La Marche Manufacturing Company
www.lamarchemfg.com

LMP-SC

LmPower SC Controller

Operation Manual

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Admonishments Used in this Document

DANGER! Warns of a hazard the reader will be exposed to that will likely result in death or serious injury if not avoided. (ANSI, OSHA)

WARNING! Warns of a potential hazard the reader may be exposed to that could result In death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)

CAUTION! Warns of a potential hazard the reader may be exposed to that could result in minor moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)

ALERT! Alerts the reader to an action that must be avoided in order to protect equipment, software, data, or service. (ISO)

ALERT! Alerts the reader to an action that must be performed in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)

FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, of the locations of fire-fighting and fire-safety equipment. (ISO)

SAFETY! Informs the reader of general safety information, reminders, precautions, or policies related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Table of Contents

Introduction

La Marche's Telecom Power System Controller (LMP-SC) is an intelligent module that monitors and manages La Marche DC power systems. LMP-SC provides the system with battery management, maximum current limit function, system component monitoring and alarm generation, and a rectifier hibernation/ cycling function for increased efficiency.
Configuration settings and real-time parameters can be accessed locally through the LCD or remotely using the WEB UI (Web User Interface). LMP-SC is equipped with an RS485/RS232 and an Ethernet port.
This controller is equipped with an embedded I/O interface equipped with digital inputs, dry contact alarm outputs and temperature sensor ports.

The LMP-SC controller has built-in web and SNMP management capabilities. You can view system status and set system configuration data either with internet explorer or MIB browser.
Features:

- Monitor system data and configure system remotely by network
- Web management with built-in authentication. Username and passwords can be changed by user
- Support SNMP V1, V2C, V3
- 10M/100M based Ethernet interface
- Flexible network deployment

1 Function Descriptions

1.1 System Components Monitoring and System Alarms Generation

The LMP-SC monitors the components comprising the system (Such as the rectifiers and supervisory modules) and generates alarms if a fault condition occurs.
The available system alarms are programmed with an Alarm Severity Level.

- The alarm indicator turns OFF if the fault(s) that triggered the alarm clears.
- The audible alarm is also silenced if the fault(s) that triggered the alarm clears.
- The audible alarm can also be disabled.

The available system alarms can also be mapped to alarm relays (located on LMP-SC interface boards) that can be wired to external alarm circuits.

1.2 Battery management

The LMP-SC provides the following battery management functions:

- Battery Charge Temperature Compensation
- Battery Equalize Charge
- Battery Charge Current Limit
- High and Low Battery Temperature Alarms
- Battery Discharge Test
- Battery LVD (Low Voltage Disconnect)

Battery Charge Temperature Compensation

The LMP-SC can be programmed to automatically increase or decrease system output voltage to maintain battery float current as battery temperature decreases or increases, respectively. Battery life

can be extended when an optimum charge voltage to the battery with respect to temperature is maintained. Temperature is monitored by a sensor mounted on the battery.

Functional Description (Figure 1):

Battery charge temperature compensation adds a correction term, related to the temperature of the batteries, to the nominal value of the system voltage. The degree of regulation (Temp Comp Coeff), expressed in mV/°C/battery string, can be set per battery manufacturer recommendations. To protect batteries and voltage-sensitive loads, compensation is automatically limited to a maximum of two volts (48V systems) above or below the nominal output level (float setting). Temperature compensation can be set to clamp lower than this by enabling the Temperature Compensation Clamp feature. When enabled, temperature compensation will clamp if the battery temperature reaches either the Temp Comp Max Voltage setting or the Temp Comp Min Voltage setting.

Temperature compensation is automatically disabled if communication between the controller and all rectifiers is lost, a DC over or under voltage alarm activates, a low voltage disconnection occurs, manual mode is entered, or the system enters the Equalize or Test modes.

Battery Equalize Charge and Battery Charge Current Limit

The LMP-SC can increase system output voltage for equalizing the charge on all battery cells of a conventional flooded cell battery, or for recharging the battery following a commercial power failure. The charging function can be initiated cyclically (scheduled), automatically, or manually. Refer to the battery manufacturer's instructions for equalize charging instructions.

Functional Description (Figure 2):

- **Start of Charging:** When the battery charge current exceeds a preset value for three minutes or if the calculated battery capacity has decreased to a preset value (after a commercial AC failure, for example), the charging function of the LMP-SC is activated. A charging signal is sent from the LMP-SC to the rectifiers to increase the voltage up to the battery charging level (Vequalize).
- **Battery Current Limitation**: After a commercial AC failure or when some battery cells are permanently damaged, the current to the batteries can be quite extensive. To avoid overheating or further damage to the battery, the LMP-SC limits the battery current to a preset level by limiting the charging voltage of the rectifiers.
- **End of Charging**: When the charging current drops below a preset value, a defined prolonged charging time is started before the charging is stopped and the voltage of the rectifiers return to the float charging level (Vnom). For safety, there is an equalized charging limit time that stops the charging after a preset time.

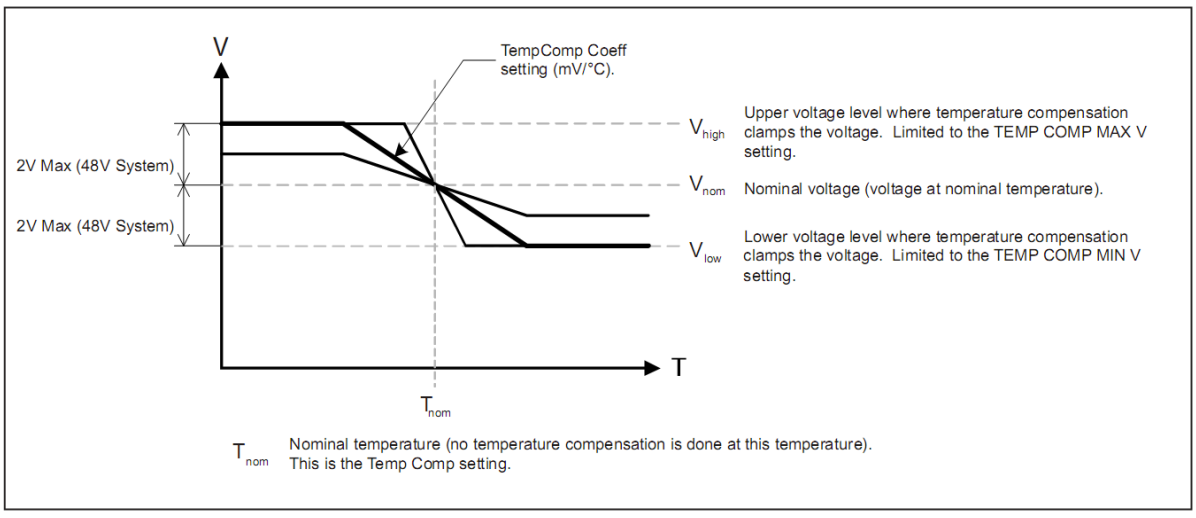


Figure 1 - Temperature Compensated Voltage Control

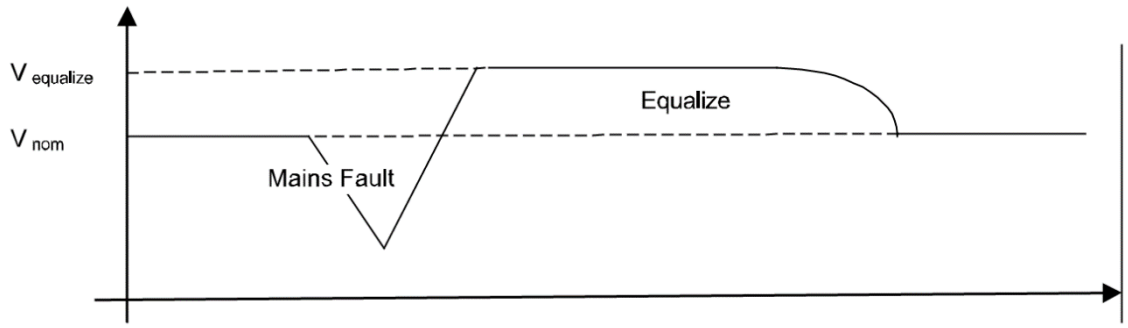


Figure 2 - Voltage Characteristics on Commercial AC Failure and Automatic Equalize Charging

High Battery Temperature Alarms

The LMP-SC can monitor battery temperature via a temperature sensor mounted on a battery cell. Values for high battery temperature alarms can then be programmed into the LMP-SC.

Battery Thermal Runaway Management (BTRM) Feature

The Battery Thermal Runaway Management (BTRM) feature reduces voltage during a high battery temperature condition. The BTRM sensor has High BTRM temperature alarm limits. If battery temperature exceeds the "BTRM Temp High" setting, system voltage is lowered to the BTRM voltage setting.

Battery Discharge Test

The LMP-SC can perform battery discharge tests to check the condition of the battery.
A User can manually start a battery discharge test. During a battery discharge test, the LMP-SC controls rectifier output to place the entire load or partial load on the batteries.

Functional Description:
For manual as well as for scheduled battery discharge tests, the following parameters must be set: Test Time, Battery Discharge, and Test Sequence:
a. The preset test time (Figure 3) expires. The battery has passed the test.
b. The battery voltage drops below the preset end voltage level (Vend) (Figure 4). The battery has not passed the test and the test is interrupted. A bad battery alarm is activated.
c. The battery capacity drops below the preset Test End Battery Capacity. The battery has not passed the test and the test is interrupted. A bad battery alarm is activated.

- A battery test alarm is active during a battery discharge test.
- After the battery discharge test, the output voltage of the rectifiers increases so that the rectifiers supply the system and charge the batteries.

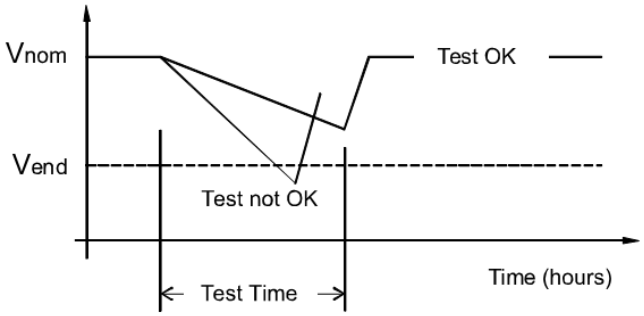


Figure 3 - Battery Test Diagram

Battery LVD (Low Voltage Disconnect)

To prevent serious damage to the batteries during a commercial AC power failure, the batteries can be disconnected by voltage or time control. The batteries are reconnected automatically when commercial AC power is restored, and a predetermined DC voltage level is reached.

- Voltage Controlled Disconnection: When the set voltage level is reached, the batteries are disconnected.

Battery Capacity Prediction

The system uses several control mechanisms to avoid thermal runaway.

- During a short high-rate discharge, the batteries will normally get hot. The LMP-SC takes this into consideration. After completion of the discharge duty, the batteries are recharged with a limited current to avoid heating the batteries any further.
- The temperature of the batteries can be monitored, and the LMP-SC sets the charge voltage appropriately, as previously described under Battery Charge Temperature Compensation.
- In addition to battery temperature compensation, if battery temperature rises above a set temperature limit, the system stops battery charging completely by lowering the output voltage to the "BTRM Voltage" setting. This allows the batteries to cool down. The system also provides alarm notification of this occurrence. Power supplied to customer equipment is not interrupted.
- The battery LVD circuits can be programmed to open (disconnect) if a high temperature event occurs (HTD-High Temperature Disconnect). The contactor(s) open when battery temperature rises above a programmable value and close again when battery temperature falls below another programmable value.

Energy Optimization Mode function

Energy Optimization permits an installation to only operate rectifiers as needed to maintain the load and keep batteries in a fully charged condition. As load increases, Energy Optimization turns on additional rectifiers as needed to maintain the load. As load decreases, Energy Optimization places rectifiers in standby to conserve energy usage. Rectifiers which are always operating to maintain any load requirements are cycled through the group of rectifiers controlled by this feature to provide uniform operating times for each rectifier.

Alert **ALERT!** The Energy Optimization Mode should NOT be used in systems that operate without battery.

2 Operation

2.1 Passwords and Privilege Levels

- Users (for local and Web access to the MQ48D-II) are set via the Web Interface.

Note: Anyone can browse the MQ48D-II via the local keypad and display. A password is required to change settings. Web access always requires a Username and password to be entered to gain access.

- Users are configured with a Username, password, and privilege level.

Username: Maximum 13 Characters (0-9, a-z, A-Z, _).
Password: Maximum 13 Characters (0-9, a-z, A-Z, _).
Note: Once a password is entered, it remains in effect for a preset time period to allow navigating.

2.2 Local Display Menus

Note: A valid password is required to access menus that allow changing any power system parameter.

A.1 LCD Menu Hierarchy

Table A-1 LCD menu description

Menu Item	Description
Alarm	Views Active and Historical alarms in the power system.
Running Information	Views the operating status of the power system, rectifiers, batteries, and other modules in the system.
Setting Wizard	Quickly sets common parameters, such as the number of battery strings, rated battery capacity, date, time, and network parameters.
Parameters Settings	Sets parameters for the power system, rectifiers, batteries, and other modules in the system.
Running Control	Manually controls the power system, rectifiers, batteries, and other modules in the system, such as switching between equalized charging and float charging, starting or shutting down rectifiers, clearing historical alarms, and restarting the LMP-SC.

A.2 Running Information

Table A-2 Running Information menu hierarchy

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu
Power System	Basic Information	System Voltage	-
		Total Load Current	-
		Phase L1 Voltage	-
		Phase L2 Voltage	-
		Phase L3 Voltage	-
	DO Status	ALM1 Control Status	-
		ALM2 Control Status	-
		ALM3 Control Status	-
		ALM4 Control Status	-
Rectifier	Rectifier Group	Total DC Output Current	-
		Total DC Power	-

		Load Usage	-
	Rectifier n	DC Output Voltage	-
		DC Output Current	-
		DC Output Power	-
		AC Voltage	-
		Rectifier Temp	-
		Run Status	-
Battery	Battery Group	Battery Status	-
		Total Batt. Current	-
		Total Rated Cap.	-
		Remain Cap. Percent	-
		Cur. Limiting Status	-
		Test Status	-
		Battery Temp. 1	-
	Battery String n	Rated Capacity	-
		Batt Cell Volt.	-

A.3 Setting Wizard

Table A-3 Setting Wizard menu hierarchy

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Battery Parameters	Battery n Connected	-	-	Yes	Yes, No
	Battery Type	-	-	VRLA	VRLA, LiFeP04
	Rated Capacity	-	-	100AH	5~10000
Date and Time	Date Time	-	-		
	Time Zone	-	-	UTC-06:00 Central Time (US & Canada)	
	NTP Enable	-		No	Yes, No
Network Parameters	IP Address	-	192.168.1.190	-	
	DHCP Enable	-		No	Yes, No
	Subnet Mask	-	255.255.255.0	-	-
	Default	-	192.168.1.1	-	-

A.4 Settings

Table A-4 Settings menu hierarchy

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Power System	Basic Parameters	AC Type	-	Single Phase	Three Phases, Single Phase
		LLVD Enable	-	No	Yes, No
	LLVD Parameters	LLVD Mode	-	Voltage Mode	Voltage Mode, Capacity Mode, Time Mode
		LLVD Voltage	-	44	35~56
		LLVD Con. Volt.	-	51.5V	37.0~58.0
		LLVD Capacity	-	15%	0~99
		LLVD Time		360Min	5~1000
		LLVD Delay Time	-	60s	5~90
	AC&DC Volt. Para.	AC Overvolt. Thres.	-	280V	60~300
		AC Undervolt. Thres.	-	90V	60~300
		AC Ultra OV. Thres.	-	300	130~352
		AC Ultra OV Restore	-	290	129~351
		AC Ultra UV. Thres.	-	80	66~197
		AC Ultra UV Restore	-	90	6~198
		DC Overvolt. Thres.	-	58.0V	53.0~60.0
		DC Undervolt. Thres.	-	45.0V	35.0~57.0
		DC Ultra Overvolt. Thres.	-	59.0V	53.0~60.0
		DC Ultra Undervolt. Thres.	-	44.0V	35.0~57.0

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
	Sensor Config.	AC SPD	-	Yes	Yes, No
		Door Sensor	-	No	Yes, No
		Water Sensor	-	No	Yes, No
		Smoke Sensor	-	No	Yes, No
		Ambient Temp. Sensor	-	No	Yes, No
		Batt. Temp. Sensor 1	-	No	Yes, No
	Temp & Humi Para.	Amb.HT Thres.	-	55℃	25~80
		Amb.LT Thres.	-	-20℃	-20~20
		Amb. Ultra HT Thres.	-	70℃	25~80
	Other Parameters	Buzzer Enable	-	Yes	Yes, No
		Buzzer Alm Duration	-	10	1~10

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Rectifier	Module Type	-	-	50A	20A,30A,50A,100A
	High Rect. Capacity	-	-	75%	0~150
	Low Rect. Capacity	-	-	5%	0~150
	Max. Limited Current	-	-	1.21	1~121
Energy Saving	Hibernation Enable	-	-	No	Yes, No
	Hibernation Mode	-	-	Intelligent Mode	Intelligent Mode, High Efficiency Mode, Time Mode
	Hiber. Without Batt.	-	-	No	Yes, No
	Min. Rdnt. Coef.	-	-	0.2	0.05~1.00
	Min. Working Rects.	-	-	2	1~100
	Best Efficiency Pt.	-	-	80%	50~100
	Hiber. Stop Duration	-	-	72.0h	0.5~168.0
	Circulation Period	-	-	7 Day	1~365

Battery	Basic Parameters	Battery1 Connected	-	No	Yes, No
		Battery2 Connected	-	No	Yes, No
		Battery Type	-	VRLA	VRLA, LiFeP04
		Rated Capacity	-	100Ah	5~10000
		FC Voltage	-	53.5V	42.0~58.3
		EC Voltage	-	56.4V	42.0~60.5
		Charge Limit Coef.	-	0.15C10	0.05~0.25
		BLVD Enable	-	Yes	Yes, No
		Hibernation Enable	-	No	Yes, No
	Temp. Comp. Para.	TC Coefficient	-	80mV/degC	0~500
		Nominal Temp	-	25degC	5~45
		TC Upper Thres.	-	45degC	40~45
		TC Lower Thres.	-	5degC	5~10

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Battery	BLVD Parameters	BLVD Mode	-	Voltage Mode	Capacity, Time, Voltage
		BLVD Voltage	-	43.2V	35.0~56.0
		BLVD Con. Volt.	-	51.5V	37.0~58.0
		BLVD Time	-	480Min	5~1000
		BLVD Capacity	-	5%	0~99
		BLVD Delay Time	-	60s	5~90
	Temp. Prot. Para.	Very HT Prot. Mode	-	Reduce DC Voltage	Reduce DC Voltage Disconnect Battery Disable
		Very HT Prot. Volt.	-	50.5	42.0~53.0
		HT Alarm Thres.	-	50	25~80
		Very HT Alarm Thres.	-	53	25~80
		LT Alarm Thres.	-	-10	-20~20
		Very LT Alarm Thres.	-	-20	-20~20
	Charge Parameters	Auto. EC Enable	-	No	Yes, No
		FC-EC Cur. Coef.	-	0.05C10	0.01~0.25
		FC-EC Cur. Duration	-	30Min	2~1440
		FC-EC Cap. Percent	-	80%	50~100
		Sche. EC Enable	-	No	Yes, No
		Sche. EC Interval	-	30Day	1~365
		Sche. EC Duration	-	9h	1~24
		EC-FC Cur. Coef.	-	0.01C10	0.01~0.25
		EC-FC Cur. Duration	-	240Min	2~540
		EC Max Duration	-	8h	5~48
		Mains Recovery EC En	-	No	Yes, No
		AC Fail Duration	-	10Min	0~30
		Fast Charge Coef.	-	0.25C10	0.25~0.50

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Battery	Standard Test Para.	AC Fail Test Enable	-	No	Yes, No
		Time Test Mode	-	Scheduled Test	Disable, Scheduled Test, Planned Test
		Sche. Test St. Time	-	21:00:00	HH:MM:SS
		Sche. Test St. Period	-	90Day	2~999
		Pre-EC Enable	-	-	-
		Const. Cur. Test	-	-	-
		Const. Test. Cur.	-	-	-
		Annual Battery Tests	-	2	0~6
		Test End Voltage	-	46.0V	44.2~53.0
		Test End Capacity	-	20%	0~99
		Test End Time	-	480Min	1~6000
		Test End Temperature	-	5degC	-5~15
	Short Test Para.	Short Test Enable	-	No	Yes, No
		Short Test Period	-	30Day	1~360
		Short Test Time	-	5Min	1~240
		Short Test End Volt.	-	45.0V	44.2~53.0
	Alarm Parameters	Overcur. Alm. Thres.	-	0.25C10	0.05~0.50
		Low Cap. Alm.Thres.	-	30%	0~90
	Other Parameters	Installation Time	-	-	-

