

RAK7258 WisGate Edge Lite Datasheet

Overview

Description

The **RAK7258 WisGate Edge Lite** is a full 8-channel gateway with built-in Ethernet connectivity for a straightforward setup. Additionally, there is an on-board Wi-Fi setup that allows it to be easily configured via the default Wi-Fi AP mode.

As with the other RAKwireless Industrial Gateways, it also supports MQTT Bridge mode, with the option for TLS authentication.

Power-over-Ethernet (PoE) is supported to serve cases where wall or ceiling mounting is required without the need to install additional power lines.

The open source software for the management and configuration of this gateway device is based on OpenWRT. It has a built-in LoRa packet forwarder and a graphical user interface, allowing for a quick set-up without giving up the freedom of a fully customized solution.

The Gateway has Line-of-Sight (LoS) ranges of up to **15 kilometers**, while for highly urbanized environments it can cover more than **2 kilometers**. It is a perfect solution for any LoRaWAN use case scenario.

The RAK7258 WisGate Edge Lite package includes a LoRa antenna, mounting screws, and anchors. It is a full 8-channel gateway with built-in Ethernet connectivity for a straightforward.

Features

- Full LoRaWAN Stack support (V 1.0.3)
- 100M base-T Ethernet with **PoE (802.3 af)**
- Multi back-haul backup with **Ethernet, WiFi, Cellular** (optional LTE Cat 4)
- **OpenWRT** software supports with Web UI for easy configuration and monitoring
- Can integrate with both private (**ChirpStack**) and public (**TTN**) Network Servers
- Built-in LoRaServer for easy deployment of applications and integration of Gateways
- TF card for log backup

Specifications

Overview

The overview shows the circuit board of RAK7258. It also presents the block diagram that shows the internal architecture of the board.

Circuit Board (Main Electronic Circuit Board)

