ALVOLTA
BUILT FOR POWER

OWNER'S MANUAL



ALVOLTA LUNA-H MPPT SOLAR CONTROLLERS

ALV-15060B: 150V / 60A | ALV-15070B: 150V / 70A

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DISCLAIMER

All data and specifications provided in this maunal are tested under standard test conditions, and may deviate marginally from actual values. Alvolta and its associates reserve the right to make modifications to the provided information without notice. Alvolta maintains the goal to supply customers with recent information regarding its products.

SAFETY INSTRUCTIONS

IMPORTANT, READ CAREFULLY & RETAIN FOR REFERENCE

- WARNING: It is very important to review this manual thoroughly before attempting installation.
- Do NOT exceed the electrical specifications of this device.
- Do NOT plug in any AC source to this DC-DC product. Doing so may result in fire or damage to the device.
- Do NOT leave the battery disconnected while the solar input is connected for an extended period of time. Doing so may result in damage to the unit.
- Ensure children are kept away from this device at all times.
- Take care when installing or working with batteries. Wear protective clothing and eyewear, and wash you hands when installation is complete. If contact with battery acid is made, rinse with water immediately.
- Ensure external metal objects are removed when working with batteries, and take care when using metal tools to work on batteries. If external metal objects are dropped into a battery, a short-circuit or damage to the battery may occur.
- Ensure the ambient environment is well ventilated, because the battery may produce acid gas when charging.
- Do NOT connect lithium batteries in reverse polarity. Doing so may result in fire or damage to the device.
- Stay away from sparks, as the battery may produce combustible gases.
- During outdoor installation, avoid direct sunlight and rainwater infiltration.
- Ensure that cable connections are tightened and cables are fixed in the system correctly. False connections and corroded cables may cause extreme heat that can melt the cable insulation, burn surrounding areas or cause a fire.
- Ensure the device is installed by competent and trained professionals where required.
- Ensure appropriately sized wiring, fuses and circuit protection devices are used in the installation of this device.
- Connecting live equipment to this device, such as solar panels or batteries, can cause arcing to occur. Ensure all devices are isolated prior to installation where possible and ensure appropriate PPE is worn at all times.

OVERVIEW

The Alvolta Luna Solar Controller series uses PowerCatcher Maximum Power Point Tracking (MPPT) technology to maximise the energy harvested from connected solar panels. PowerCatcher technology continuously tracks the solar panel's maximum power point, optimising the charging efficiency under changing sunlight and temperature conditions, therefore increasing the overall energy yield of the solar power system.

Designed for off-grid photovoltaic (PV) systems, Alvolta Luna controllers manage the charging process between the solar panels and the battery bank to ensure safe, efficient and reliable operation. As the central control component of the system, it helps to maximise energy utilisation while protecting the battery and improving overall system performance.

Alvolta Luna controllers incorporate comprehensive fault detection and protection features to safeguard against damage caused by installation errors, wiring faults, or abnormal system conditions. These built-in protections help ensure reliable operation and extend the service life of both the controller and connected equipment.

The Alvolta Luna-H controllers feature an integrated LCD display, which provides clear, real-time system information and configuration options. Luna-H controllers also support monitoring, data logging, and parameter configuration through the Alvolta app, PC software, and other compatible communication interfaces, allowing users to manage the system locally or remotely.

FEATURES

- PowerCatcher maximum power point tracking technology allows the controller to track the maximum power point of solar panels even in a complex environment. Compared with the traditional MPPT tracking technology, it boasts faster response speed and higher tracking efficiency of up to 99.9%.
- The built-in maximum power point tracking (MPPT) algorithm significantly increases energy utilisation efficiency of the photovoltaic system, which is about 15% to 20% higher than traditional PWM charging.
- The advanced MPPT design offers conversion efficiency of up to 98%.
- Charging output has an active voltage stabilisation function to support compatibility with lithium batteries.
- Preset a variety of battery types: lithium batteries, sealed lead-acid batteries, flooded lead-acid, gel batteries and user-defined options.

- The controller features precise voltage drop correction, the voltage at the battery terminals can be accurately controlled.
- The controller features a current-limiting charging mode. If the solar array power output exceeds the controller's capacity and the charging current surpasses its rated limit, the controller will automatically reduce the charging power. This ensures the system operates safely at its maximum rated charging current.
- The controller features temperature compensation for lead-acid batteries.
- The controller features a built-in over-temperature protection mechanism, which switches the charging power to a linear decline when the temperature exceeds a set value.
- Luna-H controllers support parallel function, allowing for several units to be combined to meet a greater charging power.
- Uses a built-in 4.0BLE Bluetooth module, allowing for connection and interaction with the Alvolta app.
- The controller supports the standard Modbus protocol, allowing for technology support to facilitate secondary development and application integration.
- The controller features a programmable relay output.

