Wireless Outdoor CO Sensor with a Solar Panel

Wireless Sensor Network Based on LoRa Technology

R72601 Data Sheet

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Introduction

R72601 is a wireless communication device that detects the carbon monoxide content in ambient air. The body and the sensor are connected through the RS485 interface, and the detected data is transmitted to data center through the wireless network for display. It adopts the wireless communication method conforming to the LoRa^{TM} protocol standard.

Main Feature

- Adopt SX1276 wireless communication module
- Solar panel charging function
- A rechargeable battery box (Users can purchase and install rechargeable lithium batteries by self.)
- CO concentration detection
- Compatible with LoRaWAN^{TM} Class A
- Frequency hopping spread spectrum
- 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
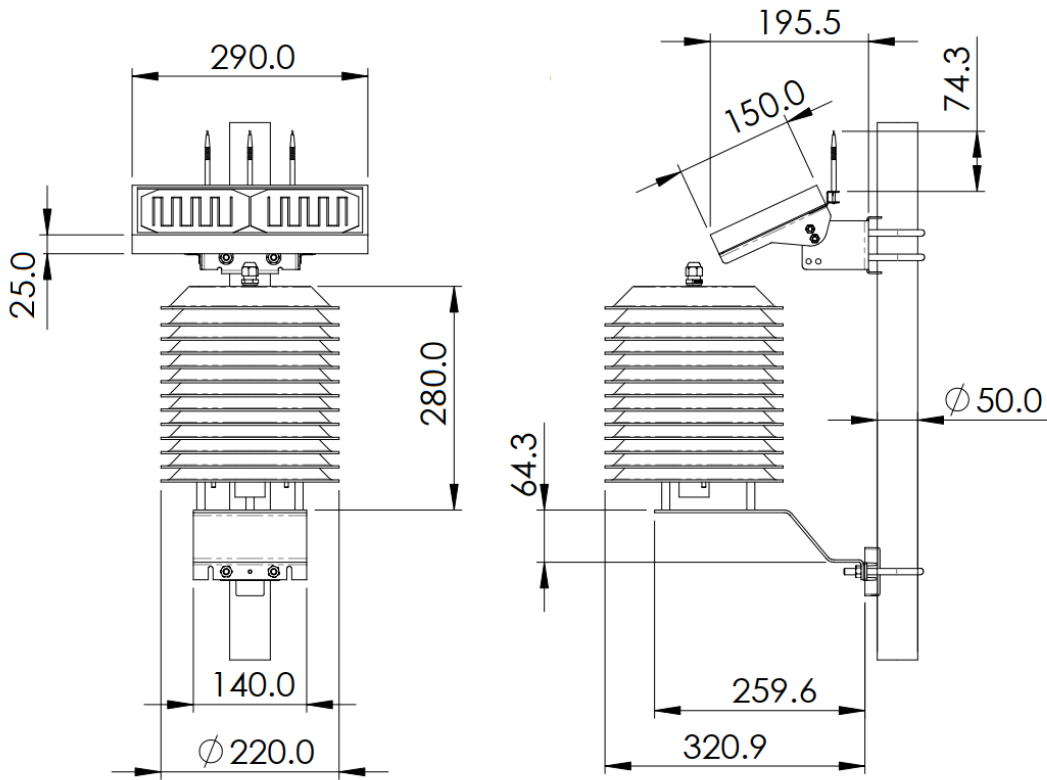
On this website, users can find battery life of various models in different configurations.
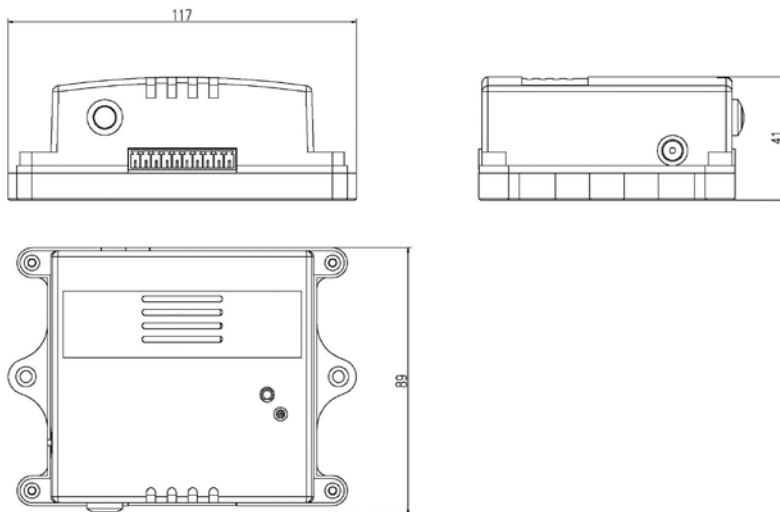
Application

