anslut 013672 External Display for Charge Controller Instruction Manual

anslut 013672 External Display for Charge Controller Instruction Manual

Important
Read the user instructions carefully before use. Save them for future reference. (Translation of the original instruction).

Important
Read the user instructions carefully before use. Save them for future reference. Jula reserves the right to make change. For latest version of operating instructions, see www.jula.com

Contents

SAFETY INSTRUCTIONS

- Carefully check the product on delivery. Contact your dealer if any parts are missing or damaged. Photograph any damage.
- Do not expose the product to rain or snow, dust, vibration, corrosive gas or strong electromagnetic radiation.
- Make sure that no water gets into the product.
- The product does not contain any parts that can be repaired by the user. Do not attempt to repair or dismantle the product — risk of serious personal injury.

SYMBOLS


Read the instructions.


Approved in accordance with the relevant directives.

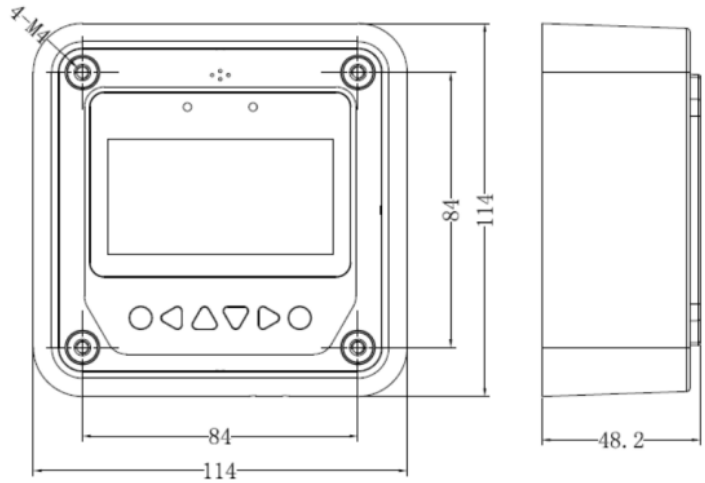

Recycle discarded product in accordance with local regulations.

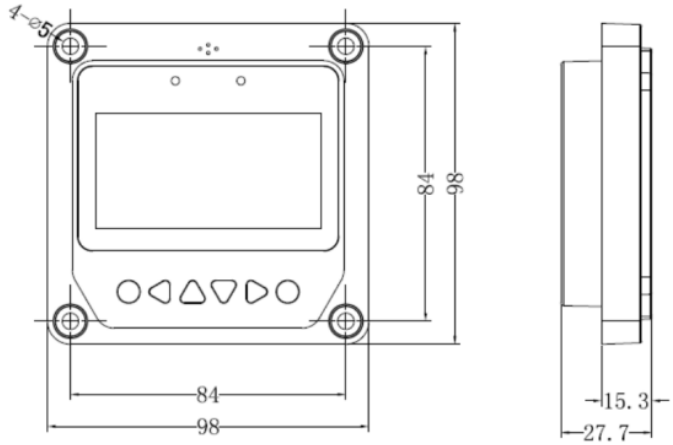
TECHNICAL DATA

Consumption

Backlight on: < 23 mA
Backlight off: < 15 mA
Ambient temperature: -20°C to 70°C
Front panel size: 98 x 98 mm
Frame size: 114 x 114 mm
Connection: RJ45
Cable length, max: 50 m
Weight: 270 g

FIG. 1



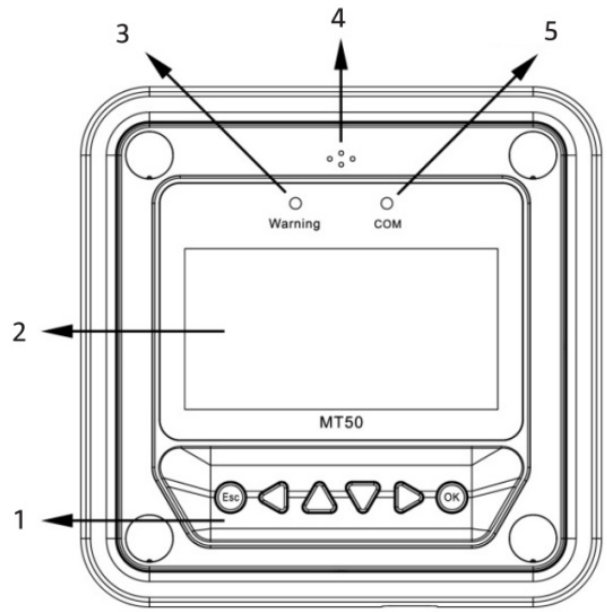


DESCRIPTION

FRONT

1. Function buttons
   — On the remote display there are four navigation buttons and two function buttons. Further information is available in the instructions.
2. Display
   — User interface.
3. Status light for fault
   — The status light flashes if there is a fault on connected devices. See the manual for the controller for information on fault.
4. Audio signal for alarm
   — Audio signal for fault, can be activated or deactivated.
5. Status light for communication
   — Shows communication status when the product is connected to the controller.

