

## F-EFD100

### Residual Current Monitor



The F-EFD100 Residual Current Monitor is designed as an independent smart detector, applied to the electrical fire monitoring system to achieve real-time monitoring, alarm and protection of residual current and temperature. Sound and light alarm and fire linkage can be carried out to eliminate the potential danger of electrical fire. It can also upload the data to the superior fire monitoring system through the RS485 network to comprehensive analysis and process the data. The product provides multi-channel signal monitoring, which can be combined with 3-channel residual current input and 1-channel temperature input to adapt to various field applications. The product is compact in size, easy to install, comprehensive in function and cost-effective, save a lot of investment and space for users.

The performance of F-EFD200 conforms to China national standards: GB14287.2-2014, electrical fire monitoring system part 2: residual electrical fire monitoring detector, and GB14287.3-2014, electrical fire monitoring system part 3: temperature measurement electrical fire monitoring detector.

This product has been widely used in power system, environmental monitoring, industrial automation, building automation, medium-low voltage power distribution automation and other areas.

#### Industrial-grade Design

- ◆ Using high-performance industrial-grade wireless modules
- ◆ Using high performance industrial grade 32-bit enhanced processor
- ◆ Built-in real time clock (RTC)
- ◆ ABS flame retardant housing
- ◆ Wide power input (AC 187~242V)

#### Powerful Functions

- ◆ Provide 3-way of leakage input, 1-way temperature input, 1-way CAN bus, 1-way RS485
- ◆ Support for mass storage expansion
- ◆ Interactive management: platform remote management

## Stable & Reliable

- ◆ WDT watchdog to ensure system stability
- ◆ Input power supply with overcurrent protection and overvoltage protection

## Standard Interface & Easy-to-Use

- ◆ Using industrial interface, especially suitable for industrial field applications
- ◆ Provide CAN bus and RS485 interface to communicate directly with the supporting monitor
- ◆ Support serial software upgrade and remote maintenance

## Follow the Standard

- ◆ Electrostatic Discharge Immunity. It complies with the provisions of GB/T 17626.2-2006 (IEC 61000-4-2:2001), and the severity level is 3.
- ◆ RF electromagnetic field radiation immunity. It meets the requirements of GB/T 17626.3-2016 (IEC 61000-4-3:2006), and the severity level is 3.
- ◆ Fast Transient Burst Immunity. It complies with the provisions of GB/T 17626.4-2008 (IEC 61000-4-4:2004), and the severity level is 3.
- ◆ Surge Immunity. It meets the requirements of GB/T 17626.5-2008 (IEC 61000-4-5:2005), and the severity level is 3.
- ◆ RF Conducted Immunity. It meets the requirements of GB/T 17626.6-2008 (IEC 61000-4-6:2006), and the severity level is 3.
- ◆ Rupture Frequency Magnetic Field Immunity. It complies with the provisions of GB/T 17626.8-2006 (IEC 61000-4-8:2001), and the severity level is 4.
- ◆ Voltage Sag, Short-term Interruption and Voltage Variation Immunity. Meets the requirements of GB/T 17626.11-2008 (IEC 61000-4-11:2004), Category 3 standards.

## Product Features

- ◆ Real-time Monitoring

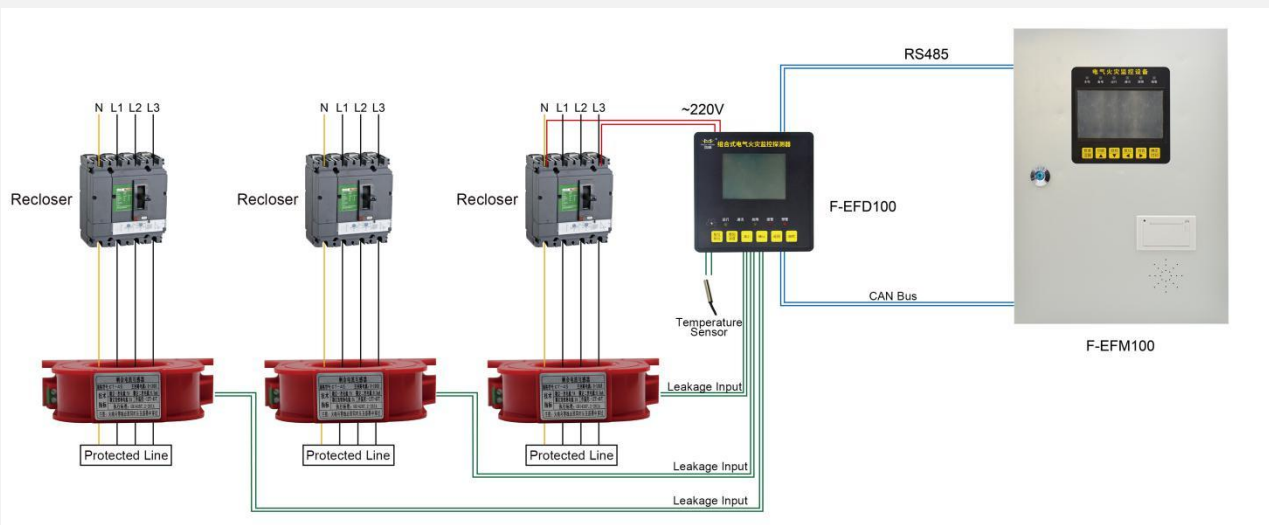
F-EFD100 combined electrical fire monitoring detector can simultaneously monitor 3-branch residual currents and 1-branch temperature and display the current value in real time.
- ◆ Alarm Protection

