

RTP

RTP Series Intelligent Charger

Product Manual

Thank you for your purchase. In order to ensure the best performance of the machine, please read this manual carefully before use and keep it properly for future reference.

CONTENT

Chapter One Warning Message	1
Chapter Two Introduction	2
1. Characteristic.....	2
2. Main functions of charger	3
3. Normal working conditions.....	3
Chapter Three Main technical parameters.....	4
Chapter Four Operating instructions.....	5
1. Schematic diagram of the whole machine	5
2. Panel diagram	6
3. Description of emergency stop button.....	6
4. Warning light description.....	7
5. Main interface description	7
Chapter Five Trouble shooting.....	8
Chapter Six Advanced parameter setting method	9
Chapter Seven Debugging and operation	13
Chapter Eight Description of Wifi module configuration	14

Chapter One Warning Message

The warning and prompt information in this manual is indicated by the following symbols :

symbols	Meaning
	Danger, easy to cause personal injury !
	Attention, easy to damage the charger or battery.
	Attention practical hint or useful information
	Prompt, function setting.

	The equipment must be installed, maintained and repaired by qualified professional electrical technicians !
	The grounding of charging station must be reliable and firm, so as to avoid damage to human body and property loss caused by abnormal conditions!
	The battery will produce combustible and corrosive gases during charging, so : ✧ No open fire ! ✧ It is strictly forbidden to place inflammable and explosive articles around the charger and battery ! ✧ The charging place must be well ventilated ! ✧ Do not pull off the charging plug before turning off the charger. Otherwise, the electric spark may cause fire or even explosion !
	It is strictly forbidden to place the charger in places where water splashing, rain and steam are possible !
	If the capacity and voltage of the charged battery do not match the charger specification, it may lead to battery

	damage !
	The charger should be isolated from the battery as far as possible or at least keep a distance of more than 1 meter to extend the service life of the charger !

- ✧ The company will not be responsible for all consequences caused by non-compliance with operating procedures or unauthorized technical changes !
- ✧ If the performance, parameters, electrical diagram and appearance of the product are improved and cannot be informed of the change in advance, please refer to the actual product !

Chapter Two Introduction

1. Characteristic

RTP series intelligent charger adopts the modular design of high frequency soft switch and DSP digital combination, which has high conversion efficiency and high power factor. Through the main circuit module designed by parameter optimization, the continuous adjustable charging current is provided for various AGV vehicles. Intelligent charging is adopted by wireless WiFi or infrared diffuse reflection, infrared radiation, etc. the charging process is fully automatic. It has many communication interfaces, which can exchange data with most lithium battery BMS and upper computer.

The side is equipped with automatic expansion mechanism, which is convenient and fast to install; It is compact in size, redundant parallel output of multiple charging modules, and has

simple structure, safe and reliable.

Charger is equipped with 7-inch touch screen, which can realize charging process control, charging status display, charging data record and fault information recording function. And open the professional configuration interface, allowing high-end customers to configure charging curve according to their own needs.

2. Main functions of charger

- 1、Charging station is integrated design, with automatic telescopic mechanism, fast and convenient installation (also split type)
- 2、Third party equipment installation space is reserved to provide system access capability.
- 3、The modular design can be applied to all kinds of AGV solutions.
- 4、With short circuit, over-voltage, over-current, over temperature and other protection functions.
- 5、It has both automatic charging and manual charging functions.
- 6、With dry contact, can, Ethernet, RS485, WiFi and other communication interfaces.
- 7、The management background can query the real-time data of charger through CAN, RS485, WiFi and other data interfaces.

3. Normal working conditions

- (1) The altitude shall not exceed 1000 meters ;
- (2) The temperature of surrounding medium shall not be higher than + 45 °C and lower than - 10 °C ;
- (3) The relative humidity of the air is not more than 95% (when the storage temperature is - 40 ~ 75 °C), and there is no

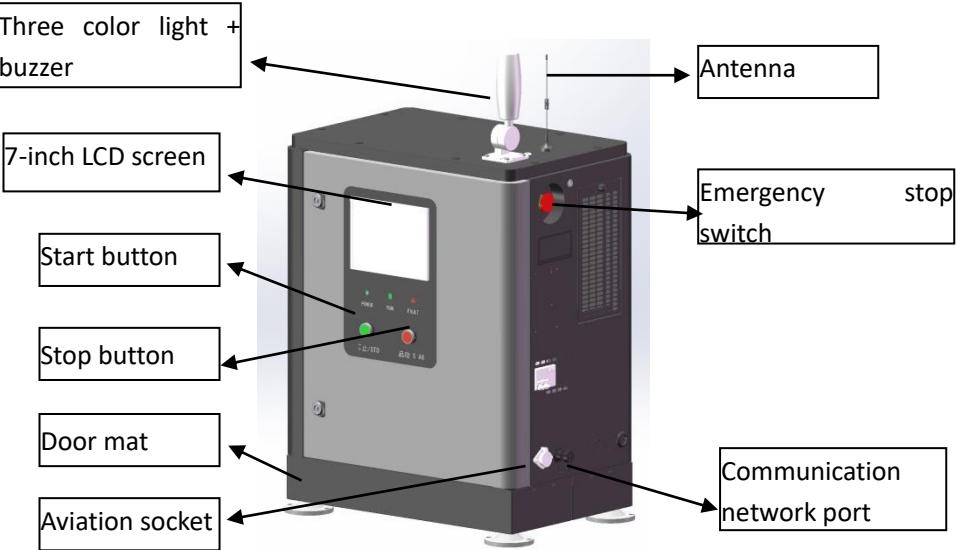
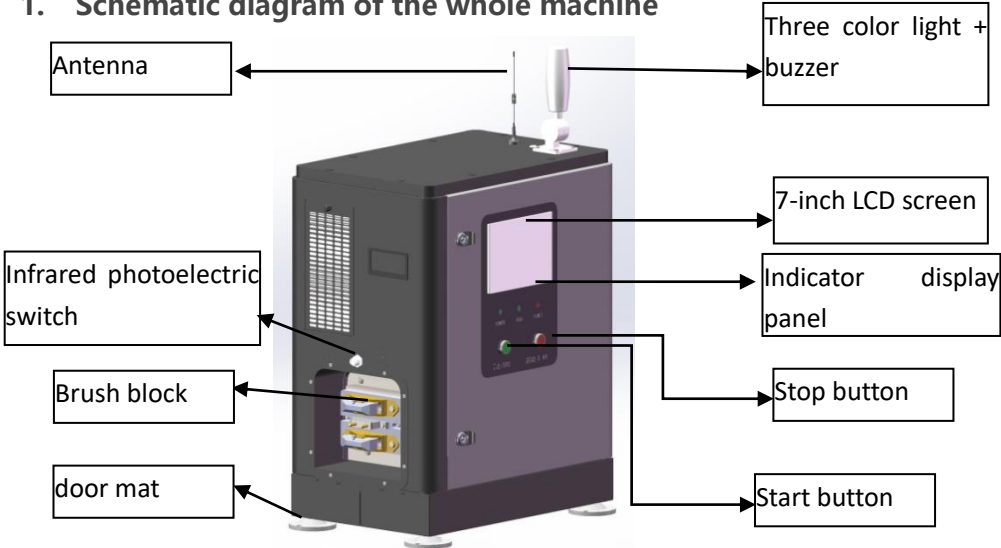
- condensation ;
- (4) No conductive dust, no explosion hazard environment ;
- (5) Environment free of gas and steam that can corrode metal and insulation ;
- (6) Where there is no rain or snow ;
- (7) In the place where the inclination of the vertical plane does not exceed 5 degrees and there is no severe vibration and impact.

Chapter Three Main technical parameters

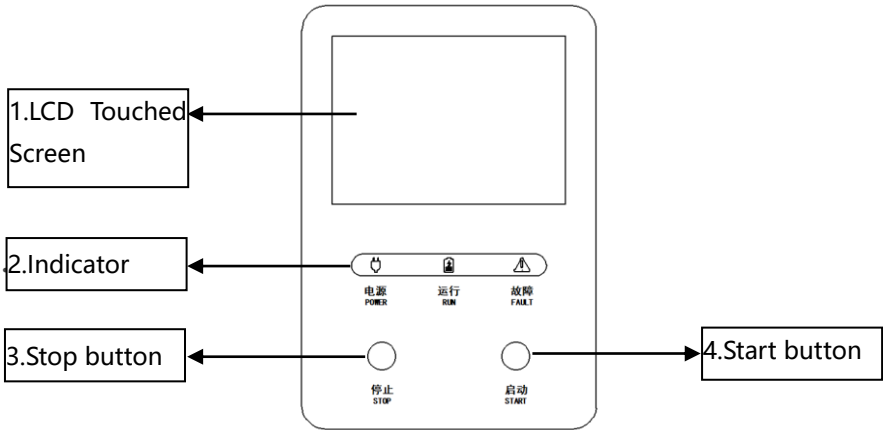
Item	Parameter	Type	RTP-24100-4-100
Rated input power	V , Hz		Single phase 220V , 50Hz
Input current	A		14.7
Output power	kW		2.9
Rated output current	A		100
Max output voltage	V		29.2
Communication protocol			WIFI
IP grade			IP21
Dimension	mm		632*422*994
Net weight	kg		64

Chapter Four Operating instructions

1. Schematic diagram of the whole machine



2. Panel diagram



1) 、 LCD touch screen is the man-machine interface of the charger, which displays the charging process parameters and status of the charger, and operates the setting parameters of the charger.

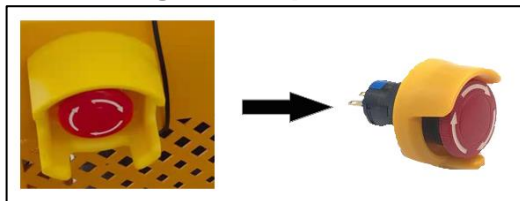
2) 、 Charging status indicator——

- Power supply: when the indicator light is on, the power supply works normally.
- Operation: when the light is on, the charger is in working state.
- Fault: if the light is on, it indicates that the charger is faulty. Check the fault on the screen.

3) 、 Stop button - this button is used to stop charging at the charging station.

4) 、 Start button - if the charging station has started the manual confirmation start function, it needs to press the button before starting charging

3. Description of emergency stop button



- Emergency stop button operation: in case of emergency, it is necessary to stop charging immediately, and the operator can press the

emergency stop button.

- Emergency stop switch recovery: after the emergency stop button is pressed, it will not automatically recover. The operator needs to rotate the red button, and the charger can be normally powered on after the red button pops up.
- Matters needing attention: Emergency stop switch is used for emergency stop operation to avoid abnormal electric shock or fire; During normal use, do not operate this key, which will lead to unnecessary repeated operation and affect normal use.