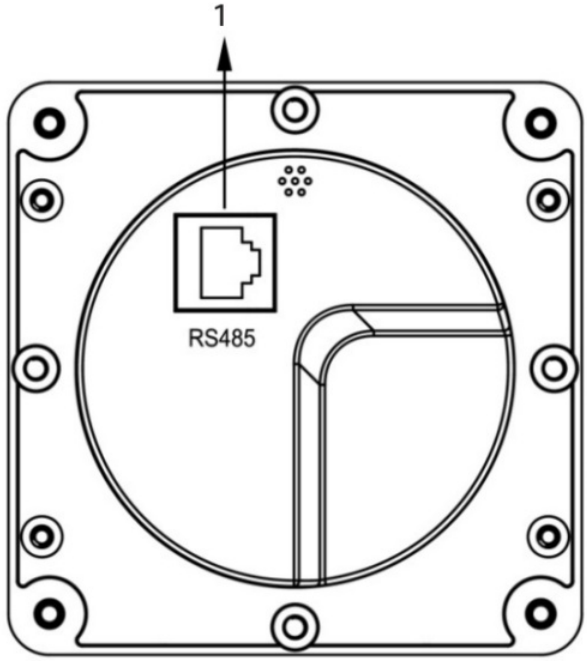
FIG. 2



BACK

1. RS485 connection for communication and power supply.
   — Connection for communication and power supply cable for connection to control unit.

FIG. 3



NOTE:

Use the communication connector marked MT to connect products.

DISPLAY

1. Icon for charging current
   — The icon is shown dynamically for charging current.
2. Icons for battery status

   Normal voltage

   Undervoltage / Overvoltage
3. Battery icon
   — The battery capacity is shown dynamically.

   NOTE: The icon is shown if the battery status is overcharging.
4. Icon for load current
   — The icon is shown dynamically for discharging current.
5. Icons for food status
   – **NOTE:** In manual mode the charging status is switched with the OK button.

   Charging

   No charging

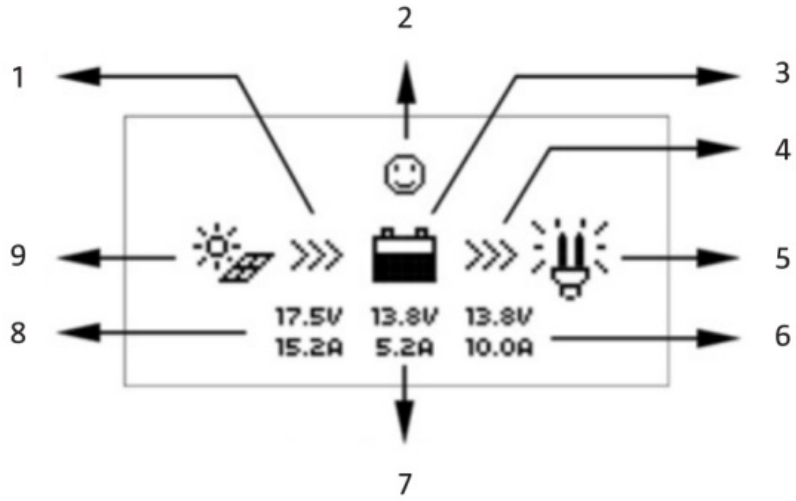
6. Values for load voltage and load current
7. Battery voltage and current
8. Voltage and current for solar panel
9. Icons for day and night

— The limiting voltage is 1 V. Higher than 1 V is defined as daytime.

 Night

 Day

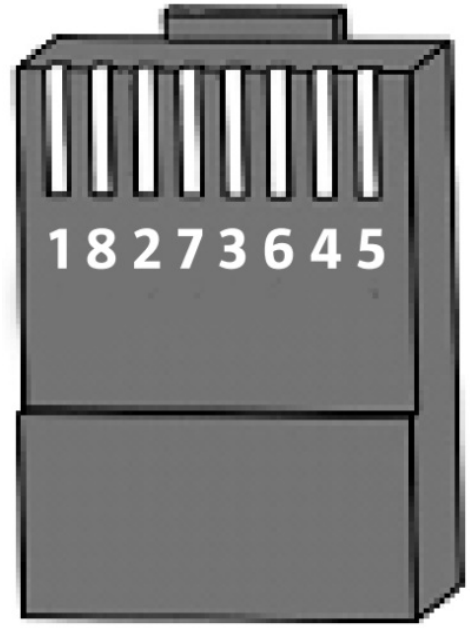
FIG. 4



PIN FUNCTIONS

Pin no.	Function
1	Input voltage +5 to +12 V
2	Input voltage +5 to +12 V
3	RS485-B
4	RS485-B
5	RS485-A
6	RS485-A
7	Earth (GND)
8	Earth (GND)

FIG. 5



The latest generation of the remote display MT50 for the solar cell controllers Hamron 010501 supports both the latest communication protocol and the latest voltage standard for solar cell controllers.

