

LoRa Sensor Terminal

F8L10ST



Introduction

F8L10ST sensor terminal is a wireless data transmission terminal based on LoRa spread spectrum technology, which meets the data transmission terminal access of various sensors that comply with the interface. This product has been widely used in the M2M industry in the IoT industry chain, such as smart buildings, smart cities, smart fire protection, smart power, smart agricultural irrigation, soil moisture, garden greening, smart forestry, breeding, indoor & outdoor environmental monitoring, and etc.



Industrial-grade Design

- ▶ Using high-performance industrial-grade chips
- ▶ Low power consumption design
- ▶ Support multiple sleep and wake-up modes to minimize power consumption
- ▶ Metal casing, IP68 protection level
- ▶ Lithium sub-battery power supply, solar charging 12-28V



Stability & Reliability

- ▶ RS232/RS485 interface with built-in 15KV ESD protection
- ▶ Power supply interface with built-in phase-reversal and over-voltage protection
- ▶ Multiple data automatically divide package transmission
- ▶ Efficient cyclic interleaving error correction coding
- ▶ Error correction 64bit, double 256 ring FIFO



Standard & Convenience

- ▶ Industrial block terminal interface
- ▶ Standard RS232 and RS485 interface
- ▶ Intelligent data terminal
- ▶ Convenient system configuration and maintenance interface
- ▶ Support firmware upgrade, remote upgrade and maintenance by serial port

LoRa Sensor Terminal F8L10ST



High Performance

- ▶ Support WOA and deep sleep
- ▶ Support multiple baud rates and multiple transmission rates
- ▶ Support remote related configuration
- ▶ Support 1 solar input interface, default 12V / 5W, (12-28V, 12V recommended)
- ▶ Transmit power range is 5 ~ 20dBm, configurable

Product Specification

LoRa Parameters	
Items	Contents
Band	EU433, CN470-510, CN779-787, EU863-870, US902-928, AU915-928, AS923, KR920-923
LoRa Protocol	LoRa private, LoRaWAN®, CLAA*, LinkWAN*
Communication Protocol	Modbus-RTU, Transparent transmission
Urban Communication Distance	1Km
Line-of-sight Distance	3.5km
Transmit power	19±1dBm
Communication Bandwidth	6 level configurable (0.3, 0.6, 1.0, 1.8, 3.1, 5.5 Kbps)
Sensitivity	-140dBm@SF12
Hardware	
Items	Contents
CPU	Industrial-grade 32 bits processor
FLASH	128KB
SRAM	32KB

LoRa Sensor Terminal F8L10ST



Interfaces

Number	Definition	Description
1	CHARGE	Solar charging voltage positive input, voltage range: 12-28V, 12V recommended
2	GND	Charging voltage negative input
3	USART_RX	RS232 interface input
4	USART_TX	RS232 interface output
5	GND	RS232 ground input
6	A	RS485 positive
7	B	RS485 negative
8	D1	Digital signal input and output (0-3.3V)
9	D2	Digital signal input and output (0-3.3V)
10	A1	Voltage acquisition analog signal input (0-5V)
11	A2	Current acquisition analog signal input (0-20mA), maximum 5V input
12	VDD33	External output DC 3.3V, maximum current 100mA
13	GND	Ground
14	VDD12	External output DC 12V, the maximum current is 30mA

Power Supply

Model	Contents
F8L10ST-A	Built-in 7.2V / 5200mAh lithium sub battery (disposable)
F8L10ST-B	Use 12V / 5W solar charging + built-in lithium battery, built-in 3.7V / 2000 mAh lithium sub battery (Rechargeable)

Power Consumption

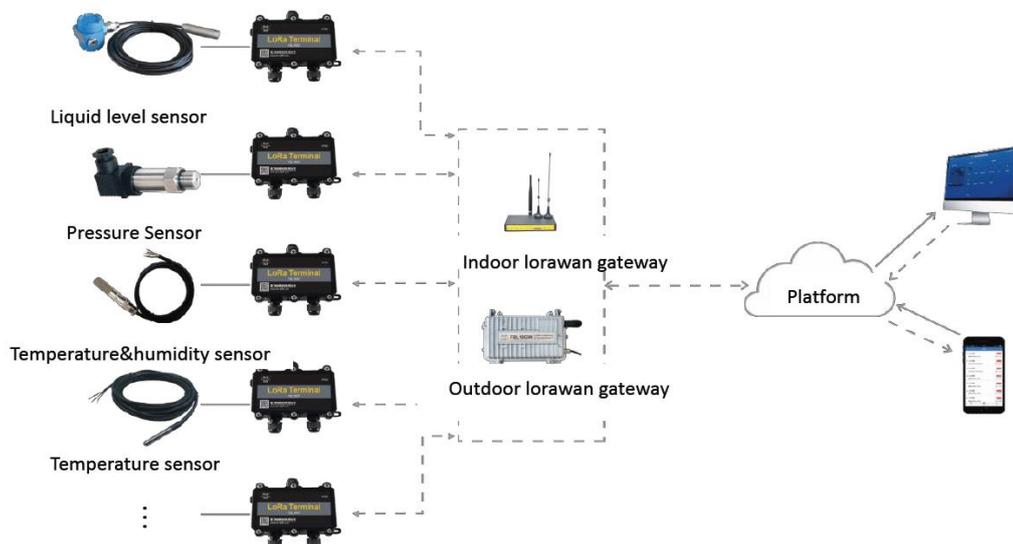
Model	Contents
F8L10ST-A	Deep Sleep: 2uA@7V Receive Data: 9.5mA@7V Send Data: 77mA@7V
F8L10ST-B	Deep Sleep: 15uA@3.3V Receive Data: 15mA@3.3V Send Data: 129mA@3.3V

LoRa Sensor Terminal F8L10ST



Physical Properties	
Items	Contents
Housing	PC material housing, protection grade IP68
Dimensions	120 x 70 x 48mm (Excluding antenna and mounting parts)
Installation	The mounting holes are 4 x 9mm oval through holes. It is recommended to use M4 screws for fixing. The hole size is shown in the figure below.
Characteristics	Anti-sun, anti-UV, anti-aging, anti-corrosion, impact resistance
Flame Retardant Grade	V-1
Housing Working Temperature	-40 ~ +125°C
Others	
Items	Contents
Operating Temperature	-20~+60°C (-4~+140°F)
Storage Temperature	-20~+60°C (-4~+140°F)
Relative Humidity	95% (non-condensing)

Topology



LoRa Sensor Terminal F8L10ST



Order Information

Products	Frequency	Description
F8L10ST-A-L	410-510 MHz	The sensor terminal only supports one-time battery power supply, supports ultra-low power consumption, and connects to ambient temperature and humidity or temperature sensors
F8L10ST-A-H	863-928 MHz	The sensor terminal only supports one-time battery power supply, supports ultra-low power consumption, and connects to ambient temperature and humidity or temperature sensors
F8L10ST-B-L	410-510 MHz	The sensor terminal supports solar or DC power supply, the battery can be recharged, and it can be flexibly applied to various application scenarios
F8L10ST-B-H	863-928 MHz	The sensor terminal supports solar or DC power supply, the battery can be recharged, and it can be flexibly applied to various application scenarios