231

AFPM 系列（二总线）消防设备电源监控模块

Installation and Operation InstructionV1.2

Jiangsu Acrel Electric MFG. Co., Ltd.

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Content

1 概述 Overview

AFPM 系列（二总线）消防设备电源监控模块，能够实时监控交流电源的状态，并在其发生故障时及时发出故障报警信号。AFPM 系列（二总线）消防设备电源监控模块包块主模块和从模块两部分。主模块是指 AFPM3 系列产品，从模块则包括 AFPM/D、AFPM/T 系列产品。

The AFPM series (two bus) fire equipment power monitoring module can monitor the status of the AC power in real time and issue a fault alarm signal in time when it fails. AFPM series (two bus) fire equipment power monitoring module package block main module and slave module two parts. The main module refers to the AFPM3 series, and the slave module includes the AFPM/D and AFPM/T series products.

1.1 AFPM3 系列产品概述 AFPM3 Series product overview

AFPM3 系列三相监控传感器（监控主模块）（以下简称模块）能够采集被监控设备交流电源的电压值、电流值，并通过二总线通讯上传到监控器（监控主机）（以下称监控主机），模块可以判断被监控电源的电压、电流状态，如过压、欠压、错相、过流等状态，数据经监控主机分析处理后可以指示相应电源故障类型，并发出光报警信号。

The AFPM3 series three-phase monitoring sensor (monitoring main module) (module for short) can collect the voltage and current of the AC power supply of the monitored equipment, and upload it to the monitor (monitoring host) through the two-bus communication. The module can judge the voltage and current state of the monitored power supply, such as overvoltage, undervoltage, out of phase, overcurrent, etc. The data can be instructed by the monitoring host to indicate the corresponding power failure type and emit an optical alarm signal.

1.2 AFPM/D、AFPM/T 系列产品概述 Series product overview

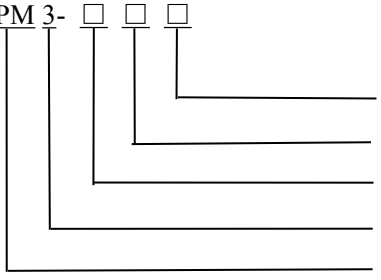
AFPM/D、AFPM/T 系列三相监控传感器（监控从模块）（以下简称从模块）能够采集被监控设备交流电源的电压值、电流值，并通过通讯上传到主模块，主模块通过二总线上传到监控主机，模块可以判断被监控电源的电压、电流状态，如过压、欠压、错相、过流等状态，数据经监控主机分析处理后可以指示相应电源故障类型，并发出光报警信号。

AFPM/D, AFPM/T series three-phase monitoring sensor (monitoring slave module) (slave module for short) can collect the voltage value and current value of the AC power supply of the monitored equipment, and upload it to the main module through communication. The main module uploaded to the monitoring host through two-bus, the module can judge the voltage and current status of the monitored power supply, such as overvoltage, undervoltage, phase error, overcurrent, etc. The data can be instructed by the monitoring host to indicate the corresponding power failure type and emit an optical alarm signal.

2 型号说明 Model Description

主模块 main module：

AFPM 3- □ □ □



L：液晶显示 LCD

M：主模块 main module

型号说明具体见下表 The model description is shown in the table

3：三相电源监控模块 Three-phase power monitoring module

产品种类号 Product type number：安科瑞消防设备电源监控产品 Acrel fire

名称 name	数字及字母代表含义 Numbers and letters represent meaning	功能说明 Function Description
AVI	A:交流 AC；V:电压 voltage；I:电流 current	实时监测 1 路三相交流电压电流 monitor 1 three-phase AC voltages in real time

2AV	2:两路；A:交流 AC；V:电压 voltage	实时监测 2 路三相交流电压 monitor 2 three-phase AC currents in real time

从模块 Slave module：

AFPM / □

型号说明具体见下表 The model description is shown in the table below.

产品种类号 Product type number 安科瑞消防设备电源监控产品 Acrel fire equipment power monitoring

名称 name	数字及字母代表含义	功能说明 function description
D-3AV	D：单相 single phase；3：三路；A：交流 AC；V：电 voltage	实时监测 3 路单相交流电压 monitor 3 single-phase AC voltages in real time
D-6AV	D：单相 single phase；6：六路；A：交流 AC；V：电压 voltage	实时监测 6 路单相交流电压 monitor 6 single-phase AC voltages in real time
D-3AI	D：单相 single phase；3：三路；A：交流 AC；I：电流 current	实时监测 3 路单相交流电流 monitor 3 single-phase AC current in real time
D-6AI	D：单相 single phase；6：六路；A：交流 AC；I：电流 current	实时监测 6 路单相交流电流 monitor 6 single-phase AC current in real time
D-3AVI	D：single phase；3：三路；A：AC；V：voltage；I：电流 current	实时监测 3 路单相交流电压及电流 monitor 3 single-phase AC voltage and current in real time
T-AV	T：三相 three phase；A:交流 AC；V：电压 voltage	实时监测 1 路三相交流电压 monitor 1threee-phase AC voltages in real time
T-2AV	T：三相 three phase；2：两路；A：交流 AC；V：电压 voltage	实时监测 2 路三相交流电压 monitor 2 threee-phase AC voltages in real time
T-AI	T：三相 three phase；A：交流 AC；I：电流 current	实时监测 1 路三相交流电流 monitor 1 three-phase AC current in real time
T-2AI	T：三相 three phase；2：两路；A：交流 AC；I：电流 current	实时监测 2 路三相交流电流 monitor 2 three-phase AC current in real time
T-AVI	T：三相 three phase；A：交流 AC；V：电压 voltage；I：电流 current	实时监测 1 路三相交流电压及电流 monitor 1 single-phase AC voltage and current in real time

