XTM

4x4 ACCESSORIES

MPPT CONTROLLER REMOTE DISPLAY

Model: MT52

+ OWNERS/INSTRUCTION MANUAL

CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

Please keep this manual for future reference.

This manual contains all the safety, installation, and operating instructions for the remote meter (MT52).

GENERAL SAFETY INFORMATION

● Unboxing Inspection: Upon receiving your product, please immediately check the packaging and the product itself for any damage that may have occurred during shipping. If you find any issues, please contact us or the courier company immediately.

● Pre-Installation: To ensure proper function, read all instructions and precautions in this manual before installation.

● Environmental Requirements: Do not install this product in environments with rain, direct sunlight, heavy dust, vibration, corrosive substances, or strong electromagnetic interference.

● Water Damage Prevention: Prevent water or other liquids from entering the product.

● No Unauthorized Repairs: Do not open the product casing to perform repairs yourself. For service, please contact a qualified technician.

 WARNING	Do not install this product in humid, salt spray, corrosion, greasy, flammable, explosive, dust accumulative, or other severe environment.

1. GENERAL INFORMATION

1.1 Features

The MT52 remote meter, using with the controllers designed with RS485 communication, can monitor the controller's real-time working status and program the parameters.

Features:

• Easy to install and operate

• Real-time display of fault alarms

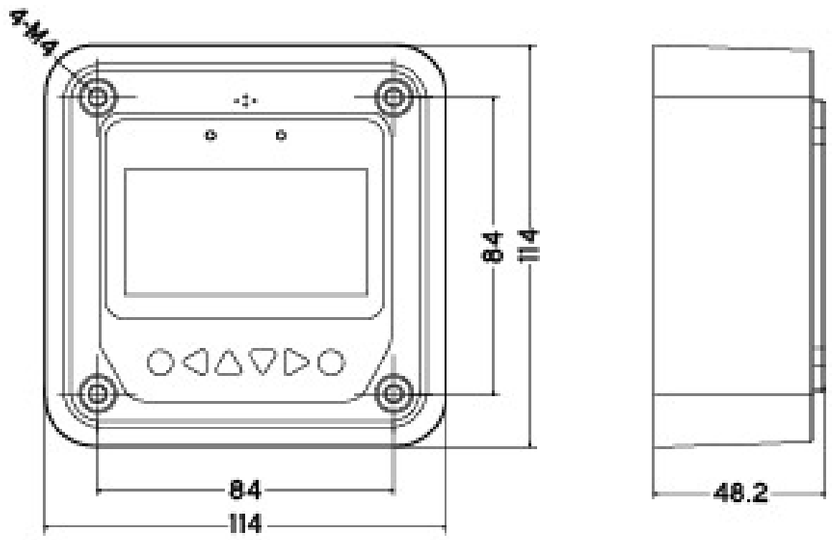
- Locally reading of real-time parameters
- Powered by the controller directly
- Equipped with an RJ45 communication port

1.2 Main functions

Functions like real-time monitoring of system data, browsing and modifying relate dparameters, and restoring factory defaults are based on the LCD and functional key operation.

2. INSTALLATION

- Frame mount dimensions (mm)

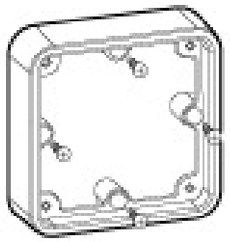


Mechanical Parameter	Parameter
Overall dimension	114mm×114mm×48.2mm
Mounting dimension	84mm×84mm
Screw hole dimension	Φ5mm

● Mounting on the wall

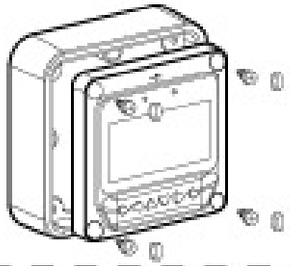
Step1: Locate and drill screw holes based on the frame mounting dimension of the base, and install the plastic expansion bolts.

Step2: Fix the frame with four ST4.2x30 self-tapping cross recessed screws.



Step3: Use four M4×8 cross recessed screws to mount the MT52 panel on the frame.

Step4: Mount the four associated screw plugs into the screw holes.

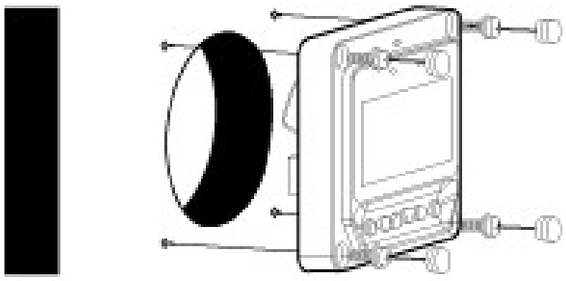


● Mounting on the panel surface

Step1: Locate and drill screw holes based on the installation size of the surface.

Step2: Use four ST4.2x30 cross recessed screws to mount MT52 panel onto the surface.

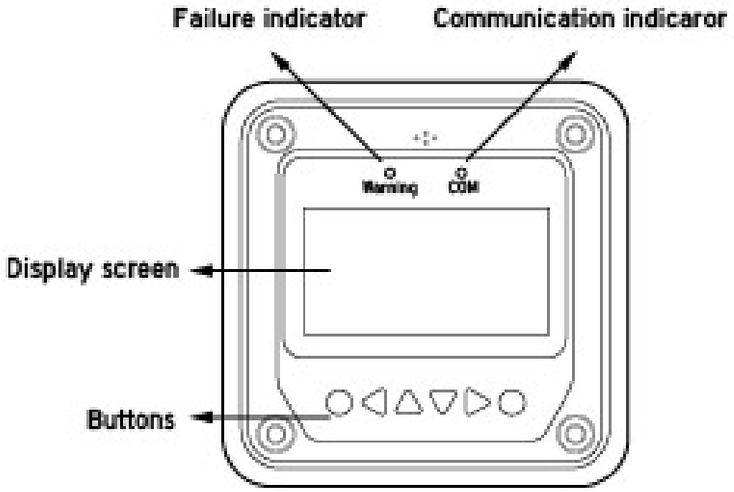
Step3: Mount the four associated screw plugs into the screw holes.



