

Wireless TVOC Sensor

Wireless Sensor Network Based on LoRa Technology



R720E Data Sheet

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Introduction

R720E is a wireless communication device that detects temperature, humidity and TVOC.

TVOC refers to all organic gaseous substances in a space, and generally refers to the indoor volatile organic substances. TVOC is also the much serious one of the three types of pollution affecting indoor air quality. R720E can detect the concentration value of TVOC, and transmit the detected data to other devices through the wireless network for display. It adopts SX1276 wireless communication module.

Main Characteristic

- Apply SX1276 wireless communication module
- 2 ER14505 lithium batteries (3.6V / section) in parallel
- TVOC concentration detection
- Temperature and humidity detection
- The base is attached with a magnet that can be attached to a ferrous object
- Compatible with LoRaWAN™ Class A
- 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 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.

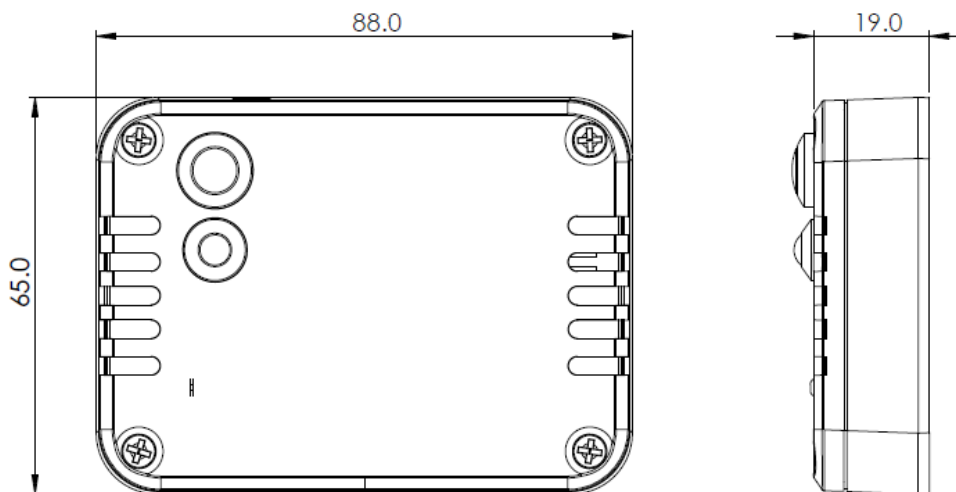
On this website, users can find various types of batteries in different configurations.

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Application

- Environment TVOC detection for homes, venues, etc.
- Transportation
- Fuel burning place
- Other

Dimension



Electric

Power Supply	2 sections ER14505 lithium batteries in parallel (3.6V 2400mAh/ section)
Battery Lifetime	2.7 years (Condition: ambient temperature 25°C, report once every 15min, TX power = 20dBm, LoRa spreading factor SF = 10)
Standby Current	28uA
Wake-up Current	Wake-up current range 0.8mA-20mA * When not transmitting /receiving LoRa data
Low Voltage Threshold	3.2V
Battery Measurement Accuracy	± 0.1V

Wireless TVOC Sensor
Module-R100H

Wakeup Current	0.8mA - 8mA/ 3.3V
RF Receiving Current	11mA/ 3.3V
RF Emission Current	120mA/ 3.3V

* Specific electrical characteristics may vary depending on the power supply voltage.

TVOC Sensor

TVOC Measurement Range	0 ppb – 60000 ppb
TVOC Measurement Resolution	0 ppb – 2008 ppb :1 ppb 2008 ppb – 11110 ppb: 6 ppb 11110 ppb – 60000 ppb: 32 ppb
TVOC Concentration Range Reference Description	1. Excellent: 0-65 ppb 2. Good: 65-220 ppb 3. Moderate: 220-660 ppb 4. Poor: 660-2200 ppb 5. Unhealthy: 2200-60000 ppb
Sampling Interval	2s (low power consumption mode) 30s (ultra-low power consumption mode)

Temperature and Humidity Sensor

Temperature Measurement Range	-20°C to 55°C
Humidity Measurement Range	0%RH to 100%RH

Wireless TVOC Sensor

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	-136 dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -121 dBm (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, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment)

Physical

Dimension	L: 88 mm x W: 65 mm x H: 19 mm
Weight	113g
Ambient Temperature Range	-20°C ~ 55°C
Ambient Humidity Range	<90%RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C