Wireless Outdoor CO2/ Temperature/Humidity Sensor with a Solar Panel

Wireless Sensor Network Based on LoRa Technology

R72615 Datasheet

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Introduction

The R72615 is equipped with a temperature and humidity sensor that detects and transmits ambient temperature and humidity data. It is a wireless communication method that uses the SX1276 wireless communication module. The R72615 has a CO2 sensor that detects the concentration of CO_2 in the air.

Main Characteristic

- Adopt SX1276 wireless communication module
- Temperature and humidity detection
- CO2 concentration detection
- With solar panel charging function
- Built-in lithium battery pack power supply
- Compatible with LoRaWAN^{TM} Class A
- Frequency hopping spread spectrum technology
- Configuration parameters can be configured through third-party software platforms, data can be read and alarms can be set via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and long battery life
- Note:
- Battery life is determined by the sensor reporting frequency and other variables, please refer to http://www.netvox.com.tw/electric/electric_calc.html

  On this website, users can find battery life of various models in different configurations.

Application

- Smart home
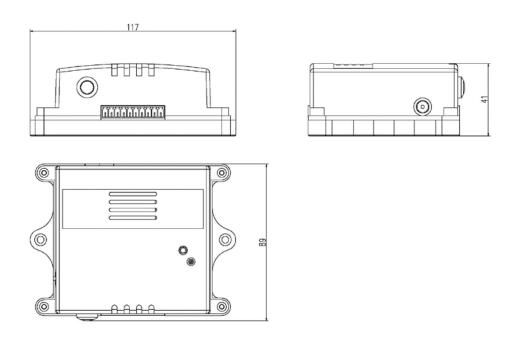- CO2 detection
- Smart farm
- Other

Dimension

Fig. Host Body Dimension   (Unit: mm)

Electric

Power Supply	3 pcs rechargeable lithium batteries in series (single rechargeable lithium battery 3.7V)
Operating Voltage Range	9.8VDC ~ 12.6VDC
Low Voltage Threshold	10.5V
Operating Current 1	15mA (Standby mode)
Operating Current 2	55mA (When the sensor is working.)

Battery Electrical Characteristic

Solar Panel Specifications	5W / 18VDC
Lithium Battery Pack Specifications	3 pcs rechargeable lithium batteries in series (single rechargeable lithium battery 3.7V)
Lithium Battery Pack Charging Current	About 300mA (guaranteeing sufficient sunshine intensity)
Lithium Battery Pack Charging Time Is Full For	About 4 days (guaranteeing sufficient sunshine intensity, calculated with a rechargeable battery capacity of 3500mah)
Lithium Battery Pack Battery Is Fully Charged And Used For	About 300 hours (report data once every 30 minutes, calculated with a rechargeable battery capacity of 3500mah)

Temperature and Humidity Sensor

Temperature Measurement Range	-20°C ~ 55°C
Temperature Measurement Accuracy	±1°C @25°C
Humidity Measurement Range	0%RH ~ 100%RH
Humidity Measurement Range	±4%RH @25°C

CO2 Sensor

Operating Current	< 85mA
Accuracy	± 100ppm+6% reading
Range	400~5000ppm
Warm-up Time	3min
Response Time	T<90s
Output	UART

Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm
Receive Sensitivity	-121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps) -136dBm (LoRa，Spreading Factor=12, Bit Rate=293bps)
Antenna Type	Built-in antenna
Communication Distance	10km (visible linear obstacle-free transmission distance, actual transmission distance depending on the environment)
Data Transfer Rate	LoRa: 0.3kbps ~ 50kbps FSK: 1.2kbps ~ 300kbps
Modulation Method	LoRa / FSK (Note: choose one of them)
Supportable LoRaWAN Band	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment.)

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Physical

Dimension	Mask part: D220mm*H280mm, Solar panel: 290mm*150mm*25mm Host body: 117mm * 89mm * 41mm
Weight	Mask part and Host body: about 1900g Solar panel (solar panel, solar panel bracket, anti-bird needle): about 1355g
Mask Service Life	The material is ABS. It can be used outdoors for 3 years.
Ambient Temperature Range	-20°C ~ 55°C
Ambient Humidity Range	<90%RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C