WHAT'S INCLUDED

Box Inclusions:

	1x Corresponding Luna-H MPPT (60A or 70A, as per the box)
	1x Sensor Cable 3m temperature sensor cable

ALVOLTA APP

The Alvolta Luna Solar Controller series feature built-in Bluetooth, allowing for monitoring, data logging, and parameter configuration through the Alvolta app.

The Alvolta app is your ultimate companion for monitoring and managing your Alvolta 12V, DC-DC, and off-grid power systems. Built for power and designed for intuitive data display, the Alvolta app keeps you connected to your setup whether you're in a 4WD, RV, or other off-grid scenario.



DOWNLOAD ALVOLTA APP

GET IT ON Google Play

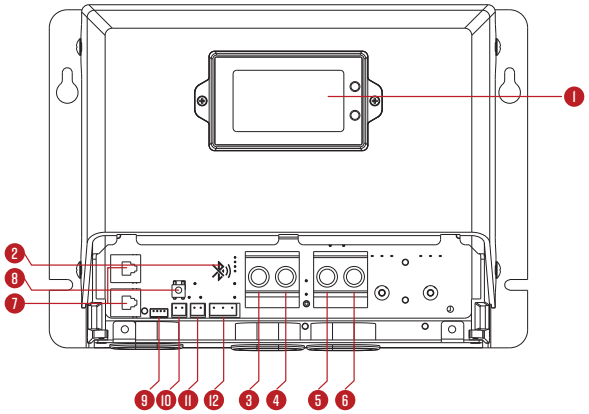
Download on the App Store

Note:

- When connecting components to the Alvolta App, a default PIN may be required. The default PIN is: 123456

INTERFACE & INDICATORS

MAIN INTERFACE



1	Liquid Crystal Display (LCD)
2	Bluetooth module
3	Battery positive terminal (+)
4	Battery negative terminal (-)
5	Solar panel negative terminal (-)
6	Solar panel positive terminal (+)
7	RS485 communication interface
8	Key
9	TTL communication interface
10	Battery temperature sampling interface
11	Battery voltage sampling interface
12	Relay output interface

RS485 COMMUNICATION INTERFACE

Set as communication mode

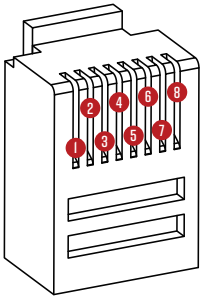
- The Modbus protocol can be used to perform data monitoring, parameter setting and other operations for the controller via the port.

Set as parallel operation mode

- The parallel operation mode can be used only after the device is set as parallel operation mode.

Remote on/off of charger

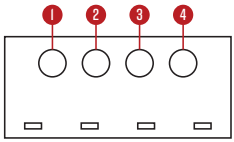
- Two pieces of remote on/off input signal are integrated in the RS485 communication wire. The charging can be broken only by a short circuit of pins 5 & 6 in the communication wire.



1	NC
2	NC
3	Remote on/off
4	Remote on/off
5	Isolated power ground
6	D-
7	D+
8	Isolated positive power

TTL COMMUNICATION INTERFACE

The Modbus protocol can be used to perform data monitoring, parameter setting and other operations for the controller via the TTL port.



1	Communication power out
2	RX data receiving terminal
3	TX data sending terminal
4	GND

INDICATOR LIGHTS

Charge State Indicator Specifications:

No.	Light Indication	Indication Description
1	On normally	MPPT Charge
2	Slow flash (on 1s, off 1s)	Lifting Charge
3	Single flash (on 1s, off 1.9s)	Floating Charge
4	Quick flash (on 1s, off 0.1s)	Equalising Charge
5	Double flash (on 0.1s, off 0.1s, on again 0.1s, off again 1.7s)	Current Limiting Charge
6	Off	No charge started

Battery State Indicator Specifications:

Indicator Colour	Light Indication	Indication Description
Green	On normally	Full battery voltage
Yellow	On normally	Normal battery voltage
Red	On normally	Battery voltage is below the under-voltage point
	Quick flash (on 1s, off 0.1s)	Battery over-voltage or over-temperature

Battery State Indicator Specifications:

Indicator Colour	Battery Type
Red	Flooded lead-acid battery
Yellow	Gel lead-acid battery
Green	Sealed lead-acid battery
Blue	12V lithium battery ($LiFePO_4$)
Purple	24V lithium battery ($LiFePO_4$)
Orange	36V lithium battery ($LiFePO_4$)
Cyan	48V lithium battery ($LiFePO_4$)
White	Self-defined (12V sealed lead-acid battery by default)

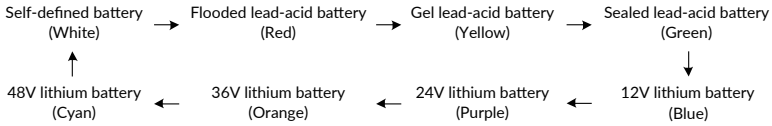
KEY FUNCTION

1. Set battery type

There is a key on the controller, which is used in conjunction with the battery type indicator for selection of battery type. The specific operation mode is as follows:

In the current operating state, press and hold the key for 8 seconds. The battery type indicator (the colour displayed is that of the previously saved battery type) starts to flash (the controller turns off charging and other works and enters idle state). At this point, each time the key is pressed, the battery type indicator changes a colour which corresponds to a battery type (refer to above colour indicator table). After the battery type is selected, press and hold the key for 8 seconds again or maintain no operation for 15 seconds. Then, the controller will automatically save the currently set battery type and enter the normal operating mode.