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Temp. Control group	Fan work temp	-	-	40 °C	-20~50
	Fan stop temp	-	-	30 °C	-20~50

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Alarm Parameters	DI Dry Contact Para.	DIN1 Alm. Cond.	-	Close	Open， Close
		DIN2 Alm. Cond.	-	Close	Open， Close
	DO Dry Contact Para.	ALM1 Alarm Action	-	Open	Open， Close
		ALM2 Alarm Action	-	Open	Open， Close
		ALM3 Alarm Action	-	Open	Open， Close
		ALM4 Alarm Action	-	Close	Open， Close
	Alarm Config	Power System	AC SPD Fault		
			AC failure		
			AC OV		
			AC UV		
			AC ultra OV		
			AC ultra UV		
			AC Ph L1 OV		
			AC Ph L2 OV		
			AC Ph L3 OV		
			AC Ph L1 UV		
			AC Ph L2 UV		
			AC Ph L3 UV		
		Rectifier Group	-	-	-
		Rectifier	-	-	-
		Battery Group	-	-	-
		Battery String	-	-	-

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Alarm Parameters	Alarm Level DO Para.	Cri. Alm. Asso. DO		ALM2	ALM1~ALM4
		Major Alm. Asso. DO	-	ALM2	ALM1~ALM4
		Minor Alm. Asso. DO		ALM3	ALM1~ALM4
		Warn. Alm. Asso. DO	-	ALM4	ALM1~ALM4
	Clear ALM Asso.	Clear ALM1 Asso.	-	Yes	Yes
		Clear ALM2 Asso.	-	Yes	Yes

		Clear ALM3 Asso.	-	Yes	Yes
		Clear ALM4 Asso.	-	Yes	Yes
Comm. Parameters	Network Parameters	IP Address	-	192.168.0.10	-
		Subnet Mask	-	255.255.255.0	-
		DHCP Enable	-		-
		Default Gateway	-	192.168.0.1	-
	Serial Port	Northbound	Baud RATE	9600	2400,4800,9600, 14400,19200,38400, 57600,115200,256000
			Parity	None	None, ODD, EVEN, SPAACE, MARK
			Modbus Address	1	1~255
		Southbound	Baud RATE	9600	2400,4800,9600, 14400,19200,38400, 57600,115200,256000
			Parity	None	None, ODD, EVEN, SPAACE, MARK

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Local Parameters	Language	-	-	English	-
	Site ID	Site ID	-	-	-
	System Type	-	-	MQ48DV2	-
	Date and Time	Date and Time	-	-	-
	Change Password	-	-	-	-
Restore Settings	Restore Factory Set.	-	-	yes	yes

A.5 Running Control

Table A-5 Running Control menu hierarchy

Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Power System	System Control Mode	-	-	Automatic	Automatic, Manual
	LLVD Control	-	-	off	On, off
	Reboot PMU	-	-	Yes	Yes
Rectifier	Rectifier Group	Turn on All Rects.	-	Yes	Yes
		Clear Rect Loss Alm.	-	Yes	Yes
		Manual Control Volt.	-	53.5V	41.0~59.0
		Cur. Limiting Coef.	-	121%	1~121
	Rectifier n	Turn on/off	-	On	On, off
Battery	Charge Control	-	-	Float Charging	Float Charging, Equalized Charging

	BLVD Control	-	-	On	On, off
	Reset Capacity	-	-	Yes	Yes
	Standard Test Ctrl.	-	-	Stop	Stop, Start
	Short Test Control	-	-	Stop	Stop, Start
	Clear Test Log	-	-	Yes	Yes
	Fast Charge Control	-	-	Stop	Stop, Start
Clear Alarm	Historical Alarm Active Alarm	Delete His. Alarms	-	Yes	Yes
Clear Test log	-	-	-	-	-
DO Relay test	-	AC SPD Fault	-	Clear Alarm	Clear Alarm

3 Web Management

The Web User Interface allows a secure, password protected remote access to the DC system for monitoring and control purposes. The WebUI provides the system's running parameters, active alarms and configurations. Various settings can be configured using the WebUI, such as alarm parameters and configurations, rectifier management, battery management and communications settings.
The RS485/RS232 /SNMP telecom ports are used for remote central monitoring and control. Network ends are used as output terminals for the telecom port. For third-party NMS management (over SNMP), connect the COM port on the LMP-SC by using a network cable, as shown below.

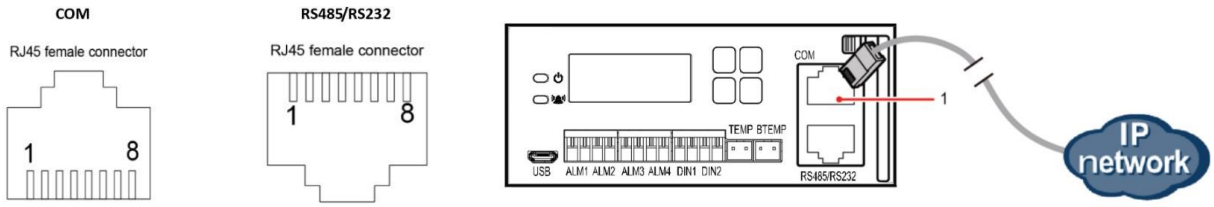


Figure 4 - RS485/RS232 Port and COM Port Pinout / Communication Connections

Table 1 - COM Port Pin Definitions

Pin	Signal	Description
1	TX+	Sends data over the COM port.
2	TX-	
3	RX+	Receives data over the COM port.
6	RX-	
4, 5, 7, and 8	Not defined	None.

Table 2 - RS485/RS232 Port Pin Definitions

Pin	Signal	Description
1	T232B	RS232 PORT1 can be connected to BMS
2	R232B	
3	GND232	
4	485AE	RS485 or RS232 PORT2
5	485BE	
6	T232E	
7	R232E	
8	485GND2	

3.1 Default Settings

IP Address: 192.168.1.190

Gateway: 192.168.1.1

Subnet Mask: 255.255.255.0
Local Menu Navigation:
Main Menu / setting/10000/ Comm. Parameters/ Network Parameters/ IP Address/ENT.
Web Menu Navigation:
System setup/IP Address

3.2 Initial setup

The IP address (default 192.168.1.190), subnet mask and default gateway address should be set up correctly to enable network management to work. However, when these parameters don't match your network (e.g., the first installation), they can't be changed using internet explorer, and hence the windows application "MConfig.exe" should be used. Click on Search, after a while, all LMP-SC controller Ethernet addresses will be displayed. Select the Ethernet address which you want to configure, fill in the correct IP address, gateway IP address, subnet mask IP address, then click on "Set". If these status display "Set Successfully", then the corresponding LMP-SC's IP address is OK.

Please note that the IP addresses of the PC and LMP-SC should be in the same subnet. If there is more than one network interface in your PC, you should disable irrelevant interface to prevent troubles.

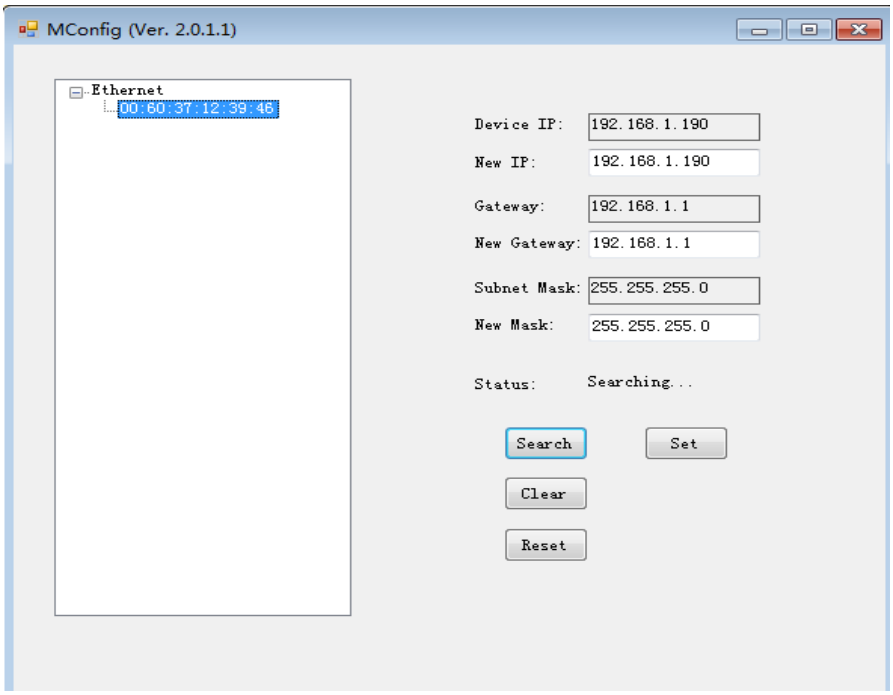


Figure 7 - "MConfig.exe" User Interface

4 Web Management Menu Structure

Internet Explorer, version 6 or newer, is supported. Chrome, Safari, and Firefox are also supported.
1. In your browser, enter http:// and the controller's IP address and press ENTER. If your site requires secure HTTP and you were furnished with an LMP-SC configuration with secure HTTP, enter http:// and the controller's IP address and press ENTER. The following Web Interface Login window opens (Figure 8). Enter a valid Username and Password, then click OK.
Note: By default, the Username is "admin" and the Password is "password". It is recommended to change the default password the first time you login using the default Username admin
Enter username and password, then click OK, the status interface will be shown.

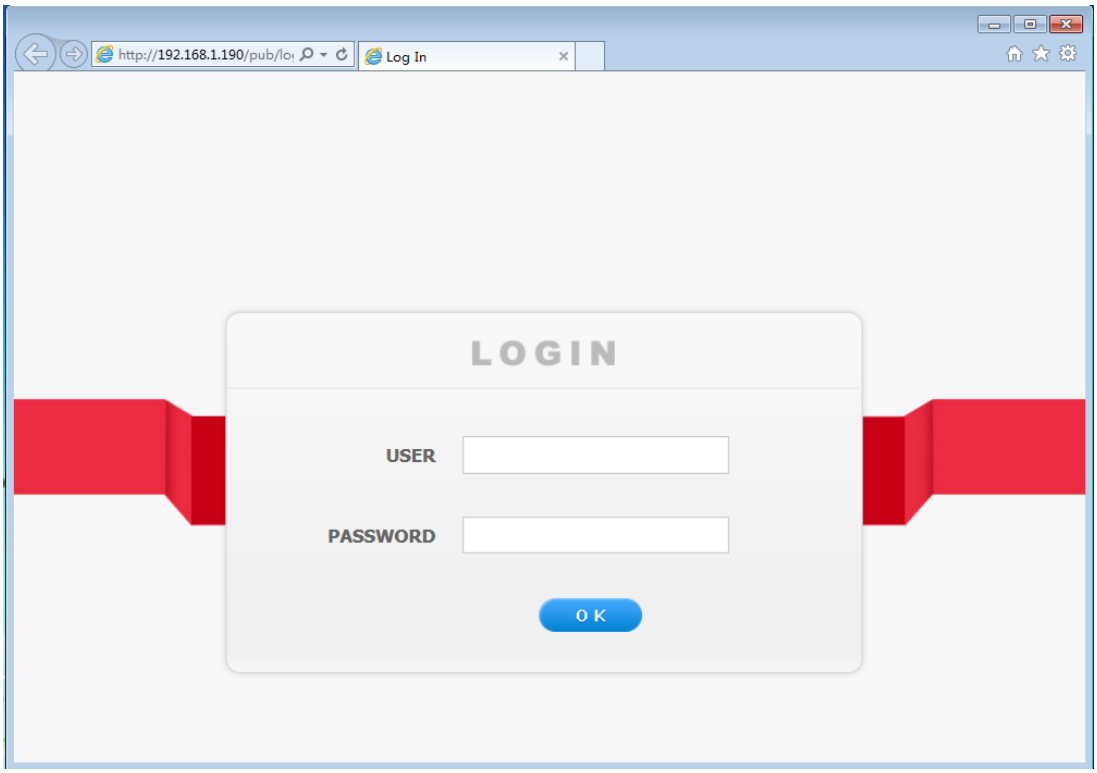
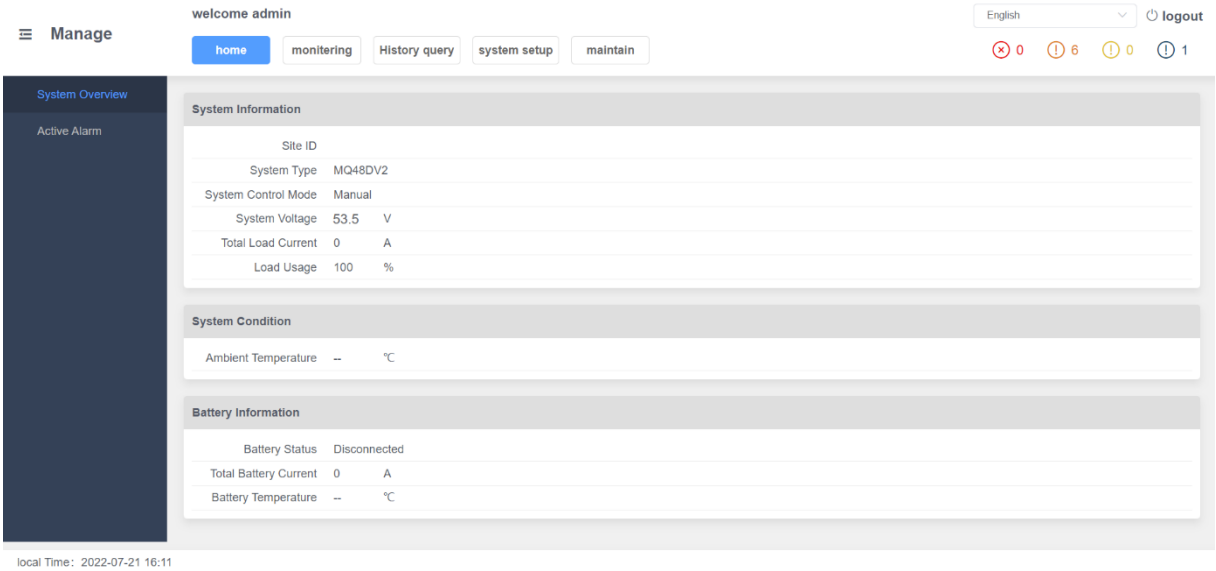


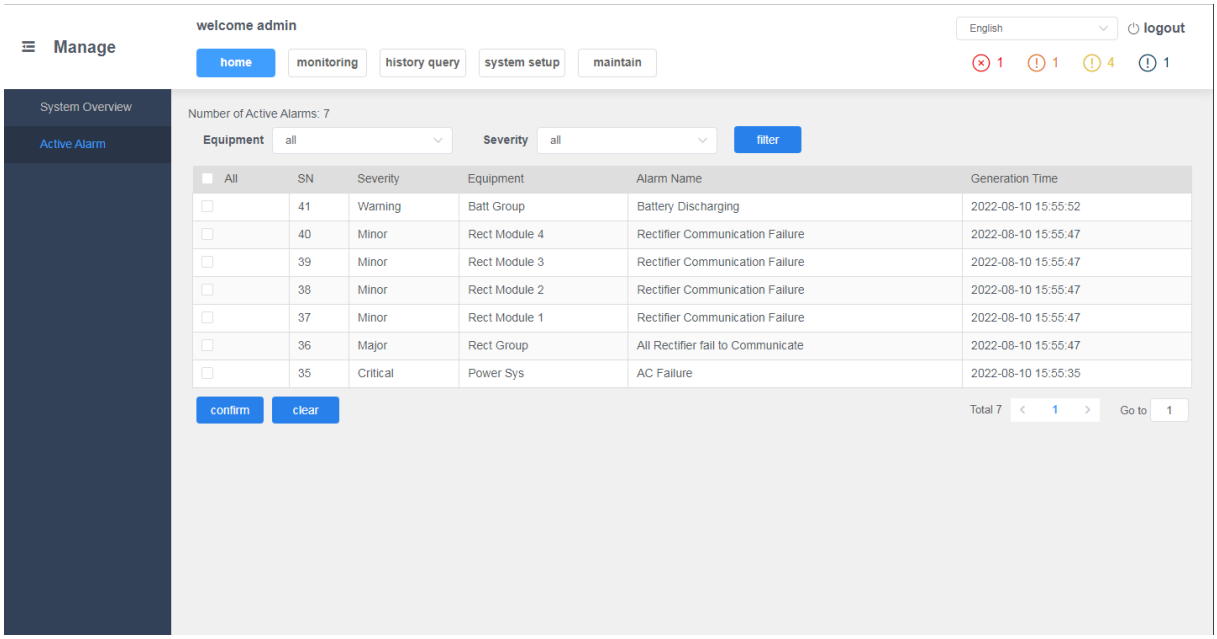
Figure 8 - Web login interface

4.1 Home Tab

4.1.1 System Overview



4.1.2 Active Alarm



0 6 0 1 Indicates the current alarm priority and alarm quantities.

0 Indicates that the alarm level is Critical, and the number of alarms is 0.

6 Indicates that the alarm level is Major, and the number of alarms is 6.

0 Indicates that the alarm level is Minor, and the number of alarms is 0.

1 Indicates that the alarm level is Warning, and the number of alarms is 1.

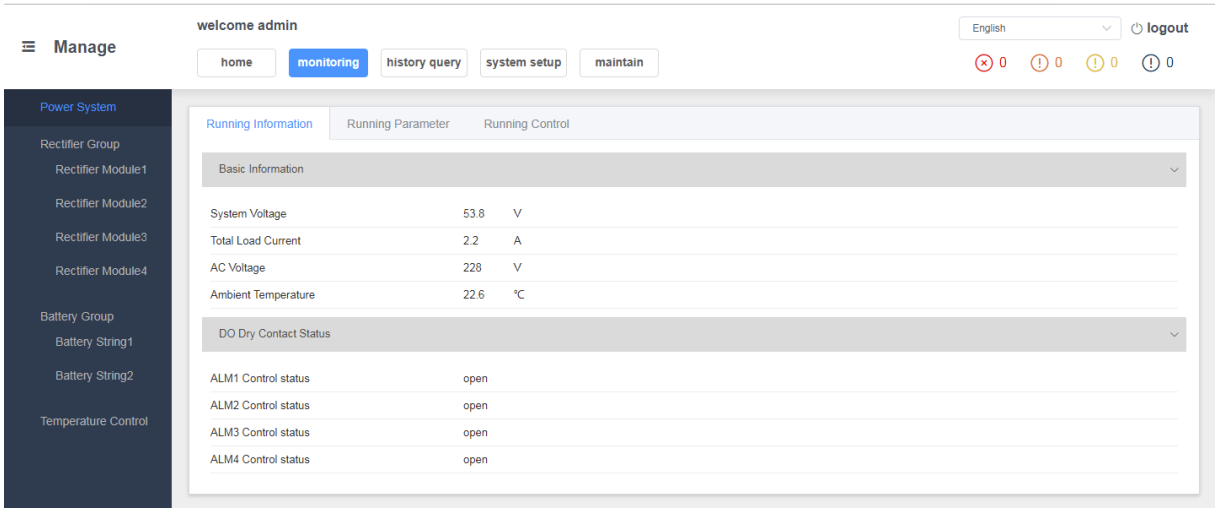
LCD interface operation :

Main Menu / Alarm/ ENT.