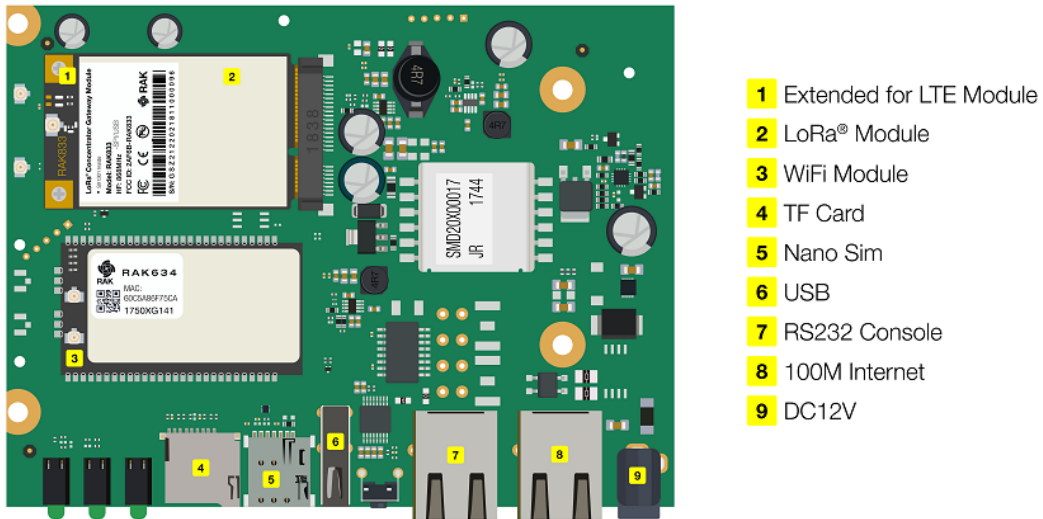


Figure 1: RAK7258 WisGate Edge Lite Circuit Board

Block Diagram

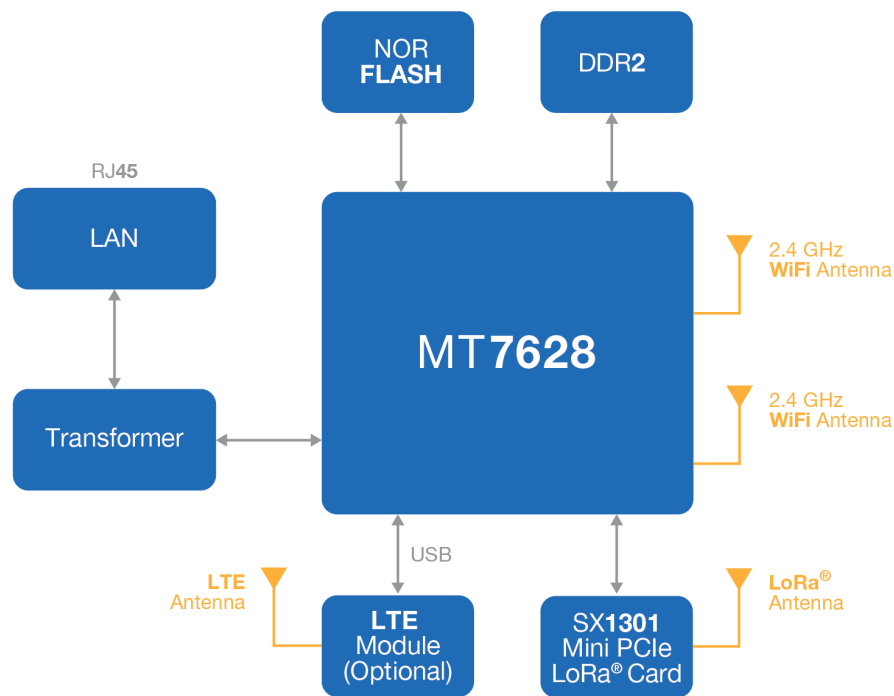


Figure 2: RAK7258 WisGate Edge Lite Block Diagram

Hardware

The hardware specification covers only the interfacing of the RAK7258 and its corresponding functionalities. It also presents the parameters and the standard values of the board.

Interfaces

The hardware interfaces of RAK7258 WisGate Edge Lite include DC 12V, ETH interface, Console interface, Reset key, USB port, Nano SIM slot, TF Card slot, six (6) Status indicator LEDs, LoRa Antenna connector etc. as shown in the following figure.

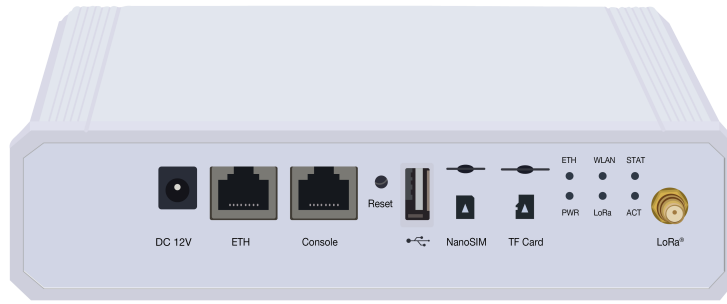


Figure 3: RAK7258 WisGate Edge Lite Hardware Interfaces

Reset Key Functions

The function of the **Reset** key is as follows:

1. **Short press:** Restarts the Gateway
2. **Long press (5 seconds and above):** Restore Factory Settings

The status of the LEDs is described as below:

LEDs	Status Indication Description
PWR	Power Indicator, Led on when device power on
ETH	ON: linkup OFF: linkdown Flash: Data Transmitting and Receiving
LoRa	ON: LoRa1 is working OFF: LoRa1 is not working Flash: Indicate that LoRa1 Packet receiving and sending
ACT	Expanded Led indicator, useless
STAT	Expanded Led indicator, useless
WLAN	AP Mode : ON: WLAN is working Flash: Data Transmitting and Receiving STA Mode : Slow Flash (1Hz): Connection Disconnected ON: Connection Successful Flash: Data Receiving and Sending

