ALVOLTA
BUILT FOR POWER

OWNER'S MANUAL



ALVOLTA LUNA-ORBIT 50A DC-DC CHARGER WITH 50A MPPT

ALV-MPPTDC50

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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-Orbit is a highly efficient, multi-stage DC-DC charger and MPPT solar charge controller designed for off-grid dual battery systems. The combined unit efficiently manages power from both solar and alternator inputs to ensure the auxiliary battery bank is reliably charged.

The Alvolta Luna-Orbit 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.

The unit features multi-phase, highly efficient synchronous rectifier technology, allowing the system to deliver highly reliable and efficient charging power to the battery bank. The DC-DC charger also provides multiple charging options, allowing for customisation to suit the system's needs.

The Alvolta Luna-Orbit unit features built-in Bluetooth, allowing monitoring, data logging, and parameter configuration through the Alvolta app, PC software, and other compatible communication interfaces.

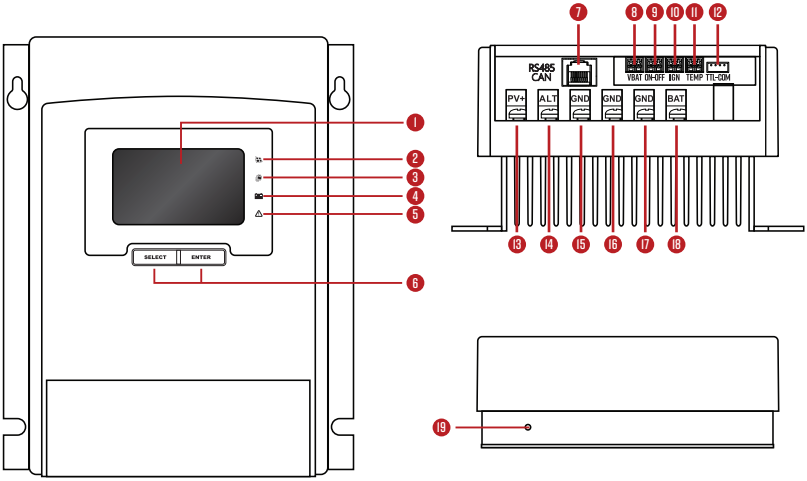
FEATURES

- 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 Luna-Orbit unit features multi-phase, highly efficient synchronous rectifier technology. This multi-phase circuit configuration allows the unit to deliver a highly-efficient DC-DC conversion efficiency in both high and low power ranges.
- Preset a variety of battery types: lithium batteries, sealed lead-acid batteries, flooded lead-acid, gel batteries and user-defined options.
- The unit supports a wide variety of alternator types including intelligent and conventional types. The controller automatically identifies which alternator type is connected via the ignition signal interface.
- The unit supports multiple charging configurations to accommodate various power sources. Includes solar priority, generator priority, dual charging, starter maintenance, and forced charge modes (see page 14).

- The unit features line loss compensation for the backup battery charging voltage, making the battery charging voltage control more accurate.
- The unit features temperature compensation and automatic adjustment of charge and discharge parameters help to improve battery life.
- The unit features a built-in over-temperature protection mechanism, which switches the charging power to a linear decline when the temperature exceeds a set value. It also features a high-quality aluminium radiator, providing the unit with a robust thermal design.
- Uses a built-in 4.0BLE Bluetooth module, allowing for connection and interaction with the Alvolta app.
- Supports the standard Modbus protocol, allowing for technology support to facilitate secondary development and application integration.

INTERFACE & INDICATORS

MAIN INTERFACE



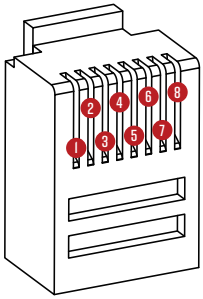
1	LCD Display (with backlight)	11	Battery temperature sensor interface
2	PV indicator	12	TTL communication interface
3	Alternator indicator	13	PV positive terminal (+)
4	Backup battery indicator	14	Alternator positive terminal (+)
5	Alarm indicator	15	PV negative terminal (-)
6	Operation key	16	Alternator negative terminal (-)
7	RJ45 interface (RS485 & CAN)	17	Backup battery negative terminal (-)
8	Battery volt compensation interface	18	Backup battery positive terminal (+)
9	Remote switch interface	19	Grounding port
10	Ignition signal interface		

The negative electrode of solar cell, alternator (starting battery) and backup battery are of common negative electrode design.