4. Warning light description

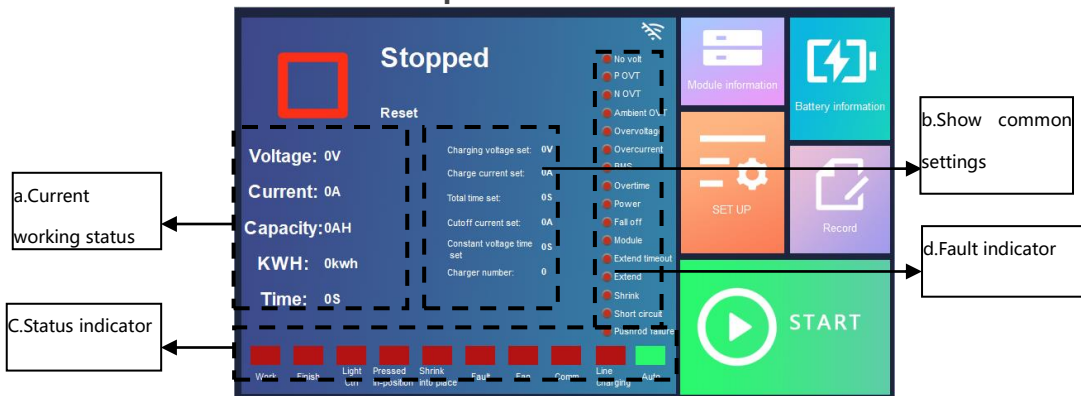


Green: work

Yellow: standby

Red: fault and the buzzer rings

5. Main interface description



- a. Current working status: display voltage, current, capacity, power consumption, charging time, etc ;
- b. Display common settings: voltage setting, current setting, charging time setting, cut-off current setting, constant voltage time setting, etc; Display charging station number ;
- c. Status indicator: work light, sufficient light, infrared light control, press in place indicator, shrink in place indicator, fault indicator, fan indicator ;
- d. Fault indication: no voltage, positive over temperature, negative over temperature, ambient temperature over temperature, over-voltage, over current, BMS fault, communication timeout, power failure, other faults, module fault, extension timeout fault and shrinkage timeout fault.

Chapter Five Troubleshooting

!		Maintenance must be carried out by	
fault type	fault code	Cause of failure	Treatment method
Charger failure	E1	Battery voltage detection timeout	Check whether the brush plate is charged or has poor contact
	E2	Charging positive over temperature	Check for poor contact or damaged temperature sensor
	E3	Charging negative over temperature	Check for poor contact or damaged temperature sensor
	E4	Over temperature of ambient temperature	Check whether the ambient temperature is too high or the temperature sensor is
	E5	Output overvoltage	Check whether the battery is abnormal or whether there is sudden load drop
	E6	Output over current	Abnormal or damaged charging module
	E9	Input power failure	Check whether the incoming line of power grid and corresponding wiring are normal ,

	E10	Battery falling off	Check that the battery is suddenly disconnected during charging
	E11	No charging module available	The module is damaged or the module has poor communication contact
	E12	Extend manipulator timeout	Check whether the wiring of the telescopic mechanism is normal and whether the
	E13	The mechanical arm cannot extend	Check whether the wiring of the telescopic mechanism is normal and whether the
	E14	The manipulator cannot retract	Check whether the wiring of the telescopic mechanism is normal and whether the
	E15	Output short circuit	In the process of charging, due to the output short circuit phenomenon
BMS fault	E7	BMS Fault	Contact the battery manufacturer
	E8	BMS communication timeout	

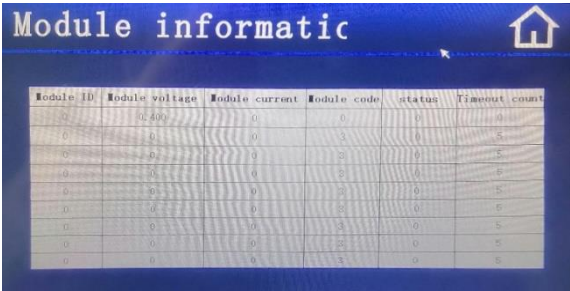
Chapter Six Advanced parameter setting method

For ordinary users, there is no need to make any settings here.

Here is only the setting interface for users with special requirements. Use the following setting functions carefully.

6.1.1Module information interface

Click module information to enter the module information display



The screenshot shows a software interface titled "Module informatic" with a home icon in the top right corner. Below the title is a table with the following columns: Module ID, Module voltage, Module current, Module code, status, and Timeout count. The table contains 10 rows of data, all showing 0 values for current, code, status, and timeout count, except for the first row which shows a voltage of 12.490.