4.2 Monitoring Tab

4.2.1 Power Systems

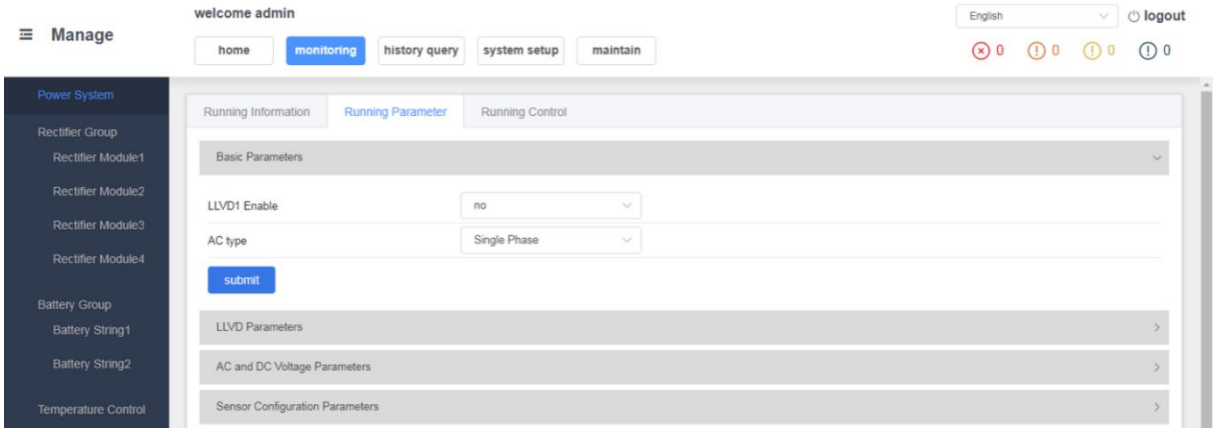
- **Running Information**



LCD interface operation：
Main Menu / Running Info. / Power System / ENT.

- **Running Parameter**

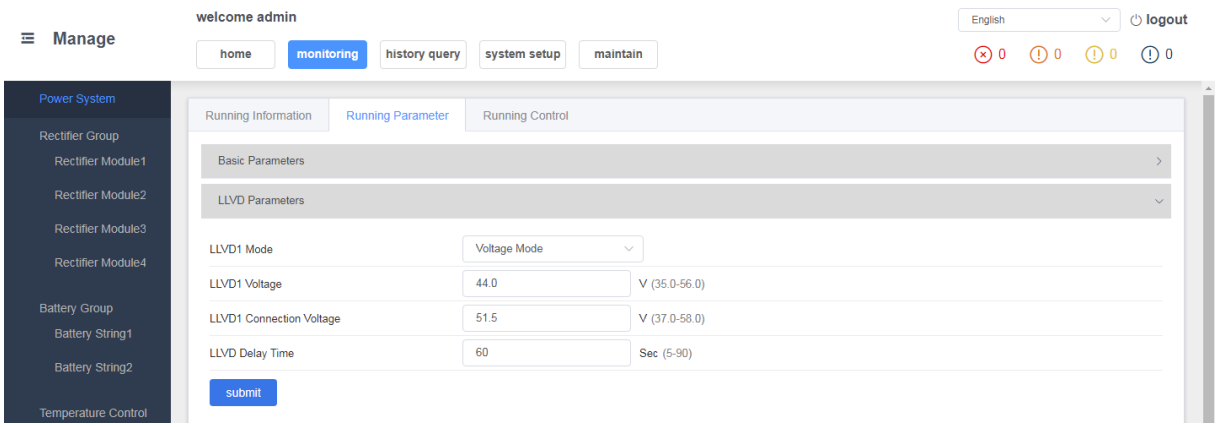
1. Basic Parameters
LLVD1 Enable: Enables or disables LLVD



LCD interface operation ：
Main Menu / setting/10000/ Basic Parameters/ AC Type/ENT.
Main Menu / setting/10000/ Basic Parameters/ LLVD Enable/ENT.

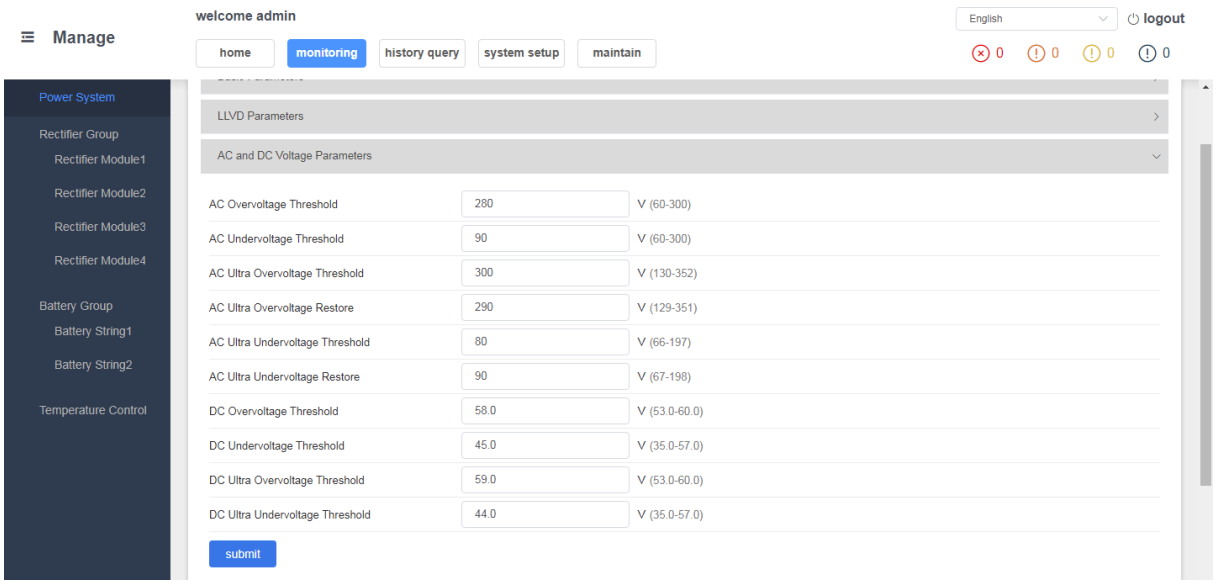
2. LLVD Parameters
LLVD Mode can be set to three modes:

Voltage Mode
Power down condition: System voltage is below the set value.
Power on conditions: System voltage is above the set value.
Time Mode
Power down condition: When the battery discharge time exceeds the set value, or the voltage is lower than the LLVD set voltage.
Power on conditions: System voltage is above the set value.
Remain Cap. Mode
Power down condition: When the battery capacity is lower than the set value or the voltage is lower than the LLVD set voltage.
Power on conditions: System voltage is above the set value.



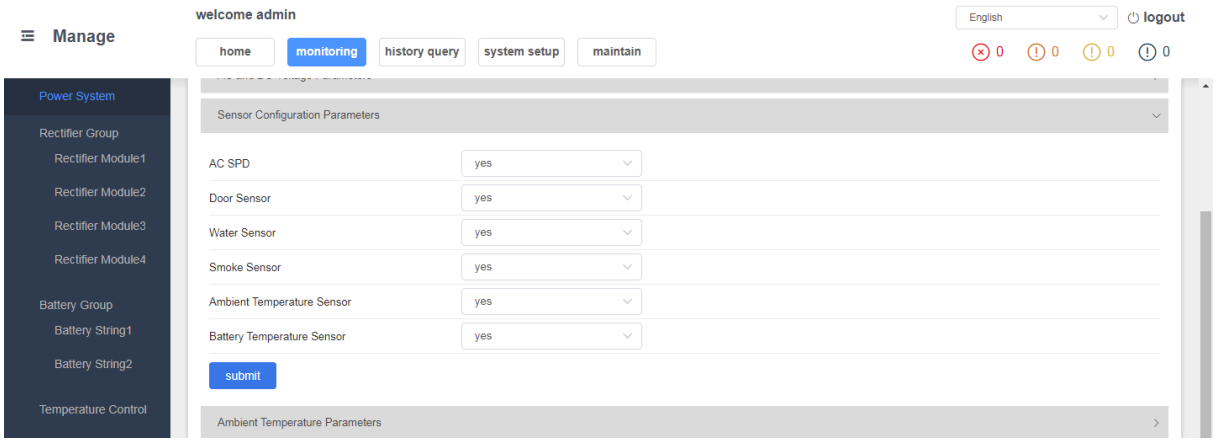
LCD interface operation：
Main Menu / setting/10000/ LLVD Parameters/ LLVD Mode/ ENT.
Main Menu / setting/10000/ LLVD Parameters/ LLVD Voltage / ENT.
Main Menu / setting/10000/ LLVD Parameters/ LLVD Connect Volt. / ENT.
Main Menu / setting/10000/ LLVD Parameters/ LLVD Delay Time / ENT.

3. AC and DC Voltage Parameters



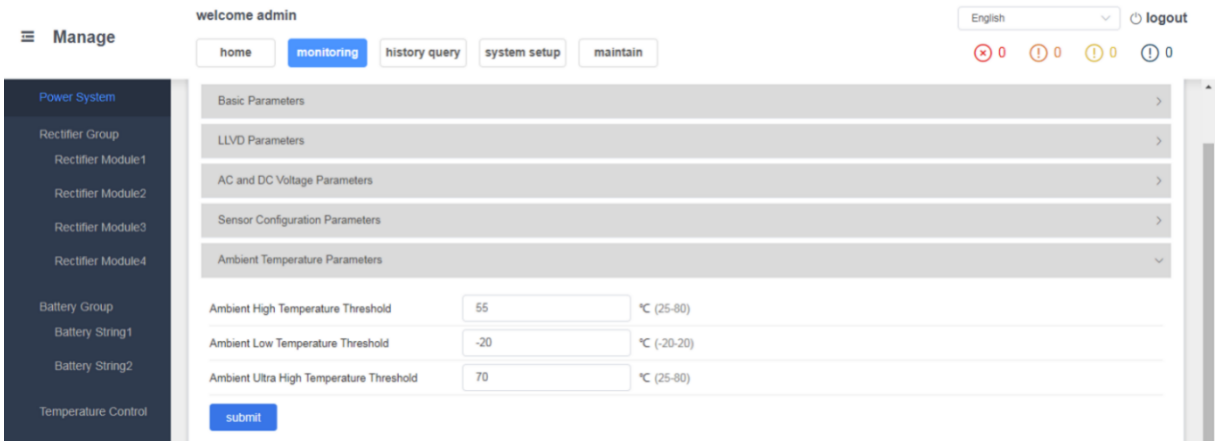
LCD interface operation：
Main Menu / setting/10000/ AC&DC Volt. Para. / AC OV Threshold. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / AC UV Threshold. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / AC Ultra OV Thres. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / AC Ultra OV Restore / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / AC Ultra UV Thres. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / AC Ultra UV Restore / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / DC OV Threshold. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / DC UV Threshold. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / DC Ultra OV Thres. / ENT.
Main Menu / setting/10000/ AC&DC Volt. Para. / DC Ultra UV Thres. / ENT.

4. Sensor Configuration Parameters



LCD interface operation：
Main Menu / setting/10000/ Sensor Config/ AC SPD/ ENT.
Main Menu / setting/10000/ Sensor Config/ Door Sensor/ ENT.
Main Menu / setting/10000/ Sensor Config/ Water Sensor/ ENT.
Main Menu / setting/10000/ Sensor Config/ Smoke Sensor/ ENT.
Main Menu / setting/10000/ Sensor Config/ Ambient Temperature/ ENT.
Main Menu / setting/10000/ Sensor Config/ Battery Temp./ ENT.

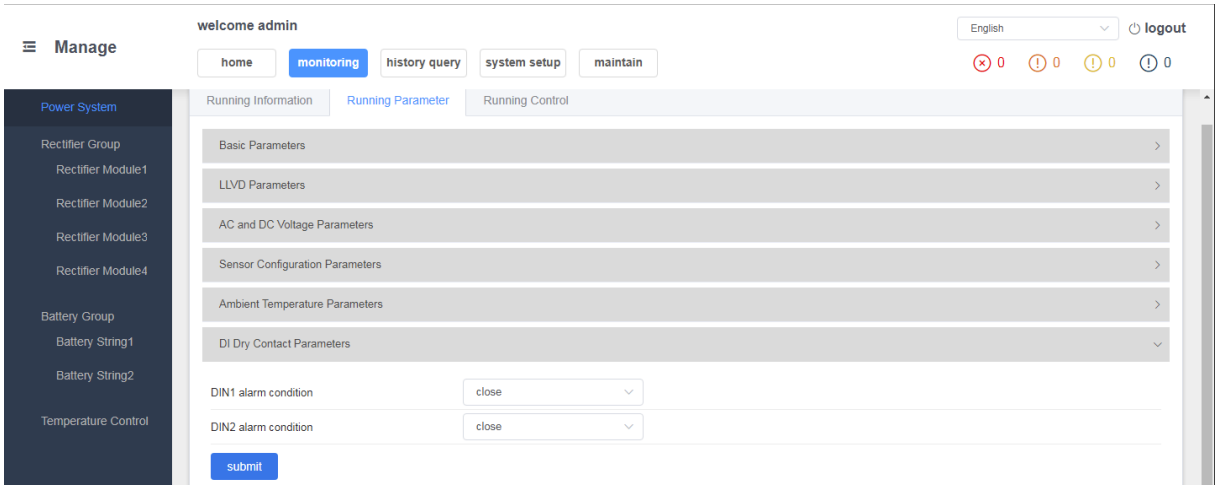
5. Ambient Temperature Parameters



LCD interface operation：
Main Menu / setting / 10000 / Temperature Para. / Ambient HT Thres. / ENT.
Main Menu / setting / 10000 / Temperature Para. / Ambient LT Thres. / ENT.
Main Menu / setting / 10000 / Temperature Para. / Ambient Ultra HT / ENT.

6. DI Dry Contact Parameters

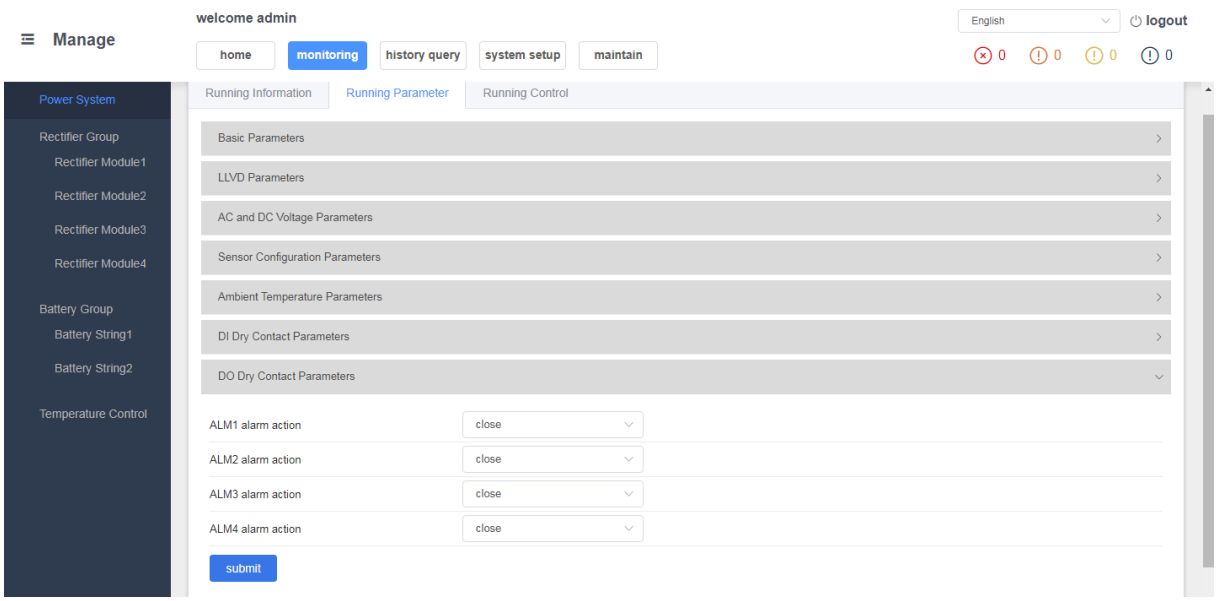
The DI Dry Contact Parameters can be set to Open or Close according to customer requirements.



LCD interface operation：
Main Menu / setting / 10000 / Alarm Parameters / DI Parameters / DIN1 Alm. Cond. / ENT.
Main Menu / setting / 10000 / Alarm Parameters / DI Parameters / DIN2 Alm. Cond. / ENT.

7. DO Dry Contact Parameters

The DO Dry Contact Parameters can be set to Open or Close according to customer requirements

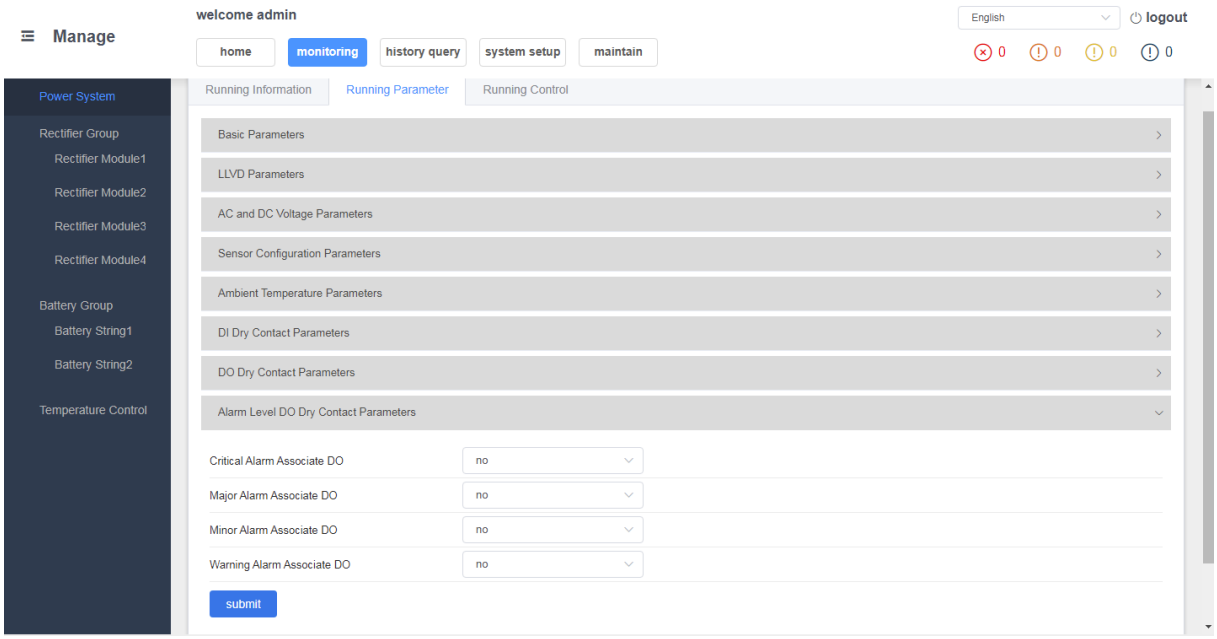


LCD interface operation：

Main Menu / setting / 10000 / Alarm Parameters / DO Parameters / ALM1 Alm. Cond. / ENT.
Main Menu / setting / 10000 / Alarm Parameters / DO Parameters / ALM2 Alm. Cond. / ENT.
Main Menu / setting / 10000 / Alarm Parameters / DO Parameters / ALM1 Alm. Cond. / ENT.
Main Menu / setting / 10000 / Alarm Parameters / DO Parameters / ALM2 Alm. Cond. / ENT.

8. Alarm Level DO Dry Contact Parameters

According to the requirements, users can associate the alarms with dry contact ALM 1, ALM 2, ALM 3, ALM 4

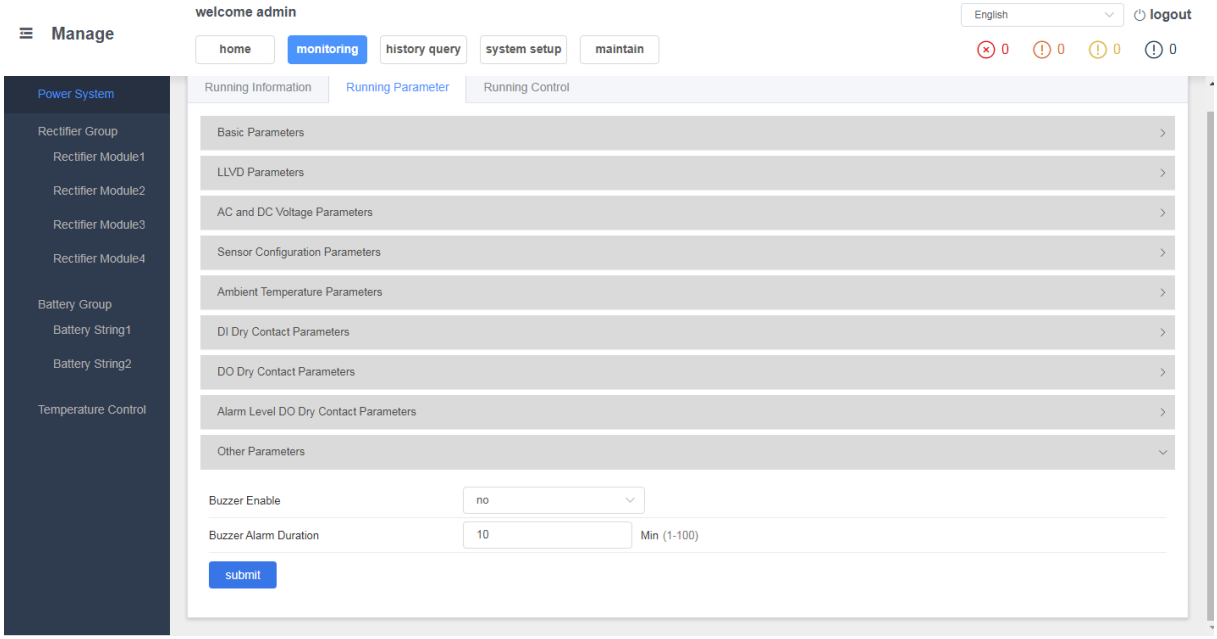


LCD interface operation：

Main Menu / setting/10000/ Alarm Parameters / Alarm Level DO Para. / Critical Alarm DO/ENT.
Main Menu / setting/10000/ Alarm Parameters / Alarm Level DO Para. / Major Alarm DO/ENT.
Main Menu / setting/10000/ Alarm Parameters / Alarm Level DO Para. / Minor Alarm DO/ENT.

