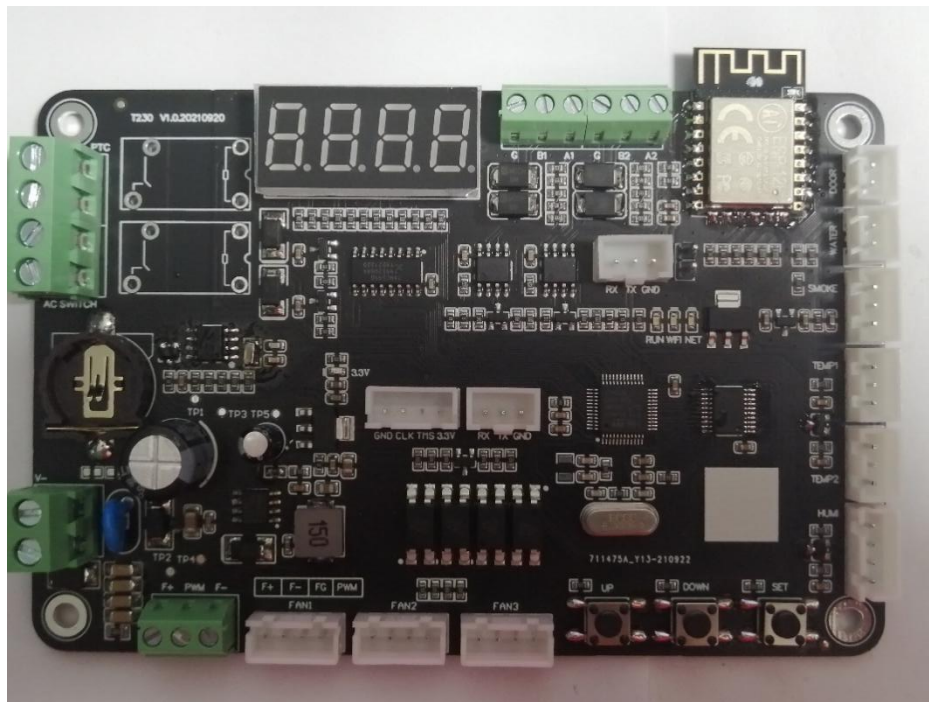

T230 Series Controller

Technical Specifications

T230 系列控制器

技术规格书



This specification may be updated as the product is improved. Please refer to the latest version

本规格书可能会随着产品的改进而更新，请以最新版为准

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1 Product Description(产品描述)

The T230 series controller is a standard projector enclosure controller that intelligently controls and adjusts the temperature of the projector enclosure based on set parameters and built-in algorithms, ensuring the projector operates within the optimal temperature range.(T230 系列控制器，是一款普通版投影仪箱体控制器，可根据设定参数和内置算法，智能控制调节投影仪箱体温度，使投影仪工作在最佳温度范围。)

1.1 Features(功能特点)

- ◆ Built-in intelligent algorithm to intelligently control and adjust the temperature of the projector enclosure; (内置智能算法，智能控制调节投影仪箱体温度；)
- ◆ Expansion support for WiFi connection to the cloud and RS485 connection to central control systems; (扩展支持 wifi 连接云端、RS485 连接中控系统；)
- ◆ Supports hardware watchdog to ensure normal system operation; (支持硬件看门狗，确保系统运行正常；)
- ◆ Power supply reverse connection protection. (电源防反接。)

1.2 Product Performance(产品性能)

Product Model (产品型号)	T230 Series (T230 系列)
Product Dimensions(产品尺寸)	121*80*20mm(121*80*20mm)
Operating Voltage (工作电压)	DC 12V/24V(DC 12V/24V)
Rated Current (额定电流)	1A
Protection Level (防护等级)	IP00 (bare board) (IP00 (裸板))
Operating Environment (使用环境)	Operating temperature range from -40 to 85°C, 5 %RH≤ relative humidity ≤95% RH (non-condensing) (工作 环境温度范围-40 ~ 85°C, 5%RH≤相对湿度≤95 % RH(无凝露))
Storage Environment (保存环境)	Temperature range from -25 to 85°C, relative humidity ≤95% RH (non-condensing) (温度范围-25 ~ 85°C, 相对湿度≤95 %RH(无凝露))
Relay Switch (继电器开关)	10A/250VAC/30VDC
Heater (加热器)	Not exceeding 800W (AC220, 4A) (不大于 800W (AC220, 4A))

