

Wireless Smoke Detector

Wireless Sensor Network Based on LoRa Technology



RA02A Datasheet

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Introduction

RA02A is a smoke detection alarm. RA02A has a built-in photoelectric smoke detector and buzzer. It can detect the smoke density in the environment and sound alarm when the smoke density exceeds the default value. At the same time, the alarm data can be transmitted to other devices for display. RA02A adopts SX1276 wireless communication module.

Features

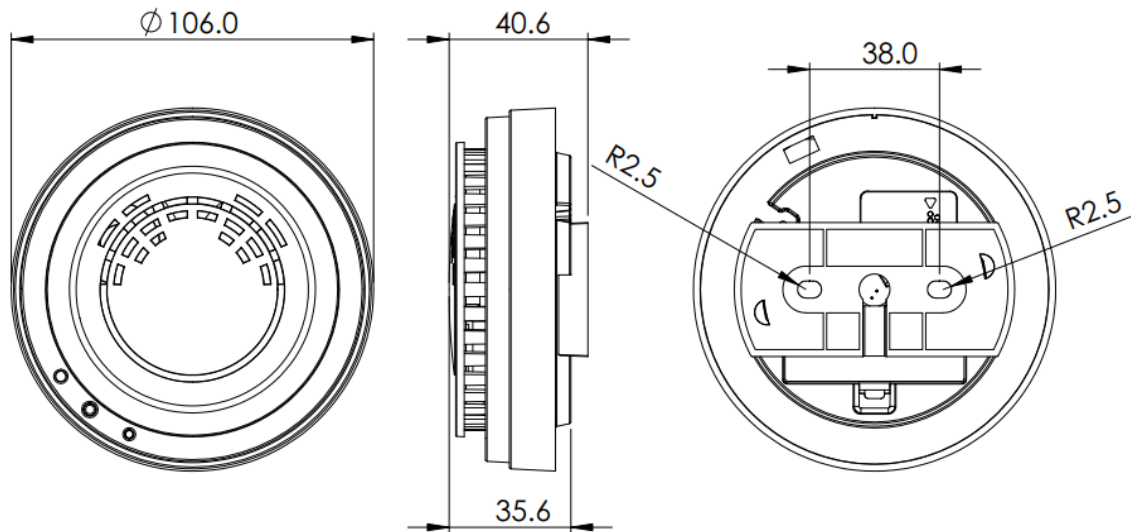
- Compatible with LoRa protocol
- 2 x1.5V AAA alkaline batteries
- Smoke alarm
- High temperature alarm (>60°C)
- Frequency hopping spread spectrum
- Configuration parameters can be configured via a third-party software platform, data can be read and alerts can be set via SMS text and email (optional)
- Applicable to third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

Applications

- Smoke detection
- Others

Wireless Smoke Detector

Dimensions



Electrical Specifications

Input Power	2 x 1.5V AAA alkaline batteries
Operating Voltage Range	2.3V – 3.3V
Low Battery Voltage	2.4V
Battery Lifetime	4.7 years (conditions: ambient temperature 25°C, report once every 60min, TX power = 20dBm, LoRa spreading factor SF = 10)
Standby Current	12uA @3VDC
Working Current While Alarming	580mA/3VDC
Alarming dBm	85dBm@3m
Alarming Concentration	0.6 – 15.5% obs/m
Battery Measurement Accuracy	±0.1V

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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
Rx Sensitivity	-136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	10 km (line of sight) Note: The distance may vary due to the environment.
Data Transfer Rate	0.3kbps – 50kbps (LoRa) 1.2kbps – 300kbps (FSK)
Modulation	LoRa / FSK Note: One modulation method is required.
Available Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 Note: optional, configured before shipment

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Physical Properties

Dimensions	Ø106 mm * 40.6 mm
Operating Temperature	-10°C – 55°C
Storage Temperature	-40°C – 85°C
Operating Humidity	< 90 %RH (No condensation)