3.1 AFPM3 系列

参数 / 型号	AFPM3-2AVML	AFPM3-AVIML	AFPM3-2AVM	AFPM3-AVIM

显示 Display		LCD		/	
监控报警 Monitoring alarm	电压 voltage	过压（100%-140%） 欠压（60%-100%）			
	电流 current	/	过流（100%-120%）	/	过流（100%-120%）
动作延迟时间		0.1S～60.0S 连续可调			
输入电压 input voltage		额定值 AC220V rating			
输入电流 input current		/	额定值 AC5A rating	/	额定值 AC5A rating
测量精度 measurement accuracy		1 级 class			
报警 alarm		光报警指示、通讯报警 Light alarm indication, communication alarm			
开关量输入 DI		无源干接点输入方式:内置电源 Passive dry contact input mode: built-in power supply			
开关量输出 DO		无源常开触点，触点容量 AC 220V/1A,DC 30V/1APassive normally open contact, contact capacity			
通讯 communication		二总线通讯 two-bus communication			
通讯设置 Communication settings		编码器设置、液晶面板设置 Encoder settings, LCD panel settings		编码器设置 Encoder settings	
有效通讯距离		≤500m			
环境 environment		工作温度 working temperature：-10℃~+55℃；储存温度 Storage temperature：-20℃~+70℃；相对湿度 Relative humidity：≤95%不结露 Non-condensing			

3.2 AFPM/D、AFPM/T 系列 series

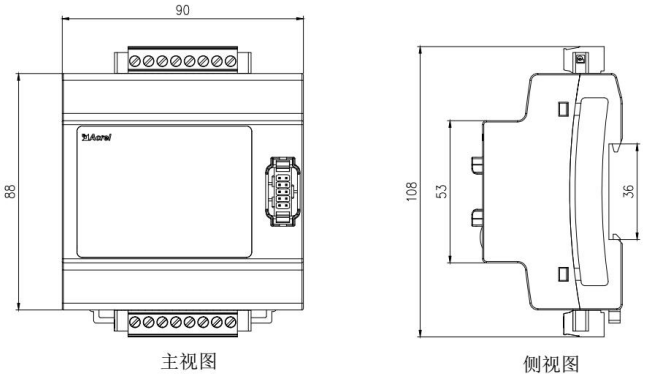
型号 model / 参数 parameter		AFPM/D-3AV	AFPM/D-6AV	AFPM/D-3AI	AFPM/D-6AI	AFPM/D-3AVI	AFPM/T-AV	AFPM/T-2AV	AFPM/T-AI	AFPM/T-2AI	AFPM/T-AVI
监控报警 Monitoring alarm	过压 overvoltage	（100%-140%）	（100%-140%）	/	/	（100%-140%）	（100%-140%）	（100%-140%）	/	/	（100%-140%）
	欠压 Undervoltage	（60%-100%）	（60%-100%）	/	/	（60%-100%）	（60%-100%）	（60%-100%）	/	/	（60%-100%）
	过流 overcurrent	/	/	（100%-120%）	（100%-120%）	（100%-140%）	/	/	（100%-140%）	（100%-140%）	（100%-140%）
动作延迟时间		0.1S～60.0S 连续可调 Continuously adjustable									

输入电压 Input voltage	额定值 Rated value AC220V	额定值 AC220V	/	/	额定值 AC220V	额定值 AC220V	额定值 AC220V	/	/	额定值 AC220V
输入电流 Input current	/	/	额定值 AC5A	额定值 AC5A	额定值 AC5A	/	/	额定值 AC5A	额定值 AC5A	额定值 AC5A
测量精度 Measuring accuracy	1级 class									
报警 alarm	光报警指示、通讯报警 Light alarm indication, communication alarm									
环境 environment	工作温度 working temperature：-10℃~+45℃；储存温度 storage temperature：-20℃~+70℃；相对湿度 Relative humidity：≤95%不结露 Non-condensing									
使用 use	**只能与主模块配套使用 only be used with the main module**									