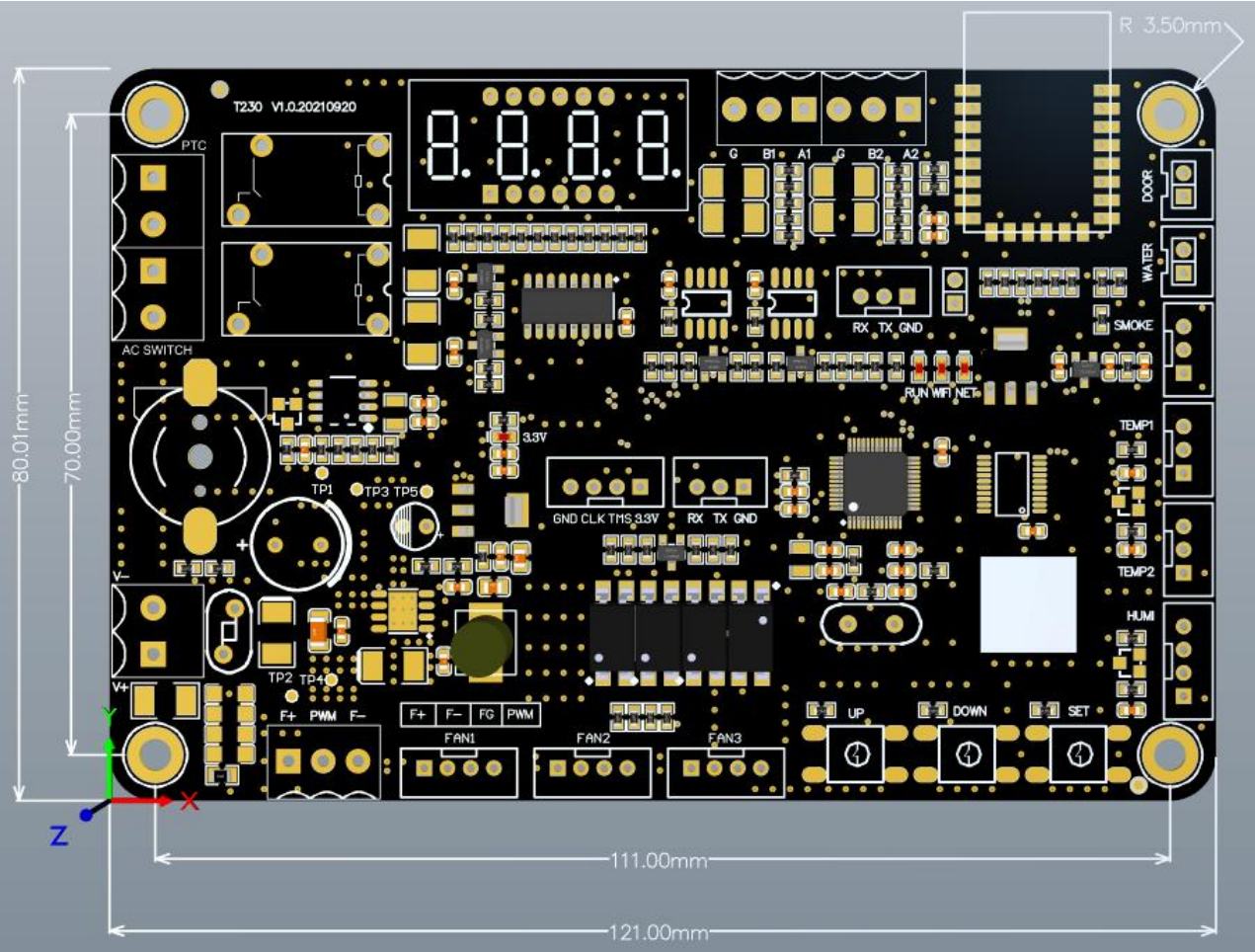
1.3 Main Configuration (主要配置)

