

Gateway user guide

Gateway User Guide

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Document Information

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Version	Date	Description
V1.0	2026-10-15	Initial version

Product Overview

The HG50 is an indoor IoT gateway built on LoRa and FLRC low-power modulation technologies, designed for large-scale end-device access and efficient, reliable data communication.

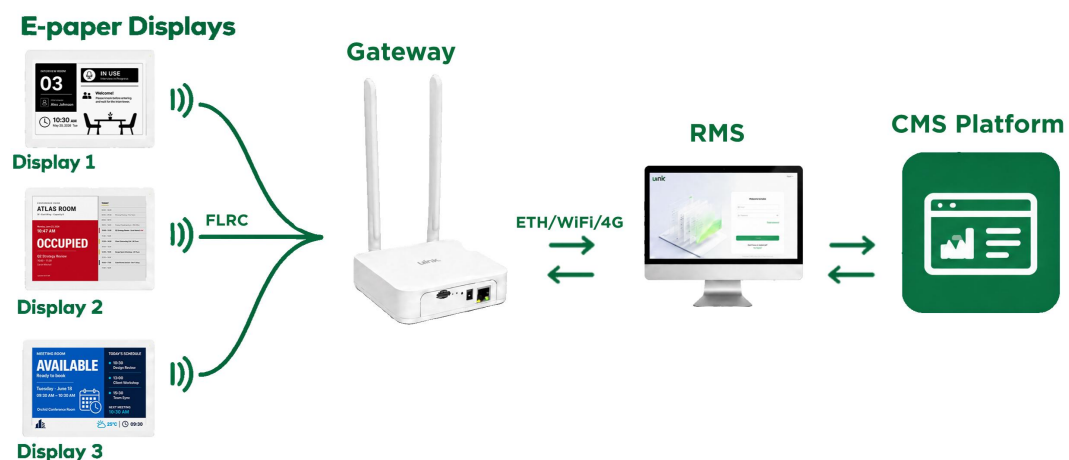
The gateway integrates a Semtech SX1302 high-performance 8-channel LoRa transceiver and an LR2021 high-performance single-channel FLRC transceiver, and supports half-duplex communication. It can connect and centrally manage up to thousands of end nodes, meeting the network coverage requirements of various indoor IoT scenarios such as smart offices, digital signage, and smart campuses.

The HG50 supports multiple network access methods, including 4G, Wi-Fi, and wired Ethernet, and can flexibly connect to the uink RMS platform, providing a stable communication foundation for end-device management, content delivery, and remote maintenance.

As one of the earliest gateway products in the industry to apply FLRC technology to e-paper display device communication, the HG50 fully leverages the advantages of FLRC in transmission distance, communication response speed, and energy efficiency, offering a more efficient wireless communication solution for e-paper devices.

Key Features

- Quad-core industrial-grade processor with 2 GB DDR4 RAM and 32 GB ROM.
- Network access: supports Ethernet, 4G cellular, and Wi-Fi.
- uink RMS for centralized remote management.
- Supports VPN, including IPsec, OpenVPN, L2TP, PPTP, DMVPN, and WireGuard.



Contents

Part 1 — App User Guide

1. App Overview
2. Adding a Gateway
3. Gateway Management
4. Gateway Details
5. Device Association
6. Network Reconfiguration

Part 2 — RMS Platform User Guide

1. RMS Overview
2. Gateway Registration and Activation
3. Gateway Management
4. Gateway Details
5. Device Management and Signal Quality
6. Remote Operations

Part 1 — Hardware Installation

1. Power & Cable Connection

Connect the power adapter to the power port, and connect the network cable to the Ethernet port.

The HG50 can also be powered by a PoE injector or directly by a PoE-enabled Ethernet device (such as a PoE switch).

2. Antenna Installation

Screw the antenna into the antenna connector, with the antenna generally pointing upward.

3. LED Indicator Status

LED	Indicator	Status	Description
power	Power status	Off	Power disconnected
		Solid on	Power connected
status	System status	Red	System error
		Green	Solid on: the system is working normally
lora	LoRa status	Off	Packet forwarding mode is not running
		Green	Packet forwarding mode is running normally
ETH	Ethernet access status	Off	Not connected or disconnected
		Solid on	Connected

Part 2 — App User Guide

1. App Overview

The app provides a mobile interface for discovering, configuring, and managing gateways. Initial gateway discovery and local network configuration use Bluetooth Low Energy (BLE) technology.

- Discover nearby gateways over BLE.
- Configure DHCP or static IP network parameters.
- View gateway status and detailed information.
- Bind or unbind LoRa devices.
- Reconfigure gateway network settings.
- Remove a gateway from the account.

