# Wireless Occupancy/Light/Temperature Sensor  RB11E  Data Sheet

## Wireless Sensor Network Based on LoRa Technology

LoRa Alliance Certified™



**RB11E**

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ISO 9001

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## Wireless Occupancy/Light/Temperature Sensor

## General Description

RB11E is a long distance wireless infrared device based on the LoRaWAN protocol (Class A). RB11E combines infrared detection, temperature, and illumination sensors. During infrared real-time detection, if a people or other organism which is active in the monitoring area, RB11E will detect the infrared signal and report status information to the gateway. Users can execute different instructions or scenes according to the different status configuration. RB11E also supports temperature, lighting report.

## Principle of Operation

If someone or animal is moving in the monitoring area, RB11E will detect the infrared signal and the red indicator will flash once. In the mean time, it reports occupied status (at the same time, other sensor status value are also reported). RB11E is able to read temperature and illumination over the LoRaWAN network, mainly used to detect the temperature and illumination of the indoor environment, which through the wireless network communication module to collect the data sent to other devices displayed.
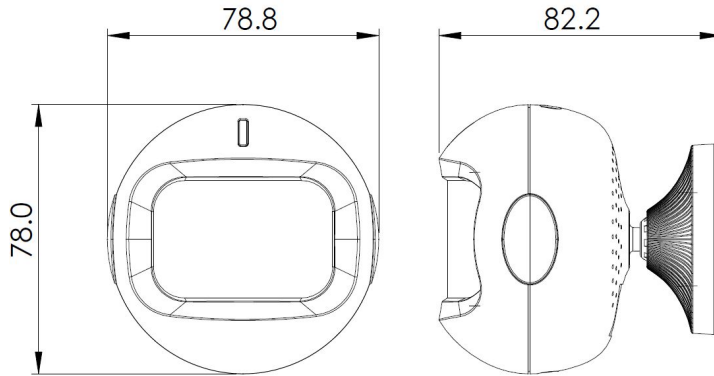
## Example Applications

• Area access monitoring
• Detect when people enter a room
• Building automation
• Condition monitoring
• Predictive maintenance
• Security, healthcare and many more use cases.

## Features of  NETVOX Sensors

• Wireless range of 10 km [*1]
• LoRaWAN™ Class A compatible
• Motion detection distance: 2 meters to 12 meters
• Temperature measurement range: -20℃-55℃
• Lighting measurement range: 0-1100LUX
• Frequency Hopping Spread Spectrum (FHSS)
• Improved interference immunity
• Improved power management for longer battery life
• Encrypt-RF™ Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
• Battery Life[*2]:
　　　　2.5 years
　　　(Conditions: ambient temperature 25 °C,  100 triggers/day, txpower = 20dBm,
　　　 LoRa spreading factor SF = 10)
• Over-the-air updates (future)
• Third-Party online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email (optional)
• Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne
*1. Actual range may vary depending on environment.
*2. Battery life is determined by sensor reporting frequency and other variables

# Wireless Occupancy/Light/Temperature Sensor

## Technical Specifications



(Unit: mm)

## Electric

| | |
|---|---|
| Power Supply | 2pcs of 3.6V ER14505 AA battery |
| Operating Voltage Range | 3V～3.6V |
| Standby Current | 110uA |
| Transmitting Current (max) | 120mA |
| Receiving Current (max) | 11mA |
| Battery Measurement Accuracy | ±0.1V |

## Frequency

| | |
|---|---|
| TX Power | 19dBm±1dBm |
| Rx Sensitivity | -136dBm<br>(LoRa，Spreading Factor=12，Bit Rate=293bps )<br>-121dBm<br>(FSK,Frequency deviation=5kHz, Bit Rate=1.2kbps) |
| Antenna Type | Build-in antenna |
| Communication Range | 10 km (line-of-sight, the actual transmission distance depends on the environment) |
| Data Transfer Rate | 0.3kbps～50kbps |
| Spread Technique | LoRa/FSK |
| Available Frequency | US915　　AU915　　AS923<br>EU868　　KR920　　CN470<br>Configured before shipment |