Product Model (产品型号)	T230-1	T230-2
Variable Speed Fan (调速风扇)	Built-in 3 channels, expandable to 6 channels (内置 3 路、扩展 6 路)	Built-in 3 channels, expandable to 6 channels (内置 3 路、扩展 6 路)
Low Temperature Heating (低温加热)	●	●
Heating Dehumidification (加热除湿)	●	●
Digital Temperature and Humidity Sensor (数字温湿度传感器)	1 channel (1 路)	1 channel (1 路)
Digital Temperature Sensor (数字温度传感)	2 channels (1 channel at the air inlet, 1 channel at the air outlet) (2 路 (1 路进风口、1 路出风口))	1 channel (at the air outlet) (1 路 (出风口))
Smoke Detection Alarm (烟感报警)	●	
Water Detection Alarm (水浸报警)	●	
Relay Switch(继电器开关)	2 channels	2 channels
Display (显示)	4-digit digital (4 位数码)	4-digit digital (4 位数码)
Human-machine(人机)	3 mechanical buttons (3 个机械按键)	3 mechanical buttons (3 个机械按键)
RS485	◎	◎
WIFI	◎	◎

● ● Standard ◎ Optional (●标配 ◎选配)

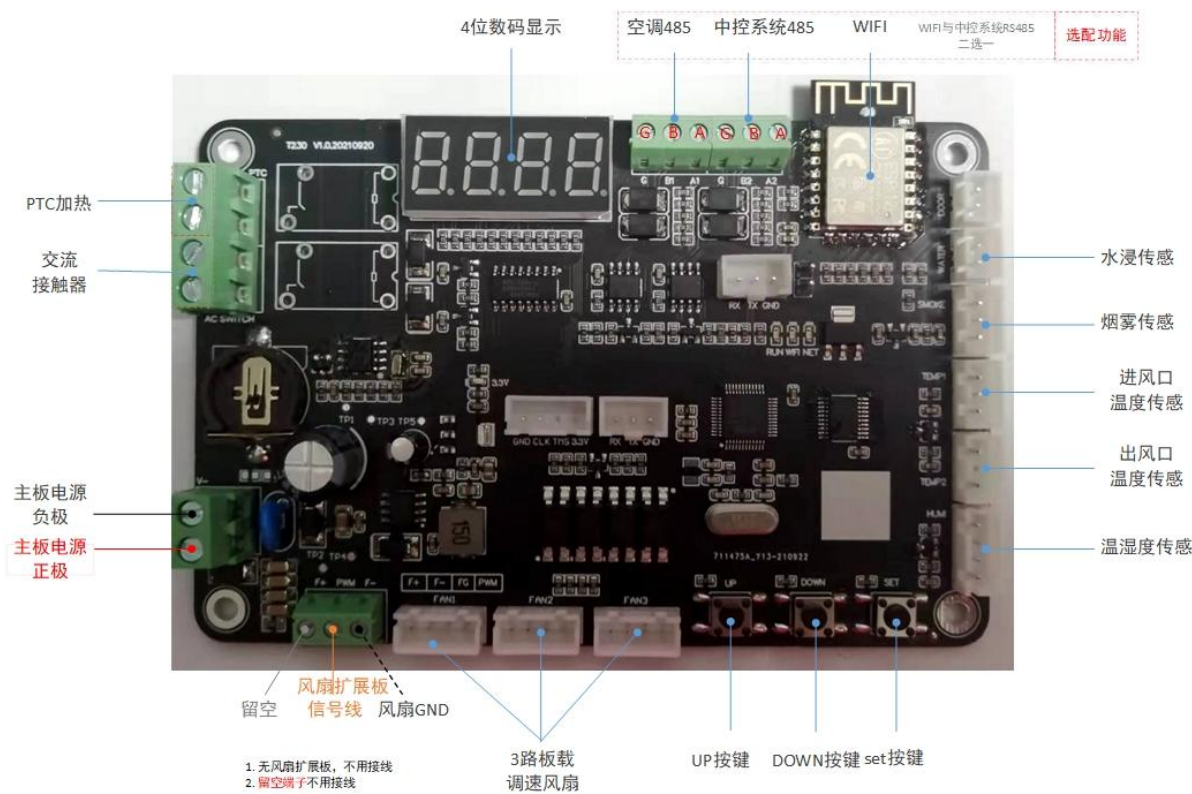
1.4 Dimensional Drawings and Interface Definitions （尺寸图与接口定义）