Main Menu / setting/10000/ Alarm Parameters / Alarm Level DO Para. / Warning Alarm DO/ENT.

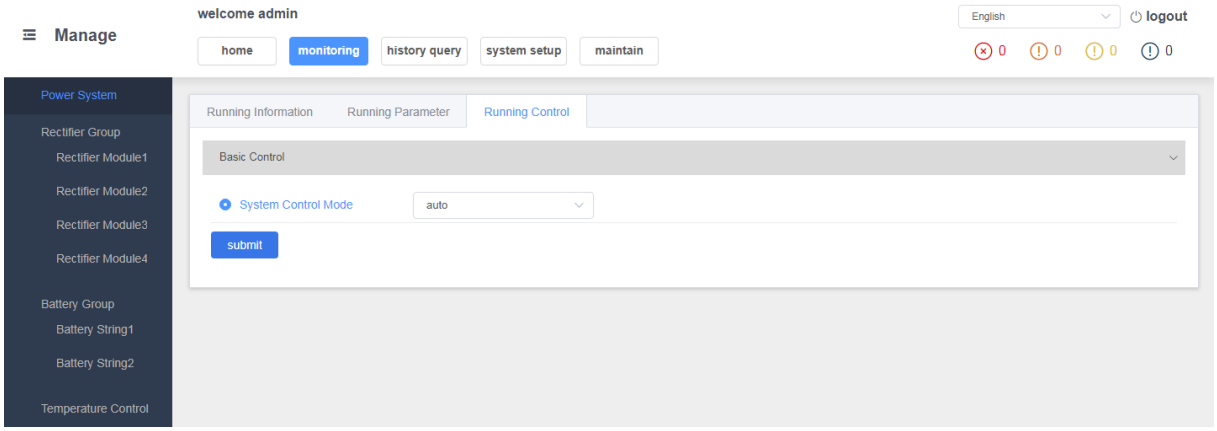
9. Buzzer parameters
Buzzer Enable: To use or prohibit the alarm sound.
Buzzer Alarm Duration: The pause time of the alarm sound. When the alarm sounds, the user can press any key on the controller panel to pause the alarm sound. After the "alarm sound delay" time ends or when a new alarm is activated, the alarm sound will be activated until the alarm is removed or the user mutes it.



LCD interface operation：
Main Menu / setting / 10000 / Other Parameters / Buzzer Enable / ENT.
Main Menu / setting / 10000 / Other Parameters / Buzzer Duration / ENT.

- **Running Control**

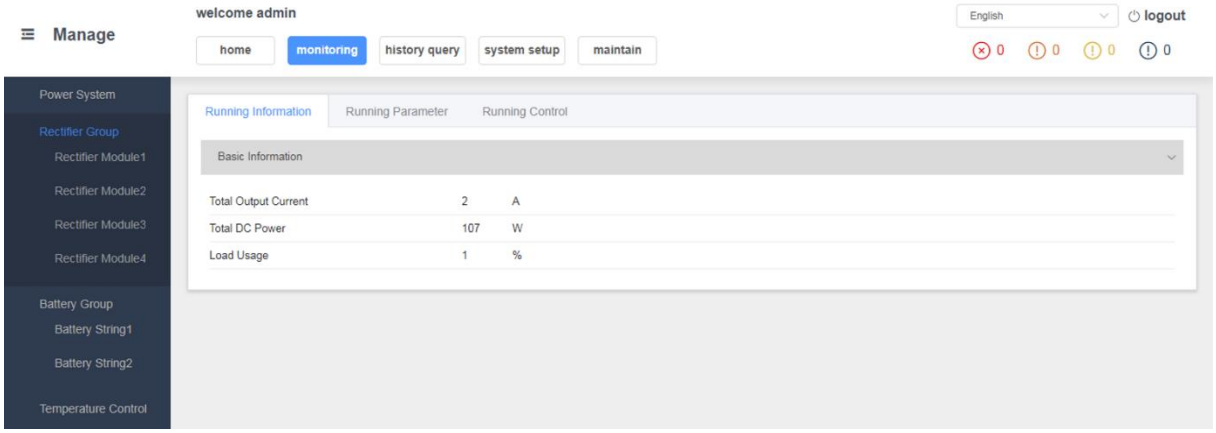
1. Basic Control
System Control Mode: The system can be set in manual and automatic mode

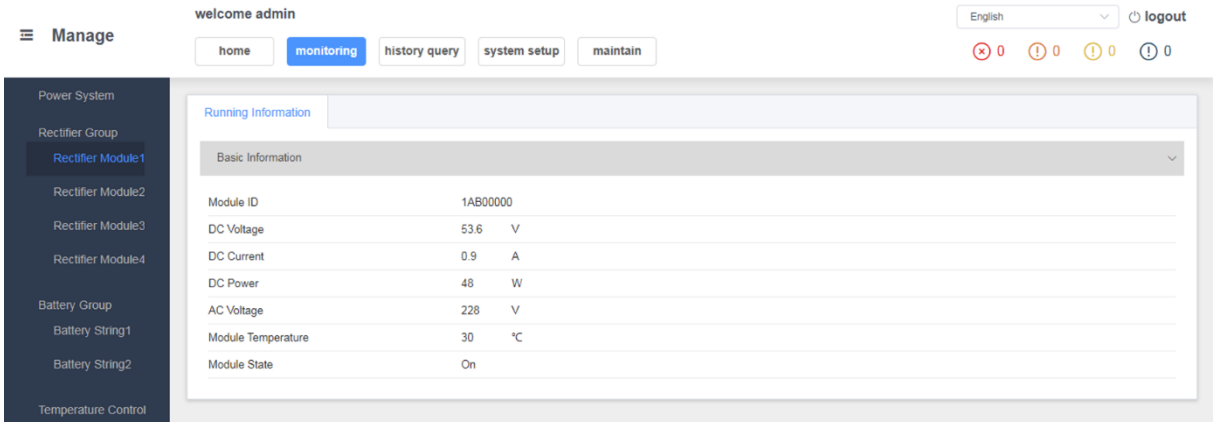


LCD interface operation：
Main Menu / Running Control/00000/ Power System/ Sys.Ctrl.Mode/ENT.

4.2.2 Rectifier Group

- **Running Information**



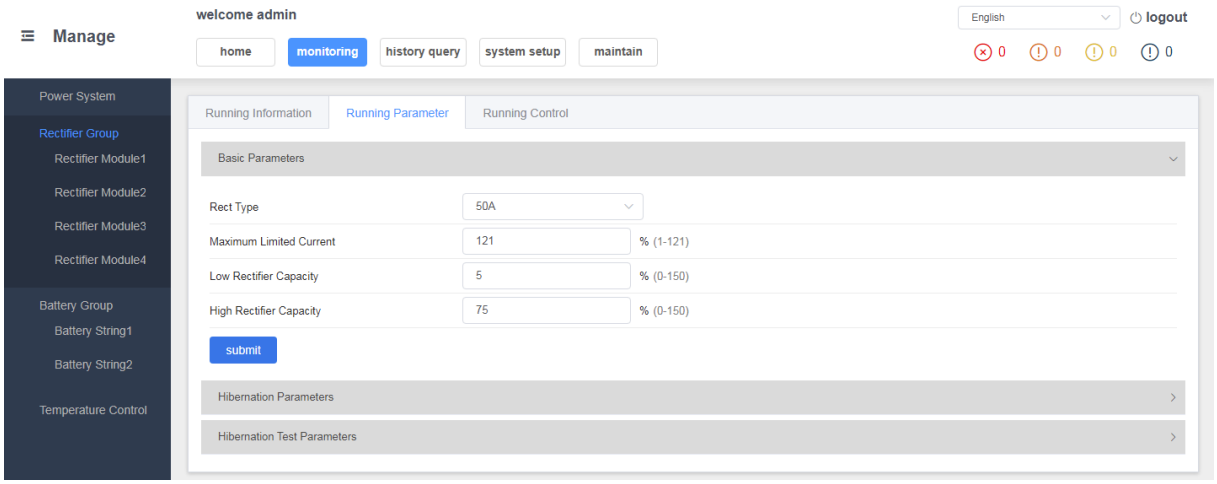


LCD interface operation :
Main Menu / Running Info. / Rectifier / ENT.

- **Running Parameters**

1. Basic Parameters

Rect. Type: Indicates the rectifier's current type.
Low Rectifier Capacity: When the system's total output current exceeds (1- Low rectifier capacity's set value) the system rated current, a low rectifier capacity alarm is activated, indicating that the remaining available capacity of the system is too low. The user needs to appropriately increase the number of rectifiers to expand the total output capacity of the system or reduce load capacity.
High Rectifier Capacity: When the system's total output current is lower than (1 - high rectifier capacity's set value) the system's rated current, the system reports a high rectifier capacity alarm indicating that the remaining available capacity of the system is too high. The user can appropriately reduce the number of rectifiers according to the actual use.

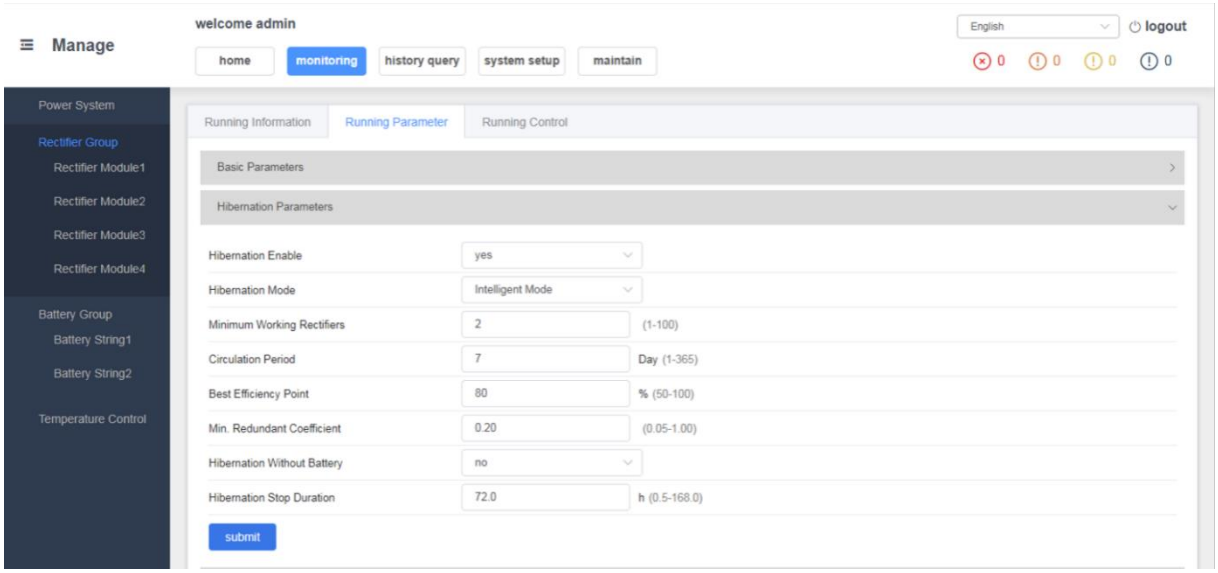


LCD interface operation：
Main Menu / setting / 10000 / Rectifier / Module Type / ENT.
Main Menu / setting / 10000 / Rectifier / High Rcet. Cap. / ENT.
Main Menu / setting / 10000 / Rectifier / Low Rcet. Cap. / ENT.
Main Menu / setting / 10000 / Rectifier /Max Lim. Curr. / ENT.

2. Hibernation Parameters

The controller automatically controls the start and sleep of the rectifier according to the load capacity of the rectifier system. When the load is reduced, the controller puts the rectifiers in sleep state one by one. When the load is increased, the controller turns on the rectifiers. In order to make the aging degree of all rectifiers consistent, the controller adjusts periodically according to the real-time efficiency or operation time of the rectifier, so that different rectifiers enter and exit the sleep state in turns.
When the sleep mode is activated, all rectifiers work for two hours, and then operate according to the set Hibernation Parameters shown in the figure below.

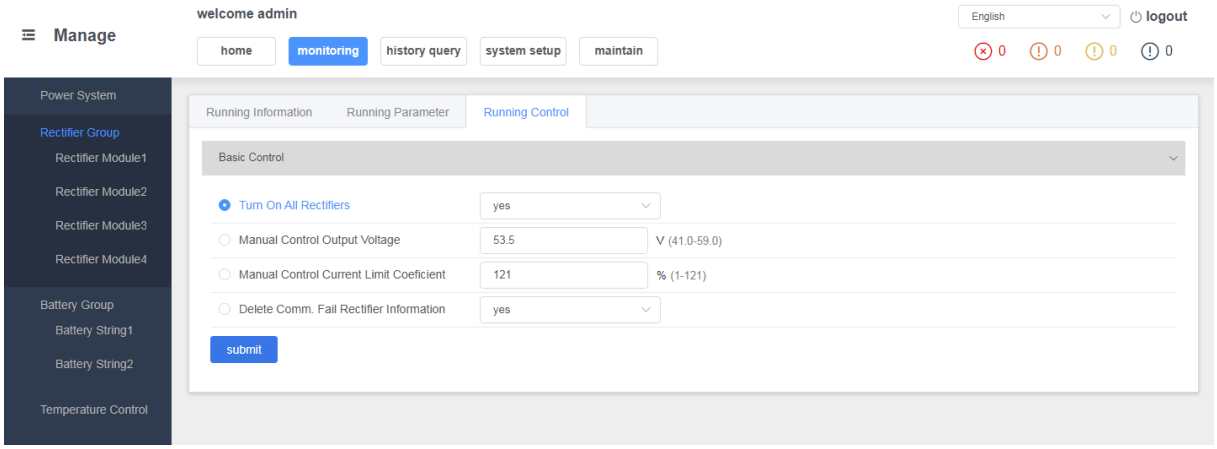
Time mode: Prioritizes the rectifier module with short running time
High efficiency mode: Prioritizes the rectifier module with high real-time efficiency
Intelligent mode: Sleep management with comprehensive consideration of running time and real-time efficiency
Circulation period: Rectifier module sleep rotation cycle time. After reaching this cycle time, all rectifier modules turn on to run for two hours, and then try to sleep again.
Min. Redundant Coefficient: The ratio of rectifier minimum redundant current to rectifier rated current.
For example, the rated current of a single rectifier is 50A. If the user wants the rectifier to ensure 10A current redundancy, the minimum redundancy factor is set to 0.2= 10A / 50A. When the system sleeps, and the module current is greater than 50 * (1-0.2) = 40A, the controller increases the number of working rectifiers to ensure the rectifier current is less than 40A. If all rectifiers are turned on and the rectifier current is still greater than 40A, the system exits the sleep state.



LCD interface operation：

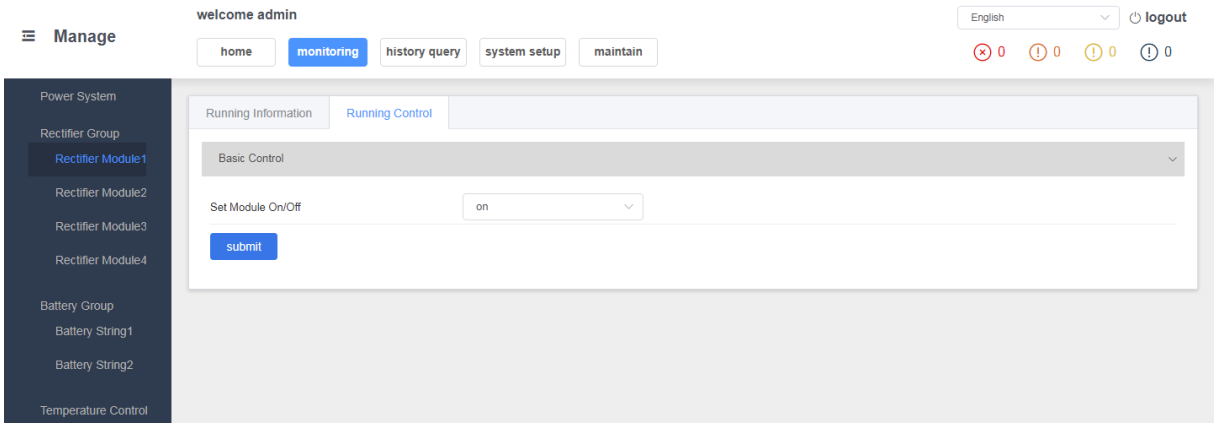
Main Menu / setting/10000/ Energy Saving/ Hiber. Enable / ENT.
Main Menu / setting/10000/ Energy Saving/ Hiber. Mode / ENT.
Main Menu / setting/10000/ Energy Saving/ Hiber. Without Batt. / ENT.
Main Menu / setting/10000/ Energy Saving/ Min. Rdnt. Coef. / ENT.
Main Menu / setting/10000/ Energy Saving/ Min. Work. Rects. / ENT.
Main Menu / setting/10000/ Energy Saving/ Best Eff. Point / ENT.
Main Menu / setting/10000/ Energy Saving/ Hiber. Stop Duration / ENT.
Main Menu / setting/10000/ Energy Saving/ Circul. Period / ENT.

- **Running Control**



LCD interface operation：

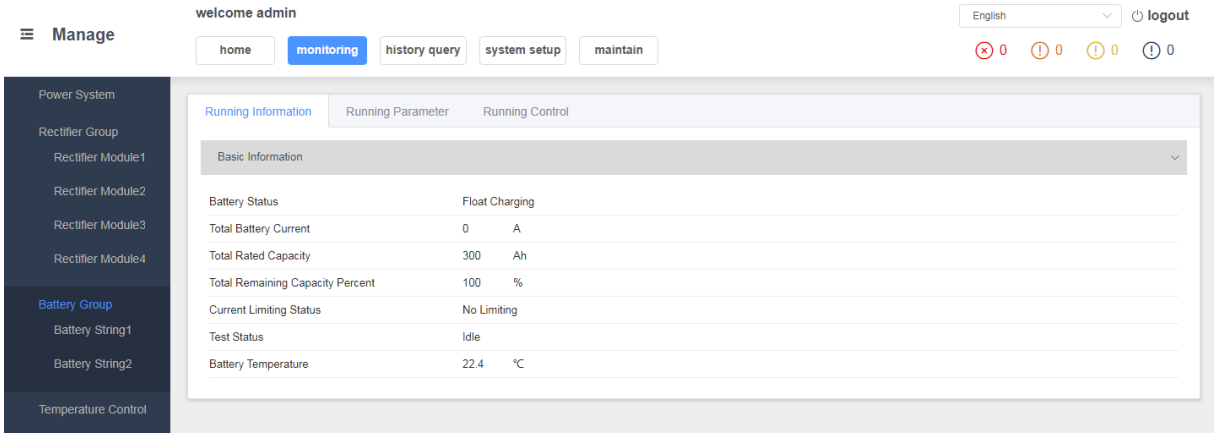
Main Menu / Running Control/00000/ Rectifier Group/ Turn On All/ENT.
Main Menu / Running Control/00000/ Rectifier Group/ Control Volt. /ENT.
Main Menu / Running Control/00000/ Rectifier Group/ Cur. Limit Coef. /ENT.
Main Menu / Running Control/00000/ Rectifier Group/ Clear Loss Alarm. /ENT.