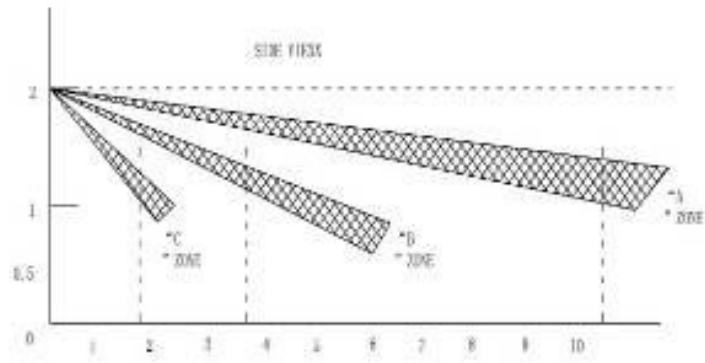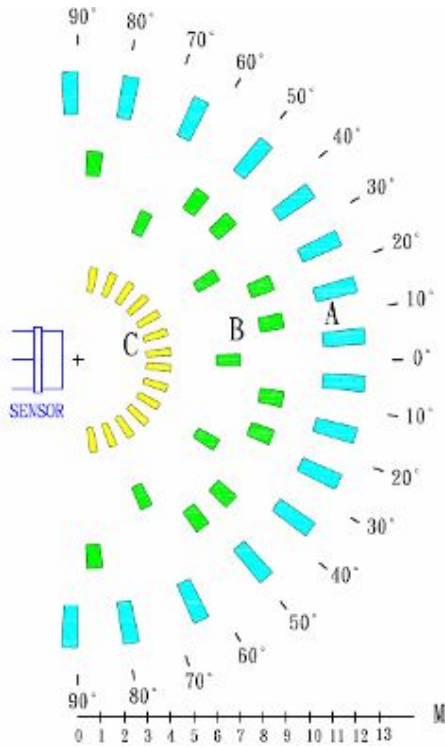## Wireless Occupancy/Light/Temperature Sensor

## Physical

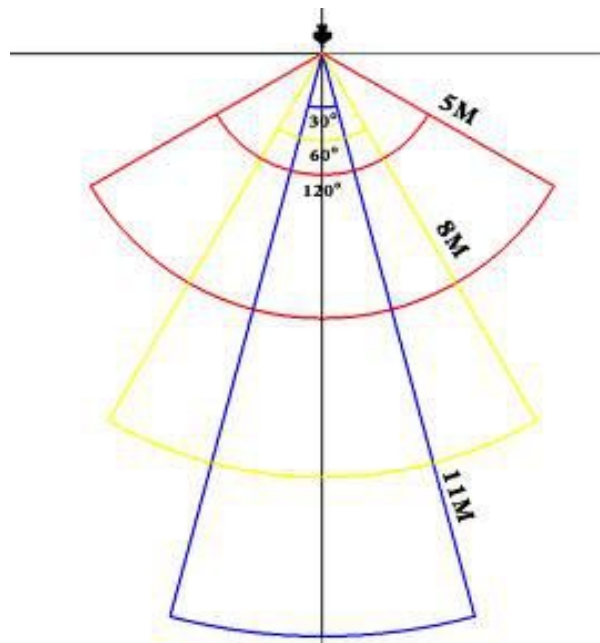| Dimension | 78mm*78.8mm*82.2mm |
|---|---|
| Weight | 125.8g |
| Operating Humidity | ＜90%RH |
| Operating Temperature | -20°C ～ 55°C |
| Storage Temperature | -40°C ～ 85°C |
| Built-in Devices | Tamper switch, light sensor, temperature sensor |

## Sensing Range

| Mounting Height | 2 to 2.2 meters above ground level |
|---|---|
| Mounting Angle | Tilt 15° downward |
| Sensing Angle | Horizontal 110°, vertical 60° |
| Sensing Distance | 2 meters to 12 meters |
| Object Moving Speed  to Send Alarm | ≥0.2 m(M)/s(s) |
| Temperature  Measurement Range | -20°C ～ 55°C |
| Temperature  Measurement Accuracy | ±2℃ |
| Light Sensor Measurement Range | 0-1100LUX |
| Light Sensor Measurement Accuracy | ±15% |
| Battery Measurement Accuracy | ±0.1V |

## Wireless Occupancy/Light/Temperature Sensor

## Fresnel Lens Size and Detection Range：



## Lens Detection Range Horizontal Projection Schematic

# Wireless Occupancy/Light/Temperature Sensor

## Lens Detection Range Space Diagram

The coverage area A- Distance: 11 meters; sensing angle: 30°
The coverage area B- Distance: 8 meters; sensing angle: 60°
The coverage area C- Distance: 5 meters; sensing angle: 120°

## Contact:

NETVOX TECHNOLOGY CO., LTD.

**TEL: 886-6-2617641**
**FAX: 886-6-2656120**
**E-mail: sales@netvox.com.tw**
**WEB: www.netvox.com.tw**

NETVOX TECHNOLOGY CO., LTD (XIAMEN)
**TEL: 86-592-5717188**
**FAX: 86-592-5717180**
**E-mail: dyx@netvox.com.cn**
**WEB: www.netvox.com.cn**

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