The key will cycle through the battery type options as follows:



2. Factory reset

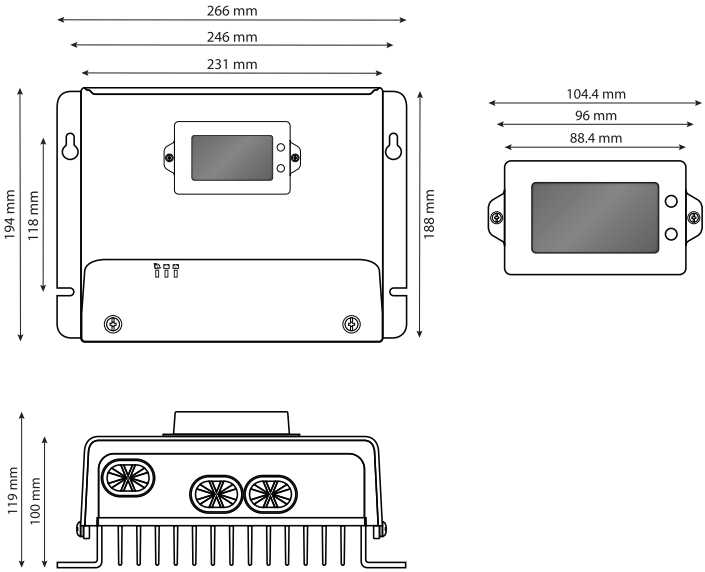
Press and hold the key for 20s, the controller will restore the factory default parameters.

SPECIFICATIONS

Specifications:

System Voltage	ALV-15060B	ALV-15070B
Rated Charging Current	60A	70A
System Voltage	12 / 24 / 36 / 48V	
Battery Voltage Range	9 - 64V DC	
Maximum PV Open Circuit Voltage	150V	
Maximum PV Short-Circuit Current	50A	
Power of Solar Panel (12V)	800W	920W
Power of Solar Panel (24V)	1600W	1840W
Power of Solar Panel (48V)	3200W	3680W
No-Load Loss	0.54W	
Connection Type	TR Screw Terminal	
Maximum Cable Size	32mm²	
Charging Conversion Efficiency	≤ 98%	
MPPT Tracking Efficiency	> 99%	
Temperature Compensation Factor	-3mV / °C/2V (for lead-acid batteries only)	
Communication	TTL and Isolated RS485 (baud rate 9600, digital bit 3, stop bit 1, no check bit)	
Bluetooth	Built-in Bluetooth, 4.0 BLE module	
Internal Temperature Protection	Linear power reduction operation triggered by over-temperature	
External Temperature Battery Sampling	Used for battery temperature compensation and battery temperature protection	
Programmable Relay	DPST 10A / 250V AC ; 10A / 30V DC	
Operating Temperature Range	-35°C - +65°C (no derating within 40°C)	
Ingress Protection	IP32	
Altitude	≤ 3000m	
Colour	Black	
Dimensions (w x h x d)	226 x 194 x 119mm	
Weight	3.6kg	
Warranty	3 Years	
Protection Features	Battery Over-charging, Battery Over-discharge, Interior Over-temperature, Over-current, PV Anti-reverse Protection, and Reverse Charge Protection at Night	

Model Dimensions:



- Mounting hole size: 12mm

BATTERY PARAMETERS

Default Battery Voltage Parameters:

Battery Type	Lithium	Sealed Lead-Acid	Gel Lead-Acid	Flooded Lead-Acid	Custom Default Values
Over-voltage Breakage Voltage	16.0 V	16.0 V	16.0 V	16.0 V	9.0 - 17.0 V
Equalising Voltage	-	14.6 V	-	14.8 V	9.0 - 17.0 V
Lifting Voltage	14.4 V	14.4 V	14.2 V	14.6 V	9.0 - 17.0 V
Floating Voltage	-	13.8 V	13.8 V	13.8 V	9.0 - 17.0 V
Lifting Recovery Voltage	13.2 V	13.2 V	13.2 V	13.2 V	9.0 - 17.0 V
Over-discharge Recovery Voltage	12.6 V	12.6 V	12.6 V	12.6 V	9.0 - 17.0 V
Under-voltage Alarm	12.0 V	12.0 V	12.0 V	12.0 V	9.0 - 17.0 V
Over-discharge Voltage	11.1 V	11.1 V	11.1 V	11.1 V	9.0 - 17.0 V
Over-discharge Cut-off	10.6 V	10.6 V	10.6 V	10.6 V	9.0 - 17.0 V
Over-discharge Delay	6 sec	6 sec	6 sec	6 sec	1 - 30 sec
Equalising Charging Interval	-	30 days	0 days	30 days	0 - 250 days
Equalising Charging Duration	-	120 min	-	120 min	10 - 600 min
Lifting Charging Duration	-	120 min	120 min	120 min	10 - 600 min
Temperature Compensation	-	120 min	-	120 min	0 - 600 min

PARAMETER SETTING

1. Mobile Monitoring Through Bluetooth

The 4.0BLE Bluetooth module is built into the controller and allows for connection to the Alvolta app. This allows data monitoring, parameter setting and other operations to the controller. Please contact Alvolta to get the related software and operation instructions.