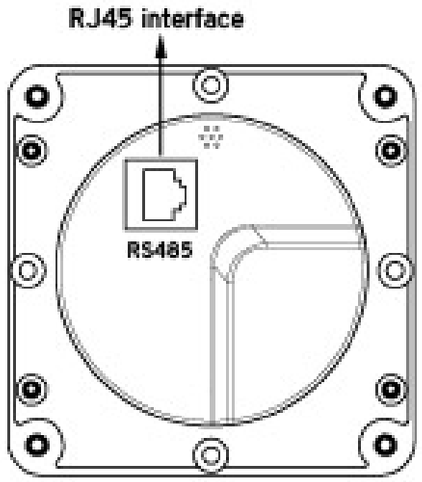
Note: Take full consideration of the plugging/unplugging space and the length of the communication cable during installation.

3. PRODUCT FEATURES

➢ Front view



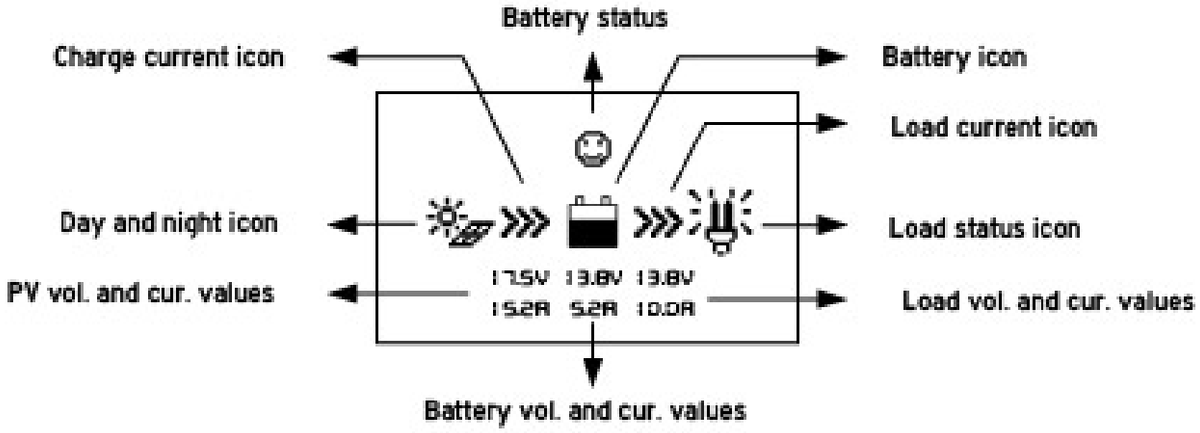
➢ Back view



Module	Function
Failure indicator	Failure indicator flashes when there is fault occurs. Refer to the user manual of the controller for detailed failure information.
Communication indicator	Indicate the communication status between MT52 and the connected controller.
Display screen	Man-machine interface. Note: The display screen can be viewed clearly when the angle between the end-user's horizontal sight and the display screen is within 90°, and the screen cannot be viewed clearly when the angle exceeds 90°.
Buttons	Include four navigation buttons and two operational buttons. Refer to the 4.1 Buttons for specific directions.
RJ45 interface	Connect with the controller; and it is used for communication and power supply.

Note: Please use the communication cable to connect MT52.

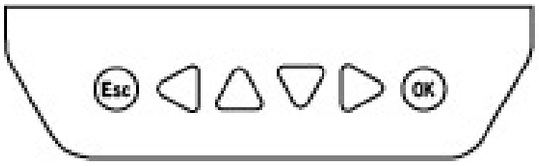
➢ Monitoring screen



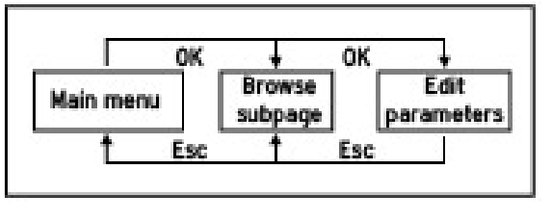
Name	LCD Display	Instruction
Day and night icons		Night
		Day Note: The threshold voltage is 4V. When it goes higher than 4V. it is daytime.
Charge current icon		The icon is dynamically running when there is a charge current.
Battery icon		The battery capacity is dynamically displayed. Note: When the battery is over-discharged, this icon is displayed as 
Battery status icons		Normal battery voltage
		Battery under voltage
		Battery over-discharge
Load current icon		The icon is dynamically running when there is a discharge current.
Load status icon		Load On
		Load Off Note: In the Manual Mode, press the "OK" button to switch on/off the load.
PV vol. and cur. values		Display the PV voltage and current values.
Battery vol. and cur.values		Display the battery voltage and current values.
Load vol. and cur. values		Display the load voltage and current values.

4. OPERATION

4.1 Buttons



The buttons are respectively (from left to right) "ESC," "Left," "Up," "Down," "Right," and "OK". The operation is described in the diagram below:



The default entry page is the browse subpage. Press the (Esc) button to main menu. ▲▼◀▶ buttons could be used to move the cursor and ▲▼ buttons also could be used to modify the parameter values when the cursor is located at the current place. (OK) and (Esc) buttons could be finally used to confirm and cancel. If want to modify control parameter, need to input the correct password (default 000000) to enter the modification mode.

4.2 Main menu

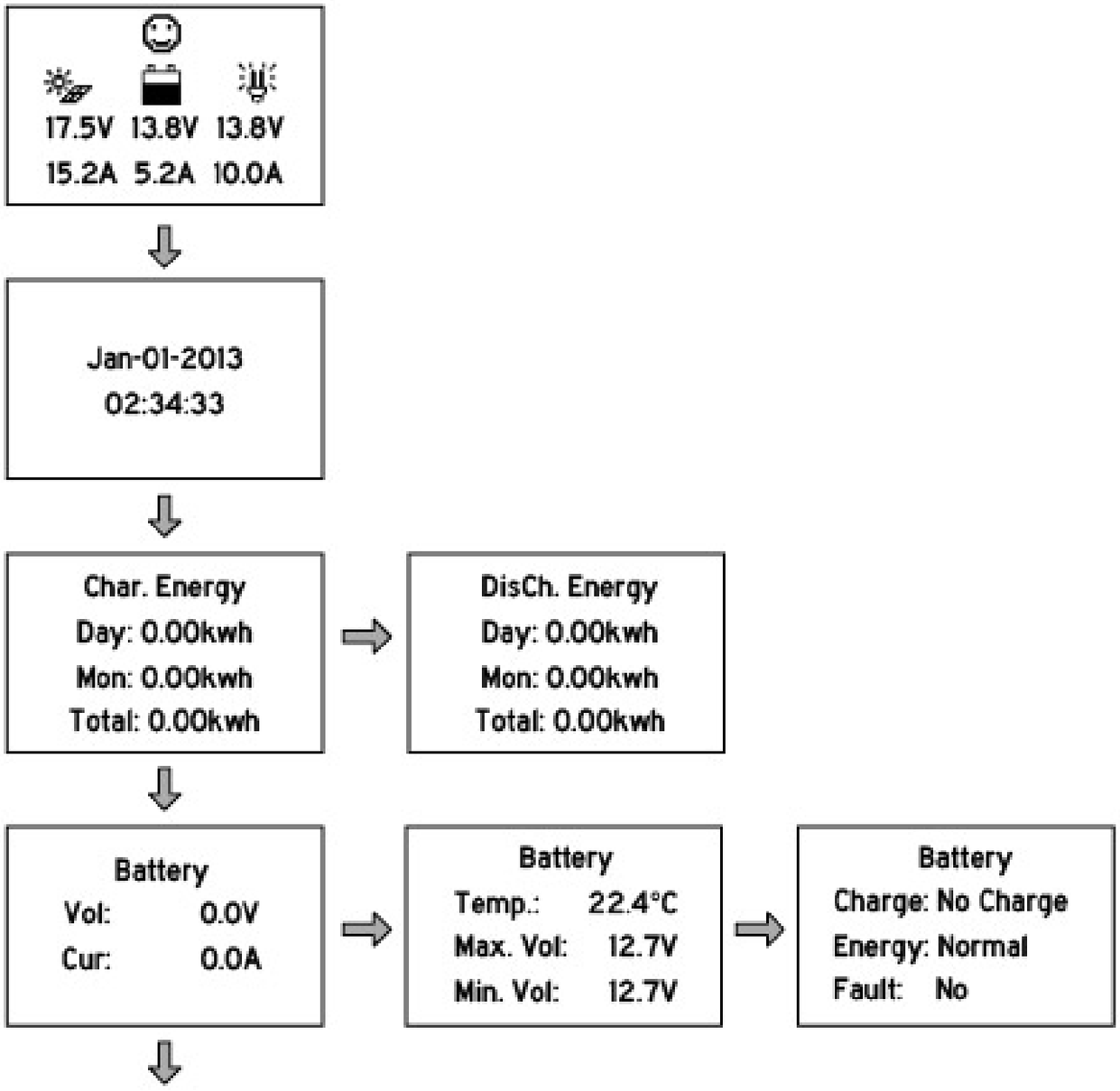
Enter the Main Menu by pressing (Esc) The ▲ and ▼ buttons are respectively used to move the cursor to select the menu items. (OK) and (Esc) buttons are respectively used to enter or exit the corresponding pages of the menu items.

