



ABN: 65 651 645 948

Phone: 1300 772 678

Email: info@t-power.com.au

Website: t-power.com.au

**Address: F1/ 7 Technology Circuit,
Hallam VIC 3803**

UMEV_CCS02 Monitoring Unit Specifications

(Single Gun V2G)

table of contents

1. summarize	1
2. Pin Definitions and Dimensional Drawings	1
3. Technical parameters of the monitoring unit	2
3.1. Electrical parameters.....	2
3.2. Performance Parameters.....	2
3.2.1. Battery Voltage Measurement	2
3.2.2. Three-phase AC voltage measurement	2
3.2.3. temperature measurement.....	2
3.3. Port Pin Definition Table.....	2
4. System setup instructions	5
4.1. Display Specifications	5
4.2. main interface.....	5
4.3. System Setup Menu	5
4.4. Basic Settings and Queries.....	6
4.5. parameterization.....	7
4.6. manual control.....	9
4.7. network setup.....	9
4.8. Module working condition interface.....	11
4.9. Factory Test Interface	12
4.10. Record Search.....	12
5. Swipe card charging/discharging process.....	13
5.1. Setting of electric piles.....	13
5.2. Start charging/discharging by swiping the card	13
5.3. System self-test in progress.....	13
5.4. Charging/discharging in progress.....	13
5.5. Swipe to end charging/discharging.....	14
6. Description of the upgrade procedure	15
6.1. Instructions for upgrading u-boot, kernel, devicetree, rootfs (using micro SD card).....	15
6.1.1. upgrade step.....	15
6.2. Instructions for upgrading the monitoring application	16
6.3. Operating instructions for upgrading the touch panel program	16
6.3.1. Purchase Card Notes.....	16
6.3.2. Resistive screen bum-in.....	16
6.3.3. 7 Inch capacitive screen bum-in.....	17
6.3.4. 5 Inch capacitive screen bum-in.....	17

1. summarize

UMEV_CCS02 Electric Vehicle Charge Controller is developed for integrating the functions of converting light energy into electric energy, storing electric energy and charging/discharging for electric vehicles, etc. It has the features of small size, high integration and perfect function, and meets the communication protocols of European and American standards DIN 70121/ISO-15118, and can be used in the integrated DC charging pile system as well as the wall-mounted DC charging system. The control board runs Linux operating system and adopts PLC and CAN communication to realize the communication with EV end charging; it mainly completes the billing function of the charging pile system, the protection function and coordinates the data interaction between the rectifier module and EV BMS.

2. Pin Definitions and Dimension Drawings

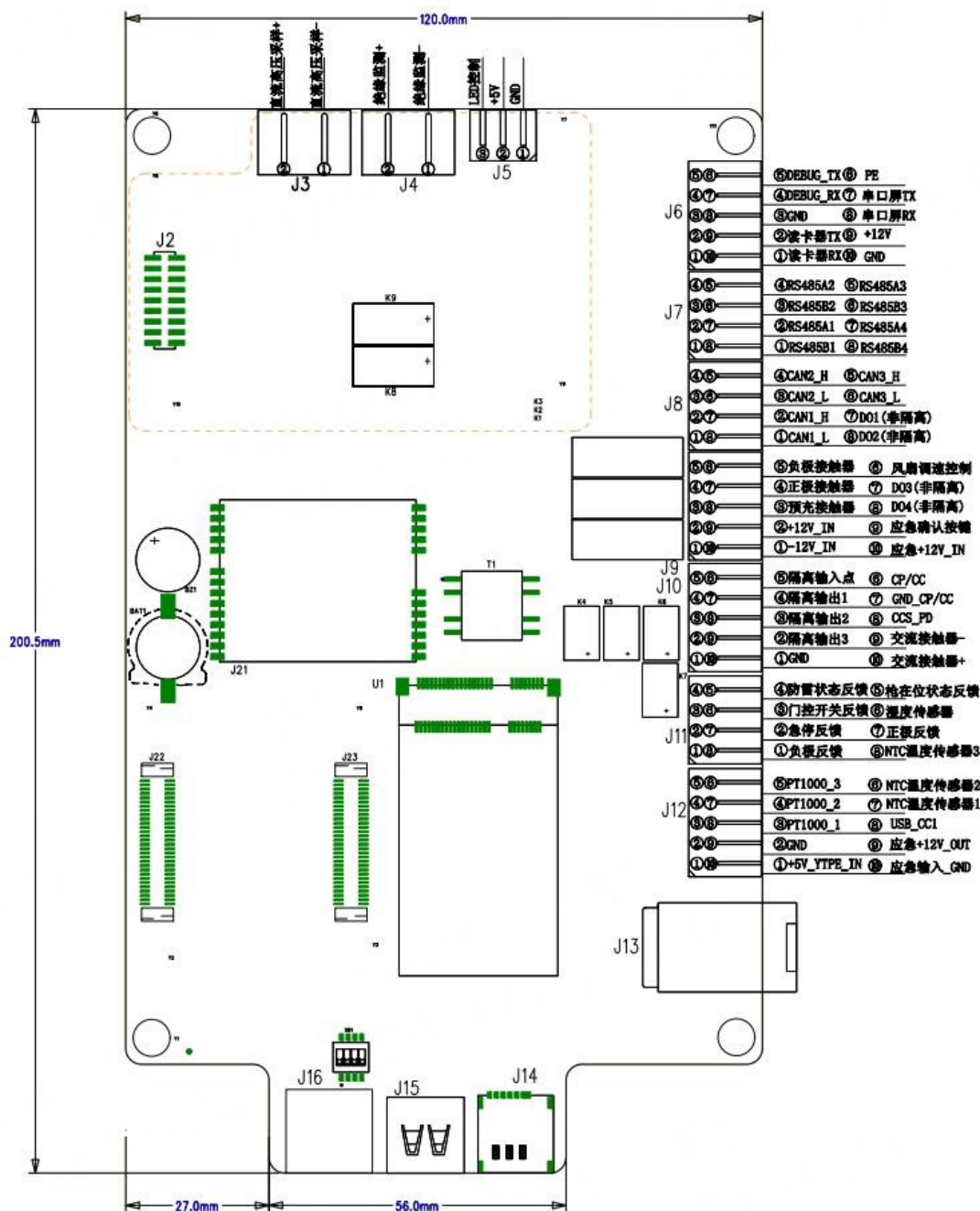


Figure 2-1 UMEV CCS02 Pin Definition and Dimension Drawing

3. Technical parameters of the monitoring unit

3.1. Electrical parameters

- Working power supply: +12V DC
- Standby power consumption: $\leq 7W$
- Operating temperature: $-40^{\circ}C \sim +70^{\circ}C$
- Storage temperature: $-40^{\circ}C \sim +85^{\circ}C$
- Altitude: $\leq 2000m$

3.2. Performance Parameters

3.2.1. Battery Voltage Measurement

Measuring range: $-800 \sim +1000V$ DC

Measurement error: $\leq 0.5\%$

Measurement accuracy: $0.4V$

3.2.2. Three-phase AC voltage measurement

Line voltage measurement range: $0 \sim 495V$ AC

Measurement error: $\leq 1\%$

Measurement mode: three-phase three-wire

It is possible to determine whether a three-phase point is out of phase or not.