4 产品外形 Product shape

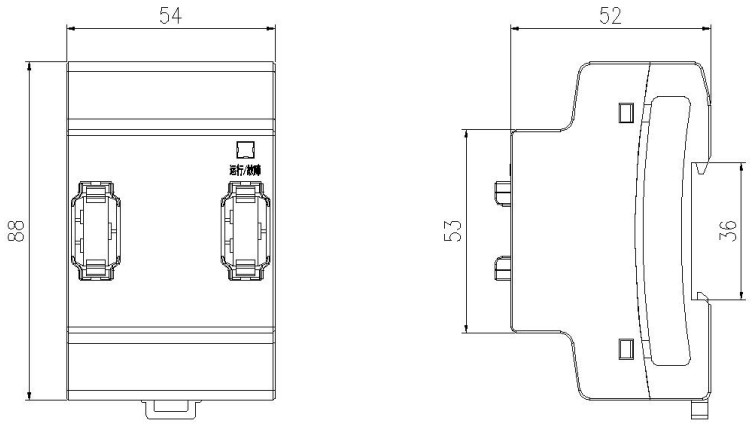
4.1 产品尺寸 Product shape

4.1.1 AFPM3 系列产品尺寸 Series product size（单位 Unit：mm）



主视图　　侧视图

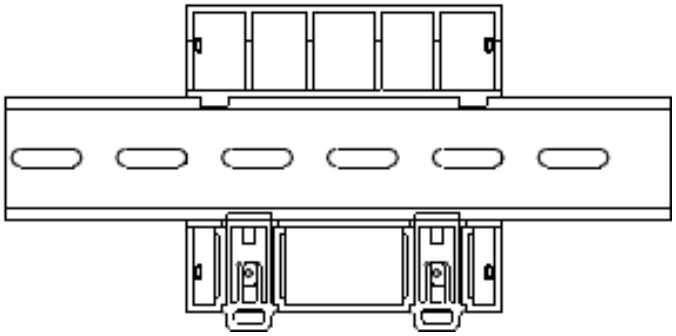
4.1.2 AFPM/D、AFPM/T 系列产品尺寸 Series product size（单位 Unit：mm）



主视图　　侧视图

4.2 安装方式 Installation method

将此传感器安装在标准导轨（35mm 导轨 Din rail）上即可，并用固定端子将其固定。Mount the sensor on a standard rail and secure it with a fixed terminal.



导轨式安装 rail din

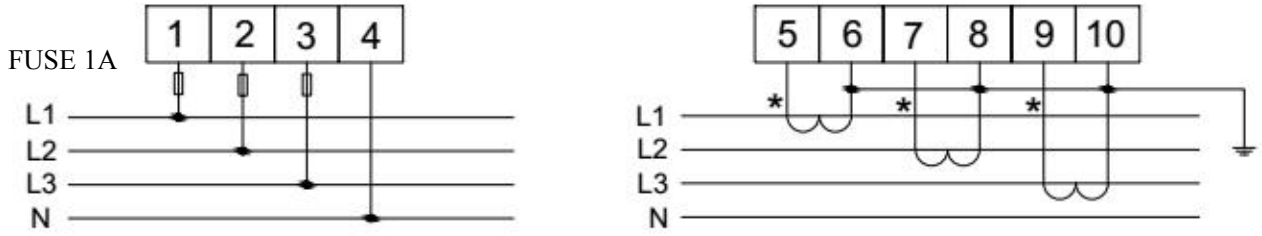
主从模块连接示意图 Master-slave module connection diagram

主从模块利用软排线进行连接，单个主模块后最多可连接 14 个从模块。The master-slave module is connected by a flexible cable, and up to 14 slave modules can be connected after a single master module.

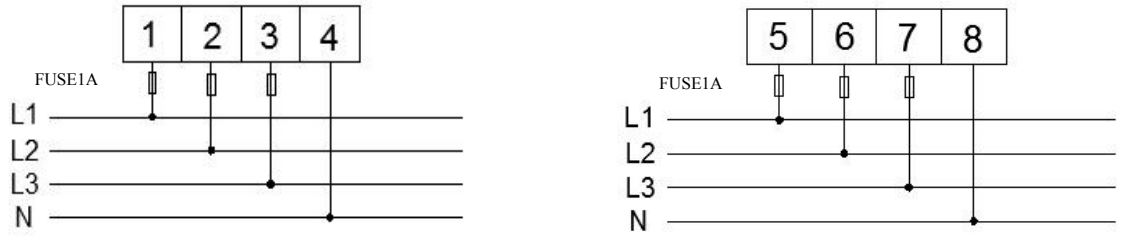
5 产品接线端子定义(注：以传感器上接线图为准)Product terminal definition (Note: the wiring diagram on the sensor shall prevail)