RS485 COMMUNICATION INTERFACE

RS485 Communication
- 9600 baud, 8 data bits, no parity, 1 stop bit (9600 8N1)
- RJ45 communication power supply out
- 5V / 200mA

CAN Communication
- 250 kbps baud rate
- RV-C protocol

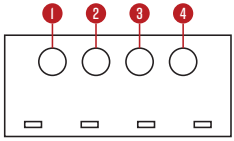


1	CAN_L
2	CAN_H
3	NC
4	NC
5	Power/signal ground
6	D-
7	D+
8	Positive terminal 5V/200mA

TTL COMMUNICATION INTERFACE

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

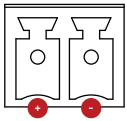
TTL Communication
- 9600 baud, 8 data bits, no parity, 1 stop bit (9600 8N1)
- (12V ± 3V) / 100mA



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

REMOTE ON/OFF

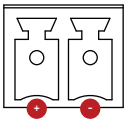
The unit features a remote switching interface that activates or deactivates the system based on circuit status. The unit operates normally when the remote interface terminals are open-circuited (open). The unit stops operating when the interface terminals are short-circuited (closed). Note that you can wire a standard mechanical switch, toggle, or relay to this interface to act as a physical start/stop control for the system.



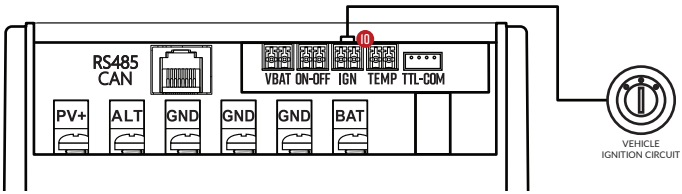
Remote ON/OFF Specifications:	
Definition	Notes
+	Short circuit prevents charging and disconnection can restart charging
-	

IGNITION SIGNAL INTERFACE

Smart alternators operate differently than standard alternators. A standard alternator has a higher startup voltage threshold (13.2V), meaning the charger can activate using only the main positive input cable (no ignition wire required). However, a smart alternator's output voltage can drop as low as 12.0V. If the vehicle uses a smart alternator, the ignition signal cable must be connected to the unit's ignition terminal (⑩) so the unit can accurately detect when the engine is running.



Ignition Signal Interface



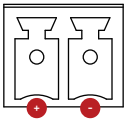
BATTERY VOLTAGE COMPENSATION

High charging currents combined with smaller-gauge battery cables can cause a voltage drop. This causes the unit to detect a higher voltage than what is actually present at the battery, resulting in an undercharged battery.

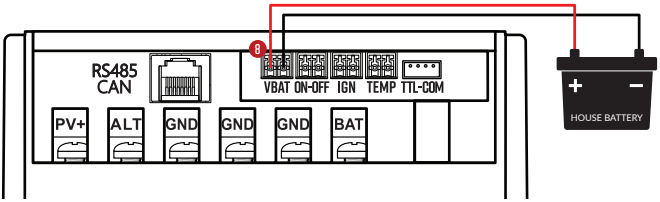
To resolve this, a dedicated voltage sense wire can be connected from the auxiliary battery terminals to the unit's voltage compensation port (❽). This allows the unit to measure the true battery terminal voltage and automatically compensate for any voltage drop, ensuring a full and accurate charge.

Wiring Note:

- When connecting to the voltage compensation port, ensure correct polarity. The Positive (+) wire connects to the left terminal and the Negative (-) wire connects to the right terminal.