3.2.3. temperature measurement

Measuring range: $-40^{\circ}C \sim +200^{\circ}C$

Measurement error: $\leq 2^{\circ}C$

3.3. Port Pin Definition Table

Pin ordering: left to right, top to bottom in order;

Signal Name	pin number	Signal Definition	clarification
J3	1	DC High Voltage Sampling -	Vehicle charging voltage detection
	2	DC High Voltage Sampling +	
J4	1	Insulation testing -	Insulation Testing
	2	Insulation Testing +	
J5	1	GND	+5V power output
	2	+5V DC	
	3	LED control interface	LED control interface
J6	1	RS232_TX	Reader communication Baud rate 115200bps
	2	RS232_RX	
	3	GND	
	4	RS232_TX	Console Communications Baud Rate 115200bps
	5	RS232_RX	
	6	PE	
	7	RS232_TX	Display Interface Baud Rate 19200bps
	8	RS232_RX	
	9	+12V	+12V power output (reserved)

	10	GND	
J7	1	RS485_B1	DC Energy Meter Interface Baud Rate 9600bps
	2	RS485_A1	
	3	RS485_B2	RS485 (reserved 2)
	4	RS485_A2	
	5	RS485_A3	RS485 (reserved 3)
	6	RS485_B3	
	7	RS485_A4	RS485 (reserved 4)
	8	RS485_B4	
J8	1	CAN1_L	CAN1 Interface Module Communication
	2	CAN1_H	
	3	CAN2_L	CAN2 interface (reserved)
	4	CAN2_H	
	5	CAN3_H	CAN3 interface (reserved)
	6	CAN3_L	
	7	DO1 (non-isolated)	DO1 (non-isolated)
	8	DO2 (non-isolated)	DO2 (non-isolated)
J9	1	-12V_IN	External 12V power input
	2	+12V_IN	
	3	Pre-Charge Contactor	Precharge contactor control
	4	Negative DC Contactor	Negative DC contactor control
	5	Positive DC Contactor	Positive DC contactor control
	6	Fan speed control	Fan speed control
	7	DO3 (non-isolated)	DO3 (non-isolated)
	8	DO4 (non-isolated)	DO4 (non-isolated)
	9	Emergency Confirmation Button	Emergency Confirmation Button
	10	Emergency +12V_IN	Emergency +12V_IN
J10	1	GND	GND
	2	Isolated Output 3	Isolated Output 3
	3	Isolated Outputs 2	Isolated Outputs 2
	4	Isolated Output 1	Isolated Output 1
	5	Isolated Input Points	Isolated Input Points
	6	CP/CC	CP/CC
	7	GND_CP/CC	GND_CP/CC
	8	CCS_PD	CCS_PD
	9	AC contactors -	Negative AC contactor control
	10	alternating current contactor +	Positive AC contactor control
J11	1	Negative feedback	Negative DC contactor feedback
	2	Emergency Stop Feedback	Emergency Stop Feedback
	3	Door switch feedback	Door switch feedback
	4	Lightning protection switch feedback	Lightning protection switch feedback
	5	Feedback on gun presence status	Feedback on gun presence status

	6	Humidity Sensor	Humidity Sensor
	7	positive feedback	Positive DC contactor feedback
	8	NTC Temperature Sensors 3	NTC Temperature Sensors 3
J12	1	+5V_YTPE_IN	+5V_YTPE_IN
	2	GND	GND
	3	PT1000_1	PT1000 Temperature Sensors
	4	PT1000_2	
	5	PT1000_3	
	6	NTC Temperature Sensors 2	NTC Temperature Sensors
	7	NTC temperature sensor 1	
	8	USB_CC1	USB_CC1
	9	Emergency +12V_OUT	Emergency +12V_OUT
	10	Emergency Input_GND	Emergency Input_GND
J13	1	4G modules	
J14	1	IoT card	
J15	1	USB port	

4. System setup instructions

4.1. Display Specifications

This solution uses a 7.0-inch size, 65K-color, 800*480 resolution color touchscreen display with clear and complete characters, high contrast, and does not rely on ambient light sources for recognition.

4.2. main interface

After the monitoring unit is powered on and the system initialisation is complete, it enters the main interface of the charging system. This system supports both the European CCS2 DC and American CCS1 DC charging protocols. If the network connection is successful, a QR code will be displayed on the homepage.

Charging protocol; if the network is successful, there will be a QR code displayed on the home page.

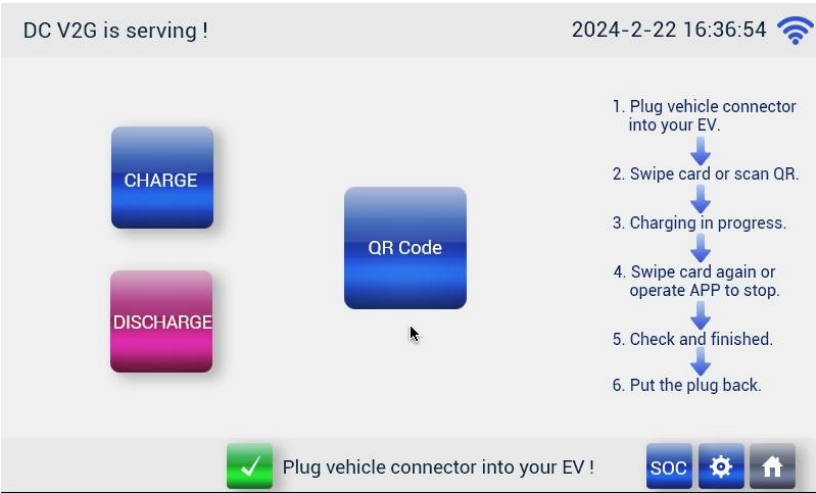


Figure 4-1 Interface Home

If an abnormal alarm condition occurs in the system standby, the status light of the charging pile turns red and pops up the alarm interface, the red light prompts the corresponding alarm content, which is convenient for the engineers to investigate the problem, and the interface is shown in Figure 4-2:

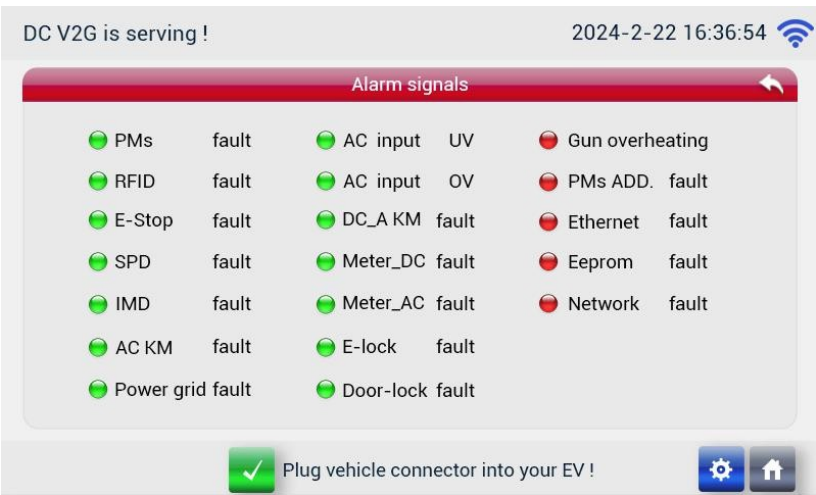


Figure 4-2 Alarm Screen

4.3. System Setup Menu

Click the "Setting" button on the home page of the interface to enter the password input interface, enter the administrator password to enter the system management page, as shown in Figure 4-3: (Note: the default password is 123456, if you want to exit the password input interface, you have to click the ESC or OK button on the keyboard first, so that the input cursor disappears, and then click the Back button to return to the home page; if you enter the wrong password, please click the white display box to make the input cursor appear, and then re-enter). home page; if you make a mistake in the password, please click the white display box to make the input cursor appear, and then re-enter it).

