F8L10D LoRa Module

Datasheet

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V1.2.0	

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 trafic, wireless metering, industrial automation, telemetry, water supply, environment protection, weather, and so on.

Product Feature --

Design for Industrial Application

◆ High-powered industrial LoRa chip and MCU

◆ Power input: DC 3.3 ~ 5.0V

◆ Support a variety of frequency bands around the world（433/470/780/868/915 MHz）

◆ 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

◆ Adopt a miniature package, support 2.54mm*7pin spacing stamp hole for SMT and 2*2.0mm*10pin spacing through-hole pins simultaneous

◆ Support a variety of antenna connection, U.FL interface / SMA interfaceConvenient 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

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High-performance

◆ Support OTA

◆ Support for wake-up function in the air

◆ Support a variety of baud rate, a variety of RF rates

◆ Flexible power level setting（5~20dBm; 30dBm with PA）

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Application

◆ Power line on-line monitoring

◆ Smart parking

◆ Soil temperature and humidity monitoring

◆ Intelligent irrigation

◆ Wireless remote meter reading

◆ PV array monitoring

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Product Pecification --

LoRa Specification

Item	Content
Communication Protocol and Band	Support a variety of frequency bands around the world（433/470/780/868/915 MHz）
Indoor/Urban Range	F8L10D-N:1km F8L10D-E:2km
Outdoor/RF Line-of-Sight Range	F8L10D-N:3.5km F8L10D-E:11.5km
Transmit Power	F8L10D-N:20dBm(100mW) F8L10D-E:30dBm(1W)
Receiver Sensitivity	-140dBm
RF Data Rate	6 level, 0.3、0.6、1.0、1.8、3.1、5.5Kbps
Max Serial Buffer Size	4K Bytes

Interface type

Item	Content
UART	Data bits: 8 Stop bits: 1, 2 Checksum: none,odd,even Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400,57600, 115200 bps
Antenna connector	SMA female / U.FL RF connector, the characteristic impedance of 50 ohms
Package	Support 2.54mm*7pin spacing stamp hole for SMT and 2*2.0mm*10pin spacing through-hole pins simultaneous
Note: There may be different components and interfaces in different model,please in kind prevail.	

Power supply

Item	Content
Recommended Power	F8L10D-N:DC 3.3V/0.5A F8L10D-E:DC 5V/1A
Power Range	DC 3.3~5V
Note: F8L10D-E power supply voltage is less than 4V output power will be reduced, but little impact on the reception performance.	

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Power Consumption

	Item	Content
F8L10D-N	RX Mode	<22mA@3.3VDC
	TX Mode	127~129mA@3.3VDC(Maximum pulse current≤130mA)
	Timing wake up	<3.0uA@3.3VDC
	Deep Sleep	<2.0uA@3.3VDC
F8L10D-E	RX Mode	<22mA@5VDC
	TX Mode	180~200mA@ 5VDC(Maximum pulse current≤400mA)
	Timing wake up	<3.0uA@5VDC
	Deep Sleep	<2.0uA@5VDC

Physical Characteristics

	Item	Content
F8L10D-N	Dimensions	24.4x37.5x4.2 mm（Without antenna and connector）
	Weight	5.0g
F8L10D-E	Dimensions	24.4x45.0x4.2 mm（Without antenna and connector）
	Weight	8.0g

Environmental Limits

Item	Content
Operating Temperature	-40~+85ºC(-40~+185℉)
Storage Temperature	-40~+125ºC (-40~+257℉)
Operating Humidity	95%(unfreezing)

Ordering Information

Product number	PA	Working frequency band	Package	Antenna interface
F8L10D-N-433-MS-N	Without PA	410-441 / 470-510 MHz	SMT	No interface
F8L10D-N-433-MS-U	Without PA	410-441 / 470-510 MHz	SMT	U.FL interface
F8L10D-N-433-NS-S	Without PA	410-441 / 470-510 MHz	DIP	SMA interface
F8L10D-N-433-NS-U	Without PA	410-441 / 470-510 MHz	DIP	U.FL interface
F8L10D-E-433-MS-N	With PA	410-441 / 470-510 MHz	SMT	No interface
F8L10D-E-433-MS-U	With PA	410-441 / 470-510 MHz	SMT	U.FL interface
F8L10D-E-433-NS-S	With PA	410-441 / 470-510 MHz	DIP	SMA interface
F8L10D-E-433-NS-U	With PA	410-441 / 470-510 MHz	DIP	U.FL interface

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