WxS9900-21H0V3

NB-IOT Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal

Product Highlights

- NB-IOT Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
- 2-in-1 smart sensor(s) and RTU terminal product
- Optional DC 5V power supply
- Optional Battery power supply (ER34615H 19,000mAh/ER34615M 13,500mAh)
- HCL concentration can be monitored (Range: 0-10PPM,Resolution: 0.1PPM), high sensitivity and resolution,aluminum sleeve
- Expandable with additional Polysense PSS sensors
- 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(Φ 145x90x55mm, IP67)
- PSS-21H0V3 Electrochemical HCL Gas Sensor (Range: 0-10PPM,Resolution: 0.1PPM) Aluminum Sleeve

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(Φ 145x90x55mm, IP67) , as shown in the figure below
- The sensor is externally connected. See the following document PSS-21H0V3 for the sensor picture

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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:
  - 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
  - NB-IoT Bands Supported and SW Configurable
  - NB-IoT 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
- 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

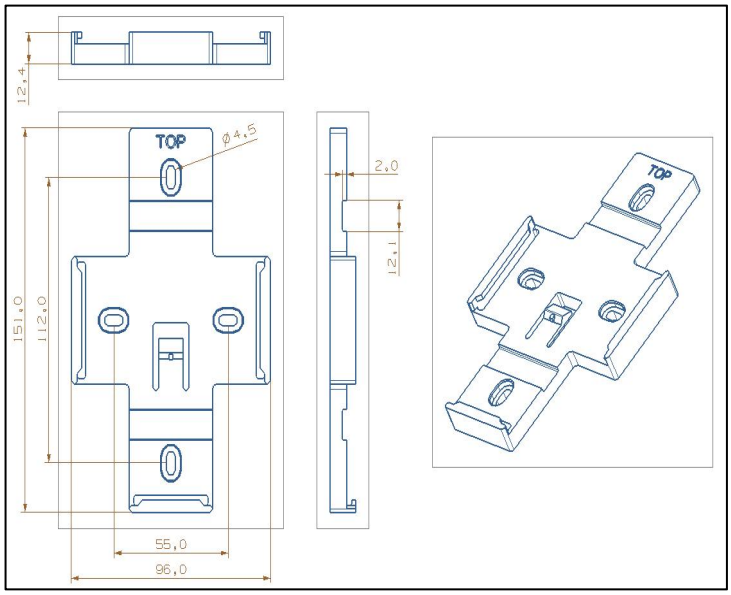
	(SMA)
Mechanical	
Dimension	3 Enclosure options with different size WxS Series 4.0 Enclosure(ϕ145x90x55mm, IP67) WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm) WxS Series 4.0 High Poromeric Enclosure(ϕ145x90x70mm)
IP rating	IP65 & IP67
Operating Temperature	-40C to +85C
Total Weight	150 g
Electrical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