5.1 AFPM3 系列产品接线端子定义 Series product terminal definition

5.1.1 AFPM3-AVIM、AFPM3-AVIML 接线端子 Terminals

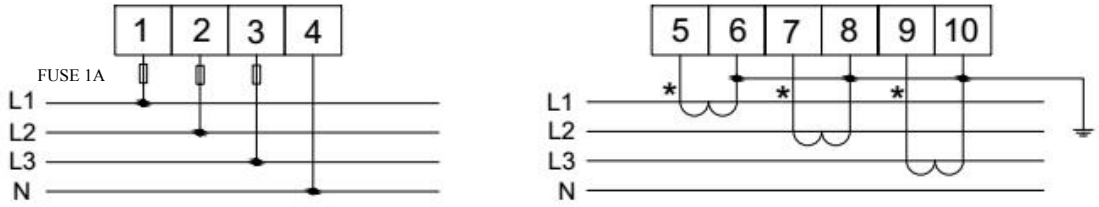


5.1.2 AFPM3-2AVM、AFPM3-2AVML 接线端子 Terminals

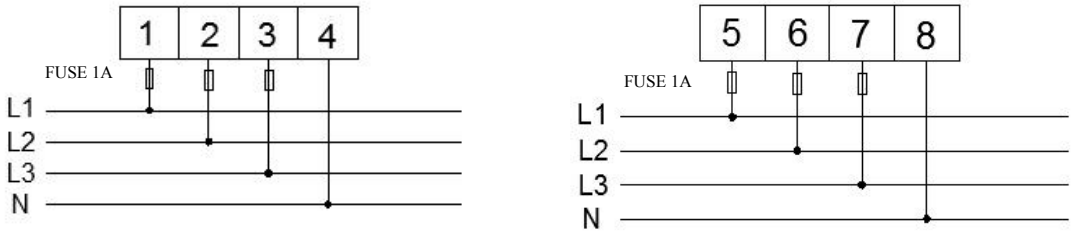


5.2 AFPM/D、AFPM/T 系列产品接线端子定义 Series product terminal definition

5.2.1 AFPM/T-AVI，AFPM/D-3AVI 接线端子 Terminals



5.2.2 AFPM/D-6AV,AFPM/T-2AV,AFPM/D-3AV，AFPM/T-AV 接线端子 Terminals

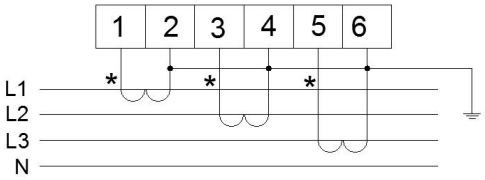


电源 1power supply 1

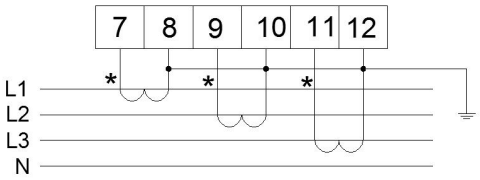
电源 2power supply 2

注：AFPM/D-3AV，AFPM/T-AV 只接入电源 1

5.2.3 AFPM/D-6AI,AFPM/T-2AI,AFPM/D-3AI， AFPM/T-AI 接线端子 Note: AFPM/D-3AV, AFPM/T-AV only connected to power supply 1



电源 1power supply



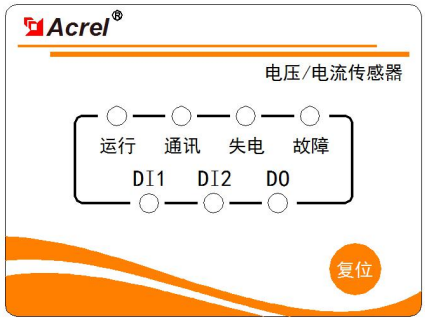
电 源 2power

注：AFPM/D-3AI，AFPM/T-AI 只接入电源 1Note: AFPM/D-3AI, AFPM/T-AI only connected to power

6 产品操作指南 Product operation guide

6.1 AFPM3-2AVM、AFPM3-AVIM 操作指南 operation guide

6.1.1 指示显示及操作 Indication display and operation



- **运行指示灯（绿色）**：运行指示灯闪烁说明模块正常运行，频率约为一秒一次；
- Running indicator (green): The running indicator flashes to indicate that the module is running normally, and the frequency is about one second.
- **通讯指示灯（绿色）**：通讯指示灯闪烁说明模块正与监控主机进行通讯，频率约为一秒一次；
- Communication indicator (green): The communication indicator flashes to indicate that the module is communicating with the monitoring host. The frequency is about one second.
- **失电指示灯（红色）**：失电指示灯常亮说明监控电源回路出现欠压故障；
- Power failure indicator (red): The power failure indicator is always on, indicating that the power supply loop has an undervoltage fault;
- **故障指示灯（黄色）**：故障指示灯常亮说明监控电源回路出现故障；
- Fault indicator (yellow): The fault indicator is always on, indicating that the monitoring power supply circuit is fault.
- **DI1 指示灯（红色）**：DI1 指示灯常亮说明有开入状态；
- DI1 indicator (red): The DI1 indicator is always on, indicating that there is an open state;
- **DI2 指示灯（红色）**：DI2 指示灯常亮说明有开入状态；
- DI2 indicator (red): The DI2 indicator is always on, indicating that there is an open state;
- **D0 指示灯（红色）**：D0 指示灯常亮说明继电器有输出。
- D0 indicator (red): The D0 indicator is always on, indicating that the relay has an output.

发生报警时，可按复位键来消除报警和复位开关量输出状态。

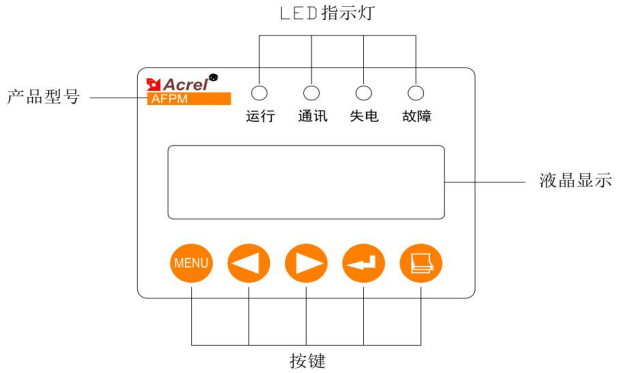
When an alarm occurs, press the reset button to cancel the alarm and reset the digital output status.

