Package Content

RAK2245
96Boards board

LoRa Antenna
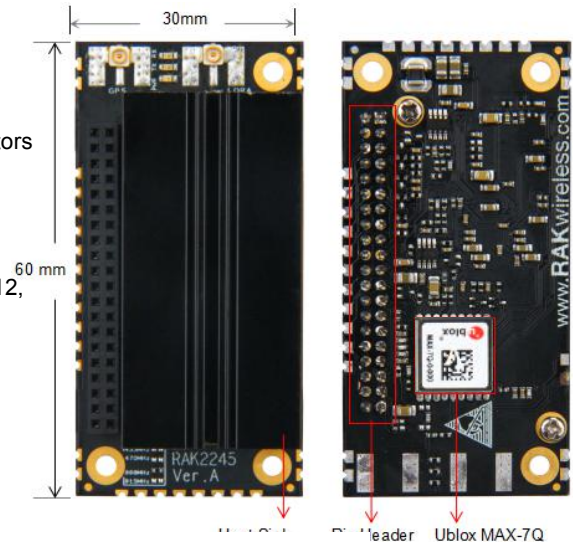(1x)

GPS Active Antenna
(1x)

Product Description

The RAK2245 96Boards is a complete and cost efficient LoRa gateway solution base on Semtech SX1301 to help utilize the whole LoRa system developement. It is a Concentrator module with 96Boards form factor which can be plugged into IoT edition 96Boards such as Nitrogen, Orange Pi 96Boards as a complete RF front end of LoRa gateway.

RAK2245 96Boards can support eight channels and available in multiple variants so it can be used for international standard bands. This ultra compact module measures just 60mm x 30mm x 19.8mm is believed to be the world's smallest 96Boards form factor LoRaWAN gateway module which includes a GPS module and a Heat Sink for better performance and thermal heat dissipation management.
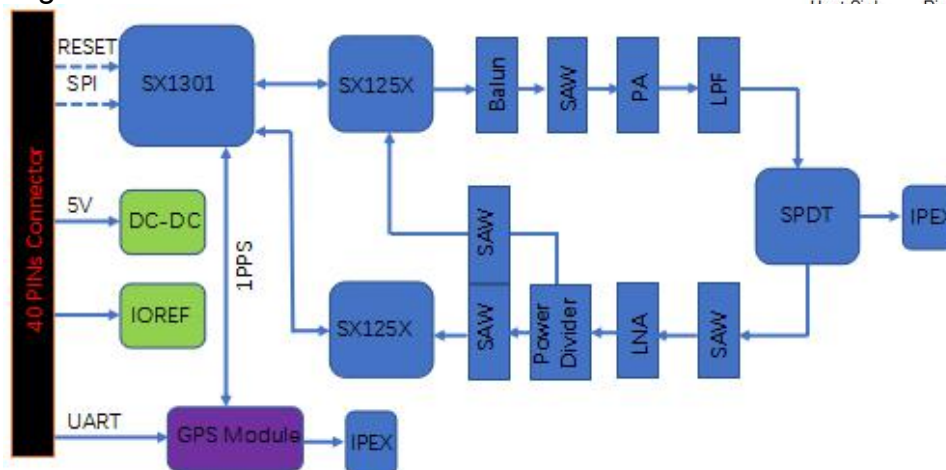
This has to be the best value and function for connectivity to address a variety of applications; like Smart Grid, Intelligent Farm and other IoT enterprise applications. Combined with the 96Boards IoT edition, which enables easy integration into an application board and also ideal for manufacturing of small series. Another feature is the integration of Ublox GPS module which expands applications.

Product Features

- Compatible with 96Boards IoT edition with heat sink.
- SX1301 base band processor, emulates 49 x LoRa demodulators 10 parallel demodulation paths, support 8 uplinks channel, 1 downlink channel.
- 2 x SX125x Tx/Rx front-ends high/ low frequency.
- Supports 5V power supply, integrated level conversion circuit.
- TX power up to 27dBm, RX sensitivity down to -139dBm@SF12, BW 125KHz.
- Supports latest LoRaWAN 1.0.2 protocol.
- Supports global license-free frequency band (EU433, CN470, EU868, US915, AS923, AU915, KR920, IN865 and AS920).
- Supports SPI, UART, GPIOs interface.
- Integrated the Ublox MAX-7Q GPS Module.

Block Diagram

Key Features

LoRa Module	• SX1301 base band processor(support 8 uplinks channel, 1 downlink channel)
GPS Module	• Ublox MAX-7Q
Form Factor	• 96Boards IoT Edition
Heat Sink	• Metal Material
Frequency	• EU433, CN470, EU868, US915 • AS923, AU915, KR920, IN865
LoRaWAN Version	• LoRaWAN Version: V1.0.2 • Semtech SX1301 Driver Version: V5.0.1 • Packet Forwarder Version: V4.0.1
Range	• Urban: 2~4km • Suburb: 5~10km • Open Area: 15km
Node Numbers	• 500 nodes/km2
TX Power	• 27dBm (Max), typical 25 dBm
RX Sensitivity	• -139dBm(Min)@SF12, BW 125KHz
Power Supply	• DC 5V
LEDs	• 1* Green LED for PWR status • 1* Green LED for TX status • 1* Green LED for RX status
Interfaces	• SPI, UART, GPIOs
Antenna Interface	• 1* U.FL connectors for LoRa • 1* U.FL connectors for GPS
Power Consumption	• TX (Typical): 336mA • RX(Typical): 360mA
Physical Dimension	• Dimension (L x W x H): 30.0 x 60.0 x 19.8mm(includes the heat sink) • Weight: Approximately 0.85 oz
Temperature Range	• Operation Temperature: -40°C ~ +85°C • Storage Temperature:- 40°C ~ +85°C

Order Information

Part Number	Package	Description
RAK2248-0X-R01	1x board, 1x LoRa Antenna and 1x GPS Active Antenna retail package	Supports 433/470/868/915/923/920/865 MHz
RAK2248-0X-C10	10-piece board and Antennas carton package	Supports 433/470/868/915/923/920/865 MHz

About RAKwireless:

RAKwireless is the pioneer in providing innovative and diverse cellular and LoRa connectivity solutions for IoT edge devices. It's easy and modular designs can be used in different IoT applications and accelerate time-to-market. For more information, visit RAKwireless website at www.rakwireless.com.