2. Application of Lead-Acid Battery

a. The LCD screen on the controller (see page 17) or Alvolta app can be used to select the battery type matched with the battery being used. The changed system voltage can be effective only upon restart.

b. If the preset lead-acid battery parameters are not suitable for the user's battery, the user can customise the parameters. Parameters can only be customised via the Alvolta app, PC, or other communication settings via other user systems in accordance with the controller and communication protocol.

3. Application of Lithium Battery

Select the controller preset LI for lithium iron phosphate batteries within 12/24/36/48V specifications. If the preset lithium iron phosphate battery parameters are not suitable for the user's battery, the user can customise the parameters. Parameters can only be customised via the Alvolta app, PC, or other communication settings via other user systems in accordance with the controller and communication protocol.

Self-defined battery settings may be used for lead-acid batteries or lithium batteries. To apply lithium batteries in the self-defined battery type, the following conditions must be met:

a. Set a fixed voltage for the system voltage, one of 12V / 24V / 36V / 48V
b. Equalising charging time interval is set as 0
c. Equalising charging time is set as 0
d. Temperature compensation is set as 0

When the above four conditions are met, the system automatically identifies the batteries as lithium batteries. Therefore, the system uses lithium charging, and other lithium charge control logic.

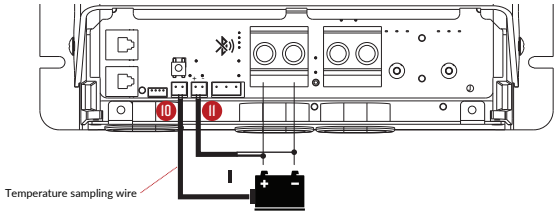
4. Setting of Charging Current

This controller is rated at 60A, and supports the setting of communication instructions ranging from 0-60A. Communication settings can be customised via the Alvolta app. For specific third-party communication interfaces, please refer to the Modbus protocol for settings and analysis.

5. Temperature Sampling of the Battery

When it is not connected to the sensor, the controller is 25°C by default. After the temperature sensor is connected, high and low temperature protection, and charging temperature compensation are performed for the battery. However, there is no temperature compensation for lithium batteries.

Wiring method: The wiring terminal of the temperature sensor is connected to (10), and the temperature sensor is fixed thereon.

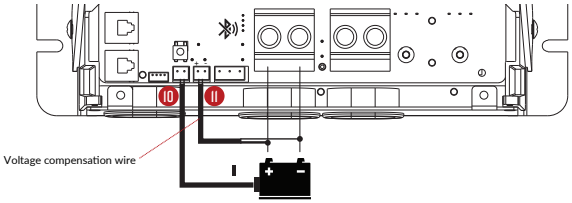


6. Voltage Compensation Wire for the Battery

In some system configurations, the charging power is high, while the cable between the battery and the controller can be relatively small in diameter. As a result, the voltage measured at the controller's terminals may be higher than the actual voltage at the battery terminals, which can lead to incomplete battery charging. To improve accuracy, a dedicated battery voltage sampling line is used to measure the true battery voltage at the terminals. The controller can then compensate with the charge rate and voltage to ensure the battery receives the appropriate and regulated charge voltage.

The positive and negative poles of the battery are respectively connected to the positive and negative poles of the battery voltage sampling terminal (11) via the voltage compensation wire. Please note that the left is the positive terminal and the right is the negative terminal.

Wiring method is shown below:

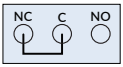


7. Programmable Relay Output

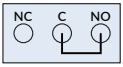
a. Single-pole double-thrown (DPST) relay
b. Relay contact specification: 230V AC / 10A, 30V AC / 10A
c. From left to right there are: Normally Closed (NC) contacts, Closed (C) contacts and Normally Open (NO) contacts

Relay triggering condition:

- When the battery voltage is normal, the relay coils doesn't operate in NC state (C and NC are conducted)



- In the case of over-voltage or over-discharge of the battery, the relay coil operates in NO state (C and NO are conducted)



8. Use of Parallel Operation Function

a. Parallel operation function:

Parallel operation function means that several controllers charge one battery pack uniformly. Each controller has one independent solar panel; these controllers are connected via RS485 communication wires and the Master system uniformly synchronises the charge state stage, constant voltage value and other parameters to the Worker. In this way, the device can break through the power limit of a single device. In addition, parallel operation of several devices can meet greater charging power demands.

