



WisTrio LoRa Tracker

96Boards IoT Standardization

RAK5205



Package Content



RAK5205 board
(1x)



LoRa Modem Antenna
(1x)



GPS Antenna
(1x)



Micro USB cable
(1x)

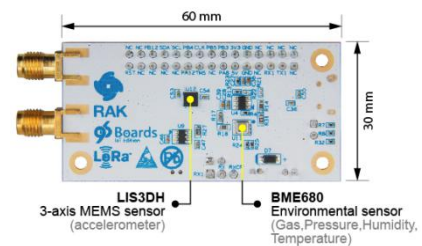
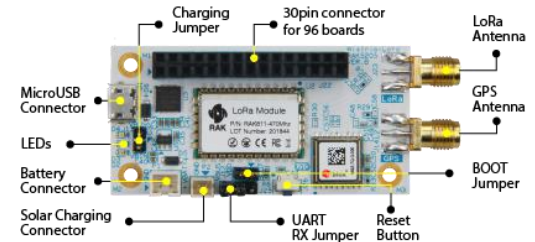
Product Description

The RAK5205 LoRa tracker board is built on SX1276 LoRaWAN modem with low power microcontroller STM32L1, integrated the GPS module. It is a feature-packed sensor board that provides various interfaces for featured applications development.

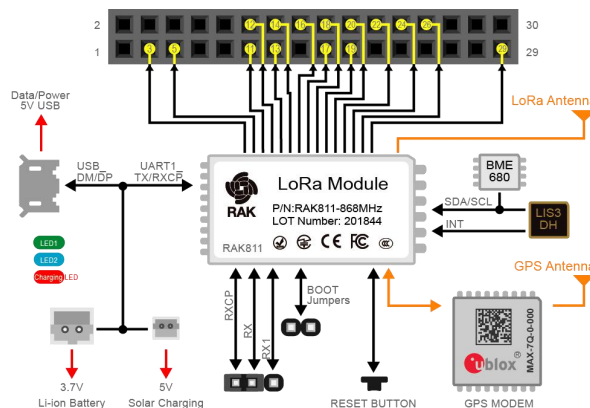
This is the best sensor board available in the market, ideal as a quick prototyping tool for Internet-of-Things and LoRaWAN Network integration. It is perfect for IoT applications such as asset tracking, smart vehicle management and location-based services. Most importantly, application development environments such as the CooCox IDE and Keil are all supported, users can quickly develop own applications.

Product Features

- Compatible with 96Boards IoT Edition Specification.
- With SX1276 LoRa long range and Ublox Max 7Q GPS modems which allow to enable the GPS low power mode.
- Integrated the ultra-low power microcontroller ARM Cortex-M3 STM32L1.
- Built-in environmental sensor BME680 (gas, pressure, humidity, temperature) and 3-axis MEMS sensor LIS3DH (accelerometer).
- SMA/iPEX antenna optional for LoRa and GPS.
- Supports latest LoRaWAN 1.0.2 protocol, activation by OTAA/ABP.
- Supports programmable bit rate up to 300kbps.
- Supports rechargeable battery through micro USB or 5V solar charging ports.
- Supports sleep mode, the power consumption down to 14.5µA.
- Supports global license-free ISM band.
- Supports I2C, GPIOs, UART and ADC interfaces.



Functional Diagram



PIN DEFINITIONS:

- | | | | |
|----|-----------|----|-----------|
| 3 | UART1_TX | 18 | SWD_CLK |
| 5 | UART1_RX1 | 19 | LED1 GPIO |
| 11 | 5V OUT | 20 | LED2 GPIO |
| 12 | 3V3 OUT | 22 | I2C |
| 13 | GPIO | 24 | I2C |
| 14 | GPIO | 26 | ADC |
| 16 | GPIO | 29 | RESET |
| 17 | SWD_TMS | | |



Key Features:

LoRa Module	<ul style="list-style-type: none"> • RAK811 (SX1276 LoRaWAN modem and integrated the ultra-low power microcontroller ARM Cortex-M3 STM32L1)
GPS Module	<ul style="list-style-type: none"> • Ublox Max 7Q modem
Environmental Sensor	<ul style="list-style-type: none"> • BME680 (Gas, Pressure, Humidity, Temperature)
3-axis MEMS Sensor	<ul style="list-style-type: none"> • LIS3DH (accelerometer)
Frequency	<ul style="list-style-type: none"> • EU433, CN470, EU868, US915 • AS923, AU915, KR920, IN865
LoRaWAN Version	<ul style="list-style-type: none"> • LoRaWAN V1.0.2
Activation Way	<ul style="list-style-type: none"> • ABP and OTAA
Transmitting	<ul style="list-style-type: none"> • 20dBm (Max)
Receiving	<ul style="list-style-type: none"> • -130dBm (Min)
Peripheral Interface	<ul style="list-style-type: none"> • Micro USB (5V) • 30-pin 96Boards Headers (UART, RESET, GPIOs, I2C, ADC) • 2-pin USB Boot jumper • 3-pin UART RX jumper • 2-pin Battery female interface (3.7V) • 2-pin Solar Panel female interface (5V) • Reset Button
LED	<ul style="list-style-type: none"> • Red: the Li-ion Battery charging Status Indication • Green: The Status can be defined by user • Blue: The Status can be defined by user
Antenna Interface	<ul style="list-style-type: none"> • RP-SMA Male connector of LoRa Antenna(optional iPEX connector) • SMA Female connector of GPS Antenna(optional iPEX connector)
Power Consumption	<ul style="list-style-type: none"> • Sleep mode: 14.5μA (Min) • Normal mode: 174mA (Max) @ 20dBm and GPS enable
Software	<ul style="list-style-type: none"> • Support open source code • Enhanced AT commands • Driver support for Windows
Working Environment	<ul style="list-style-type: none"> • Outdoor
Physical Dimension	<ul style="list-style-type: none"> • Dimension (L x W x H): 60mm x 30mm x 11.45mm • Weight: Approximately 5.64 oz
Temperature Range	<ul style="list-style-type: none"> • Operation Temperature: -35° C ~ +60° C • Extended Temperature: -40° C ~ +80° C • Storage Temperature: -40° C ~ +80° C

Order Information

Part Number	Package	Description
RAK5205-0X-R01	Single piece retail package	SMA antenna, 433/470/868/915/923/920/865 MHz
RAK5205-0X-C10	10-piece board and LoRa/GPS antenna carton package	SMA antenna, 433/470/868/915/923/920/865 MHz
RAK5205-1X-R01	Single piece retail package	iPEX antenna, 433/470/868/915/923/920/865 MHz
RAK5205-1X-C10	10-piece board and LoRa/GPS antenna carton package	iPEX antenna, 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.

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