- CO concentration detection
- Others

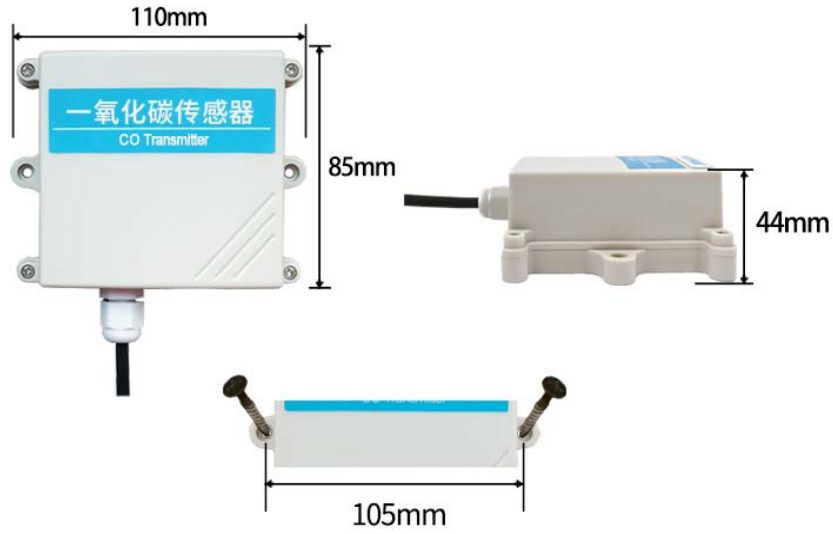# Wireless Outdoor CO Sensor with a Solar Panel

Dimension

Waterproof Cover and Solar Panel

Host Body

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CO Sensor
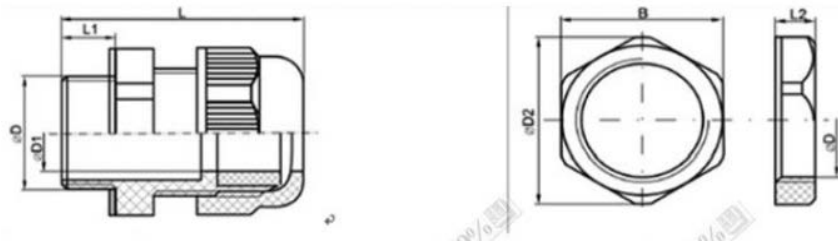
CO Sensor Waterproof Connector

Model	D(mm)	B(mm)	D2(mm)	L(mm)	L1(mm)	L2(mm)
M12	11.8	17.8	19.5	30.3	8	5

Electric

Power Supply	3 rechargeable lithium batteries in series (each section of rechargeable lithium battery 3.7V)
Operating Voltage Range	9.8V to 12.6V
Low Voltage Warning	10.5V
Operating Current	<100mA (when sensor is operating)

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Battery Electric

Solar Panel Specification	5W / 18VDC
Lithium Battery Specification	3 rechargeable lithium batteries in series (each section of rechargeable lithium battery 3.7V)
Lithium Battery Pack Charging Current	About 300mA (ensure sufficient sunshine intensity)
Lithium Battery Pack Charging Time	About 4 days to charge fully (Ensure sufficient sunshine intensity, the value is calculated with a rechargeable battery capacity being 3200mah)
The Time That the Lithium Battery Pack Can Be Used After Full Charged Once	About 1405 hours (typical value, report the data once every 30 minutes, the value is calculated with a rechargeable battery capacity being 3200mah)

CO Sensor Parameter

CO Measurement Range	0-2000ppm
CO Measurement Method	Electrochemical sensor
CO Measurement Accuracy	$<\pm$ Reading 3% (@25°C)
CO Measurement Resolution	0.1ppm
Response Time	≤50s
Working Pressure Range	Standard Atmospheric Pressure ±10%
Service Time	1-2 years

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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	-136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
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.)

Physical

Dimension	Host body:117mm*89mm*41mm
Operating Temperature Range	-20°C ~ 55°C
Operating Humidity Range	<90%RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C

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Rechargeable Lithium Batteries Installation

R72601 has a battery pack inside, users can buy and install rechargeable 18650 lithium battery, a total of 3 sections, a single rechargeable lithium battery voltage 3.7V, capacity recommended 3000mah-5000mah, the installation of rechargeable lithium battery steps are as follows:

1: Remove the four screws around battery cover.

2: Insert three 18650 lithium batteries.

3: Press the activation button on the battery pack for the first time.

4: After activation, close the battery cover and lock the screws around battery cover.

activation button