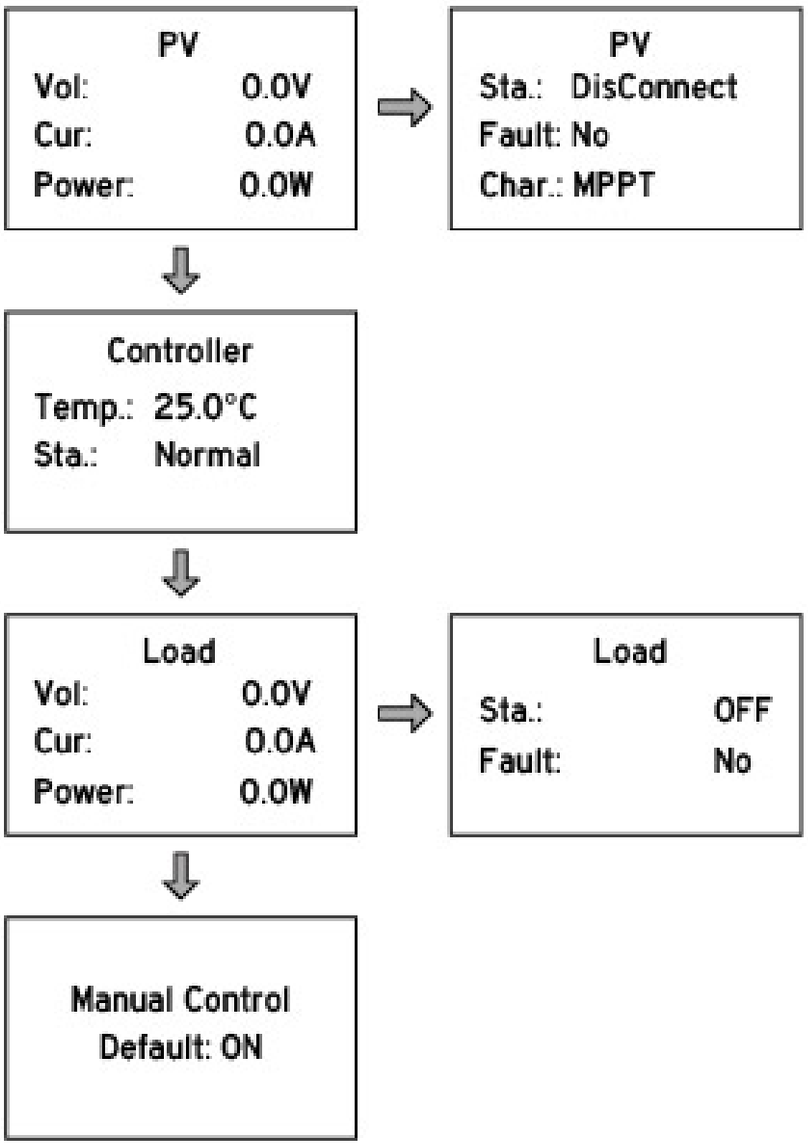
1. Monitoring 2. Device Info. 3. Test Operation 4. Control Para.	→	5. Load Set 6. Device Para 7. Device PSW. 8. Factory Reset

→ 9. Failure Info.
10. Meter Para.

4.3 Real-time monitoring

There are 13 pages under real-time monitoring. Please check it as below:





Operational tips: Move between rows by pressing the ↑ or ↓ buttons. Move along a row by pressing the ← or → buttons.

4.4 Device information

The controllers' parameters are displayed below:

Rate. Vol:	24V
Char. Cur:	20A
Disc. Cur:	20A

Operational tips: ↑ and ↓ buttons are respectively used to turn the browse page up and down.

4.5 Test operation

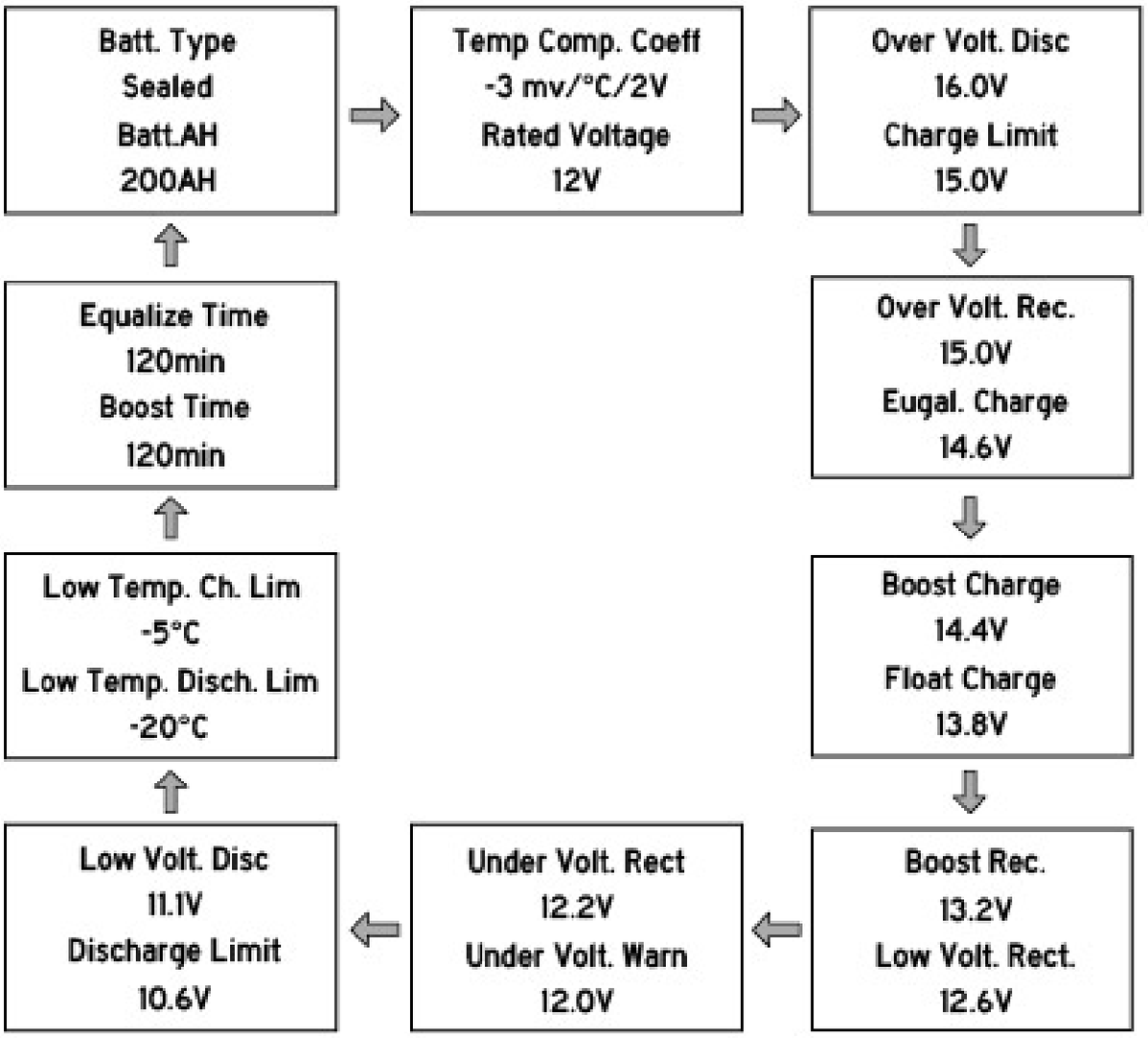
Load switch test is conducted on the connection solar controller to check if the load output is normal. The test does not affect the working settings under actual load, which means that the solar controller will exit from the test mode when exiting the Test Operation page.