2. Adding a Gateway

2.1 Access Path

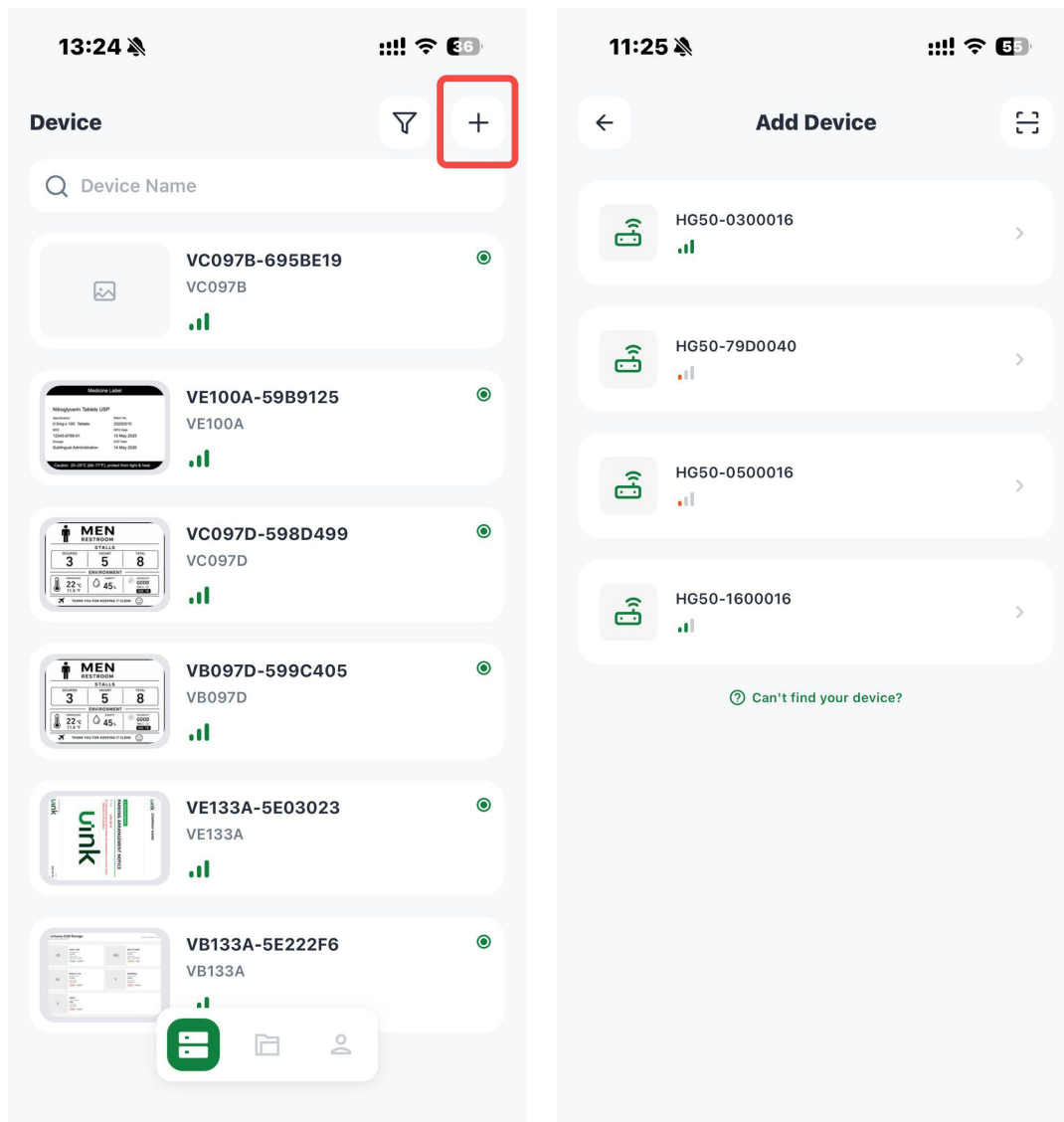
Function	Path
Add Gateway	Device list → “+” → Bluetooth scan → Discover gateway
Manage Gateways	Profile → Gateway Management

Gateway setup follows the same entry pattern as device setup. Start the process from the “+” entry in the device list. Gateway management can be found under “Profile”.

2.2 BLE Discovery

1. Open the device list.
 2. Select “+”.
 3. Bring the mobile device close to a powered-on gateway.
 4. Select the target gateway from the scan results.
- Bluetooth permission must be enabled.
 - The gateway must be powered on.

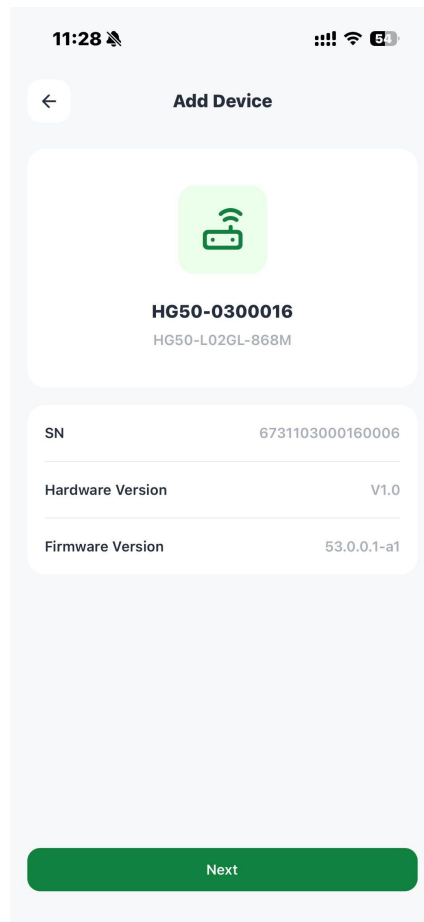
- Keep the mobile device close to the gateway during configuration.



2.3 Verifying Gateway Information

Field	Description
Model	Gateway model
SN	Gateway serial number
Firmware version	Current firmware version

Before continuing, verify that the model, SN, and firmware information are correct.



2.4 Configuring the Network

The app supports DHCP and static IP configuration.

