



WisLink-LoRa Gateway Module

Mini PCI-E Edition
RAK2247

Package Content



RAK2247 board
(1x)



LoRa Antenna of iPEX interface
(1x)

Product Description

RAK2247 is a family of LoRa concentrator cards with mini PCIe form factor based on SX1301, which enables an easy integration into an existing routers and other network equipment with LoRa Gateway capabilities. You can use this in any embedded platform offering free mini-PCIe slot with USB and SPI connectivity.

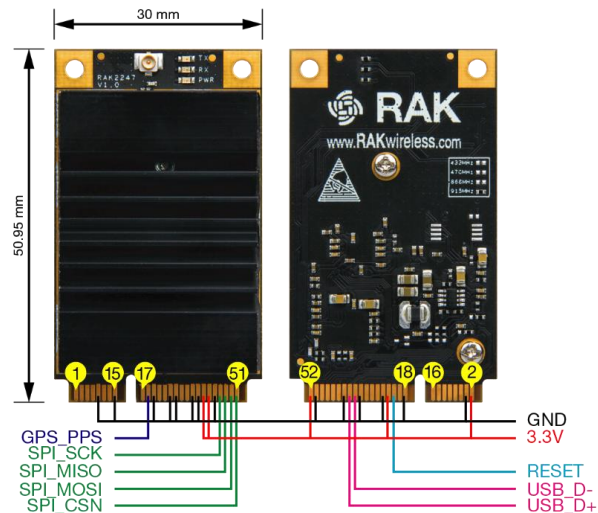
RAK2247 is a complete and cost efficient LoRa gateway solution offering up to 10 programmable parallel demodulation paths. It targets at smart metering fixed networks and Internet-of-Things (IoT) applications with up to 500 nodes per km² in moderately interfered environment. The modules have the industry standard PCI Express Mini Card form factor, which enables easy integration into an application board and is also ideal for manufacturing of small series.

Product Features

- Compatible with Mini PCI-e Edition specification with heat sink.
- SX1301 base band processor which emulates 49 x LoRa demodulators, 10 parallel demodulation paths, and supports multi-channel (8uplinks, 1downlink).
- 2 x SX125x Tx/Rx front-ends high/low frequency.
- Built-in FT2232H to convert SPI interface of SX1301 to USB2.0
- The voltage of Mini PCI-e is 3.3v, compatible with 3G/LTE card of Mini PCI-e type.
- TX power up to 25dBm, RX sensitivity down to -139dBm @ SF12, BW 125KHz.
- Supports latest LoRaWAN 1.0.2 protocol.
- Supports global license-free frequency bands: (EU433, CN470, EU868, US915, AS923, AU915, KR920, IN865, and AS920).
- Supports optional SPI or SPI&USB interfaces.

Pin Configurations

Item	Pin(s)
GND	4, 9, 15, 18, 21, 26, 27, 29, 34, 35, 37, 40, 43, 50
3.3V	2, 24, 39, 41, 52
GPS_PPS	19
SPDT_SEL	20
RESET	22
USB_D-	36
USB_D+	38
SPI_SCK	45
SPI_MISO	47
SPI_MOSI	49
SPI_CSN	51





WisLink-LoRa Gateway Module

Mini PCI-E Edition
RAK2247



Key Features

CATEGORY	SPECIFICATIONS
LoRa Module	<ul style="list-style-type: none"> SX1301 base band processor(support 8 uplinks channel, 1 downlink channel)
Quad-Bands	<ul style="list-style-type: none"> 433.05-434.79MHz,470-510MHz, 863-870MHz,902-928MHz
Frequency	<ul style="list-style-type: none"> EU433, CN470, EU868, US915 AS923, AU915, KR920, IN865, AS920
LoRaWAN Version	<ul style="list-style-type: none"> LoRaWAN V1.0.2
Range	<ul style="list-style-type: none"> Urban: 2~4km Suburb: 5~10km Open Area: 15km
Node Numbers	<ul style="list-style-type: none"> 500 nodes/km2
Transmitting	<ul style="list-style-type: none"> 25dBm (Max), typical 23 dBm
Receiving	<ul style="list-style-type: none"> -139dBm(Min)@SF12, BW 125KHz
Power Supply	<ul style="list-style-type: none"> DC 3.3 ± 5%
Hardware Interface	<ul style="list-style-type: none"> Mini-PCIE with metal cooling fin
Software Interface	<ul style="list-style-type: none"> USB/SPI
LED	<ul style="list-style-type: none"> 1*LED for PA_EN 1*LED LNA_EN
USB	<ul style="list-style-type: none"> USB2.0 USB-to-SPI bridge: FT2232H
Antenna	<ul style="list-style-type: none"> iPEX LoRa Antenna
Power Consumption	<ul style="list-style-type: none"> TX (Max): 440 mA RX(All channels): 470mA Idle: 68 uA
Working Environment	<ul style="list-style-type: none"> Indoor/Outdoor
Physical Dimension	<ul style="list-style-type: none"> Dimension (L x W x H): 50.95 x 30 x 11 mm (PCB) Weight: Approximately 0.59~0.6 oz
Temperature Range	<ul style="list-style-type: none"> Normal Operation Temperature: -20°C ~ +65°C Extended Temperature: -40°C ~ +85°C Storage Temperature:- 40°C ~ +85°C
Compliance	<ul style="list-style-type: none"> FCC, CE

Order Information

Part Number	Package	Description
RAK2247-0X-R01	Single piece retail package	RAK2247-SPI, 433/470/868/915/923/920/865 MHz
RAK2247-0X-C10	10-piece board and LoRa antenna carton package	RAK2247-SPI, 433/470/868/915/923/920/865 MHz
RAK2247-1X-R01	Single piece retail package	RAK2247-USB, 433/470/868/915/923/920/865 MHz
RAK2247-1X-C10	10-piece board and LoRa antenna carton package	RAK2247-USB, 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 turnover. For more information, visit RAKwireless website at www.rakwireless.com.

Copyright © 2018 Shenzhen RAKwireless Technology Co. Ltd. All rights reserved. RAKwireless, RAK logo, and WisKey™ logo are registered trademarks of Shenzhen RAKwireless Technology Co. Ltd. All other trademarks are the property of their respective owners. Revision: V1.0