WxS9900-351024

NB-IOT Current Transformer & RTU 2-in-1 Smart Terminal

Product Highlights

- ❖ NB-IOT Current Transformer & RTU 2-in-1 Smart 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)
- ❖ AC power supply size can be monitored, AC5-200A range is optional
- ❖ 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

Products includes following parts:

- ❖ WxS9900 NB-IOT Smart IoT and RTU 2-in-1 Terminal
- ❖ ENC-102001 WxS Series 4.0 Enclosure(Φ145x90x55mm, IP67)
- ❖ PSS-351024 Current Transformer, AC200,3.3VDC (inner diameter 25mm),Resolution 2% Total Range

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-351024 for the sensor picture

WxS9900

NB-IoT Smart IoT and RTU 2-in-1 Terminal

Related Products

Product #	Interf.	Descriptions
WxS9900	11MPI+RS485+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx00,PSB-BD01,Enclosure)
WxS9901	RS485+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx01,PSB-BD01,Enclosure)
WxS9902	0-20mA*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx02,PSB-BD01,Enclosure)
WxS9903	0-20mA*4+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx03,PSB-BD01,Enclosure)
WxS9904	0-3.3V*2+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx04,PSB-BD01,Enclosure)
WxS9905	0-3.3V*4+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx05,PSB-BD01,Enclosure)
WxS9906	0-10V*2+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx06,PSB-BD01,Enclosure)
WxS9907	0-10V*4+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx07,PSB-BD01,Enclosure)
WxS9908	PT100*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx08,PSB-BD01,Enclosure)
WxS9909	PT100*5+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx09,PSB-BD01,Enclosure)
WxS990A	Switch*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0A,PSB-BD01,Enclosure)
WxS990B	Switch*5+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0B,PSB-BD01,Enclosure)
WxS990C	Unibus*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0C,PSB-BD01,Enclosure)
WxS990D	Unibus*18+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0D,PSB-BD01,Enclosure)
WxS990E	IIC*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0E,PSB-BD01,Enclosure)
WxS990F	SPI*1+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0F,PSB-BD01,Enclosure)
WxS990G	Uart*2+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0G,PSB-BD01,Enclosure)
WxS990H	Uart*3+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0H,PSB-BD01,Enclosure)
WxS990J	Uart*1+RS485+OD*2+PWR*2	NB-IoT Smart IoT and RTU 2-in-1 Terminal (Inc.WxS99xx,PSM-xx0J,PSB-BD01,Enclosure)
WxS9950	Ai/Ao/Di/Pi/Ro/IIC/SPI/Ci +	RS232/485/Ro/RJ45 NB-IoT 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   NB-IoT Bands Supported and SW Configurable
   o   NB-IoT 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
❖   NB-IoT Compliance

Specifications

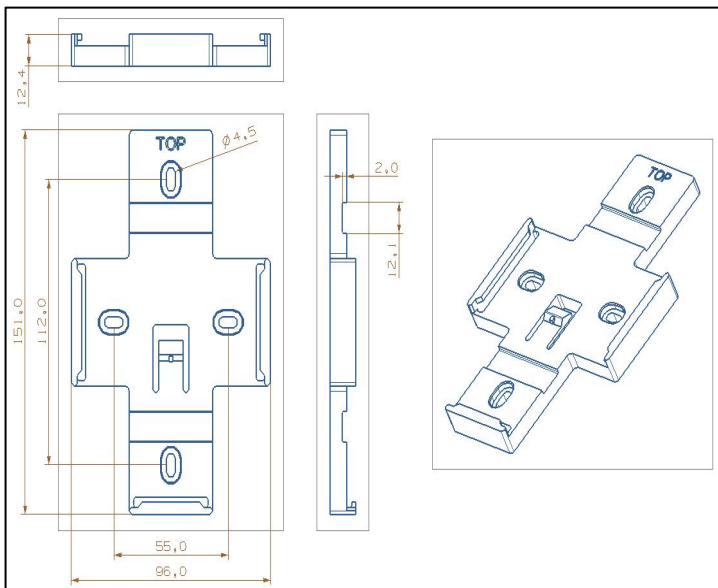| Parameters	Value
Smart Terminal	
Interfaces	MPI Interfaces-Any Mixture of Following: MPI:(AIN(0-20mA) *2, PT100 *1, VIN(0-10V/0-3.3V) *2, Switch *1 ,Unibus*1, IIC *1，SPI*1, Uart(3.3V TTL)*2), RS485*1 Output Control: OD*2 & PWR*2
Data Report	Cross-threshold report, plus periodic report (the threshold 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	
Frequency band	LTE-FDD: B1/2/3/4/5/8/12/13/18/19/20/25/26(Cat M1 Only)/27(Cat M1 Only)/28/31/66/71(Cat NB2 Only)/ 72/73/85/86(Cat NB2 only)/87/88 ; EGPRS: 850/900/1800/1900MHz
Rate	LTE Cat M1:Max. 588 (DL), Max. 1119 (UL) LTE Cat NB1:Max. 32(DL), Max. 70(UL) LTE Cat NB2:Max. 127 (DL), Max. 158.5 (UL) EDGE:Max. 296 (DL), Max. 236.8 (UL) GPRS :Max. 107 (DL), Max. 85.6 (UL)
Protocols	PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/PING/ MQTT(S)/MQTT-SN/LwM2M/CoAP(S)/IPv6/DNS/NTP
SMS	Point-to-point MO and MT/SMS Cell Broadcast/Text and PDU Mode
Current consumption	3.9µA@PSM
Antenna	Integrated internal antenna or external 1/2 wavelength whip antenna

