

Wireless Occupancy/Light/Temperature Sensor RB11E Data Sheet

Wireless Sensor Network Based on LoRa Technology

 **LoRa Alliance** Certified™



RB11E

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Wireless Occupancy/Light/Temperature Sensor

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: ≥ 0.2 meters/second and triggering alarm
- Temperature measurement range: -20 °C -55 °C
- Temperature measurement accuracy: ± 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

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

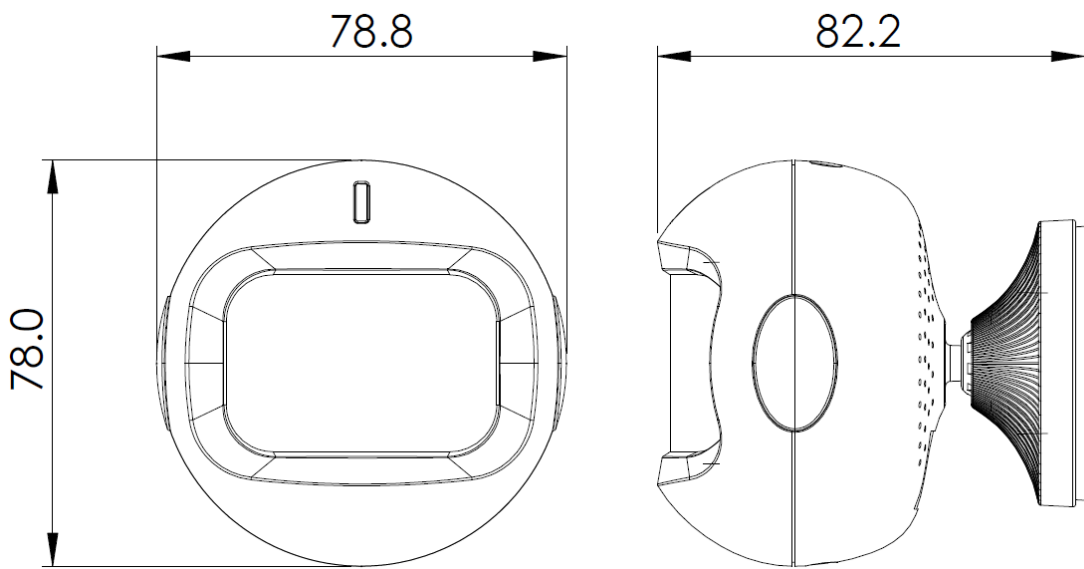
1. Actual range may vary depending on environment.
2. Battery life is determined by sensor reporting frequency and other variables.

Wireless Occupancy/Light/Temperature Sensor

Example Applications

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

Technical Specifications



(Unit: mm)

Wireless Occupancy/Light/Temperature Sensor

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) Wakeup current range 0.8mA-20 mA * 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 ; 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	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, AS923-3,IN865-867,CN470-510 Configured before shipment