F-EFD100 combined electrical fire monitoring detector will emit an acousto-optic signal alarm when the residual current value of the power circuit exceeds the limit, and upload it to the supporting monitoring equipment by wired or wireless communication.
- ◆ Fault Reminder Function

When the equipment is running faulty, the system self-tests, and through the acousto-optic alarm prompts, enable operators to detect abnormal conditions of equipment operation in time to avoid unnecessary failures.
- ◆ Communication Function

The detection detector comes with a variety of communication functions, and can be connected to the monitoring equipment host of our company to remote management, maintenance, control and system upgrade.

## TYPICAL APPLICATION



## SPECIFICATIONS

### CHARACTERISTICS

#### F-EFD100-NB-IoT

<b>Standard and Band</b>	B1: 2100MHz B3: 1800MHz B5: 850MHz B8: 900MHz B20: 800MHz
<b>Bandwidth</b>	100bps~100Kbps
<b>TX power</b>	23dBm±2dB ( Max )
<b>RX sensitivity</b>	-129dBm

#### F-EFD100-L

<b>Standard and Band</b>	433MHz
<b>Communication Bandwidth</b>	6 level adjustable ( 0.3、0.6、1.0、1.8、3.1、5.5Kbps )
<b>Communication Distance</b>	Indoor/urban communication distance: 1km Outdoor/line-of-sight communication distance: 3.5km
<b>Transmit Power</b>	20dBm(100mW)
<b>RX sensitivity</b>	-140dBm

#### Hardware System

<b>CPU</b>	Industrial Grade 32-Bit Enhancement Processor
<b>FLASH</b>	256KB+2MB
<b>SRAM</b>	48KB

Interface Type		
<b>Communication</b>	RS385	1 RS485 interface, the serial parameters are as follows: Data bits: 8 bits, stop bits: 1, 2 bits Calibration: no parity, even parity, odd parity Serial Port Rate:1200~38400bits/s Serial speed: 1200~38400bits/s
	<b>Can Bus</b>	The device has 1 CAN bus interface, CAN bus communication is stable and reliable, and can communicate with other external devices to achieve various networking needs.
<b>Human Interface</b>	LCD	128*128 LCD screen, rich display content
	Indicator	"Online" "Communication" "warning" "Alarm" "Mute"
	Buzzer	Fault alarm, detecting abnormal alarm
	Button	“confirm/reset” “add/mute” “decrease” “confirm” “return” “self-test” 6 buttons, simple and fast operating system
<b>Application Interface</b>	Residual Current	3-branch residual current transformer, alarm value setting range: 40~1000mA
	Temperature	1-branch temperature probe, measuring range: 0 ℃ ~ 150 ℃, alarm value setting range 45 ~ 140 ℃
	Power Interface	Adopt strong electric anti-tripping interface, over current protection $\geq 120\%$ and overvoltage protection, recoverable
Note: There may be differences between different types of accessories and interfaces, which are subject to the actual product.		
Power Input		
<b>Standard Power</b>	AC 220V 50Hz	
<b>Power Range</b>	AC187 ~ 242V	
Consumption		
<b>Average Consumption</b>	< 0.8W	
<b>Maximum Dynamic Consumption</b>	< 1.5W	
Physical Characteristics		
<b>Housing</b>	ABS flame retardant material, housing and system are safely isolated, especially suitable for power field applications	
<b>Dimensions</b>	98x98x83.57 mm (excluding antenna and mounting parts )	
<b>Weight</b>	About 535g (including mounting parts and packaging)	
Environmental Limits		
<b>Operating Temperature</b>	-10~+40 ℃	
<b>Storage Temperature</b>	-30~+80 ℃	
<b>Relative Humidity</b>	5%~95% (no condensation)	

## Appendix A

### A.1 Structure

Shape and installation dimensions, sliding mounting brackets on both sides of the device for quick installation.

