



# WisLink-LoRa Concentrator Module

96Boards IoT Edition

RAK2245 96Boards

## Package Content



RAK2245  
96Boards board



LoRa Antenna  
(1x)



GPS Active Antenna  
(1x)

## Product Description

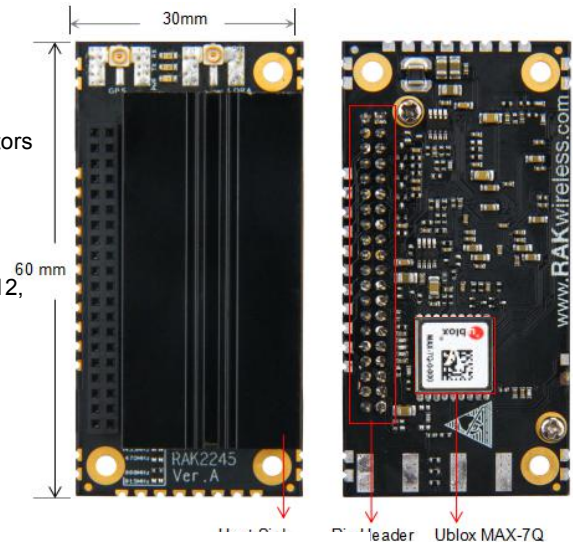
The RAK2245 96Boards is a complete and cost efficient LoRa gateway solution base on Semtech SX1301 to help utilize the whole LoRa system development. It is a Concentrator module with 96Boards form factor which can be plugged into IoT edition 96Boards such as Nitrogen, Orange Pi 96Boards as a complete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

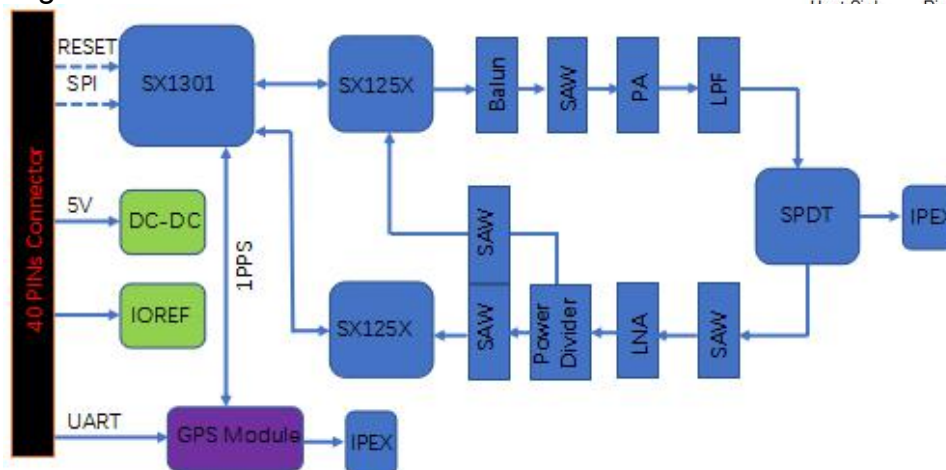
This has to be the best value and function for connectivity to address a variety of applications; like Smart Grid, Intelligent Farm and other IoT enterprise applications. Combined with the 96Boards IoT edition, which enables easy integration into an application board and also ideal for manufacturing 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





# WisLink-LoRa Concentrator Module

96Boards IoT Edition

RAK2245 96Boards



## Key Features

|                           |  |
|---------------------------|--|
| <b>LoRa Module</b>        | <ul style="list-style-type: none"> <li>SX1301 base band processor(support 8 uplinks channel, 1 downlink channel)</li> </ul>  |
| <b>GPS Module</b>         | <ul style="list-style-type: none"> <li>Ublox MAX-7Q</li> </ul>   |
| <b>Form Factor</b>        | <ul style="list-style-type: none"> <li>96Boards IoT Edition</li> </ul>   |
| <b>Heat Sink</b>          | <ul style="list-style-type: none"> <li>Metal Material</li> </ul>   |
| <b>Frequency</b>          | <ul style="list-style-type: none"> <li>EU433, CN470, EU868, US915</li> <li>AS923, AU915, KR920, IN865</li> </ul>   |
| <b>LoRaWAN Version</b>    | <ul style="list-style-type: none"> <li>LoRaWAN Version: V1.0.2</li> <li>Semtech SX1301 Driver Version: V5.0.1</li> <li>Packet Forwarder Version: V4.0.1</li> </ul> |
| <b>Range</b>              | <ul style="list-style-type: none"> <li>Urban: 2~4km</li> <li>Suburb: 5~10km</li> <li>Open Area: 15km</li> </ul>  |
| <b>Node Numbers</b>       | <ul style="list-style-type: none"> <li>500 nodes/km2</li> </ul>  |
| <b>TX Power</b>           | <ul style="list-style-type: none"> <li>27dBm (Max), typical 25 dBm</li> </ul>  |
| <b>RX Sensitivity</b>     | <ul style="list-style-type: none"> <li>-139dBm(Min)@SF12, BW 125KHz</li> </ul>   |
| <b>Power Supply</b>       | <ul style="list-style-type: none"> <li>DC 5V</li> </ul>  |
| <b>LEDs</b>               | <ul style="list-style-type: none"> <li>1* Green LED for PWR status</li> <li>1* Green LED for TX status</li> <li>1* Green LED for RX status</li> </ul>              |
| <b>Interfaces</b>         | <ul style="list-style-type: none"> <li>SPI, UART, GPIOs</li> </ul>   |
| <b>Antenna Interface</b>  | <ul style="list-style-type: none"> <li>1* U.FL connectors for LoRa</li> <li>1* U.FL connectors for GPS</li> </ul>  |
| <b>Power Consumption</b>  | <ul style="list-style-type: none"> <li>TX (Typical): 336mA</li> <li>RX(Typical): 360mA</li> </ul>  |
| <b>Physical Dimension</b> | <ul style="list-style-type: none"> <li>Dimension (L x W x H): 30.0 x 60.0 x 19.8mm(includes the heat sink)</li> <li>Weight: Approximately 0.85 oz</li> </ul>       |
| <b>Temperature Range</b>  | <ul style="list-style-type: none"> <li>Operation Temperature: -40° C ~ +85° C</li> <li>Storage Temperature:- 40° C ~ +85° C</li> </ul>                             |

## 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](http://www.rakwireless.com).

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