1.4.1 Motherboard Dimensions （主板尺寸）

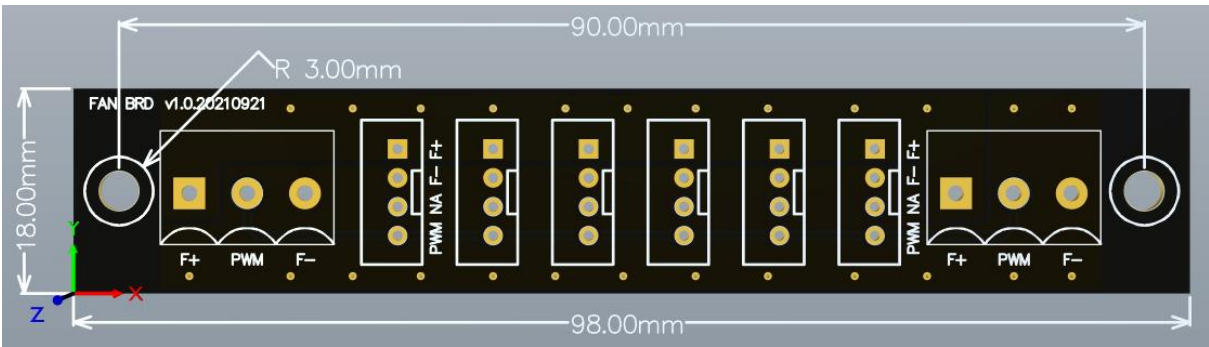


Motherboard Dimensions （主板尺寸）	
Length （长）	121mm
Width （宽）	80mm
Height （高）	<20mm
Mounting Hole Size （固定孔大小）	3mm, 4 holes, M3 screws （3mm, 4 个, M3 螺丝）