- Automatic identification and display of type, model and relevant parameter values for control units.
- Real time display of operating data and operating status for connected devices in digital and graphic form and with text, on a large, multifunctional LCD screen.
- Direct, convenient and quick manoeuvring with six function buttons.
- Data and power supply via same cable — no need for external power supply.
- Data monitoring in real time and remote controlled load switching for control units. Browsing through values and change of parameters for device, charging and load.
- Display in real time and audio alarm for fault on connected devices.
- Longer communication range with RS485.

MAIN FUNCTIONS

Monitoring in real time of operating data and operating status for controller, browsing and change of control parameters for charging/discharging, adjustment of parameters for device and charging, plus reset of default settings. Manoeuvring takes place with LC display and function buttons.

RECOMMENDATIONS

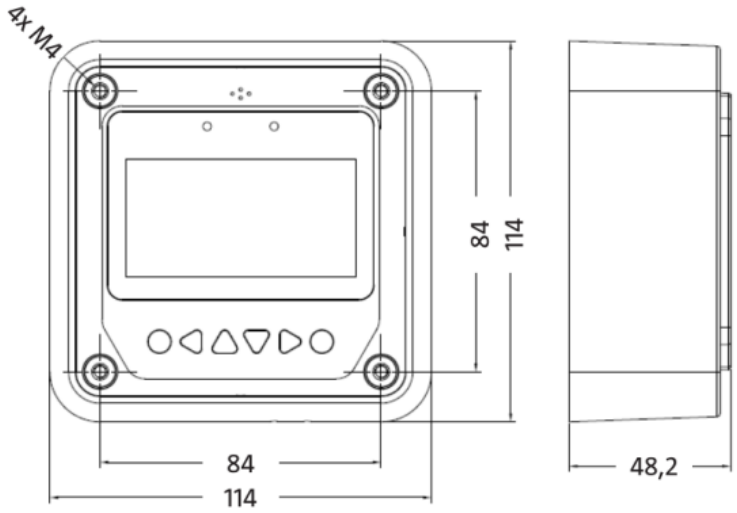
- The product must only be connected to Hamron 010501.
- Do not install the product where there is strong electromagnetic interference.

INSTALLATION

WALL MOUNTING

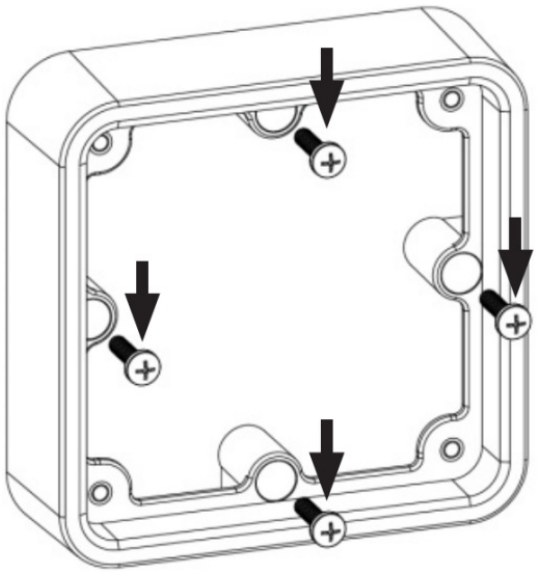
Mounting size of frame in mm.

FIG. 6



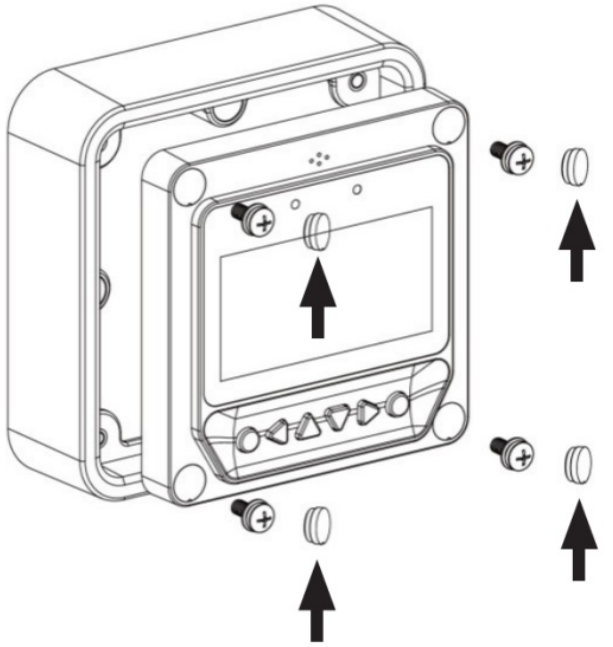
1. Drill holes with mounting frame as a template and insert the plastic expander screws.
2. Mount the frame with four self-threading screws ST4.2×32.

