Product Specifications

LoRa USB Dongle

LD-20 series

VER: 1.1

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Revision History

Rev. No.	Change History	Issue Date	Remark
1.0	Initiation	2015.10.12	Preliminary
1.1	Modify Product Model Number	2015.12.25	

Product Description

LD-20 is low power-consuming, half-duplex dongle. It can wirelessly transmit data to long-distance. It is built-in high speed and low power-consuming MCU and SX1276 modulation chipset. This chipset is applied with the forward error correction technique which greatly improves interference immunity and advances sensitivity. The coding can detect errors and automatically filter out errors and false data.
LD-20 is suitable for long-distance transmission or harsh environments.

Product Spec.

- Ultra-high sensitive receiving ability by LoRa spread spectrum modulation technology

- Long-distance transmission (1KM to 10KM)

- Support setting various parameters like baud rate, transmission power, transmission speed, etc.

- Multi-channel, dual data buffer (each 256 Bytes)

- Instant wake up over the air

- Four operating modes

- Built- in watchdog

- USB interface, could be directly connected to PC or mobile phone for development and test

Hardware Specifications

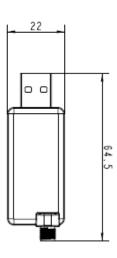|	
Chipset	SEMTECH LoRa SX1276
Antenna	SMA/50Ω
Frequency	410-525MHz (Model: LD-20L) 862-1020MHz (Model: LD-20H)
Connection type	USB A type
Transmission media	UART
UART	**Baud rate**:1200/2400/4800/9600(Default)/19200/38400/57600bps **Parity:** 8N1/8E1/8O1
Operation Voltage	3.5V~6V
Current consumption	**Receiving:**24 mA(typical)， **Transmitting:**150 mA(typical) **Sleeping:**15mA(typical)
Transmission distance	1KM~10KM(0.81Kbps)
Receiving sensitivity	-132dBm@0.81Kbps
Operation Temperature	-40°C~ 85°C
Humidity	5%~95%(Non-condensing)
Dimension	22mm x 64.5mm x 12mm
Weight	13g

LED Definition

Color	Sign	Definition	Description
Orange		Rx	**On:** Receiving data. It would be Off after receiving data.
Green		Tx	**On:** Transmitting data. It would be Off after transmitting data.
Red		P1	**On:** Power-saving mode It would be Off in normal mode and wakeup mode.
Blue		BZ	**On:** Idle state It would be Off while transmitting/receiving data.

Product Size

Operation Modes

There are four operating modes of LD-20.
1. Normal mode 2. Wake-up mode 3. Power-saving mode 4. Setup mode.
The four operation modes are switched by the signal level of P1 and P2.

Mode 1: Normal mode (P1=0, P2=0)

UART is opened. Wireless channel is opened. Penetrating transmission.

Mode 2: Wake-up mode (P1=0, P2=1)

UART is opened. Wireless channel is opened. The only difference from normal mode is that its preamble is longer than normal mode's, so that it can make sure the receiver could be waked in the power-saving mode.

Note: The receiver could be waked no matter it is in normal mode or wake-up mode or power-saving mode. The receiver would automatically add the RSSI at the end of the received data.

Mode 3: Power-saving mode (P1=1, P2=0)

UART is closed. The wireless channel is in power-saving mode. You can set up an interval from 0.5 to 5 seconds to wake up in power-saving mode to check if there is preamble. If the receiver receives preamble, it will open UART, and wake MCU to process the received data and return data. After that, it will return to the power-saving mode.

Mode 4: Setup mode (P1=1, P2=1)
UART is closed. Wireless channel is closed. It could only be setup.

Application Note

1. Antenna is the important part in communication system. The quality of antenna would directly influence the communication. Please take the antenna type and antenna's electrical characteristics into consideration if you would like to use the antenna not provided by Globalsat.
2. Please keep a distance of 20 cm from human body while using LD-20.