

Micro Gateway Gen 2

MGW2ULU

User Manual

ubilink
Version 1.0

1. Product Overview

The Micro Gateway Gen 2 (MGW2ULU) is an IoT gateway developed by ubilink. It serves as the central hub for ubilink-based LoRa networks, connecting up to 250 end devices and relaying data to the cloud via Wi-Fi 2.4GHz.

Key Features:

- ubilink LoRa protocol for long-range, low-power IoT communication
- Supports up to 250 end devices
- Wi-Fi 2.4GHz uplink to cloud server
- Battery backup (AA battery) for power outage protection
- Enhanced antenna for improved LoRa coverage (upgraded from Gen 1)
- Easy setup via Custos Home app (iOS / Android) over Bluetooth Low Energy (BLE)
- Built-in monitoring: temperature, battery, offline, and power outage reports

2. What's in the Box

- MGW2ULU gateway unit x 1
- USB-C cable x 1
- Power adapter x 1
- Quick start guide x 1
- Non-rechargeable AA battery x 2

If any items are missing or damaged, please contact ubilink support.

3. Hardware Overview

The MGW2ULU features the following physical components:

Component	Description
USB-C Port	Power input for the gateway. Connect to the included power adapter using the USB-C cable.
RGB LED Indicator	Displays the current status of the gateway using different colors. See Section 4 for details.
Reset Button	Used for Wi-Fi reset and factory reset operations. See Section 8 for details.
AA Battery Compartment	Houses a non-rechargeable AA battery for backup power during power outages.

4. LED Indicator Guide

The RGB LED on the MGW2ULU indicates the current device status:

LED Color	Status	Description
Yellow	Not Configured	The gateway has not been set up. Follow Section 5 to configure.
Red	Wi-Fi Disconnected	The gateway has lost its Wi-Fi connection. Check your network.
Green	Wi-Fi Connected, Server Disconnected	Wi-Fi is connected but the gateway cannot reach the ubilink server.
Blue	Fully Operational	Wi-Fi and server are both connected. The gateway is working normally.
White (flashing 3x)	Rebooting	The gateway is restarting. Wait for it to complete.

5. Getting Started

Follow these steps to set up your MGW2ULU for the first time:

1. Insert a non-rechargeable AA battery into the battery compartment.
2. Connect the USB-C cable to the MGW2ULU and plug the other end into the included power adapter.
3. Plug the power adapter into a power outlet. The LED will turn yellow, indicating the gateway is ready for setup.
4. Download the Custos Home app from the iOS App Store or Google Play Store on your smartphone.
5. Enable Bluetooth on your smartphone.
6. Open the Custos Home app and follow the on-screen instructions to pair with the MGW2ULU via BLE.
7. When prompted, select your Wi-Fi network (2.4GHz only) and enter the password.
8. Wait for the gateway to connect. The LED will turn blue when the MGW2ULU is fully operational.

6. App Setup Guide

6.1 Downloading the App

The Custos Home app is available on both iOS and Android:

- iOS: Search for “Custos Home” in the App Store

- Android: Search for “Custos Home” in Google Play Store

6.2 Pairing with MGW2ULU

1. Ensure your MGW2ULU is powered on and the LED is yellow (unconfigured).
2. Open the Custos Home app.
3. Ensure Bluetooth is enabled on your phone.
4. Follow the in-app instructions to discover and pair with the MGW2ULU.
5. Configure the Wi-Fi settings when prompted (2.4GHz networks only).

6.3 Viewing Device Status

Once the MGW2ULU is set up, tap on the device in the Custos Home app to view all status information, including temperature reports, battery level, and connection status.

7. Built-in Features

The MGW2ULU includes several built-in monitoring and reporting features accessible through the Custos Home app.

7.1 Temperature Report

- Reports temperature data from external connected sensors.
- Updates every 30 minutes.
- Viewable in the Custos Home app by tapping into the device to view its status.

7.2 Battery Report

- Monitors the MGW2ULU's internal AA battery level.
- Displays battery level as both a percentage and a High / Medium / Low indicator.
- Alert thresholds can be configured in the Custos Home app.

7.3 Offline Report

- Triggers when the MGW2ULU loses connectivity and goes offline.
- A notification is sent to the user 10 minutes after the gateway goes offline.

