

# Wireless Occupancy/Light/Temperature Sensor RB11E Data Sheet

Wireless Sensor Network Based on LoRa Technology

**LoRa Alliance** Certified™



**RB11E**

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## General Description

RB11E is a Wireless Occupancy/Light/Temperature Sensor for Netvox ClassA type devices based on the LoRaWAN open protocol and is compatible with the LoRaWAN protocol.

It combines occupancy ,temperature, tamper switch and light sensors that suitable for detecting human movement indoors, illuminance and temperature.

## Features of NETVOX Sensors

- 2 pcs of ER14505 lithium batteries in parallel
- Detection angle: Horizontal 110°, vertical 60°
- Mechanical rotation angle is 40 °
- Built-in light sensor, temperature sensor, occupancy sensor, tamper switch
- Detection speed:  $\geq 0.2$  meters/second and triggering alarm
- Temperature measurement range: -20 °C -55 °C
- Temperature measurement accuracy:  $\pm 2$  °C
- Light sensor measurement range: 2-1100 Lux
- Light sensor accuracy:  $\leq 15\%$
- Battery measurement accuracy :  $\pm 0.1V$
- Frequency Hopping Spread Spectrum (FHSS)
- 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
- Improved power management for longer battery life

### Battery Life:

Please refer to web: [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html)

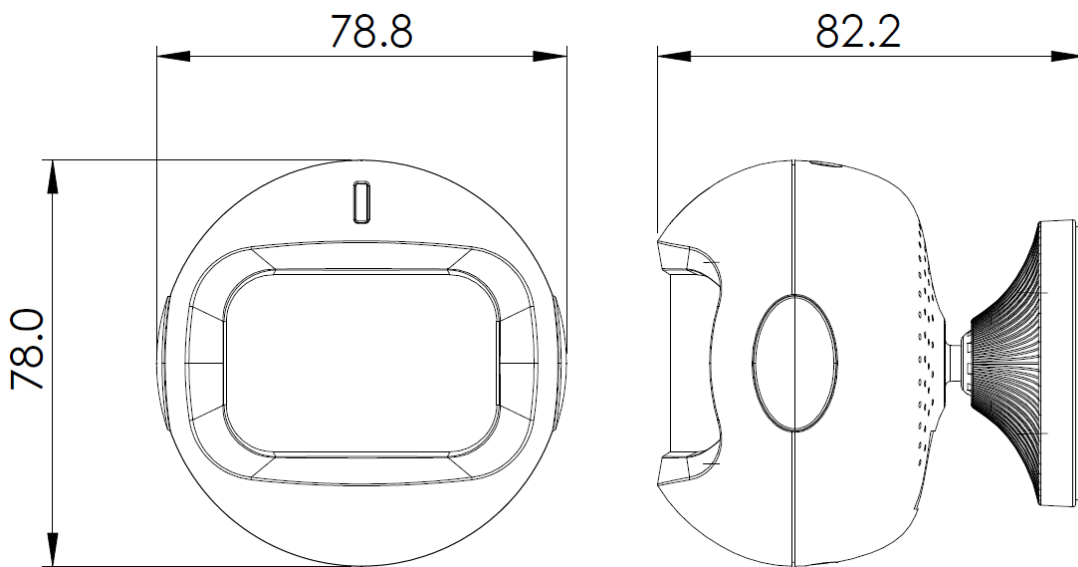
At this website, users can find battery life time for variety models at different configurations.

1. Actual range may vary depending on environment.
2. Battery life is determined by sensor reporting frequency and other variables.

## Example Applications

- Area access monitoring
- Detect when people enter a room
- Building automation
- Condition monitoring

## Technical Specifications



(Unit: mm)

## Electric

### RB11E

|                               |   |
|-------------------------------|---|
| Input Power                   | 2 x 3.6V ER14505 AA lithium batteries (3.6V 2400mah/section )   |
| Operating Voltage             | DC 3.1V~3.65V   |
| Standby Current               | 110uA   |
| Wakeup Current                | 9.78mA (Typical value)<br>Wakeup current range 0.8mA-20 mA<br>* When not transmitting /receiving LoRa data) |
| Low Battery Voltage Threshold | 3.2V  |
| Battery Measurement Accuracy  | ±0.1V   |

### Module-R100H

|                               |                  |
|-------------------------------|------------------|
| Wake-up Current               | 0.8mA - 8mA@3.3V |
| RF Receiving Current (max)    | 11mA/3.3V        |
| RF Transmitting Current (max) | 120mA/3.3V       |

## Frequency

|                     |  |
|---------------------|--|
| Frequency Range     | 863MHz-928MHz 470MHz-510MHz  |
| TX Power            | US915 20dbm ;<br>AS923 16dbm ;<br>AU915 20dbm ;<br>CN470 19.15dbm ;<br>EU868 16dbm ;<br>KR920 14dbm ;<br>IN865 20dbm ; |
| Rx Sensitivity      | -136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps )<br>-121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)     |
| Antenna Type        | Build-in antenna   |
| Communication Range | Up to 10km, the actual transmission distance depends on the environment.   |
| Data Transfer Rate  | 0.3kbps~50kbps   |
| Spread Technique    | LoRa/FSK   |
| Available Frequency | EU863-870,US902-928,AU915-928,KR920-923,AS923-1,AS923-2,<br>AS923-3,IN865-867,CN470-510<br>Configured before shipment  |

