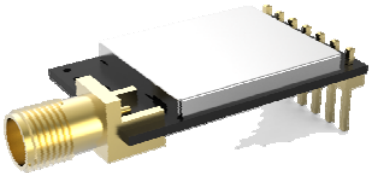
Product Specifications

LoRa Wireless Communication Module

LM-210 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 Module's Model Number	2015.12.25	

Product Description

LM-210 is a low power-consuming, half-duplex module. 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

LM-210 provides multi-channels. It supports various settings like baud rate, transmission power, and transmission speed, etc.

LM-210 is suitable for long-distance transmission or harsh environments.

Product feature

- 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, and transmission speed
- Multi-channel, dual data buffer (each 256 Bytes)
- Instant wake up over the air
- Four operating modes
- Built- in watchdog
- PIN connector for easy development and test

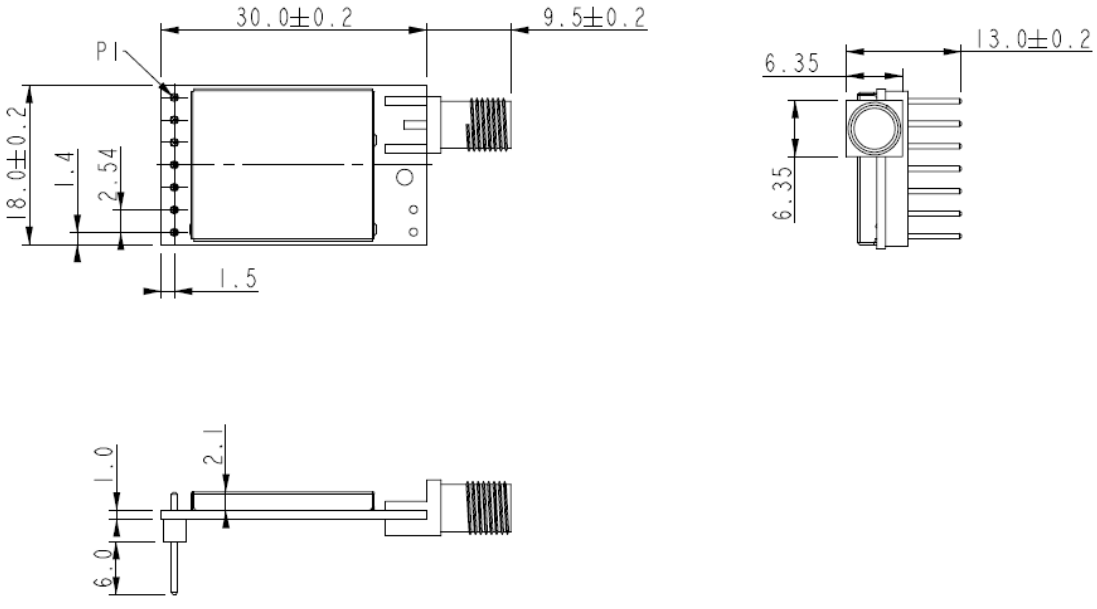
Hardware Specifications

Chipset	SEMTECH LoRa SX1276
Antenna	SMA/50Ω
Frequency	410-525MHz (Model: LM-210L)， 862-1020MHz (Model: LM-210H)
Transmission power	100mW (MAX.)
Transmission media	UART
UART	**Baud Rate:** 1200/2400/4800/9600(Default)/19200/38400/57600bps **Parity:** 8N1/8E1/8O1
Operation Voltage	3.0V~6V
Current consumption	**Receiving:**13 mA(typical)， **Transmitting:**120 mA(typical) **Sleeping:**2.2uA(typical)
Transmission distance	1KM~10KM(0.81Kbps)
Receiving sensitivity	-132dBm@0.81Kbps
Operation Temperature	-40°C~ 85°C
Humidity	5%~95%(Non-condensing)
Dimension	30mm x 18mm(PCBA)
Connector	PIN type, pitch 2.54mm

Pin Definition

LM-210 Pin Definition			
Pin	**Signal name**	**I/O**	**Description**
1	GND	-	Ground
2	VCC	-	3.0V~6.0V
3	RXD	Input	UART input
4	TXD	Output	UART output
5	BZ	Output	Module's operation status
6	P2	Input	Pin2 for switching operation mode
7	P1	Input	Pin1 for switching operation mode

Product Size



Operation Mode

There are four operating modes of LM-210.

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 configured.