

La Marche Manufacturing Company www.lamarchemfg.com





Operation Manual

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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)



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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)

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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! 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

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.

Table A-1 LCD menu description

A.2 Running Information

 Table A-2 Running Information menu hierarchy

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

		Load Usage	-
		DC Output Voltage	-
		DC Output Current	-
	Destificant	DC Output Power	-
	Rectifier n	AC Voltage	-
		Rectifier Temp	-
		Run Status	-
	Battery Group	Battery Status	-
		Total Batt. Current	-
		Total Rated Cap.	-
		Remain Cap. Percent	-
Battery		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 Time	-	-		
Date and 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

Second- Level Menu	Third- Level Menu	Fourth-Level Menu	Fifth-Level Menu	Default Value	Value Range
Power System	Basic Parameters	АС Туре	-	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
		DC Ultra Undervolt. Thres.	-	44.0V	35.0~57.0

Table A-4 Settings menu hierarchy

Second- Level Menu	Third- Level Menu	Fourth- Level Menu	Fifth-Level Menu	Default Value	Value Range
		AC SPD	-	Yes	Yes, No
		Door Sensor	-	No	Yes, No
		Water Sensor	-	No	Yes, No
	Sensor	Smoke Sensor	-	No	Yes, No
	Config.	Ambient Temp. Sensor	-	No	Yes, No
		Batt. Temp. Sensor 1	-	No	Yes, No
	Temp & Humi Para.	Amb.HT Thres.	-	55°C	25~80
		Amb.LT Thres.	-	-20°C	-20~20
		Amb. Ultra HT Thres.	-	70°C	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		AC SPD Fault		
			AC failure		
			AC OV		
			AC UV		
			AC ultra OV		
			AC ultra		
			UV		
			AC Ph L1		
		Power System			
			OV		
			AC Ph L3		
			OV		
			AC Ph L1		
			UV		
			AC Ph L2		
			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.	Network	IP Address] -	192.168.0.10	-
Parameters	Parameters	Subnet Mask	-	255.255.255.0	-
		DHCP Enable	-		-
		Default Gateway	-	192.168.0.1	-
	Serial Port		Baud RATE	9600	2400,4800,9600, 14400,19200,38400, 57600,115200,256000
		Northbound	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	Language	-	-	English	-
Parameters	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	Delete His.		Voc	Voc
	Active Alarm	Alarms	-	165	165
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

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 1 - COM Port Pin Definitions

Table 2 -	RS485	/RS232	Port Pin	Definitions
-----------	-------	--------	----------	-------------

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

3.1 Default Settings

IΡ	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.

🖳 MConfig (Ver. 2.0.1.1)	
- Ethernet	1
<mark>00:60:37:12:39:46</mark>	Device IP: 192.168.1.190
	New IP: 192.168.1.190
	Gateway: 192.168.1.1
	New Gateway: 192.168.1.1
	Subnet Mask: 255.255.255.0
	New Mask: 255.255.0
	Stature Searching
	Status. Seathing
	Search Set
	Clear
	Reset
	7

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.

(→ (→ (→ (→ (→ (→ (→ (→ (→ (→	Joypub/loi D + C C Log In	×	ະະະ x w
		LOGIN	
	USER		
	PASSWORD		
		ок	

Figure 8 - Web login interface

4.1 Home Tab

4.1.1 System Overview

	welcome admin	English			() logout
⊡ Manage	home monitering History query system setup maintain	⊗ 0	() 6	() 0	() 1
System Overview	System Information				
Active Alarm	Site ID				
	System Type MQ48DV2				
	System Control Mode Manual				
	System Voltage 53.5 V				
	Total Load Current 0 A				
	Load Usage 100 %				
	System Condition				
	Ambient Temperature °C				
	Battery Information				
	Battery Status Disconnected				
	Total Battery Current 0 A				
	Battery Temperature °C				

local Time: 2022-07-21 16:11

4.1.2 Active Alarm

	welcome ad	min				English v 🖒 logout
⊞ Manage	home	monitori	history query	y system setup n	naintain	(≥ 1 (!) 1 (!) 4 (!) 1
System Overview	Number of Active	e Alarms: 7				
Active Alarm	Equipment	all	~	Severity all	 ✓ filter 	
	All	SN	Severity	Equipment	Alarm Name	Generation Time
		41	Warning	Batt Group	Battery Discharging	2022-08-10 15:55:52
		40	Minor	Rect Module 4	Rectifier Communication Failure	2022-08-10 15:55:47
		39	Minor	Rect Module 3	Rectifier Communication Failure	2022-08-10 15:55:47
		38	Minor	Rect Module 2	Rectifier Communication Failure	2022-08-10 15:55:47
		37	Minor	Rect Module 1	Rectifier Communication Failure	2022-08-10 15:55:47
		36	Major	Rect Group	All Rectifier fail to Communicate	2022-08-10 15:55:47
		35	Critical	Power Sys	AC Failure	2022-08-10 15:55:35
	confirm	clear				Total 7 < 1 > Go to 1

⊗ 0 () 6 () 0 () ¹ Indicates the current alarm priority and alarm quantities.