FIG. 7



3. Fit the front panel on the product with 4 screws M x 8.
4. Put the 4 supplied plastic caps on the screws.

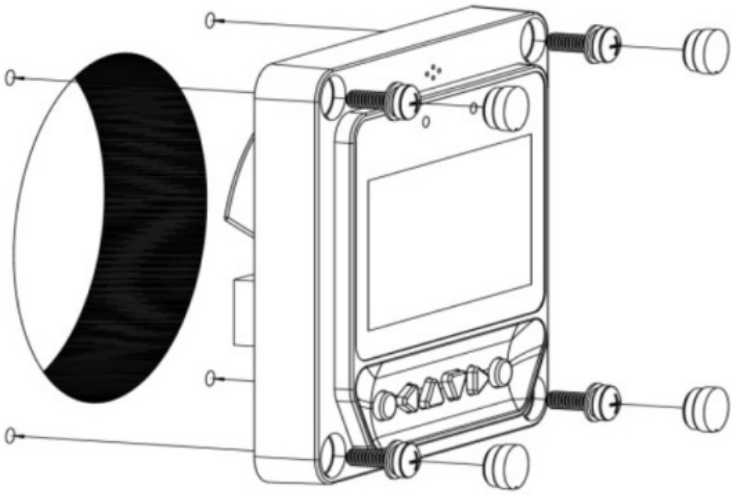
FIG. 8



SURFACE MOUNTING

1. Drill holes with the front panel as a template.
2. Fit the product on the panel with 4 screws M4 x 8 and 4 nuts M4.
3. Put the 4 supplied white plastic caps on the screws.

FIG. 9



NOTE:

Check before fitting that there is space to connect/disconnect the communication and power supply cable, and that the cable is long enough.

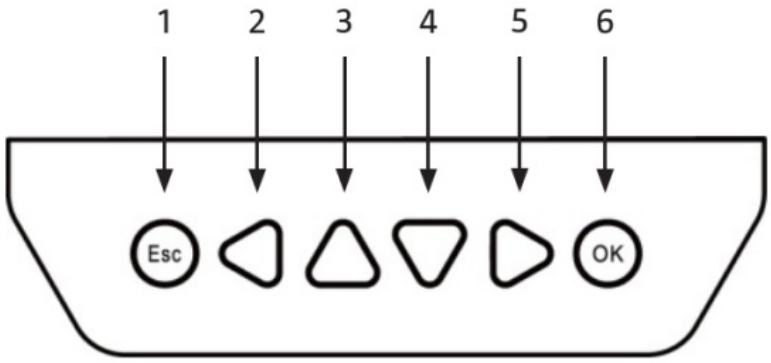
USE

BUTTONS

1. ESC
2. Left
3. Up

4. Down
5. Right
6. OK

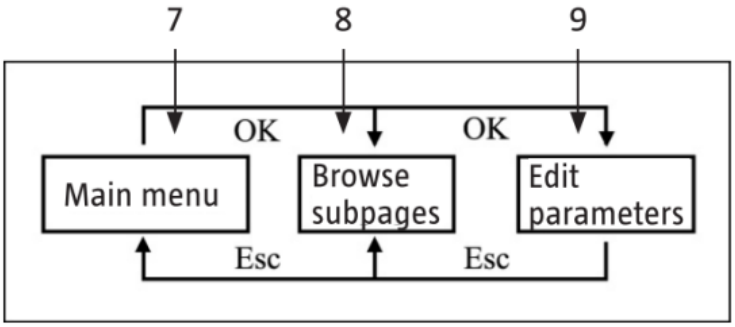
FIG. 10



FUNCTION CHART

1. retain menu
2. Browse subpages
3. Edit parameters

FIG. 11



Browsing mode is the standard start page. Press the button OK sand enter password to access change mode. Move the cursor with the buttons and Use the buttons and to change the parameter value at the cursor position. Use the buttons OK and Esc to confirm or delete changed parameters.

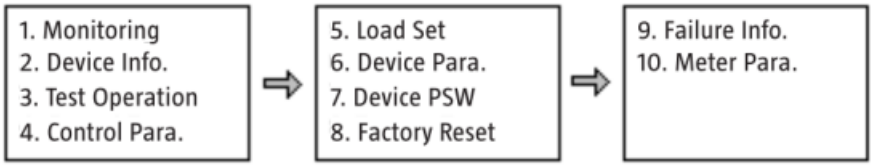
MAIN MENU

Go to main menu by pressing ESC. Move the cursor with the up and down buttons to select menu option. Use the buttons OK and ESC to open or close the pages for menu options.

