

RAK7266 WisGate Soho Lite Datasheet

Overview

Description

The **RAK7266 WisGate Soho Lite** is an indoor LoRaWAN® gateway from the **RAK Soho Series**, designed for versatile and compact IoT deployments. It comes with an **integrated LTE Cat 1 module** and offers **multiple backhaul options**, including **cellular (LTE)**, **Wi-Fi**, and **Ethernet**, ensuring versatile deployment options in environments with or without wired internet access.

This gateway supports **8 LoRa® channels** and onboards **2.4 GHz Wi-Fi** for easy configuration through the default Wi-Fi AP mode. An **Ethernet port** is available for wired network access when needed. The device is powered via a **stable 12V DC input**, making it well-suited for controlled indoor environments such as smart panels, utility cabinets, or fixed installations.

Depending on the variant, LTE antennas may be **internal** or **externally connected via RP-SMA connectors**, allowing users to select the best option for signal conditions and installation constraints.

Running on **WisGateOS 2** — RAK's secure, modular, OpenWrt-based firmware — the RAK7266 provides access to a wide range of features such as extension modules, a built-in LoRaWAN® Network Server, and advanced system diagnostics. It also supports integration with **WisDM** for centralized management and fleet monitoring, making it a powerful and practical solution for LTE-based indoor deployments.

Features

Hardware

- **8 LoRa channels**
- Supports **2.4 GHz Wi-Fi**, with **AP mode enabled by default** for easy configuration
- **100M Base-T Ethernet port** (for network access, no PoE)
- **RP-SMA** LoRa antenna connector
- An integrated **LTE Cat 1 module** for cellular backhaul
- Multi backhaul options with **Ethernet, Wi-Fi, and Cellular**
- **Breathing light** for visual status indication

Software

- **WisGateOS 2** – A secure, OpenWrt-based OS developed by RAK for enhanced stability and flexibility.
- **Extension add-ons** for customized gateway functionality
- **WisDM** for remote management and monitoring

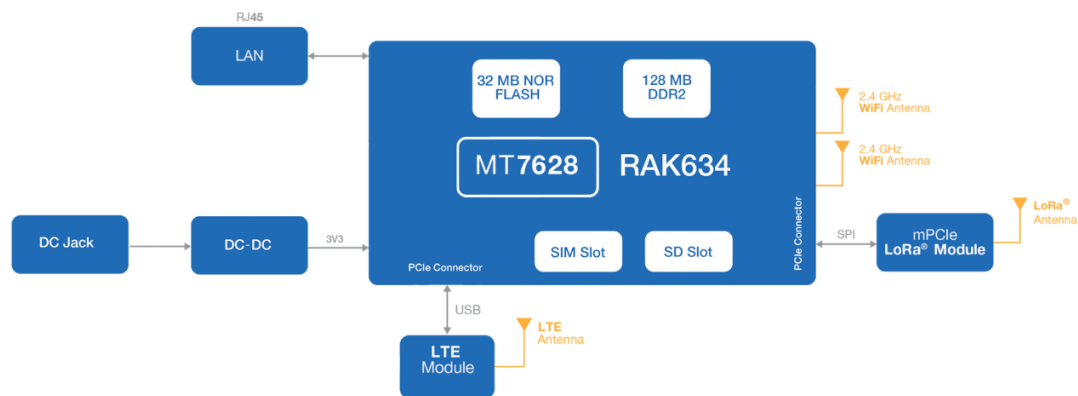
- Built-in **Network Server**
- **Basic Station** and **Packet Forwarder** modes
- **LoRa Frame Filtering** (node whitelisting in Packet Forwarder mode)
- **MQTT v3.1 Bridging** with **TLS encryption**
- LoRa frame buffering in **Packet Forwarder mode** in case of NS outage, ensuring **no data loss**

Specifications

Overview

Block Diagram

The block diagram of RAK7266 shows the internal architecture of the hardware.



Main Specifications

Feature	Specifications
Computing	MT7628, 128 MB DDR2 RAM
LoRa Feature	SX1302 / SX1303 Mini PCIe card (<i>The default configuration uses the SX1302 Mini PCIe card, with an SX1303 version available upon request.</i>)
	8 Channels
	Frequency: EU868/IN865/RU864/US915/AU915/KR920/AS923-1-2-3-4/EU433/CN470
	LoRa Radio: Refer to the LoRa Radio Specifications section for detailed information.