Please note that the parameters within the system should be set according to the actual hardware module!!!!

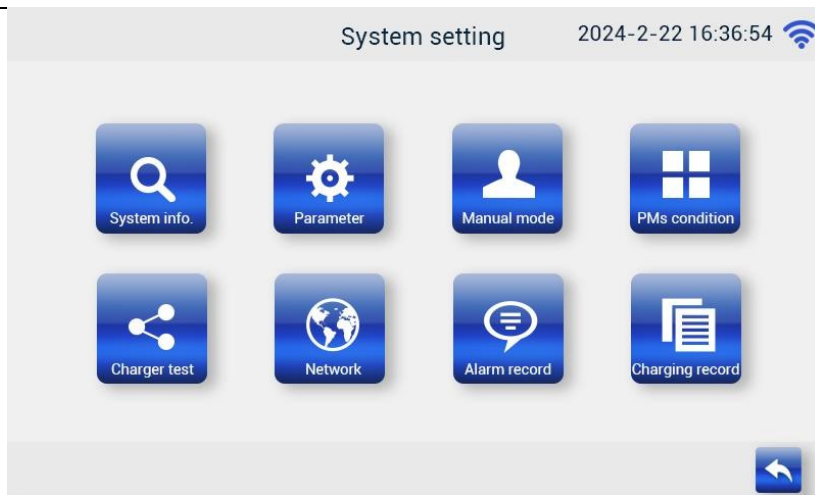


Figure 4-3 System Setup Page

4.4. Basic Settings and Queries

Click the Basic Settings and Query button to set the basic parameters of the system such as time, administrator password, etc., and also query the version number of UI, software and modules, the interface is shown in Figure 4-4 below:

Figure 4-4 Basic Settings and Query Page



- **Monitoring Time Setting:** Enter six digits for monitoring date, e.g. 160101, then the successfully modified date will be 2016-01-01; enter six digits for monitoring time, e.g. 120101, then the successfully modified time will be 12:01:01.
- **Display time setting:** When clicking display time entry, the system fixes the entry mode as 20? -? -? ???? The system fixes the entry method to 20? The customer must enter the time correctly at one time before tapping OK, otherwise tap ESC to exit.
- **Administrator password settings:** enter the current password, new password, confirm the password, the password must be a six-digit number, enter the correct click on save, password change successfully. (The default administrator password is 123456)
- **Information query:** You can query CPU temperature, gun temperature, UI version number, software version number, kernel version number, SECC version number, SLAC version number and charging power module version number;

4.5. parameterization

Click the Parameter Setting button to set the parameters of module, alarm value, charging pile and so on. The interface is shown Figure 4-5 below:

Figure 4-5 Parameter Settings

① Module Settings:

- **Number of modules:** set the number of corresponding modules according to the actual situation of the electric pile;
- **Module type:** that is, the voltage corresponding to different types of modules, currently only V2G modules;
- **Rated power:** According to the module type, select the corresponding module power level, currently there are 5 kinds, 1 represents 1000V-30kW module, 2 represents 850V-30kW module, 4 represents 1000V-7kW module, 5 represents 750V-7kW module, 6 represents 11kW module;
- **Module communication baud rate:** 0 for 125Kps, 1 for 250Kps, 2 for 500Kps; the default module baud rate is 125Kps;
- **Rated current:** It should be set according to the selected module type. The rated current range of 1000V-30kW module is 0~100A; rated current range of 850V-30kW module is 0~60A; rated current range of 1000V-7kW module is 0~28A; rated current range of 750V-7kW module is 0~23A; the rated current range of 11kW module is 0~44A; this value will limit the maximum output current of a single module; and this value will limit the maximum output current of a single module; and this value will limit the maximum output current of a single module; and this value will limit the maximum output current of a single module;
- **AC contactor disconnection time setting:** If the system has AC contactor, you can set the time, i.e., the disconnection time of the AC contactor when the home system is not charging, the unit is minutes and the range is 1~240 minutes;

- **Output Power Limit:** Limit the maximum output power when charging, input any non-negative integer according to the demand, set to 0 means that the output power is not limited, the input value cannot exceed the rated power of the module used;

2 Alarm Settings:

- **Input overvoltage value:** The default setting is 300V for phase voltage overvoltage;
- **Input undervoltage value:** The default setting of phase voltage undervoltage value is 177V;
- **Output overvoltage value:** The default setting is 1010V, which can be set accordingly to the actual module type used;
- **Output undervoltage value:** the default setting is 150V, which can be set accordingly to the actual module type used;
- **Output overcurrent value:** the default setting is 250A, which can be set according to the power level of the charging pile, and the maximum current that the charging gun can actually withstand should also be considered;

3 Electric Stakeout Setup:

- **Electronic lock control mode:** 0 for general type, 1 for magnetic retention type; (special note: magnetic **retention type charging gun must not be set to 0**, otherwise it will burn the charging gun electronic lock, it is recommended that the electronic lock control terminal to increase a 2-3A fuse for protection;)
- **DC side billing mode:** 0 for AC meter billing, 1 for DC meter billing, currently only DC meter billing;
- **AC energy meter type:** Used for measuring electricity, power, current and voltage during charging/discharging, etc. Users can choose the corresponding energy meter type according to different needs, and at the same time, they can also prohibit the use of AC energy meters;
- **DC energy meter type:** in order to be compatible with different types of energy meters, select the corresponding energy meter type according to the DC pile charging billing mode, and at the same time can also prohibit the use of DC energy meters; (after modifying the type of energy meter and saving it, you need to restart the charging pile)
- **DC pile energy meter protocol type:** 0 for DLT645, 1 for Modbus, users choose according to different needs; (modify the energy)
(After the table protocol type is saved, the monitor board needs to be rebooted)
- **Gun temperature sensor type:** divided into none, temperature control switch and thermistor, can be selected according to the temperature sensor type of the actual charging gun, after selection, you can view the charging gun temperature in the information query interface;
- **Time Zone Setting:** Negative number means West time zone, positive number means East time zone; for example, input 8 for East 8, input -8 for West 8;
- **Seasonal setting:** 0 for winter time, 1 for daylight saving time;