- $^{\odot}$ ⁰ Indicates that the alarm level is Critical, and the number of alarms is 0.
- ^① 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

	welcome admin		English	 ✓ logout
Ξ Manage	home monitoring history qu	ery system setup maintain	⊗0 (!)	0 () 0 () 0
Power System	Running Information Running Parameter	er Bunning Control		
Rectifier Group				
Rectifier Module1	Basic Information			~
Rectifier Module2	System Voltage	53.8 V		
Rectifier Module3	Total Load Current	2.2 A		
Rectifier Module4	AC Voltage	228 V		
	Ambient Temperature	22.6 °⊂		
Battery Group Battery String1	DO Dry Contact Status			~
Battery String2	ALM1 Control status	open		
T 0	ALM2 Control status	open		
Temperature Control	ALM3 Control status	open		
	ALM4 Control status	open		

Main Menu / Running Info. / Power System / ENT.

• Running Parameter 1. Basic Parameters

LLVD1 Enable: Enables or disables LLVD

	welcome admin		English	 O logout 	t
i Manage ⊡	home monitoring history query	system setup maintain	⊗ 0 ① 0	0 () 0	
Power System	Dunning Information Dunning December	Bunning Control			ľ
Rectifier Group	Running mormation	Raining Control			
Rectifier Module1	Basic Parameters			~	
Rectifier Module2	IN DI Fachle				
Rectifier Module3	LLVD1 Enable	no			
	AC type	Single Phase V			
Rectifier Module4	submit				
Battery Group					
Battery String1	LLVD Parameters			>	
Battery String2	AC and DC Voltage Parameters			>	
Temperature Control	Sensor Configuration Parameters			>	

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.

	welcome admin			English		~	() logout
≡ Manage	home monitoring history query	system setup maint	ain	⊗ 0	() 0	() 0	(!) 0
Power System	Running Information Running Parameter	Running Control					
Rectifier Group Rectifier Module1	Basic Parameters						>
Rectifier Module2	LLVD Parameters						~
Rectifier Module3 Rectifier Module4	LLVD1 Mode	Voltage Mode	~				
	LLVD1 Voltage	44.0	V (35.0-56.0)				
Battery Group Battery String1	LLVD1 Connection Voltage	51.5	V (37.0-58.0)				
Battery String2	LLVD Delay Time	60	Sec (5-90)				
Temperature Control	submit						

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

	welcome admin			English		~	() logout
≡ Manage	home monitoring history query	system setup maint	ain	♥ 0	() 0	() 0	(!) 0
Power System							
Rectifier Group Rectifier Module1	AC and DC Voltage Parameters						~
Rectifier Module2	AC Overvoltage Threshold	280	V (60-300)				- 18
Rectifier Module3	AC Undervoltage Threshold	90	V (60-300)				
Rectifier Module4	AC Ultra Overvoltage Threshold	300	V (130-352)				
Battery Group	AC Ultra Overvoltage Restore	290	V (129-351)				
Battery String1	AC Ultra Undervoltage Threshold	80	V (66-197)				
Battery String2	AC Ultra Undervoltage Restore	90	V (67-198)				
Temperature Control	DC Overvoltage Threshold	58.0	V (53.0-60.0)				
	DC Undervoltage Threshold	45.0	V (35.0-57.0)				
	DC Ultra Overvoltage Threshold	59.0	V (53.0-60.0)				
	DC Ultra Undervoltage Threshold	44.0	V (35.0-57.0)				
	submit						

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. / 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 UV Threshold. / ENT. Main Menu / setting/10000/ AC&DC Volt. Para. / DC Ultra UV Thres. / ENT. Main Menu / setting/10000/ AC&DC Volt. Para. / DC Ultra UV Thres. / ENT.

4. Sensor Configuration Parameters

	welcome admin		English		~ ¢	് logout
⊞ Manage	home monitoring history query	system setup maintain	× 0	0	() 0	() 0
Power System	Canada Canferration Decomplete					-
Rectifier Group	Sensor Configuration Farameters					
Rectifier Module1	AC SPD	yes 🗸				
Rectifier Module2	Door Sensor	yes 🗸				
Rectifier Module3	Water Sensor	yes 🗸				
Rectifier Module4	Smoke Sensor	yes 🗸				
Battery Group	Ambient Temperature Sensor	yes 🗸				
Battery String1	Battery Temperature Sensor	yes 🗸				
Battery String2	submit					
Temperature Control	Ambient Temperature Parameters					>

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

	welcome admin			English		~	() logout
≔ Manage	home monitoring history query	system setup main	itain	⊗ 0	() 0	() 0	(!) 0
Power System	Basic Parameters						>
Rectifier Group	LLVD Parameters						>
Rectifier Module2	AC and DC Voltage Parameters						>
Rectifier Module3	Sensor Configuration Parameters						>
Rectifier Module4	Ambient Temperature Parameters						~
Battery Group	Ambient High Temperature Threshold	55	°C (25-80)				
Battery String1	Ambient Low Temperature Threshold	-20	°C (-20-20)				
Battery String2	Ambient Ultra High Temperature Threshold	70	°C (25-80)				
Temperature Control	submit						

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.

	welcome admin	English		 ✓ Uogout
≡ Manage	home monitoring history query system setup maintain	∞ 0	() 0	() 0 () 0
Power System	Running Information Running Parameter Running Control			
Rectifier Group	Basic Parameters			>
Rectifier Module1	LLVD Parameters			>
Rectifier Module2	AC and DC Voltage Parameters			>
Rectifier Module4	Sensor Configuration Parameters			>
Patton/ Crown	Ambient Temperature Parameters			>
Battery String1	DI Dry Contact Parameters			~
Battery String2	DIN1 alarm condition			
Temperature Control	DIN2 alarm condition close v			
	submit			

