



Handheld LoRaWAN[®] Gateway

MicroLINKGTW-HHU

Datasheet

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1. Brief Description

MicroLINKGTW-HHU is a Handheld LoRaWAN Gateway which is designed to receive data from installed Lora devices by just walking nearby the installed devices. It is a compact size battery operated gateway to keep in hand on backpacks.

This high-performance Handheld Gateway measures 115*125*55mm, is housed in an ABS Enclosure and comprises a Semtech SX1303 Based-band Processor along with a pair of SX1250, a highly integrated RF Front End with Multi-PHY Mode & I/Q Modem on Chip transceiver. The MicroLINKGTW-HHU complies with the latest LoRaWAN® Class A & C protocol specifications and it made it quite simple to access LoRaWAN® IoT platforms.

1.1 Features

- Commercial Grade LoRaWAN® Handheld Gateway
- Works on Semtech LoRa® Packet Forwarder
- Range up-to to 10-500M Line of Sight
- Small size : 115*125*55mm
- Touch Panel LCD Display
- Rechargeable Battery
- Ethernet Port
- Wi-Fi Connectivity

1.2 Applications

Typical applications for this Gateway include smart metering, wearables, tracking, M2M and internet of things (IoT) edge nodes.

The Gateway's applications are as following -

- To Collect Data Just By walking around devices.
- Commercial Monitoring and Control Lora Devices

2. Handheld Gateway Overview:

A big use case of handheld gateway to collect the data from LoRaWAN devices which failed to send data to a nearby stationary data. A person carrying the handheld gateway can collect the data from long distances (up-to 500 mtr) by walking the streets nearby to installed devices. This way a 100% data collection can be ensured where SLA related to data loss are stringent.

In comparison to standard LoRaWAN Gateway this gateway is exceptionally light in weight and can be easily handled by anyone.

Handheld Gateway has two mode of operations: Handheld & Standard

I. Handheld

In handheld mode gateway receives the data when person having HHU passes nearby LoRa devices, however data collected from these devices is not sent to server immediately. Once Gateway is connected with internet or local LAN it connects with the server and uploads the data. It is very useful where 4G connectivity is poor in field or an extended battery life is required.

II. Standard

Standard Mode runs on LoRaWAN Standard Gateway Protocol and good internet connectivity is required. In this mode a person having HHU passes nearby LoRa devices and data collected from these devices is sent to server immediately. It is used when some live configuration has to be done in LoRaWAN devices.

Handheld Gateway is an ultra-compact LoRaWAN® Gateway. It is designed to work indoor and outdoor and can be used as a Data Aggregator for open landscapes and large campus. It comes with a simple Touch Interface to operate Handheld Gateway and Web GUI for configuring IP/URL for your choice of LoRa® Network Server.

MicroLINKGTW-HHU handheld Gateway comprises 4 major parts on hardware side:

1. LoRaWAN® Gateway RF Board with Power Supply Section
2. Linux Host Processor with Memory & RAM
3. Connectivity Options of Fat Ethernet & 4G LTE
4. LCD Display with touchscreen

MicroLINKGTW-HHU Gateway is a commercial class device and qualifies major requirements of a Commercial IoT Gateway. LoRaWAN® Gateway RF Board used in this product is based on SSTPL own RF Design which have enhanced RF performance in Transmit as well as Receive Parameters. It uses Semtech Baseband Processor SX1303 and 2 RF Front End SX1257 along with SSTPL own high-performance RF design comprising PA, LNA and ETSI compliant Harmonics Filter.

The Host processor is a 64-bit mini PC and gives virtually no strain in running LoRaWAN® Gateway Stack in Linux environment. MicroLINK-HHU is meant for outdoor where it can be connected to LoRa® Network Server on 4G internet whereas in Indoor Low Latency Ethernet backhaul is available.

3. Hardware Specifications

Specs Group	Key Item	Detailed Specs
System Configuration	Core	Cortex-A72 64-bit, Quad Core
	Clock Frequency	1.5 GHz
	RAM	2GB LPDDR4 RAM
	Storage	8 GB eMMC
LoRaWAN®	Baseband	SX1303
	RF Front End	SX1250
	Max RF Transmit Power	+27 dBm
	Receive Sensitivity	Down up to -145 dBm on SF12 & 125KHz Channel BW
	SNR Sensitivity	up to -20 dBm
	Frequency	865-867 MHz (ISM Band India)
	No. of Channels	8 Channels, 125 KHz per Channel
	Spread Factor	SF7-SF12
	Data Rate	250 - 5470 bits/sec
	LoRa Antenna Port	Enclosure mounted LoRa Antenna
Internet Backhaul	Wired	Ethernet 10/100/1000 Base-T
	WiFi	2.4GHz and 5.0GHz IEEE 802.11b/g/n/ac
	Cellular	4G LTE
	Cellular Antenna	Inbuilt
Display	Display Size	4.3 Inch 160 Degree View Angle
	Display Type	IPS LCD Capacitive Touch MIPI DSI
	Screen Resolution	480 x 800
Power Supply	Default	12V DC
	Battery	6400 mAh, 8.2V Rated
	Power Consumption	6W Typical, MAX 7.5W
Enclosure	Ingress Protection Level	TBD
	Dimensions	115*125*55mm
	Weight	TBD
	Mounting Option	N/A
Environmental	Operating Temperature	-20°C to +70°C
	Storage Temperature	-20°C to +85°C
	Relative Humidity	0% to 90% (non-condensing) at 25°C

4. Software & Stacks

3.1 LoRaWAN® Gateway Stack

MicroLINK-HHU has highly optimized LoRaWAN® Gateway Software Stack developed by SSTPL comprising LoRa® Physical Layer and LoRa® Packet Forwarder. LoRa® Physical Layer is responsible for handling LoRa® packets received & transmitted to remote LoRa® end node while LoRa® Packet Forwarder converts the packet into IP packets and send/receive them to/from LoRa® Network

Server. Both the software used the Host Processor to run and process packets in light Embedded environment.

Stack also has the PC Client app to collect data in different modes and switch between them. It also features check internet availability, data display, manage data and so on. It also supports bulk activation, reactivation etc.

3.2 User Interface (UI)

MicroLINK-HHU UI is quite simple and easy to use. A user can access the UI by connecting Ethernet on their computer. It is available through the Host Name. Host name is provided with the purchase invoice.

A user can configure his choice of LoRa® Network Server by accessing the UI. Network configuration can also be done in quite simple steps. Please refer user manual for more details on UI.

5. Important Notice

5.1 Disclaimer

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MicroLINK Series

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