Test Operation	
Load:	OFF

Operational tips: Enter the page and input the correct password; press OK to select, use ↑ and ↓ buttons to modify the On/Off status. Press (OK) to confirm and press (Esc) to cancel the test.

4.6 Control parameter

Browse, and modification operations are conducted over the control parameters of the solar controller. See the scope of parameter modification in the control parameters table and the page of control parameters in the diagram below:



1) Batt. Type

Supported battery types are shown as below.

1	Lead-acid battery	Sealed (default)
		Gel
		Flooded
2	Lithium battery	LiFePO4 (LFP4S, LFP8S)
		Li (NiCoMn) O2 (LNCM3S, LNCM6S, LNCM7S)
3	User define◆	

◆When modifying the battery type to "User," the default voltage point is the corresponding voltage before the battery type is modified.

2) Parameters of the Batt. AH, Temp Comp. Coeff and Rated Voltage

Parameter	Default	Range
Batt. AH (Battery capacity)	200Ah	1 to 9999Ah
Temp Comp. Coeff (Temperature compensation coefficient★)	-3mV/°C/2V	0 to -9mv/°C/2V
Rated Voltage★	Auto	Auto/12V/24V

★When the battery type is selected as the lithium battery (LiFePO4 and Li (NiCoMn) O2 series), the "Temp Comp. Coeff" and the "Rated Voltage" cannot be set. The software automatically enables the protection functionof "Low temperature prohibits charge and discharge."

3) Voltage parameters

● Battery voltage parameters

The below parameters are measured in the condition of 12V/25℃. Please double the values in the 24V system.

Battery charging Setting	Sealed	Gel	Flooded
Over voltage disconnect voltage	16.0V	16.0V	16.0V
Charging limit voltage	15.0V	15.0V	15.0V
Over voltage reconnect voltage	15.0V	15.0V	15.0V
Equalize charging voltage	14.6V	--	14.8V
Boost charging voltage	14.4V	14.2V	14.6V
Float charging voltage	13.8V	13.8V	13.8V
Boost reconnect charging Voltage	13.2V	13.2V	13.2V
Low voltage reconnect voltage	12.6V	12.6V	12.6V
Under voltage warning reconnect voltage	12.2V	12.2V	12.2V
Under voltage warning voltage	12.0V	12.0V	12.0V
Low voltage disconnect voltage	11.1V	11.1V	11.1V
Discharging limit voltage	10.6V	10.6V	10.6V
Equalizeduration	120min	--	120min
Boost duration	120min	120min	120min

When the battery type is "User," the battery voltage parameters follow the following logic:

A. Over voltage disconnect voltage > charging limit voltage ≥ equalize charging voltage ≥ boost charging voltage ≥ float charging voltage > boost reconnect charging voltage.

B. Over voltage disconnect voltage > over voltage reconnect voltage

C. Low voltage reconnect voltage > low voltage disconnect voltage ≥ discharging limit voltage.

D. Under voltage warning reconnect voltage > under voltage warning voltage ≥ discharging limit voltage;

E. Boost reconnect charging voltage > low voltage reconnect voltage.

● Lithium battery voltage parameters

Battery parameters \ Battery type	LFP	
	LFP4S	LFP8S
Over voltage disconnect voltage	14.5V	29.0V
Charging limit voltage	14.3V	28.6V
Over voltage reconnect voltage	14.3V	28.6V
Equalize charging voltage	14.2V	28.4V
Boost charging voltage	14.2V	28.4V
Float charging voltage	13.3V	26.6V
Boost reconnect charging voltage	13.0V	26.0V
Low voltage reconnect voltage	12.8V	25.6V
Under voltage warning reconnect voltage	12.2V	24.4V
Under voltage warning voltage	12.0V	24.0V
Low voltage disconnect voltage	11.3V	22.6V
Discharging limit voltage	11.0V	22.0V

① The battery parameters under the "User" battery type is 9-17V for LFP4S. They should × 2 for LFP8S.

Battery parameters \ Battery type	LNCM			
	LNCM 3S	LNCM 6S	LNCM 7S	User①
Over voltage disconnect voltage	12.8V	25.6V	29.8V	9-17V

Charging limit voltage	12.6V	25.2V	29.4V	9-17V
Over voltage reconnect voltage	12.5V	25.0V	29.1V	9-17V
Equalize charging voltage	12.5V	25.0V	29.1V	9-17V
Boost charging voltage	12.5V	25.0V	29.1V	9-17V
Float charging voltage	12.2V	24.4V	28.4V	9-17V
Boost reconnect charging voltage	12.1V	24.2V	28.2V	9-17V
Low voltage reconnect voltage	10.5V	21.0V	24.5V	9-17V
Under voltage warning reconnect voltage	12.2V	24.4V	28.4V	9-17V
Under voltage warning voltage	10.5V	21.0V	24.5V	9-17V
Low voltage disconnect voltage	9.3V	18.6V	21.7V	9-17V
Discharging limit voltage	9.3V	18.6V	21.7V	9-17V

① The battery parameters under the "User" battery type is 9-17V for LNCM3S. They should ×2 for LNCM6S /LNCM7S. Suggest NOT changing under User model.