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

	welcome admin	English		~	() logout
≔ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	0 أ
Power System	Running Information Running Parameter Running Control				-
Rectifier Group	Basic Parameters				>
Rectifier Module1	LLVD Parameters				>
Rectifier Module2	AC and DC Voltage Parameters				>
Rectifier Module4	Sensor Configuration Parameters				>
Battery Group	Ambient Temperature Parameters				>
Battery String1	DI Dry Contact Parameters				>
Battery String2	DO Dry Contact Parameters				~
Temperature Control	ALM1 alarm action				
	ALM2 alarm action				
	ALM3 alarm action				
	ALM4 alarm action close ~				
	submit				

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

	welcome admin	English		∨ ⊜ logout	t
≡ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	(<u>)</u> 0 (<u>)</u> 0	
Power System	Running Information Running Parameter Running Control				•
Rectifier Group	Basic Parameters			>	
Rectifier Module1	LLVD Parameters			>	
Rectifier Module3	AC and DC Voltage Parameters			>	
Rectifier Module4	Sensor Configuration Parameters			>	
Battery Group	Ambient Temperature Parameters			>	
Battery String1	DI Dry Contact Parameters			>	
Battery String2	DO Dry Contact Parameters			>	
Temperature Control	Alarm Level DO Dry Contact Parameters			~	
	Critical Alarm Associate DO no 🗸				
	Major Alarm Associate DO no v				
	Minor Alarm Associate DO no <				
	Warning Alarm Associate DO no V				
	submit				Ŧ

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.

	welcome admin			English		 ✓ logout 				
'	home monitoring history query	system setup maint:	ain	⊗ 0	() 0	() 0	(!) 0			
Power System	Running Information Running Parameter	Running Control								
Rectifier Group	Basic Parameters						>			
Rectifier Module1	LLVD Parameters						>			
Rectifier Module3	AC and DC Voltage Parameters						>			
Rectifier Module4	Sensor Configuration Parameters						>			
Battery Group	Ambient Temperature Parameters						>			
Battery String1	DI Dry Contact Parameters						>			
Battery String2	DO Dry Contact Parameters						>			
Temperature Control	Alarm Level DO Dry Contact Parameters						>			
	Other Parameters						~			
	Buzzer Enable	no								
	Buzzer Alarm Duration	10	Min (1-100)							
	submit									

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

	welcome admin	English		~	() logout
	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	() 0
Power System	Running Information Running Parameter Running Control				
Rectifier Group					
Rectifier Module1	Basic Control				~
Rectifier Module2	System Control Mode auto v				
Rectifier Module3					
Rectifier Module4	submit				
Battery Group					
Battery String1					
Battery String2					
Temperature Control					

LCD interface operation:

Main Menu / Running Control/00000/ Power System/ Sys.Ctrl.Mode/ENT.

4.2.2 Rectifier Group

• Running Information

Ξ Manage	welcome admin	history query system setup	maintain	English	 () logout () 0 () 0 () 0
Power System	Rupping Information Rupping	a Parameter Dunning Control			
Rectifier Group	Running mormation	Parameter Running Control			
Rectifier Module1	Basic Information				~
Rectifier Module2	Total Output Current	2 A			
Rectifier Module3	Total DC Power	107 W			
Rectifier Module4	Load Usage	1 %			
Battery Group					
Battery String1					
Battery String2					
Temperature Control					
Temperature Control	welcome admin			- Factor	() Inneut
Temperature Control	welcome admin			English	 ♡ logout
Temperature Control	welcome admin	history query system setup	maintain	English	✓ ♡ logout ① 0 () 0 () 0
Temperature Control	welcome admin home monitoring 1	history query system setup	maintain	English	 ○ logout ① 0 ① 0 ① 0 ① 0
Temperature Control Manage Power System Rectifier Group	welcome admin home monitoring I	history query system setup	maintain	English	✓ ⑦ logout ① 0 ① 0 ① 0
Temperature Control Manage Power System Rectifier Group Rectifier Module 1	welcome admin home monitoring I Running Information Basic Information	history query system setup	maintain	English	 O logout 0 0
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2	welcome admin home monitoring I Running Information Basic Information Module ID	history query system setup	maintain	English	O logout O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3	welcome admin home monitoring I Running Information Basic Information Module ID DC Voltage	history query system setup 1AB00000 53.6 V	maintain	English 🐼 0	 O logout O 0 0 0 O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module3 Rectifier Module3 Rectifier Module4	welcome admin home monitoring I Running Information Basic Information Module ID DC Voltage DC Current	history query system setup 1AB00000 53.6 V 0.9 A	maintain	English	 O logout O 0 0 0 O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module3 Rectifier Module3 Rectifier Module4	welcome admin home monitoring f Running Information Basic Information Module ID DC Voltage DC Current DC Power	history query system setup 1AB00000 53.6 V 0.9 A 48 W	maintain	English	 O logout O 0 0 0 O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4 Battery Group	welcome admin home monitoring Running Information Basic Information Module ID DC Voltage DC Current DC Power AC Voltage	history query system setup 1AB00000 53.6 V 0.9 A 48 W 228 V	maintain	English	 O logout O 0 0 0 O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4 Battery Group Battery String1	welcome admin home monitoring Running Information Basic Information Module ID DC Voltage DC Current DC Power AC Voltage Module Temperature	istory query system setup 1AB00000 53.6 V 53.6 V 0.9 A 48 W 228 V 30 *C *C *C	maintain	English	 O logout O 0 0 0 O
Temperature Control Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module3 Rectifier Module4 Battery Group Battery String1 Battery String1	welcome admin home monitoring Running Information Basic Information Module ID DC Voltage DC Current DC Power AC Voltage Module Temperature Module State	IAB0000 V 53.6 V 0.9 A 48 W 238 V 30 "C On V	maintain	English	 O logout O 0 0 0 0 O

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.

	welcome admin		English V 🖒 logout
Ξ Manage	home monitoring history quer	system setup maintain	⊗ 0 (!) 0 (!) 0
Power System	Running Information Running Parameter	Running Control	
Rectifier Module1	Basic Parameters		V
Rectifier Module2	Rect Type	50A ~	
Rectifier Module4	Maximum Limited Current	121 % (1-121) 5 % (0.150)	
Battery Group	High Rectifier Capacity	75 % (0-150)	
Battery String1 Battery String2	submit		
Temperature Control	Hibernation Parameters		>
	Hibernation Test Parameters		>

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 realtime 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.

welcome admin			English \checkmark 🖒 logout
i Manage ⊡	home monitoring history query	system setup maintain	
Power System	Running Information Running Parameter	Running Control	
Rectifier Group Rectifier Module1	Basic Parameters		>
Rectifier Module2	Hibernation Parameters		~
Rectifier Module4	Hibernation Enable Hibernation Mode	yes V Intelligent Mode V	
Battery Group Battery String1	Minimum Working Rectifiers	2 (1-100)	
Battery String2	Circulation Period Best Efficiency Point	7 Day (1-365)	
Temperature Control	Min. Redundant Coefficient	0.20 (0.05-1.00)	
	Hibernation Without Battery	no	
	Hibernation Stop Duration	72.0 h (0.5-168.0)	

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.

	welcome admin			 ✓ logout
i Manage ⊡	home monitoring history query	system setup maintain	⊗ 0 (!) 0	. (!) 0
Power System	Running Information Running Parameter	Running Control		
Rectifier Group Rectifier Module1	Basic Control			~
Rectifier Module2	Turn On All Rectifiers	yes 🗸		
Rectifier Module4	Manual Control Output Voltage	53.5 V (41.0-59.0)		
Battery Group	Manual Control Current Limit Coeficient Delete Comm. Fail Rectifier Information	121 % (1-121) yes ~		
Battery String1 Battery String2	submit			
Temperature Control				

• 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.

	welcome admin	English		~	() logout
≡ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	(!) 0	0 (!)
Power System	Device Manufacture Device Device				
Rectifier Group	Running information Running Control				
Rectifier Module1	Basic Control				~
Rectifier Module2	Set Module On/Off on V				
Rectifier Module3					
Rectifier Module4	submit				
Battery Group					
Battery String1					
Battery String2					
Temperature Control					

Main Menu / Running Control/00000/ Rectifier n/ Turn On/Off/ENT.

4.2.3 Battery Group

• Running Information

		welcome admin				English		~	് logout
ŧ	Manage	home monit	toring history query	system setup	maintain	⊗ 0	(!) 0	() 0	(!) 0
F	Power System	Running Information	Running Parameter	Running Control					
	Rectifier Module1	Basic Information							~
	Rectifier Module2	Battery Status	F	loat Charging					
	Rectifier Module3	Total Battery Current	C	A					
	Rectifier Module4	Total Rated Capacity	3	00 Ah					
		Total Remaining Capacit	ty Percent 1	00 %					
t	Battery Group	Current Limiting Status	Ν	lo Limiting					
	Dattery String I	Test Status	l	dle					
	Battery String2	Battery Temperature	2	2.4 ℃					
٦	Temperature Control								
	iomporatare control								
	Managa	welcome admin				English		~	്) logout
Ē	Manage	welcome admin	toring history query	system setup	maintain	English	() 0	V	් logout () 0
=	Manage Power System	welcome admin home monit	toring history query	system setup	maintain	English	() 0	· 0) logout () 0
Ξ	Manage Power System Rectifier Group	welcome admin home monif Running Information	toring history query	system setup	maintain	English	() 0)) 	() logout () 0
1	Manage Power System Rectifier Group Rectifier Module1	welcome admin home monif Running Information Basic Information	toring history query	system setup	maintain	English	() 0	· 0) logout () 0
Ξ	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2	welcome admin home monit Running Information Basic Information Voltage	toring history query	system setup	maintain	English	() 0	• • • • • • • • • • • • • • • • • • •	C logout 0
1	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3	welcome admin home monit Running Information Basic Information Voltage Rated Capacity	toring history query	3.8 V 50 Ah	maintain	English	10)	C logout
1	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4	welcome admin home monit Running Information Basic Information Voltage Rated Capacity	toring history query	3.8 V 50 Ah	maintain	English	() 0	• •	() logout () 0
-	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4 Battery Group	welcome admin home monif Running Information Basic Information Voltage Rated Capacity	toring history query	3.8 V 50 Ah	maintain	English × 0	0		() logout () 0
	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4 Battery Group Battery String1	welcome admin home monif Running Information Basic Information Voltage Rated Capacity	toring history query	3.8 V 60 Ah	maintain	English (*) 0			() logout () 0
Ξ	Manage Power System Rectifier Group Rectifier Module1 Rectifier Module2 Rectifier Module3 Rectifier Module4 Battery Group Battery String1 Battery String2	welcome admin home monit Running Information Basic Information Voltage Rated Capacity	toring history query	system setup 3.8 V 50 Ah	maintain	English	0		() logout () 0