Parameter	DHCP mode	Static IP mode
IP address	Assigned automatically; read-only	Required
Subnet mask	Assigned automatically; read-only	Required; default value 255.255.255.0
Default gateway	Assigned automatically; read-only	Required
DNS	Default value 8.8.8.8; editable	Default value 8.8.8.8; editable

IPv4 validation rule: four dot-separated numeric segments; each segment must be between 0 and 255.

11:30

← Gateway configuration

IP Acquisition Method

DHCP

DNS

8.8.8.8

Next

11:30

← Gateway configuration

IP Acquisition Method

Static IP

IP Address

IP Address is required

Subnet Mask

255.255.255.0

Gateway

Gateway is required

DNS

8.8.8.8

Next

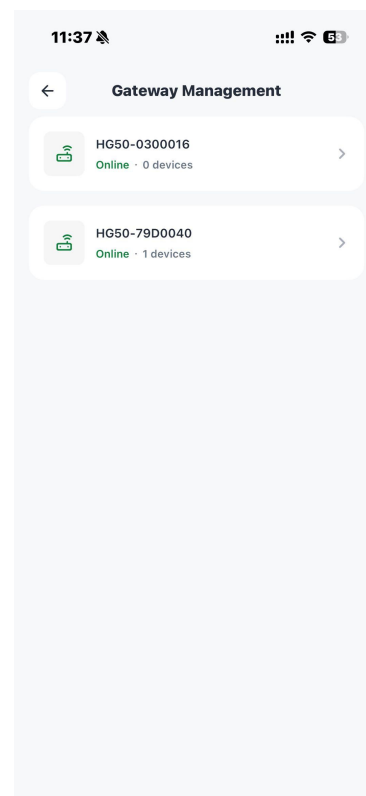
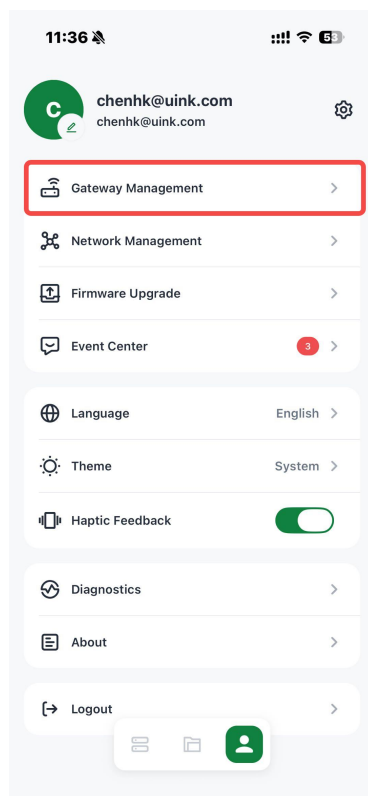
2.5 Completing Gateway Setup

1. Enter a gateway name.
2. Enter a gateway description (optional).
3. Submit the configuration.
4. Wait for the gateway to connect to the network and the server.
5. Confirm that the gateway status changes to Online.

3. Gateway Management

3.1 Gateway Management List

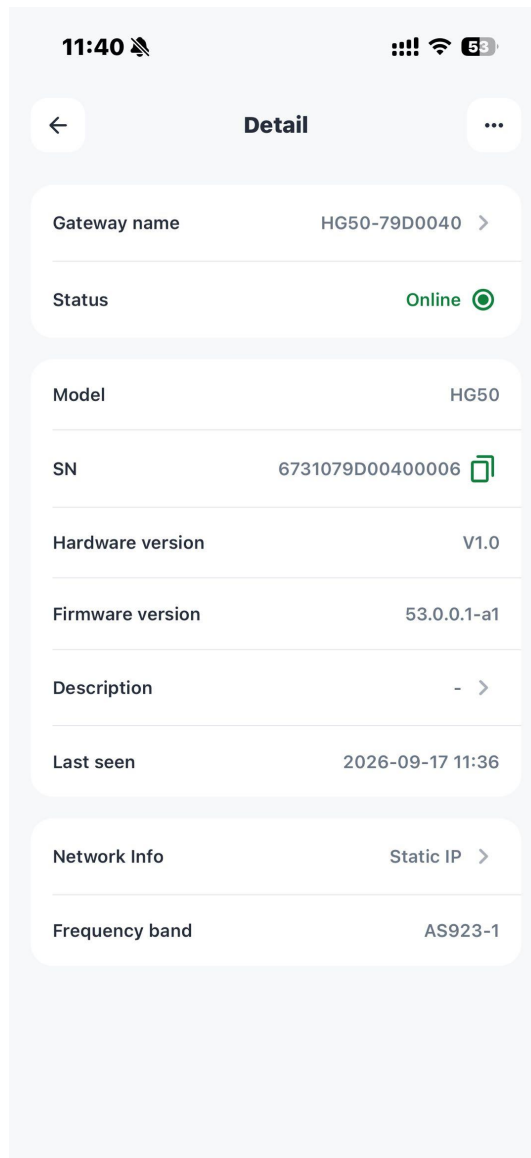
Area	Description
Header	Back button and the “Gateway Management” title
Gateway card	Gateway name, status, and number of associated devices
Sorting	Sorted by added time in ascending order
Empty state	Illustration: “No Gateway” and “Add Gateway”
Refresh	Pull down to fetch the latest gateway status