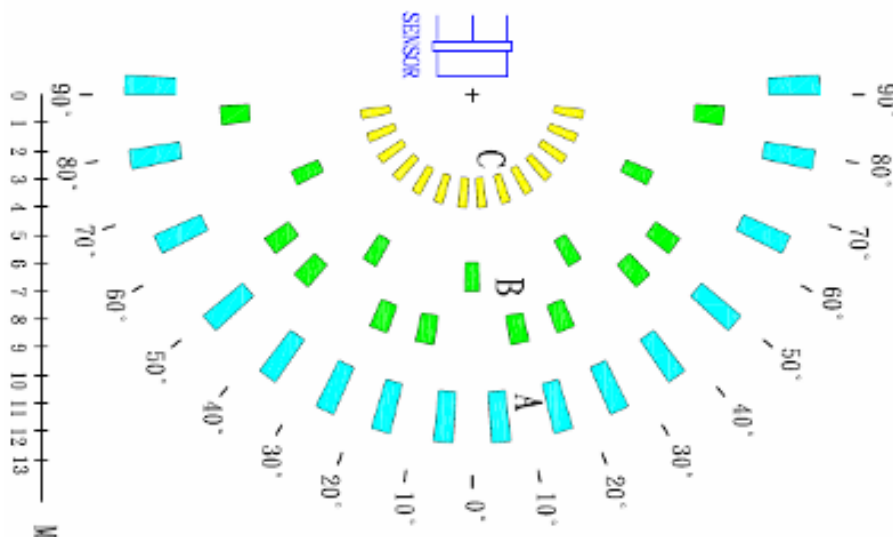
## Sensing Range

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

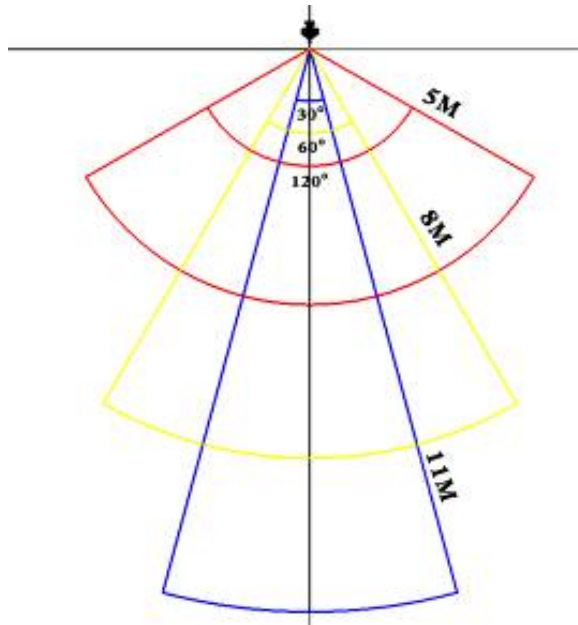
## Physical

|                       |                                  |
|-----------------------|----------------------------------|
| 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      | Light sensor, Temperature sensor |

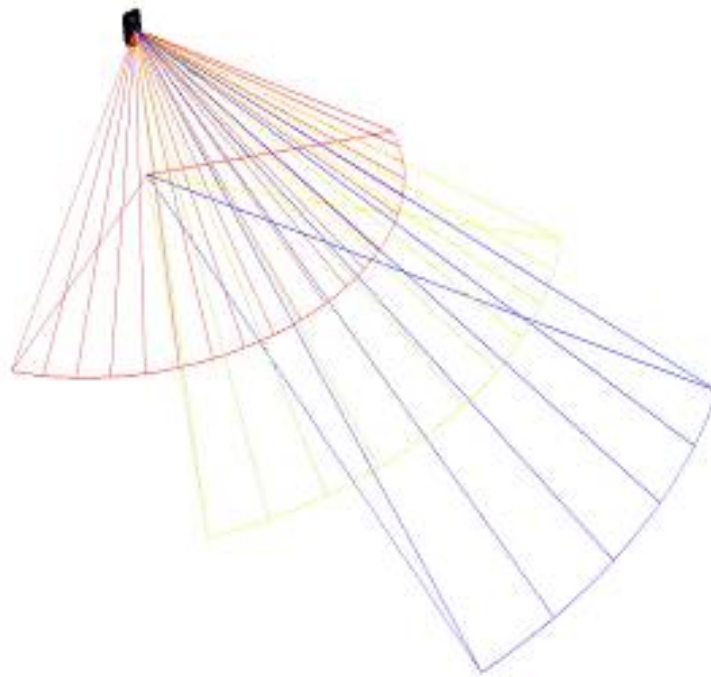
## Fresnel Lens Size and Detection Range :



## Lens Detection Range Horizontal Projection Schematic



## 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°