L302 Lora Converter Device

Product Specification

Version	Issue date	Changes	Remark
1.0	2022/08/10	Initial Version	
1.1	2022/09/16		

IMPORTANT

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L302 Lora Converter Device

1 Introduction

L302 LoRa Converter Device is a 920~925MHz 22dBm highly stable LoRa converter device. The device comprises SX1262 and a MCU with a RS485 master interface.

The RS485 master interface is used for connecting RS485 slave nodes such as sensors. L302 read the data from slave nodes and then transmit to a LoRa gateway via LoRa RF interface.

2 Features

- Support three modes: transparent, relay and broadcast
- RS485 master interface.
- Baud rate: 9600~115200 bps
- Built-in RTC calendar and backup battery
- Receiver sensitivity: -140dBm
- Communication distance: 4000 meters typ.
- Maximum output power: 22dBm
- Frequency band: 920~925MHz
- Power input range: 5~12V

3 Specification

3.1 Operation mode

Long press 3 second to switch between different operation modes:

Operation Mode	Power LED status	Function
Transparent communication mode	Long On and short Off	Any data received in UART are transmitted to remote gateway. Any data received from remote gateway is transmitted to UART interface
Configuration mode	On and Off every second	Set and read LoRa / RS485 configuration parameters in this mode
Relay mode	Long Off and short On	Relay delay time is configurable (0ms ~65535ms), There are 64 packets length ring buffer

Operation of multiple key pressings:

Operation Mode	Key operation	Power LED status	Description
Gateway association	Short press twice	Fast On and Off, Continue On for 5 seconds after association success	Need a gateway to do this operation
Gateway disassociation	Short press three times	Slow On and Off, Continue for 10 second after disassociation success	Gateway disassociation remotely

Reset to default	Long press > 6 seconds	Long press 3 seconds, reboot	All configuration parameters are reset to default, edAddr16 = 0xffff, no transmitting

3.2 LoRa configuration parameters

LoRa frequency could be configured by DIP witch **B-Sel**0 and **B-Sel**1 according to following table:

B-Sel0/ **B-Sel**1	Frequency	Description
OFF/OFF	Configured by software	920~925 MHz, default = 925 MHz
OFF/ON	920 MHz	
ON/OFF	922 MHz	
ON/ON	924 MHz	

Table 1 LoRa frequency selection

The following table defines the configuration parameters that could be set via UART host interface:

Para codes	**Name**	**R/W**	**Description**
0x0002	nwId	Y/Y	uint16, range=0001~fff0, ffff= broadcast for network setup, fff1=LoRa
0x0003	gwAddr16	Y/Y	uint16, range=0000~fff0, ffff= broadcast for network setup,
0x0005	edAddr16	Y/Y	uint16, range=0001~fff0, ffff= broadcast for network setup, fff1=LoRa
0x0006	RSSI	Y/N	int8, dBm
0x0007	Hardware version	Y/N	hex-string = 8 bytes
0x0008	Firmware version	Y/N	hex-string = 8 bytes
0x0012	System time	Y/Y	uint32, epoch timestamp, second, to 2106 maximum
0x0013	Operating mode	Y/Y	Mode = 0 for transparent communication, Mode = 1 for configuration
0x0034	UART baud rate	Y/Y	uint32, value=9600/19200/38400/57600/115200, default=9600 (must reboot)
0x0035	UART parity	Y/Y	uint8, 0=none, 1=odd, 2=even, default=0(must reboot)
0x0036	UART data bit	Y/Y	uint8, value=8/9, default=8(must reboot)
0x0037	UART stop bit	Y/Y	uint8, value=1/2, default=1(must reboot)
0x0050	LoRa freq.	Y/Y	uint32 920000000~925000000 Hz
0x0051	LoRa SF	Y/Y	uint8 6: 64, 7: 128, 8: 256, 9: 512, 10: 1024, 11: 2048, 12: 4096

0x0052	LoRa bandwidth	Y/Y	uint8 0: 125 kHz, 1: 250 kHz, 2: 500 kHz, 3: Reserved
0x0053	LoRa tx power	Y/Y	int8 -3 ~ 22 dBm
0x0054	LoRa code rate	Y/Y	uint8 1: 4/5, 2: 4/6, 3: 4/7, 4: 4/8
0xf001	Reboot	Y/N	uint8, 0= no effect, 1= reboot

Table 2 Configuration Parameters

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