b. Setting parallel operation method:

i. Press and hold two buttons "ENTER" and "SELECT" on the LCD screen at the same time to pop up the parallel operation menu. At this time, the menu can only be used for viewing and displaying P-XX or C-XX
ii. Press and hold “ENTER” for 2s to enter the setting mode. At this time, icon flickers
iii. Press “ENTER” to switch to the parallel operation function P-XX
iv. Then press “SELECT” to set the equipment address, and “SELECT” to add 1. At this time, immediately press “ENTER” to decrease 1 from the address
v. After 5s of no button presses, the setting will be saved
vi. Exit to the main interface

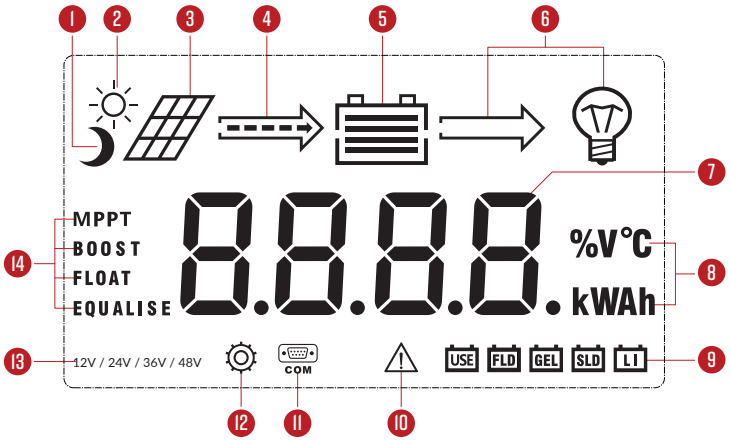
Note:

- P: = Parallel: indicating that RS485 communication terminal is set as the parallel operation function for use
- C: = Communication: indicating that RS485 communication terminal is set as common communication function for use
- XX: indicating equipment address range 0 - 99
- RS485 communication terminal is set as the parallel operation function

LIQUID CRYSTAL DISPLAY (LCD)

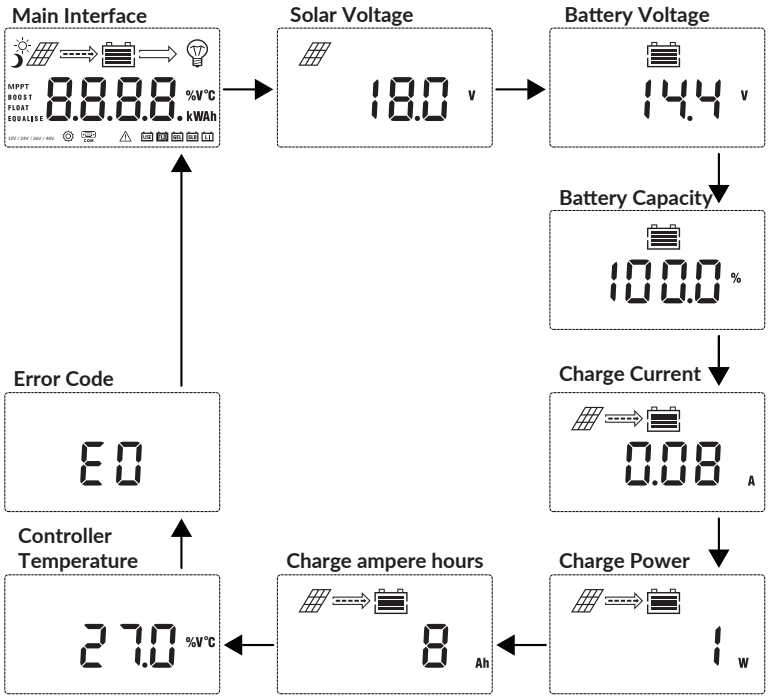
LCD module as the standard configuration of the controller can be installed on the controller surface or in other places via a DB9 extension wire in accordance with electrical parameters. As a standard, Alvolta Luna-H modules come with the LCD pre-fixed to the controller.

1. Menu Schematic Diagram



1	Night indication	8	Unit display area
2	Day indication	9	Battery type
3	Solar panel indication	10	Error indication
4	Charging indication	11	Communication indication
5	Battery indication	12	Setting indication
6	Load output indication	13	System voltage
7	Parameter display area	14	Charge state indication