6.1.2 地址设置 Address setting

模块的通讯地址通过编码器来设置的。The communication address of the module is set by the encoder.

6.2 AFPM3-2AVML、AFPM3-AVIML 操作指南 operation guide

6.2.1 指示显示及操作 Indication display and operation

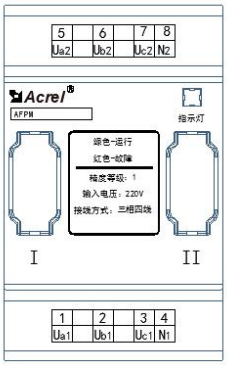


- **运行指示灯（绿色）：**模块处于正常运行时，运行指示灯闪烁，闪烁频率大约为一秒一次；
- Running indicator (green): When the module is in normal operation, the running indicator flashes, and the flashing frequency is about one second;
- **通讯指示灯（绿色）：**监控模块与主机正常通讯时，通讯指示灯闪烁，闪烁频率大约为一秒一次；
- Communication indicator (green): When the monitoring module communicates with the host normally, the communication indicator flashes, and the blinking frequency is about once per second;
- **失电指示灯（红色）：**监控回路出现失电故障时，失电故障指示灯常亮；
- Power failure indicator (red): When the monitoring loop has a power failure fault, the power failure fault indicator is always on;
- **故障指示灯（黄色）：**监控回路出现故障时，故障指示灯常亮。
- Fault indicator (yellow): When the monitoring loop fails, the fault indicator is always on.

6.2.2 地址设置 Address setting

模块的通讯地址可以通过编码器和模块自身来设置的。The communication address of the module can be set by the encoder and the module itself.

6.3 AFPM/T、AFPM/D 系列操作指南 series operation guide



6.3.1 指示显示及操作 Indication display and operation

模块有指示灯。指示灯绿色说明监控电源正常，指示灯红色说明监控电源有故障。

The module has an indicator light. The green indicator light indicates that the monitoring power supply is normal, and the red indicator light indicates that the monitoring power supply is faulty.

6.3.2 通讯设置 Communication settings

长按主模块上的复位按钮，与此主模块连接的从模块指示灯会由红变绿依次亮起，此时说明通讯正常。

Press and hold the reset button on the main module, the slave module indicator connected to this main module will light up from red to green, indicating that the communication is normal.

7 AFPM3-2AVML、AFPM3-AVIML 使用与设置 Use and settings

7.1 按键功能说明 Button function description

AFPM3-AVIML、AFPM3-2AVML 系列消防设备电源监控模块共有五个按键，分别为 Menu 键、◀左键、▶右键、↵回车键和⎘翻页键。

AFPM3-AVIML, AFPM3-2AVML series fire equipment power monitoring module has five buttons, Menu button, left button, right button, enter button and page button.

表 2 Table 2

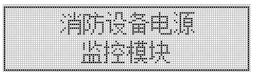
MENU 菜单键 button	设置模式下：按该键进入设置模式，装置提示输入密码，或返回上一级菜单； In the setting mode: press this button to enter the setting mode, the device prompts to enter the password, or returns to the previous menu; 非设置模式下：用于返回上一级菜单，或退出该模式。 In non-setting mode: used to return to the previous menu or to exit the mode.
◀左键、▶右键 left button, right button	设置模式下：用于同级菜单的切换和光标的移位。 In the setting mode: for the switching of the same level menu and the shift of the cursor. 非设置模式下：用于切换显示界面； In non-setting mode: used to switch the display interface;
↵ 回车键 enter button	用于菜单项目的选择确认，及进入下一级菜单； Used for selection confirmation of menu items, and entering the next level menu;
⎘ 翻页键 page button	设置模式下：用于当前设置内容的更改或数值的累加； In setting mode: for the change of the current settings or the accumulation of values; 非设置模式下：用于进入功能设置界面，或输入密码时，用于数值的累加。 In non-setting mode: used to enter the function setting interface, or when entering a password, used for the accumulation of values.

7.2 液晶显示 LCD diaplay

7.2.1 开机与自检 Boot and self test

打开相关联电源设备，上电瞬间，监控模块界面显示如左下图所示，所有指示灯同时变亮，探测器进行自检，界面如右下图所示，所有指示灯依次熄灭，最终运行指示灯闪烁，探测器进入正常监控状态。

Turn on the associated power supply device. At the moment of power-on, the interface of the monitoring module is displayed as shown in the lower left figure. All the indicators are brightened at the same time. The detector performs self-test. The interface is as shown in the lower right figure. All the indicators are turned off in sequence, and the final operation indication is displayed. The light flashes and the detector enters the normal monitoring state.



