WxS8800-321111

LoRaWAN 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal

Product Highlights

- ❖ LoRaWAN 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- ❖ 2-in-1 smart sensor(s) and RTU terminal product
- ❖ Optional DC 5V/DC 12V power supply
- ❖ Optional Battery power supply (ER34615H 19,000mAh/ER34615M 13,500mAh)
- ❖ Temperature can be monitored (- 30-120 ℃), direct plug-in, DS18B20 digital temperature sensor directly outputs digital temperature signal, multiple probes can be flexibly connected
- ❖ 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-321111 18B20 Temp Sensor (30-120℃, Normal)

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-321111 for the sensor picture

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:

  o 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
  o 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:

  o PSS-403011 IIC   Temperature and Humidity Sensor (Indoor)
  o PSS-403012 RS485   Temperature and Humidity Sensor (Indoor)
  o PSS-403013 IIC   Temperature and Humidity Sensor (IP67,Outdoor)
  o PSS-403014 RS485   Temperature and Humidity Sensor (IP67,Outdoor)
  o PSS-403015 IIC   Temperature and Humidity Sensors (Indoor)
  o PSS-403016 RS485   Temperature and Humidity Sensors (Indoor)

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

❖ Support 1-8 enclosure externally connected sensors

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

❖ RTU OD & PWR(PWM) output control inerfaces

- o OD output control interface for controlling external devices such as electric relay,AC contactor, beeper, draught fan, lamps and lantern etc.
- o 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
- o PWR port signal can be used as PWM output to control stepper moter or lamp
- o Sensor(s) data or OTA Command triggered OD/PWR controlling signal & interfaces

❖ Power supply options:

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

❖ iEdge 4.0 terminal enclosure options

  o ENC-102001 WxS Series 4.0 Enclosure(φ145x90x55mm, IP67)
  o ENC-102002 WxS Series 4.0 Poromeric Enclosure(φ145x90x59mm)
  o ENC-102003 WxS Series 4.0 High Poromeric Enclosure(φ145x90x70mm)

❖ Terminal and sensor parameters configurable with Configuration Tool running on PC

  o LoRaWAN ISM Global Bands Supported and SW Configurable
  o LoRaWAN Uplink Transmission Cycle Configurable
  o Sensor Parameters Configurable
  o 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

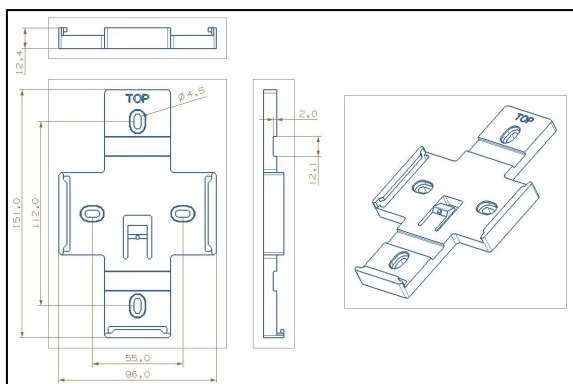| Parameters	Value
Smart Terminal	
Interfaces	MPI Interfaces-Any Mixture of Following: MPI:(AIN(0-20mA) *2, PT100 *1, VIN(0-10V/0-3.3V) *2, Switch *1 ,Unibus*1, IIC *1，SPI*1, Uart(3.3V TTL)*2), RS485*1 Output Control: OD*2 & PWR*2
Data Report	Cross-threshold report, plus periodic report (the threshold 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)

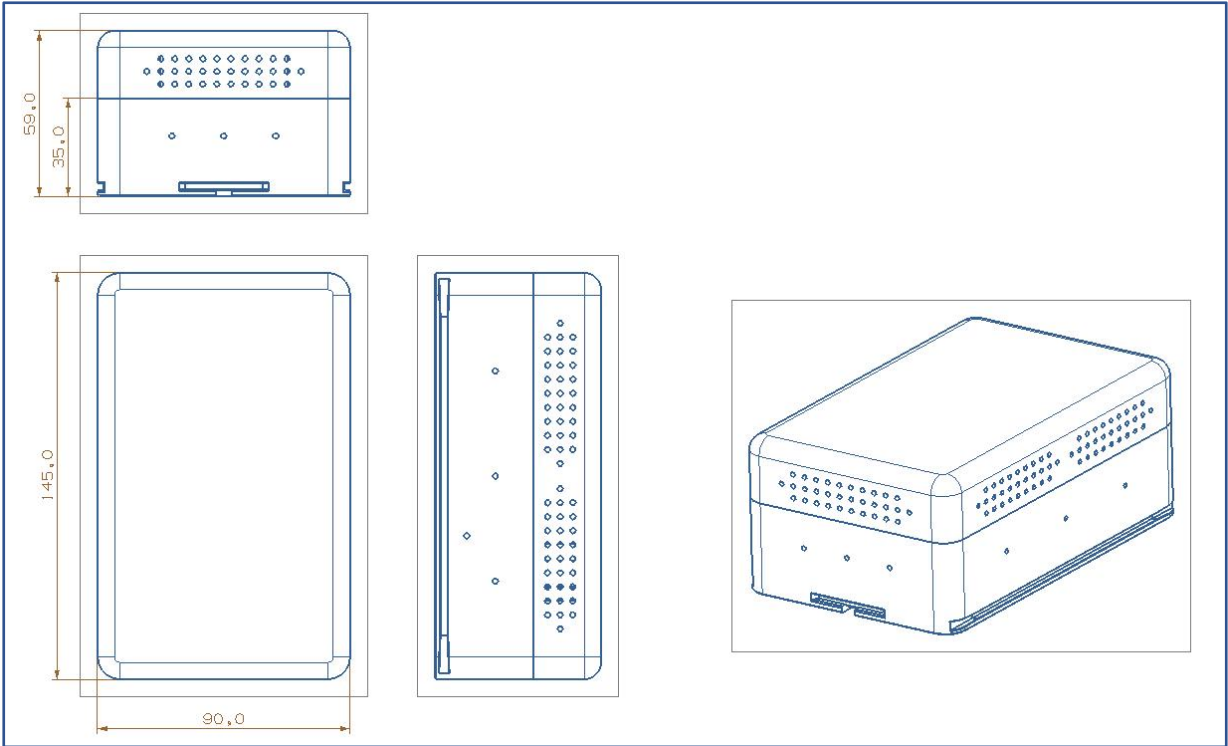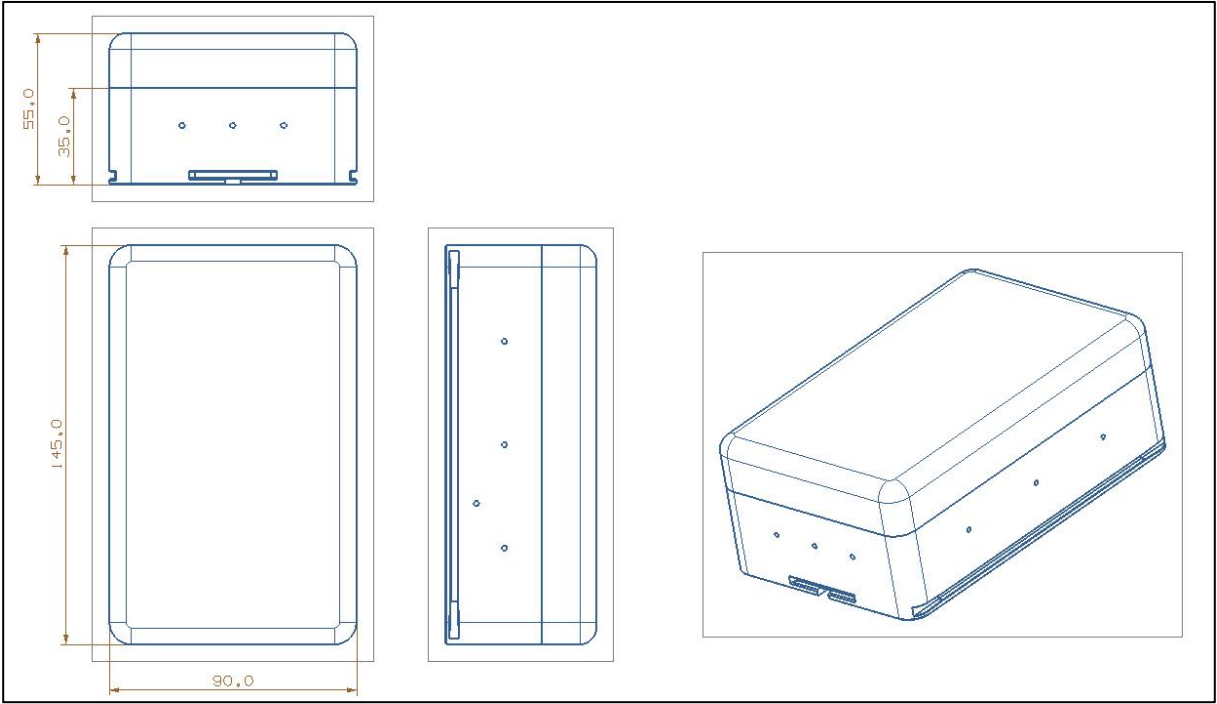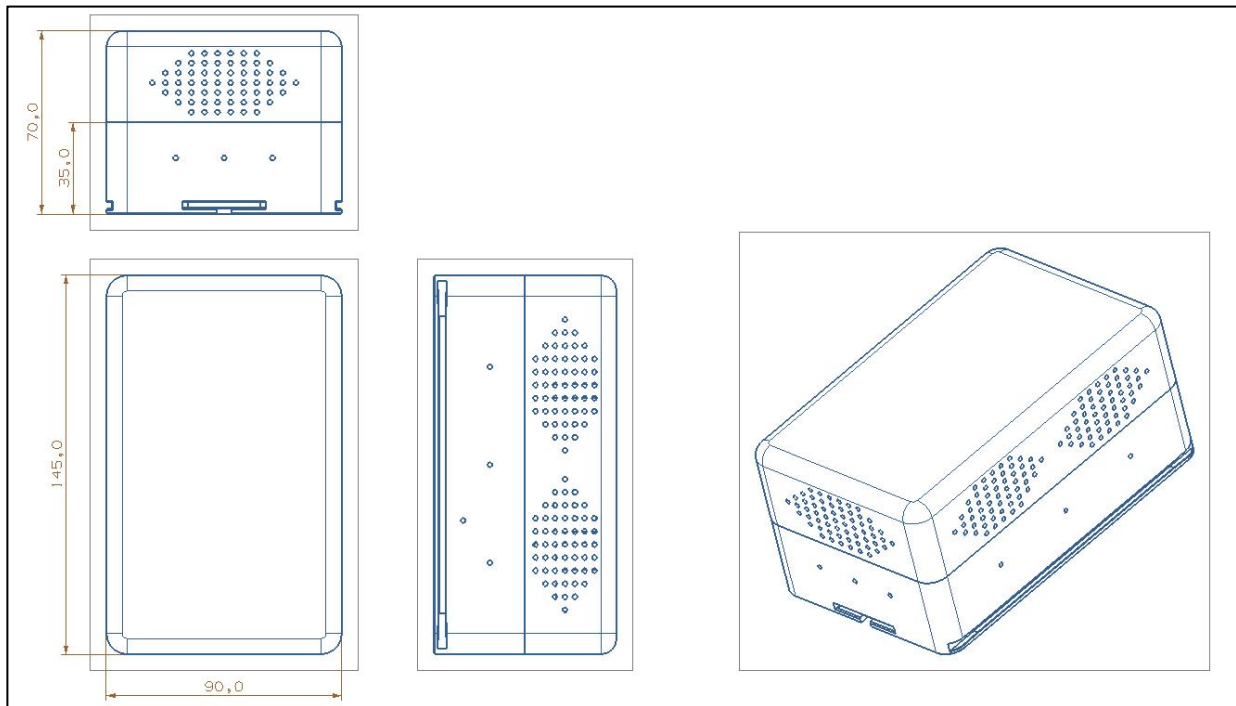| Mechanical	
Dimension	3 Enclosure options with different size WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67) WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm) WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)
IP rating	IP65 & IP67
Operating Temperature	-40C to +85C
Total Weight	150 g
Electrical	
Supply 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

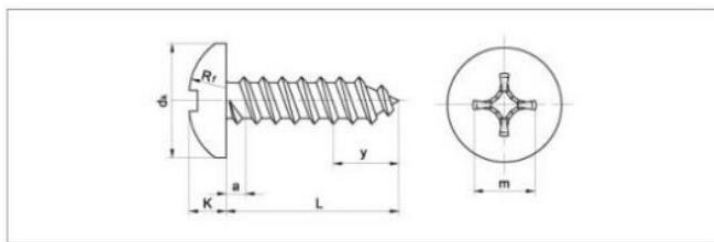❖ Below diagram shows the general installation guide for WxS8800, it can be installed on any flat and solid surface:

❖ 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)

❖ WxS Series 4.0 Poromeric Enclosure(φ145x90x59mm)

❖ WxS Series 4.0 High Poromeric Enclosure(φ145x90x70mm)

PSS-321111

18B20 Temp Sensor

Related Products

Product.	Interf.	Descriptions
PSS-321111	Unibus	18B20 Temp Sensor, (1-8 point),-30-120℃, Normal,1 meter
PSS-321112	Unibus	18B20 Temp Sensor, (1-8 point),-30-120℃, Magnetic head
PSS-321113	Unibus	18B20 Temp Sensor, (1-8 point),-30-120℃, Screw head

Product introduction

PSS-321111 18B20 temperature sensor, a common temperature probe, is sealed with sealant with high thermal conductivity to ensure the high sensitivity and small temperature delay of the temperature sensor. The temperature sensor supports "one line bus" interface (- - wire), and the field temperature is directly transmitted in the digital mode of "one line bus", which greatly improves the anti-interference of the system and is suitable for field temperature measurement in harsh environment.

Detection principle

The temperature of the measured object is monitored through the thermistor, and the 9 ~ 12 digit digital value reading mode can be realized through simple programming according to the actual requirements. 9-bit and 12-bit digital quantities can be completed in 93.75 MS and 750 ms respectively.

Product features

❖ DS18B20 digital temperature sensor directly outputs digital temperature signal, which is serially transmitted to CPU by one-line bus, and can transmit CRC check code at the same time, with strong anti-interference and error correction ability.

❖ Each pin of temperature chip is separated by heat shrinkable tube to prevent short circuit, internal sealing, waterproof and moisture-proof

❖ High quality stainless steel pipe package, waterproof, moisture-proof and rust proof

❖ Multiple probes can be flexibly connected

❖ High precision and sensitivity.

❖ Low power consumption, long-distance, long-term stability in indoor or outdoor use

Product parameters

Parameters	
Measuring range	- 30℃~120℃
Accuracy	± 0.5℃
Cable length	1m, customizable
Number of detectors	1 MPI connected to 8 at most
Communication	
Output signal	Unibus
Warranty	
Warranty period	1year
Power	
Power	3.5V~5.5V

Application

According to the characteristics of 18b20 temperature sensor, the plug-in probe can be used for soil temperature measurement. The probe is used to detect the temperature and humidity of the soil at multiple points. Since the temperature of the surface layer / deep soil layer is different with the rainy season and drought, the data is reported by using the distribution of multi-point temperature measurement capacity. There are also temperature monitoring of manholes, equipment, cabinets, etc.

Ordering Guide

❖ PSS-321111 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:

- o WxS7800-321111 WiFi Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxS8800-321111 LoRaWAN Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxS9800-321111 NB-IoT (China) Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxS9900-321111 NB-IoT (Global) Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxSC800-321111 LTE Cat1 Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxSC900-321111 LTE Cat1 w/GPS Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o WxSD800-321111 LTE Cat4 Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal
- o CxS1800-321111 Ethernet (RJ45) Series 18B20 Temp Smart Sensor & RTU 2-in-1 Terminal