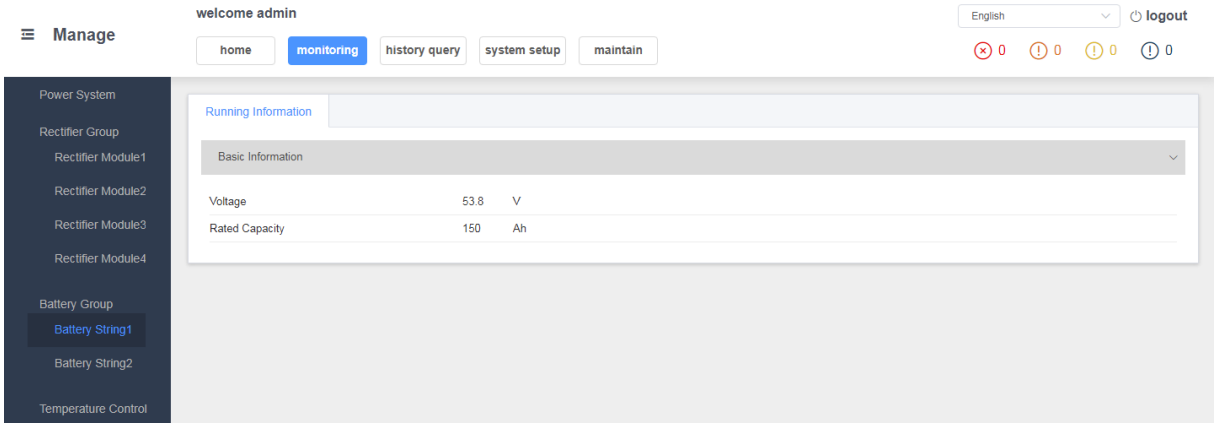


LCD interface operation：
Main Menu / Running Control/00000/ Rectifier n/ Turn On/Off/ENT.

4.2.3 Battery Group

- **Running Information**

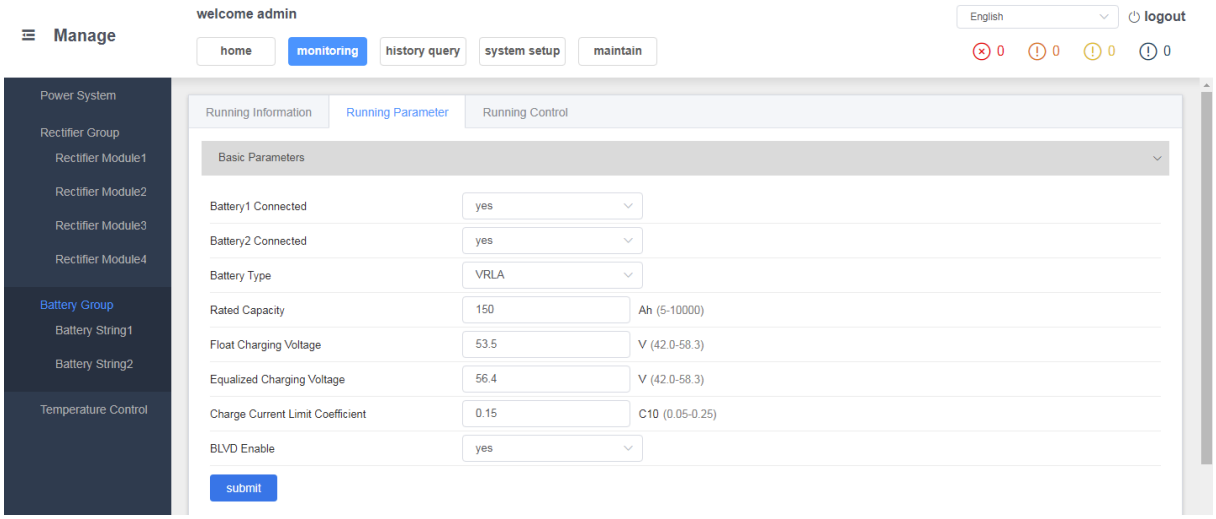




LCD interface operation：
Main Menu / Running Info. / Battery / ENT.

- **Running Parameters**

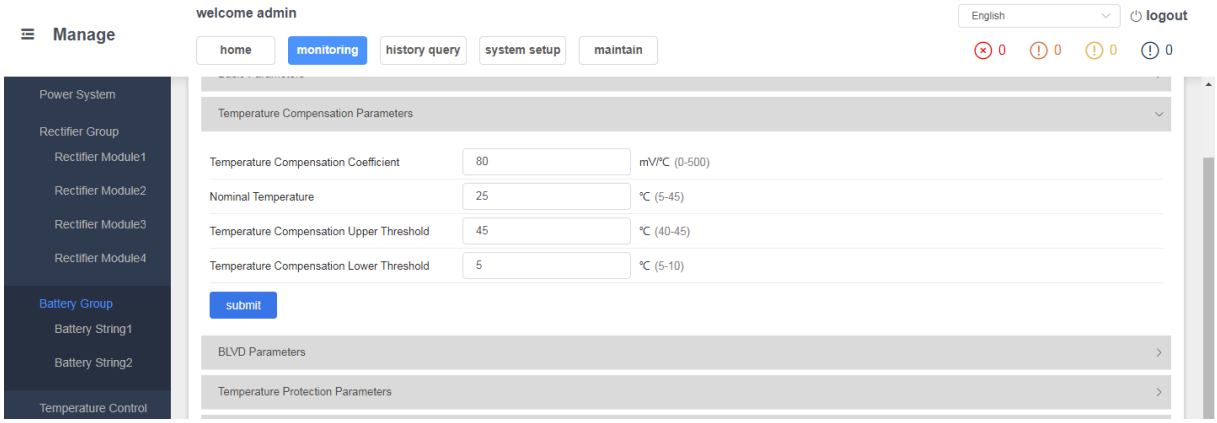
1. Basic Parameters
If battery 1 and battery 2 are connected to two battery groups with different capacities, the rated capacity is set according to the smaller battery group.



LCD interface operation：

Main Menu / setting/10000/ Battery/ Basic Parameters/ Batt1 Connected/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ Batt2 Connected/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ Battery Type/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ Rated Capacity/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ FC Voltage/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ EC Voltage/ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ Chrg. Lim. Coef. /ENT.
Main Menu / setting/10000/ Battery/ Basic Parameters/ BLVD Enable/ENT.

2. Temperature Compensation Parameters



LCD interface operation：

Main Menu / setting/10000/ Battery/ Temp. Compens. Para. / TC Coefficient /ENT.
Main Menu / setting/10000/ Battery/ Temp. Compens. Para. / Nominal Temp. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Compens. Para. / TC Upper Thres. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Compens. Para. / TC Lower Thres. /ENT.

3. BLVD Parameters

The BLVD Mode can be set to three modes:

Voltage Mode

Power Down condition: When system voltage is below the set value.
Power On condition: When system voltage is above the set value.

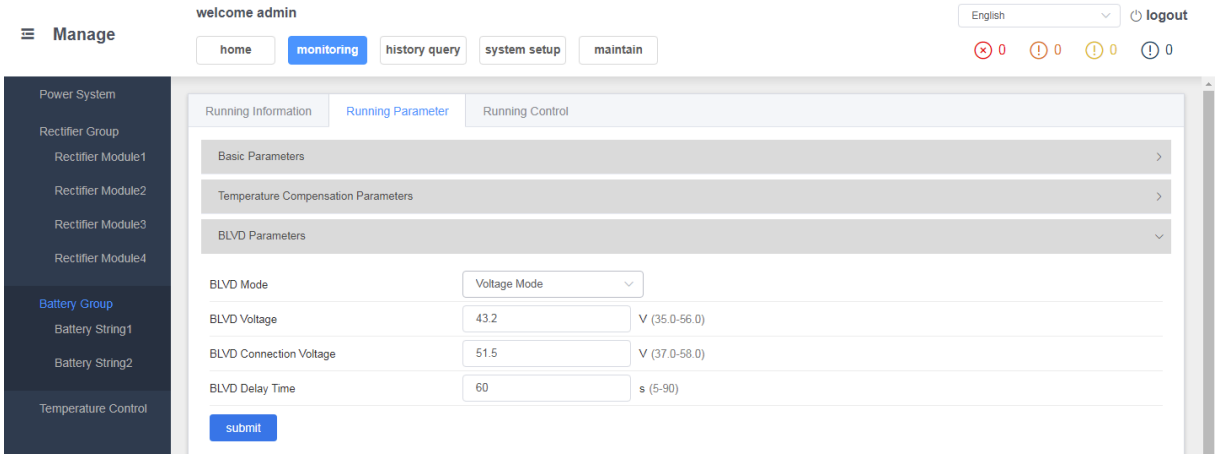
Time Mode

Power Down condition: When the battery discharge time exceeds the set value, or the voltage is lower

than the BLVD set voltage.
Power On condition: When the system voltage is above the set value.

Remain Cap. Mode

Power Down condition: When the battery capacity is lower than the set value or the voltage is lower than the BLVD set voltage.
Power On condition: System voltage is above the set value.



LCD interface operation：

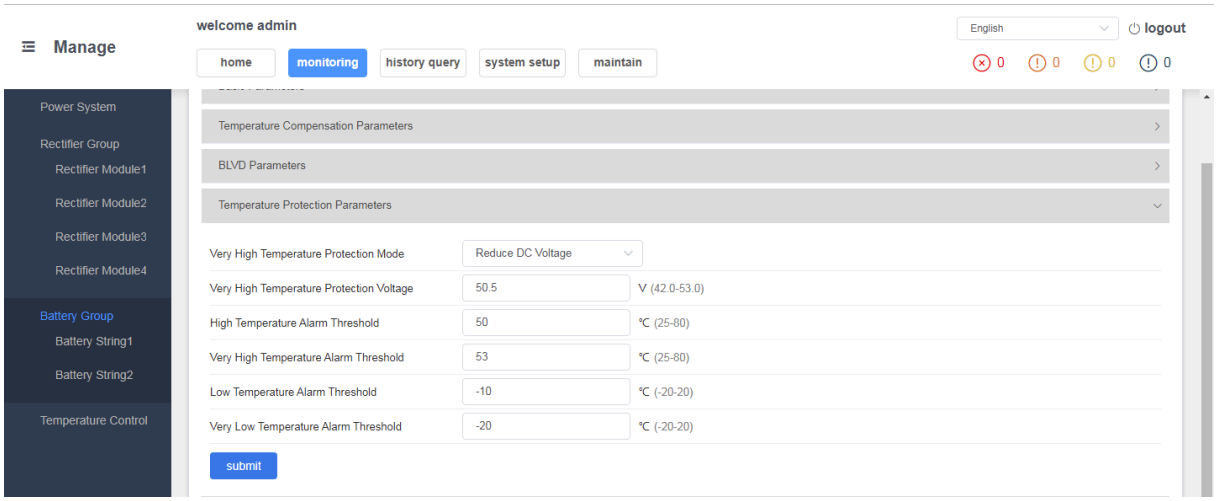
Main Menu / setting/10000/ Battery/ BLVD Parameters/ BLVD Mode /ENT.
Main Menu / setting/10000/ Battery/ BLVD Parameters/ BLVD Voltage /ENT.
Main Menu / setting/10000/ Battery/ BLVD Parameters/ BLVD Connect Volt. /ENT.
Main Menu / setting/10000/ Battery/ BLVD Parameters/ BLVD Delay Time /ENT.

4. Temperature Protection Parameters

Disable mode： When the battery temperature exceeds Very High Temperature Alarm Threshold, the system will alarm.

Reduce DC Voltage mode： When the battery temperature exceeds Very High Temperature Alarm Threshold, the system alarms and adjusts the output voltage to the Very High Temperature Protection Voltage set value.

Disconnect Batteries mode： When the battery temperature exceeds Very High Temperature Alarm Threshold, the system alarms and disconnects the BLVD.



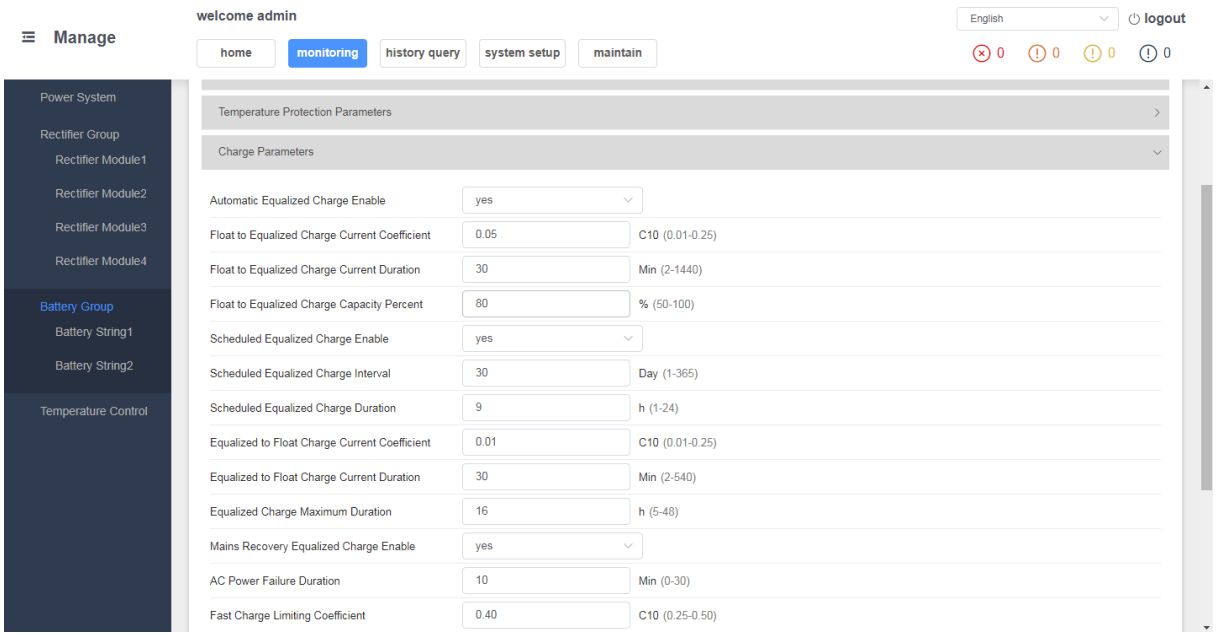
LCD interface operation：

Main Menu / setting/10000/ Battery/ Temp. Protect Para. / Very HT Prot.Mode /ENT.

Main Menu / setting/10000/ Battery/ Temp. Protect Para. / Very HT Prot.Volt. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Protect Para. / HT Alarm Thres. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Protect Para. / Very HT Alarm Thres. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Protect Para. / LT Alarm Thres. /ENT.
Main Menu / setting/10000/ Battery/ Temp. Protect Para. / Very LT Alarm Thres. /ENT.

5. Charge Parameters

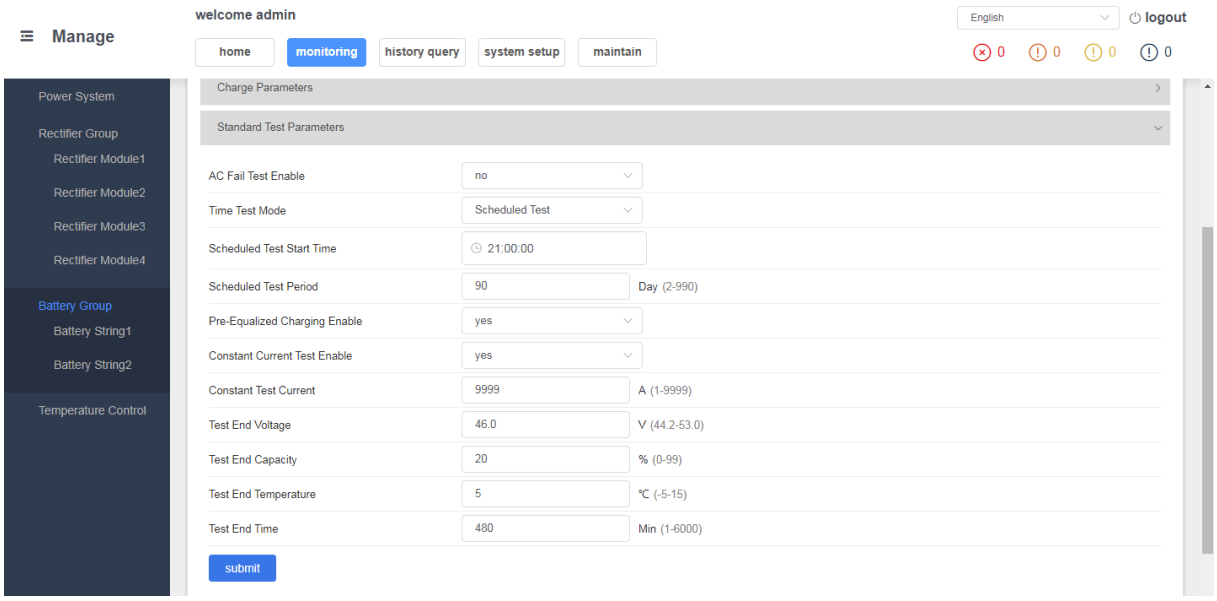
Automatic Equalized Charge Enable: Automatically enables or disables equalized charging.
Float to Equalized Charge Current Coefficient: The float charge to equalizing charge current coefficient.
Float to Equalized Charge Current Duration: The duration of the float charge.
Float to Equalized Charge Capacity Percent:
Scheduled Equalized Charge Enable:
Scheduled Equalized Charge Interval:
Scheduled Equalized Charge Duration:
Equalized to Float Charge Current Coefficient: The equalizing charge to float charge current coefficient.
Equalized to Float Charge Current Duration: The duration of the equalizing charge.
Equalized Charge Maximum Duration: The maximum duration of the system to operate in the equalizing state.
Mains Recovery Equalized Charge Enable:
AC Power Failure Duration:
Fast Charge Limiting Coefficient: The fast charge to float charge current coefficient.



LCD interface operation：
Main Menu / setting/10000/ Battery/ Charge Parameters/ Automatic EC Enable /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ FC-EC Cur. Coef. /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ FC-EC Cur. Duration /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ FC-EC Cap. Percent /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ Sche.EC Enable /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ Sche.EC Interval /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ Sche.EC Duration /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ EC-FC Cur. Coef. /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ EC-FC Cur. Duration /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ EC Max Duration /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ Mains Recovery EC En /ENT.

Main Menu / setting/10000/ Battery/ Charge Parameters/ AC Fail Duration /ENT.
Main Menu / setting/10000/ Battery/ Charge Parameters/ Fast Chrg. Coef. /ENT.