7.2.2 模块状态界面 Module status interface

模块状态各界面切换如下图 3 所示：The interface status of each module is switched as shown in Figure 3 below:

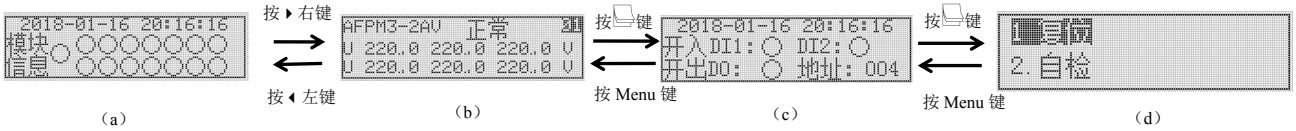


图 3 模块状态界面 module status interface

①模块在线界面 Module online interface

自检结束后进入模块在线界面，如图 4 所示，显示当前主模块状态与连接该主模块的从模块的状态。

After the self-test is completed, the module online interface is entered. As shown in FIG. 4, the status of the current main module and the status of the slave module connected to the main module are displayed.

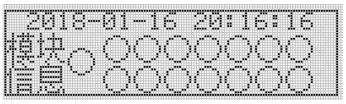


图 4 模块在线界面 Module online interface

其中 ○ 表示模块在线，通讯正常，且该模块监控的线路中无故障，Indicates that the module is online, the communication is normal, and there is no fault in the line monitored by the module.

●表示该模块监控的线路中存在故障， Indicates that there is a fault in the line monitored by the module.

■表示当前该从模块离线，需要检查接线。Indicates that the slave module is currently offline and needs to check the wiring.

注：若此时无从模块与主模块连接，则自检结束后直接显示模块实时值界面，如图 3（b）所示

Note: If there is no slave module connected to the main module at this time, the module real-time value interface will be directly displayed after the self-test is completed, as shown in Figure 3(b).

②模块开入界面 Module access interface

模块实时值界面，按下键进入开入开出状态显示界面，如下图 5 所示

Module real-time value interface, press the key to enter open status display interface, as shown in Figure 5

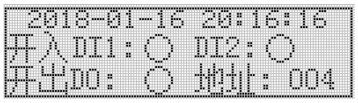


图 5 开入开出状态显示界面 Figure 5 Open status display interface

- **DI1、DI2 后的图标：**○表示此时无开入量输入，●表示此时有开入量输入；
- ○ indicates that there is no input input at this time, ● indicates that there is input input at this time;
- **DO 后的图标：**○表示此时此时继电器无输出，●表示此时继电器有输出；
- ○ indicates that the relay has no output at this time, ● indicates that the relay has an output at this time;
- **地址后的数字：**代表当前主模块的地址标号，如图 5 所示主模块地址为 004。
- The number after the address: represents the address label of main module, as shown in Figure 5, the main module address is 004.

③ 复位自检界面 Reset self-test interface

按下 Menu 键返回图 3 界面，按下键进入复位自检界面，如图 6

Press the Menu button to return to the interface of Figure 3, press the button to enter the reset self-test interface, as shown in Figure 6 reset self-test interface

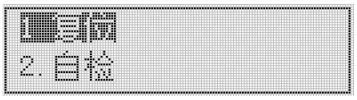


图 6 复位自检界面 Reset self-test interface

- **复位：**当解除报警或故障后，可以对当前模块进行复位
- Reset: After the alarm or fault is cleared, the current module can be reset.

- **自检：**如若想查看当前状态下设备是否完好，或者有从模块重新连接，则选择该功能。
- Self-test: Select this function if you want to check whether the device is in the current state or if the slave module is reconnected.

7.2.3 模块实时值界面 Module real-time value interface

在模块在线界面下，如图 7（a）所示，按◂左键，▸右键进行切换，如下图 7 所示

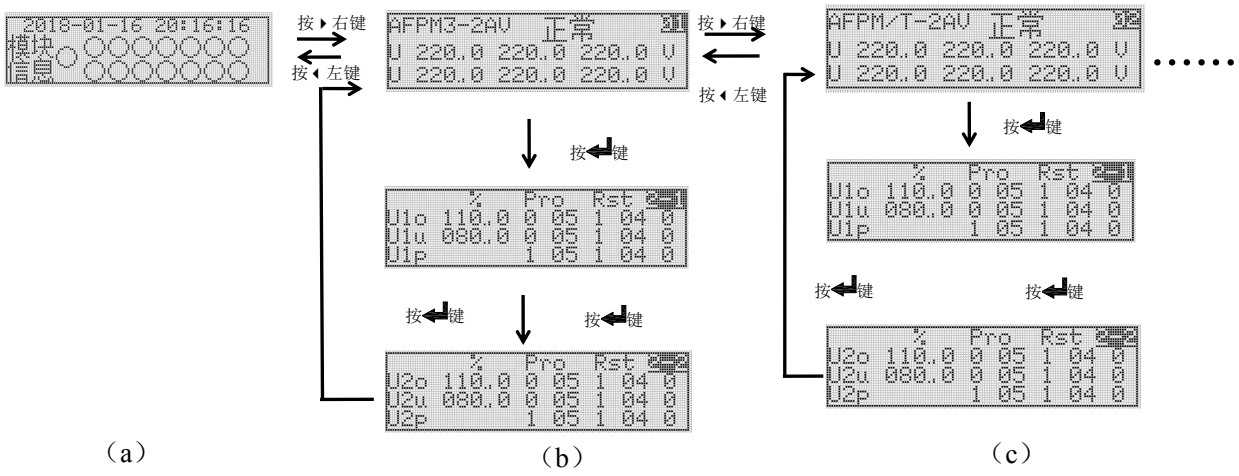


图 7 模块实时界面 Module real-time value interface

① **模块实时值界面** Module real-time value interface

模块在线状态界面按▸右键，即可查看当前主模块以及连接该主模块的所有从模块的实时值，如图 8 所示

Right-click the module online status interface to view the real-time values of the current master module and all slave modules connected to the master module, as shown in Figure 8.