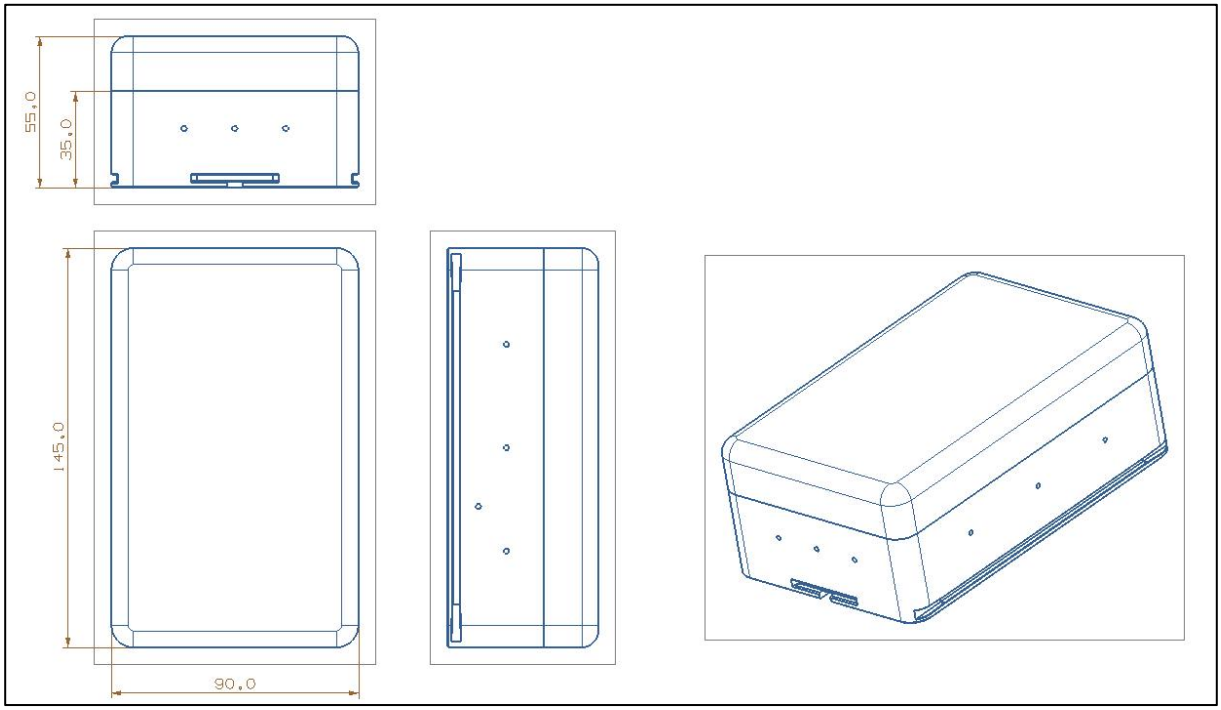
Configuration Tool

- 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:

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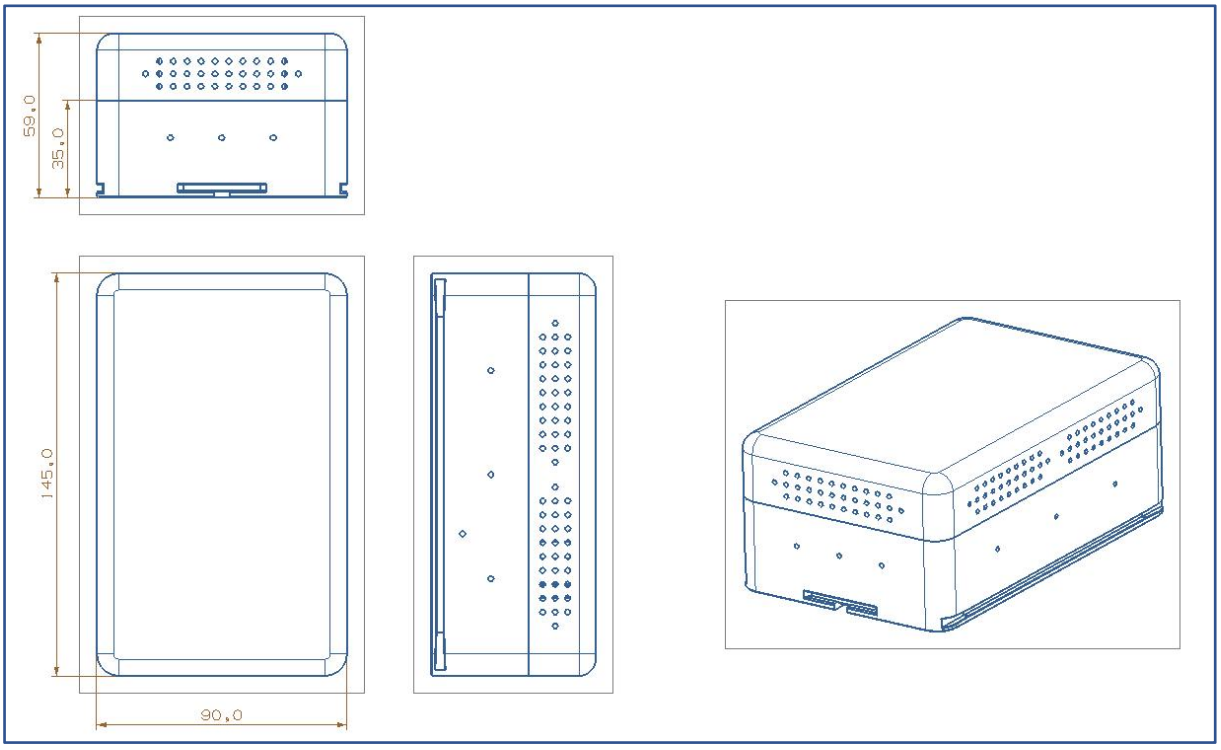
145.0
90.0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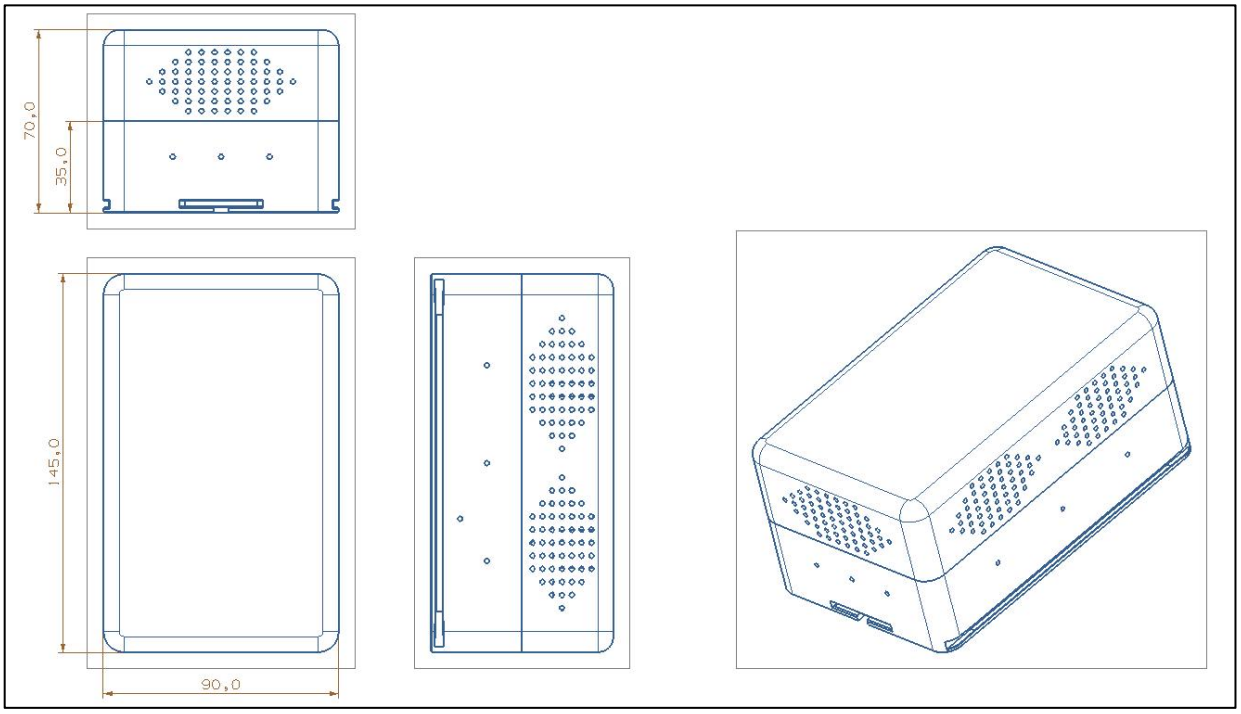
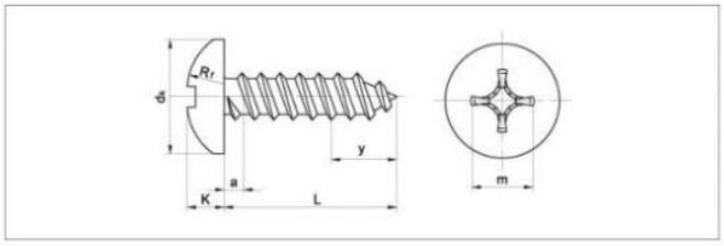


