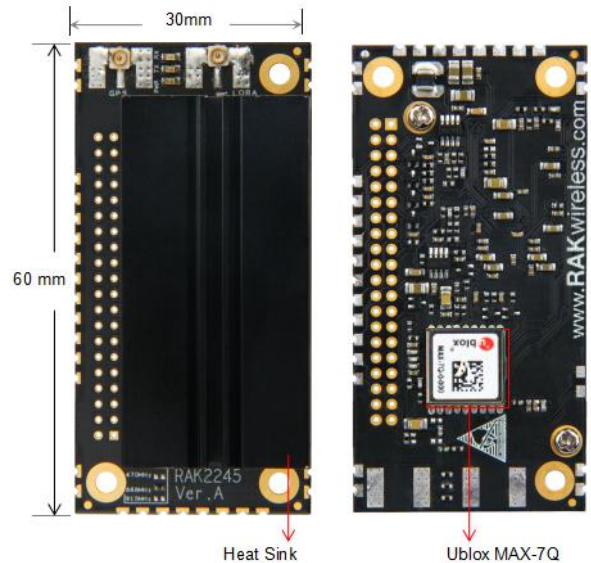## Product Description

The RAK2245 is a complete and cost efficient LoRa gateway solution base on Semtech SX1301 to help utilize the whole LoRa system developement. Developers can integrate the Concentrator module into the main board to utilize the LoRa gateway funtion.

RAK2245 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 x14,9mm is believed to be the world's smallest LoRaWAN gateway module which includes a GPS module and a Heat Sink for better performance and thermal heat dissipation management.
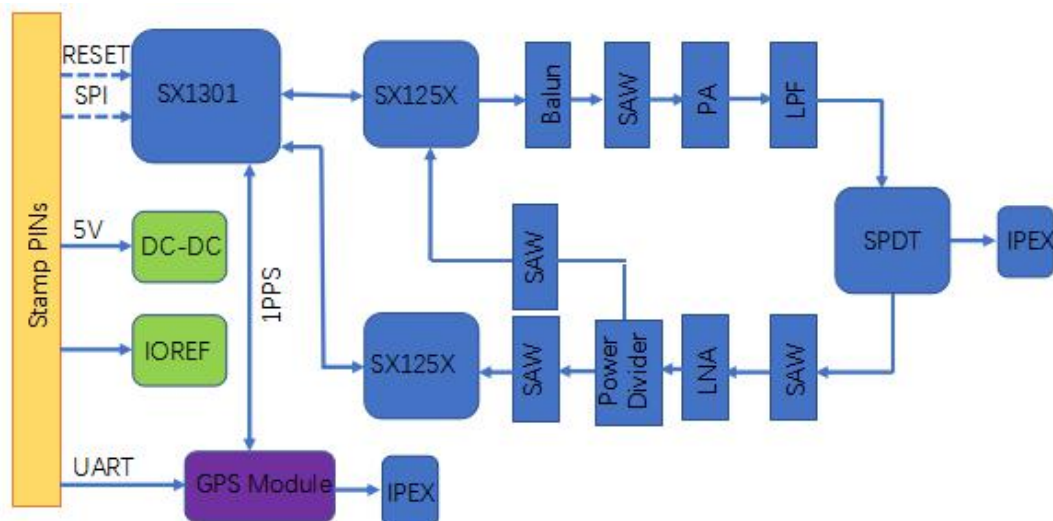
This has to be the best value and function for connectivity to address a variety of applications; like Smart Grid, Intelligent Farm and other IoT enterprise applications. Combined with a Stamp form factor, which enables easy integration into an application board and also ideal for manufacturing of small series. Another feature is the integration of Ublox GPS module which expands applications.

Product Features

- Compatible with Stamp edition specification 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 interface.
- Integrated the Ublox MAX-7Q GPS Module.

Heat Sink   Ublox MAX-7Q

Block Diagram

Key Features

LoRa Module	• SX1301 base band processor(support 8 uplinks channel, 1 downlink channel)
GPS Module	• Ublox MAX-7Q
Form Factor	• Stamp Edition
Heat Sink	• Metal Material
Frequency	• EU433, CN470, EU868, US915 • AS923, AU915, KR920, IN865, AS920
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, I2C, 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 14.9mm(includes the heat sink) • Weight: Approximately 0.75 oz
Temperature Range	• Operation Temperature: -40°C ~ +85°C • Storage Temperature:- 40°C ~ +85°C

Order Information

Part Number	Package	Description
RAK2245-0X-R01	Single piece module retail package	Supports 433/470/868/915/923/920/865 MHz
RAK2245-0X-C10	10-piece modules 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.