WiMOD Lite Gateway

Data Sheet

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2017-04-10	1.0	All	Released version.
2017-04-10	1.1	1	Added recommendation for power adapter and antenna

Aim of this Document

The aim of this document is to give a detailed product description including interfaces, features and performance of the WiMOD Lite Gateway (LGW) for LoRa™. This document only applies to LGWs with aluminum case, delivered after April 2017.

For further information on software, hardware of iC880A please refer to the corresponding documentation:

WiMOD_LiteGateway_QuickStartGuide.pdf

iC880A_Datasheet.pdf

Confidentiality Note

This document has to be treated confidentially. Its content must not be published, duplicated or passed to third parties without our express permission.

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1 Important Notice

Only use the Lite Gateway in combination with the following "5V – 2.5A Switch Adapter" from NEDIS (Article number is: P.SUP.SMP5V2A5) and the antenna CTA868/2/DR/SM/S2 both available on http://webshop.imst.de/radio-modules/accessories.html.

IMST GmbH provides the enclosed product(s) under the following conditions:

This evaluation board/kit is intended for use for ENGINEERING DEVELOPMENT, DEMONSTRATION OR EVALUATION PURPOSES ONLY and is not considered by IMST GmbH to be finished end-product fit for general consumer use. Persons handling the product must have electronics training and observe good engineering practice standards. As such the goods being provided are not intended to be complete in terms of required design-, marketing-, and/or manufacturing related protective considerations, including product safety and environmental measures typically found in the products that incorporate such semiconductor components or circuit boards.

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EXCEPT TO THE EXTENT OF THE INDEMNITY SET FORTH ABOVE NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES.

2 Introduction

The Lite Gateway is a device that consists of a Raspberry-Pi B+, an iC880A LoRa Concentrator and a sandwich board, built into an aluminum housing. All parts form a LoRaWAN Gateway that can be connected to a LoRaWAN server.

The Lite Gateway is meant to be used as demonstration system for the LoRaWAN network system. It is not designed to be a full featured outdoor gateway.

Please operate the Lite Gateway only in combination with the delivered power supply and antenna.

Figure 2-1: Lite Gateway

2.1 Basic System Concept

Figure 2-2 shows the basic system concept for the LoRaWAN system. The Lite Gateway is the central hardware solution for all LoRa based radio communication. It receives and transmits radio messages. Processing of the radio messages as well as the protocol related tasks is done by the embedded host system (Raspberry Pi). Received and processed radio messages are being sent to a LoRaWAN server. The concrete segmentation of the protocol related tasks is outside the scope of this document.

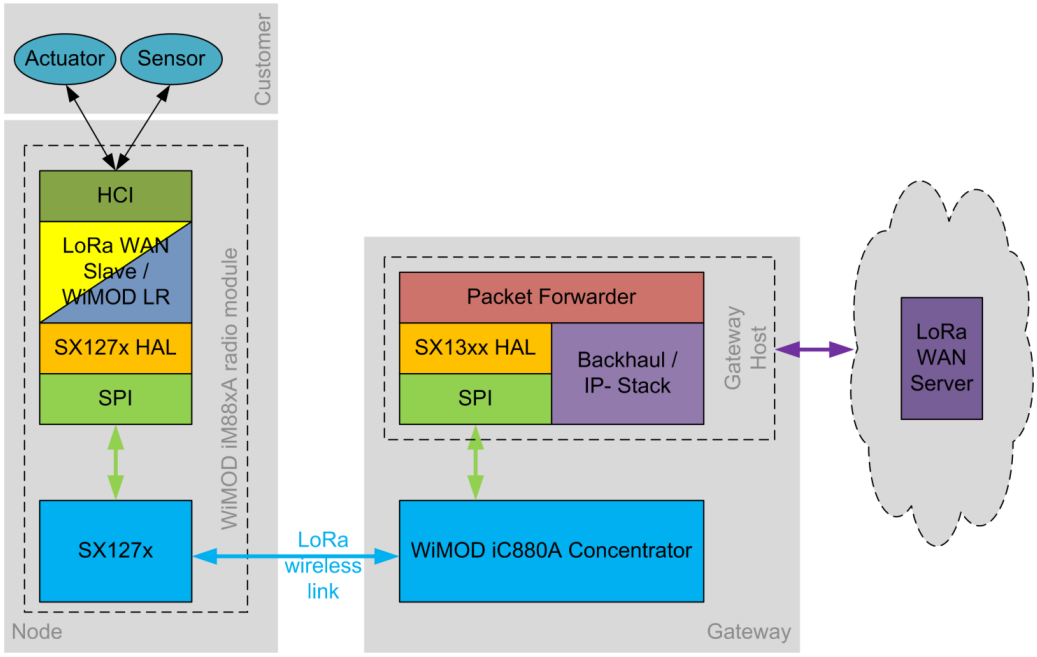

Figure 2-2: Basic System Concept

The pre-installed github repositories are:

- "`lora_gateway`" (V4.1) (https://github.com/Lora-net/lora_gateway)
- "`packet_forwarder`" (V3.1) (https://github.com/Lora-net/packet_forwarder)

Both repositories have been installed on the folder `/home/pi/github`.

