ACS

Series Intelligent Charger

Product Manual

We extend our sincerest appreciation for your purchase decision. For the best possible functioning of this machine, it is essential to carefully study and keep this manual safe for consultation whenever needed before commencing usage. (Version No. 1.0.5)

Contents

Chapter I. Warning Message 2
Chapter II. Overview 1
1. Features 2
2. Key Features of the Charger 2
3. Normal Operating Conditions 2
Chapter III. Key Technical Data 4
Chapter IV. Protective Features 5
Chapter V Dimensions of Brush Board and Brush Block 6
Chapter VI Operating Instructions 11
1. Overall Appearance of the Machine 11
2. Diagrams of Telescopic and Floating Mechanisms 14
3. Overall Diagram 15
4. Panel Diagram 15
5. Instructions for Emergency Stop Button 16
6. Instructions for Warning Light 16
7. Instructions for Main Interface 17
8. Wired Charging Mode Setup 20
Chapter VIII Advanced Parameters Setup Procedure 22
Chapter IX Debugging and Commissioning 24
Chapter X WIFI Debugging 25
Chapter XI Modbus-RTU Protocol (Refer to the Modbus-RTU Protocol for Modbus-TCP Protocol Resource Addresses) 28

Chapter I.

Chapter I. Warning Message

The following symbols are used to represent warnings and notes in this manual:

Symbols	Connotations
	Danger: Risk of personal injury!
	Caution: Risk of damage to charger or battery.
	Note: Practical hints or useful information.
	Prompt: Functional settings.
	Only a duly certified professional electrical technician should install, maintain, and repair this device!
	The grounding of the charging station must be reliable and secure to prevent anomalies from causing harm to individuals or property!
	Since batteries may produce flammable and corrosive gases during the charging process, it's imperative to: ✧ Stringently prohibit any open flames! ✧ Avoid placing flammable or explosive materials around the charger or battery! ✧ Adequate ventilation is required in on the charging yard! ✧ Do not disconnect the charging plug until the charger is switched off. Otherwise, the resulting spark could ignite a fire or lead to an explosion!
	Under no circumstances should the charger be situated in an area prone to water splashes, rainfall, or vapor exposure!
	Mismatching the charged battery's capacity and voltage with the charger's specifications may result in battery damage!
	It is advisable to keep the charger as separate from the battery as possible, or at a minimum, keep a distance of 1 meter or more to enhance the charger's durability!

✧ We will not be liable for any outcomes due to non-compliance with operational guidelines or unapproved technical alterations.

✧ Should there be enhancements to the product's performance, parameters, electrical diagrams, or appearance that cannot be pre-announced, the actual product takes precedence!

Chapter II. Overview

1. Features

The ACS series of intelligent chargers feature a modular design that integrates high-frequency soft switch with DSP digitalization, offering high conversion efficiency and power factor. The main circuit module, designed through parameter optimization, provides continuously adjustable charging currents for a variety of AGV vehicles The ACS chargers are designed with WIFI or infrared diffuse reflection and infrared direct transmission for smart charging, resulting in a completely automated charging process. The chargers are equipped with a variety of communication interfaces, allowing for data exchange with the majority of lithium battery BMS and upper computers, etc.

The chargers feature a side-mounted automatic telescopic mechanism for quick and convenient installation; it has a compact size and multiple redundant charging modules connected in parallel for simple construction and safe and reliable operation.

Equipped with a 7/4.3-inch touchscreen, the charger allows for control of the charging process, display of charging status, recording of charging data, and logging of fault information. The charger also offers a professional configuration interface, enabling advanced users to customize charging curves based on their specific needs.

2. Key Features of the Charger

1. The charger features an integrated design for charging station, complete with an automatic telescopic mechanism for quick and convenient installation. (A separate version is also available with split structure, where the ACS is not furnished with a telescopic mechanism)

2. Space is reserved for the installation of third-party equipment, providing the capability for system integration.

3. The modular design allows for adaptability to a variety of AGV solution requirements.

4. The charger is designed with protective features against short circuit, overvoltage, overcurrent, and overtemperature.

5. Both automatic and manual charging is available (reversing the connections is strictly prohibited during forced charging).

6. The charger has various communication interfaces, including dry contact, CAN, Ethernet, RS485, and WIFI (optional, to be configured to customer requirements).

7. The management background can perform real-time data queries on the charger through various data interfaces such as CAN, RS485, and WIFI (optional, to be configured based on specific customer requirements).

3. Normal Operating Conditions

(1) The height above sea level does not exceed 1000 m;

(2) The ambient medium temperature is within the range of -10°C to +45°C (inclusive);

(3) The relative humidity of the air should not exceed 95% (without condensation) when the storage temperature is between -40°C and 75°C;

(4) The operating environment is free from conductive dust and explosive hazards;

(5) The operating environment is free from gases and vapors that may corrode metals or insulation;

(6) Locations protected from rain and snow intrusion;

(7) Areas with a vertical surface tilt of no more than 5 degrees, and free from severe vibration and shock.

Chapter III.Key Technical Data

Items / Specifications / Parameters	Rated input power supply 50 Hz	Rated Input power kVA	Maximum input Current A	Rated output current A	Output voltage range V	Net weight of main device kg	Net weight of side charging mechanism kg	Means of communication	Protection Class	Overall dimensions
ACS-E29.2V/100A	Single-phase 220	3.2	14.7	100	24-32	56	/	(Other means of communication are optional)	IP20	710×400×1263
ACS-E58.4V/100A	Single-phase 220	6.5	29.5	100	48-60	60				710×400×1263
ACS-D58.4V/100A	Three-phase 380	6.3	9.5	100	48-100	60				710×400×1263
ACS-D58.4V/200A	Three-phase 380	13.4	20.4	200	20-120	94				772×500×1262
iACS-E58.4V/50A	Single-phase 220	3.2	14.7	50	48-68	72				710×400×1263
iACS-D100V/200A	Three-phase 380	21.5	32.7	200	20-120	130				772×500×1432
sACS-E29.2V/200A	Single-phase 220	6.5	29.5	200	24-32	63	41			710×400×1263/ (Dimensions of side charging mechanism:
sACS-E58.4V/50A	Single-phase 220	3.2	14.7	50	48-68	72	28			710×400×1263/ (Dimensions of side charging mechanism:
sACS-D29.2V/200A	Three-phase 380	6.5	9.9	200	24-32	67	55			710×400×1263 (Dimensions of side charging mechanism:

Note: The calculation method for custom specification parameters is as follows:

Input Power S (KVA) = Current * Voltage / Module Coefficient (depending on the configured power module);

Input Current (A) = S / Power Supply Input Voltage (Single-phase);

Input Current (A) = S / (Power Supply Input Voltage (Three-phase)* $\sqrt{3}$).