When the battery type is "USE." the Lithium battery voltage parameters follow the following logic:

A. Over voltage disconnect voltage > over charging protection voltage (protection circuitmodules (bms)) + 0.2v;

B. Over voltage disconnect voltage > over voltage reconnect voltage = charging limit voltage ≥ equalize charging voltage = boost charging voltage ≥ float charging voltage > boost reconnect charging voltage;

C. Low voltage reconnect voltage > low voltage disconnect voltage ≥ discharging limit voltage.

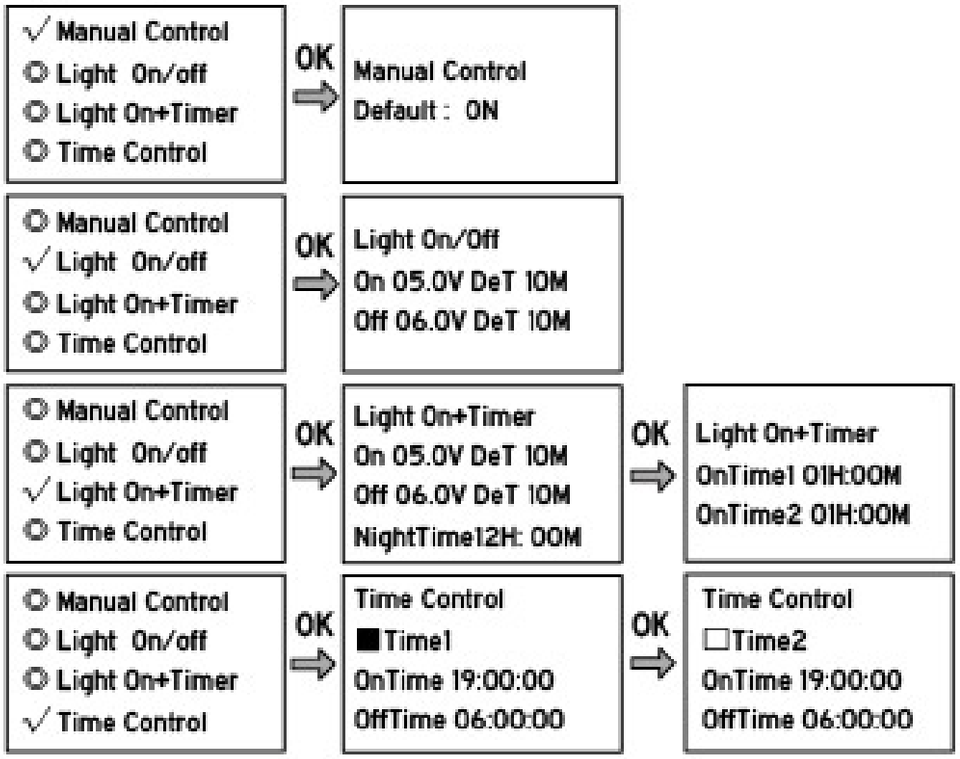
D. Under voltage warning reconnect voltage > under voltage warning voltage ≥ discharging limit voltage;

E. Boost reconnect charging voltage > low voltage reconnect voltage;

F. Low voltage disconnect voltage ≥ over discharging protection voltage (BMS) + 0.2v

4.7 Load setting

The page of load setting could be used to set the four load working modes of the connection solar controller (Manual, Light on/off, Light on + timer, Time control).



Note: For detailed instructions on load settings, please refer to the relevant solar controller manual.

1. Manual control

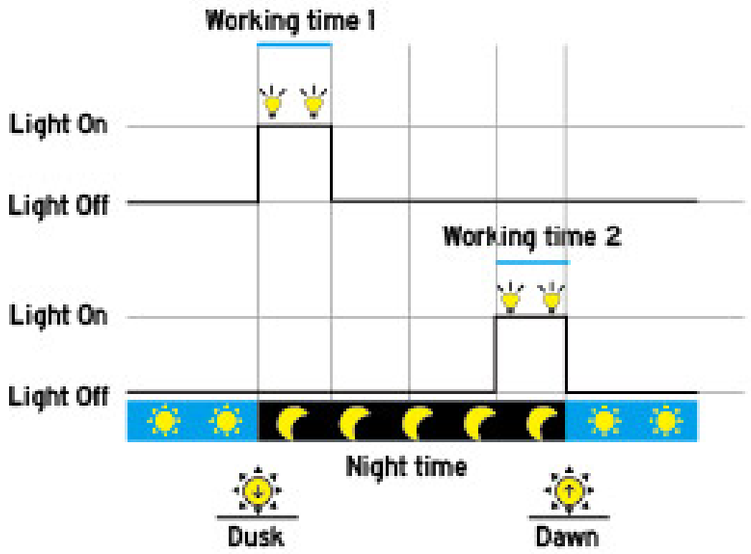
Mode	Introductions
ON	The load is on ift he battery capacity is enoug hand no abnormal conditions happen.
OFF	The load is off all the time.

2. Light On/Off

Light On voltage (Night threshold)	The load output is automatically turned on when the below situations occur at the same time: 1. The PV input voltage is lower than the Light On voltage. 2. The battery capacity is enough. 3. No abnormal conditions happen.
Light Off voltage (Day threshold)	When the PV input voltage is higher than the Light Off voltage, the load output is automatically turned off.
Delay time	It means the confirmation time for the light signal. During this period, if the light signal voltage continues matching the Light On/Off voltage, the controller will perform corresponding actions (the time adjustment range: 0-99mins).