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.

	welcome admin			English		~ (() logout
≔ Manage	home monitoring history query	system setup mainta	ain	⊗ 0	(!) 0	() 0	(!) 0
Power System	Running Information Running Parameter	Running Control					Ì
, Rectifier Module1	Basic Parameters						~
Rectifier Module2	Battery1 Connected	yes					
Rectifier Module3	Battery2 Connected	yes	~				
Recurier Module4	Battery Type	VRLA	~				
Battery Group	Rated Capacity	150	Ah (5-10000)				
Battery String1	Float Charging Voltage	53.5	V (42.0-58.3)				
Battery String2	Equalized Charging Voltage	56.4	V (42.0-58.3)				
Temperature Control	Charge Current Limit Coefficient	0.15	C10 (0.05-0.25)				
	BLVD Enable	yes	~				
	submit						

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

	welcome admin			English		~	() logout
≡ Manage	home monitoring history query system setup maintain			⊗ 0	() 0	() 0	() 0
Power System	Temperature Compensation Parameters						~
Rectifier Module1	Temperature Compensation Coefficient	80	mV/℃ (0-500)				
Rectifier Module2	Nominal Temperature	25	℃ (5-45)				
Rectifier Module3	Temperature Compensation Upper Threshold	45	℃ (40-45)				
Rectifier Module4	Temperature Compensation Lower Threshold	5	°C (5-10)				
Battery Group Battery String1	submit						
Battery String2	BLVD Parameters						>
Temperature Control	Temperature Protection 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.

	welcome admin		English	~	() logout
≔ Manage	home monitoring history query system setup maintain		⊗ 0 (! 0	(!) 0	(!) 0
Power System	Running Information Running Parameter Running Control				j
Rectifier Module1	Basic Parameters				>
Rectifier Module2	Temperature Compensation Parameters				>
Rectifier Module3	BLVD Parameters				~
	BLVD Mode Voltage Mode ~				
Battery Group Battery String1	BLVD Voltage 43.2 V (5	(5.0-56.0)			
Battery String2	BLVD Connection Voltage 51.5 V (3	7.0-58.0)			
Temperature Control	BLVD Delay Time 60 s (5	-90)			
temperature control	submit				

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.

	welcome admin			English		~	() logout
≡ Manage	home monitoring history quer	y system setup main	tain	⊗ 0	() 0	() 0	(!) 0
Power System	Temperature Compensation Parameters						>
Rectifier Module1	BLVD Parameters						>
Rectifier Module2	Temperature Protection Parameters						~
Rectifier Module3	Very High Temperature Protection Mode	Reduce DC Voltage	×				
Recure module4	Very High Temperature Protection Voltage	50.5	V (42.0-53.0)				
Battery Group	High Temperature Alarm Threshold	50	°C (25-80)				
Batten/ String?	Very High Temperature Alarm Threshold	53	°C (25-80)				
Dattery Stilligz	Low Temperature Alarm Threshold	-10	°C (-20-20)				
Temperature Control	Very Low Temperature Alarm Threshold	-20	°C (-20-20)				
	submit						

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.

	welcome admin			English V			() logout
Ξ Manage	home monitoring history query	system setup mainta	ain	⊗ 0	() 0	() 0	(!) 0
Power System Rectifier Group	Temperature Protection Parameters Charge Parameters						>
Rectifier Module1	Automatic Equalized Charge Enable	yes					
Rectifier Module3	Float to Equalized Charge Current Coefficient	0.05	C10 (0.01-0.25) Min (2-1440)				
Battery Group Battery String1	Float to Equalized Charge Capacity Percent Scheduled Equalized Charge Enable	80 yes	% (50-100)				
Battery String2 Temperature Control	Scheduled Equalized Charge Interval Scheduled Equalized Charge Duration	30 9	Day (1-365) h (1-24)				
	Equalized to Float Charge Current Coefficient Equalized to Float Charge Current Duration	0.01	C10 (0.01-0.25) Min (2-540)				
	Equalized Charge Maximum Duration Mains Recovery Equalized Charge Enable	16 yes	h (5-48)				
	AC Power Failure Duration Fast Charge Limiting Coefficient	0.40	Min (0-30) C10 (0.25-0.50)				

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**

	welcome admin	English English						
≡ Manage	home monitoring history query	system setup maint	ain	⊗ 0	() 0	() 0	(!) 0	
Power System	Charge Parameters						>	
Rectifier Group	Standard Test Parameters						~	
Rectifier Module1	AC Fail Test Enable	no	~					
Rectifier Module2	Time Test Mode	Scheduled Test	×					
Rectifier Module3	Scheduled Test Start Time	© 21:00:00						
	Scheduled Test Period	90	Day (2-990)					
Battery Group Battery String1	Pre-Equalized Charging Enable	yes	×					
Battery String2	Constant Current Test Enable	yes	~					
	Constant Test Current	9999	A (1-9999)					
Temperature Control	Test End Voltage	46.0	V (44.2-53.0)					
	Test End Capacity	20	% (0-99)					
	Test End Temperature	5	°C (-5-15)					
	Test End Time	480	Min (1-6000)					
	submit							

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. 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 Time /ENT. Main Menu / setting/10000/ Battery/ Standard Test Para. / End Time /ENT.