Note: Example of DC pile meter parameter setting, for example, I have a specific model DCM230 meter, the meter is DC billing, the communication protocol type is Modbus, then select the parameter: DC pile charging and billing mode is 1, DC pile energy meter protocol type is 1, DC pile energy meter type is 4;

4 Device enable setting:

- **Total AC contactor enable:** if the system has AC contactor, select enable, otherwise select disable; enable AC contactor can be controlled by software to close the AC contactor;
- **DC contactor status enable:** 0 disable means DC contactor status is not functioning, 1 enable means DC contactor status is functioning; can judge whether DC contactor is intact or not;
- **Access control switch enable:** 0 prohibit means that the function does not work, 1 normally open means that there will be a buzzer alarm when the signal of the detection point is 0V, and the alarm will be activated when the signal of the detection point is 0V, and the alarm will be activated when the signal is 0V.
2 Normally closed representative with a buzzer alarm when the detection signal is 12V;
- **Print SECC Details Log:** This feature is for engineer commissioning only;
- **Enable PWM status:** This function is used in compatible Mercedes-Benz models, and is not recommended to be opened;
- **Number of colorful light beads:** customers need to input the corresponding number of colorful light beads according to the structure of the pile, the initial value is 0, and the maximum number beads is 200;
- **Color light voltage type:** customers need to choose the correct voltage type according to the type of color light of the pile, there are two choices of 5V and 12V, you can choose the light language mode, or non-light language mode;
- **OCTT Test:** This feature is only enabled when using the OCTT test tool;

5 Tariff Setting:

Charging pile in the case of non-network, according to each time period, respectively, set the sharp time, peak time, usual time, valley time tariffs, as well as the setting of the service charge; electricity loss rate that is the charging of the additional loss of electricity by the user, the electricity loss rate according to the customer's actual situation set;

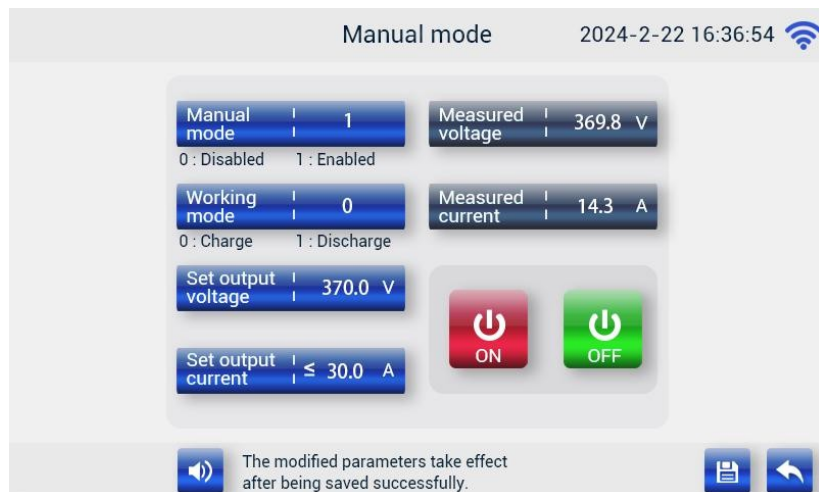
6 Card Setup:

- **Reader type:** 0 for offline card; 3 for disable reader function; 4 for use as online card management when networked;
- **M1 card sector number and block number setting:** sector number range is 0~15, block number is 0~3, it should be consistent with the selected sector number and block number when recharging, the default sector number is 5, block number is 0. This setting is applicable to offline card;
- **M1 Card Key A Setting:** The initial password of M1 card KeyA is FFFFFFFF, if the password is modified by card writing software, enter the corresponding modified password in this input box (the default password given by the monitoring unit is ABCDEFEDCBA), or else swiping fails, this setting applies to offline cards;

Note: After the parameters are set, the charging pile needs to be restarted so that the parameters of the monitoring board match the designed charging pile program;

4.6. manual control

In the manual control interface, the user can manually control the opening of the module for current transfer without BMS communication, as shown



in Figure 4-6;

Figure 4-6 Manual Control Interface

- **Manual Control Mode Enable:** 0 means disable, 1 means enable to manually control the module for testing; **this function is used for testing and should be disabled when not in use, otherwise it will affect normal charging;**
- **Charge/discharge mode:** 0 for charging, 1 for discharging, users can choose the direction of energy flow according to their needs;
- **High and low voltage modes:** the voltage level when the module works can be set, 200~500V is low voltage mode, 500~1000V is high voltage mode;
- **Voltage Setting:** Set the target voltage of the module output, which should not exceed the rated voltage of the module;
- **Maximum Current Limit:** Set the maximum current of the module output, which should not exceed the rated current of the module;
- **Current Voltage:** You can view the current output voltage of the module in real time;
- **Current Current:** You can view the current output current of the module in real time;
- **ON/OFF button:** ON means turn on the module, OFF means turn off the module; when modifying the voltage and current parameters in the middle of the test, there is no need to stop, just modify and save the parameters directly;

4.7. network setup

Click on the Network Settings button to enter the page for network-related settings, as shown in Figure 4-7;

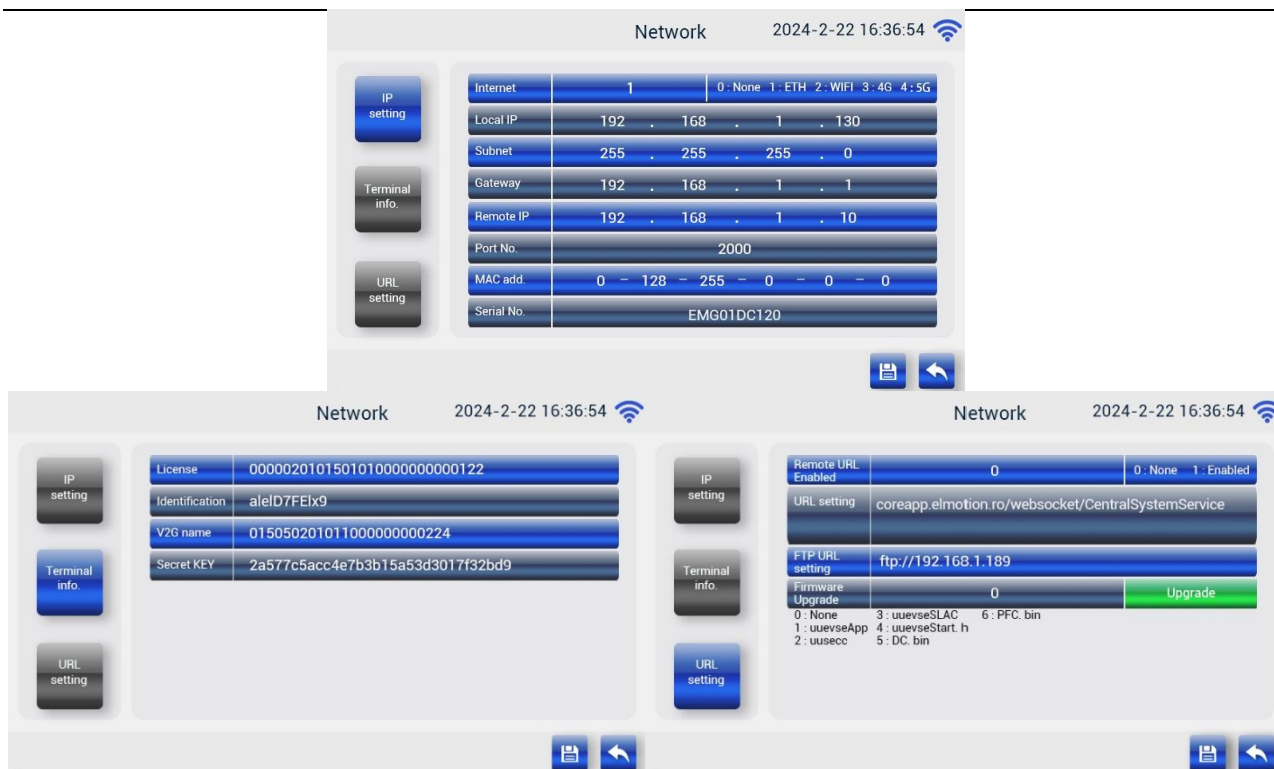


Figure 4-7 Network Parameter Settings

1 IP Settings

Communication Methods:

The monitoring unit currently supports Ethernet (ETH), WiFi, and 4G communication. If network communication is not required, simply input "0".

If WiFi communication is selected, click the green WiFi button to enter the WiFi selection interface, as shown in Figure 4-8. The software will automatically search for available WiFi networks every 15 seconds, or you can manually click the refresh button.

Select the desired WiFi network from the list. In the pop-up window, enter the correct password (at least 8 characters) to connect. The displayed password will be encrypted.

Once WiFi is successfully connected, the password will be saved automatically for future use. You can view or delete saved WiFi passwords under "Advanced Settings"; up to 10 networks can be saved.

If the WiFi network is hidden, you can manually add a network by entering its SSID and password, as shown in the figure below.



Figure 4-8 WiFi Connection Settings

- **Local IP address, subnet mask and default gateway:** Customers do not need to set them manually, the monitor board adopts dynamic IP address acquisition;
- **Remote IP address:** If the URL setting is enabled and activated, the remote IP address from the server will be obtained automatically; if it is not activated, you need to set it manually, which is the IP address of the target server, e.g., 120.77.82.99;
- **Port number:** is the port number of the target server, such as 2000;
- **MAC Address:** It is the physical address of the Ethernet of the monitoring board, if you are using LAN, you can set it randomly here, but it is better not to conflict between the monitoring boards, this address is unique, and the monitoring also sends out a random value, this can be set without setting, and the MAC address shown on the screen is in decimal;
- **Pile Serial Number Setting:** Each charging pile has a unique pile serial number that cannot be repeated, restart the charging pile after setting;

2 Device Information Settings

This function is only used for the State Grid platform: the electric pile needs to be registered first and then can officially access the State Grid platform, there are two ways to register. There are two ways to register. The prerequisite is to set the stake number and communication mode first, click save;

● Way 1: Enter the registration code

This method is applicable to the first access to the State Grid platform, the registration code is provided by the State Grid platform, you need to clear the ternary group (product identification, device name, device key) on the screen first, and then enter the registration code (the ternary group will be verified directly with the ternary group if the ternary group is not empty). After the platform passes the verification, it will assign the ternary group to the EPS, and then access the platform to complete the registration. The stake will save the new triad and display it on the screen, and the next connection will directly use the triad to access the platform.

● Mode 2: Input Ternary

Ternary group: that is, product identification, device name, device key, directly enter the ternary group and then connect to the platform to complete the registration. Both methods ultimately complete the registration through the ternary group, and you can access the platform after verification.

3 URL Settings

- **Activate URL Setting:** when set to 1, the stake will automatically get the remote IP address from the server and display it on the stake, if set to 0, you need to set the remote IP address manually;
- **URL Setting:** This function realizes automatic network connection after changing the domain name address; enter the corresponding domain name address in the URL setting box and enable this function, click Save, enter IP setting, modify the corresponding port number and stake number, save the parameters and exit, the remote IP will be updated and connected to the network automatically;
- **FTP domain name setting:** this function can realize firmware upgrade by building FTP connection; enter FTP domain name, select the firmware code that needs to be upgraded, and click upgrade on it; what is emphasized here is that DC and PFC are the power module software, and it takes a while to upgrade them, and after this click on the upgrade button, you need to exit to the home page in order to realize upgrading, and this upgrading method is not recommended in general;

Note: After the network parameters are set, the charging pile needs to be restarted so that the parameters of the monitoring board match the designed charging pile scheme;

4.8. Module working condition interface

Click the Module Status button to view the working condition of each charger module, as shown in Fig. 4-9; the monitor polls each module through the CAN bus to get the number of modules currently online, as well as the current output voltage, current output current, ambient temperature, module online status and other information of each module, and at present, it can display the information of up to 20 modules;

PMs condition					
PM Address	Output voltage(V)	Output current(A)	Working TEMP (°C)	Communication	PM status
1	369.0	22.2	22.0		
2	0.0	0.0	0.0		
3	0.0	0.0	0.0		
4	0.0	0.0	0.0		
5	0.0	0.0	0.0		
6	0.0	0.0	0.0		
7	0.0	0.0	0.0		
8	0.0	0.0	0.0		
9	0.0	0.0	0.0		
10	0.0	0.0	0.0		

← 1/2 →

Figure 4-9 Module Condition Information Screen

4.9. Factory Test Interface

Click the factory test button, you can test the DC contactor, AC contactor, card reader, electronic locks and other conditions, the interface is as follows Figure 4-10

The test contents on this page allow you to determine whether the corresponding devices on the system and the monitoring unit are intact.



Figure 4-10 Factory Test Screen

4.10. Record Search

The record query is divided into alarm record query and charging record query, the alarm record interface is shown Figure 4-11 below and the charging record interface is shown in Figure 4-11 below.

4-12 shown; alarm records mainly record some faults in standby or charging, which will form a record in time, and save the latest 90 alarm records; charging records will be saved at the end of each charging, which mainly record the time of starting charging, the card number used for charging, and the reason for ending charging, and save the latest 100 charging records at the most;

Figure 4-11 Alarm Record

Figure 4-12 Charging Record

Alarm record			2023-4-3 16:36:54	Charging record				2023-4-3 16:36:54
No.	Time	Alarm contents		No.	Time	Card No.	Record contents	
1	2023-4-3 16:32:33	Module communication failed!		1	2023-4-3 16:32:33	123456787654321	GunA swipe card to stop charged!	
2	2023-4-3 15:24:31	Module communication recover!		2	2023-4-3 15:24:31	123456787654321	GunA swipe card to stop charged!	
3	2023-4-3 15:12:43	Module communication is abnormal!		3	2023-4-3 15:12:43	123456787654321	GunA swipe card to stop charged!	
4	2023-4-3 15:09:54	Electronic lock status recover!		4	2023-4-3 15:09:54	123456787654321	BMS identification failed.	
5	2023-4-3 13:42:13	Electronic lock status is abnormal!		5	2023-4-3 13:42:13	123456787654321	GunA swipe card to stop charged!	
6	2023-4-3 13:36:21	Module communication failed!		6	2023-4-3 13:36:21	123456787654321	AC input undervoltage.	
7	2023-4-3 10:24:39	Module communication recover!		7	2023-4-3 10:24:39	123456787654321	GunA swipe card to stop charged!	
8	2023-4-3 12:42:43	Module communication is abnormal!		8	2023-4-3 12:42:43	123456787654321	GunA user can stop charged!	
9	2023-4-3 11:09:50	Electronic lock status recover!		9	2023-4-3 11:09:50	123456787654321	BMS identification failed.	
10	2023-4-3 10:33:18	Electronic lock status is abnormal!		10	2023-4-3 10:33:18	123456787654321	GunA Setup Timeout!	

← 1/9 →

← 1/9 →

5. Swipe card charging/discharging process

5.1. Setting of electric piles

Set the corresponding parameters in Figure 4-5 according to the specification model of the purchased charging pile. After the parameters are set and saved, the charging pile can be restarted to carry out the charging/discharging process by swiping the card;

5.2. Start charging/discharging by swiping the card

First, make sure the charging gun is connected. If it is not connected, charging or discharging cannot proceed. A prompt on the homepage will indicate whether the vehicle and charging gun are connected. Click on "SOC" to set the target SOC (State of Charge) value for ending the discharge. If the charging gun is connected, you can click the "Swipe Card" button to go to the card-swiping interface, as shown in Figure 5-1. If the card swipe fails, an error pop-up will appear; identify the issue and swipe the card again. After a successful swipe, the system will proceed to the charger self-check interface.

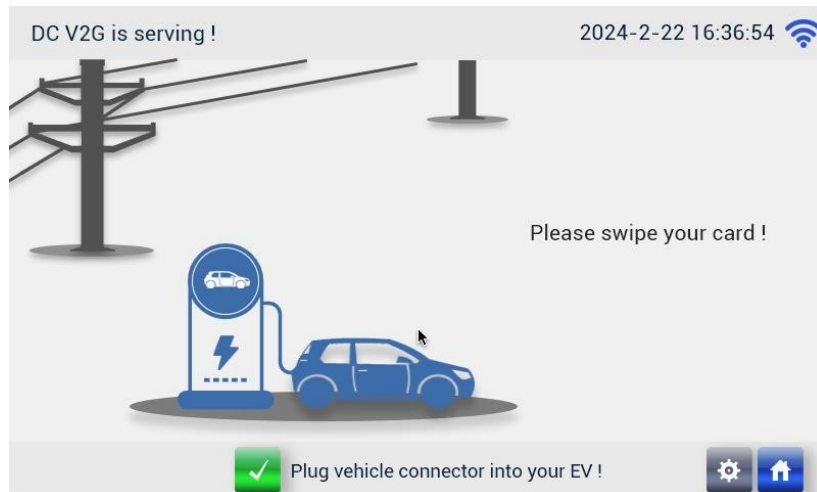


Figure 5-1 Swipe Charge/Discharge Page

5.3. System self-test in progress

After the card is successfully swiped, it enters the self-test interface, as shown in Fig. 5-2, and the contents of the self-test include the monitoring of insulation resistance value, contactor, input over- and under-voltage, and the communication status of the device. If the self-test is abnormal, the status indicator will turn red or the display will show the corresponding fault information, and a fault record will be formed at the same time;

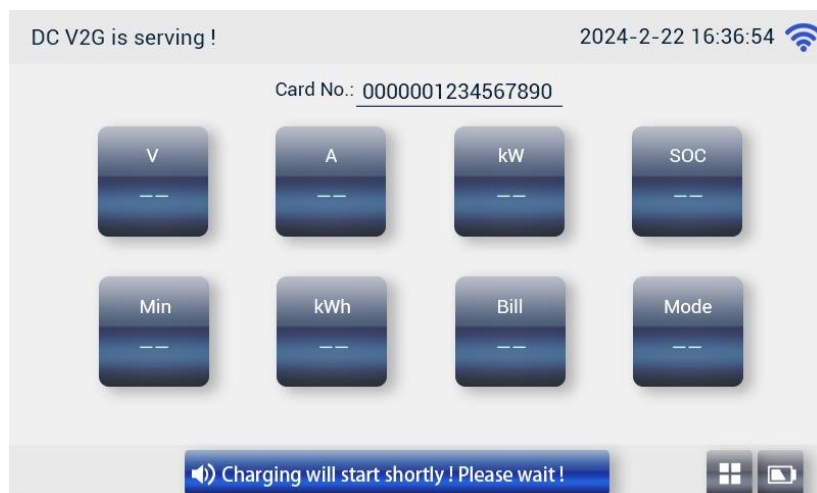
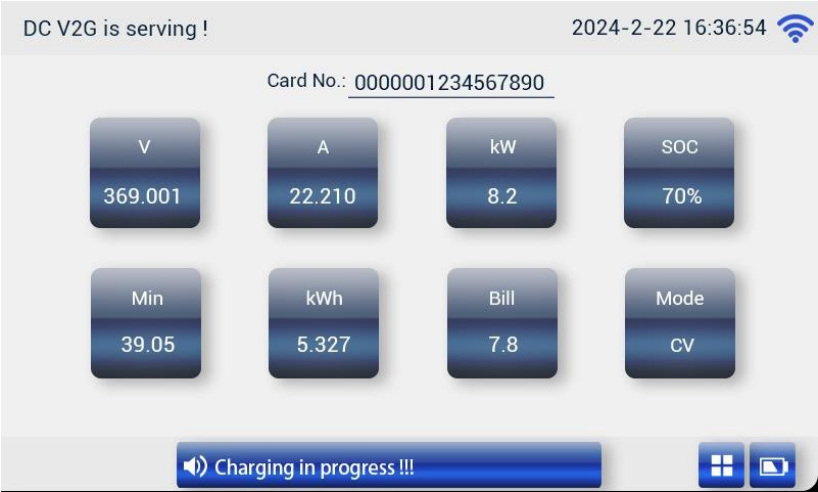


Figure 5-2 System Self-Test

5.4. Charging/discharging in progress

If the self-test of the charging pile is normal, it will enter the charging/discharging interface, as shown in Figure 5-3. During the charging/discharging process, the user can check the charging/discharging voltage and current, power and time at any time, or query the battery information of the electric vehicle and the working condition of the power module of the whole charging system, respectively.

Click "Battery Information" and "Module Working Condition" to view the status information, green light means normal, red light means



abnormal. The interface is shown Figure below:

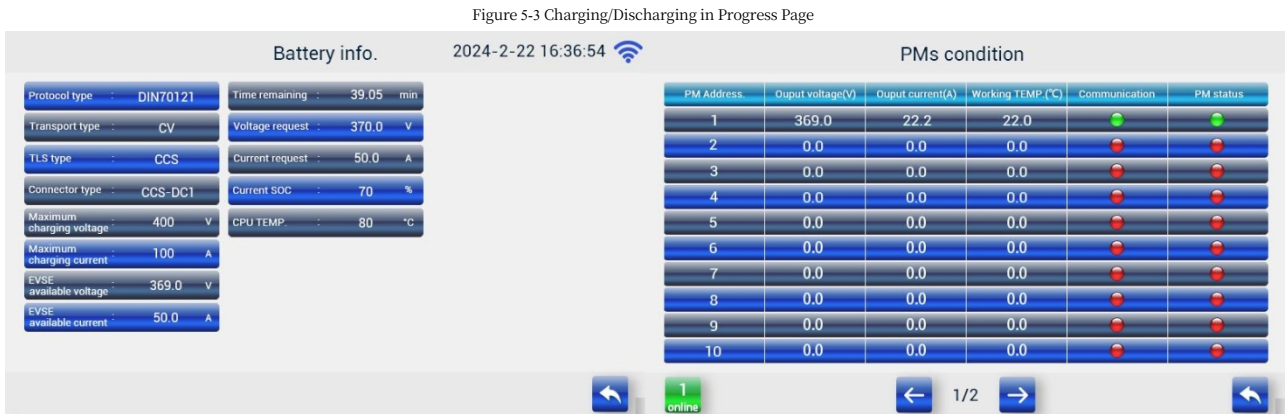


Figure 5-4 Battery Information Page (left) and Module Status Screen (right)

5.5. Swipe to end charging/discharging

If you need to stop charging/discharging during the charging/discharging process, the user can directly swipe the card to end it, and then jump to the settlement interface after swiping the card, which displays detailed information such as card number, power, time, and so on for the user's confirmation; if it is a failure to stop or the charging/discharging is completed, the program will automatically jump to the settlement page and stay there, and the customer only needs to correctly swipe the card to settle the charging/discharging and complete the whole process of charging/discharging, and then jump to the homepage to start a new charging/discharging operation again. After that, the program will jump to the home page to start a new charging/discharging operation again; the interface is shown in Figure 5-5 below:

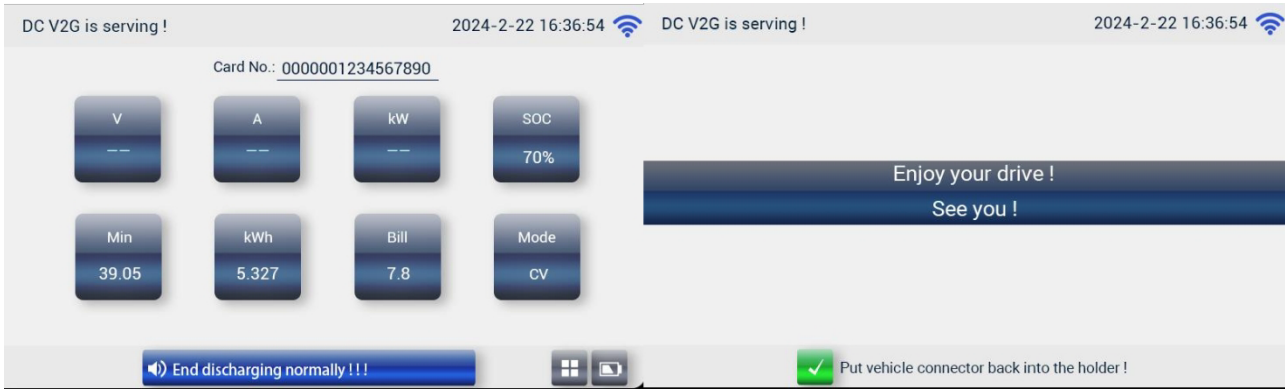


Figure 5-5 Swipe to end charging

5-6 Goodbye Screen

After the end of card swiping, the interface automatically jumps to the goodbye, prompting the customer to pull out the gun and put it back to the original position for the next charging/discharging, the interface is shown Figure 5-6.

6. Description of the upgrade procedure

UMEV_CCS-02 control board is developed based on Linux system, the software that needs to be upgraded is divided into 5 parts, which are u-boot, kernel, devicetree, rootfs, and application program (app), and in general, users only need to update the application program.

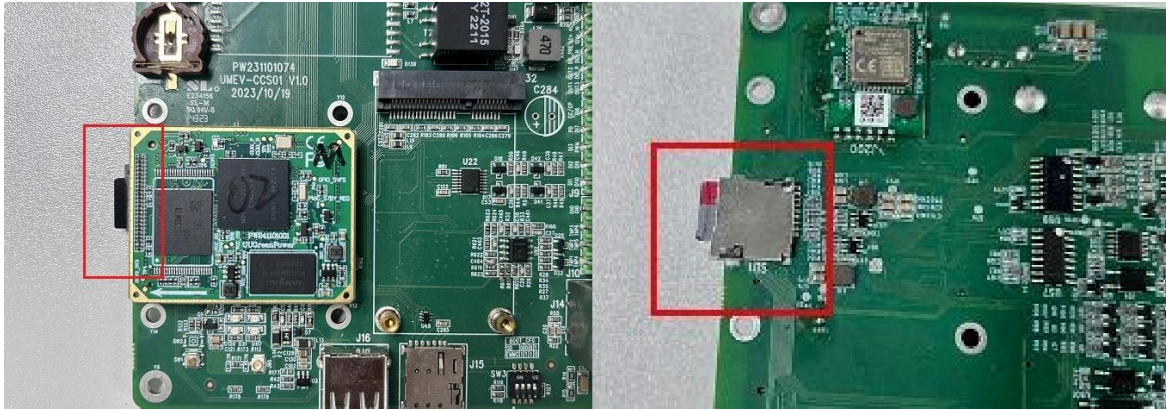
6.1. Instructions for upgrading u-boot, kernel, devicetree, rootfs (using micro SD card)

These four programs are updated together and require a micro SD card, we will provide you with a micro SD upgrade system card already made. Under Windows, insert the micro SD card into your computer and simply replace **mfg-images folder** accordingly (with the same name), don't move the other files!



6.1.1. upgrade step

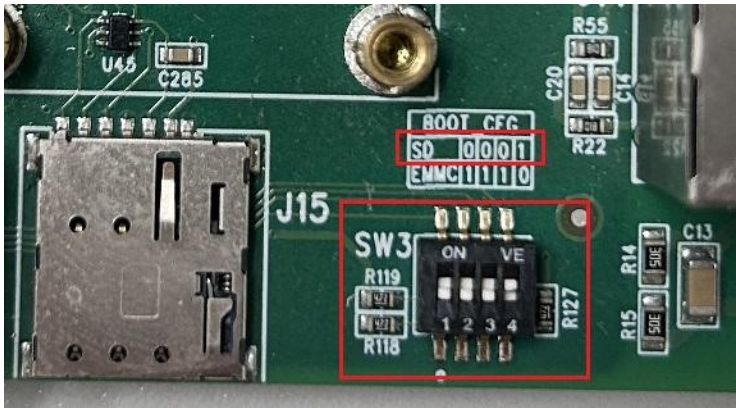
Insert the micro SD card into the corresponding slot (on the back of the monitor board) after the control board is powered off, as shown in the



following figure;

Figure 7-2 micro SD Card Slot

2. The control board is silk-screened, and the dip switches of the control board are shown in the following figure: the number 4 is set to ON, and the other



numbers remain unchanged;

Figure 7-3 DIP Switch During Burning

3. Re-power **on and wait for 3~4 minutes**, then power off the control board, at this time you can pull out the micro SD card;
4. Restore the dip switches of the monitor board to the following figure: digit 1, 2, 3 to ON, and digit 4 to the other end;

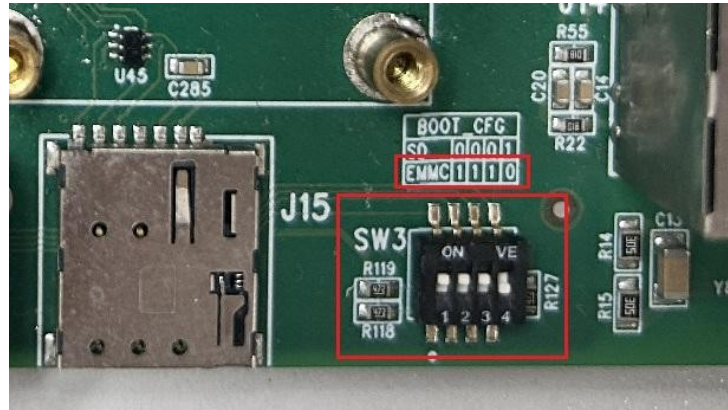


Figure 7-4 Post-Burn DIP Switch

5. Finally, the control board can be re-powered.

6.2. Instructions for upgrading the monitoring application

1. Prepare a USB flash drive formatted as FAT32;
2. Create a new uuapp folder in **the root directory of USB flash drive** to store the program to be upgraded;
3. program file command rules: app program must comply with the beginning of uuevseApp, such as uuevseAppOB_V1.1, etc.; SLAC file to comply with the beginning of uuevseSLAC, such as uuevseSLAC_V1.1, etc.; secc file to comply with the beginning of uusecc, such as uusecc_V1.1, etc.;
4. monitor the board in standby, USB flash drive inserted into the USB port, wait a few seconds, hear the buzzer sounded three times, indicating that the program burned into the success, and then after a few seconds, the buzzer sounded again, indicating that the program has been successfully run up, at this time, you can pull out the USB flash drive;
5. Restart the charging pile to let the system restart, after which you can determine again in the information query interface whether the version number of the application is the version to be upgraded;

6.3. Operating instructions for upgrading the touch panel program

6.3.1. Purchase Card Notes

- 1, the transfer speed of the memory card is recommended to be class 4, class6 or class10 card in the Xinruida screen will appear to burn not into the project problem, it is not recommended to use, view the disk type way as shown in Figure 7-5.
- 2, the capacity of the memory card is best 4G ~ 8G, not more than 16G, otherwise the screen does not read the card Xinruida;
3. The file system of memory cards and USB flash drives must be FAT32 with an allocation unit size of 4096 bytes;



Figure 7-5 Disk Type

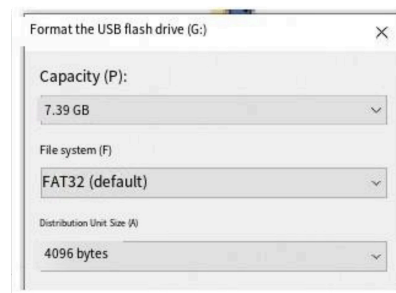


Figure 7-6 Formatting Settings

6.3.2. Resistive screen burn-in

1. Prepare an SD card. When using an SD card for the first time, it is recommended that you first format the SD card and set its file system to

FAT32 format, with an allocated cell size of 4096 bytes; the formatting settings are shown in Figure 7-6 above;

2. Create folder named DWIN_SET in the root directory of the SD card (in general, users directly copy the project's

(DWIN_SET folder to the SD card is sufficient, you can skip the third step);

Note: The DWIN_SET folder and the XRD_TFT folder cannot exist in the root directory at the same time, otherwise there will be a burn error.

3. Download the image files (.bmp format), font files, configuration files, sound files and CONFIG.txt to the touch screen.

The configuration file is placed in the DWIN_SET folder;

- 4, the SD card into the touch screen SD card interface, as shown in Figure 7-7. After the touch screen detects the SD card, it will display a blue screen to remind the user that the SD card is detected, and then you can see the screen interface jumping one by one into the loading screen, the time is about 1~2 minutes;



Figure 7-7 Resistive Screen Burn-in

5. After the SD card download is completed, the touch screen will automatically reset once, and the user pulls out the SD card, the download is finished.

6.3.3. 7 inch capacitive screen burn-in

- 1, prepare a USB flash drive, the first time to use the USB flash drive recommended that users first USB flash drive format and set its file system to

FAT32

format, allocating a cell size of 4096 bytes;

2. Create folder named XRD_TFT in the root directory of the USB flash drive (in general, users directly copy the project's

(XRD_TFT folder to USB flash disk, you can skip the third step);

Note: The DWIN_SET folder and the XRD_TFT folder cannot exist in the root directory at the same time, otherwise there will be a burn error.

3. Put the image files (.jpg format), font files, configuration files, sound files and config.txt configuration files that need to be downloaded to the touch screen in the XRD_TFT folder;
4. Insert the USB flash disk into the USB port of the touch screen, as shown in Figure 7-8, after the touch screen detects the USB flash disk, it will display a blue screen prompting the user to detect the USB flash disk, and then you can see the screen interface jumping from one sheet to another to load the screen, the time is about 1~2 minutes;



Figure 7-8 7 inch Capacitive Screen Burn-in

After the USB flash disk is downloaded, the touch screen will be reset automatically, and the user will pull out the USB flash disk to finish the download.

6.3.4. 5 inch capacitive screen burn-in

1. Prepare an SD card. When using an SD card for the first time, it is recommended that you first format the SD card and set its file system to

FAT32 format with an allocated cell size of 4096 bytes; the formatting settings are shown above;

2. Create folder named DWIN_SET in the root directory of the SD card (in general, users directly copy the project's

(DWIN_SET folder to the SD card is sufficient, you can skip the third step);

3. Download the image files (.bmp format), font files, configuration files, sound files and CONFIG.txt to the touch screen.

The configuration file is placed in the DWIN_SET folder;

Note: The DWIN_SET folder and the XRD_TFT folder cannot exist in the root directory at the same time, otherwise there will be a burn error.

- 4, monitor board power off, the SD card into the SD card interface of the touch screen, as shown in Figure 7-9. After the touch screen detects the SD card, it will display a blue screen to remind the user that the SD card is detected, and then you can see the screen interface jumping down to the loading screen one by one, the time is about 1~2 minutes;



Figure 7-9 5-inch Capacitive Screen Burn-in

- 5, After the SD card download is completed, the user pulls out the SD card, the monitor board is powered on, and the screen initialization is completed.