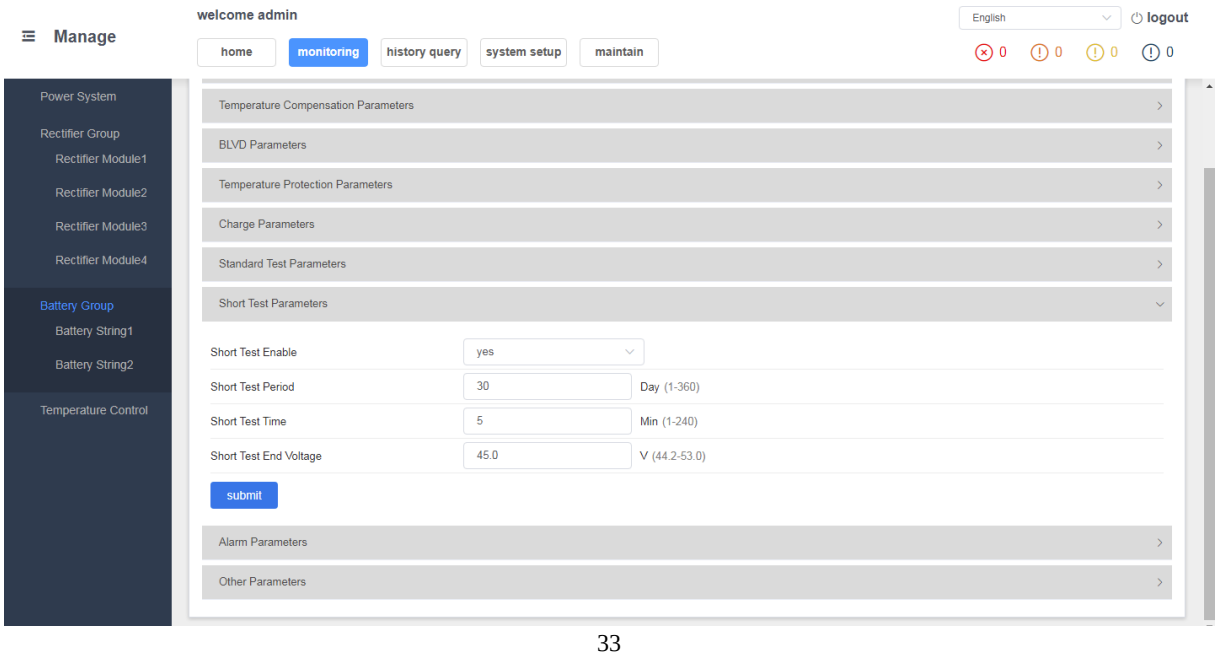
6. Standard Test Parameters



LCD interface operation：

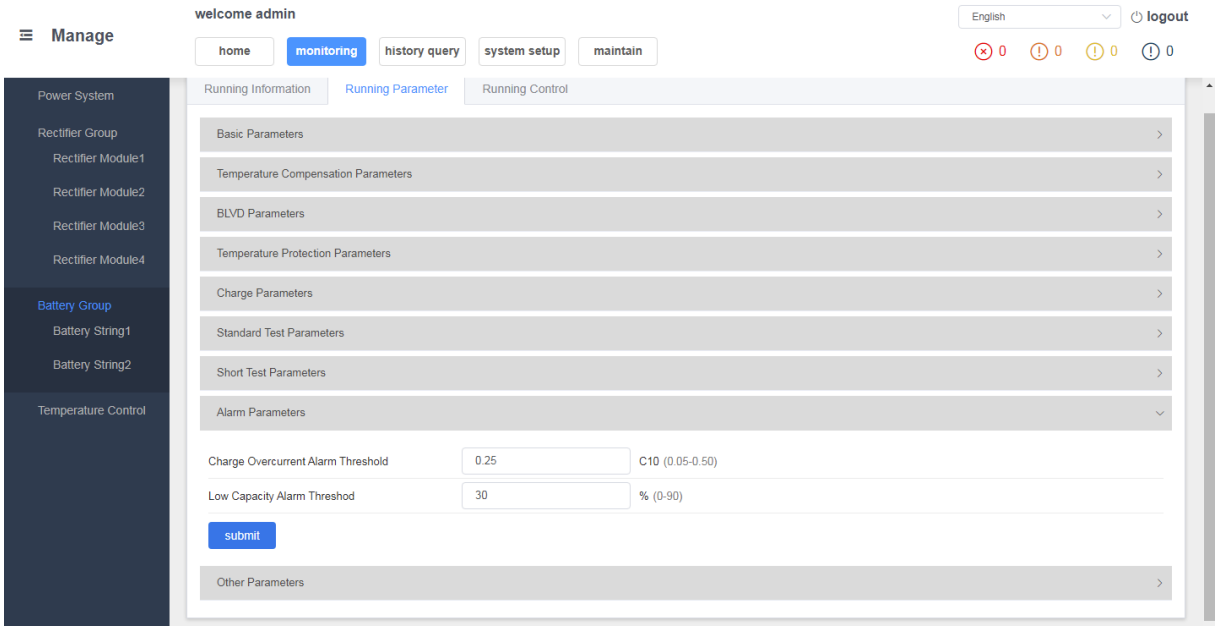
Main Menu / setting/10000/ Battery/ Standard Test Para. / AC Fail Test En /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Time Test Mode /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Sche. St. Time /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Sche. Period /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Pre-EC Enable /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Const. Cur. Test /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / Const. Test Cur. /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / End Voltage /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / End Capacity /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / End Time /ENT.
Main Menu / setting/10000/ Battery/ Standard Test Para. / End Temperature /ENT.

7. Short Test Parameters



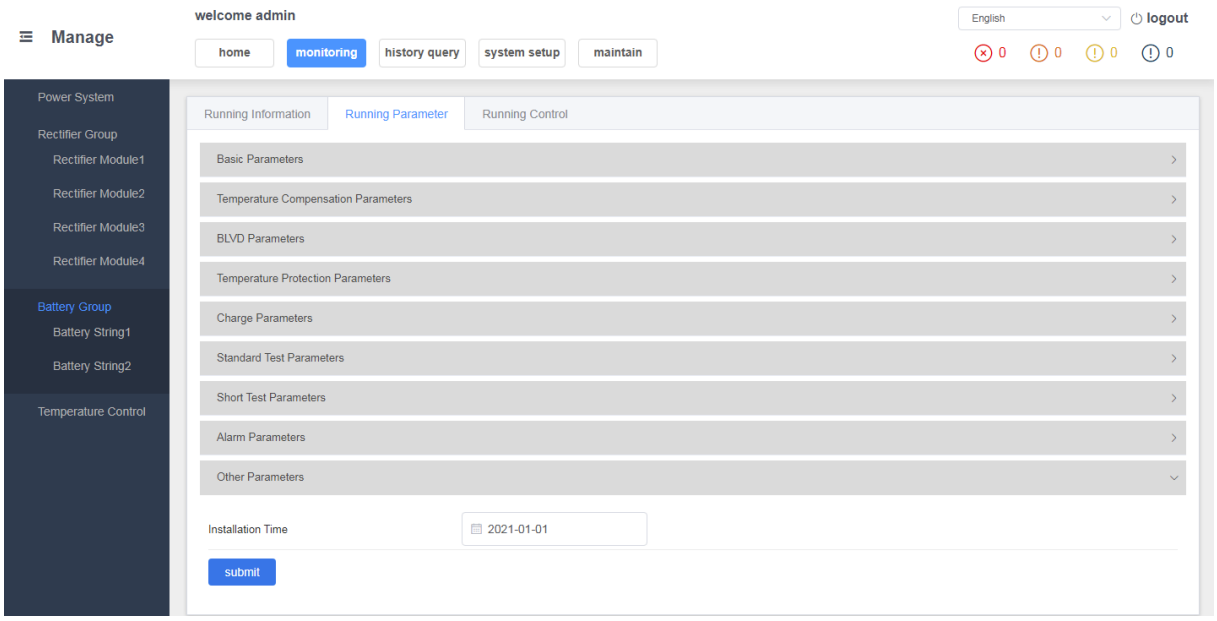
LCD interface operation：
Main Menu / setting/10000/ Battery/ Short Test Para. / Short Test En. /ENT.
Main Menu / setting/10000/ Battery/ Short Test Para. / Test Period /ENT.
Main Menu / setting/10000/ Battery/ Short Test Para. / Short Test Time /ENT.
Main Menu / setting/10000/ Battery/ Short Test Para. / End Voltage /ENT.

8. Alarm Parameters



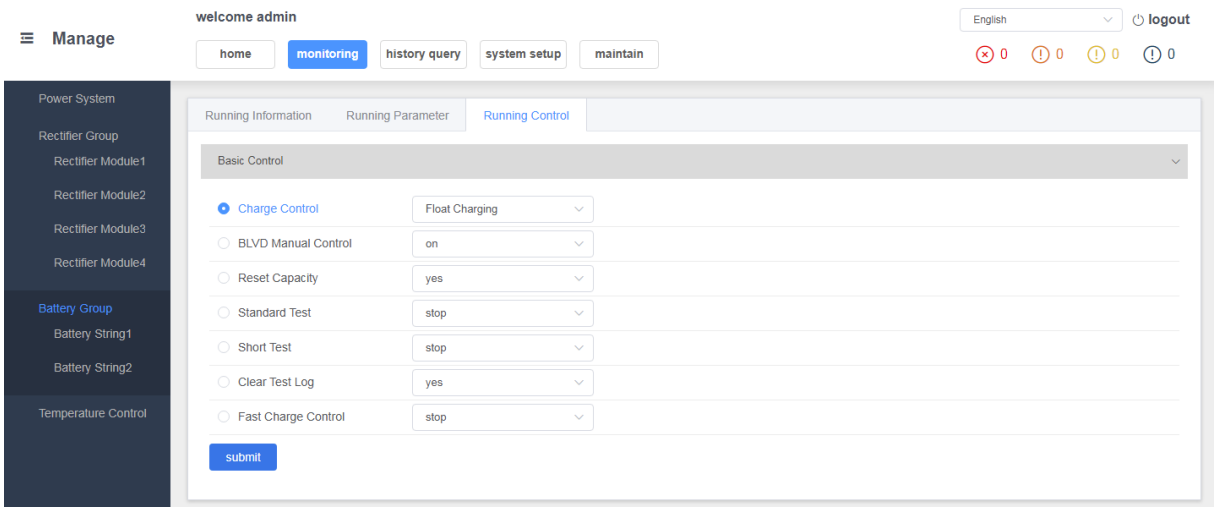
LCD interface operation：
Main Menu / setting/10000/ Battery/ Alarm Parameters/ Overcur.Thres./ENT.
Main Menu / setting/10000/ Battery/ Alarm Parameters/ Low Cap.Thres./ENT.

9. Other Parameters



LCD interface operation：
Main Menu / setting/10000/ Battery/ Other Parameters/ Install Time/ENT.

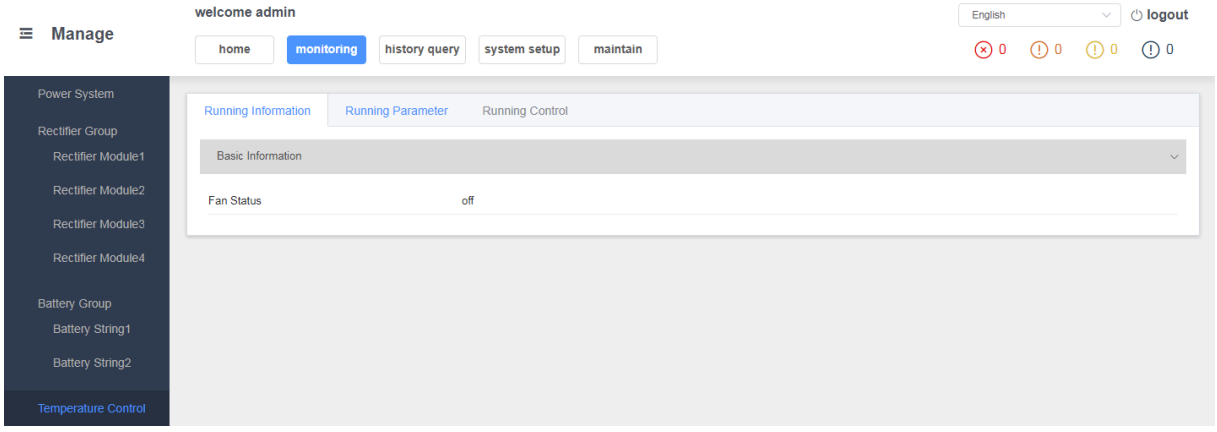
- **Running Control**



LCD interface operation：
Main Menu / Running Control/00000/ Battery/ Charge Control/ENT.
Main Menu / Running Control/00000/ Battery/ BLVD Control/ENT.
Main Menu / Running Control/00000/ Battery/ Reset Capacity/ENT.
Main Menu / Running Control/00000/ Battery/ Std. Test Control/ENT.
Main Menu / Running Control/00000/ Battery/ Short Test Control/ENT.
Main Menu / Running Control/00000/ Battery/ Clear Test Log/ENT.
Main Menu / Running Control/00000/ Battery/ Fast Charge Control/ENT.

4.2.4 Temperature Control

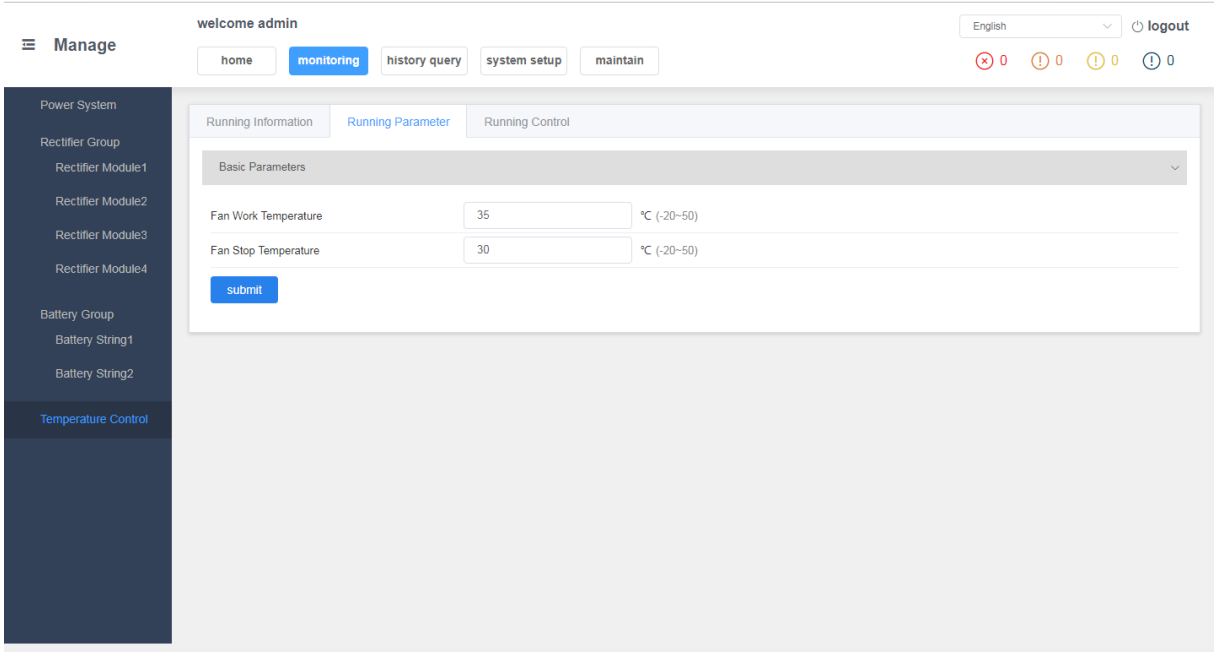
- **Running Information**



LCD interface operation：
Main Menu / Running Info. / Temp. Control / ENT.

- **Running Parameters**

1. Basic Parameters
To set the fan Run and Stop temperatures. When the ambient temperature is higher than the Fan Work Temperature, the fan starts. When the ambient temperature is lower than the Fan Stop Temperature, the fan stops.



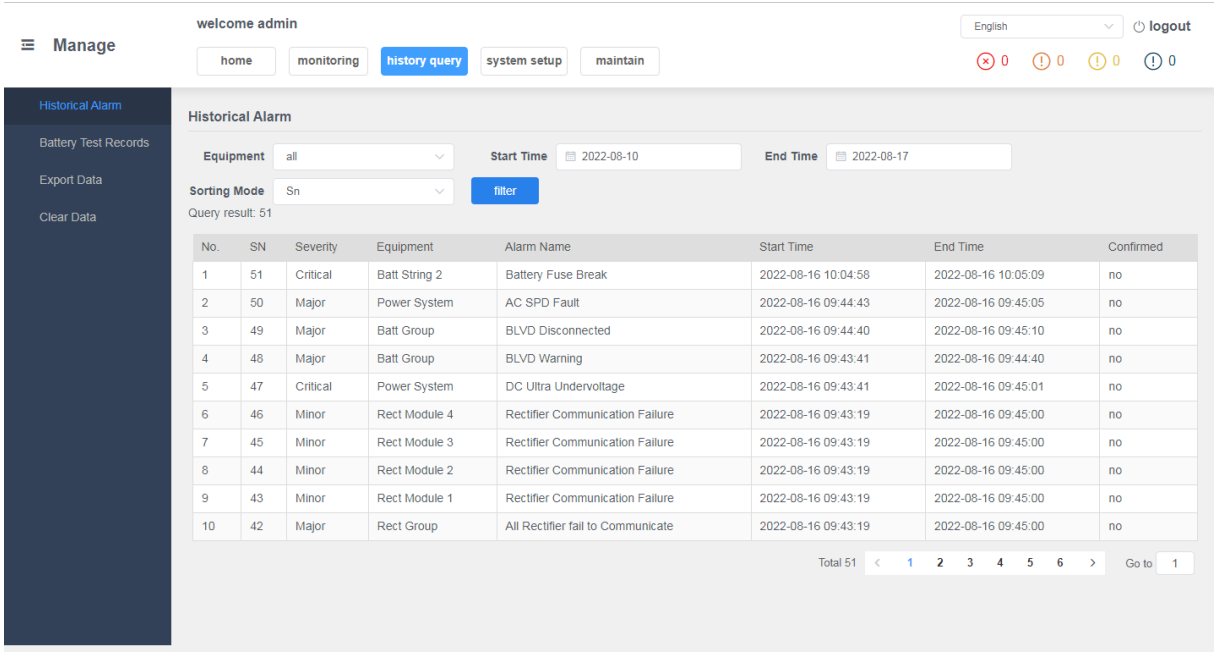
LCD interface operation：
Main Menu / setting/10000/ Temp. Control Group/ Fan Work Temp./ENT.
Main Menu / setting/10000/ Temp. Control Group/ Fan Stop Temp./ENT.

- **Running Control**

4.3 History Query Tab

4.3.1 Historical Alarm

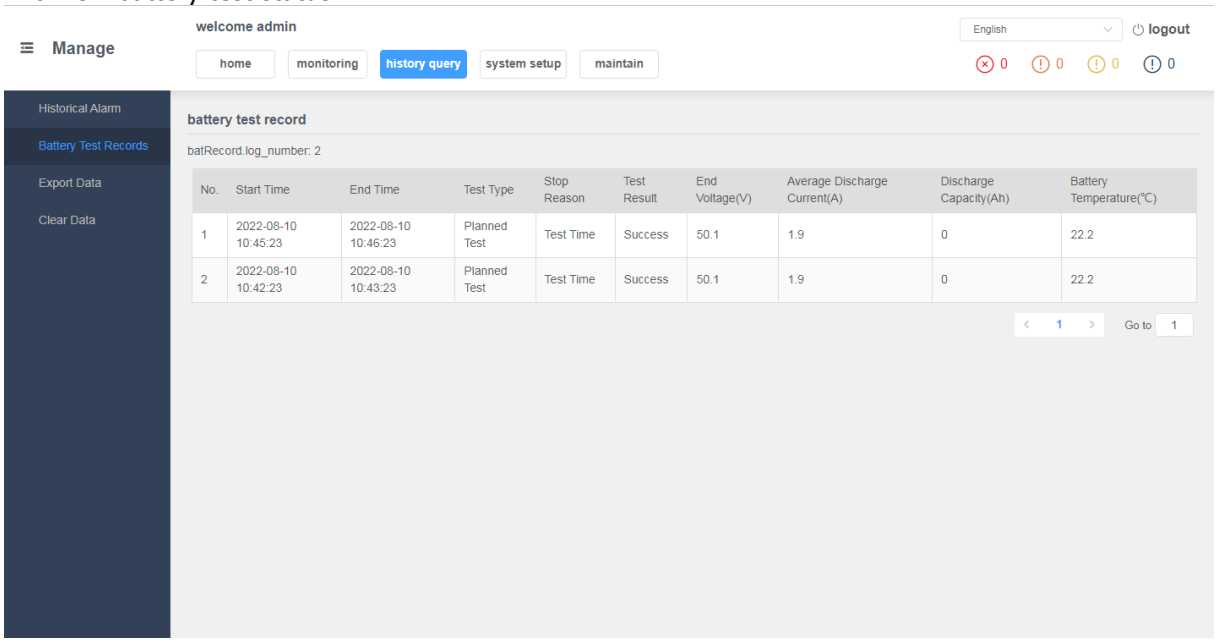
To view the start and end time of the system's alarms.



LCD interface operation：
Main Menu / Alarm/ Historical Alarm/ENT.