Voltage Compensation Interface



INDICATOR LIGHTS

Indicator Specifications:

Indicator Icon	No.	Indication Description
	1	PV Charge Indicator
	2	Alternator Indicator
	3	Backup Battery Indicator
	4	Alarm Indicator

PV Charge Indicator Specifications:

Colour	Light Indication	Indication Description
Red	On normally	MPPT charge
	Slow flash (on 1s, off 1s)	Boost charge
	Single flash (on 1s, off 1.9s)	Floating charge
	Quick flash (on 1s, off 0.1s)	Equalising charge
	Double flash (on 0.1s, off 0.1s, on again 0.1s, off again 1.7s)	Current limiting charge
	Off	Not charging

Alternator Indicator Specifications:

Colour	Light Indication	Indication Description
Red	On normally	Alternator is charging the backup battery
	Slow flash (on 1s, off 1s)	Solar energy will charge the starter battery
	Quick flash (on 1s, off 0.1s)	Alternator over-voltage
	Off	Not charging

Backup Battery Indicator Specifications:

Colour	Light Indication	Indication Description
Red	On normally	The battery voltage is normal
	Slow flash (on 1s, off 1s)	Battery over-discharge
	Quick flash (on 1s, off 0.1s)	Battery over-voltage

Alarm Indicator Specifications:

Colour	Light Indication	Indication Description
Red	On normally	System alarm
	Off	System is normal

KEY FUNCTION

1. Set battery type

There are two keys on the unit that can used to navigate the settings that are available on the unit's LCD screen. The two keys are:

- Key 1: SELECT
- Key 2: ENTER

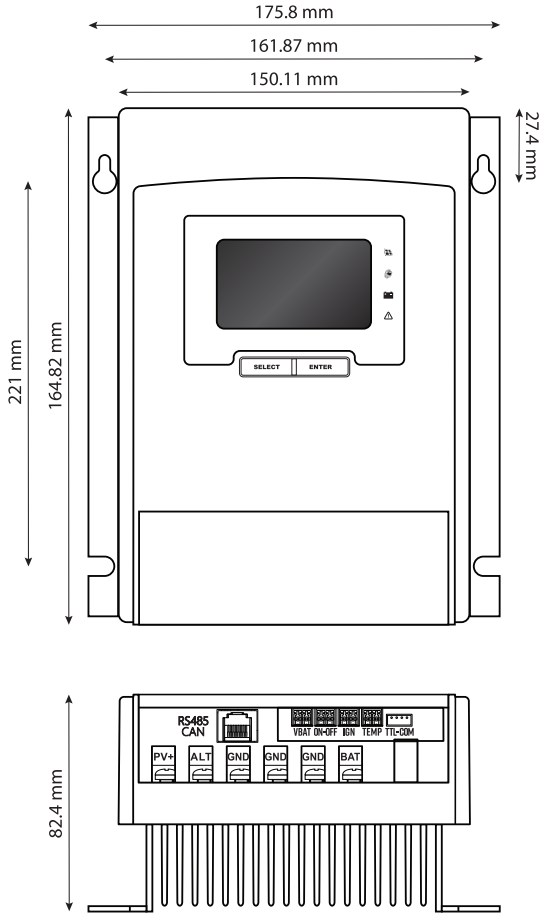
To open the parameter settings menu, press and hold the ENTER key for a few seconds. Within the parameter settings menu, press the ENTER key to adjust the selected parameter value. Pressing the SELECT key will switch to different setup options. Pressing and holding the ENTER key for a few seconds within the parameter settings menu will save the parameter settings and exit the settings menu.

SPECIFICATIONS

Specifications:

Battery	
Backup Battery System Voltage	12V
Backup Battery Voltage Range	9 - 16V DC
Compatible Battery Types	Lithium, Sealed Lead-acid, Gel, Vented and User-defined Batteries
Rated Charging Current	50A
Connection Type	25-6mm Cable Lug
Maximum Cable Size	20mm² (4AWG)
MPPT	
Maximum PV Input Voltage	55V DC
Maximum PV Input Current	50A
Solar Panel Charging Mode	Buck MPPT
MPPT Efficiency	> 99%
Recommended PV Input Power	700W
PV Starter Battery Charging Voltage	Generator startup charging voltage 0.2V
PV Starter Battery Charging Current	≤ 10A at 12V, ≤5A at 24V
Alternator	
Alternator (Starter) Battery System Voltage	12 / 24V
Starter Battery Type	Lead-Acid
Maximum Alternator Input Voltage	32V DC
Maximum Alternator Input Current	65A
Traditional Alternator Voltage Range	13.2 - 16V DC / 26.4 - 32V DC
Intelligent Alternator Voltage Range	12 - 16V DC / 24 - 32V DC
Alternator Charging Mode	Buck, Boost
Recommended Alternator Power Output	700W (12V backup battery)
No-load Loss	< 1.1W
Maximum Charging Conversion Efficiency	96%
General	
Temperature Compensation Factor	-3mV / °C/2V (for lead-acid batteries only)
Communication	Bluetooth, TTL, RS485 and CAN (RV-C)
Operating Temperature Range	-35°C - +65°C
Ingress Protection	IP32
Altitude	≤ 3000m
Colour	Black
Dimensions (w x h x d)	221 x 175.8 x 92.4mm
Weight	2.34kg
Warranty	3 Years
Protection Features	Over-charging, Over-current, Over-temperature, Alternator Reverse-connection, Solar Panel Reverse-connection, Backup Battery Reverse-connection, Anti-reverse Charging at Night