1.4.2 Motherboard Interfaces （主板接口）

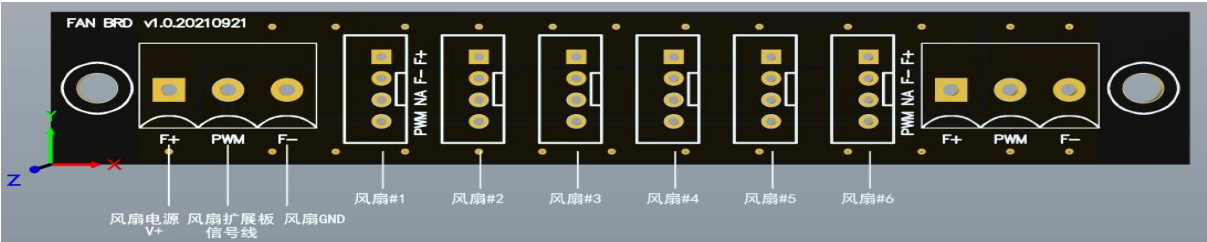


1.4.3 Fan Expansion Board Dimensions （风扇扩展板尺寸）

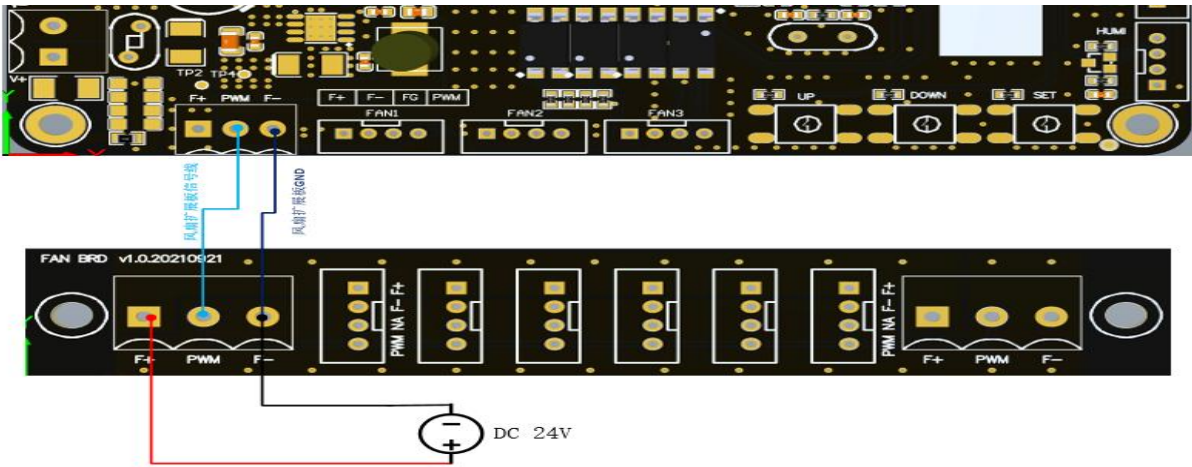


Fan Expansion Board Dimensions （风扇扩展板尺寸）	
Length （长）	121mm
Width （宽）	80mm
Height （高）	<20mm
Mounting Hole Size （固定孔大小）	3mm, 4 holes, M3 screws （3mm, 4 个, M3 螺丝）

1.4.4 Fan Expansion Board Interfaces （风扇扩展板接口）



1.4.5 Wiring Diagram of Fan Expansion Board to Motherboard (风扇扩展板与主板接线图)



1.5 Accessory List (配件清单)

Serial number (序号)	Name (名称)	Unit(单位)	Model(型号): T230-1	Model(型号): T230-2
			Quantity (数量)	Quantity (数量)
1	T230 Main Control Board(T230 主控板)	Piece(块)	1	1
2	Fan Expansion Board (风扇扩展板)	Piece (块)	Optional (选配)	Optional (选 配)
3	Temperature and Humidity Sensor (50cm cable with plug)(温湿度传感器 (50cm 线带插头))	Piece (个)	1	1
4	Temperature Sensor (1m cable with plug) {温度传感器 (1 米线带插头)}	Piece(个)	2	1
5	Smoke Detection Sensor (1m cable with plug) {烟感传感器 (1 米线带插头)}	Piece (个)	1	/
6	Water Immersion Sensor (1m cable with plug) {水浸传感器 (1 米线带插头)}	Piece (个)	1	/

2 **Operating Instructions (操作说明)**

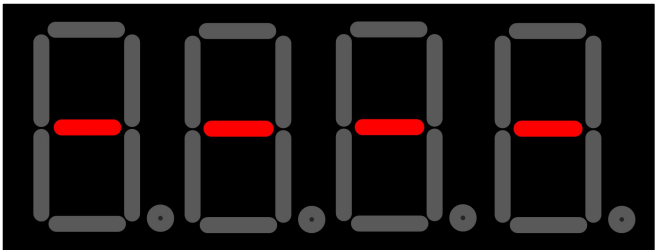
2.1 **Key Descriptions(按键说明)**

Key(按键)	Meaning (意义)
UP Key(UP 键)	Increase(增加)
DOWN Key (DOWN 键)	Decrease(减小)
SET Key(SET 键)	Set/Confirm (设置/确定)

2.2 **Digital Display (数码显示)**

2.2.1 **Power-on Self-test(开机自检)**

After the main control board is powered on, it enters the self-test interface, as shown in the following diagram. The self-test lasts about 3 seconds(主控板上电后，进入自检界面，如下图所示。自检时间约 3 秒左右。)



Power-on Self-test Interface) (开机自检界面)