3.2 Gateway Details

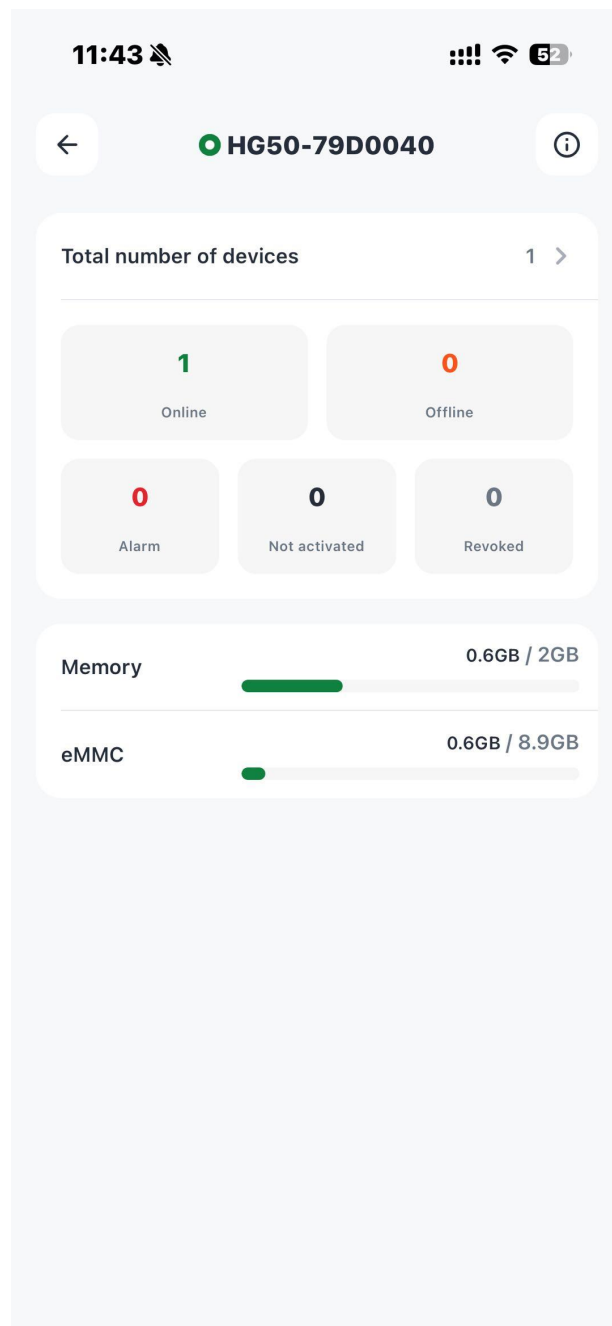
The gateway details page displays the status, gateway name, information details, associated device information, and resource usage.

Section	Field	Description
Basic Information	Gateway name	Editable
Basic Information	Status	Read-only
Basic Information	SN	Read-only; click to copy
Basic Information	Model	Read-only
Basic Information	Hardware version	Read-only
Basic Information	Firmware version	Read-only; an update indicator may be displayed
Basic Information	Description	Editable; optional
Basic Information	Last online time	Displayed only when offline
Network Information	IP address / Subnet mask / Default gateway / DNS	Displayed according to the configured network
Network Information	Frequency band / Channel	Displayed



3.3 Resource Usage

Resource	Display	Warning rule
Memory	Progress bar with used/total values	<70% Normal; 70–90% Warning; ≥90% Critical
Storage (eMMC)	Progress bar with used/total values	<70% Normal; 70–90% Warning; ≥90% Critical



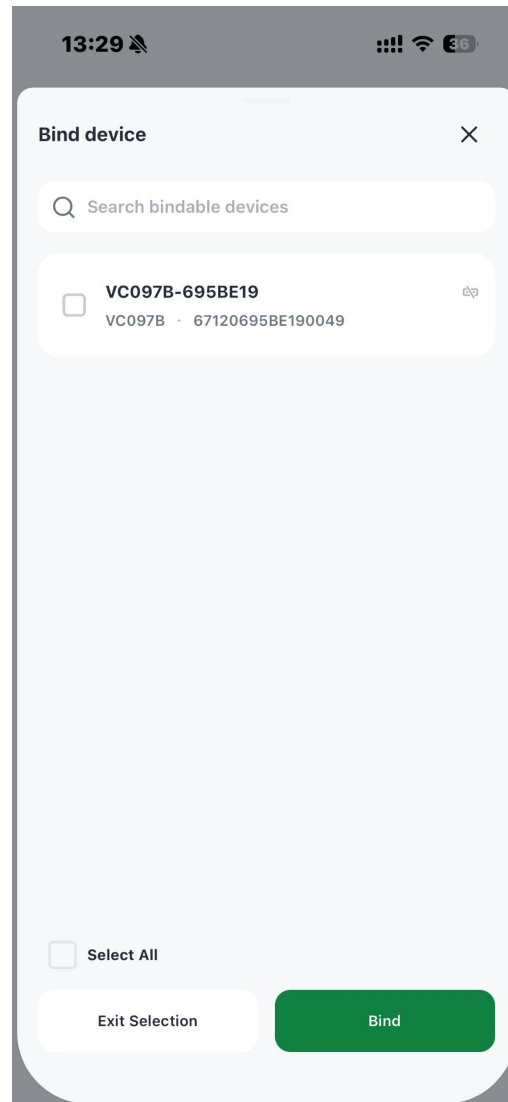
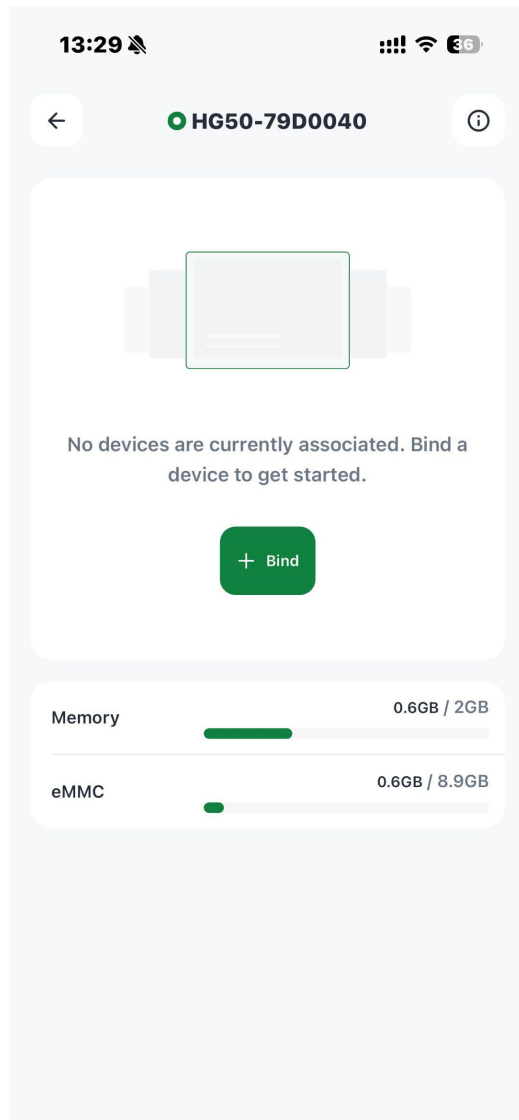
4. Device Association

