

LR1302 LoRa Gateway Module US915



Introduction

This LR1302 module is a new generation LoRaWAN® gateway module. It adopts a mini-PCIe form factor design and features low power consumption and high performance. Based on Semtech Network's SX1302 LoRaWAN® baseband chip, the LR1302 gateway module provides gateway products with potential capacity for long-distance wireless transmission. Compared to the previous SX1301 and SX1308 LoRa chips, the SX1302 chip has higher sensitivity, lower power consumption and lower operating temperature. It supports 8-channel data transmission, improves communication efficiency and capacity, and supports the connection and data transmission of more devices.

It reserves two antenna interfaces, one for transmitting and receiving LoRa signals and one U.FL (IPEX) interface for independent transmission. It also has a metal shield to protect against external interference and provide a reliable communications environment.

The LR1302 LoRaWAN® gateway module is available in SPI and USB versions, covering the US915 and EU868 frequency bands, giving you a choice of LoRaWAN® frequency solutions, including EU868 and US915.

Designed specifically for the IoT space, the LR1302 is suitable for a variety of IoT applications. Whether used in smart cities, agriculture, industrial automation or other fields, the LR1302 module can provide reliable connections and efficient data transmission.

Parameters

Frequency	902-928MHz
Chip set	Semtech SX1302 Chip
Sensitivity	-125dBm @125K/SF7 -139dBm @125K/SF12
TX Power	25 dBm (with 3.3V power supply)
Bandwidth	125/250/500KHz
Channel	8 channel
LEDs	Power:Green Config:Red TX:Green RX:Blue
Form Factor	Mini PCIe, 52 pin Golden Finger
Power Consumption (SPI version)	Standby: 7.5 mA TX maximum power: 415 mA RX: 40 mA
Power Consumption (USB version)	Standby: 20 mA TX maximum power: 425 mA RX: 53 mA
LBT(Listen Before Talk)	Support
Antenna Connector	U.FL
Operating Temperature	-40° C to 85° C
Dimensions	30 mm (width) × 50.95 mm (length)
Certification	FCC / RoHS

Pin diagram

NO	Mini PCIe Pin	LR1302 PIN	IO Type	Function
1	WAKE#	NC		
2	3.3Vaux	3V3	POWER	
3	COEX1	NC		
4	GND	GND	GROUND	
5	COEX2	NC		
6	1.5V	NC		
7	CLKREQ#	NC		
8	UIM PWR	SX1261 BUSY	DO	SX1261 BUSY Pin
9	GND	GND	GROUND	
10	UIM DATA	SX1261 RST	DI	SX1261 RESET Pin
11	REFCLK-	NC		
12	UIM CLK	NC		
13	REF CLK+	NC		

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14	NIM RESET	NC		
15	GND	GND	GROUND	
16	UIM VPP	NC		
17	Reserved	NC		
18	GND	GND	GROUND	
19	Reserved	1PPS	DI	GPS 1PPS
20	DISABLE#	NC		
21	GND	GND	GROUND	
22	PERST#	RESET	DI	SPI version:Active HIGH USB version:Active LOW
23	PERNO	NC		
24	3.3Vaux	3V3	POWER	
25	PERPO	SX1261 CSN		SX1261 Chip Select
26	GND	GND	GROUND	
27	GND	GND	GROUND	
28	1.5V	NC		
29	GND	GND	GROUND	
30	SMB CLK	I2C SCL	DI	Temperature sensor I2C clock
31	PETNO	SX1261_IO2	DIO	SX1261 DIO2 Pin
32	SMB DATA	I2C SDA	DIO	Temperature sensor I2C Data
33	PETPO	SX1261_IO1	DIO	SX1261 DIO1 Pin
34	GND	GND	GROUND	
35	GND	GND	GROUND	
36	USB D-	USB D-	DIO	USB differential data-
37	GND	GND	GROUND	
38	USB D+	USB D+	DIO	USB differential data+
39	3.3Vaux	3V3	POWER	
40	GND	GND	GROUND	
41	3.3vaux	3V3	POWER	
42	LED WWAN#	NC		
43	GND	GND	GROUND	
44	LED WLAN#	NC		
45	Reserved	SPI SCK	DI	SPI Clock
46	LED WPAN#	NC		
47	Reserved	SPI MISO	DO	SPI MISO
48	1.5v	NC		
49	Reserved	SPI MOSI	DO	SPI MOSI
50	GND	GND	GROUND	
51	Reserved	SX1302 CSN	DI	SX1302 Chip select
52	3.3Vaux	3V3	POWER	

Safety Instructions

- **Power Off:** Ensure that the power to the Raspberry Pi and related devices is turned off before connecting or disconnecting the expansion board. This will prevent accidental short circuits or electric shocks.
- **Proper Insertion/Removal:** When connecting or disconnecting the expansion board, make sure the connector and slot are aligned, and insert or remove them gently and steadily, avoiding excessive force or bending pins.
- **Keep Dry:** Ensure that the working environment for the expansion board and Raspberry Pi is dry, away from water sources or humid environments, to prevent circuit short circuits or damage.
- **Temperature Control:** Ensure that the Raspberry Pi and expansion board operate within the appropriate working temperature range. Excessive temperatures can cause damage to electronic components or overheating issues, so ensure proper heat dissipation and ventilation.