

# Multi-function Wireless Energy Meter

## F-PEM100 Technical Specification

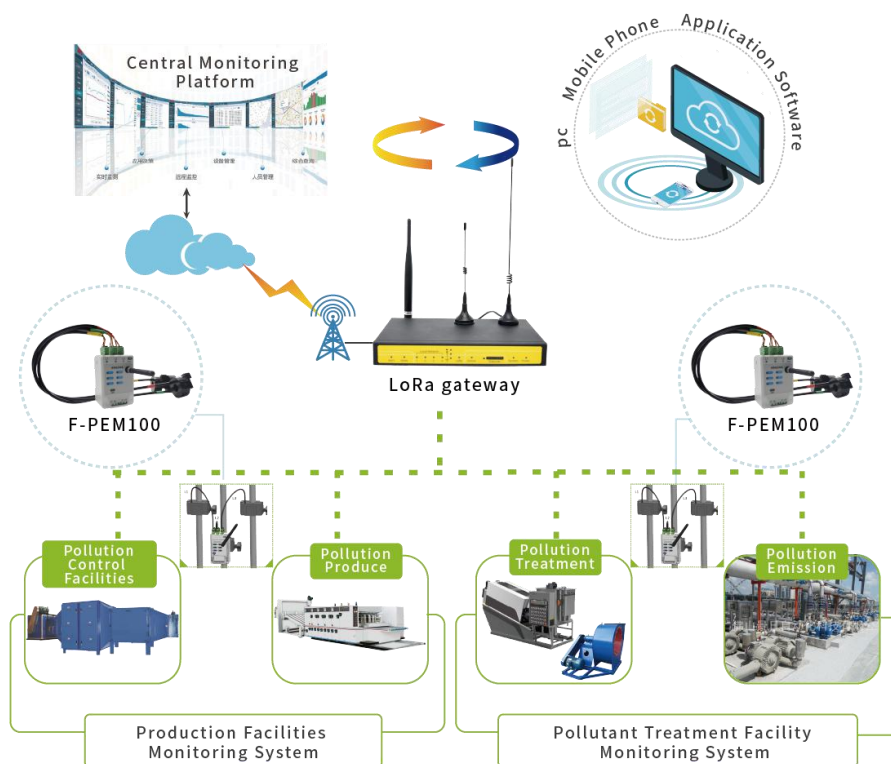
Version	Level
V1.0.3	



The F-PEM100 series of environmentally friendly electricity intelligent monitor terminals are mainly used to measure the three-phase active energy of the low-voltage network. It has RS485 communication and LoRa 470MHz wireless communication functions, which are convenient for users to monitor, collect and manage electricity consumption. It can be flexibly installed in the distribution box to realize the sub-item electric energy measurement, statistics and analysis of different areas and different loads.

It is mainly used in enterprises that cause pollution to the environment, and is installed on the electricity circuit of pollution-producing facilities and pollution control facilities for electricity consumption monitoring.

## Application topology



## Features

### Industrial grade application design

- ◆ Using high-performance industrial-grade wireless module
- ◆ Using high-performance processor
- ◆ Support low power consumption mode, including sleep mode, wake-up mode
- ◆ Using PC plastic flame-retardant shell, protection grade IP30
- ◆ RS485 interface power and data isolation, in line with CSA, UL and IEC standards
- ◆ Built-in reverse protection and over-voltage protection for current and voltage interface

### Stable and reliable

- ◆ Built-in watchdog to ensure long-term stable operation of the system
- ◆ Multiple data is automatically sub-packaged to ensure the integrity of the data package is not lost
- ◆ Using a complete anti-drop mechanism to ensure that the data terminal is always online
- ◆ Low latency to ensure data timeliness

## Product Features

Function	Function Description
Energy metering	Active energy measurement (including forward and reverse energy)
Electricity measurement	U、I、 P、 Q、 S、 PF、 F
Pulse output	Active pulse output
LED indication	(L1、 L2、 L3)power display, pulse, communication, wireless status indication
communication	470MHz LoRa wireless transmission
	Infrared communication (optional)
	RS485 interface

## Product specifications

### ● LoRa wireless parameter

Item	content
Standard and frequency band	LoRa support multiple frequency bands all over the world (433/470/868/915 MHz), the current product supports 470MHz
Transmit power	<22dBm(Max)
Receiving sensitivity	125kHz Bandwidth, -126dBm@SF7
	125kHz Bandwidth, -135dBm@SF10
	125kHz Bandwidth, -140dBm@SF12
Indoor/Urban Communication Distance	2km

## ● Interface type

Item	Content
Serial port	1 RS485 interface, built-in 15KV ESD protection, serial port parameters are as follows: Data bits: 8 bits Stop bit: 1 bit, 2 bit Parity: no parity, odd parity, even parity Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200bps
Pulse interface	+,-Active energy output
Antenna interface	standard SMA female antenna interface, characteristic impedance 50 ohms
Transformer interface	Terminal block

## ● Indicator

Item	Content
L1	When it is lit, it indicates that the L1 phase is successfully powered
L2	When it is lit, it indicates that the L2 phase is successfully powered
L3	When it is lit, it indicates that the L3 phase is successfully powered
pulse	Each time it lights up, it means that the meter outputs an energy pulse
communication	Flashes when the meter communicates via RS485
wireless	When the meter is communicating through the LoRa wireless module, it will flash

## ● Electrical characteristics

Item	Content	
Voltage input	Rated voltage	3*220/380V
	Reference frequency	50Hz
	Power consumption	<10VA or 2W (A phase) 、 <0.5VA (B phase、 C phase)
Current input	Current input	3×1.5(6)A、 3×20(100)A、 3×40(200)A、 3×80(400)A、 3×120(600)A
	Starting current	1‰lb (0.5S class) 、 4‰lb(1 class)
	Power consumption	<2VA
measuring	standard	GB/T17215.321-2008、 GB/T17215.322-2008
	Electricity accuracy	1 class
	Temperature accuracy	±2℃
pulse	Pulse Width	80±20ms
	Pulse constant	6400imp/kWh 、 400imp/kWh、 200imp/kWh、 100imp/kWh、 60imp/kWh
Communication	LoRa communicate	470MHz Wireless transmission, transmission distance when open: 1km
	RS485 communicate	1 RS485 interface, built-in 15KV ESD protection, serial port parameters are as follows: Data bits: 8 bits Stop bit: 1 bit, 2 bit Parity: no parity, odd parity, even parity Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200bps, default: 9600bits/s
	Protocol	MODBUS-RTU

## ● Physical characteristics

Item	Content
Shell	PC plastic flame-retardant shell, protection grade IP30
Size	88*55*54mm (not including antenna and mounting parts)
weight	0.25kg (excluding external expansion parts)

● **Other parameter**

Item	Content
Operating temperature	-40~+85° C(-40~+185°F)
storage temperature	-40~+125° C (-40~+257°F)
Working humidity	95% (no condensation)
Altitude	<2000m

● **Order information**

Product mode	Content	Note
F-PEM100-5A	Input Current: 3 × 1.5(6)A	
F-PEM100-100A	Input Current: 3 × 20(100)A	Same terminal, different transformer
F-PEM100-200A	Input Current: 3 × 40(200)A	
F-PEM100-400A	Input Current: 3 × 80(400)A	
F-PEM100-600A	Input Current: 3 × 120(600)A	