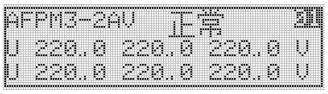


图 8 模块实时值界面 Module real-time value interface

如图 8 所示，界面各数据定义如下：As shown in Figure 8, the data of the interface is defined as follows:

- **AFPM3-2AV：**表示的是该主模块的型号；Indicates the model of the main module
- **正常：**表示的是该主模块监控的回路中没有故障，若有故障，则显示为故障
- Normal: indicates that there is no fault in the circuit monitored by the main module. If there is a fault, it is displayed as a fault.
- **U 220.0 220.0 220.0 V ：**U 表示的是监控电压状态，U 后跟的三个数字分别代表线路中 A 相、B 相、C 相的值
- U indicates the status of the monitoring voltage. The three numbers following U represent the values of Phase A, Phase B, and Phase C in the line.

② **参数设置显示界面 Parameter setting display interface**

模块实时值界面按下↵键，进入到保护参数界面，如图 9 所示：Press the key on the module real-time value interface to enter the protection parameter interface, as shown in Figure 9.

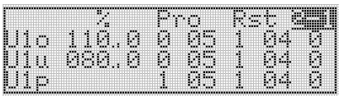


图 9 模块保护值界面 Module protection value interface

如图 9 所示，界面中各参数定义如下：As shown in Figure 9, the parameters in the interface are defined as follows

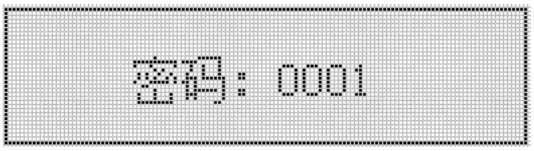
- **U1o（过压）：**U1o 后跟的为第一路过压保护参数；

- U1o is followed by the first overvoltage protection parameter
- **U1u（欠压）：**U1u 后跟的为第一路欠压保护参数；
- U1u is followed by the first undervoltage protection parameter
- **U1p（错相）：**U1p 后跟的为第一路错相保护参数；
- U1p is followed by the first phase out-of-phase protection parameter
- **%（保护百分比）：**%下的一列为保护参数；
- under% is the protection parameter
- **Pro（动作参数）：**Pro 下的两列，第一列表示的为保护开关打开与否，0 代表关闭，1 代表打开；第二列表示的为动作时间，如图 9 中，动作时间均为 5 秒；
- Two columns under Pro, the first column indicates whether the protection switch is on or off, 0 means off, 1 means on; the second column shows the action time, as shown in Figure 9, the action time is 5 seconds;
- **Rst（自恢复参数）：**Rst 下的两列，第一列表示的为自动恢复开关打开与否，0 代表关闭，1 代表打开；第二列表示的为自动恢复时间，如图 9 中，自动恢复时间均为 4 秒。
- The two columns under Rst, the first column indicates whether the auto-recovery switch is on or not, 0 means off, 1 means on; the second column shows the auto-recovery time, as shown in Figure 9, the auto-recovery time is 4 seconds.

7.2.4 设置界面 Set interface

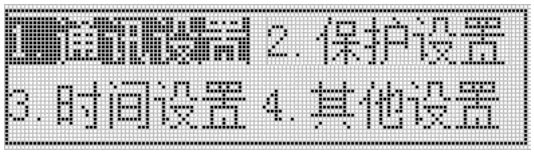
按 MENU 键，进入编程密码界面：通过按左右键，输入用户密码(默认密码为 0001)，输好后按↵回车键进入。若此时又不想进行设置，再按 MENU 键便可以退回模块状态显示界面。

Press the MENU key to enter the programming password interface: by pressing the left and right keys, enter the user password (the default password is 0001), and then press Enter to enter. If you do not want to make settings at this time, press the MENU key again to return to the module status display interface.



① 密码正确后进入设置界面，在此模式下按左右键选择需要的菜单，按↵回车键进入下一级菜单进行设置如下图所示：

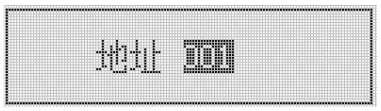
After the password is correct, enter the setting interface. In this mode, press the left and right keys to select the required menu, and press the Enter key to enter the next level of menu for setting as shown in the figure below:



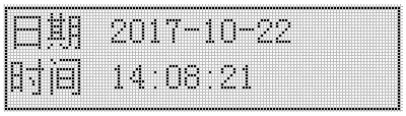
② 在上述界面下可以对模块参数进行设置。

The module parameters can be set in the above interface.