3 Hardware

3.1 Device Overview

The Lite Gateway consists of a Raspberry-Pi B+, an iC880A LoRa Concentrator and a sandwich board for routing the signals between the Raspberry and the iC880A. For detailed information on iC880A please refer to the iC880A_Datasheet.pdf

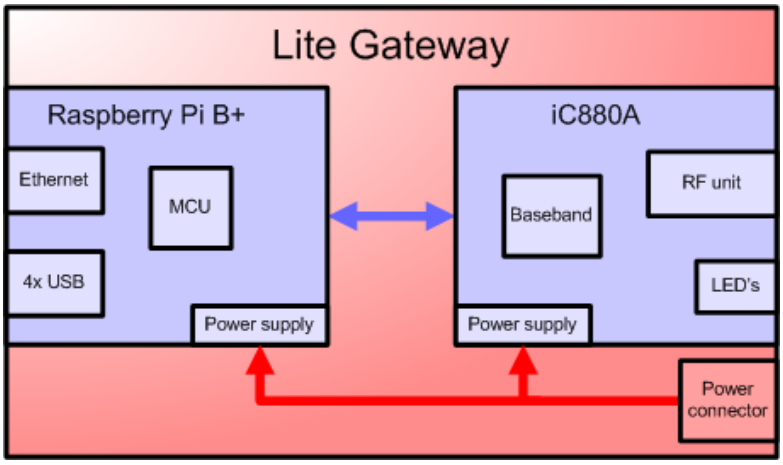

Figure 3-1: Block diagram of the Lite Gateway

The following picture shows the front and back interfaces of the Lite Gateway.

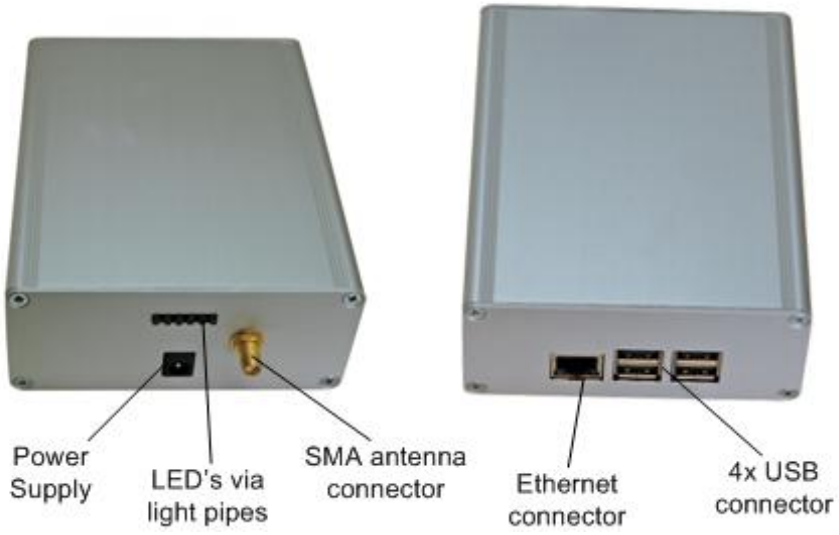

Figure 3-2: Front and back interfaces

3.2 Technical Specifications

T = 25°C, VDD = 5 V (typ.) if nothing else stated

Lite Gateway	Description
RF Characteristics	
RF Frequency Range	863MHz to 870MHz
Max. RF Input Power	-15 dBm(1)
Max. Output Power	20dBm at setting 20dBm(2)
Modulation	LoRa™ / FSK
Electrical Characteristic	
Supply Voltage (VDD)	5 V (only use the delivered power supply P.SUP.SMP5V2A5)
Current Consumption	Depending on the operating mode up to 2300mA
Interfaces	
DC Power Connector	Only use the switching power supply P.SUP.SMP5V2A5
Antenna	SMA (female) for antenna CTA868/2/DR/SM/S2
USB	4 x USB 2.0 ports
Ethernet	Ethernet port 10/100 BaseT RJ45
LEDs	LED functions are configured by the corresponding HAL software
General	
Housing	Aluminum case, two half-shells and two panels
Dimensions	46 x 105 x 124 mm^3
Weight	367 gr.
Environmental Conditions	
Operating Temperature	+15°C to +35°C
Relative Humidity	20% to 75% non condensing
Certifications	
Notes (1) With RF output power level above +15 dBm a minimum distance to a transmitter should be 1 m for avoiding too large input level. (2) Please refer to the iC880A data sheet.	

Table 3-1: Technical Specifications

4 Important Notice

4.1.1 Disclaimer

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