

## F8L10S LoRa Module Technical Specification

### General

F8L10D LoRa module is a kind of embedded device that provides data transfer function by LoRa network. It provides ultra-long range spread spectrum communication.

The product uses high-performance industrial-grade LoRa solution, support transparent data transmission function; low power consumption design, the lowest working current can less than 2uA; supply multil I/O channels, compatible analog inputs and pulse input counters.

It has been widely used on M2M fields, such as electric power, intelligent traffic, wireless metering, industrial automation, telemetry, water supply, environment protection, weather, and so on.



SMA interface



U-FL interface

### Product Feature

#### Design for Industrial Application

- ◆ High-powered industrial LoRa chip and MCU
- ◆ Power input: DC 3.3 ~ 5.0V
- ◆ Product series support band: 410-441 / 470-510MHz
- ◆ Low power design, support sleep and wake-up mode
- ◆ High receiving sensitivity, communication distance farther

#### Stability and Reliability

- ◆ Built-in watchdog, to ensure long-term stable operation of the system
- ◆ Built-in LDO, ensure stable power supply module
- ◆ Multi-data automatic packet transmission to ensure the integrity of the data packet is not lost
- ◆ Efficient cyclic interleaving error correction coding, maximum error correction 64bit, dual 256-ring FIFO

#### Standard and Convenience

- ◆ Support 2.54mm \* 7 single row pin and 2.0mm \* 5 single row pin compatible SMT half hole

- ◆ Support a variety of antenna connection, Antenna Pad / SMA/U.FL interface Convenient configuration and maintenance interface.
- ◆ Intelligent data module, power can enter the data transmission status.
- ◆ Easy to use, flexible, a variety of operating mode selection
- ◆ Convenient system configuration and maintenance interface
- ◆ Output standard 3.3V TTL level
- ◆ Support serial software upgrade

#### High-performance

- ◆ Support OTA
- ◆ Support for wake-up function in the air
- ◆ Support a variety of baud rate, a variety of RF rates
- ◆ Adjustable power level

#### Application

- ◆ Power line on-line monitoring
- ◆ Smart parking
- ◆ Soil temperature and humidity monitoring
- ◆ Intelligent irrigation
- ◆ Wireless remote meter reading
- ◆ PV array monitoring

## Product Pecification

LoRa Specification	<ul style="list-style-type: none"> <li>• Communication Protocol and Band: 410-441 / 470-510MHz</li> <li>• Indoor/Urban Range: 1km</li> <li>• Outdoor/RF Line-of-Sight Range: 3.5km</li> <li>• Transmit Power: 20dBm(100mW)</li> <li>• Receiver Sensitivity: -140dBm</li> <li>• RF Data Rate: 6 level, ( 0.3、0.6、1.0、1.8、3.1、5.5Kbps)</li> <li>• Channels: 32</li> <li>• Max Serial Buffer Size: 128 Bytes</li> </ul>
Interface type	<ul style="list-style-type: none"> <li>• Data bits: 8</li> </ul>
UART	<ul style="list-style-type: none"> <li>• Stop bits: 1, 2</li> <li>• Checksum: none, odd, even</li> <li>• Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps</li> </ul>
Antenna connector	<ul style="list-style-type: none"> <li>• SMA female / Antenna Pad/U.FL, the characteristic impedance of 50 ohms</li> </ul>
Package	<ul style="list-style-type: none"> <li>• Support 2.54mm * 7 single row pin and 2.0mm *5 single row pin compatible SMT half hole</li> </ul>
<p><b>Note: There may be different components and interfaces in different model, please in kind prevail.</b></p>	
Power supply	<ul style="list-style-type: none"> <li>• Recommended Power: DC 3.3V/0.5A</li> <li>• Power Range: DC 3.3~5V</li> </ul>
Power Consumption	<ul style="list-style-type: none"> <li>• RX Mode: &lt;19mA@3.3VDC</li> <li>• TX Mode: 115~122mA@3.3VDC (Maximum pulse current ≤130mA )</li> <li>• Timing wake up: &lt;3.0uA@3.3VDC</li> <li>• Deep Sleep: &lt;2.0uA@3.3VDC</li> </ul>
Physical Characteristics	<ul style="list-style-type: none"> <li>• Dimensions: 24.0x28.0x4.2 mm (Without antenna and connector)</li> <li>• Weight: 4.0g</li> </ul>
Environmental Limits	<ul style="list-style-type: none"> <li>• Operating Temperature: -40~+85°C (-40~+185°F)</li> <li>• Storage Temperature: -40~+125°C (-40~+257°F)</li> <li>• Operating Humidity: 95%(unfreezing)</li> </ul>

## Ordering Information

Product number	PA	Working frequency band	Package	Antenna interface
F8L10S-N-433-MS-N	Without PA	410-441MHz	SMT	Antenna Pad
F8L10S-N-433-MS-U	Without PA	410-441MHz	SMT	U.FL interface
F8L10S-N-433-NS-S	Without PA	410-441MHz	DIP	SMA interface
F8L10S-N-433-NS-U	Without PA	410-441MHz	DIP	U.FL interface
F8L10S-N-470-MS-N	Without PA	470-510MHz	SMT	Antenna Pad
F8L10S-N-470-MS-U	Without PA	470-510MHz	SMT	U.FL interface
F8L10S-N-470-NS-S	Without PA	470-510MHz	DIP	SMA interface
F8L10S-N-470-NS-U	Without PA	470-510MHz	DIP	U.FL interface