V) *2, Switch *1 ,Unibus*1, IIC *1， SPI*1, Uart(3.3V TTL)*2), RS485*1 Output Control: OD*2 & PWR*2
Data Report	Cross-threshold report, plus periodic report (the threshold and the periodic report cycle are both user-configurable)
Intensive data sampling and averaging	Support intensive data sampling and averaging to improve data accuracy
Wireless	
ISM Regional Parameters	AS923 (AS923-1, AS923-2, AS923-3, AS923-4) AU915 CN470 CN779 EU433 EU868 IN865 KR920 RU864 US915
Maximum Link Budget	168dB
Distance	Up to 5km in NLOS; up to 18km in LOS
Antenna	Integrated internal antenna or external 1/2 wavelength whip antenna (SMA)

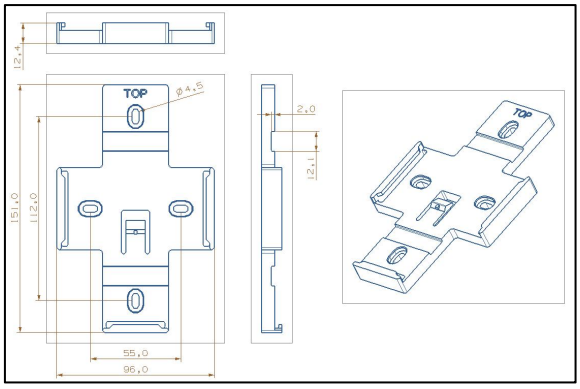
Mechanical	
Dimension	3 Enclosure options with different size WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67) WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm) WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)
IP rating	IP65 & IP67
Operating Temperature	-40C to +85C
Total Weight	150 g
Electrical	
Supply Voltage	3.6VDC
Power Type	Replaceable 1 ER34615H/M 3.6V Li-SOCI2 Battery (H/M); DC 4.5V – 12V optional
Compliance/Certification	
LoRa Alliance	LoRaWAN 1.0.2
FC IC CE RoHS	FCC(America): 2AO7W-WXS8000, IC(Canada): 23701-WXS8000 CE(European Union)：B1810246 ROHS(European Union): R2BJ180927F0664E