Model Dimensions:



- Mounting hole size: 4.5mm

PARAMETERS

BATTERY PARAMETERS

Default Battery Voltage Parameters:

Battery Type	Lithium	Sealed Lead-Acid	Gel Lead-Acid	Flooded Lead-Acid	Custom User Range
Over-voltage Break Voltage	16.0 V	16.0 V	16.0 V	16.0 V	9.0 - 17.0 V
Over-voltage Recovery Voltage	15.4 V	15.0 V	15.0 V	15.0 V	-
Equalising Voltage	-	14.6 V	-	14.8 V	9.0 - 17.0 V
Boost Voltage	14.4 V	14.4 V	14.2 V	14.6 V	9.0 - 17.0 V
Float Charge Voltage	-	13.8 V	13.8 V	13.8 V	9.0 - 17.0 V
Booster 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 Recovery Voltage	12.3 V	12.2 V	12.2 V	12.2 V	-
Under-voltage Alarming Voltage	12.1V	12.0V	12.0V	12.0V	9.0 - 17.0 V
Over-discharge Voltage	11.1 V	11.1V	11.1V	11.1V	9.0 - 17.0 V
Boost Duration	-	120 min	120 min	120 min	10 - 600 min
Equilibrium Duration	-	120 min	-	120 min	0 - 600 min
Equalising Charging Interval	-	30 days	-	30 days	0 - 255 days
Temperature Compensation	0mV/°C/2V	-3mV/°C/2V	-3mV/°C/2V	-3mV/°C/2V	0 - -5mV/°C/2V

Note: Please adhere to the technical specifications and safety recommendation provided by the battery manufacturer when setting system parameters.

CHARGING MODE PARAMETERS

Solar Priority:
- Solar charging for the backup battery only.

Alternator Priority:
- Alternator charging for the backup battery only.

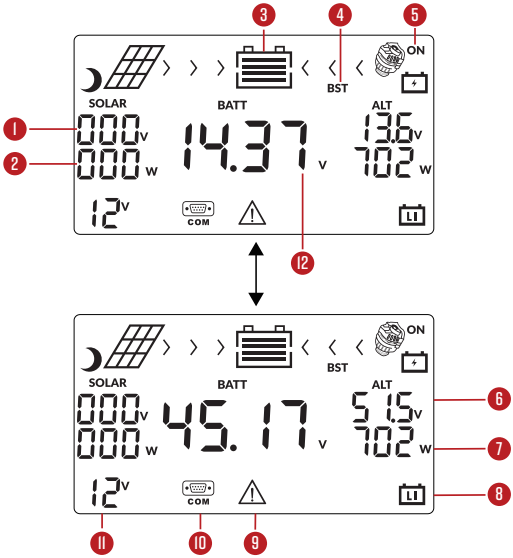
Dual Charging:
- Simultaneous solar and generator charging for maximum efficiency.

Starter Maintenance:
- Solar charging dedicated to the vehicle's starting battery.

Forced Charge Mode:
- Manual override to force immediate battery charging when needed.

DISPLAY MAIN PAGE

The LCD screen displays real-time operation data (voltage/current/power), charging status, amd system information, and automatically switches between the real-time voltage and current every 10s.