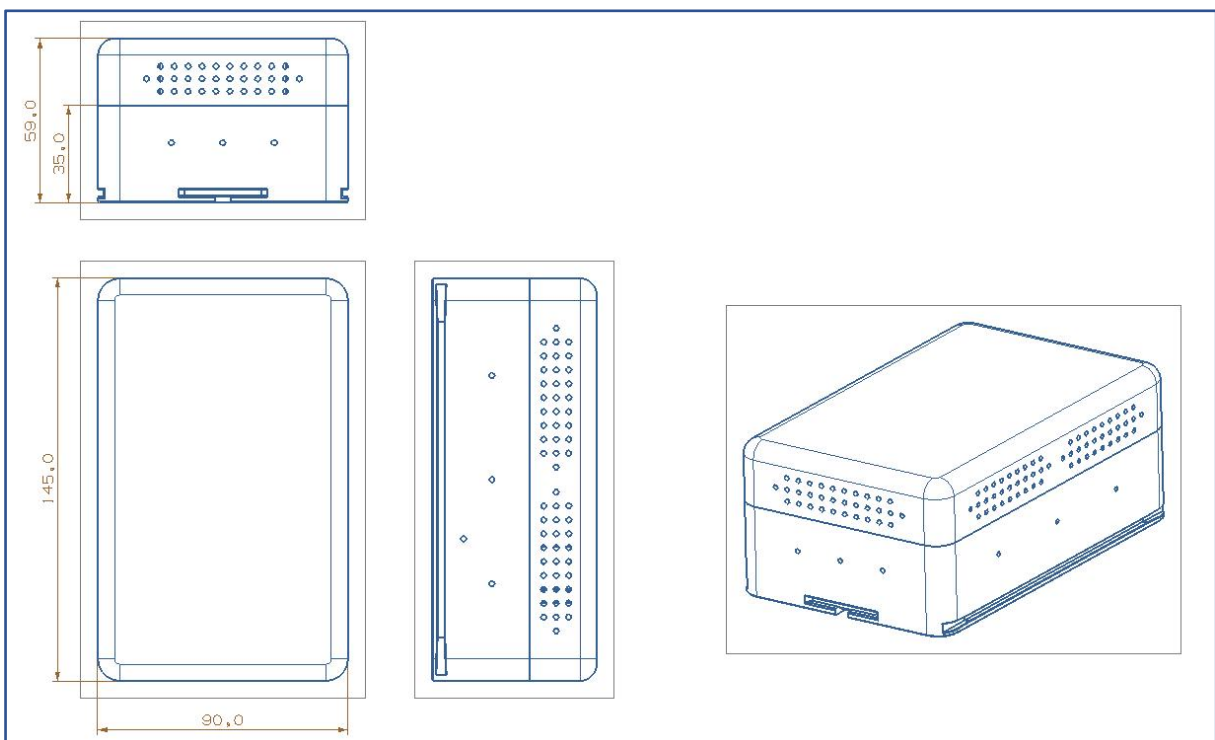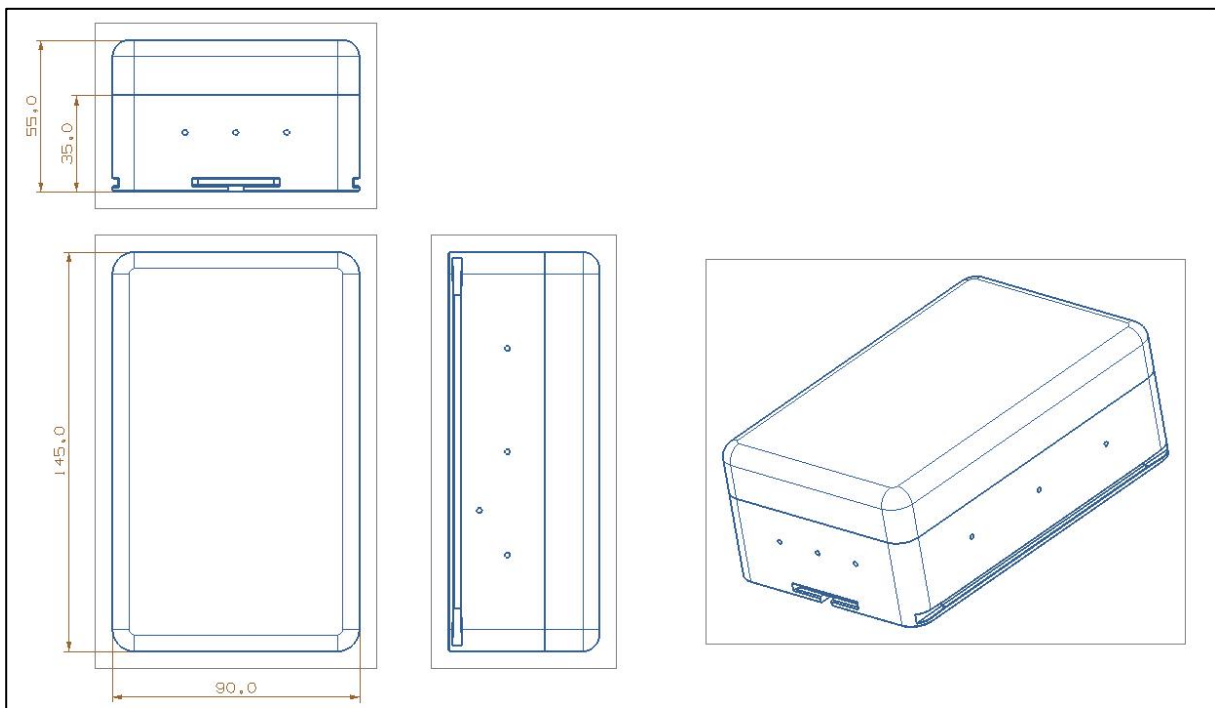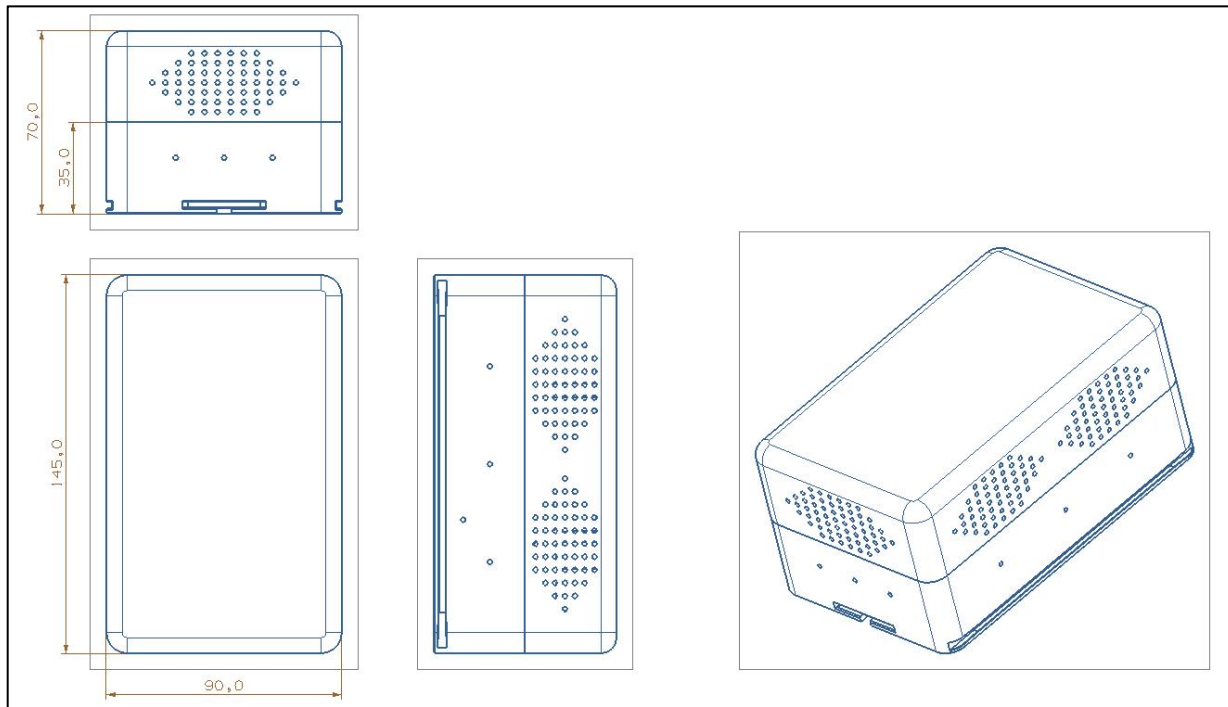|	
	(SMA)
Mechanical	
Dimension	3 Enclosure options with different size WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67) WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm) WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)
IP rating	IP65 & IP67
Operating Temperature	-40C to +85C
Total Weight	150 g
Electrical	
Supply Voltage	3.6VDC
Power Type	Replaceable 1 ER34615H/M 3.6V Li-SOCI2 Battery (H/M); DC 4.5V – 12V optional