1. Monitoring
2. Device info
3. Testing
4. Control parameters
5. Load setting

6. Device parameters
7. Device password
8. Factory reset
9. Error messages
10. Parameters for remote display

FIG. 12



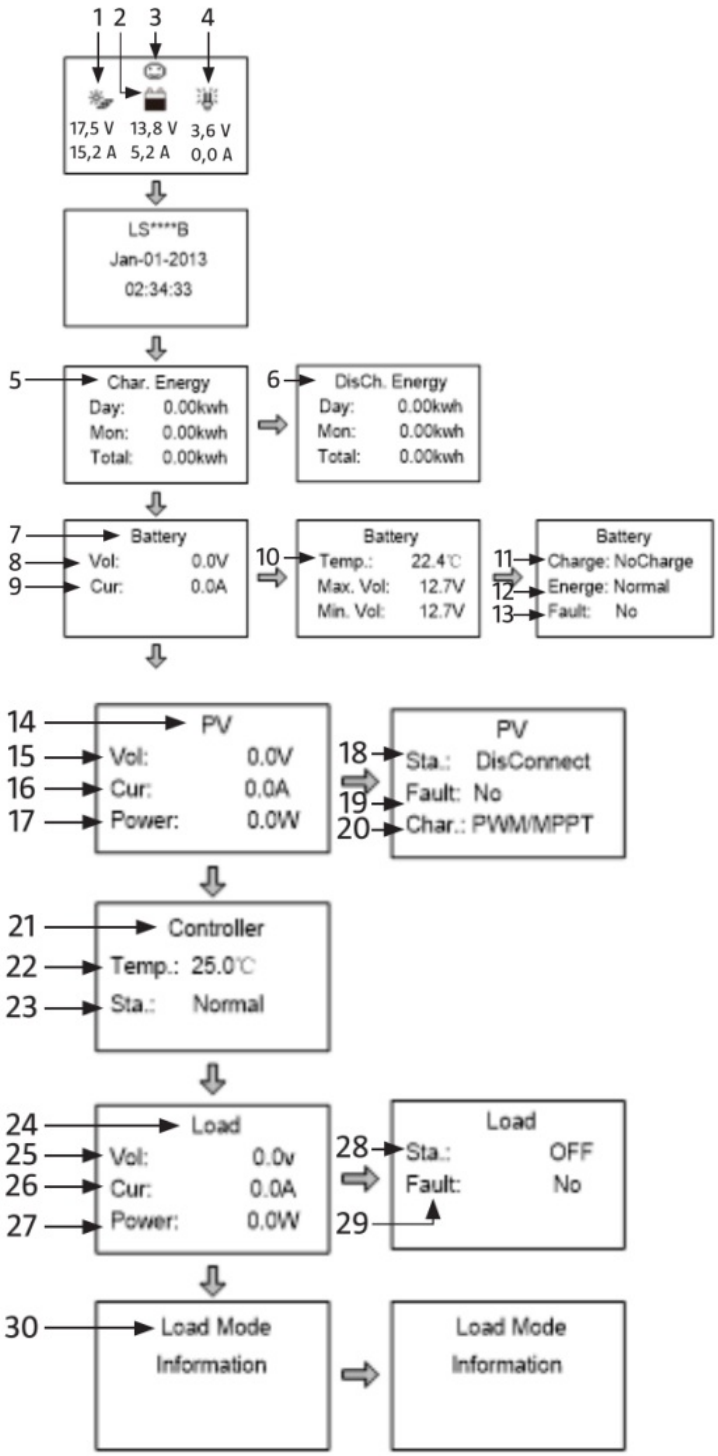
MONITORING IN REAL TIME

There are 14 pages for monitoring in real time:

1. Limit voltage
2. Overcharging of battery
3. Battery status (see section “Display”)
4. Load status (see section “Display”)
5. Charging energy
6. Discharging energy
7. Battery
8. Voltage
9. Current
10. Temperature
11. Charging
12. Energy
13. Fault
14. Charging energy solar panel
15. Voltage
16. Current
17. Output
18. Status
19. Fault
20. Charging
21. Control unit
22. Temperature
23. Status
24. Load
25. Voltage
26. Current
27. Output
28. Status
29. Fault

30. Information on load mode

FIG. 13



NAVIGATION

Move the cursor between the rows with the up and down buttons. Move the cursor on a row with the right and left buttons.

DEVICE INFORMATION

The diagram shows product model, parameters and serial numbers for control units.

1. Rated voltage

2. Charging current
3. Discharging current

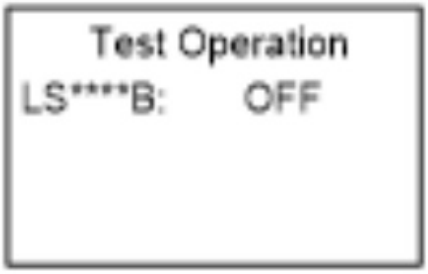
FIG. 14

Use the buttons  and  to browse up and down on the page.

TESTING

Testing of load switching is done on the solar panel controller connection to check that the output load is normal. Testing does not affect the operating settings for the actual load. The solar panel controller leaves the test mode when the test is completed from the user interface.