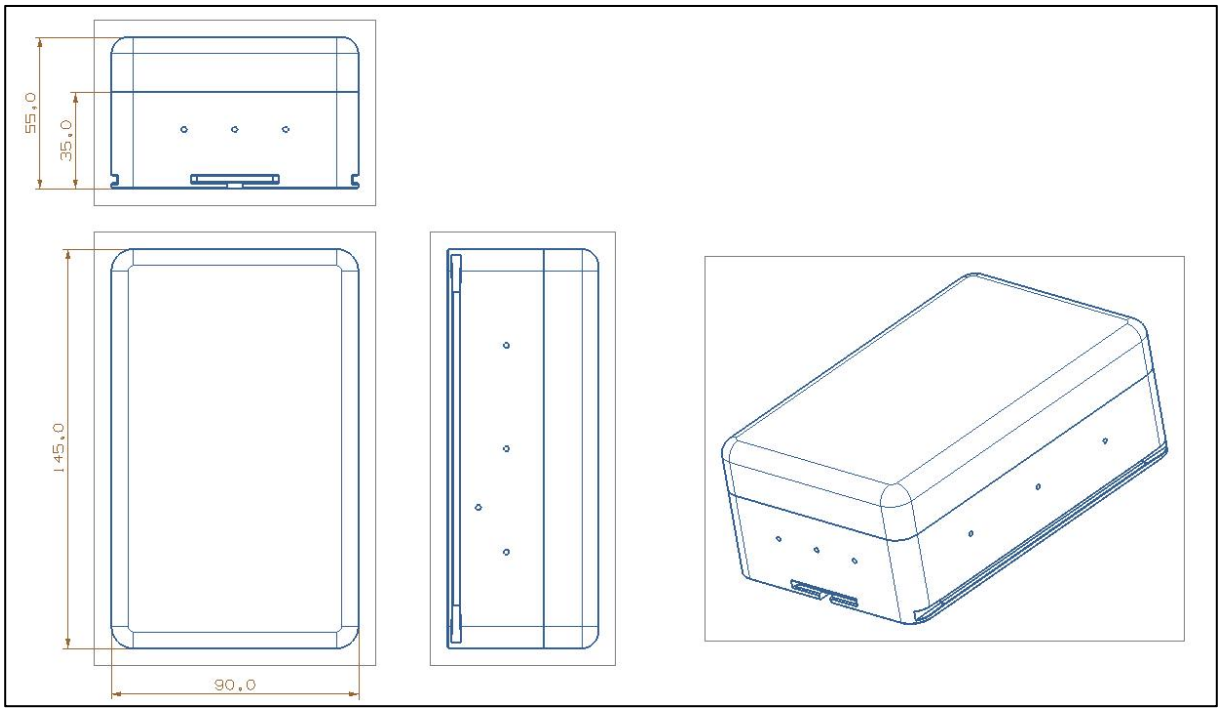
Configuration Tool

- iEdge4.0 WxS IoT Terminal products can be configured with PolySuite software-visual based Configuration Tool or CLI interface command or OTA via IoT platform, such as PolySuite PaaS platform iView.
- Download link http://ota.polysense.online/wincc/ConfigurationTool.rar

Installation Guide

- Below diagram shows the general installation guide for WxS8800, it can be installed on any flat and solid surface:

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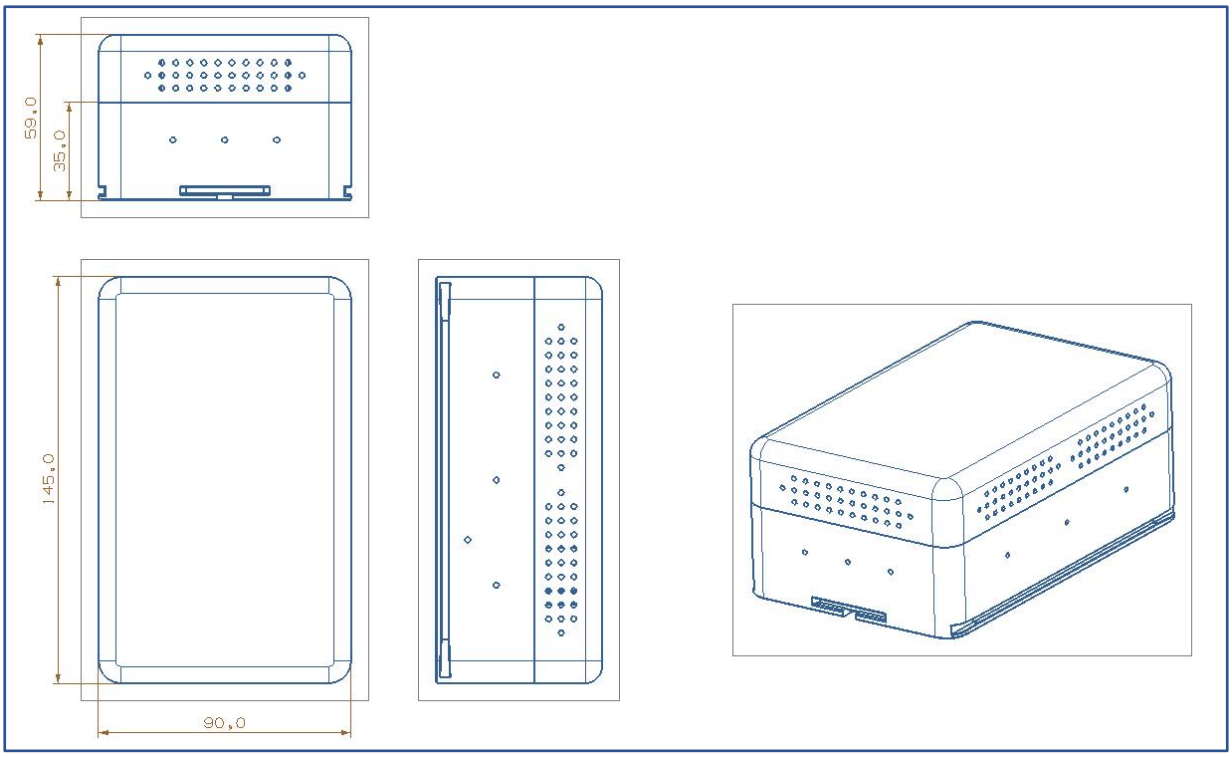
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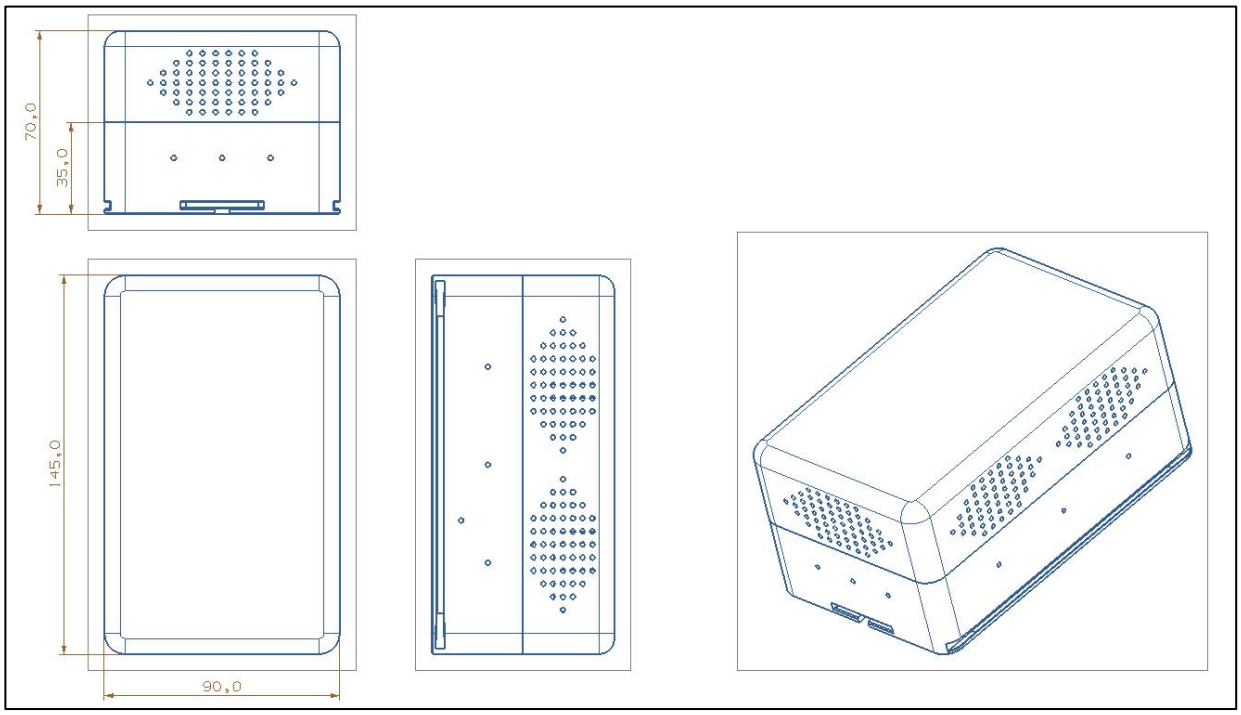
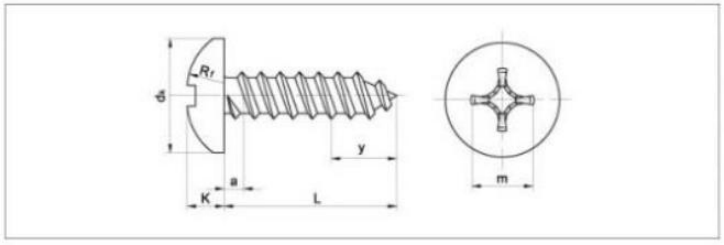


❖ Below is the recommendation of the self-tapping screw and its sizes:

螺纹规格		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3
dk	min	3.7	5.3	6.64	7.64	9.14	10.57	11.57
K	min	1.4	2.15	2.35	2.8	3.4	3.7	4.3
m		1.9	3	3.9	4.4	4.9	6.4	6.9
L		4.5mm~100mm						



Product Images

❖ WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67)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❖ WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm)

❖ WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)

PSS-311142

High Temperature Immersed Liquid Level Sensor

Related Products

Product.	Interf.	Descriptions
PSS-311131	4-20mA	Immersed liquid level sensor(Range:0-3 Meter,Accuracy:0.5%FS,12VDC)
PSS-311132	4-20mA	Immersed liquid level sensor(Range:0-5 Meter,Accuracy:0.5%FS,12VDC)
PSS-311133	4-20mA	Immersed liquid level sensor(Range:0-7 Meter,Accuracy:0.5%FS,12VDC)
PSS-311134	4-20mA	Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.5%FS,12VDC)
PSS-311135	RS485	Immersed liquid level sensor(Range:0-3 Meter,Accuracy:0.5%FS,3-5VDC)
PSS-311136	RS485	Immersed liquid level sensor(Range:0-5 Meter,Accuracy:0.5%FS,3-5VDC)
PSS-311137	RS485	Immersed liquid level sensor(Range:0-7Meter,Accuracy:0.5%FS,3-5VDC)
PSS-311138	RS485	Immersed liquid level sensor(Range:0-10Meter,Accuracy:0.5%FS,3-5VDC)
PSS-311139	4-20mA	Immersed liquid level sensor(Range:0-3Meter,Accuracy:0.3%FS,12VDC)
PSS-31113A	4-20mA	Immersed liquid level sensor(Range:0-5 Meter,Accuracy:0.3%FS,12VDC)
PSS-31113B	4-20mA	Immersed liquid level sensor(Range:0-7 Meter,Accuracy:0.3%FS,12VDC)
PSS-31113C	4-20mA	Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.3%FS,12VDC)
PSS-31113D	RS485	Immersed liquid level sensor(Range:0-3 Meter,Accuracy:0.3%FS,3-5VDC)
PSS-31113E	RS485	Immersed liquid level sensor(Range:0-5 Meter,Accuracy:0.3%FS,3-5VDC)
PSS-31113F	RS485	Immersed liquid level sensor(Range:0-7 Meter,Accuracy:0.3%FS,3-5VDC)
PSS-31113G	RS485	Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.3%FS,3-5VDC)
PSS-311141	4-20mA	High Temperature Immersed liquid level sensor(120℃,Range:0-10 Meter,Accuracy:0.5%FS,12VDC)
PSS-311142	4-20mA	High Temperature Immersed liquid level sensor(120℃,Range:0-10 Meter,Accuracy:0.3%FS,12VDC)
PSS-311143	RS485	High Temperature Immersed liquid level sensor(120℃,Range:0-10 Meter,Accuracy:0.5%FS,12VDC)
PSS-311144	RS485	High Temperature Immersed liquid level sensor(120℃,Range:0-10 Meter,Accuracy:0.3%FS,12VDC)
PSS-311151	4-20mA	Teflon ceramic type anti-corrosion Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.5%FS,12VDC)
PSS-311152	4-20mA	Teflon ceramic type anti-corrosion Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.3%FS,12VDC)
PSS-311153	RS485	Teflon ceramic type anti-corrosion Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.5%FS,12VDC)
PSS-311154	RS485	Teflon ceramic type anti-corrosion Immersed liquid level sensor(Range:0-10 Meter,Accuracy:0.3%FS,12VDC)

Product introduction

The PSS-311142 high temperature input type liquid level transmitter is designed for liquid level measurement applications under high temperature scenarios. It has excellent quality and high cost performance. It is designed with three sealing processes and an overall armor. It has anti-interference, small temperature drift, high stability, and high measurement accuracy. It is an ideal liquid level measuring instrument in the field of industrial automation.

Detection principle

High temperature input liquid level gauge is used to measure the liquid level of high temperature liquid medium. The principle is that the measured liquid medium compresses the air in the gas collecting cylinder, and the air pressure is transmitted to the sensing element through the capillary tube. The sensing element itself does not directly contact the measured medium. Therefore, the transmitter can be used in the medium environment with high temperature. At the same time, a micro signal amplification and processing circuit is built in, which can directly connect with the computer interface card, control instrument Connection of intelligent instrument or PLC for remote transmission.

Product features

- Intelligent sensor detection item: water level

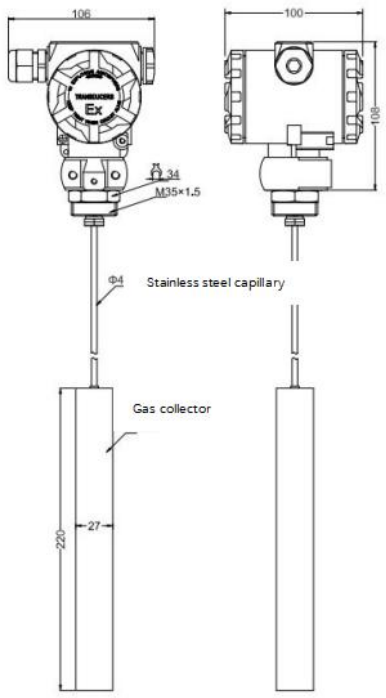
- ❖ Diaphragm isolation technology with diffused silicon pressure sensor
- ❖ Cable connection, direct use, simple installation
- ❖ Anti clogging and anti scaling
- ❖ Lightning protection, frequency cutoff interference design, strong anti-interference capability
- ❖ Wiring reverse and over voltage protection, current limiting protection

Product parameters

Parameters	
Monitoring content	Water H2O level (or compatible with contact material)
Detection principle	Pressure sensing
measuring range	0-10 meters (support customization, the deepest can be measured to 50 meters)
accuracy	0.3% FS
resolving power	0.05%
Stable performance	± 0.2% FS/year
Response frequency	≤5Hz
Overload capacity	150% of full scale
power waste	0-2A (acquisition instant)
texture of material	Main body 304 stainless steel
Warranty	
Output signal	4-20mA
Warranty	
Warranty period	1 year
Mechanical	
Size	220 * 27mm (probe size), 106 * 108mm (meter head)
Operating temperature	-20℃-120℃(The part directly contacting with the liquid level)
Degree of protection	Probe IP68, meter head IP65
Weight	probe ≈ 290g, cable ≈ 60g per meter
Power	
Power	12V DC

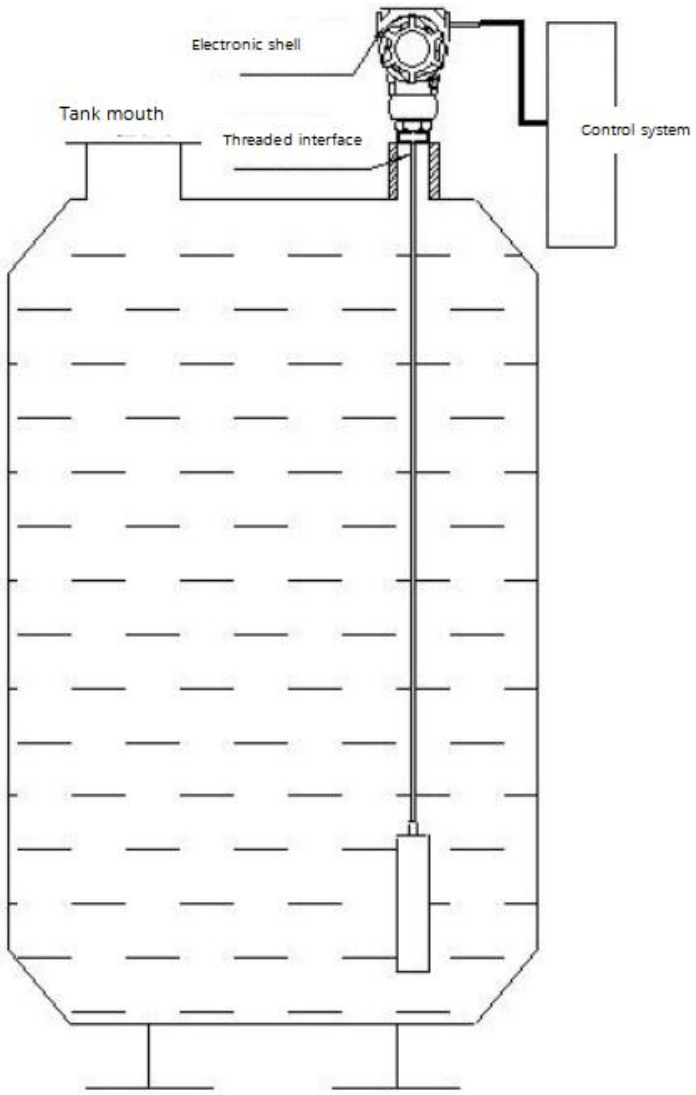
Overall dimensions

The structure is shown in the figure. The level gauge is composed of shell, amplifier and terminal block.



Use and installation matters

- The probe shall be put into the water vertically, and the included angle with the vertical line shall not exceed 30 °
- The capillary tube cannot enter water, and the accumulated water will lead to inaccurate measurement, unstable output and other faults. If the accumulated water is found in the tube, the connection between the capillary tube and the housing can be unscrewed with a wrench to drain the water. Compressed air can be used to blow air into the capillary tube of the gas collector or the housing of the gas collector. After the accumulated water is drained, use a card to strengthen the connection between the capillary tube and the housing base to prevent leakage
- Capillary tube is thin and cannot be bent repeatedly
- The liquid level gauge has interface thread, which is M35 by default × 1.5 thread installation method
- Select a place easy to operate and maintain for installation;
- If it is used in moving water, the level gauge shall be fixed;
- The probe shall be dredged regularly to avoid blocking of the pressure inlet;
- It shall be installed as far away from the vibration source as possible.



Note:Please use a wrench to screw the instrument base during installation, and do not screw the meter head directly.

Matters needing attention

- The liquid level gauge is used in the medium without corrosion to silicon and stainless steel (or aluminum alloy)
- The maximum pressure that may occur in the measured system in a moment shall not exceed the load pressure rating
- The back end of the pressure transmitter must not contact conductive, corrosive liquids or gases
- Do not insert sharp and hard objects into the pressure input hole to prevent damage to the core
- The rear lead of the liquid level gauge cannot enter water

Application

The liquid level gauge is widely used for liquid level measurement of high temperature media such as environmental protection, water conservancy, water supply, industrial process control, frequency conversion water supply, etc.

Ordering Guide

- PSS-311142 sensor is a sensor only, it needs to use with WxS terminals to combine to different product series; On the basis of the combination, multiple PSS sensors can be loaded through the Multiple Purpose Interface (MPI) of the intelligent IoT terminal.
- According to the specific scenario of use case, the enclosure and antenna of intelligent IoT terminal will be replaced to ensure the product quality and performance.
- PSS sensors can be integrated with the WxS terminal via the MPI interface to form different product series.
- Example of products are as follows:

    - WxS7800-311142 WiFi Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxS8800-311142 LoRaWAN Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxS9800-311142 NB-IoT (China) Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxS9900-311142 NB-IoT (Global) Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxSC800-311142 LTE Cat1 Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxSC900-311142 LTE Cat1 w/GPS Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - WxSD800-311142 LTE Cat4 Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal
    - CxS1800-311142 Ethernet (RJ45) Series High Temperature Immersed liquid level Smart Sensor & RTU 2-in-1 Terminal