7.4 Power Outage Report

- Triggers immediately when USB-C power is lost and the MGW2ULU switches to AA battery backup.

- An instant notification is sent to the user, alerting them to the power outage.

8. Reset Operations

The MGW2ULU reset button is located on the device. Each press produces a beep sound for confirmation.

8.1 Reset Wi-Fi

Use this to clear the saved Wi-Fi configuration and reconfigure the network.

9. Press the reset button 3 times.
10. 3 rapid beeps will confirm the command was accepted.
11. The device will reboot within 3 seconds. The LED will flash white 3 times during reboot.
12. After reboot, the LED will turn yellow, indicating the gateway is ready for reconfiguration.

8.2 Factory Reset

Use this to erase all settings and restore the gateway to its default state.

13. Press and hold the reset button until you hear 10 beeps.
14. The LED will turn green. Release the button.
15. The device will reboot within 3 seconds. The LED will flash white 3 times during reboot.
16. After reboot, the LED will turn yellow. All settings have been erased.

8.3 Button Combination Failure

If the reset button sequence is not recognized:

- You will hear 3 slow beeps.
- The LED will flash red 3 times.
- No action is taken. Please retry the intended reset operation.

Note: You can also reset Wi-Fi through the Custos Home app by navigating to Settings → Reset Wi-Fi.

9. Installation Guidelines

The MGW2ULU can be used in both indoor and outdoor environments.

Parameter	Value
Indoor / Outdoor Use	Supported
Operating Temperature Range	-20°C ~ +45°C
Recommended Installation Location	In the center of the home with strong wi-fi signal

Tips:

- Place the MGW2ULU as close to your Wi-Fi router as practical for the best connectivity.
- Ensure the gateway has a clear line of sight to LoRa end devices for optimal coverage.

10. Troubleshooting / FAQ

Q: MGW2ULU cannot connect to Wi-Fi

- Verify the Wi-Fi password is entered correctly.
- Check the Wi-Fi signal strength. Move the MGW2ULU closer to the router if the signal is weak.
- Ensure your Wi-Fi network is operating on the 2.4GHz band. The MGW2ULU does not support 5GHz networks.
- Position the MGW2ULU as close to the router as possible for optimal connectivity.
- Try resetting Wi-Fi via the reset button (press 3 times) and reconfigure through the Custos Home app.

Q: LED is green (Wi-Fi connected but server not connected)

- Check that your Wi-Fi network has an active internet connection.
- In the Custos Home app, go to Settings → Reset Wi-Fi and follow the on-screen instructions to reconfigure.

Q: App cannot find MGW2ULU during BLE pairing

- Ensure Bluetooth is enabled on your smartphone.
- Check that the Custos Home app has the required permissions (Bluetooth, and Location if applicable).
- Verify that the MGW2ULU's LED is yellow, indicating it is in pairing mode.
- Try reinstalling the Custos Home app.
- Perform a factory reset on the gateway (press and hold reset button for 10 beeps).

Q: MGW2ULU suddenly goes offline (LED changes from blue)

- Check your network connection and ensure your Wi-Fi router is functioning properly.
- In the Custos Home app, go to Settings → Reset Wi-Fi and follow the on-screen instructions to reconfigure.

Q: How many end devices can MGW2ULU support?

The MGW2ULU supports up to 250 ubilink end devices.

Q: What is the LoRa coverage range?

Approx 300m-500m line of sight.

Q: Can I power MGW2ULU with a power bank?

Yes, the MGW2ULU can be powered via a USB-C power bank. However, this is not recommended for long-term or permanent use.

Q: How do I update the firmware?

In the Custos Home app, go to Settings → Firmware Update and follow the on-screen instructions to update the gateway firmware.

Q: How long does the AA battery backup last?

10 hours

11. Warranty

Warranty Period / Terms : 1 year limited, conditions applied.

12. Specifications

Specification	Value
LoRa Protocol	Ubilink
Max End Devices	250
Uplink	Wi-Fi 2.4GHz
Configuration	BLE via Custos Home app (iOS / Android)
Power Input	USB-C 5V 1A
Battery Backup	AA sized Alkaline 1.5V x 2
LED Indicator	RGB
Dimensions	73mm x 57mm x 39mm
Weight	63.4g
Operating Temperature	-20°C ~ +45°C

FCC Warning:

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.