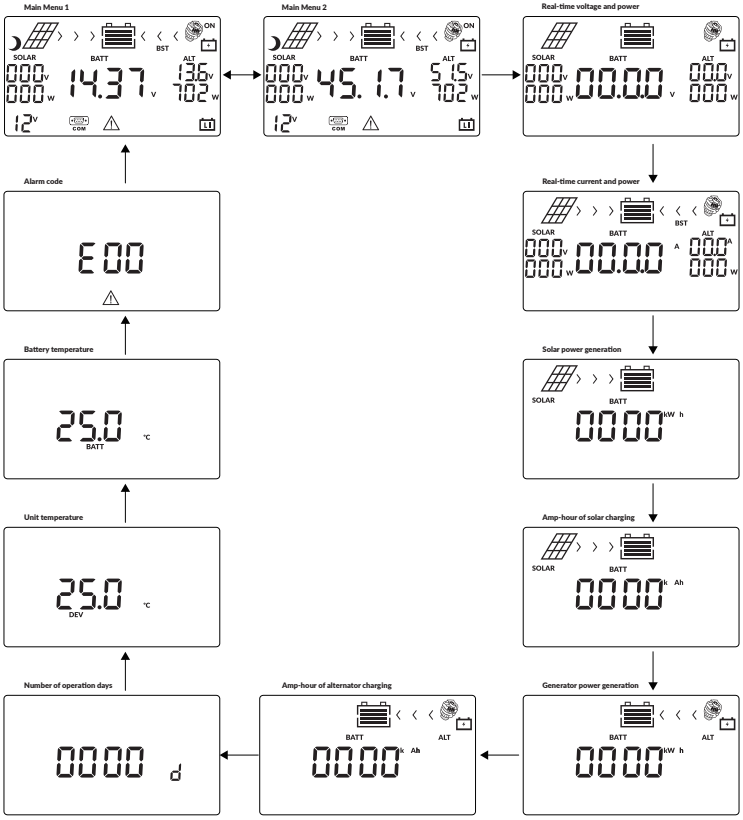


1	PV cell voltage & current	7	Real-time alternator charging power
2	Real-time PV charging power	8	Backup battery type
3	Backup battery charge	9	System alarm prompt
4	Charging mode	10	Communication connection prompt
5	Alternator start-up/shut-down prompt	11	System voltage
6	Alternator charging current & voltage	12	Backup battery voltage & current

DISPLAY MENU BROWSING

Press [SELECT] to enter the status menu. Each subsequent press cycles through real-time metrics in this order:

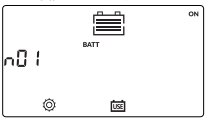
Voltage → Current → Solar Wh & Ah → Alternator Wh & Ah → Operating Days → Device Temp → Battery Temp → Active Alarm Codes (if any).



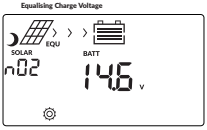
DISPLAY PARAMETER SETTINGS

- Press and hold [ENTER] to enter the parameter settings
- After entering the interface, press [SELECT] briefly to browse n01~n16 parameters
- If you need to modify the parameter, press [ENTER] briefly, then the parameter will flash
- Press [SELECT] briefly to adjust the parameter
- Press [ENTER] briefly to confirm the parameter
- Press and hold [ENTER] or return to the main interface if no operation for 10s

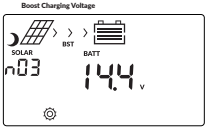
Battery Type: Custom USE (USELI)



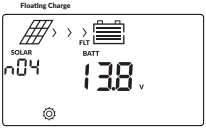
Equalising Charge Voltage



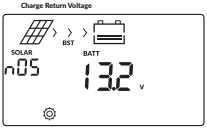
Boost Charging Voltage



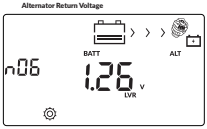
Floating Charge



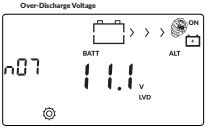
Charge Return Voltage



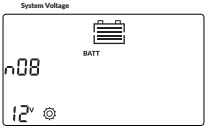
Alternator Return Voltage



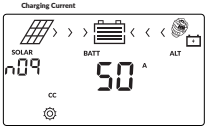
Over-Discharge Voltage



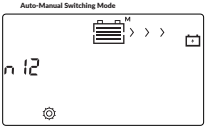
System Voltage



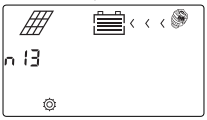
Charging Current



Auto-Manual Switching Mode



PV or Generator Priority



Unit Temperature



TTL Communication Baud Rate



System Restart



Factory Reset



Clear Historical Data



Parameter Instructions:

Parameter	Setting Instructions
n01	Backup battery type selection. Can be set to FLD, SLD, GEL, LI, USE, USELI
n02	Equalisation charging voltage. USE battery type can be set within 9V - 17V
n03	Boost charging voltage. USE and USELI battery types can be set within 9V - 17V
n04	Float charging voltage. USE battery type can be set within 9V - 17V
n05	Charging return voltage. USE and USELI battery types can be set within 9V - 17V
n06	Over-discharge return voltage. USE and USELI battery types can be set within 9V - 17V
n07	Over-discharge voltage. USE and USELI battery types can be set within 9V - 17V
n08	System voltage
n09	Charging current. Can be set within 0A - 50A
n12	Starter battery charging mode. Can be set to A (automatic) or M (manual)
n13	Backup battery charging mode. Can be set to photovoltaic priority or generator priority
n14	Temperature unit. Can be set to °C or °F
n15	TTL communication baud rate. Can be set within 4,800 - 115,200kps
n16	System reboot
n17	Restore factory settings
n18	Clear history

SYSTEM ALARMS

Battery Type Parameters:

System Alarm	Meaning	Description
E0	No fault	
E1	Backup battery over-discharge	Indicator prompt
E2	Backup battery over-voltage	No charging
E3	Backup battery under-voltage	The indicator shows normal charging
E6	Equipment over-temperature	De-rating charging according to over-temperature strategy
E7	Battery over-temperature	No charging
E8	Excessive solar panel power	Current-limit charging
E10	Solar panel over-voltage	No charging
E15	Battery disconnected or lithium battery feed protection	
E19	Battery low temperature	No charging
E22	Alternator over-voltage	The alternator neither charges nor discharges
E23	Excessive alternator power	Current-limit 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 unit 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

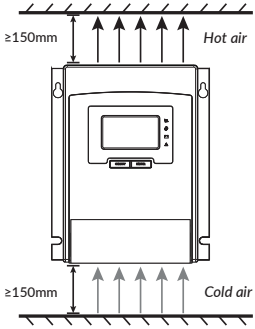
Wiring and installation must meet the requirements of national and local electrical codes. PV, alternator (automobile) and battery wiring specifications must be selected according to rated current.

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

Wire and Fuse Selection Specifications:	
PV Terminal Maximum Input Current	50A
PV Terminal Wire Gauge	13 mm²
PV Terminal Fuse Specification	60 - 70A
Alternator Terminal Maximum Input Current	65A
Alternator Terminal Wire Gauge	20 mm²
Alternator Terminal Fuse Specification	80 - 90A
Backup Battery Terminal Maximum Input Current	50A
Backup Battery Terminal Wire Gauge	20 mm²
Backup Battery Terminal Fuse Specification	60 - 70A

CHARGER INSTALLATION

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



1. Select an installation location

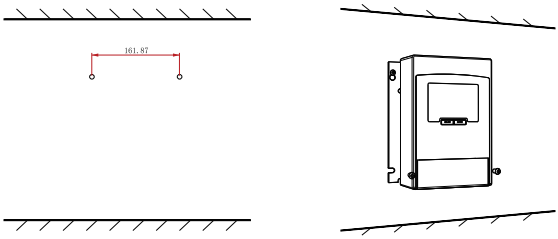
a. Choose a location that will avoid direct sunlight, minimise exposure to high temperatures, and is suitably ventilated.