3. Light On + timer

Working time 1 (T1)	Load working period after light control turns on the load	Any working time is set as "0," it means to stop working. The real working time of T2 depends on the night-time and the length of T1, T2.
Working time 2 (T2)	Load working period before light control turns off the load	
Night-time	Total night-time by calculation (≥3h)	

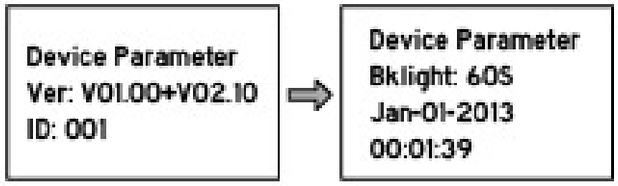


4. Time control

Working time 1 (T1)	Control on/off time of the load through real-time clock mode.	Working time 1 is the compulsory load working time interval. Working time 2 is optional.
Working time 2 (T2)	Realize the dual timer function of the load control through real-time clock mode.	

4.8 Device parameter

The solar controller's software version could be checked via the device parameter page. and device data like device ID, device LCD backlight time, and device clock could also be checked and modified. The device parameter page shows in the diagram below:



Note:

1. The bigger the connection device's ID value, the longer the communication identification interval will be (the maximum interval < 6minutes).

2. For detailed instructions on device parameters, please refer to the relevant solar controller manual.

Type	Notes
Ver	It indicates the Solar controller's software and hardware version numbers.
ID	It indicates the Solar controller's communication ID numbers.
Bklight	It indicates the Solar controller's LCD backlight time.
Month-Day-Year H: M: S	It indicates the Solar controller's internal clock.

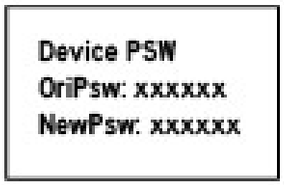
4.9 Changing the device password

You can change the connected device's password through the "Device Password" page.

Device Password Function

When entering edit mode for control parameters, load settings, device parameters, the device password, or factory reset, the user must first enter the correct 6-digit password.

Operation Interface



Important Note

1. The controller's default password is "000000".

2. If the new password you enter is ABCDEF, the correct password sequence is actually BADCFE.

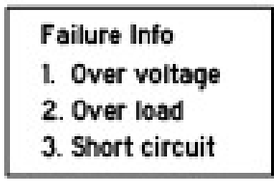
4.10 Factory reset

Before performing a factory reset, you must enter the password. If the default password has not been changed, enter "000000." If it has been changed, you'll need to enter the new password.

The solar charger controller's parameters can be restored to factory defaults via the factory reset page. This will reset the control parameters, load settings, charge mode, and device password to their original settings (the factory default password is "000000").

4.11 Failure information

The solar controller's failure information could be checked via the Failure information page After the solar controller's failures are eliminated, the corresponding failure information will also be automatically eliminated.



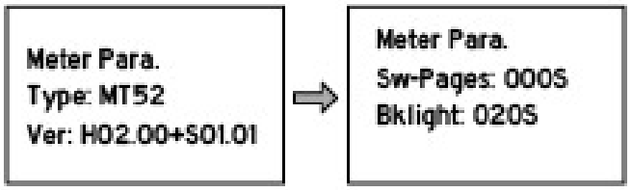
Common failure information

Failure type	LCD display	Instructions
Charging device failures	Load MOS-Short	The MOSFET of the load driver is short-circuited.
	Load Circuit	The load circuit is short-circuited.
	Load O. cur.	The load circuit is over current.
	Char. MOS-Short	The MOSFET of the charge driver is short-circuited.

Charging device failures	Input vol. High	The input voltage is very high.
Controller failure	Ctrler O. Temp.	The controller is over-temperature.
Communication failure	Comm.Timeout	The communication is timeout.
Battery failures	Batt. O. Hi. Temp.	The battery is over high temperature.
	Batt. O. Lo. Temp.	The battery is over low temperature.
	Rated Vol Err.	The rated voltage is in error.
	Batt. OVD	The battery voltage exceeds the over voltage disconnect (OVD) voltage value.
	Batt. Err	The battery type is in error.

4.12 Meter parameter

The meter's model, software, and hardware version could be checked via the meter parameter page. And the two parameters (Switch pages, Backlight) could be browsed and modified as well.



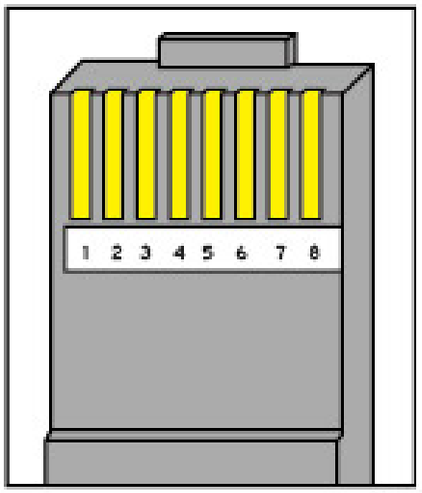
Parameters	Default	Range	Remark
Sw-Pages	0	0-120S	Set the automatic switching interval for the real-time monitoring pages.
BKlight	20	0-999S	Set the LCD backlight time.