FIG. 15



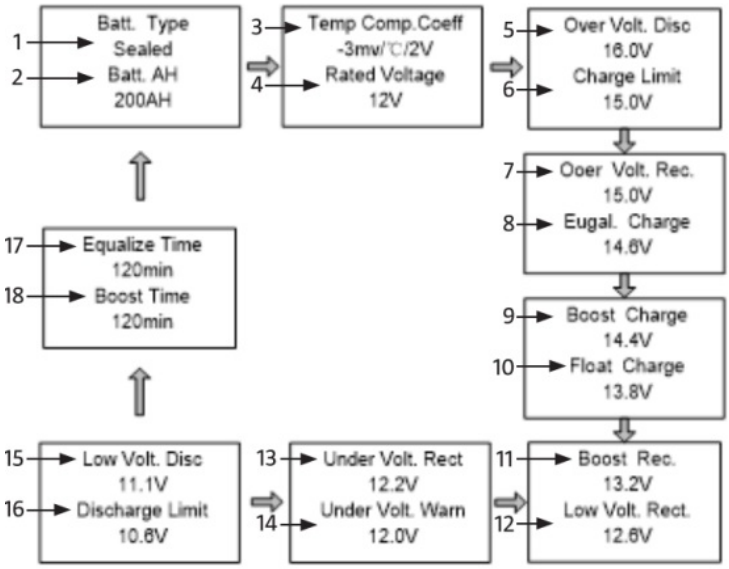
NAVIGATION

Open page and enter password. Use the buttons  and  to change the status between load and no load. Use the buttons  and  to confirm or cancel test.

CONTROL PARAMETERS

Browsing and changes in solar panel's control parameters. The interval for parameter settings is indicated in the table of control parameters. The page with control parameters looks like this.

FIG. 16



1. Battery type, sealed
2. Battery capacity
3. Temperature compensation coefficient
4. Rated voltage
5. Overvoltage discharging
6. Charging limit
7. Overvoltage rectifier
8. Equalisation charging
9. Quick charging
10. Trickle charging
11. Quick charging rectifier
12. Low voltage rectifier
13. Undervoltage rectifier
14. Undervoltage warning
15. Low voltage discharge
16. Discharging limit
17. Equalisation time
18. Quick charging time

TABLE OF CONTROL PARAMETERS

Parameters	**Standard setting**	**Interval**
Battery type	Sealed	Sealed/gel/EFB/user specified
Battery Ah	200 Ah	1-9999 Ah
Temperature compensation coefficient	-3 mV/°C/2 V	0 — -9 mV
Rated voltage	Auto	Auto/12 V/24 V/36 V/48 V

PARAMETERS FOR BATTERY VOLTAGE

The parameters refer to 12 V system at 25°C. Multiply by 2 for 24 V system, by 3 for 36 V system and 4 for 48 V system.

Settings for battery charging	Sealed	Gel	EFB	User specified
Disconnect limit for overvoltage	16.0 V	16.0 V	16.0 V	9 —17 V
Voltage limit for charging	15.0 V	15.0 V	15.0 V	9 —17 V
Reset limit for overvoltage	15.0 V	15.0 V	15.0 V	9 —17 V
Voltage for equalisation charging	14.6 V		14.8 V	9-17 V
Voltage for quick charging	14.4 V	14.2 V	14.6 V	9 —17 V
Voltage for trickle charging	13.8 V	13.8 V	13.8 V	9 —17 V
Reset limit for quick charging voltage	13.2 V	13.2 V	13.2 V	9 —17 V
Reset limit for undervoltage	12.6 V	12.6 V	12.6 V	9 —17 V
Reset limit for undervoltage warning	12.2 V	12.2 V	12.2 V	9 —17 V
Voltage for undervoltage warning	12.0 V	12.0 V	12.0 V	9 —17 V

Disconnect limit for undervoltage	111 V	111 V	111 V	9 —17 V
Voltage limit for discharging	10.6 V	10.6 V	10.6 V	9 —17 V
Equalisation time	120 min		120 min	0 —180 min
Quick charging time	120 min	120 min	120 min	10 —180 min

NOTES

1. For battery type sealed, gel, EFB or user specified the settings interval for equalisation time is 0 to 180 min and for quick charging time 10 to 180 min.
2. The rules below must be followed when changing parameter values for user specified battery type (the default value is for sealed battery type).
    - A: Disconnect limit for overvoltage > Voltage limit for charging Voltage for equalisation voltage Voltage for quick charging Voltage for trickle charging > Reset limit or quick charging voltage.
    - B: Disconnect limit for overvoltage > Reset limit for overvoltage.

- C: Reset limit for undervoltage > Disconnect limit for undervoltage Voltage limit for discharging.
- D: Reset limit for undervoltage warning > Voltage for undervoltage warning Voltage limit for discharging.
- E: Reset limit for quick charging voltage > Disconnect limit for undervoltage.

NOTE:

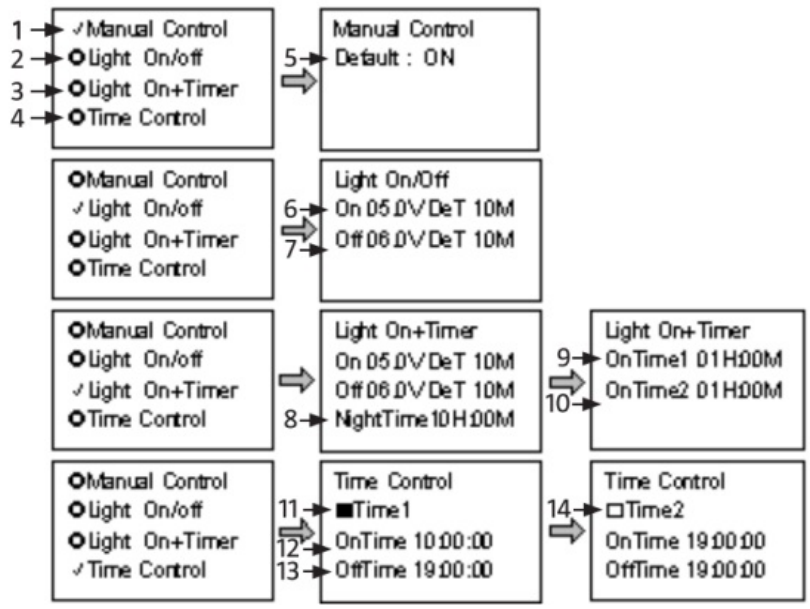
See operating instructions or contact retailer for further information on settings.

SETTING THE LOAD

Use the page for load setting to select one of the four load modes for the solar panel controller (Manual, Light On/Off, Light On + timer).

1. Manual control
2. Light On/Off
3. Light On + timer
4. Timing
5. Standard setting
6. 05.0 V DeT 10 M
7. 06.0 V DeT 10 M
8. Night time 10 h: 00M
9. Start time 1 01H:00M
10. Start time 2 01H:00M
11. Time 1
12. Start time 10:00:00
13. Switching off time 79:00:00
14. Time 2

FIG. 17



MANUAL CONTROL

Mode	Description
On	The load is connected all the time if there is enough battery capacity and no abnormal status.
Off	The load is disconnected all the time.

LIGHT ON/OFF

Voltage for Light Off (limit value for night)	When the solar panel's input voltage is lower than the voltage for Light On the output load is activated automatically, assuming there is enough battery capacity and no abnormal status.
Voltage for Light Off (limit value for day)	When the solar panel's input voltage is higher than the voltage for Light, the output load is deactivated automatically.
Delay timer	Time for confirmation of signal for light. If the voltage for continuous light corresponds to the voltage for Light On/Off during this time the corresponding functions are tripped (settings interval for time is 0-99 minutes).

LIGHT ON + TIMR

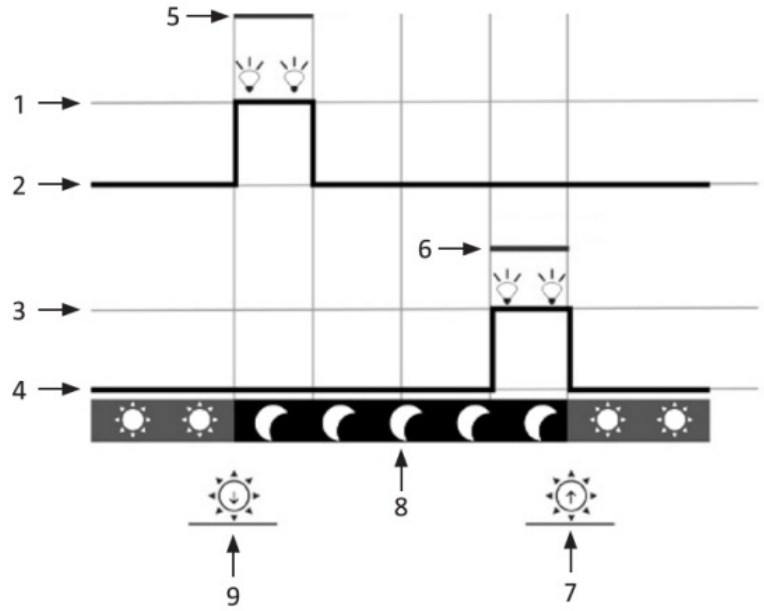
Run time 1 (T1)	Load run time after the load is connected by the light controller.	If one of the run times is set to 0 this time setting does not function. The actual run time T2 depends on the night time and the length of T1 and T2.
Run time 2 (T2)	Load run time before the load is disconnected by the light controller.	
Night time	Total calculated night time for controller 3 h)	

TIMING

Run time 1 (T1)	Load run time after the load is connected by the light controller.	If one of the run times is set to 0 this time setting does not function. The actual run time T2 depends on the night time and the length of T1 and T2.
Run time 2 (T2)	Load run time before the load is disconnected by the light controller.	

1. Light On
2. Light Off
3. Light On
4. Light Off
5. Run time 1
6. Run time 2
7. Dawn
8. Night time
9. Twilight

FIG. 18

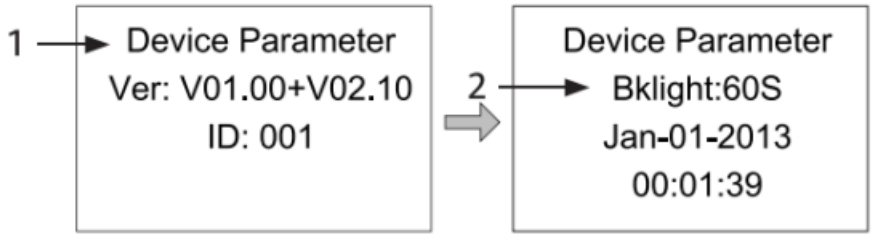


DEVICE PARAMETERS

Information on the solar panel controller's software version can be checked on the page for device parameters. Data such as device ID, time for backlight of display and device clock can be checked and changed here. The page with device parameters looks like this.