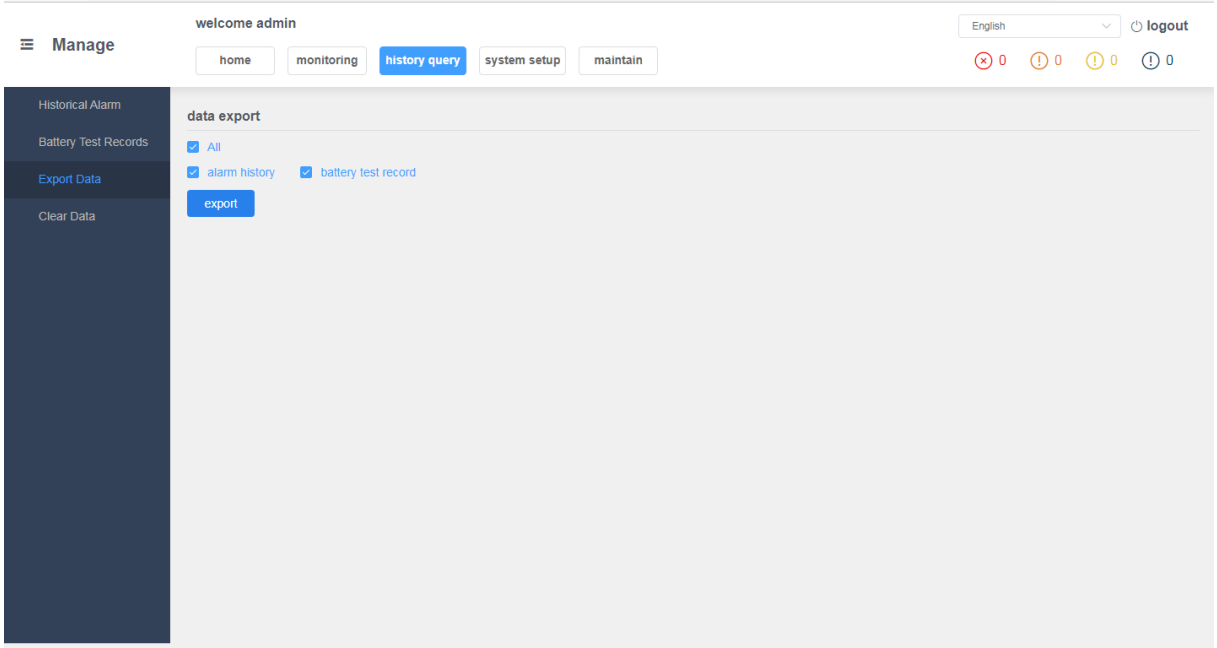
4.3.2 Battery Test Records

To view battery test status

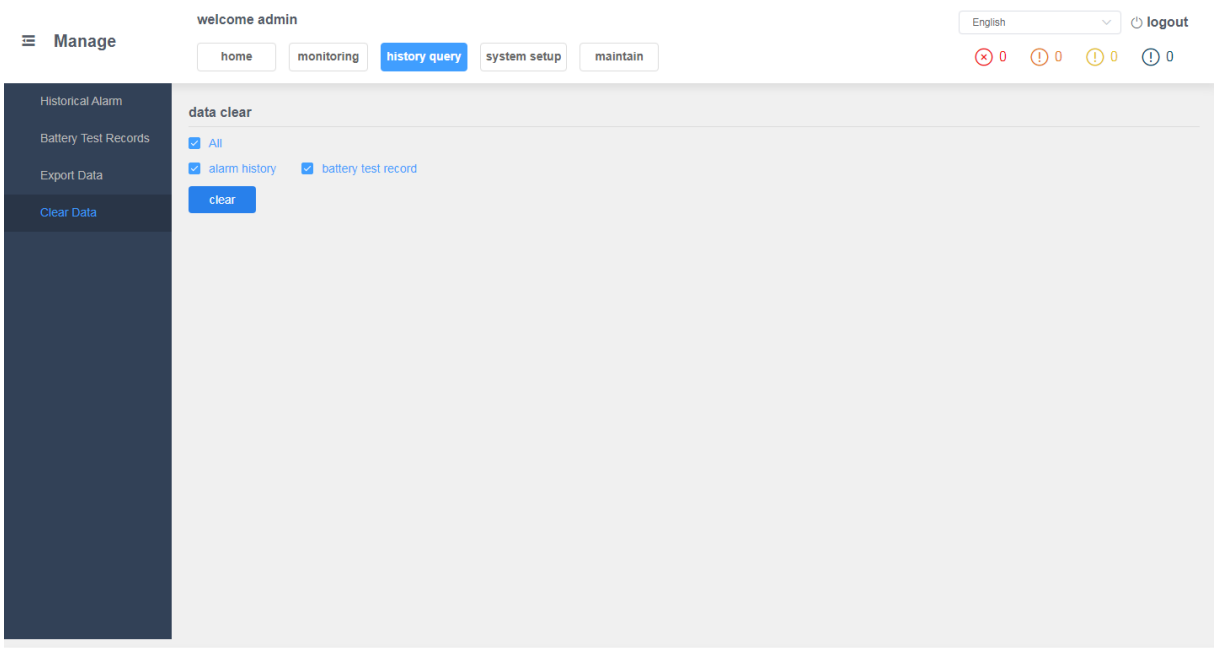


4.3.3 Export Data

To export historical alarm data and battery test records



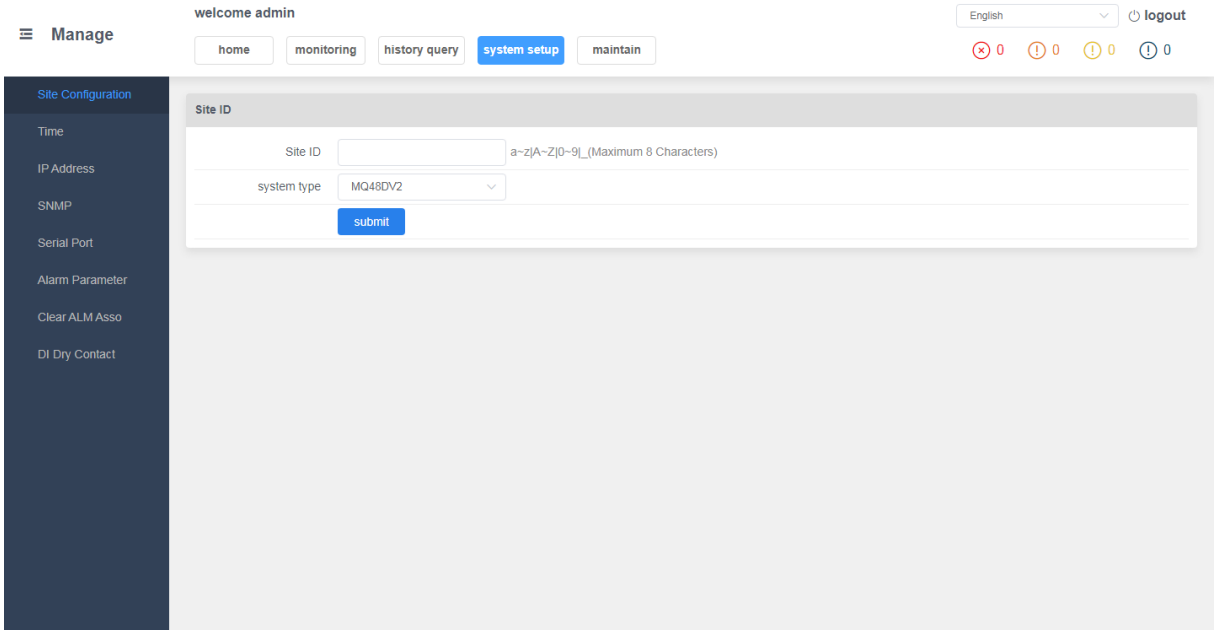
4.3.4 **Clear Data** – to clear historical alarm data and battery test records



LCD interface operation:
Main Menu / Running Control/00000/ Clear Alarm/ Historical Alarm/ENT.
Main Menu / Running Control/00000/ Battery/ Clear Test Log/ENT.

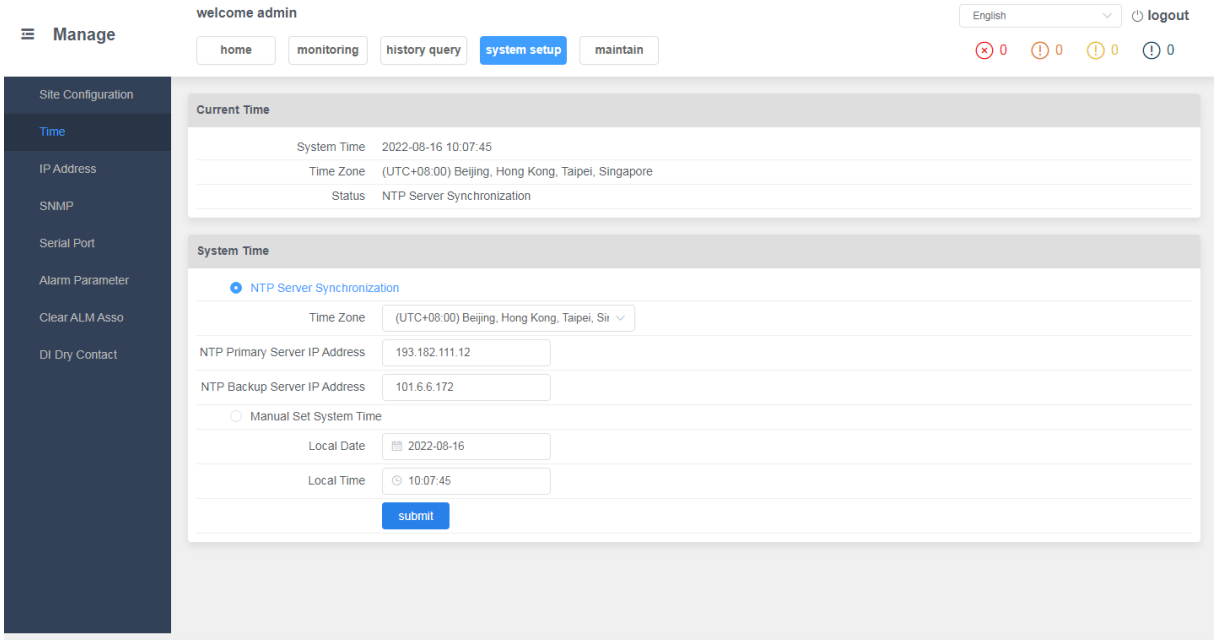
4.4 System Setup Tab

4.4.1 Site Configuration



LCD interface operation:
Main Menu / setting/10000/ Local Parameters/ Site Config/ENT.
Main Menu / setting/10000/ Local Parameters/ System Type/ENT.

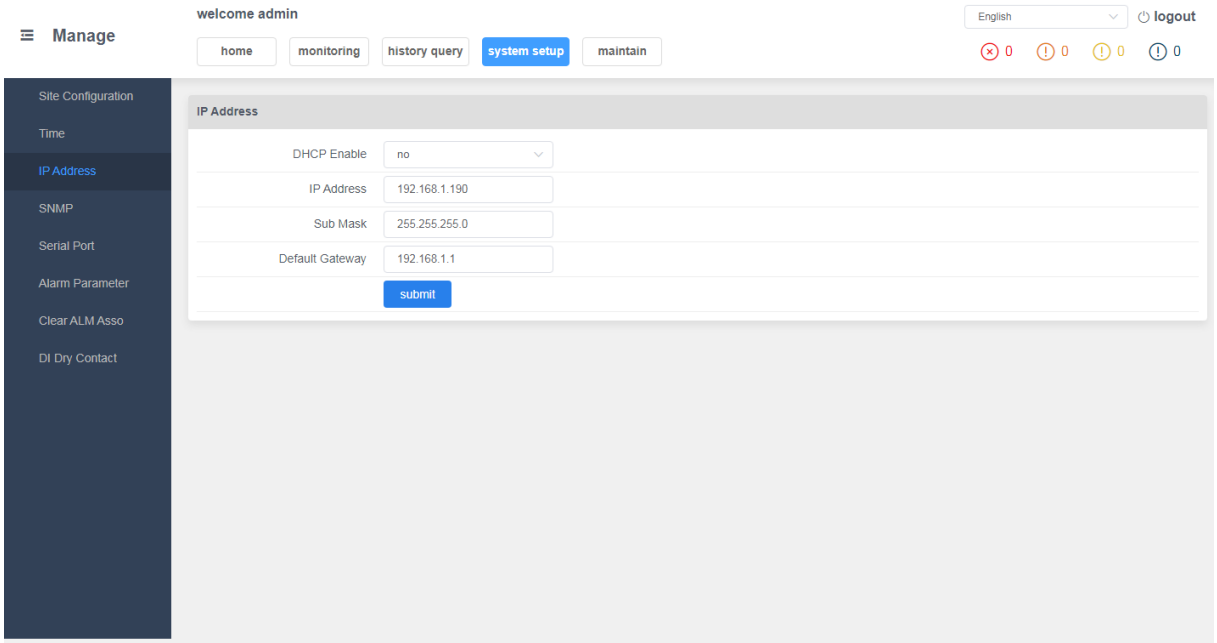
4.4.2 Time



LCD interface operation：

Main Menu / setting/10000/ Local Parameters/ Date and Time/ Date Time/ENT.
Main Menu / setting/10000/ Local Parameters/ Date and Time/ Time Zone/ENT.
Main Menu / setting/10000/ Local Parameters/ Date and Time/ NTP Enable/ENT.
Main Menu / setting/10000/ Local Parameters/ Date and Time/ NTP Primary IP/ENT.
Main Menu / setting/10000/ Local Parameters/ Date and Time/ NTP Second IP/ENT.

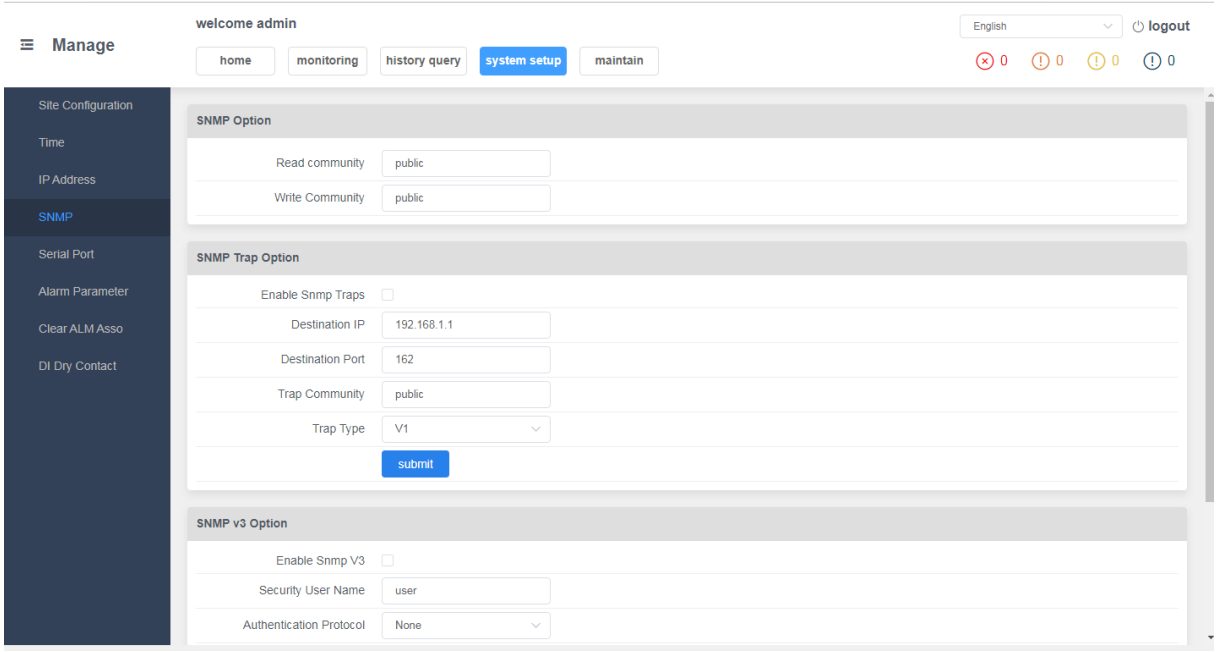
4.4.3 IP Address



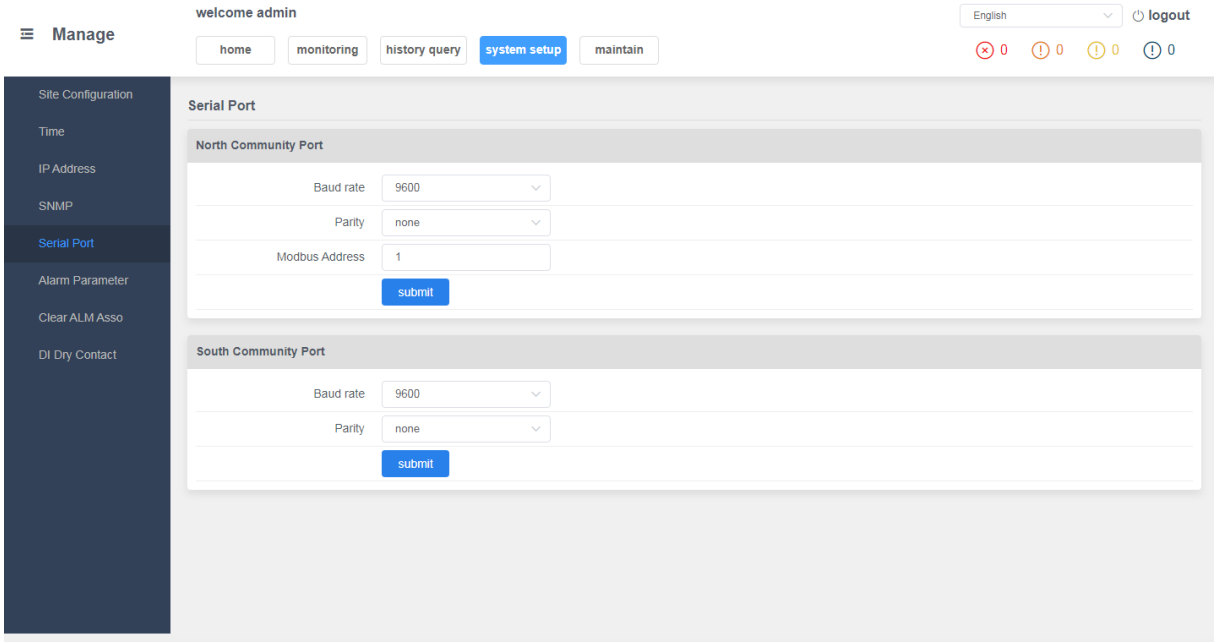
LCD interface operation：

Main Menu / setting/10000/ Comm. Parameters/ Network Parameters/ DHCP Enable/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Network Parameters/ IP Address/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Network Parameters/ Subnet Mask/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Network Parameters/ Default Gateway/ENT.

4.4.4 SNMP



4.4.5 Serial Port

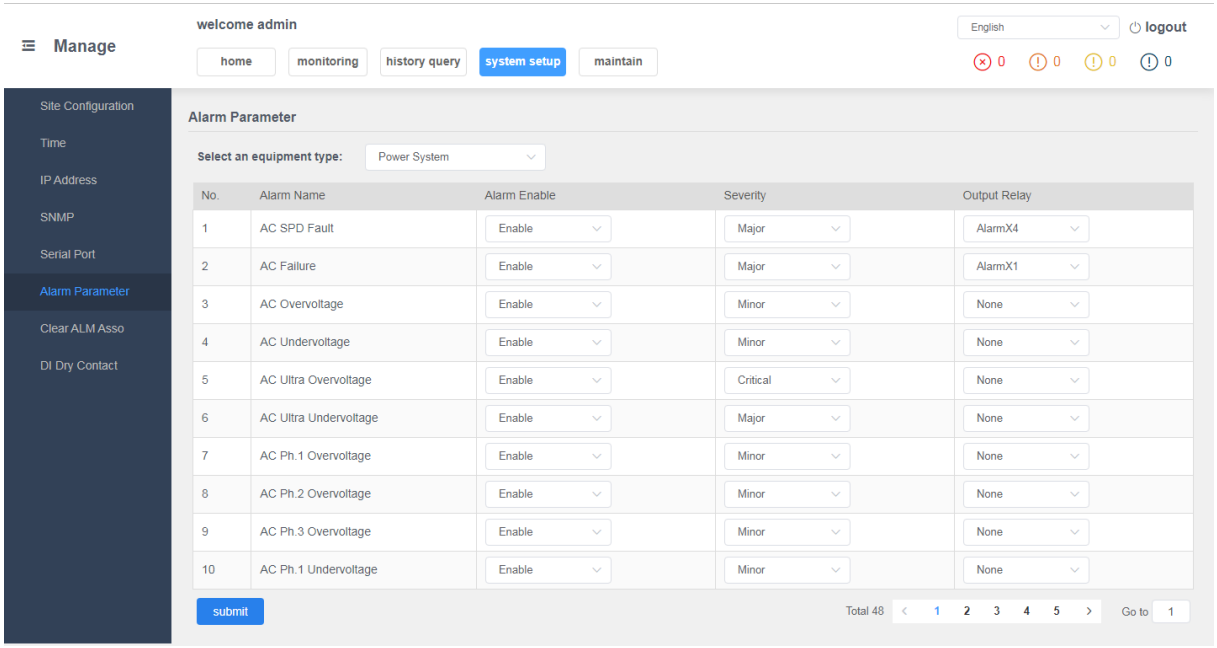


LCD interface operation：

Main Menu / setting/10000/ Comm. Parameters/ Serial Port/ Northbound/ Baud Rate/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Serial Port/ Northbound/ Parity/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Serial Port/ Northbound/ Modbus Address/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Serial Port/ Southbound/ Baud Rate/ENT.
Main Menu / setting/10000/ Comm. Parameters/ Serial Port/ Southbound/ Parity/ENT.