≡ Manage	welcome admin	system setup	atain			~ 0	() logout				
Power System	Temperature Compensation Parameters] [-,				0.0					
Rectifier Group Rectifier Module1	BLVD Parameters						>				
Rectifier Module2	Temperature Protection Parameters	nperature Protection Parameters									
Rectifier Module3	Charge Parameters						>				
Rectifier Module4	Standard Test Parameters						>				
Battery Group	Short Test Parameters						~				
Battery String1 Battery String2	Short Test Enable	yes	v				- 1				
Torrestore Octobel	Short Test Period	30	Day (1-360)				- 11				
Temperature Control	Short Test Time	5	Min (1-240)								
	Short Test End Voltage	45.0	V (44.2-53.0)								
	submit						- 1				
	Alarm Parameters						>				
	Other Parameters						>				

7. Short Test Parameters

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

	welcome admin			English V 🖒 🕻			() logout
Ξ Manage	home monitoring history query	system setup maint	ain	× 0	() 0	() 0	() 0
Power System	Running Information Running Parameter	Running Control					-
Rectifier Group	Basic Parameters						>
Rectifier Module1	Temperature Compensation Parameters						>
Rectifier Module3	BLVD Parameters						>
Rectifier Module4	Temperature Protection Parameters						>
Battery Group	Charge Parameters						>
Battery String1	Standard Test Parameters						>
Battery String2	Short Test Parameters						>
Temperature Control	Alarm Parameters						~
	Charge Overcurrent Alarm Threshold	0.25	C10 (0.05-0.50)				
	Low Capacity Alarm Threshod	30	% (0-90)				
	submit					- 11	
	Other 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

	welcome admin	English V 🗘 logout
≔ Manage	home monitoring history query system setup maintain	⊗ 0 (1) 0 (1) 0
Power System	Running Information Running Parameter Running Control	
Rectifier Module1	Basic Parameters	>
Rectifier Module2	Temperature Compensation Parameters	>
Rectifier Module3	BLVD Parameters	>
Rectifier Module4	Temperature Protection Parameters	>
Battery Group Battery String1	Charge Parameters	>
Battery String2	Standard Test Parameters	>
Temperature Control	Short Test Parameters	>
·	Alarm Parameters	>
	Other Parameters	~
	Installation Time 2021-01-01	
	submit	

LCD interface operation:

Main Menu / setting/10000/ Battery/ Other Parameters/ Install Time/ENT.

• Running Control

	welcome admin		English V		
≡ Manage	home monitoring histo	system setup maintain	∞ 0 (!) 0	() 0 () 0	
Power System	Running Information Running Par	ameter Running Control			
Rectifier Module1	Basic Control			~	
Rectifier Module2	• Charge Control	Float Charging \lor			
Rectifier Module4	BLVD Manual Control Reset Capacity	on v			
Battery Group	 Standard Test 	stop v			
Battery String1 Battery String2	Short Test	stop 🗸			
Temperature Control	Clear Test Log Fast Charge Control	yes V			
	submit				

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

	welcome admin			English		~ (b logout
≡ Manage	home monitoring	history query system setup	maintain	⊗ 0	() 0	() 0	() 0
Power System	Running Information Run	nning Parameter Running Control					
Rectifier Group							_
Rectifier Module1	Basic Information						~
Rectifier Module2	Fan Status	off					
Rectifier Module3							
Rectifier Module4							
Battery Group							
Battery String1							
Battery String2							
Temperature Control							

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.

- Monogo	welcome admin			English	∨ ⊜ logout
🗠 Manage	home monitoring history query	system setup maint	ain	⊗0 (!	0 () 0 () 0
Power System	Running Information Running Parameter	Running Control			
Rectifier Group Rectifier Module1	Basic Parameters				~
Rectifier Module2	Fan Work Temperature	35	°C (-20~50)		
Rectifier Module3	Fan Stop Temperature	30	°C (-20~50)		
Battery Group	submit				
Battery String1 Battery String2					
Temperature Control					

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.

	welcor	me adı	min				English	 ✓ logout
≡ Manage	hor	me	monitoring	history query	system setup maintain		∞ 0 (!) 0	0 (!) 0
Historical Alarm	Historic	al Ala	rm					
Battery Test Records	Equip	ment	all	~	Start Time 📋 2022-08-10	End Time 📋 2022-08-17		
Export Data	Sorting M	Node	Sn	~	filter			
Clear Data	Query res	sult: 51						
	No.	SN	Severity	Equipment	Alarm Name	Start Time	End Time	Confirmed
	1	51	Critical	Batt String 2	Battery Fuse Break	2022-08-16 10:04:58	2022-08-16 10:05:09	no
	2	50	Major	Power System	AC SPD Fault	2022-08-16 09:44:43	2022-08-16 09:45:05	no
	3	49	Major	Batt Group	BLVD Disconnected	2022-08-16 09:44:40	2022-08-16 09:45:10	no
	4	48	Major	Batt Group	BLVD Warning	2022-08-16 09:43:41	2022-08-16 09:44:40	no
	5	47	Critical	Power System	DC Ultra Undervoltage	2022-08-16 09:43:41	2022-08-16 09:45:01	no
	6	46	Minor	Rect Module 4	Rectifier Communication Failure	2022-08-16 09:43:19	2022-08-16 09:45:00	no
	7	45	Minor	Rect Module 3	Rectifier Communication Failure	2022-08-16 09:43:19	2022-08-16 09:45:00	no
	8	44	Minor	Rect Module 2	Rectifier Communication Failure	2022-08-16 09:43:19	2022-08-16 09:45:00	no
	9	43	Minor	Rect Module 1	Rectifier Communication Failure	2022-08-16 09:43:19	2022-08-16 09:45:00	no
	10	42	Major	Rect Group	All Rectifier fail to Communicate	2022-08-16 09:43:19	2022-08-16 09:45:00	no
						Total 51 < 1	2 3 4 5 6	> Go to 1

LCD interface operation:

Main Menu / Alarm/ Historical Alarm/ENT.