- **通讯设置界面：**可以对地址进行修改或设置；
- Communication setting interface: You can modify or set the address
- **时间设置界面：**可对日期、时间进行修改或设置；
- Time setting interface: can modify or set the date and time;
- **保护设置界面：**可对报警参数和保护类型进行修改或设置；其中模块地址为 00 时，是对该主模块以及连接该主模块的所有的从模块进行广播设置参数；
- Protection setting interface: Alarm parameters and protection types can be modified or set; when the module address is 00, the main module and all the slave modules connected to the main module are broadcasted to set parameters;
- **其它设置界面：**可对密码、背光进行修改或设置，以及是否记录清零和是否测试进行设置。
- Other settings interface: You can modify or set the password and backlight, and set whether to clear the records and test.

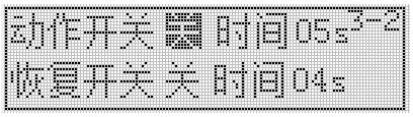


通 讯 设 置 Communication

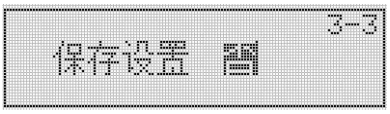


时间设置 time setting

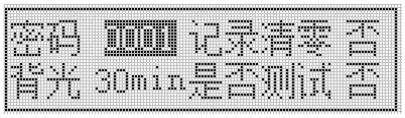
保护设置（01）Protection settings



保护设置（02）Protection settings



保护设置（03）Protection settings



其他设置 other settings

设置完成后按确认键保存即可。After setting, press the OK key to save.

8 模块自身故障分析 Module failure analysis

8.1 AFPM3 系列故障分析 Series failure analysis

● 若模块运行指示灯不亮，则请检查电源是否接好。

If the module operation indicator is off, please check whether the power is connected well.

● 如供电正常情况下失电指示灯亮起，则按下“复位”按键进行报警复位，若灯仍亮则送修。

If the power failure indicator is on under normal power supply conditions, press the "Reset" button to reset the alarm. If the light is still on, send for repair.

● 模块通讯时通讯指示灯会闪烁。当模块和监控主机进行通讯，通讯指示灯闪烁很慢时，直接送修。通讯指示灯闪烁很快时，说明通讯线路有故障，对通讯线路进行排查。

The communication indicator flashes when the module is communicating. When the module communicates with the monitoring host and the communication indicator flashes slowly, send it directly for repair. When the communication indicator flashes quickly, the communication line is faulty, and the communication line is checked.

8.2 AFPM/D、AFPM/T 系列故障分析 Series failure analysis

●若模块运行指示灯不亮，则请检查与主模块是否接好。

If the module operation indicator is off, check whether it is connected to the main module.

●模块通讯时指示灯会闪烁。当主模块故障指示灯闪烁时，说明线路中有从模块未能通讯上，此时长按主模块上的复位按钮，与此主模块连接的从模块指示灯会由红变绿依次亮起，检查有无不能亮起的从模块。如果线路中有不能亮起的从模块，则对该从模块进行替换。替换后再按下长按主模块上的复位键，检查线路中是否还有不能通讯的从模块。

The indicator light will flash while the module is communicating. When the fault indicator of the master module blinks, it means that there is a slave module in the line that fails to communicate. At this time, press and hold the reset button on the master module. The slave module indicators connected to this master module will turn from red to green in order. Slave module that cannot be lit. If there is a slave module in the line that cannot be lit, replace the slave module. After replacement, press and hold the reset button on the master module for a long time, and check if there are any slave modules that cannot communicate.

9 安装要求

● 必须让具有资格的安装人员安装此模块，并且安装之前要仔细阅读使用说明。

This module must be installed by a qualified installer, and the instructions for use must be read carefully before installation.

● 接线时按照使用说明中的接线方式接线，接线完成后要认真核对接线是否正确，以免通电后损坏模块、产生危险事故。

When wiring, follow the wiring method in the instruction manual. After the wiring is completed, carefully check whether the wiring is correct to avoid damage to the module and dangerous accidents after power-on.

● 安装或移除模块时，请确认工作电源、待测母线及相关部分电源已切断以免发生触电，造成危险和人员伤害。

When installing or removing the module, please make sure that the power supply of the work, the bus under test and related parts have been cut off to avoid electric shock, which may cause danger and personal injury.

● 对模块进行送检、维修之前要切断所有电源和检测控制连接线。

Cut off all power and test control cables before sending the module for inspection and maintenance.

● 接线、布线请按相关规范要求，以免发生短路、断路等事故，同时也方便日后的维护和检修。

Wiring and wiring should be in accordance with relevant specifications to avoid accidents such as short circuits and open circuits, and also facilitate future maintenance and repair.

● 模块的正常运行依赖于正确的安装、设置和操作，安装之前请详细阅读安装、设置和操作的相关内容，以保证模块的正常运行。

The normal operation of the module depends on the correct installation, setting and operation. Please read the installation, setting and operation related content in detail before installation to ensure the normal operation of the module.

● 对装有模块的电源设备进行绝缘或摇表测试之前，断开所有与模块连接的输入和输出线，避免测试对模块内部器件可能带来的损坏。

Before performing insulation or shake test on the power supply equipment with the module, disconnect all input and output wires connected to the module to avoid possible damage to the internal components of the module.

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