Wireless Occupancy/Light/Temperature Sensor

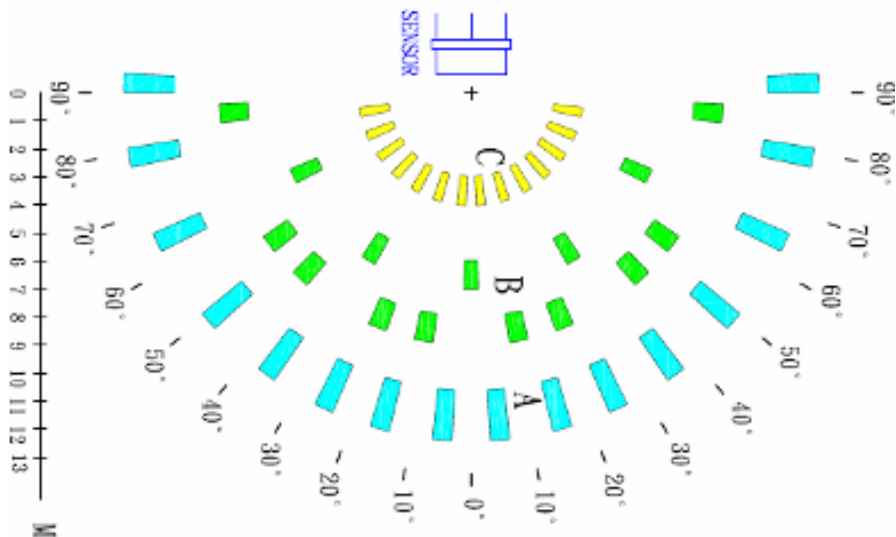
Sensing Range

Mounting Height	2 to 2.2 meters above ground level
Mounting Angle	Tilt 15° downward
Sensing Angle	Horizontal 110°, vertical 60°
Sensing Distance	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

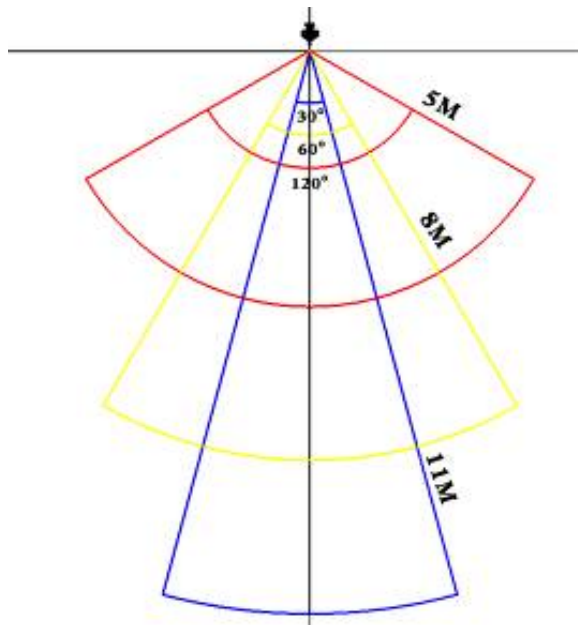
Dimension	78mm*78.8mm*82.2mm
Weight	125.8g
Operating Humidity	< 90%RH
Operating Temperature	-20°C ~ 55°C
Storage Temperature	-40°C ~ 85°C
Built-in Devices	Light sensor, Temperature sensor

Fresnel Lens Size and Detection Range :

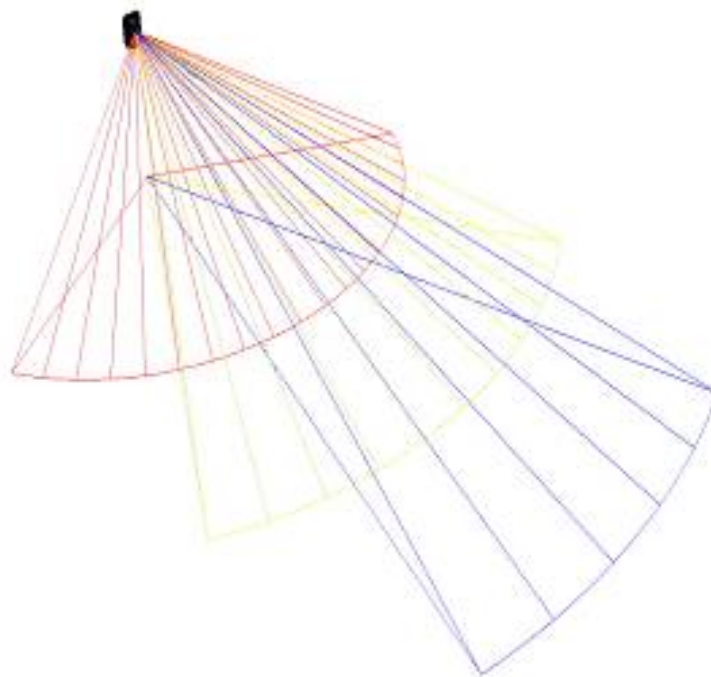


Wireless Occupancy/Light/Temperature Sensor

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°