4.1 Viewing Associated Devices

Field	Description
Device name	Device display name
Status	Current device status
RSSI	Received signal strength
SNR	Signal-to-noise ratio
Last report time	The latest report submitted through the gateway

4.2 Binding Devices

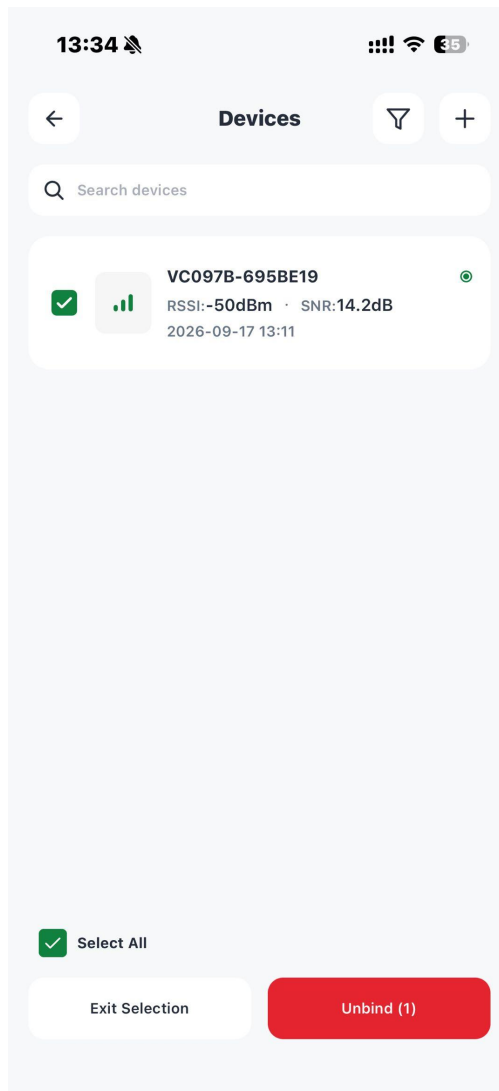
1. Open the gateway details.
2. Open device management.
3. Select “Bind Device”.
4. Select one or more available unbound LoRa devices.
5. Select “Confirm Binding”.
6. The device appears in the associated device list 1 to 3 minutes after binding succeeds.



4.3 Unbinding Devices

1. Open the associated device list.
2. Long-press one or more devices.
3. Select "Unbind".
4. Review the confirmation message.
5. Select "Confirm".

After unbinding, the device is removed from the list and its status changes to Unbound. The device can no longer report data through this gateway.

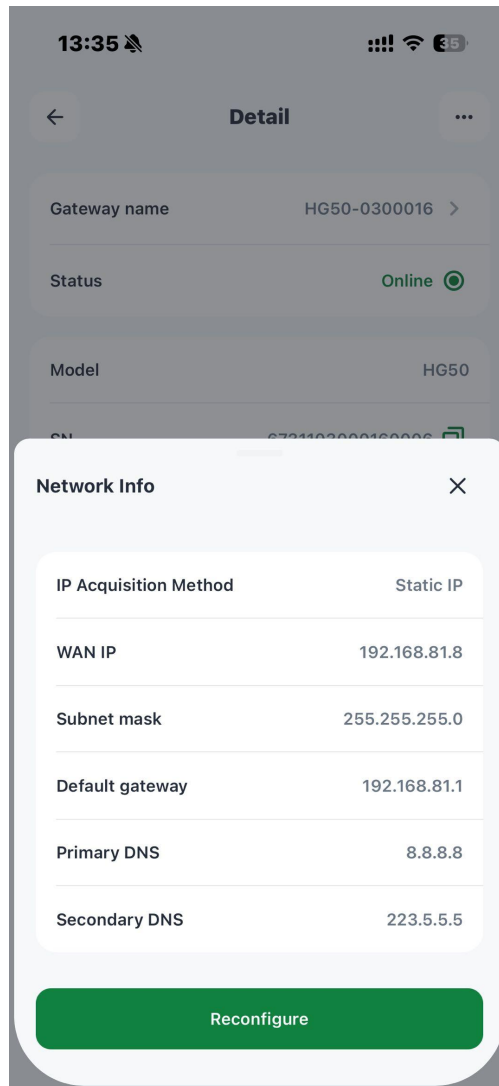
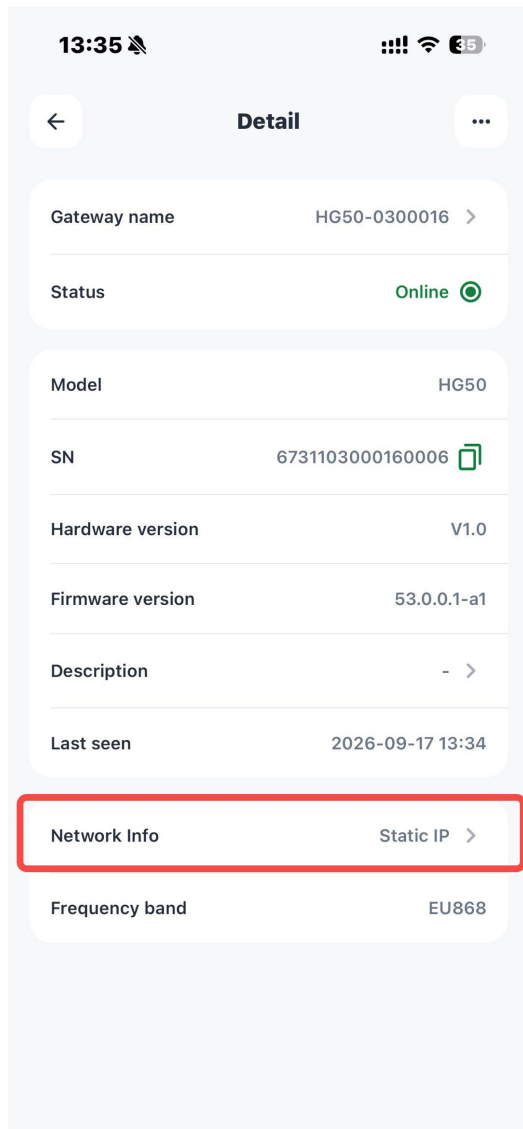


5. Network Reconfiguration

Network reconfiguration is performed over BLE.

1. Open the gateway details.
2. Open network information.
3. Select “Reconfigure”.
4. Make sure Bluetooth is enabled and the gateway is powered on.
5. Connect to the gateway over BLE.
6. Configure DHCP or a static IP.
7. Save the configuration.
8. Wait for the gateway to reconnect, then verify the updated network information.

Do not power off the gateway during configuration. Incorrect network parameters may cause the gateway to go offline.



6. Deleting a Gateway

- Open the gateway details page, then select “...” → “Delete Gateway”.
- If devices are associated, the app displays a warning that these devices will lose their gateway association.
- Select “Cancel” or “Confirm Delete”.
- If no devices are associated, complete the second confirmation.

Part 3 — RMS Platform User Guide

1. RMS Overview

RMS gateway management monitors the operational status of the communication path between the platform and LoRa devices. Because LoRa devices have no IP addresses, the gateway is the physical communication path used by the platform.

Purpose	Description
Channel availability	Determines whether the gateway can be used for device control.
Fault isolation	Distinguishes gateway-layer issues from device-layer issues.
Coverage assessment	Uses communication information to identify weak-coverage areas or scenarios that require additional gateways.

2 Gateway Status

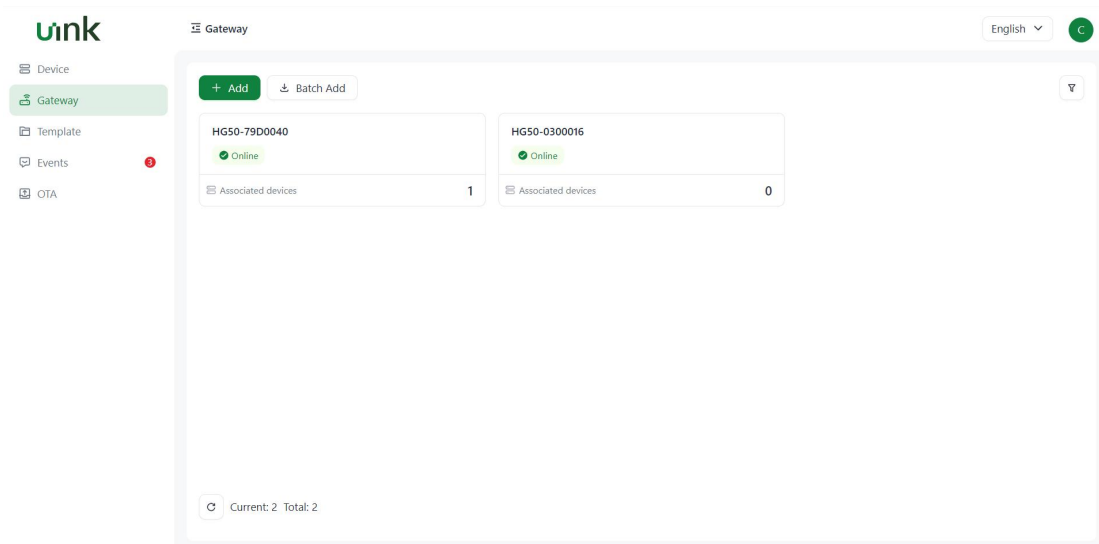
Status	Color	Description
Inactive	Gray	Pre-registered but not activated
Online	Green	Connected to RMS and authenticated; communication is normal
Offline	Red	Offline for 5 consecutive minutes; associated devices may be unavailable
Alert	Orange	An abnormal state has been detected
Restarting	Blue	The gateway is restarting

		after receiving a remote restart command
Revoked	Gray	The gateway is invalid in the current account; only deletion is allowed

3. Gateway Management

3.1 Gateway List

The RMS gateway list uses a card layout. Each card displays the gateway name, status, description, and the number of associated devices.



3.2 Refreshing Gateway Information

1. Open gateway management.
2. Use the refresh function or reload the page.
3. Wait for the latest gateway information to be displayed.

4. Gateway Details

4.1 Overview

Field	Description	Display rule
Status	Online / Alert / Offline / Inactive	Read-only; always displayed
Offline duration	Current offline duration	Available only when offline
Alert reason	Current abnormal condition, such as insufficient memory	Alert only
Memory	Available memory / Total memory	Read-only
Current connection	Ethernet/4G/Wi-Fi	Read-only
Number of associated devices	Number of associated devices	Read-only

4.2 Basic Information

Field	Rule
Name	Editable
SN	Read-only; copy supported
Description	Editable
Hardware version	Read-only
Firmware version	Read-only

4.3 Network Details

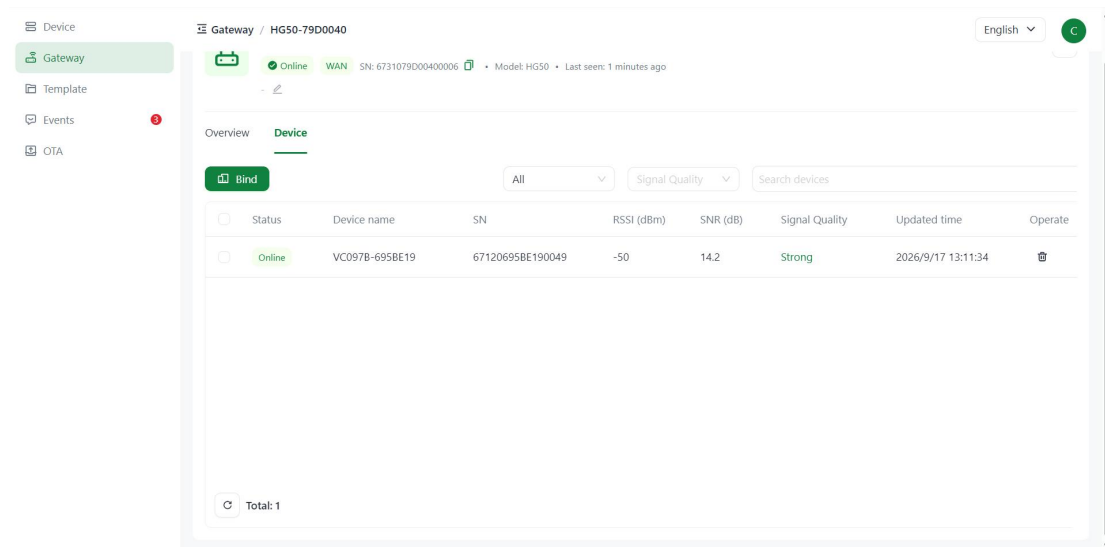
Field	Display rule
Frequency band	Always displayed; examples include CN470, EU868, and US915

Channel	Current working channel
WLAN SSID	Displayed only when the current connection is Wi-Fi
WLAN IP	Displayed only when the current connection is Wi-Fi
Cellular network status	Displayed only when the current connection is 4G

5. Device Management and Signal Quality

5.1 Device List

Field	Description
Device name	Device display name; opens the device details drawer
SN	Device serial number
Status	Online / Offline / Alert / Inactive
RSSI (dBm)	Latest received signal strength; the closer to 0 dBm, the stronger the signal
SNR (dB)	Latest signal-to-noise ratio; the higher the value, the better the performance
Signal quality	Excellent/Good/Poor, calculated from RSSI and SNR
Last report time	The latest heartbeat or data report sent through the gateway
Actions	Removes the device from the gateway



5.2 Device Search and Filtering

- Search with fuzzy matching by device name or SN.
- Filter by device status: Online, Offline, Alert, or Inactive.
- Filter by signal quality: Good, Fair, or Poor.
- Combine multiple conditions, then use “Reset” to clear them.