Wi-Fi Feature	Frequency: 2.4 GHz (802.11b/g/n)
	Channels: 1-13
	Wi-Fi Radio: Refer to the Wi-Fi Radio Specifications section for detailed information.
Cellular	Nano SIM Card: 12 mm x 9 mm x 0.67 mm Supports Quectel EG915U-EU / EG915U-LA / EG915Q-NA(IoT / M2M -LTE Cat 1 module) LTE Radio: Refer to the LTE Radio Specifications section for detailed information.
Power Supply	12 V _{DC}
Antenna	LoRa: External antenna / RP-SMA connector
	Wi-Fi: Internal antenna
	LTE: Internal antenna or External antenna / RP-SMA connector
Ingress Protection	IP30
Enclosure Material	Plastic (PC+ABS)
Weight	0.3 kg
Dimensions	166 mm x 127.5 mm x 36 mm Gateway only (no antenna, no bracket)
Operating Conditions	- Operating Temperature: -10° C to + 45° C - Storage Temperature: -40° C to + 85° C - Operating Humidity: 0~95% RH non-condensing - Storage Humidity: 0~95% RH non-condensing

Installation Method	• Desktop mounting • Wall mounting (via included bracket) • Rail mounting (via included bracket)
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Hardware

The hardware specification covers the interfacing of the RAK7266 gateway and its corresponding functionalities, along with the parameters and standard values of the board.

Interfaces

The RAK7266 gateway provides several hardware interfaces, enabling various connectivity options and functionalities.



Interface Description

Interfaces	Description	Function
DC 12V	Power Input	Provides power supply for the gateway.
ETH	RJ45 (10/100 Mbps)	10/100 Mbps Ethernet interface for wired network connectivity.
Console	Type-C USB	Used for debugging.
Reset	Reset Key	Short press: Reboot the gateway. Long press (5 sec and above): Restore factory settings.

NanoSIM	NanoSIM Card Slot	Slot for a NanoSIM card, enabling cellular connectivity.
TF Card	SD Card Slot	A 16 GB SD card is pre-installed in the gateway for data logging, system configurations, and other use cases that require local storage.<div style={{borderLeft: '6px solid #f4b400', backgroundColor: '#fff8e1', padding: '12px', borderRadius: '6px', color: '#5f370e', fontFamily: 'sans-serif' }}><strong style={{display: 'inline-flex', alignItems: 'center', fontSize: '16px' }}> ⚠ WARNINGDo not eject the SD card located in the SD card slot during installation, as it stores logs and data essential for the device's performance.
LEDs	Status Indicator LEDs	
LoRa	LoRa Antenna Connector	RP-SMA connector for external LoRa antenna, enabling LoRaWAN communication.
MAIN	LTE Antenna Connector	RP-SMA connector for external LTE antenna.
AUX	Reserve	-

LED Indicators Details

Interfaces	Description	Function
DC 12V	Power Input	Provides power supply for the gateway.
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		data logging, system configurations, and other use cases that require local storage. ⚠ WARNING Do not eject the SD card located in the SD card slot during installation, as it stores logs and data essential for the device's performance.
LEDs	Status Indicator LEDs	• PWR LED • LoRa LED • WLAN LED • LTE LED • Breathing LED • ETH LED
LoRa	LoRa Antenna Connector	RP-SMA connector for external LoRa antenna, enabling LoRaWAN communication.
MAIN	LTE Antenna Connector	RP-SMA connector for external LTE antenna.
AUX	Reserve	-

RF Specifications

LoRa Radio Specifications

Parameter	Specifications
Operating Frequency	EU868/IN865/RU864/US915/AU915/KR920/AS923-1/2/3/4/EU433/CN470
Transmit Power	27 dBm (Max)
Receiver Sensitivity	-139 dBm (Min)

Wi-Fi Radio Specifications

Parameter	Specifications
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Wireless Standard	IEEE 802.11 b/g/n
Operating Frequency	ISM band: 2.412-2.472 GHz
Operation Channels	2.4 GHz: 1-13
Transmit Power (The max power maybe different depending on local regulations): per chain	802.11b • 19 dBm @ 1 Mbps • 19 dBm @ 11 Mbps
	802.11g • 18 dBm @ 6 Mbps • 16 dBm @ 54 Mbps
	802.11n (2.4 GHz) • 18 dBm @ MCS0 (HT20) • 16 dBm @ MCS7 (HT20) • 17 dBm @ MCS0 (HT40) • 15 dBm @ MCS7 (HT40)
Receiver Sensitivity (Typical)	802.11b • -95 dBm @ 1 Mbps • -88 dBm @ 11 Mbps
	802.11g • -90 dBm @ 6 Mbps • -75 dBm @ 54 Mbps
	802.11n (2.4 GHz) • -89 dBm @ MCS0

	(HT20) • -72 dBm @ MCS7 (HT20) • -86 dBm @ MCS0 (HT40) • -68 dBm @ MCS7 (HT40)
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LTE Radio Specifications