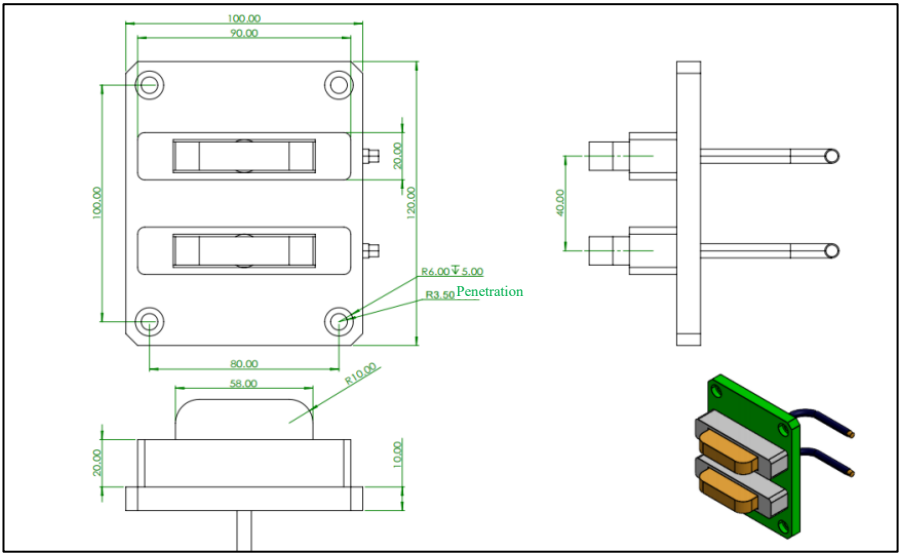
Chapter IV. Protective Features

Items	Yes/no	Contents	Remarks
Input undervoltage Input overvoltage	Option	±15% of the rated input voltage	Protection: The fault indicator light goes ON when the device stops working Resumption: Operation resumed after input voltage returns to normal
Output overvoltage	Yes	Maximum charging voltage +2V	Protection: The fault indicator light goes ON when the device stops working
Output overcurrent	Yes	120% of rated current	(As above)
Reverse polarity protection	Yes	When the charger is initiated for charging, if the output polarity is detected to be reversed, the charger will not start	Check the cause of the protection activation
Short circuit protection	Option	When the charger is initiated for charging, if an output short circuit is detected, the charger will not start	(As above)
Overtemperature protection	Yes	If the temperature of the plug (brush) head is greater than 90° C, an alarm will be triggered; the alarm will be restored after the temperature drops by 5° C.	When the temperature is higher than 90℃, an alarm will be triggered and the machine will stop working. The machine will resume working after the temperature drops by 5℃.
Ground protection	Yes	/	The housing is fitted with yellow-green lines for ground protection

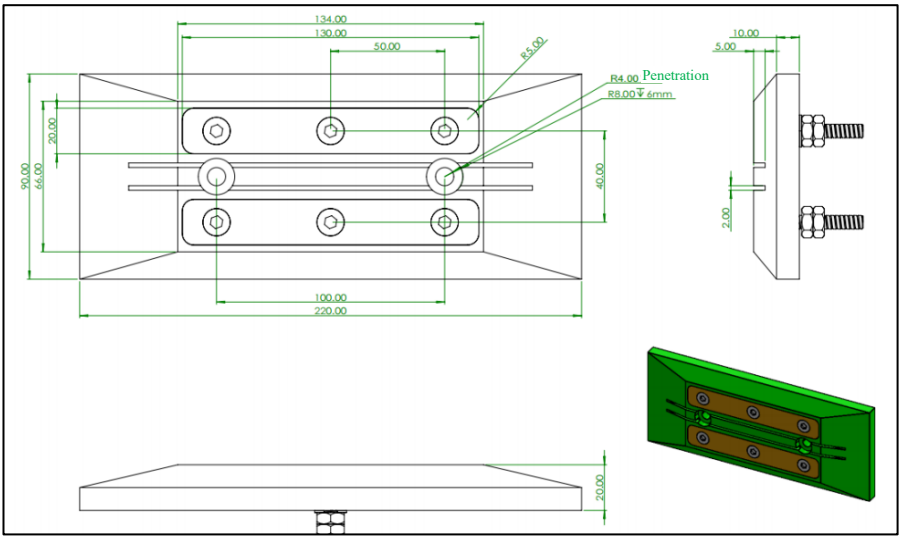
Chapter V Dimensions of Brush Board and Brush Block

1. Dimensions of 100A Brush Block and Brush Board

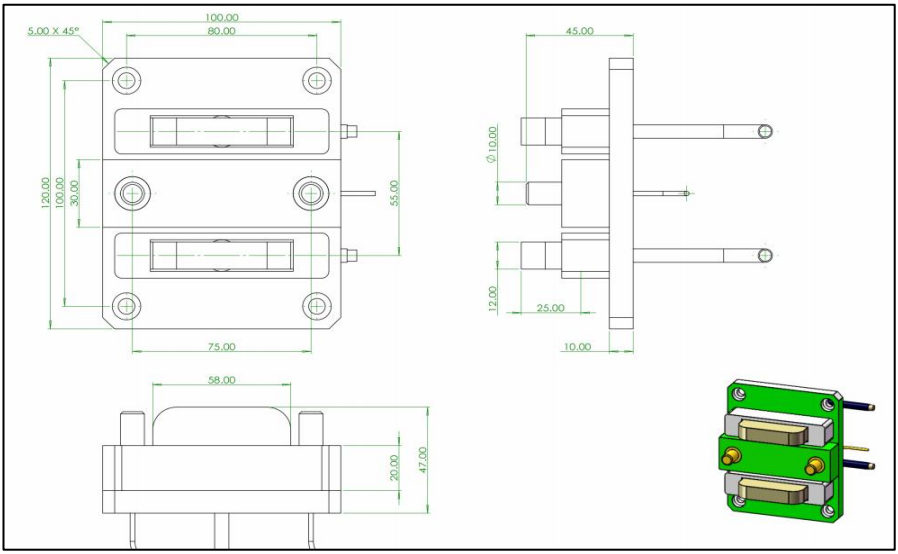
100A



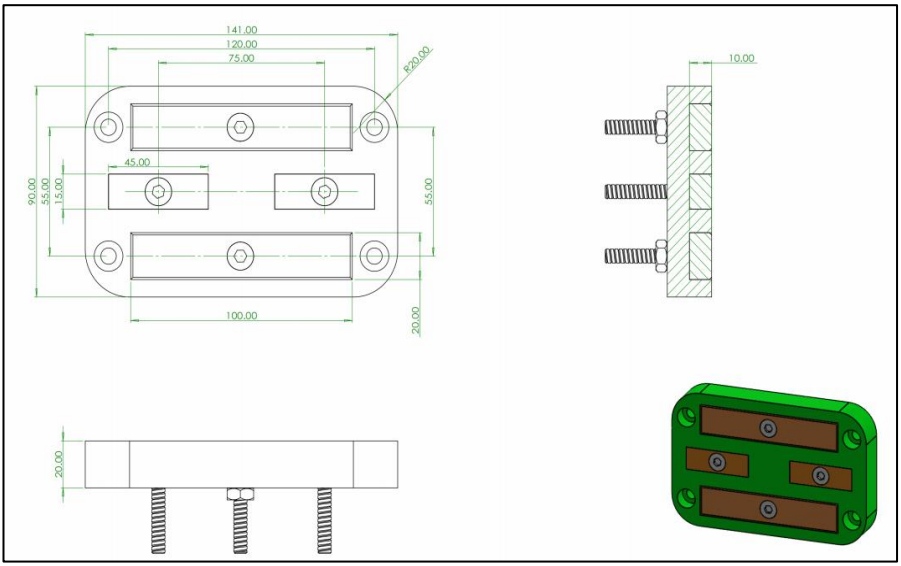
100A brush board



100A brush block, 4-pole contact

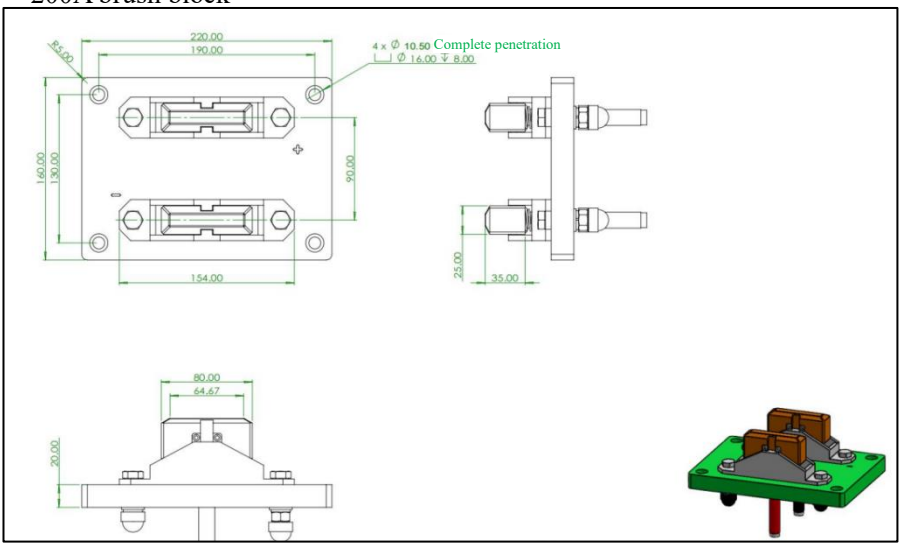


100A brush board, 4-pole contact

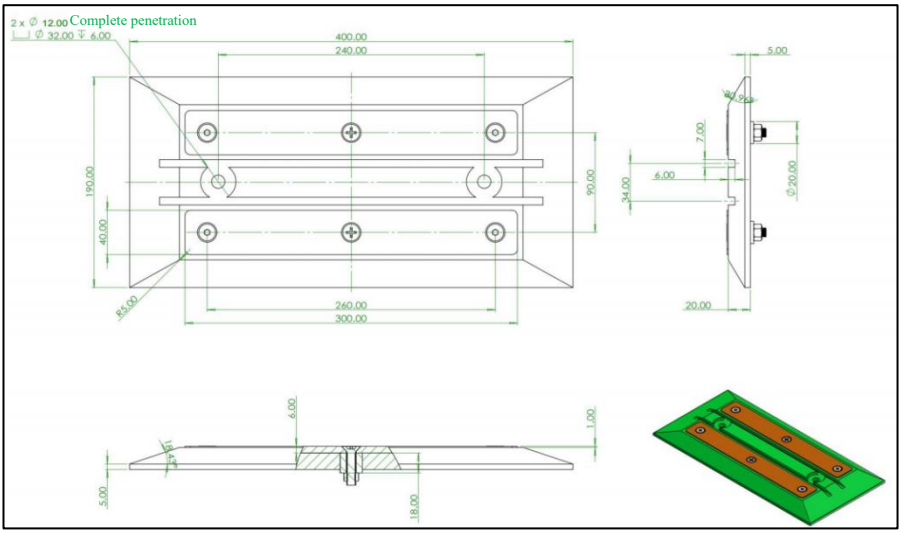


2. Dimensions of 200A Brush Block and Brush Board

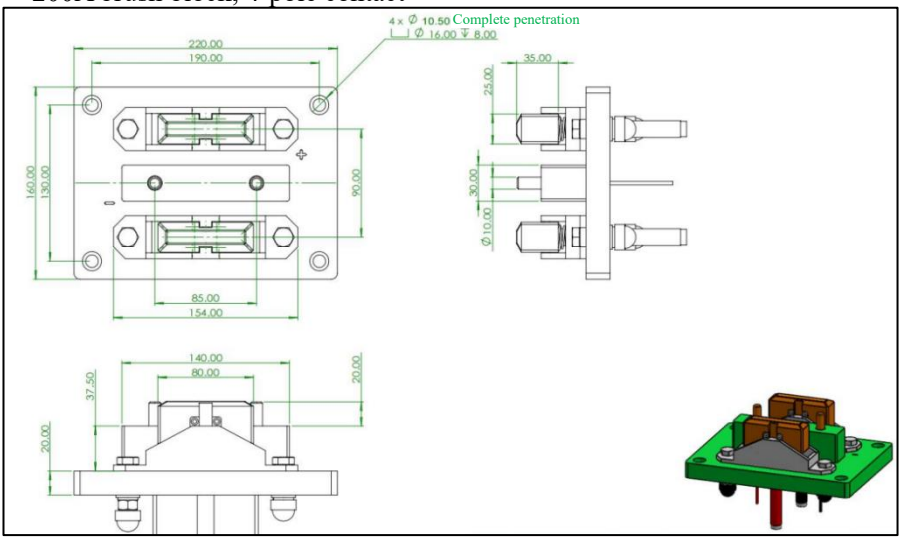
200A brush block



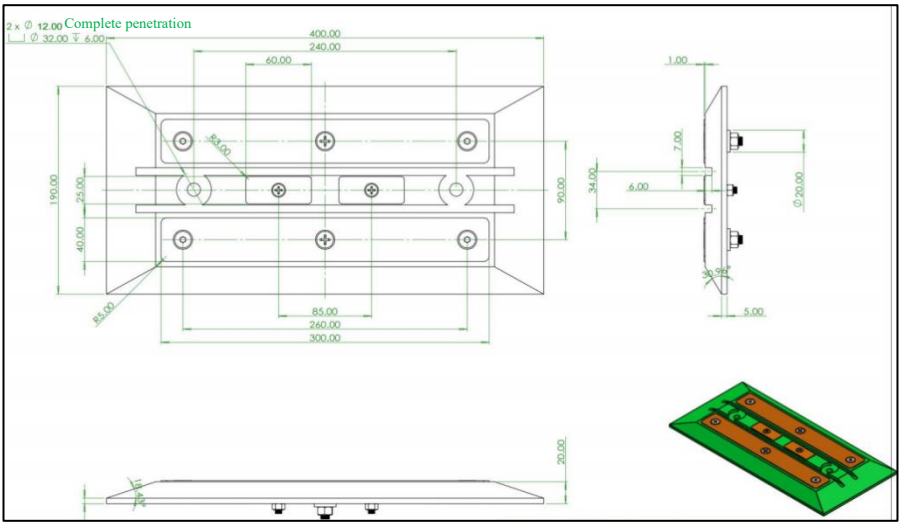
200A brush board



200A brush block, 4-pole contact



200A brush board, 4-pole contact



Precautions

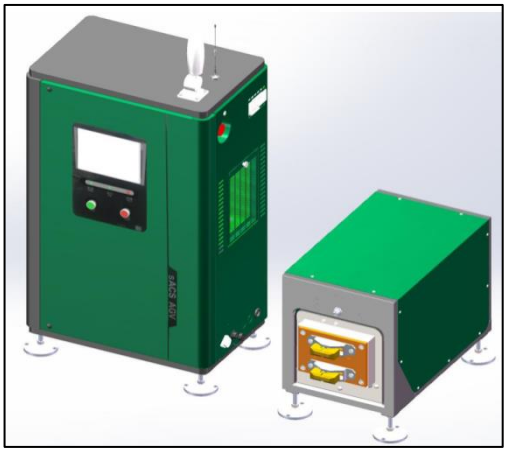
The brush board and brush block must be used in pairs; do not use brush boards and brush blocks that are not matched in size!

Chapter 6 Operating Instructions

1. **Overall Appearance of the Machine** (Reference dimensions for standard edition are attached in mm; please refer to the actual product)

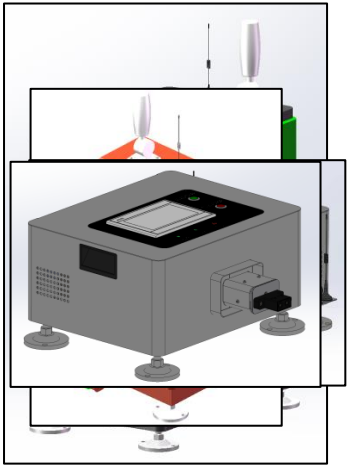
☐ **710*400*1263**

☐ **772*500*1262**



☐ **710*400*1263**

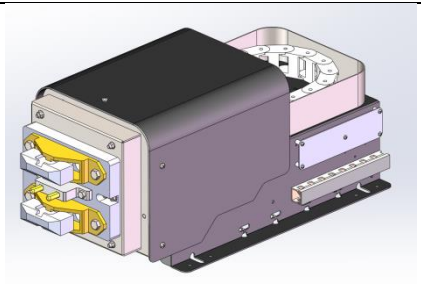
☐ **703*370*514**
☐ **390*595*343**
☐ **768.5*500*850**

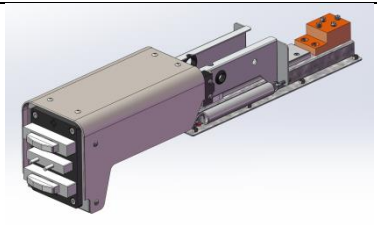


☐ **730*422*1000** ☐ **530*615*796** ☐ **545*570*276** ☐ **545*570*276 (floating)**

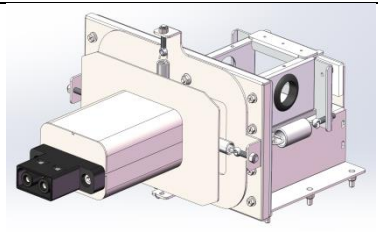
2. Schematic Diagram of Telescopic and Floating Mechanisms

Telescopic Mechanism-1	Brush block: 50~200A available Telescopic travel: Available in 200 mm and 300 mm Telescopic speed: Available in 24 mm/s and 48 mm/s
Telescopic Mechanism-2	Brush block: 30~50A available Telescopic range: Customizable within the specified range
Floating mechanism	Plug: 30~50A available Floating range: ±10 mm vertical; ±10 mm horizontal





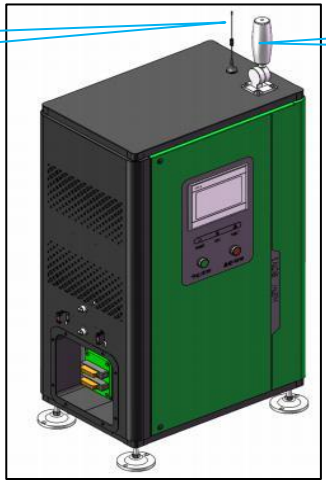
Telescopic Mechanism-1



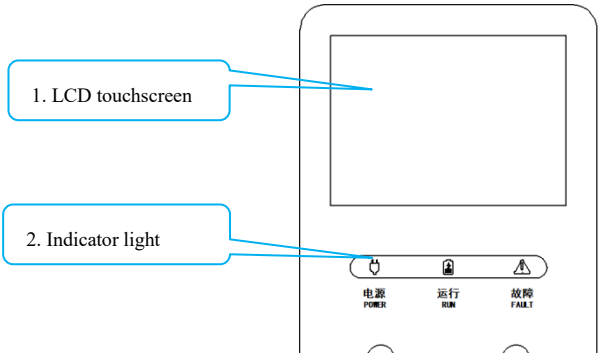
Telescopic Mechanism-2

Floating Mechanism

3. Overall Diagram



4. Panel Diagram



3. Stop button

4. Start button

1). LCD touchscreen - The human-machine interface of the charger, displaying the parameters and status of the charging process, and offering the operation to set up the charger's parameters.

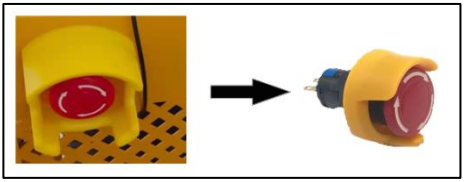
2). Charging status indicator light -

- Power: The light is on when the indicator light's power supply is functioning properly.
- Run: The light is on when the charger is in the working state.
- Fault: The light is on when the charger malfunctions; check the screen for the displayed fault.

3). Stop - This button is used to stop the charging station from charging.

4). Start - Where the charging station has the manual startup confirmation enabled, you need to press this button once before the charging will initiate.

5. Instructions for Emergency Stop Button



- Emergency stop button operation: In case of an emergency that requires immediate cessation of charging, the operator is allowed to press the emergency stop button.
- Emergency stop button reset: The depressed stop button does not automatically reset. The operator must rotate the red button until it pops out, allowing the charger to be powered on properly.

Precautions: The emergency stop switch is intended for emergency shutdown to prevent exceptional electrical shocks or fires. Do not press this button during normal operation, since this may lead to unnecessary repeated actions that may affect proper functioning.

6. Instructions for Warning Light

☐ Definition 1: Red: Running Green: Full Yellow: Standby

☐ Definition 2: Red: Fault Green: Running Yellow: Standby

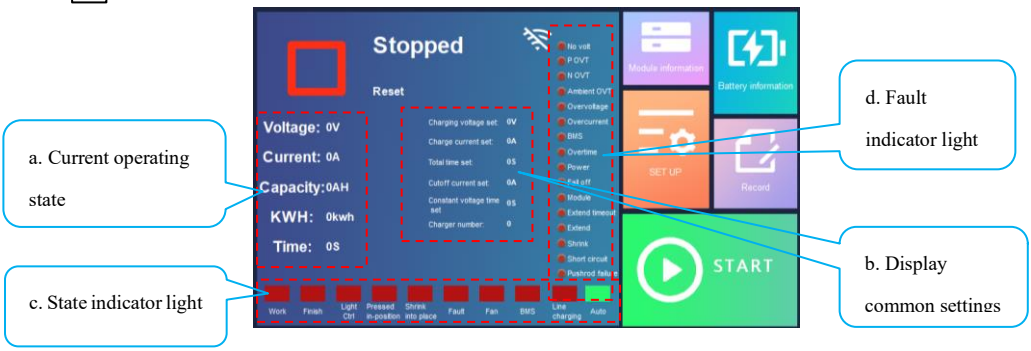
☐ Definition 3: Red: Fault, with buzzer activated Green: Flashing indicates “running”; steady light indicates “full” Yellow: Standby

☐ Definition 4: Red: Standby Green: Running Yellow: Flashing indicates fault, with buzzer activated

☐ Definition 5: Red: Running Green: Full & standby Yellow: Extending or retracting

Definition 6: (Optional)_____

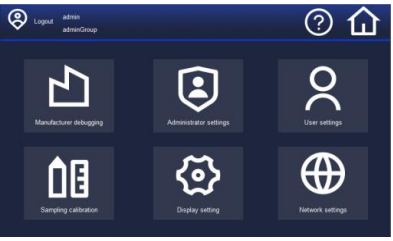
7. Instructions for Main Interface



	Content	Supplementary description
a	Display Voltage/Current/Capacity/Power Consumption/Charging Time	
b	Voltage Setting/Current Setting/Charging Time Setting/Cut-off Current Setting/Constant Voltage Time Setting/Display Charging Station Number	
c	Work Light	The charger is currently working
	Completion Light	Charging is complete.
	Infrared Light Control Light	The charger has received an infrared signal
	Pressed in Place Indicator Light	The mechanical arm extends and the brush block is pressed in place
	Retracted in Place Indicator Light	The mechanical arm retracts and reaches the fully retracted position
	Fault Indicator Light	All existing faults are indicated
	Fan Indicator Light	Indicates the internal fan of the charger is operating
	Communication Indicator Light	Indicates communication with the BMS
	Manual Charging Indicator Light	Indicates manual charging
	Auto Charging Indicator Light	Indicates the charger is in automatic charging mode
d	No voltage	Battery voltage detection timeout
	Positive overtemperature	Charging positive brush block overheating
	Negative overtemperature	Charging negative brush block overheating
	Cyclic overtemperature	Excessively high ambient temperature of charger
	Overvoltage	Output overvoltage
	Overcurrent	Output overcurrent
	BMS	BMS reporting failure
	Timeout	Communication with BMS timed out
	Power	Input power failure

	Disconnect	The brush block gets detached from the brush board during the charging
	Module	No charging modules are available
	Extension timeout	The mechanical arm extends for longer than the set time without pressing against the brush board
	Extended	Mechanical arm failed to extend
	Retracted	Mechanical arm failed to retract
	Short circuit	Charger output is short-circuited

8. Wired Charging Mode Setup



[Click on Settings, and then click on Login in the top left corner – Select - User - Enter the password 1234 – User Settings - Change to wired charging mode automatically]

Chapter VII Fault Description and Remedial Actions

!		Maintenance must be performed by professional electrical technicians!	
Fault type	Fault Code	Cause	Remedy
Charger failure	E1	Battery voltage detection timeout	Check whether the brush board is electrified or if there is any poor contact
	E2	Charging positive overtemperature	Check for poor contact or whether the temperature sensor is damaged
	E3	Charging negative overtemperature	Check for poor contact or whether the temperature sensor is damaged
	E4	Excessively high ambient temperature	Check if the ambient temperature is too high or if the temperature sensor is damaged
	E5	Output overvoltage	Check if the battery malfunctions or if there is a sudden drop in load
	E6	Output overcurrent	Charging module malfunctions or gets damaged
	E9	Input power failure	Check whether the power grid incoming line and the corresponding wiring are correct.
	E10	Battery disconnected	Check if the battery suddenly disconnects during charging operation
	E11	No charging modules are available	Module damage or poor module communication contact
	E12	mechanical arm extension timeout	Check if the telescopic mechanism's wiring is in good condition and if the auxiliary power supply is functioning properly
	E13	Mechanical arm failed to extend	Check if the telescopic mechanism's wiring is in good condition and if the auxiliary power supply is functioning properly
	E14	Mechanical arm failed to retract	Check if the telescopic mechanism's wiring is in good condition and if the auxiliary power supply is functioning properly
	E15	Output short circuit	There is output short-circuit during charging operation
BMS Fault	E7	BMS failure	Contact the manufacturer of battery
	E8	BMS communication timed out	

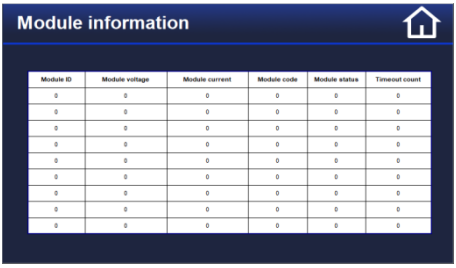
Chapter VIII Advanced Parameters Setup Procedure

Regular users do not need to set anything up here.

This setting interface is provided solely for users with special requirements; use the following setup features with caution.

8.1.1 Module Information Interface

Click on “Module Information,” and the interface will display the module information

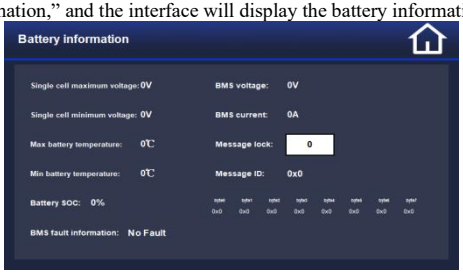


Module ID	Module voltage	Module current	Module code	Module status	Timeout count
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

This interface shows the operating status of the charging module, including voltage, current, module operation code, module state, module timeout counter, and other information.

8.1.2 Battery Information Interface

Click on “Battery Information,” and the interface will display the battery information



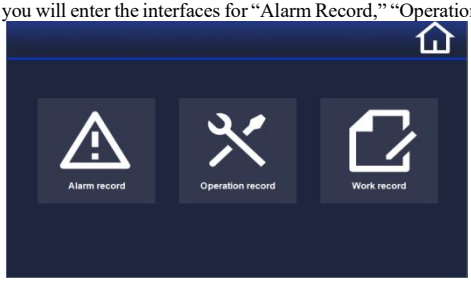
Indicates various types of information sent by the battery BMS, principally including:

Cell voltage information (maximum cell voltage, minimum cell voltage), battery temperature, SOC status, and the voltage and current settings sent by the BMS.

The system features message capture and display. By entering the corresponding number for the locked message ID, you can view the various data contained in the messages sent by the BMS.

8.1.3 Record Interface

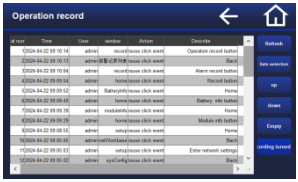
Click on “Record,” and you will enter the interfaces for “Alarm Record,” “Operation Record,” and “Work Record”



This interface provides a detailed record of various events and their occurrence times during the charging

operation, making it convenient for users to learn about the various operations performed by the charger and its output status throughout the charging process.

Alarm Record

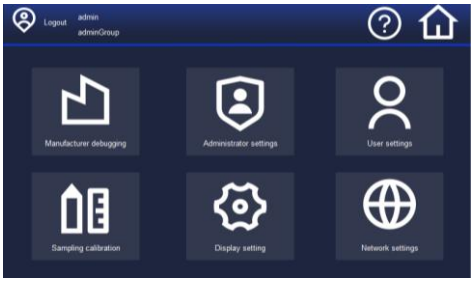


Operation Record

Work Record

8.1.4 Settings

Click “Settings” to get into the “Settings” interface



Click the login button in the top left corner, select the corresponding account in the pop-up information box, and enter the password to complete the user login.

Regular user password (1234): You can only access the User Settings interface.

The Time Settings interface does not require login permissions.

The Sampling Calibration and Network Settings interfaces also require permissions above that of an administrator.

a) User Settings Interface

The User Settings interface allows you to view version information, temperature information, charging voltage,

self-charging current, cut-off current, maximum voltage value, maximum capacity value, total charging time, constant voltage time, and wired charging current, etc.

You can switch between telescopic mode and wired charging mode (also known as manual blind charging). In the wired charging mode, it is important to confirm the charging voltage value and the wired charging current value. The charging voltage must not exceed the highest allowable charging voltage for the battery, and it should be set with reference to the highest allowable charging voltage for the battery.

b) The Time Settings Interface and the Chinese-English Switching Interface

This interface is used to set the system time and to switch between Chinese and English.

Chapter IX Debugging and Commissioning

1. Operating Procedure for Manual Telescopic Mechanical Structure

1) Enter the administrator settings interface and enable manual extension & retraction

2) Click the manual extension button, and the mechanical telescopic mechanism will extend

3) Click the manual retraction button, and the mechanical telescopic mechanism will retract

2. Instructions for Setup of the Forced Start Mode

This mode is typically used when the battery protection board is locked due to overdischarge protection, preventing the charging station from detecting the battery voltage.

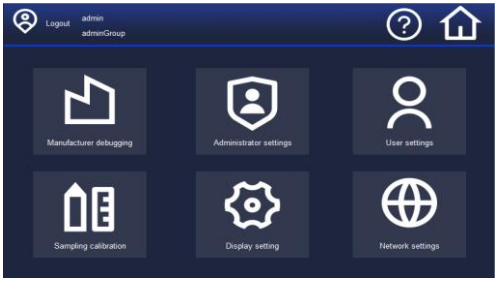
Before using forced charging, it is necessary to confirm the charging voltage setting value; it should not exceed the highest allowable charging voltage for the battery, and it should be

set with reference to the highest allowable charging voltage for the battery.

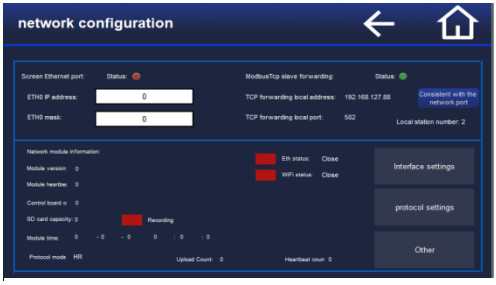
Ensure that the battery is not reversed and that the telescopic mechanism has reliable contact before clicking the forced start button. The charging station will then skip the voltage detection and directly start the forced charging.

Chapter X WIFI Debugging

1. Go to the configuration page and click on Network Settings



2. The upper part is for network port configuration, which is part of the built-in Modbus TCP port forwarding feature of the screen. The lower part is the information page for the charger's WiFi module



(1) Click on Interface Settings to enter the network port and WiFi connection settings

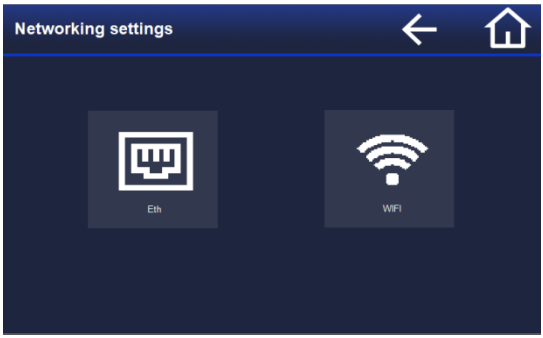
(2) In Protocol Settings, you can choose between MODBUS TCP protocol and the charger's MODBUS TCP port, with the charger acting as a slave

(3) Clicking on Other Settings allows you to enable WiFi module logging and SSH

(4) Connotations of the rectangular indicator lights: Red (off/not started/not connected); green (on/started/connected)

the module time values should all maintain continuous growth

3. You can choose to connect via the network port or WiFi



4. In the network port settings, the left side displays the current network port information area, and the right side is the area for setting and filling in the information

(1) If you want the charger to use the network port for connection, configure the IP, gateway, and subnet mask of the network port, and then click Set. The Set button will turn blue and wait to turn gray before the setting is successful. Check if the left side of the network port information area matches the current settings

(2) If DHCP is enabled, the local IP or gateway mask on the left may not match the settings area on the right.

(3) Note the mask, gateway, or local IP settings; incorrect settings may lead to networking failure

5. In the WiFi settings, the left side displays the current WiFi information area, and the right side is the area for setting and filling in the information

(1) To enable the charger to connect using WiFi, configure the SSID, password, local IP, gateway, and subnet mask, and then click Set. The Set button will turn blue and wait to turn gray before the setting is successful. Check whether the left side of the WiFi information area matches the current settings

(2) If DHCP is enabled, the local IP or gateway mask on the left may not match the settings area on the right.

(3) Note the mask, gateway, or local IP settings; incorrect settings may lead to networking failure

(4) The band can be set to '5G Only,' '2.4G Only,' or a specific band. If the band connected on the left side of the information area is different from the one set, you can restart the charger to search for the specified WiFi signal again. (If the current environment lacks a specified band, the charger may not connect to the band as set)

6. Protocol Settings (MODBUS TCP protocol to be chosen in normal circumstances)

(1) The left side displays the current information area, and the right side is the area for setting and filling in the information

(2) After setting the port, click the Set button. The button will turn blue and wait to turn gray before the setting is successful, then check the left side for information

(3) The Disconnect and Reconnect button can break the current TCP connection, which is only used for debugging purposes

(4) If the TCP status fails to connect for a long time, check whether there is an error in the WiFi settings

(5) After switching the protocol mode, click Set. and the charger needs to be restarted for the changes to take effect

23

to connect to the charger's IP and port number, and send modbustcp messages

MODBUSTCP message case:

00 01 00 00 00 06 01 05 00 03 ff 00 Start charging

00 02 00 00 00 06 01 05 00 07 ff 00 Reset

00 03 00 00 00 06 01 04 00 0d 00 01 Read the charging status, corresponding to resource list 3x14

7. Other Settings

(1) The log switch can enable log recording, which requires inserting an SD card into the internal WiFi module of the charger

(2) The SSH switch can enable SSH for the charger's WiFi module, allowing for remote connection to the WiFi module

(3) Upon completion of the setup, click the right side Set button, which will turn blue and wait for the button to turn gray to indicate a successful setting

Chapter XI Modbus-RTU Protocol (Refer to the Modbus-RTU

Protocol for Modbus-TCP Protocol Resource Addresses)

1) Communication baud rate

   a) 115200, 38400, 9600, and 4800 are optional

   b) None Parity, data bit 8, stop bit 1

   c) Parameter read interval ≥50 ms

2) Data format

Address code	Function code	Data Area	Error-Checking Code
8Bits	8Bits	N×8Bits	16Bits