5.3 Signal Quality Reference

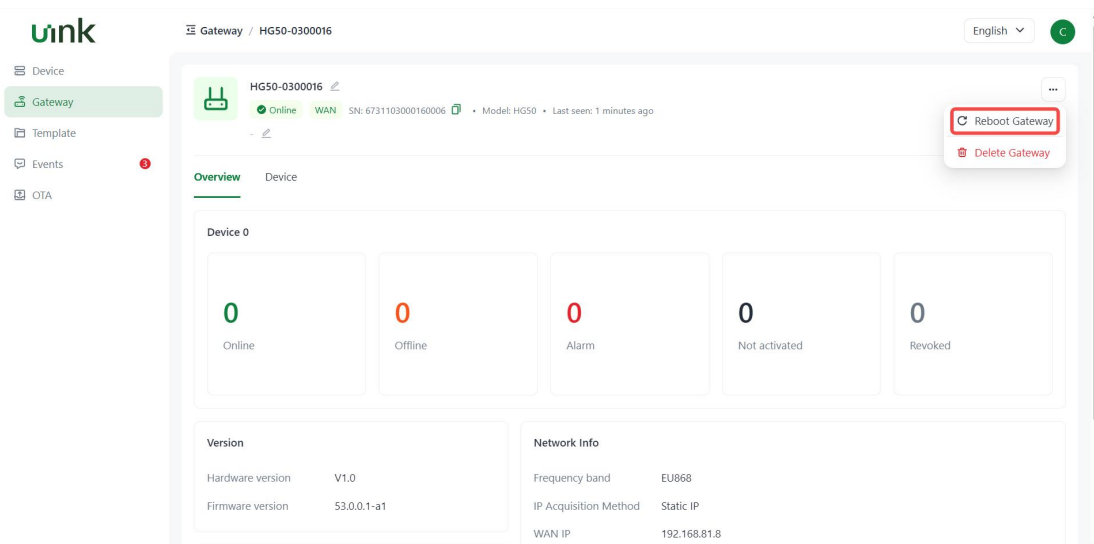
Rating	RSSI range	SNR range	Meaning
Good	≥ -85 dBm	≥ 0 dB	Strong signal; stable communication
Fair	-85 to -100 dBm	-10 to 0 dB	Signal is usable; occasional packet loss may occur
Poor	< -100 dBm	< -10 dB	Weak signal; check the gateway placement or add another gateway

The device list is sorted by last report time in descending order. During the MVP phase, RMS displays only the latest RSSI and SNR values and does not include historical trend charts.

6. Remote Operations

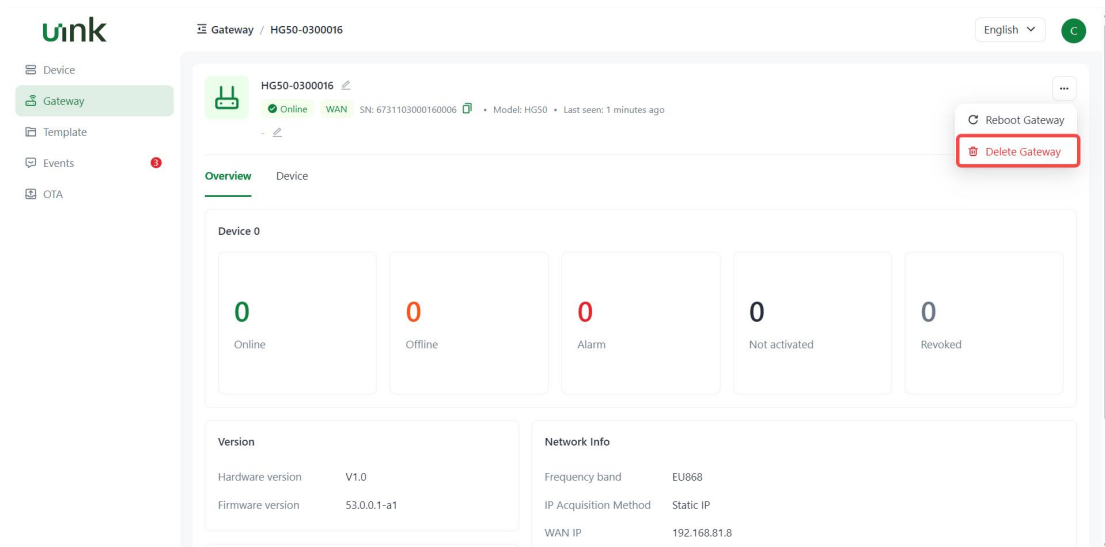
6.1 Restarting the Gateway

1. Select "...", then select "Restart Gateway".
2. Review the confirmation dialog. Associated devices will be temporarily unable to communicate, and the restart may take 1 to 3 minutes.
3. Enter the gateway SN to confirm.
4. Select "Confirm Restart".
5. The gateway status changes to "Restarting". Offline events are suppressed during the restart.
6. If the gateway recovers within 5 minutes, the status changes to Online. If it does not recover within 5 minutes, a P1 event alert is triggered.



6.2 Deleting the Gateway

Select "Delete Gateway" and complete the second confirmation. The deletion clears the gateway's history and all associated devices according to the platform rules for the account.



7. Troubleshooting

Symptom	Recommended checks
Gateway is offline	Check the power supply, network connection, network parameters, and reachability of the RMS server.
Gateway cannot be discovered over BLE	Check the Bluetooth permission, gateway power, distance, and BLE availability.
Devices cannot report data	Check the device association status, gateway status, RSSI (received signal strength indicator), SNR (signal-to-noise ratio), and physical installation.
Network reconfiguration fails	Reconnect over BLE and verify the IP address, subnet mask, default gateway, and DNS.
Gateway is unresponsive after a restart	Wait up to 5 minutes; if it is still unavailable, inspect the site and contact technical support.