2. Menu Browsing

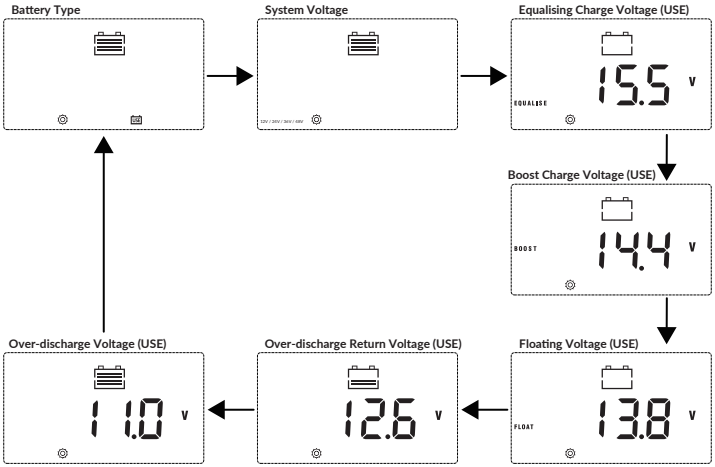


3. Setting Parameters via LCD

a. Under any menu, press key "ENTER" for long time to enter into "Parameter Setting" menu
b. Press key "ENTER" for short time and adjust the parameter value
c. Press key "SELECT" for short time and select setting item
d. Press key "ENTER" for 2 seconds, save and exit from setting mode
e. Select "FLD/GEL/SLD/LI" battery type and press key "SELECT" to only perform switching between "system voltage" and "battery type"
f. After selecting "USE" for customising battery type, press key "SELECT" for switchover among "system voltage/equalizing charging voltage/lifting charging voltage/floating voltage/over discharge return voltage/over discharge voltage"

Note:

- The changed "system voltage" can be effective only after power on again.
- Users must be careful while customising parameters. The system may not operate normally under inaccurate parameters.



LCD Display Indicator Specifications:

No.	LCD Display	Set Item	Range	Description
1	USE	Battery type		Customising battery type
2	12V/24V/36V/48V	System voltage	12V/24V/36V/48V	When simultaneously on, indicates auto identification
3	EQUALISE	Equalising charging voltage (USE)	0.9 - 17.0V	
4	BOOST	Lifting charging voltage (USE)	0.9 - 17.0V	
5	FLOAT	Floating charging voltage (USE)	0.9 - 17.0V	
6		Over-discharge recovery voltage (USE)	0.9 - 17.0V	
7		Over-discharge voltage (USE)	0.9 - 17.0V	

Fault Code Specifications:

Code	Code Description	Control Strategy
E0	No fault	
E1	Over-discharge of the battery	Battery voltage rises to over-discharge return voltage and prompt is released
E2	Over-voltage of the battery	No charging
E3	Battery under-voltage warning	Battery voltage is lower than the under-voltage threshold. Return to normal voltage
E6	Interior over-temperature	De-rating charge according to over-temperature strategy
E7	Battery over-temperature	Turn off the charging, then recover the charging after the voltage is lowered
E8	Excessive solar input power	Current-limiting charging
E10	Over-voltage of the solar panel	Turn off the charging, then recover the charging after the voltage is lowered
E15	Battery not connected or lithium battery protection	If the solar panel voltage meets the charging condition, lithium battery has constant voltage output, lead-acid battery has no voltage output , then the controller should return to normal after the battery is connected
E16	Over temperature of the battery	No charging
E18	BMS over-charge protection	No charging
E19	Low temperature of the battery	No charging

PRE-INSTALLATION PRECAUTIONS

- PV arrays may generate very high open circuit voltages. Disconnect the circuit breaker or fuse before wiring and be very careful during wiring. Ensure that solar panels are completely covered from sunlight during installation.
- Never install the controller and a vented battery in the same enclosed space.
- The battery terminals on the controller can be connected to either a single battery or a battery bank. Subsequent instructions in this manual apply to systems using a single battery, but are equally applicable to systems using a battery bank.
- Follow the safety recommendations of the battery manufacturer.
- Select the system connection wire with a current density of no less than 4A/mm².
- This device has a common negative design. If grounding is required, enure that the negative terminal is grounded.

WIRE AND FUSE SELECTION

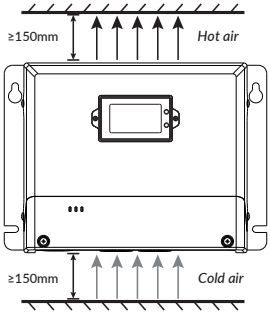
Wiring and installation must meet the requirements of national and local electrical codes. PV and battery connection wires must be selected based on the parameter of rated current.

Please refer to the table below for wire and fuse specifications:

Wire Selection Specifications:	
PV Maximum Input Current	50A
PV Wire Gauge	13 mm²
Rated Charge Current	60A
Battery Wire Gauge	32 mm²

CONTROLLER INSTALLATION

When installing the controller, ensure that the installation will provide adequate airflow around the controller, and reserve at least a 150mm space above and below the controller for natural convection cooling. If installed in a closed container, ensure there is reliable heat dissipation through the container.



1. Select an installation location

a. Choose a location that will avoid direct sunlight, minimise exposure to high temperatures, and is suitably ventilated.

2. Install mounting screws

a. Mark the mounting position according to the mounting dimensions of the controller, drill two mounting holes of suitable size at the two marks and fix the screws on the two mounting holes.