4.3.2 Battery Test Records

To view battery test status

	weld	come admin							English	 ✓ logout
≔ Manage	H	home monito	ning history que	system	setup ma	lintain			⊗ 0 (!)	0 (! 0 (! 0
Historical Alarm	batter	ry test record								
Battery Test Records	batRed	cord.log_number: 2								
Export Data	No.	Start Time	End Time	Test Type	Stop Reason	Test Result	End Voltage(V)	Average Discharge Current(A)	Discharge Capacity(Ah)	Battery Temperature(°C)
Clear Data	1	2022-08-10 10:45:23	2022-08-10 10:46:23	Planned Test	Test Time	Success	50.1	1.9	0	22.2
	2	2022-08-10 10:42:23	2022-08-10 10:43:23	Planned Test	Test Time	Success	50.1	1.9	0	22.2
									<	1 > Go to 1

4.3.3 Export Data

To export historical alarm data and battery test records



	welcome admin	English			() logout
≡ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	() 0
Historical Alarm	data clear				
Battery Test Records	2 All				
Export Data	alarm history Solution battery test record				
Clear Data	clear				

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

	welcome admin			~	() logout
≔ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	(!) 0
Site Configuration	Site ID				
Time	Site ID a~7/6~7/0~9/ (Mavimum 8 Characters)				
IP Address					
SNMP	system type MQ48DV2 V				
Serial Port	submit				
Alarm Parameter					
Clear ALM Asso					
DI Dry Contact					

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

	welcome admin		English		~	() logout
≔ Manage	home monitoring	history query system setup maintain	⊗ 0	() 0	() 0	(!) 0
Site Configuration	Current Time					
Time						
	System Time	2022-08-16 10:07:45				
IP Address	Time Zone	(UTC+08:00) Beijing, Hong Kong, Taipei, Singapore				
SNMP	Status	NTP Server Synchronization				
Serial Port	System Time					
Alarm Parameter	NTP Server Synchroniz	tion				
Clear ALM Asso	Time Zone	(UTC+08:00) Beijing, Hong Kong, Taipei, Sir $ \smallsetminus $				
DI Dry Contact	NTP Primary Server IP Address	193.182.111.12				
	NTP Backup Server IP Address	101.6.6.172				
	 Manual Set System Tim 	2 2				
	Local Date	iii 2022-08-16				
	Local Time	· 10:07:45				
		submit				

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

	welcome admin			English	~	() logout
😐 Manage	home monitoring	history query system setup	maintain	⊗ 0	• • • •	(!) 0
Site Configuration	IP Address					
Time						
IP Address		NO V				
SNMP	IP Address	192.168.1.190				
Serial Port	Sub Mask	255.255.255.0				
Alarm Parameter	Default Gateway	192.168.1.1				
Clear ALM Asso		submit				
DI Day Contrast						
Di Diy Collact						

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

welcome admin			English	 ✓ logout
≔ Manage	home monitoring	history query system setup maintain	⊗ 0 (!) 0	0 (!) 0
Site Configuration	SNMP Option			-
Time				
IP Address	Read community	public		
SNMP	Write Community	public		
Serial Port	SNMP Trap Option			
Alarm Parameter	Enable Somo Traos			
Clear ALM Asso	Destination IP	192.168.1.1		
DI Dry Contact	Destination Port	162		
, i i i i i i i i i i i i i i i i i i i	Trap Community	public		
	Тгар Туре	V1 ~		
		submit		
	SNMP v3 Option			
	Enable Snmp V3			
	Security User Name	user		
	Authentication Protocol	None		-

4.4.5 Serial Port

	welcome admin		English		~ (் logout
≡ Manage	home monitoring	history query system setup maintain	⊗ 0	() 0	() 0	() 0
Site Configuration	Serial Port					
Time	North Community Port					
IP Address	Baud rate	9600				
SNMP	Parity					
Serial Port	Modbus Address	1				
Alarm Parameter		- Contract of the second secon				
Clear ALM Asso		Sound				
DI Dry Contact	South Community Port					
	Baud rate	9600 ~				
	Parity	none v				
		submit				

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

≔ Manage	welcome admin home monitoring history q	uery system setup maintain		English Image: Original conditions (*) 0 (*) 0 (*) 0
Site Configuration	Alarm Parameter			
IP Address	Select an equipment type: Power System No. Alarm Name	Alarm Enable	Severity	Output Relay
SNMP	1 AC SPD Fault	Enable ~	Major 🗸	AlarmX4 ~
Serial Port	2 AC Failure	Enable ~	Major	AlarmX1 V
Alarm Parameter	3 AC Overvoltage	Enable ~	Minor	None ~
Clear ALM Asso	4 AC Undervoltage	Enable ~	Minor ~	None ~
DI Dry Contact	5 AC Ultra Overvoltage	Enable ~	Critical ~	None ~
	6 AC Ultra Undervoltage	Enable ~	Major ~	None ~
	7 AC Ph.1 Overvoltage	Enable ~	Minor ~	None ~
	8 AC Ph.2 Overvoltage	Enable ~	Minor	None ~
	9 AC Ph.3 Overvoltage	Enable ~	Minor	None ~
	10 AC Ph.1 Undervoltage	Enable ~	Minor	None
	submit		Total 48 <	1 2 3 4 5 > Go to 1

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

	welcome admin	English		~ (b logout
≡ Manage	home monitoring history query system setup maintain	∞ 0	() 0	() 0	0 !)
Site Configuration	Clear ALM Association				
Time	Clear ALM1 Association				
IP Address	Clear ALM2 Association				
SNMP	Clear ALM3 Association				
Serial Port	Clear ALM4 Association				
Alarm Parameter	submit				
Clear ALM Asso					
DI Dry Contact					

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 ALM3 Asso. / ENT.