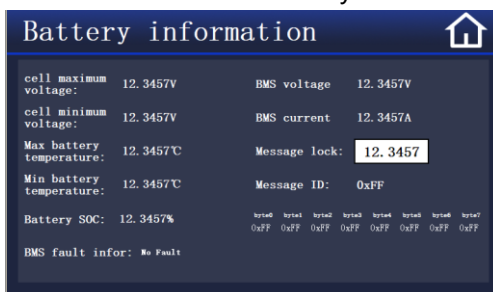
Module ID	Module voltage	Module current	Module code	status	Timeout count
01	12.490	0	0	0	0
02	0	0	0	0	0
03	0	0	0	0	0
04	0	0	0	0	0
05	0	0	0	0	0
06	0	0	0	0	0
07	0	0	0	0	0
08	0	0	0	0	0
09	0	0	0	0	0
10	0	0	0	0	0

This interface displays the working status of the charging module, voltage, current, module working code, module status, module timeout counter and

other information.

6.1.2 Battery information interface

Click "battery information" to enter the battery information display interface

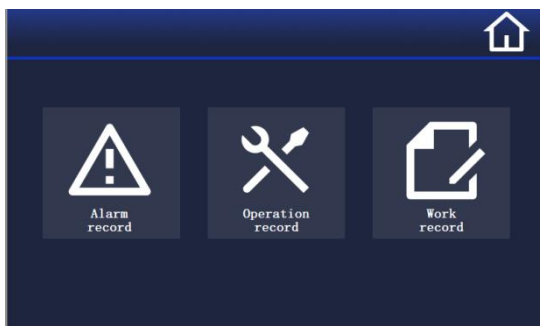


It indicates all kinds of information sent by battery BMS, mainly including: Cell voltage information (highest cell, lowest cell), battery temperature, SOC condition, and voltage and current given by BMS.

With the function of message capture and display, fill in the number corresponding to the locked message ID to view the data in the message sent by BMS.

6.1.3 Record interface

Click record to enter the interface of alarm record, operation record and work record



This interface records the events and the time of the charging process in detail, which is convenient for users to understand the operation and output status of the charger in the whole charging process.



Alarm Log

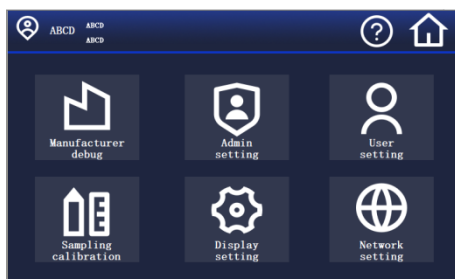


Operation record



Work record

6.1.4 Setting



Click settings to enter the settings interface

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

Ordinary user password (1234): you can only enter the user setting interface.

The time setting interface does not need login permission.

Sampling calibration and network setting interface also need administrator's permission.

a) User settings interface



The user setting interface can 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, line charging current and other parameters.

It is possible to switch between telescopic mode and line charging mode. When charging in line charging mode, it is necessary to confirm the charging voltage value and line charging current value. The charging voltage value should not exceed the maximum allowable charging voltage of the battery, and should be set according to the maximum allowable charging voltage of the battery.

b) Time setting interface and Chinese English switching interface



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

Chapter Seven Debugging and operation

1、How to use manual telescopic mechanical structure



- 1) Enter the administrator setting interface and enable the manual scaling function
- 2) Click the manual extension button, the mechanical telescopic mechanism will extend
- 3) Click the manual retraction button and the mechanical telescopic mechanism will retract