2.2.2 HOME Interface(HOME 界面)

After the main control board completes self-testing, it enters the HOME interface. The HOME interface displays data items in a fixed sequence and interval of 6 seconds. The highest digit indicates the data item number, 0—9; the lower three digits display the corresponding value of the data item.(主控板自检完成后, 进入 HOME 界面。HOME 界面为轮显界面, 按间隔 6 秒和固定顺序轮显数据项。最高位指示数据项编号, 0—9; 低 3 位显示数据项对应的数值。)

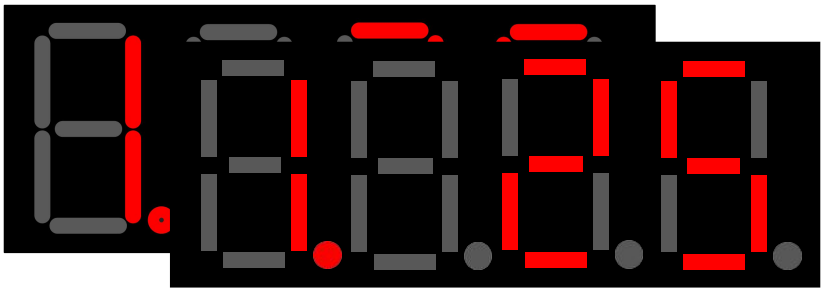


Figure 2 HOME Interface (图 2 HOME 接口)

The data items displayed in rotation are as described in the table below. (轮显数据项如下表所述。)

DataItemNumber 数据项编号	Data Item 数据项	Description 说明
1	Outlet Temperature 出风口温度	Measured temperature value from digital temperature sensor circuit 2 Unit: Degrees 数字温度传感线路 2 的测量温度值 单位：度
2	Inlet Temperature 进风口温度	Measured temperature value from digital temperature sensor circuit 1 Unit: Degrees Factory Default Not Displayed 数字温度传感线路 1 的测量温度值 单位：度 出厂默认不显示
3	Cabinet Temperature 柜内 温度	Measured temperature value from temperature and humidity sensor Unit: Degrees 温湿度传感测量温度值 单位：度

4	Humidity 湿度	Measured humidity value from temperature and humidity sensor Unit: %RH 温湿度传感测量湿度值 单位：%RH
5	Fan Speed Percentage 风扇转速百分比	Current Fan Speed Percentage Unit: 当前风扇转速百分比 单位：%

In the HOME interface, the functions of the keys are as described in the table below.（在 HOME 界面，按键功能如下表所述。）

Key （按键）	Function （功能）
UP Key （UP 键）	View the next data item in rotation （查看下一轮显数据项）
DOWN Key （DOWN 键）	View the previous data item in rotation （查看上一轮显数据项）
SET Key （SET 键）	Enter the System Parameters interface （进入系统参数界面）

2.2.3 System Parameters Interface （系统参数界面）

In the HOME interface, pressing the SET key enters the System Parameters （在 HOME 界面，按下 SET 键进入系统参数界面，在界面可查看系统参数值和设置系统参数值。）

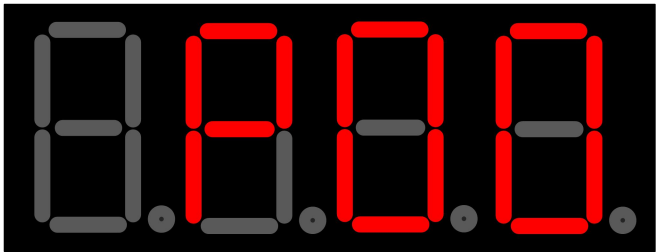


Figure 3 System Parameters Interface （图三系统参数项界面）

In the System Parameters interface, first select the parameter item, then press the SET key to view the parameter value. Parameter items are displayed as: Pxx (parameter code), as shown above. Use the UP and DOWN keys to select a parameter item. After selecting a parameter item, press the SET key to view/set the parameter value. As shown in the following figure.