3. Install the controller

a. Align the controller fixing holes with the two pre-fixed screws to hang the controller up, and then fix the two screws below.

4. Wire the controller

a. Access the corresponding interface according to the screen mark of each terminal, and pay attention not to connect the positive and negative in reverse.

CONTROLLER WIRING

1. Wiring information

When all cables are connected firmly and reliably, check whether the wiring is proper and whether the polarity is reversed. After confirmation, connect the battery fuse or circuit breaker and observe whether the LED indicator is on. If not, disconnect the fuse or circuit breaker immediately and check whether wiring is correct.

Once the battery is on and can be registered by the controller, connect the solar panel. If there is sufficient sunlight, the charge indicator of the controller will be steady on or flash and start to charge the battery.

Warning: When the controller has stopped charging for 10 minutes, reverse polarity of the battery can damage the controller's internal components.

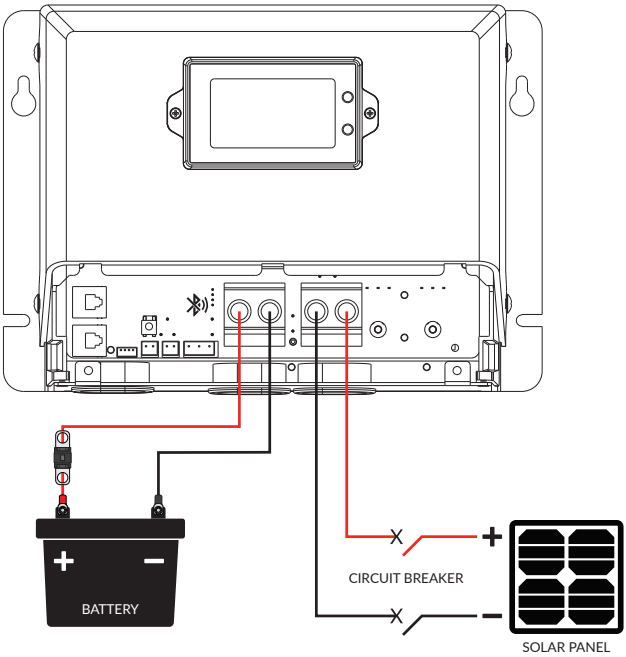
Note:

- Note that the battery fuse shall be installed as close as possible to the battery terminal. The recommended distance is no more than 150mm.

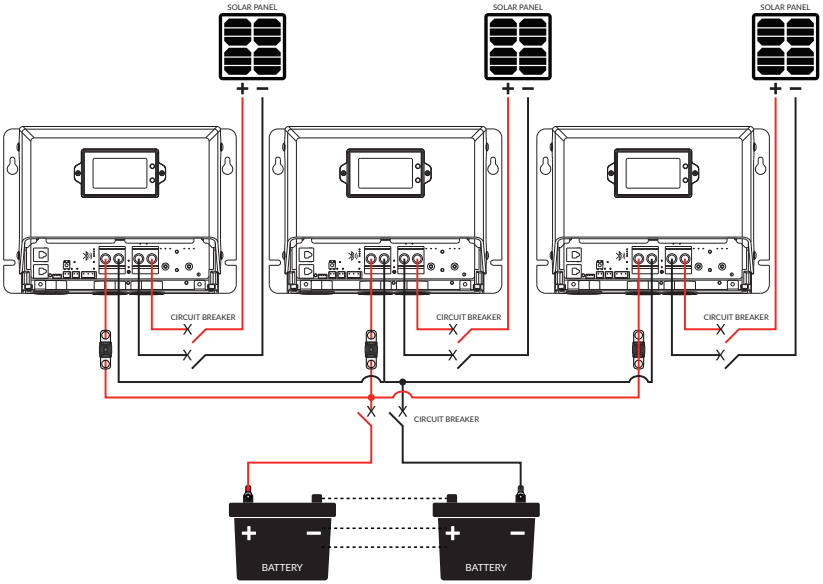
2. Wiring diagram

a. Connect battery positive
b. Connect battery negative
c. Connect solar positive
d. Connect solar negative

STAND-ALONE SYSTEM WIRING



PARALLEL SYSTEM WIRING



PROTECTION FEATURES

Waterproofing protection:
- IP32 rated

Over-temperature protection inside device:
- When the interior temperature of the controller is beyond the set value, the controller will reduce the charging power or stop the charging cycle to reduce the temperature of the controller.

Over-temperature protection of battery:
- Over-temperature protection for the connected battery can only be achieved when the temperature sampling sensor of the battery is connected. When the battery's temperature sampling sensor is connected, the controller will stop charging when the battery's temperature exceeds the set value. The controller will resume charging when the battery's temperature drops below 5°C below the set value.

Over-voltage of PV input terminal:
- If the PV array input voltage exceeds the set value, the controller will cut input from the PV array.

Reverse protection for PV input:
- When the photovoltaic array polarity is connected in reverse, the controller will not operate to avoid damaging the PV connection. The controller will commence operation after the wiring error is corrected.