5. TECHNICAL SPECIFICATIONS

Electrical Parameters	
Self-consumption	Backlight ON < 23mA
	Backlight OFF < 15mA
Mechanical Parameters	
Faceplate dimension	98mm × 98mm
Frame dimension	114mm × 114mm
Communication port	RJ45
Communication cable	2m
Net weight	0.25Kg
Environmental Parameters	
Environment temperature	-20°C to +70°C

RJ45 pin definition:

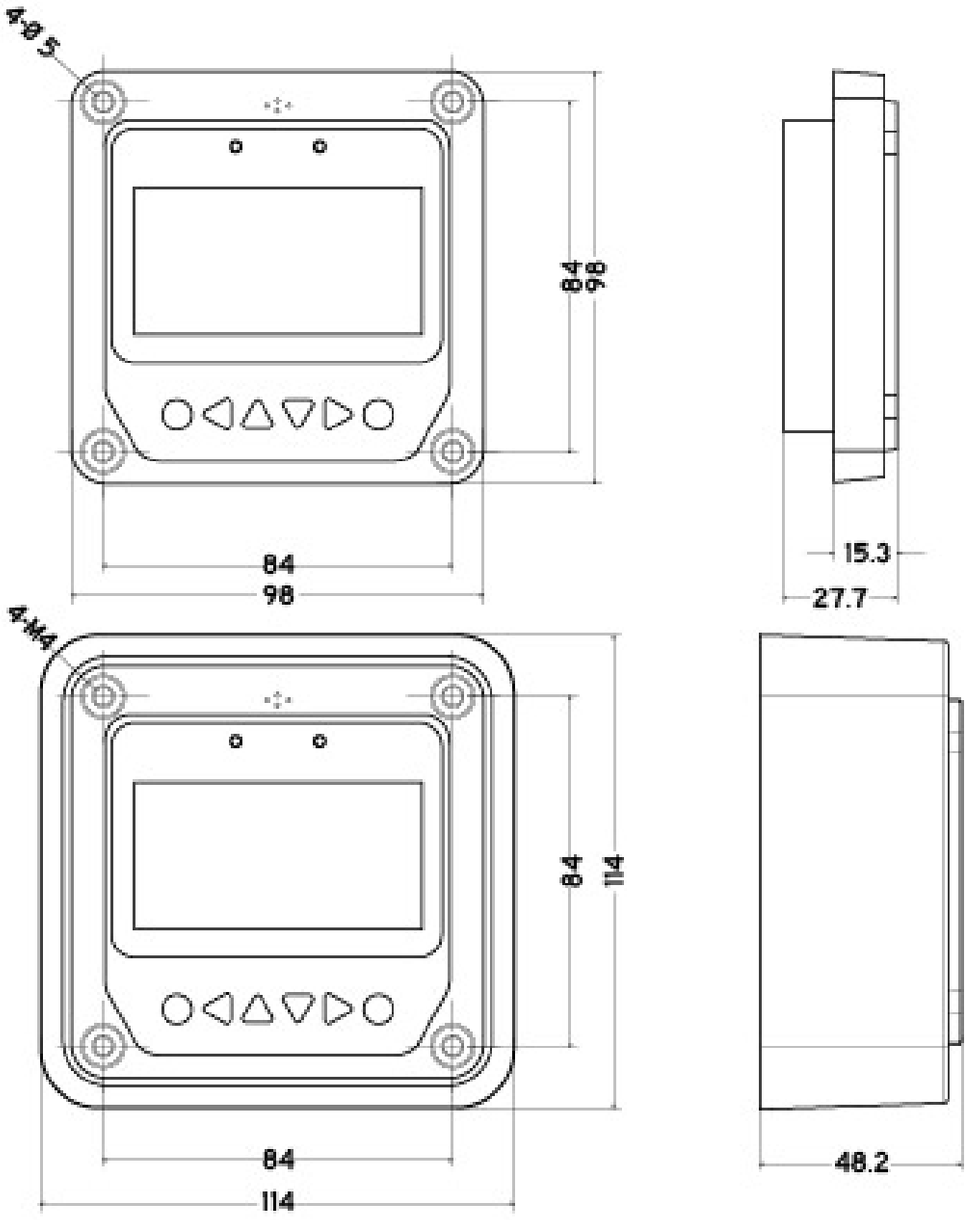
Pin No.	Definition
1	+5–12V Power input
2	+5–12V Power input
3	RS485-B
4	RS485-B
5	RS485-A
6	RS485-A
7	GND
8	GND



Data cable pin definitions

APPENDIX DIMENSIONS

Unit: mm



WARRANTY

Our product is guaranteed to be free from quality and manufacturing defects for a period of 36 months.

If your product becomes defective during this period, SRGS PTY LTD will offer you either a replacement, credit or refund where a product is faulty; wrongly described; different from the sample shown to you or do not do what they are supposed to do.

This warranty will not cover substantially modified product; misuse or abuse of the product contrary to user instructions or packaging label; change of mind and normal wear and tear.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and failure does not amount to a major failure.

To claim the warranty, take the product to the front Service Desk of your nearest store of purchase. You will need to show receipt or other proof of purchase. Additional information may be required to process your claim. Should you not be able to provide proof of purchase with a receipt or bank statement, identification showing name, address and signature may be required to process your claim.

Any expenses relating to the return of your product to the store will normally have to be paid by you. For online store purchases, SRGS PTY LTD will pay for the return freight for any product assessed as having a major failure.

The benefits to the customer given by this warranty are in addition to other rights and remedies of the Australian Consumer Law in relation to the goods or services to which this warranty relates.

This warranty is provided by SRGS PTY LTD, 6 Coulthards Avenue, Strathpine QLD 4500, Australia. Phone: 1300 880 764.

PLU: 709360 CODE: MT52
Manufactured & packaged for
SRGS PTY LTD
ABN 23 113 230 050
6 Coulthards Avenue
Strathpine QLD 4500, Australia
MADE IN CHINA