2. Install mounting screws

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

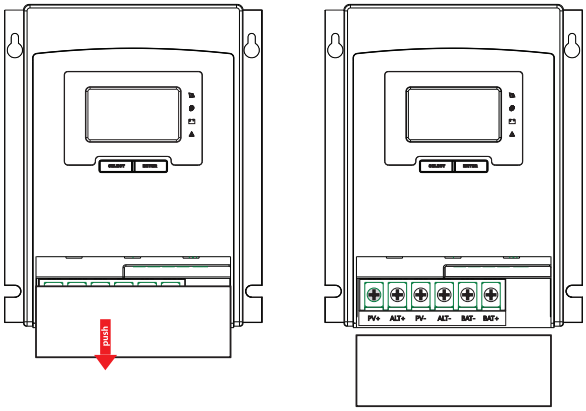
3. Install the charger

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



4. Wire the charger

a. Select cables with appropriate specification according to the system configuration, and press one end of the wire to the standard copper terminal
b. Connect the wiring hole of the copper terminal into the wiring port corresponding to the unit
c. Push open the black terminal cover in the direction of [push] arrow in the following left picture



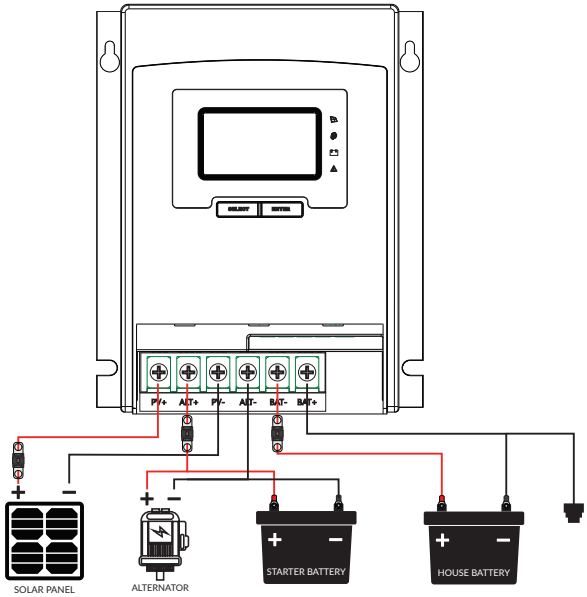
d. Access the corresponding interface according to the screen mark of each terminal, and pay attention not to connect the positive and negative in reverse
e. Finish the wiring and push them into the front cover of the black terminal

CHARGER WIRING

1. Wiring sequence

a. Connect backup battery
b. Connect solar panel
c. Connect loads

Note: Connect positive (+) first, then negative (-) for each component



2. Parameter settings

- n01: Battery type (LI, SLD, FLD, GEL, USE, USELI)
- n09: Charging current setting
- n13: Charging priority (PV or Alternator)
- n17: Restore factory settings

PROTECTION FEATURES

Waterproofing protection:
- IP32 rated

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

Battery reverse polarity protection:
- If the battery polarity is reversed, the system will not work but it will not burn out the unit.

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

PV input reverse polarity protection:
- When the polarity of the PV array is reversed, the unit will not be damaged, and normal operation will continue after the wiring error is corrected.

Reverse Charging Protection:
- When the PV array voltage drops at night, the unit 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 DC units, it is recommended to conduct inspections twice a year.
- Make sure the airflow around the unit 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 unit 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 unit 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	Possible Cause	Troubleshooting
After the backup battery is connected for charging, there is no response and the indicator light is not on.	Wrong or loose connection of the backup battery	Check whether the connection of the backup battery wires are correct and reliable. If not, connect correctly and then recalibrate.
	Lithium battery protection	Connect a solar panel or a vehicle alternator to charge and activate the lithium battery.
The controller cannot charge the backup battery with solar during the daytime.	Wrong or loose connection of the solar panel	Check whether the connection of the solar panel wires are correct and reliable. If not, connect correctly and then recalibrate.
	The solar panel is being blocked	Ensure the solar panel is not blocked.
	Error in the backup battery system voltage level setting	Ensure the system voltage level set by the unit is identical with the actual battery voltage level used.
The backup battery cannot be charged by the alternator while the vehicle is running.	Wrong or loose connection of the alternator	Check whether the connection of the alternator wires are correct and reliable. If not, connect correctly and then recalibrate.
	Error in the backup battery system voltage level setting	Ensure the system voltage level set by the unit is identical with the actual battery voltage level used.

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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