Reverse Charging Protection:
- When the PV array voltage drops at night, the controller automatically blocks reverse current to prevent the battery bank from discharging into the PV array.

SYSTEM MAINTENANCE

- In order to maintain the best long-term performance for controllers, it is recommended to conduct inspections twice a year.
- Make sure the airflow around the controller is not obstructed and remove any dirt or debris from the heat sink.
- Check if the insulation layers of all exposed cables are damaged due to sun exposure, friction with other objects nearby, dry rot, destruction of insects or rodents, etc. If so, it is necessary to repair or replace the cable.
- Verify if indicators are consistent with the device operations. Please note to take corrective actions for any malfunctions or error indications if necessary.
- Check all wiring terminals for corrosion, insulation damage, signs of high temperature or burning/discoloration.
- Tighten terminal screws.
- Check for dirt, insects nesting and corrosion and clean as required.
- If the lightning arrester has failed, replace it in time to protect the controller and other devices in the system from being damaged by lightning or electrical spikes.

Warning: To carry out any of the operations above, please ensure that all power to the controller has been disconnected. Afterwards, perform a final inspection and commence operation. Operation and maintenance should only be handled by trained professionals where necessary.

TROUBLESHOOTING

Common Troubleshooting:

Issue	Troubleshooting
Indicator light or LCD is not on	Check whether the connection of the battery cables and solar panel cables are correct and reliable. If not, connect correctly and then recalibrate.
Battery icon indicator light flashes quickly without charging and E1 code is displayed	Over-voltage of the system; inspect the battery to determine cause of over-voltage.
There is voltage on the solar panel, no voltage output at the battery end and E1 code is displayed	No battery can be detected at the lead-acid battery terminal. Check battery connection and ensure battery is correctly and securely connected.
No data on the LCD	Poor communication; check the communication cable is connected correctly.
The device cannot be searched by a mobile phone or smart device Bluetooth	Check whether smart device is operating Bluetooth function. Try turning the function off on smart device, turn it back on and rescan Bluetooth.
Connected with normal 12-48V battery voltage, the battery icon on the LCD flashes slowly and E1 code is displayed	Check whether it is set as the corresponding system voltage. If not, restart the controller. The controller will require the system voltage to be reconfigured after a reset.
No charging by the controller	Check whether the cables are correctly connected, whether the solar panel voltage exceeds the rated value, whether the battery exceeds the voltage and check the LCD error code. Check whether there is interior or exterior over-temperature, low temperature of exterior lithium or whether the lead-acid battery is open.
Other problem or insoluble abnormality	Try to restore the factory settings, then reset related parameters in accordance with system configuration.

WARRANTY INFO

ALVOLTA
BUILT FOR POWER

3 YEAR WARRANTY

At Alvolta, we build all our gear for reliable power. We stand behind the quality and durability of our components. Our product development team rigorously tests our products to ensure they will perform in the Australian climate.

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 compensation for any other reasonable 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 the failure does not amount to a major failure.

Alvolta warrants that our products are free from manufacturing defects in material and workmanship for the warranty period. The warranty commences on the date of purchase by the original purchaser. If a defect arises during the warranty period, we will repair, replace or provide an appropriate remedy in accordance with the Australian Consumer Law.

To access the benefits of this warranty, you must retain your proof of purchase and follow any other direction we reasonably give you.

Processing a Warranty Claim

If you believe your product is defective, it must be returned to us for inspection by our warranty claims department. Please contact our customer service team to provide details of the defect. They will assist you through the process of your warranty claim, including how to return the product for inspection.

Once we receive your returned product, our technicians will inspect it. We will then notify you of the outcome of your claim.

If we accept your warranty claim, we will either repair, replace or refund the goods at our discretion. We will also reimburse you for the shipping costs you incurred in sending the goods back to us. Any products that we choose to replace or refund become the property of our company.

If we do not accept your claim, we will advise you of the reason and hold your product for collection. You will need to arrange and pay for the product to be shipped back to you. If your product is not collected within 30 days of your warranty claim being finalised, we may destroy it.

Your warranty is voided if we (at our sole discretion) determine that there is evidence of one or more of the following:

Negligence: Improper installation, improper or extreme use, use that contravenes this instruction manual, etc.

Abuse: Road hazards, damage beyond the limits of “normal wear and tear.”

Unauthorised Repair: Repair service performed by an unauthorised service centre.

Disassembly: Any attempt to open, tamper with or otherwise compromise the integrity of the product.

Consequential Damage: Damage to this product caused by the failure of another component of the vehicle or device in which this product is installed.

Note regarding exterior finishes: we use the highest quality materials available, but depending on location, environment and exposure, the colour of exterior surfaces can fade. We will not approve any warranty claims that relate to colour fading.

Discontinued Items

Discontinued items that are still under warranty will be reviewed by our company. If a discontinued item is covered under warranty it may be replaced by an equivalent or superior item. If an equivalent item is not available our company will determine terms of resolution on a case-by-case basis.

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