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

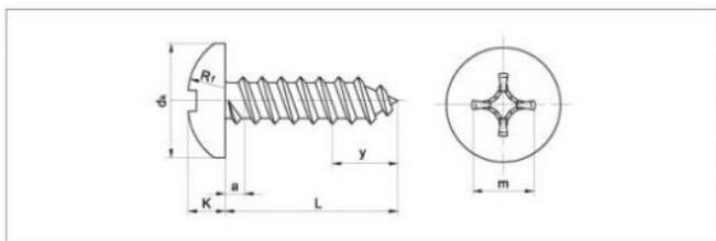❖ Below diagram shows the general installation guide for WxS9900, it can be installed on any flat and solid surface:

❖ 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(Φ 145x90x70mm)

PSS-351024
Current Transformer

Related Products

Product.	Interf.	Descriptions
PSS-351023	0-3.3V	Current Transformer, AC100,3.3V (inner diameter 25mm),Resolution 1% Total Range
PSS-351024	0-3.3V	Current Transformer, AC200,3.3V (inner diameter 25mm),Resolution 2% Total Range
PSS-351025	0-3.3V	Current Transformer, AC300,3.3V (inner diameter 25mm), Resolution 3% Total Range
PSS-351026	0-3.3V	Current Transformer, AC500,3.3V (inner diameter 25mm), Resolution 3% Total Range

Product introduction

PSS-351024 AC200 / DC3 ~ 3.3V power supply current transformer is one of the main electrical equipment of substation, which mainly provides secondary current for protection and measurement. Its primary side is connected with primary high-voltage equipment, and its secondary side is connected with secondary equipment. It can not only effectively isolate secondary electrical equipment such as measuring instruments and relay protection from high-voltage electrical equipment, so as to ensure the safety of workers, It can also standardize and miniaturize measuring instruments and relays, and can use wires and cables with small cross-sections for long-distance measurement; In case of an open circuit at the high voltage side, the current transformer can also protect the current coil of the measuring instrument from the damage of large current.

Detection principle

Hall Effect, an instrument that converts a large current at the primary side into a small current at the secondary side according to the principle of electromagnetic induction. The current transformer consists of a closed core and a winding. The magnetic flux generated by the current is concentrated in the magnetic circuit through a high-quality magnetic core. The hall element is fixed in a small air gap for linear detection of magnetic flux. The Hall voltage output by the hall device accurately reflects the change of current.

Product features

❖ Monitor the size of AC or DC power supply, and it is not necessary to turn off the power supply without affecting the operation of the equipment

❖ The sensor range is AC200, and the measurement accuracy reaches 2% of the total range

❖ The primary side is highly isolated from the secondary side, with good linearity, wide frequency band and fast response

❖ The product is made of epoxy resin, with good insulation and sealing performance

❖ The product core is made of high conductivity nickel magnetic steel. Good environmental adaptability, high permeability and stable performance

❖ Open structure, easy installation. The bus does not need to be disassembled and can be powered on for operation without affecting normal power consumption

Product parameters

Parameters	
Range current	AC200A (up to 10,000A can be customized)
Accuracy	2% FS

Isolation withstand voltage	≥ 3KV/50Hz, 1Min
Response time	＜ 250mS
Band width	0Hz~20KHZ
Signal output	0-5V, 0-10V, 4-20mA, RS485 output (follow output, average output, true RMS output), user specified
Offset voltage	≤20mV
Warranty	
Warranty period	1year
Mechanics	
Size	24mm*74mm*75mm
Storage temperature	- 25℃~85℃
Working temperature	- 20℃~80℃
Installation mode	Fixed by plane screw, detachable split structure
Power	
Power	Battery power 3.6V

Application

It is widely used in various frequency conversion devices, inverters, various power supplies, electric welding machines, electric locomotives, CNC machine tools, electrolytic electroplating, temporary wave devices, motors and other places that need monitoring and protection.

Ordering Guide

❖ PSS-351024 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   WxS7800-351024 WiFi Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   WxS8800-351024 LoRaWAN Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   WxS9800-351024 NB-IoT (China) Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   WxSC800-351024 LTE Cat1 Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   WxSC900-351024 LTE Cat1 w/GPS Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   WxSD800-351024 LTE Cat4 Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal
   o   CxS1800-351024 Ethernet (RJ45) Series Current Transformer Smart Sensor & RTU 2-in-1 Terminal