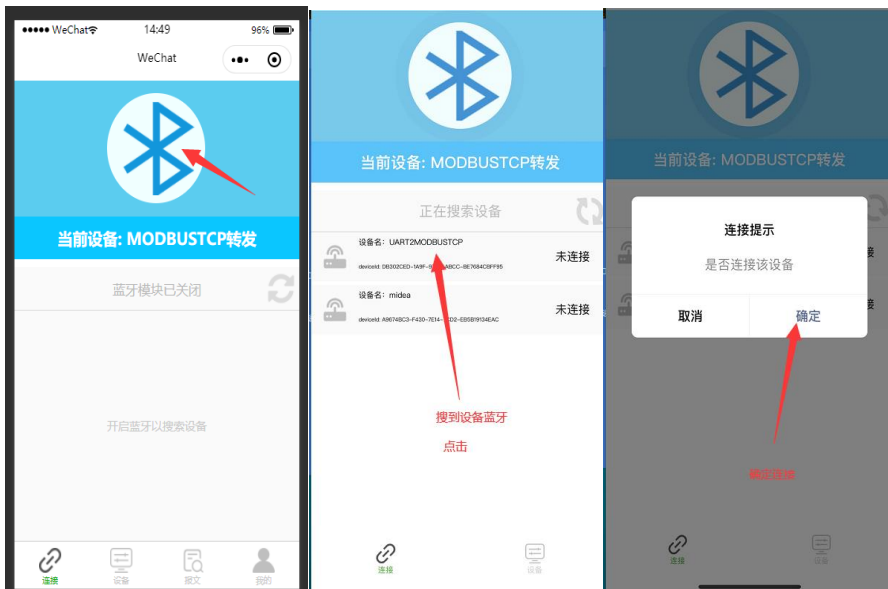
2、Manual mode setting instructions

This mode is usually used when the battery protection board is locked after overdischarge protection, and the charging station cannot detect the battery voltage.

After ensuring that the battery is not reversely connected and the telescopic mechanism is reliably contacted, click the forced start button, and the charging station will skip the voltage detection and start the forced charging directly.

Chapter Eight Description of Wifi module configuration

- 1、Bluetooth of wifi module can be connected within 10 seconds after power on, and it will be automatically turned off after 10 seconds.
- 2、WeChat applet search: Wireless device maintenance tool
- 3、On the first page of the applet, click the circle to open the Bluetooth search. Within 10 seconds after the charger is powered on, you should be able to search the Bluetooth signal with the default name of UART2MODBUSTCP. Click the name in the list to connect to Bluetooth. After the connection, the blue circle above turns green.
- 4、If you want to configure static IP, please turn off **dhcp**. If you turn on **dhcp**, you can ignore the currently set IP and gateway.
- 5、After enabling the device configuration retrieval, if the wifi is successfully connected, the currently connected wifi and device ip will be printed on the network setting page of the charger screen.





变成绿色连接成功



点击转发设备
进入配置页



连接



设备



连接



设备

点击设备

MODBUS转发工具

设备类型

当前选择: TCP客户端透传

485波特率

当前选择: 115200

SSID

5GHUAWEI 对应的wifi ssid

密码

12345678 对应的wifi 密码

开启DHCP 可以开启dhcp

设备IP 开启dhcp后, 下列ip配置不用管

192.168.3.202

设备掩码

Refresh the data and check whether the setting is successful

Click the setting button after input

Click the setting button after input

MODBUS转发工具

开启DHCP ☒

设备IP
192.168.3.202 设置

设备掩码 开启dhcp后，不用管这些配置
255.255.255.0 设置

设备本地网关 如果不开启dhcp，需要配置
192.168.3.1 设置

设备端口号
502 设置

帧超时时间(ms)
10 设置

TCP SOCKET存活时间(ms)
10000 设置

Refresh the data and check whether the setting is successful

MODBUS转发工具

帧超时时间(ms)
10 设置

TCP SOCKET存活时间(ms)
10000 设置

远程IP
192.168.3.10 配置服务器ip 设置

远程端口号
3002 配置服务器端口号 设置

设备蓝牙名称
UART2MODBUSTCP 设置

蓝牙自动关闭时间(ms)
10 设置

配置信息回传 开启配置信息回传 ☒

Refresh the data and check whether the setting is successful

Click the setting button after input

Click the setting button after input

MODBUS转发工具

UART2MODBUSTCP
设置

蓝牙自动关闭时间(ms)
10
设置

配置信息回传
开启配置信息回传
充电机界面可以看到连接的wifi和当前
的设备ip

开启心跳报文

心跳报文

十六进制用逗号隔开 00,ff,a5
设置

报文长度
0
设置

报文频率(秒)
1
设置

心跳报文方向

Refresh the data and check whether the setting is successful

After configuration, return to the connection page, click the Bluetooth circle and close Bluetooth.

If the wifi connection is successful, print the currently connected wifi and the current device's IP.