（在系统参数界面中，先选择参数项，再按 SET 键查看参数值。参数项显示为：Pxx（参数代码），如上图所示。可按 UP 键和 DOWN 键，选择参数项。参数代码详见下章节的定义。选中参数项后，按 SET 键查看/设置参数值。如下图所示。）

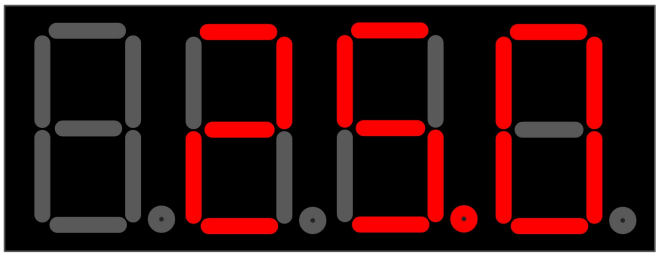


图 2 Figure 4 System（系统参数值界面）

Parameter Values Interface In the System Parameters interface, the functions of the keys are as described in the table below(在系统参数界面，按键功能如下表所述。)

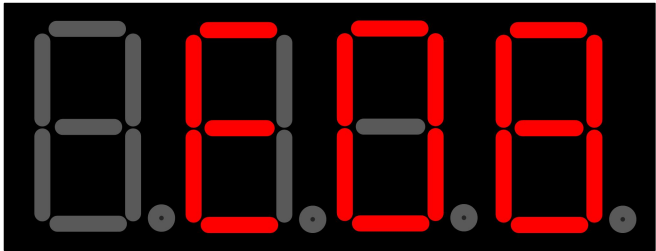
Key (按键)	Function(功能)
UP Key (UP 键)	System Parameter Items Interface: Select the next parameter item System Parameter Values Interface: Increase parameter value 系统参数项界面：选择下一个参数项 系统参数值界面：参数值增加
DOWN Key (DOWN 键)	System Parameter Items Interface: Select the previous parameter item System Parameter Values Interface: Decrease parameter value 系统参数项界面：选择上一个参数项 系统参数值界面：参数值减小
SET Key (SET 键)	System Parameter Items Interface: Enter the System Parameter Values Interface System Parameter Values Interface: Confirm the current parameter value and return to the System Parameter Items Interface 系统参数项界面：进入系统参数值界面 系统参数值界面：确定当前参数值，并返回系统参数项界面

In the System Parameters interface, if there is no activity for more than 15 seconds, the system will save the current parameter settings and return to the HOME interface.(在系统参数界面，如超过 15 秒无任何操作，系统会保存当前参数设置并返回 HOME 界面。)

2.2.4 Fault Interface(故障界面)

In the HOME interface, if a fault occurs, the system enters the Fault interface as

(在 HOME 界面，如系统发生故障，进入故障界面。如下图所示。)



shown below. (如下所示)

图 3 Figure 5 Fault Interface 故障界面

In the Fault interface, the current fault code is displayed. For details of the fault codes, refer to the relevant section of this document. In the Fault interface, the functions of the keys are as described in the table below. (在故障界面，显示当前故障码。故障码详见本文档相关章节定义。在故障界面，按键功能如下表所述)

Key(按键)	SET Key 功能
UP Key (UP 键)	/
DOWN Key (DOWN 键)	/
SET Key (SET 键)	Enter the System Parameters interface (进入系统参数界面)

When the system fault is resolved, return to the HOME interface. (当系统故障恢复后，返回 HOME 界面。)

2.3 System Parameters (系统参数)

Code (代码)	Name (名称)	Data Range (数 据范 围)	Unit (单位)	Precision (精度)	Default (缺省)	Description (描述)
P00	Fan Start Temperature (风扇启动温度)	0 ~ 55	℃	0.5	25	If the cabinet temperature is equal to or higher than the set temperature, the fan starts; if below the set temperature, the fan stops 柜内温度大于等于设定温度，启动风扇，小于设定温度，停止风扇
P01	Low-Temperature Heating Enable Switch (低温加热 使能开关)	0 ~ 1			1	0=Off, 1=On 0=关闭；1=启用
P02	Low-Temperature Heating Stop Temperature (低温加热停止温 度)	-40 ~ 20	℃	0.5	10	If the cabinet temperature is less than or equal to (set temperature - 5℃), start low-temperature heating; after low-temperature heating starts, if the cabinet temperature is equal to or greater than the set temperature, stop low-temperature heating 柜内温度小于等于(设定温度 - 5℃)，启动低温加热；低温加热启动后，柜内温度大于等于设定温度，停止低温加热