1. Device parameters
2. Backlight

FIG. 19



NOTE:

The higher the ID value of the connected device, the longer the identification time for communication on the remote display (maximum time < 6 minutes).

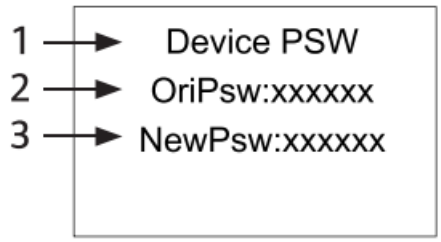
Type	**Explanation**
Ver	Version number for solar panel controller software and hardware.
ID	Solar panel controller ID number for communication.
Backlight	Run time for backlight for solar panel control unit display.
Month-Day-Year H:V:S	Internal clock for solar panel controller.

DEVICE PASSWORD

The password for the solar panel controller can be changed on the page for the device password. The device password consists of six digits and must be entered to change the pages for control parameters, load settings, device parameters, device passwords and default reset. The page with device passwords looks like this.

1. Device password
2. Password: xxxxxx
3. New password: xxxxxx

FIG. 20



NOTE:

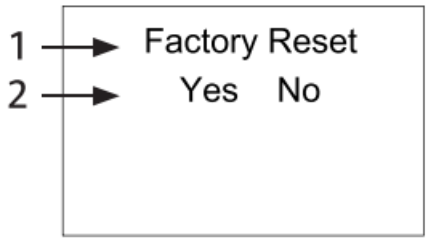
The default password for the solar panel control unit is 000000.

FACTORY RESET

The default parameter values for the solar panel controller can be reset on the page for default reset. Resetting resets control parameters, load settings, charging mode and device passwords to connected devices to the default values. The default device password is 000000.

1. Factory reset
2. Yes/No

FIG. 21

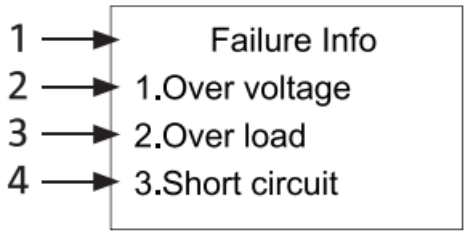


ERROR MESSAGES

Fault messages for the solar panel controller can be checked on the page for fault messages. Up to 15 fault messages can be shown. The fault message is deleted when a fault on the solar panel controller has been corrected.

1. Error message
2. Overvoltage
3. Overloaded
4. Short circuit

FIG. 22



Error messages	Explanation
Short circuit MOSFET load	Short circuit in MOSFET for load driver.

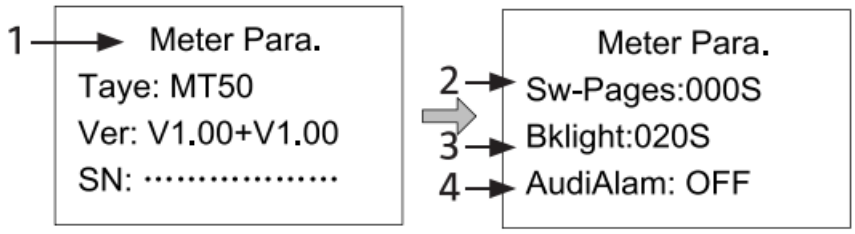
Load circuit	Short circuit in load circuit.
Overcurrent load circuit	Overcurrent in load circuit.
Input current too high	Input current to solar panel too high.
Short-circuit reverse polarity protection	Short circuit in MOSFET for reverse polarity protection.
Fault on reverse polarity protection	MOSFET for reverse polarity protection defective.
Short circuit MOSFET charging	Short circuit in MOSFET for charging driver.
Input current too high	Input current too high.
Uncontrolled discharging	Discharging not controlled.
Over-temperature controller	Over-temperature for controller.
Time limit communication	The time limit for communication has been exceeded.

PARAMETERS FOR REMOTE DISPLAY

The remote display model, software and hardware version, and serial number can be checked on the page with parameters for the remote display. Pages for switching, backlight and audio alarm can also be shown and changed here.

1. Remote display parameters
2. Switching pages
3. Backlight
4. Audio alarm

FIG. 23



NOTE:
When the setting is completed the page for automatic switching starts after a 10 minutes delay.

Parameters	Standard setting	Interval	Note
Switching pages	0	0-120 s	Page for rectifier for automatic switching for monitoring in real time.
Backlight	20	0-999 s	Backlight time for display.
Audio alarm	OFF	ON/OFF	Activates/deactivates audio alarm for fault on solar panel controller.

MAINTENANCE

The product does contain any parts that can be repaired by the user. Do not attempt to repair or dismantle the product – risk of serious personal injury.

Documents / Resources

	anslut 013672 External Display for Charge Controller [pdf] Instruction Manual 013672, External Display for Charge Controller
	anslut 013672 External Display for Charge Controller [pdf] Instruction Manual 013672, External Display for Charge Controller