❖ Below is the recommendation of the self-tapping screw and its sizes:

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)

❖ WxS Series 4.0 Poromeric Enclosure(ϕ145x90x59mm)

❖ WxS Series 4.0 High Poromeric Enclosure(Φ 145x90x70mm)

PSS-21H0V3

HCL Gas Sensor

Related Products

Product No.	Interf.	Descriptions
PSS-21H0V1	Uart	Electrochemical HCL Gas Sensor (Range: 0-10PPM,Resolution: 0.1PPM)
PSS-21H0V2	RS485	Electrochemical HCL Gas Sensor (Range: 0-10PPM,Resolution: 0.1PPM)
PSS-21H0V3	Uart	Electrochemical HCL Gas Sensor (Range: 0-10PPM,Resolution: 0.1PPM) Aluminum Sleeve

Product introduction

PSS-21H0V3 Hydrogen chloride gas sensor, with built-in temperature sensor for temperature compensation, can accurately measure the concentration of hydrogen fluoride gas in the environment, with digital output and analog voltage output, which is convenient for users to use and debug, and greatly shortens the design and development cycle of users. It perfectly combines electrochemical sensors and circuits to meet the needs of customers in different occasions.

Detection principle

The electrochemical structure is a three-electrode structure. According to the principle of electrochemical detection, the compound on the sensor changes according to the concentration of ambient gas, the conductivity changes, and the voltage value output by the module changes, so as to obtain the concentration data.

Product features

- Detection item of intelligent sensor: HCL
- High sensitivity and resolution
- Low power consumption
- Provide RS485, UART and analog voltage signal output mode
- High stability and strong anti-interference ability

Product parameters

Parameters	
Monitoring gas	Hydrogen chloride
Chemical formula	HCL
Detection principle	Electrochemistry
Detection range	(0-10)ppm
Resolving power	0.1ppm
VO voltage output range	(2-0) V
Response time	≤60S
Communication	
Output signal	UART
Upgrade	
Upgrade	Main serial port or DFOTA

Warranty	
Warranty period	3 months (the gas sensor is a consumable, and its service life is related to the tested environmental concentration)
Design life	2 years (related to the tested environmental concentration)
Machinery	
Size	ø23.5mm*24.5mm
Operating temperature	-20℃～50℃
Operating humidity	15% ～ 90%RH (no condensation)
Storage temperature	- 20℃～50℃
Storage humidity	15% ~ 90% RH no condensation
Power	
Power	DC 5±0.1 V
Working Current	＜5mA

Expansion

The gas module can hold any 2 of 14 types gases of CO, O2, NH3, H2S, SO2, DG, TVOC, H2, PH3, NO2, O3, CL2, HCL, HF which are all in ppm level and based on electrochemical principal and with product no. PSS-21H. Except HCL, any of another gas from above can be mixed into the module to detect at the same time.

Application

It is widely used in portable and fixed gas detectors, as well as various gas detection occasions and equipment.

Ordering Guide

- PSS-21H0V3 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:

  - WxS7800-21H0V3 WiFi Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxS8800-21H0V3 LoRaWAN Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxS9800-21H0V3 NB-IoT (China) Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxS9900-21H0V3 NB-IoT (Global) Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxSC800-21H0V3 LTE Cat1 Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxSC900-21H0V3 LTE Cat1 w/GPS Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - WxSD800-21H0V3 LTE Cat4 Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal
  - CxS1800-21H0V3 Ethernet (RJ45) Series Electrochemical HCL Gas Smart Sensor & RTU 2-in-1 Terminal