4.4.6 Alarm Parameter

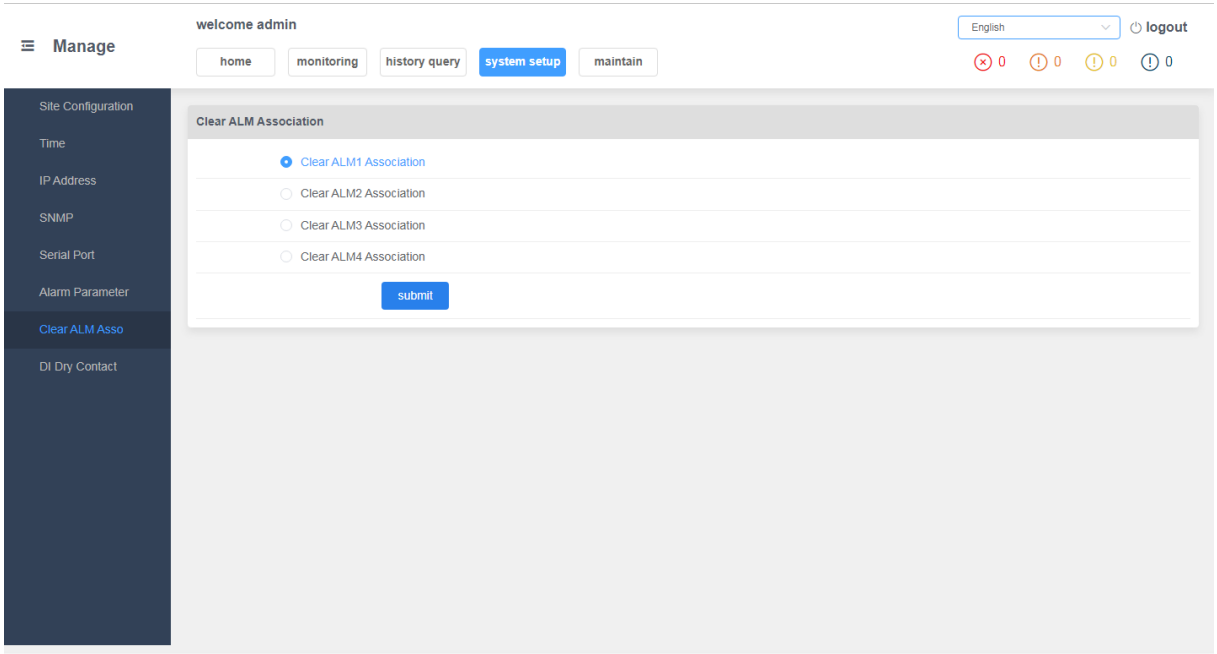
To set alarm priority and associate alarm to specific dry contact



LCD interface operation：

Main Menu / setting/10000/ Alarm Parameters/ Alarm Config/ Power System/ ENT.
Main Menu / setting/10000/ Alarm Parameters/ Alarm Config/ Rectifier Group/ ENT.
Main Menu / setting/10000/ Alarm Parameters/ Alarm Config/ Rectifier/ ENT.
Main Menu / setting/10000/ Alarm Parameters/ Alarm Config/ Battery Group/ ENT.
Main Menu / setting/10000/ Alarm Parameters/ Alarm Config/ Battery String/ ENT.

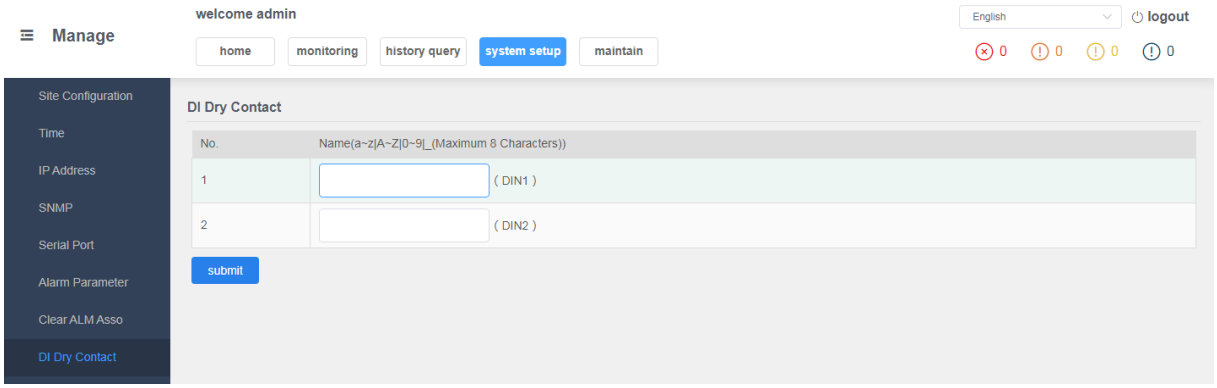
4.4.7 Clear dry contact connections



LCD interface operation：

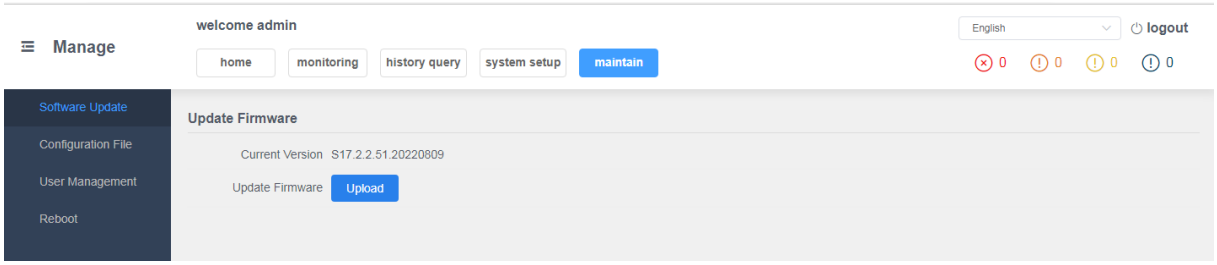
Main Menu / setting/10000/ Alarm Parameters/ Clear ALM Asso. / Clear ALM1 Asso. / ENT.
Main Menu / setting/10000/ Alarm Parameters/ Clear ALM Asso. / Clear ALM2 Asso. / ENT.
Main Menu / setting/10000/ Alarm Parameters/ Clear ALM Asso. / Clear ALM3 Asso. / ENT.
Main Menu / setting/10000/ Alarm Parameters/ Clear ALM Asso. / Clear ALM4 Asso. / ENT.

4.4.8 DI Dry Contact



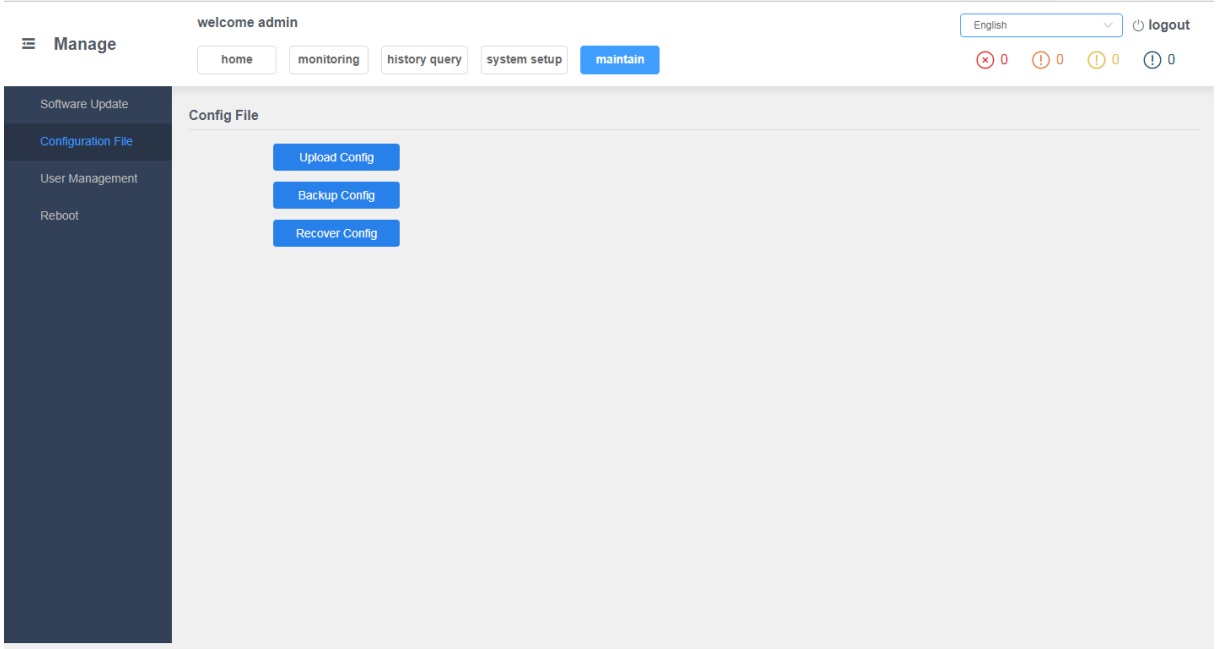
4.5 Maintain Tab

4.5.1 Software update



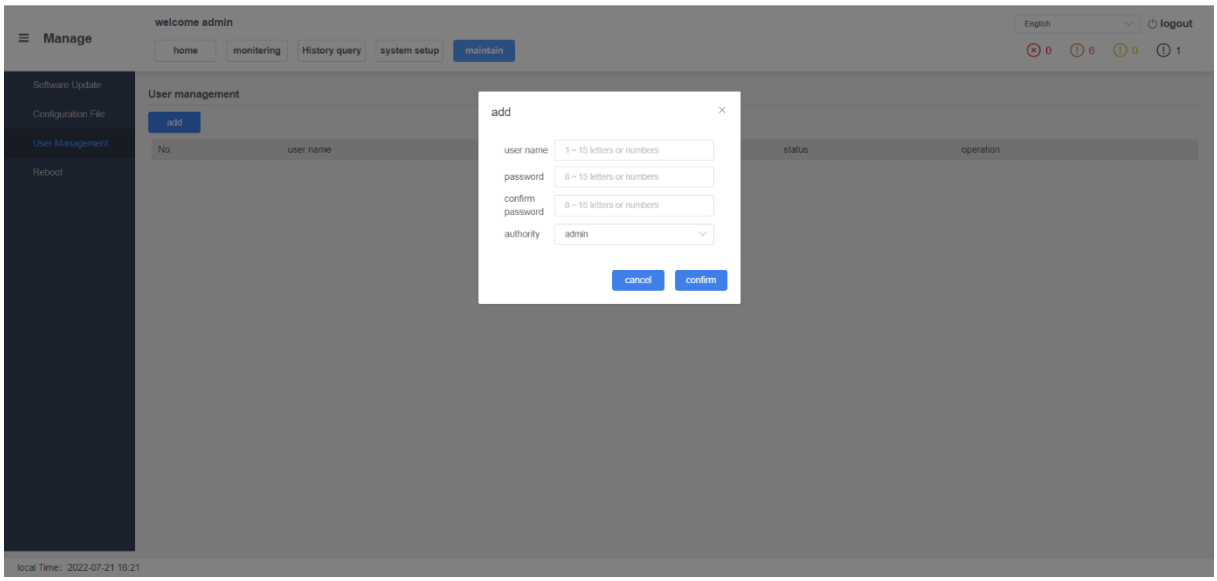
4.5.2 Configuration File

Upload Config: To upload the configuration file
Backup Config: To export the current configuration parameters
Recover Config: To restore the factory settings

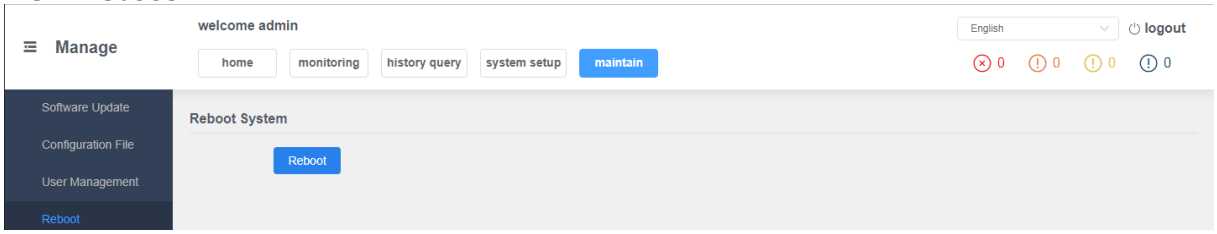


4.5.3 User Management

To set the username, login password and user authority



4.5.4 Reboot



LCD interface operation：

Main Menu / Running Control/00000/ Power System/ Reboot PMU/ENT.

5 Resolving Alarms

Table 9 lists the alarms that are shown in the Web Interface Advanced Settings Menu under the Alarms Tab. These are also the possible alarms that display in the alarm screens on the LCD Interface and Web Interface. Table 9 also provides guidelines for fixing the condition that caused the alarm.

Note: These instructions describe the complete functionality of the controller. Some functionality is dependent on hardware connected to the controller.

Table 9 - Available Alarms

Full Alarm Name – Web (Abbreviated Alarm Name - LCD)	Alarm Description	Action to Correct
Power System Alarms		
Supervision Unit Internal Fault	No information	Replace the controller.

CAN Communication Failure (CAN Comm Fail)	CAN bus communications failure.	Check communications cables.
Abnormal Load Current	Current sharing imbalance.	Check to see why current sharing is imbalanced.
Overload	Output overload condition.	Check the load.
SPD	Surge protection device needs attention.	Check surge protection device.
System Temperature Not Used	Temperature sensor port is not used.	
Over Voltage	Output voltage is higher than the Over Voltage Alarm threshold.	Check to see why system voltage is high. Check the alarm setting.
Under Voltage	Output voltage is lower than the Under Voltage Alarm threshold.	Check to see why system voltage is low. If there is a mains failure, check if some load could be switched off in order to prolong the operating time of the plant. If the system load is too high related to rectifier capacity, install additional rectifiers. If the batteries are being recharged, the alarm will cease by itself when battery voltage has increased to the charging level.
Very High Ambient Temperature	Very high ambient temperature alarm.	Check why temperature is high.
DI1 Alarm	Digital input #1 alarm is active.	Check why alarm is active.
DI2 Alarm	Digital input #2 alarm is active.	
Rectifier Group Alarms		
Multi-Rectifiers Failure	More than one rectifier has failed.	Check input voltage to rectifiers. Replace rectifiers.
Rectifier Lost	A rectifier cannot be detected by the controller.	Replace defective rectifier.
All Rectifiers Comm Fail	No response from all rectifiers.	Check the connectors and cables or the CAN loop. Replace the controller.
Rectifier Alarms		
AC Input Failure	No AC input power to a rectifier.	Check why no AC input power available.
High Temperature	A rectifier has a high temperature condition.	Check why temperature is high.
Rectifier Fault	A rectifier has a fault condition.	Replace rectifiers.
Overvoltage	A rectifier has an overvoltage condition.	
Rectifier Protected	A rectifier is in protected mode.	
Fan Failure	A rectifier's fan has failed.	Replace fan.
Current Limit	A rectifier is in current limit.	Rectifier overload. The load is higher

		than rectifier capacity. If the batteries are being recharged, the alarm will cease by itself when the battery voltage has increased to the charging level. If the system load is higher than the rectifier capacity, the batteries will discharge. If this is the reason, install additional rectifiers. If one or more of the rectifiers are defective, replace the faulty rectifiers.
Communication Fail	A rectifier has lost communications with the controller.	Check communications cables. Reset the Communication Fail alarm. Replace the rectifier.
Derated	A rectifier is in output power derating mode.	The AC input voltage is too low. The ambient temperature is too high.
AC Under voltage Protection	A rectifier is in under voltage protection mode.	The AC input voltage is too low.
AC Over voltage Protection	A rectifier is in over voltage protection mode.	The AC input voltage is too high.
Battery Group Alarms		
High Temp	Temperature sensor sensing temperature higher than high temperature threshold.	Check why temperature is high.
Low Cell Voltage Alarm	Battery string low voltage alarm.	--
Battery fuse Alarm	Fuse is open.	Find out and eliminate the reason the fuse is open before replacing. Check for overload or short circuit. If the fuse was manually removed, check with the person that removed it before reinserting it.
DC Distribution Alarms		
Over voltage	DC output is above over voltage threshold.	Check to see why voltage is high.
Undervoltage	DC output is below under voltage threshold.	Check to see why voltage is low.
DC Fuse Unit Alarms		
Fuse Alarm	DC output fuse is open.	Find out and eliminate the reason the fuse is open before replacing. Check for overload or short circuit. If the fuse was manually removed, check with the person that removed it before reinserting it.
LVD Unit Alarms (Low voltage disconnect must be present in system)		
LVD Failure	LVD contactor is in disconnect mode.	

BLVD Failure	BLVD contactor is in disconnect mode.	
AC Unit		
Over Voltage	Phase voltage is above over voltage threshold.	Check why voltage is high.
Under Voltage	Phase voltage is below under voltage threshold.	Check why voltage is low.

These instructions describe the complete functionality of the LMP-SC Controller. Some functionality is dependent on hardware connected to the LMP-SC Controller.

6 Adjustment Range Restrictions

These instructions describe the complete functionality of the LMP-SC Controller. Some functionality is dependent on hardware connected to the LMP-SC Controller.

Float Voltage Setting
- Cannot be adjusted higher than "EQ Voltage" setting.
- Cannot be adjusted lower than 1V (48V systems) above "Under Voltage Alarm" setting or higher than 1V (48V systems) below "Over Voltage Alarm" setting.

Equalize Voltage Setting
- Cannot be adjusted lower than "Float Voltage" setting.

Under Voltage Alarm Setting
- Cannot be adjusted lower than "Under Voltage protection (UVP) setting.
- Cannot be adjusted higher than "Over Volt Alarm" setting.

Under Voltage protection Setting
- Cannot be adjusted higher than "Under Volt Alarm" setting.

Over Voltage Alarm Setting
- Cannot be adjusted higher than "Over Voltage protection (OVP)" setting.
- Cannot be adjusted lower than "Under Voltage Alarm" setting.

Over Voltage protection Setting
- Cannot be adjusted lower than "Over Voltage Alarm" setting.

LLVD and BLVD Disconnect Setting
- Cannot be adjusted higher than "LLVD and BLVD Reconnect Voltage" setting.

LLVD and BLVD Reconnect Setting
- Cannot be adjusted lower than "LLVD and BLVD Disconnect Voltage" setting.

LLVD Disconnect Setting
- Cannot be adjusted lower than "BLVD Disconnect Voltage" setting.

BLVD Disconnect Setting
- Cannot be adjusted higher than "LLVD Reconnect Voltage" setting.
- Cannot be adjusted higher than "LLVD Disconnect Voltage" setting.

Appendix 1 Environmental Protection Use Period

Environment protection use period marking instructions

Environmental protection use period mark is according to the "electronic information products pollution control management measures" and "electronic information products pollution control identification requirements" make, Apply sales in China's electronic information products mark.

As long as according to the safety and instructions content use electronic information products, From the date of manufacture, in this period which products contain toxic and harmful substances not leak or mutation, Not to cause serious pollution to the environment or to persons, property damage.

The products of normal use, abandoned in the environmental protection use period or just to the term of the product, please according to the national standard to take appropriate measures for disposal.

In addition, this term is different from quality/function of the warranty.

Contains element table

(Name and content of poisonous and harmful substances or elements)							
Parts name		Poisonous and harmful substances or elements					
		(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
complete appliance	PCB	×	○	○	○	○	○
	Liquid crystal	×	×	○	○	○	○
	Keyboard	○	○	○	○	○	○
	Electrical parts	×	○	○	○	○	○
○：Express the toxic and harmful substances in the components of all homogeneous materials in the content of hazardous substances in electronic information products limited requirements Less than a standard limit requirements (SJ/T11363-2006)							
×：The toxic and harmful substances in one of the homogeneous material content exceeds the hazardous substances in electronic information products limited requirements standard limit requirements (SJ/T11363-2006)							