3) CRC check

```
unsigned short CRC16puchMsg, usDataLen)
unsigned char"puchMsg ;/ Message to be CRC checked
unsigned short usDataLen ;/ Number of bytes in the message
{
unsigned char uchCRCHi = OxFF ;/ High CRC byte initialization
unsigned char uchCRCLo = OxFF ;// Low CRC byte initialization unsigned undex;/
Index in CRC loop
while (usDataLen--) / Transmission message buffer
{
ulndex = uchCRCHi^uchMsgg++ ;/ Computing CRC */
uchCR CHi = uchCRCLo ^ auchCRCHi[ulndex}；
uchCRCLo = auchCRCLo[ulndex]  ；
}
return (uchCRCHi << 8|uchCRCLo)  ；
```

}

4） Resource list

3x01	u16	disp.vol	Voltage display with one decimal place, unit: V
3x02	u16	disp.cur	Current display with one decimal place, unit: A
3x03	u32	disp.cap	Capacity display with two decimal places, unit: AH
3x05	u32	disp.kwh	Quantity display with two decimal places, unit: kWh
3x07	u32	disp.ctimer1s	Charging time, unit: Second
3x09	s16	disp.temp1	Positive temperature, unit: °C
3x10	s16	disp.temp2	Negative temperature, unit: °C
3x11	s16	disp.temp3	Ambient temperature, unit: °C
3x12	u16	disp.version	Software version number
3x13	u16	disp.input_sigs	Input signal: Bit0: Dry contact enabled Bit1: Infrared reception Bit2: Pressure block in place Bit3: Retracted in place Bit7: WiFi connection
3x14	u16	disp.output_sigs	Output signal quantity: Bit0: Infrared transmission Bit1: Wait for charging Bit2: Fault Bit3: Full Bit4: Working Bit5: Fan Bit9: Output relay
3x18	u16	disp.event	Events: 21~24: Charging stage 41: Stop charging with total voltage 42: Stop charging with cut-off current 43: Stop charging with capacity 44: Stop charging with total time

			45: Stop charging with stage time 46: Stop charging with bms 47: Manual suspension
3x20	u16	disp.errors	Fault: bit0:E1 Battery voltage detection timeout bit1:E2 Charging positive overtemperature bit2:E3 Charging negative overtemperature bit3:E4 Excessively high ambient temperature bit4:E5 Output overvoltage bit5:E6 Output overcurrent bit6:E7 BMS fault bit7:E8 BMS communication timed out bit8:E9 Input power failure bit9:E10 Reserved bit10:E11 No charging modules are available bit11:E12 Mechanical arm extension timeout (non-manual control) bit12:E13 Mechanical arm failed to extend bit13:E14 Mechanical arm failed to retract:
4x24	u16	cmp.cv_specS	Charging voltage setting, with one decimal place, unit: V
4x25	u16	cmp.cv_specS	Charging current setting, with one decimal place, unit: A
4x27	u16	cmp.end_curS	Charging cut-off current setting, with one decimal place, unit: A
4x32	u16	cmp.max_time1S	Charging time setting, unit: s

4) Principal Operation Example

a) Read the current voltage and current: (Read 3x read-only resources, function code 04, the address for sending the command = resource address - 1)

PLC sending:

Station number	Function code	Head address (High byte)	Head address (Low byte)	Read WORD count (High byte)	Read WORD count (Low byte)	CRC check (Low byte)	CRC check (High byte)
0x01	0x04	0x00	0x00	0x00	0x02	0x71	0xCB

Charging station reply: For example, the current voltage is 58.4V, 200.0A

Station number	Function code	Byte count	Data I High byte	Data I Low byte	Data II High byte	Data II Low byte	CRC check (Low byte)	CRC check (High byte)
0x01	0x04	0x04	0x02	0x48	0x07	0xD0	0x79	0x86

b) Read the charging voltage Settings: (Read 4x read-only resources, function code 03, the address for sending the command = resource address - 1)

Station number	Function code	Head address (High byte)	Head address (Low byte)	Read WORD count (High byte)	Read WORD count (Low byte)	CRC check (Low byte)	CRC check (High byte)
0x01	0x03	0x00	0x17	0x00	0x01	0x34	0x0e

Charging station reply: For example, the current voltage is set to 58.4V

Station number	Function code	Byte count	Data I High byte	Data I Low byte	CRC check (Low byte)	CRC check (High byte)
0x01	0x03	0x02	0x02	0x48	0xb9	0x12

c) Set charging voltage: (Write 4x read-only resources, function code 06, the address for sending the command = resource address - 1)

Assuming the written voltage to be 83.4V

Station number	Function code	Head address (High byte)	Head address (Low byte)	Write into WORD (High byte)	Write into WORD (Low byte)	CRC check (Low byte)	CRC check (High byte)
0x01	0x06	0x00	0x17	0x03	0x42	0xb9	0x0f

Charging station reply

Station	Function	Head address	Head address	Write into	Write into WORD	CRC check	CRC check

number	code	(High byte)	(Low byte)	WORD (High byte)	(Low byte)	(Low byte)	(High byte)
0x01	0x06	0x00	0x17	0x03	0x42	0xb9	0x0f

d) Operation button

0x address (address starting from bit1)

0x01	Manual extension button
0x02	Manual retraction button
0x03	Forced start button
0x04	Start button
0x05	Pause button
0x07	Stop button
0x08	Reset

Operate above-noted buttons:

Write: Stop the charging station Function code 0x05 The bit address also needs to be reduced by 1

Station number	Function code	Head address (High byte)	Head address (Low byte)	High byte written	Low byte written	CRC check (Low byte)	CRC check (High byte)
0x01	0x05	0x00	0x04	0xff	0x00	0xcd	0xfb

Reply

Station number	Function code	Head address (High byte)	Head address (Low byte)	High byte written	Low byte written	CRC check (Low byte)	CRC check (High byte)
0x01	0x05	0x00	0x04	0xff	0x00	0xcd	0xfb

Note: 0xff00 is for requesting the coil ON, while 0x0000 is for requesting the coil OFF. Suggestions for operation shutdown: 1. Stop charging by pressing the manual suspension button; 2. Press the Reset button after detecting the retracted-in-place signal in the disp.input_sigs address 3x13

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.