4.4.8 DI Dry Contact

	welcome admin			~	() logout
≡ Manage	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	(!) 0
Site Configuration	DI Dry Contact				
Time	No. Name(a~zJA~ZI0~9L_(Maximum 8 Characters))				
IP Address	1 (DIN1)				
SNMP Serial Port	2 (DIN2)				
Alarm Parameter	submit				
Clear ALM Asso					
DI Dry Contact					

4.5 Maintain Tab

4.5.1 Software update

≔ Manage	welcome admin			~ (() logout	
	home monitoring history query system setup maintain	⊗ 0	() 0	0 ()	(!) 0	
Software Update	Update Firmware					
Configuration File	Current Version \$17.2.2.51.20220809					
User Management	Update Firmware Upload					
Reboot						

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

- Manana	welcome admin		English		b logout
i i i i i i i i i i i i i i i i i i i	home monitoring history query system setup maintain	⊗ 0	() 0	() 0	() 0
Software Update	Config File				
Configuration File	Upload Config				
User Management	Backup Config				
Reboot	Recover Config				

4.5.3 User Management

To set the username, login password and user authority

	welcome admin		English V 🖒 logout
≡ Manage	home monitering History query system setup	maintain	⊗ 0 (!) 6 (!) 0 (!) 1
Software Update	User management		
Configuration File	add	add ×	
User Management	No. user name	user name 1 ~ 15 letters or numbers status of	peration
Reboot		password 8 ~ 15 letters or numbers	
		confirm password 8-15 letters or numbers	
		authority admin ~	
local Time: 2022-07-21 16:2	1		

4.5.4 Reboot

≔ Manage	welcome admin		English V		() logout	
	home monitoring history query system setup maintain	⊗ 0	(!) 0	() 0	(!) 0	
Software Update	Reboot System					
Configuration File	Reboot					
User Management						
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 AlarmsTab.These are also the possible alarms that display in the alarm screens on the LCD Interface andWeb 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.

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.		

Table 9 - Available Alarm

CAN Communication Failure	CAN bus communications failure.	Check communications cables.		
(CAN Comm Fail)				
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	Check surge protection device.		
	attention.			
System Temperature Not Used	Temperature sensor port is not			
	used.			
Over Voltage	Output voltage is higher than the	Check to see why system voltage is high.		
	Over Voltage Alarm threshold.	Check the alarm setting.		
Under Voltage	Output voltage is lower than the	Check to see why system voltage is low.		
	Under Voltage Alarm threshold.	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	Check why temperature is high.		
	alarm.			
DI1 Alarm	Digital input #1 alarm is active	Check why alarm is active		
	Digital input #1 alarm is active.	Check why alarm is active		
DI2 Alarm	Digital input #2 alarm is active.	Check why alarm is active.		
DI2 Alarm Rectifier Group Alarms	Digital input #2 alarm is active.	Check why alarm is active.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed.	Check why alarm is active. Check input voltage to rectifiers. Replace		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high.		
DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high.		
DI1 Admin DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature Rectifier Fault	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition. A rectifier has a fault condition.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high. Replace rectifiers.		
DI1 Admin DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature Rectifier Fault Overvoltage	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition. A rectifier has a fault condition. A rectifier has an overvoltage	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high. Replace rectifiers.		
DI1 Admin DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature Rectifier Fault Overvoltage	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition. A rectifier has a fault condition. A rectifier has an overvoltage condition.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high. Replace rectifiers.		
DI1 Admin DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature Rectifier Fault Overvoltage Rectifier Protected	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition. A rectifier has a fault condition. A rectifier is in protected mode.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high. Replace rectifiers.		
DI1 Admin DI2 Alarm Rectifier Group Alarms Multi-Rectifiers Failure Rectifier Lost All Rectifiers Comm Fail Rectifier Alarms AC Input Failure High Temperature Rectifier Fault Overvoltage Rectifier Protected Fan Failure	Digital input #1 alarm is active. Digital input #2 alarm is active. More than one rectifier has failed. A rectifier cannot be detected by the controller. No response from all rectifiers. No AC input power to a rectifier. A rectifier has a high temperature condition. A rectifier has a fault condition. A rectifier is in protected mode. A rectifier's fan has failed.	Check why alarm is active. Check input voltage to rectifiers. Replace rectifiers. Replace defective rectifier. Check the connectors and cables or the CAN loop. Replace the controller. Check why no AC input power available. Check why temperature is high. Replace rectifiers. Replace fan.		

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

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

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

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)
	РСВ	×	0	0	0	0	0
complete appliance	Liquid crystal	×	×	0	0	0	0
	Keyboard	0	0	0	0	0	0
	Electrical parts	×	0	0	0	0	0

O: 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)