Main Specifications

Feature	Specifications
Computing	MT7628, DDR2RAM 128MB
Wi-Fi Feature	<ul style="list-style-type: none"> • Frequency: 2.400-2.4835GHz(802.11b/g/n) • RX Sensitivity: -95dBm (Min), • TX Power: 20dBm (Max) • Operation Channels: 2.4GHz: 1-13
LoRa Feature	<ul style="list-style-type: none"> • SX1301 Mini PCIe card • 8 Channels • RX Sensitivity: -139 dBm (Min) • TX Power: 27 dBm (Max) • Frequency: EU433 / CN470 / EU868 / US915 / AS923 / AU915 / IN865 / KR920
Cellular	<p>Supports Quectel EG95-E / EG95-NA(IoT/M2M-optimized LTE Cat 4 Module), nonsupport by default</p> <p>EG95-E for EMEA Region :</p> <ul style="list-style-type: none"> • LTE FDD: B1/B3/B7/B8/B20/B28A • WCDMA: B1/B8 • GSM/EDGE: B3/B8 <p>EG95-NA for North America Region :</p> <ul style="list-style-type: none"> • LTE FDD: B2/B4/B5/B12/B13 • WCDMA: B2/B4/B5
Power Supply	<ul style="list-style-type: none"> • DC 12 Volts - 1 Ampere • POE (IEEE 802.3af), 42~57 VDC
Power Consumption	12 Watts (typical)
Ethernet (ETH)	RJ-45(10/100M)
Console	RJ-45 (RS232)
Antenna	<ul style="list-style-type: none"> • LoRa: RP-SMA Female Connector • Wi-Fi: Internal Antenna
LEDs	LoRa LED(1), Cellular LED (2), POWER LED(1), ETH LED(1), WiFi LED(1)
Ingress Protection	IP30
Enclosure Material	Plastics
Weight	0.3 kg
Dimension	180 mm x 120 mm x 43 mm
Operating Temp	-10 to 55 °C
Installation method	Wall mounting

RF Specifications

LoRa Radio Specifications

Feature	Specifications
Operating Frequency	EU433 / CN470 / EU868 / US915 / AS923 / U915 / IN865 / KR920
Transmit Power	27 dBm (Max)
Receiver Sensitivity	-142 dBm (Min)

Wi-Fi Radio Specifications

Feature	Specifications
Wireless Standard	IEEE 802.11b/g/n
Operating Frequency	ISM band: 2.412~2.472(GHz)
Operation Channels	2.4GHz: 1-13
Transmit Power (Max power on local regulations) -per chain	802.11b <ul style="list-style-type: none"> • 1Mbps: 19dBm • 11Mbps: 19dBm
	802.11g <ul style="list-style-type: none"> • 6Mbps: 18dBm • 54Mbps: 16dBm
	802.11n(2.4G) <ul style="list-style-type: none"> • MCS0 (HT20): 18dBm • MCS7 (HT20): 16dBm • MCS0 (HT40): 17dBm • MCS7 (HT40): 15dBm
Receiver Sensitivity (Typical)	802.11b <ul style="list-style-type: none"> • 1Mbps: -95dBm • 11Mbps: -88dBm
	802.11g <ul style="list-style-type: none"> • 6Mbps: -90dBm • 54Mbps: -75dBm
	802.11n(2.4G) <ul style="list-style-type: none"> • MCS0 (HT20): -89dBm • MCS7(HT20): -72dBm • MCS0(HT40): -86dBm • MCS7(HT40): -68dBm

Software

RAK7258 supports software in LoRa, Network and Management. Supported features are shown in the table below.

Software Features

LoRa	Network	Management
Supports class A, C	WiFi AP mode	WEB Management
LoRa package forward	LTE APN setup	Supports SSH2 , NTP
Country code setup	Uplink backup	Firmware update
TX power up setup	Supports 802.1q	Supports configure the LoRa Packet Forwarder
Datalogger	DHCP Server/Client	Supports Build-in LoRa Server
Statistic	Router module NAT	Supports OpenVPN, Ping Watch Dog
Location setup	Firewall	Supports MQTT Bridge
Server address and port setup		

Models / Bundles

Order Information

Part Number	Package	Description
RAK7258-01-R01	1x RAK7258, 1x LoRa Antenna and 1x Power Adapter retail package	LoRa 8RX EU433
RAK7258-02-R01	1x RAK7258, 1x LoRa Antenna and 1x Power Adapter retail package	LoRa 8RX CN470
RAK7258-03-R01	1x RAK7258, 1x LoRa Antenna and 1x Power Adapter retail package	LoRa 8RX EU868
RAK7258-04-R01	1x RAK7258, 1x LoRa Antenna and 1x Power Adapter retail package	LoRa 8RX US915
RAK7258-06-R01	1x RAK7258, 1x LoRa Antenna and 1x Power Adapter retail package	LoRa 8RX AS923

Certification

