Wireless Tilt Angle Sensor

Wireless Sensor Network Based on LoRa Technology

R718EB
Data Sheet

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Introduction

R718EB has a built-in tilt angle detection sensor. When the device is tilted (compared with the reference angle), the tilt angle will be reported, and the detected data will be transmitted to other devices through the wireless network for display.

R718EB is compatible with the LoRaWAN protocol. It integrates a chip module that conforms to the LoRaWAN wireless protocol and joins the gateway to display the collected data. Users can monitor all changes in the network by accessing the gateway through the cloud. It easily realizes remote control of the Internet of Things and achieves energy saving, emission reduction, and environmental protection.

Main Characteristic

• Apply SX1276 wireless communication module

• 2 ER14505 battery AA size (3.6V / section) in parallel power supply

• Built-in tilt sensor

• The base is attached with a magnet that can be attached to a ferromagnetic material object

• Protection level IP65/IP67 (optional)

• Frequency Hopping Spread Spectrum (FHSS)

• Improved power management for longer battery life

• Configuring parameters and reading data via third-party software platforms, and set alarms via

 SMS text and email (optional)

• Applicable to third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

• Battery Life*2:

 Please refer to web: http://www.netvox.com.tw/electric/electric_calc.html

 At this website, users can find battery lifetime for various models at different configurations.

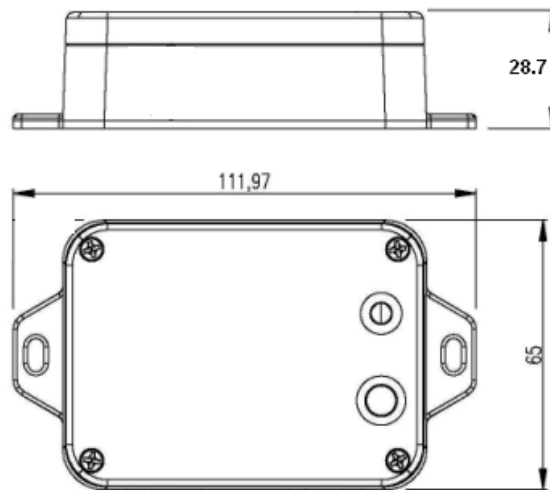*1. Actual range may vary depending on environment.

*2. Battery life is determined by sensor reporting frequency and other variables

Application

- Pillars, telephone poles, and other applications, such as tilt sensing, angle detection, and direction identification, etc.

- Industrial equipment

- Other

Dimension

Electric

Power Supply	2 ER14505 lithium batteries (3.6 V, 2400mAh / section) in parallel
Battery Life	Battery life: 4 years (condition: Ambient temperature 25 °C, report once every 60mins, txpower = 20dBm, LoRa spreading factor SF = 10)
Standby Current	≤ 80uA
Wakeup Current	6.3mA @ 3.3V
Battery Low Voltage Threshold	3.2V
RF Receiving Current	11 mA @ 3.3V
RF Emission Current	120 mA @ 3 .3 V
Battery Measurement Accuracy	± 0.1V

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

Tilt Sensor

Tilt Angle Measurement Range	±90°
Tilt Angle Resolution	0.1°
Angle Accuracy	±3° @ horizontal position
Preset Sampling Rate	Stationary State: 8Hz Angle Changing: 12.5Hz

Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm
Receiving 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	10 km (the actual transmission distance depends on the environment.)
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
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,IN865-867,CN470-510 (Note: optional, to be done in the factory configuration)

Physical

Dimension	L: 112 mm *W: 65 mm *H: 28.7 mm
Host body Weight	About 140 g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature Range	-40℃ ～ 85℃