P03	Heating Dehumidification Enable Switch (加热除湿使能开关)	0 ~ 1			1	0=Off; 1=On 0=关闭 ; 1=启用
P04	Heating Dehumidification Start Humidity (加热除湿启动湿度)	10 ~ 99	%RH	1	85	If the cabinet humidity equals or exceeds the set humidity, heating dehumidification is activated; once activated, if the cabinet humidity is less than or equal to (set humidity - humidity hysteresis), heating dehumidification stops 柜内湿度大于等于设定湿度, 启动加热除湿 ; 启动后, 柜内湿度小于等于(设定湿度 - 湿度回差), 停止加热除湿
P05	Heating Dehumidification Humidity Hysteresis (加热除湿湿度回差)	1 ~ 30	%RH	1	15	
P06	Smoke Detection Fault Enable Switch Off (烟感故障检测使能开关)	0 ~ 1			1	0=Off; 1=On 0=关闭 ; 1=启用

P07	High-Temperature Fault Temperature (高温故障温度)	-40 ~ 200	℃	0.5	60	If the cabinet temperature equals or exceeds the set temperature, a high-temperature fault is reported and the system enters a fault state; if after a high-temperature fault occurs the cabinet temperature is less than (set temperature - 5°C), the high-temperature fault is cleared 柜内温度大于等于设定温度, 设备将报高温故障并进入故障状态; 高温故障发生后, 柜内温度小于(设定温度 - 5°C), 高温故障恢复
P08	High-Temperature Alarm Temperature (高温告警温度)	-40 ~ 200	℃	0.5	45	If the cabinet temperature equals or exceeds the set temperature, a high-temperature alarm is reported; if after a high-temperature alarm occurs the cabinet temperature is less than (set temperature - 5°C), the high-temperature alarm is cleared 柜内温度大于等于设定温度, 设备将报高温告警; 高温告警发生后, 柜内温度小于(设定温度 - 5°C), 高温告警恢复
P09	High Humidity Alarm Humidity (高湿告警湿度)	1 ~ 100	%RH	1	90	If the cabinet humidity equals or exceeds the set humidity, a high humidity alarm is reported; if after a high humidity alarm occurs the cabinet humidity is less than (set humidity - 5 % RH), the high-temperature alarm is cleared 柜内湿度大于等于设定湿度, 设备将报高湿告警; 高湿告警发生后, 柜内湿度小于(设定湿度 - 5%RH), 高湿告警恢复

3 Fault Codes (故障码)

Code (代 码)	Fault Description (故障描述)	Trigger Condition (触发条件)	Description (说明)
E03	Fan Fault (风扇故障)	All Fans Fault (全部风扇故障)	
E04	Access Control Fault (门禁故障)	Detecting access control opened (检测门禁打开)	
E05	Smoke Detection Fault (烟感故障)	Smoke sensor alarm (烟雾传感报警)	
E06	Water Immersion Fault (水浸故障)	Water immersion sensor alarm (水浸传感报警)	
E07	Temperature Sensor #1 Probe Fault (温度传感#1 探头故障)	Sensor damaged or not connected (传 感器损坏或未连接传感器)	
E08	Temperature Sensor #2 Probe Fault (温度传感#2 探头故障)	Sensor damaged or not connected (传感器损坏或未连接传感器)	
E09	Temperature and Humidity Sensor Probe Fault (温湿度传感探头故障)	Sensor damaged or not connected (传 感器损坏或未连接传感器)	
E10	Cabinet High-Temperature Fault (柜内高温故障)		
E11	Inlet High-Temperature Fault (进 风口高温故障)		
E12	Outlet High-Temperature Fault (出风口高温故障)		

4.Revision Version（修订版本）

Version （版本）	Revision Date （修订日期）	Revision Description （修订说明）	Maintainer （维护人）
v1.0	2021-11-06	Initial Version（初始版本）	—