See the figure below for specific dimensions. (Unit: mm)

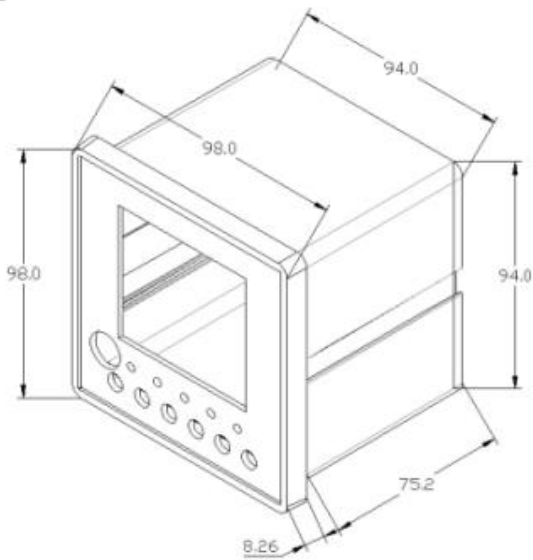


Figure a

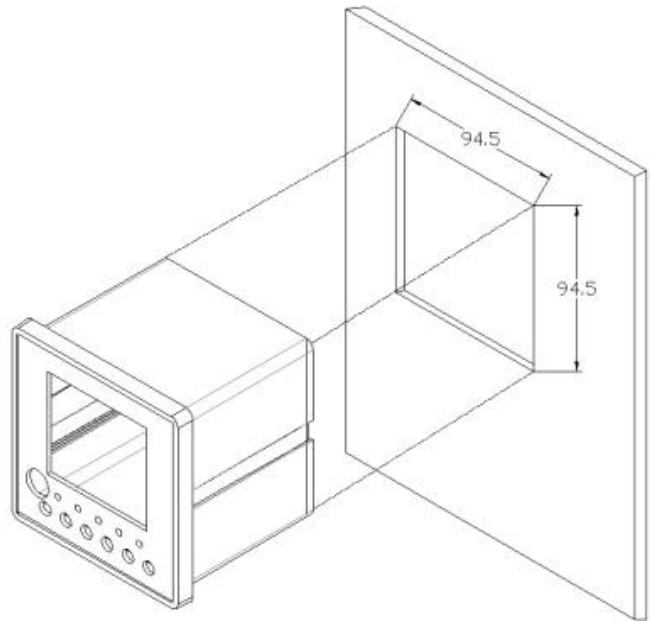


Figure b

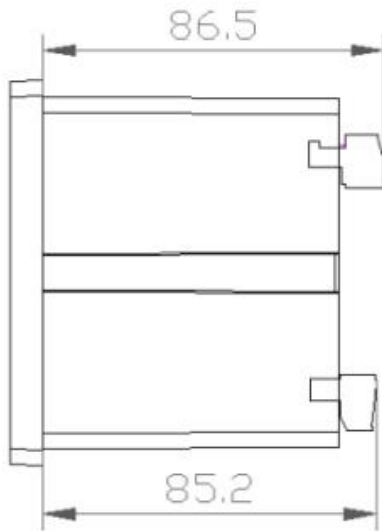


Figure c

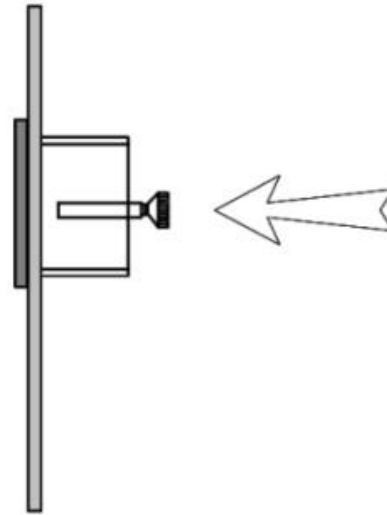


Figure d

A.2 wiring ports (15PIN pitch 3.81mm, 3PIN pitch 5.08mm) Upper row terminal specification: 15PIN pitch 3.81mm

Upper row ports specification: 15PIN pitch 3.81mm

Lower row ports specification: 3PIN pitch 5.08mm

CANL	CANH	GND	Txd/A+	Rxd/B-	Backup		Leakage 3	COM	Leakage 2	COM	Leakage 1	COM	NTC	COM
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Upper Row

SIM				▪	N/-	L/+
0	0	0	0	1	2	3

Lower Row

Figure 3 Interface Diagram

Interface Signal Definition		
Number	Interface Definition	Description
1	CANL	CAN Bus:L
2	CANH	CAN Bus:H
3	GND	RS485:GND
4	Txd/A+	RS485:A+
5	Rxd/B-	RS485:B-
6	Backup	Reserved Port
7		
8	Leakage 3	Residual Current Input 3
9	COM	
10	Leakage 2	Residual Current Input 2
11	COM	
12	Leakage 1	Residual Current Input 1
13	COM	
14	Temperature	Temperature Sensor Input
15	COM	
Environmental Limits		
Number	Interface Definition	Description
0-0-0-0	SIM Card	SIM Card Ports
1	PG	Reserved Ports
2	M	AC220V Input Null Line
3	L	AC220V Input Live Line



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### Ordering Information

<b>F-EFD100</b>	RS485+CAN Bus
<b>F-EFD100-NB-BL</b>	RS485+CAN Bus, Full Netcom NB-IoT
<b>F-EFD100-L-LW</b>	RS485+CAN Bus ,LoRa WAN Protocol
<b>F-EFD100-L-LR</b>	RS485+CAN Bus ,LoRa Standard Protocol