Module / Region	Supported Bands
EG915U-EU for EMEA/Brazil/Australia/New Zealand Region	LTE FDD: B1 / B3 / B5 / B7 / B8 / B20 / B28 GSM: B2 / B3 / B5 / B8
EG915U-LA for Latin America Region	LTE FDD: B2 / B3 / B4 / B5 / B7 / B8 / B28 / B66 GSM: B2 / B3 / B5 / B8
EG915Q-NA for North America Region	LTE FDD: B2 / B4 / B5 / B12 / B13 / B66 / B71

Software

The RAK7266 gateway runs on WisGateOS 2, a robust software platform designed for efficient network management and integration. Below are the key software features and capabilities:

For more detailed information on software configurations and usage, refer to the [WisGateOS 2 User Guide](#).

Category	Feature	Description
LoRaWAN and Network Management	LoRaWAN Packet Forwarding	Supports Packet Forwarder and Basic Station configurations
	Built-in Server	Local LoRaWAN Network Server (LNS) integrated into the gateway for network management
	Frequency Band Setup	Configurable with different LoRaWAN frequency bands based on deployment region

	TX Power Setup	Adjustable transmit power for optimal network performance
	Automatic Data Recovery	Ensures reliable data transmission even during network disruptions
	Server Address and Port Setup	Custom configuration for LoRaWAN Network Server communication
	Supports LoRaWAN Class A and C	Fully compatible with LoRaWAN devices operating in Class A and C
	Uplink Backup	Enables automatic switchover to a backup uplink (e.g., LTE or Wi-Fi) when the primary uplink fails.
	Location Setup	Manual or automatic setup of gateway location (e.g., GPS coordinates)
Connectivity and Network Services	Wi-Fi Client/AP Mode	Connect to existing network or act as an access point
	DHCP Server/Client	Dynamic IP address allocation for both server and client roles
	NAT and Router Module	Enables router functionality with Network Address Translation
	WireGuard / OpenVPN	Secure communication tunnel for remote access and management
	LTE APN Setup	Configures Access Point Name for LTE connectivity
Monitoring and Security	Statistics and Data Logger	Tracks performance metrics and logs operational data
	Firewall	Provides basic firewall functions for traffic control and security

	SSH2	Secure Shell access for remote troubleshooting and management
	Ping Watchdog	Monitors connectivity and triggers recovery if the connection fails
User Interface and Management	Web UI	Web-based interface for configuration and monitoring
	WisDM	Cloud platform for remote management and monitoring
	Gateway OTA management	Over-the-air firmware management for seamless updates
	MQTT Bridge	Integration with IoT platforms using MQTT protocol
	Firmware Updates	Over-the-air updates for easy firmware upgrades
	NTP	Synchronizes the gateway system time for accurate timestamp recording

Firmware

The firmware is built on **OpenWrt**, providing a flexible and secure foundation for the gateway. It features an intuitive **web UI** for straightforward configuration and management, as well as **SSH2** support for remote management. **WisGateOS 2** also supports the installation of various extensions, including **OpenVPN**, **WireGuard**, and custom logo configurations. For more details on available extensions, refer to the [WisGateOS 2 Extensions Guide](#).

Model	Source
RAK7266 WisGate Soho Lite	Download

Compliance information

CE

Operating frequency range:

Technology		Frequency band [MHz]	Maximum RF output power (dBm)
LoRa		863-865, 865-868, 868-868.6, 868.7-869.2, 869.7-870	14
		869.4-869.65	27
WLAN 802.11 b/g/n		2400-2483.5	20
GSM 900		880-915(TX), 925-960(RX)	35
GSM 1800		1710-1785(TX), 1805-1880(RX)	32
LTE	Band 1	1920-1980(TX), 2110-2170(RX)	25
	Band 3	1710-1785(TX), 1805-1880(RX)	25
	Band 7	2500-2570(TX), 2620-2690(RX)	25
	Band 8	880-915(TX), 925-960(RX)	25
	Band 20	832-862(TX), 791-821(RX)	25
	Band 28	703-748(TX), 758-803(RX)	25

SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, Shenzhen RAKwireless Technology Co.,Ltd. declares that the radio equipment type RAK7266 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:



Correct Disposal of this product. This marking indicates that this product should not be disposed of with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.

Manufacturer:

Shenzhen RAKwireless Technology Co.,Ltd.

Room 506, Building B, New Compark, Pingshan First Road, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China

FCC:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution:

Changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 30cm between the radiator and any part of your body.

ISED:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 30cm between the radiator and any part of your body.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 30 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes.