PROJECTA

MPPT SOLAR CHARGE CONTROLLER

3 STAGE CHARGING 12/24V MULTI-CHEMISTRY

SC550

RECYCLE

1. Safety Tips

- Please ensure the instructions are read prior to any installation.
- Keep instructions in a safe place for future reference.
- Do not expose to rain, snow or liquids of any type. SC550 is designed for indoor use only.
- Beware of any nearby electrical equipment that may interfere with installing this device.
- Do not connect any AC sources to the controller as it may cause a fire/explosion and will permanently damage the device.
- Always check the battery polarities before making a connection. The positive terminal of a battery goes into BAT+ and the negative into BAT-.
- The controller is not designed to run without a battery voltage reference. In the event of replacing /servicing the battery, always disconnect the solar input first (or fully cover the panels), then replace/ service the battery.
- Solar panels can generate high voltages and currents, make sure your solar panels are completely covered from sunlight during installation.
- Keep this product out of reach of children.
- Always install fusing or circuit breakers on the input positive and output positive circuits.
- Connecting wires to this device can generate sparks, please wear proper insulation gear while installing this device.
- This controller is a negative grounded (positive switching) type.
- Lead acid batteries can be dangerous. Ensure no sparks or flames are present when working near batteries.
- Always take the total length of wire into consideration and use the correct wire size, see below for a table of recommended wire sizes for various current loads.

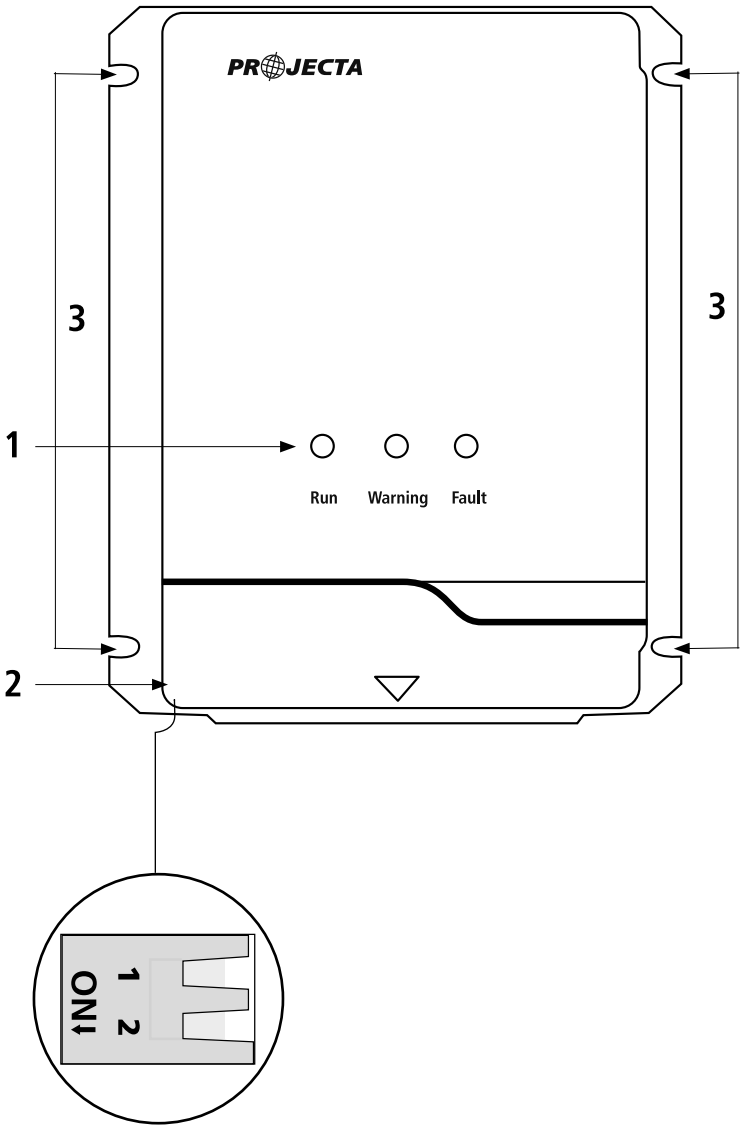
Maximum Cable Distance	Solar Input Current					Wire AWG & Cross Section Area
	10A	20A	30A	40A	50A	
2m	12AWG 4mm^2	10AWG 6mm^2	10AWG 6mm^2	8AWG 10mm^2	6 AWG 16mm^2	
3m	12AWG 4mm^2	10AWG 6mm^2	8AWG 10mm^2	6AWG 16mm^2	6 AWG 16mm^2	
5m	10AWG 6mm^2	8AWG 10mm^2	6AWG 16mm^2	6AWG 16mm^2	4 B&S 20mm^2	
7m	10AWG 6mm^2	6AWG 16mm^2	6AWG 16mm^2	—	—	

2. Product Features

- 3 Stage built-in charging ensures the battery is charged to the optimum level.
- Advanced MPPT technology to improve charging efficiency in different weather and temperature conditions.
- Selectable battery chemistry types, including AGM, GEL, WET and Lithium.
- Compatible with 12V/24V battery system voltage.
- Protects your battery from discharge at night. Under low light or no light conditions, the solar panel voltage could be less than the battery voltage. The controller contains circuitry which prevents current flowing back from the battery and into the solar panel.
- Multi charging protections against output short circuit, over-voltage and over-temperature.
- With the use of a battery temperature sensor (optional), the controller will compensate charging voltages when the battery temperature becomes too high (for Lead Acid only).
- App support via Bluetooth® for monitoring additional parameters, such as charging watt-hours, charging current and solar input voltage.

3. Device Diagram

No.	Description
1	LED indicator (Run, Warning, Fault)
2	Battery Chemistry Settings
3	Installation Mounting Holes
4	RJ45 Communication Port
5	External Temperature sensor port
6	Solar Input Terminals
7	Battery Output Terminals

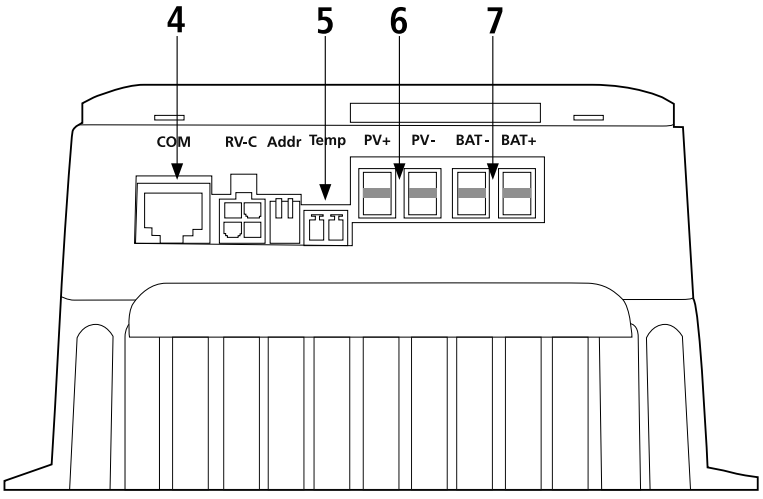


3.1 LED Indicator Description

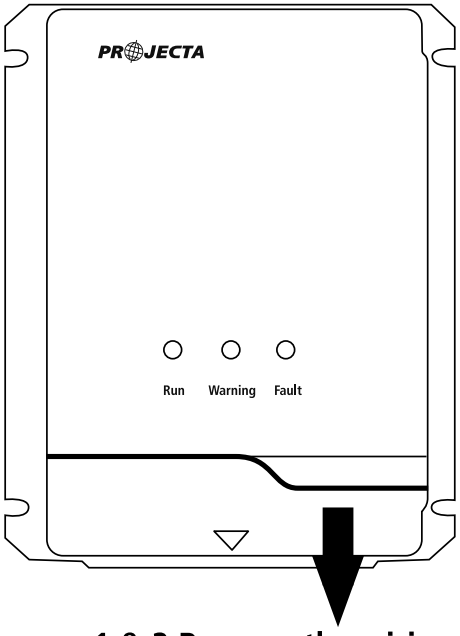
LED	Description
Run	- Flashes during standby - Stays ON while charging
Warning	- Flashes during warning
Fault	-Flashes during fault and stops charging

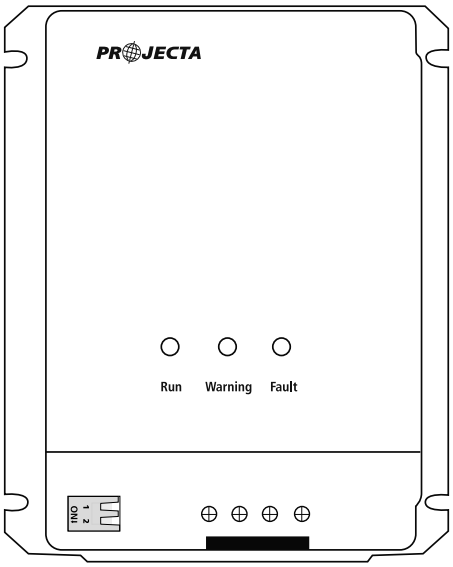
3.2 Battery Chemistry Setting DIP Switch

DIP Switch 1	DIP Switch 2	Battery Type
Off	Off	GEL
Off	On	AGM
On	Off	LFP
On	On	WET

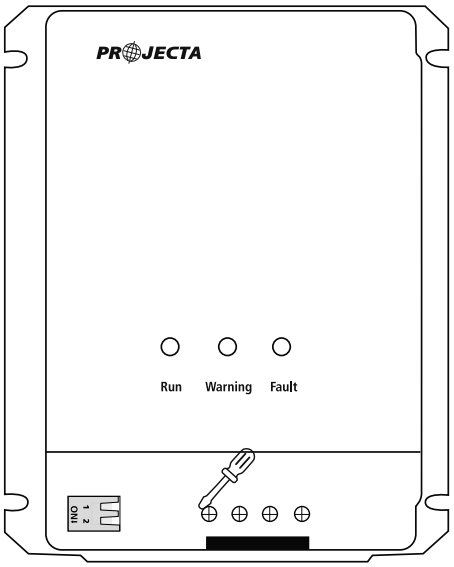


4. Wiring Instructions

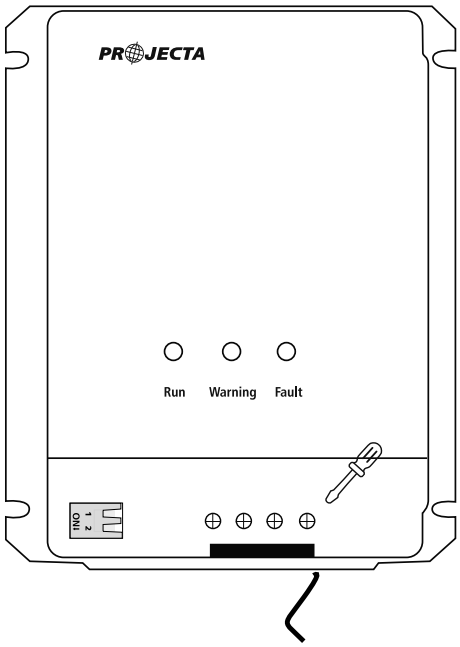




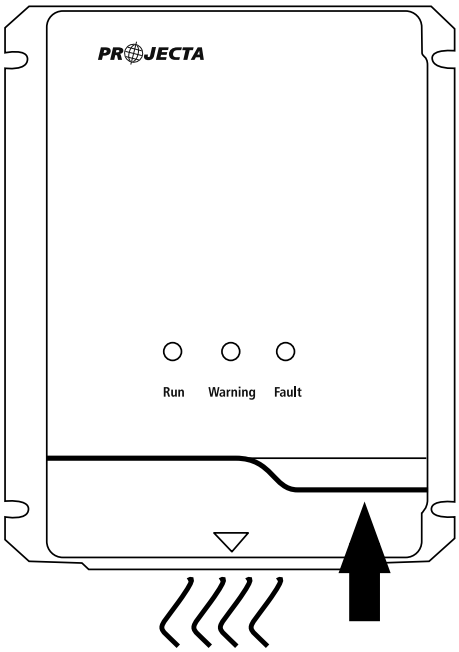
1 & 2 Remove the wiring cover plate and put it aside



3. Unscrew the terminals completely before inserting any wiring leads

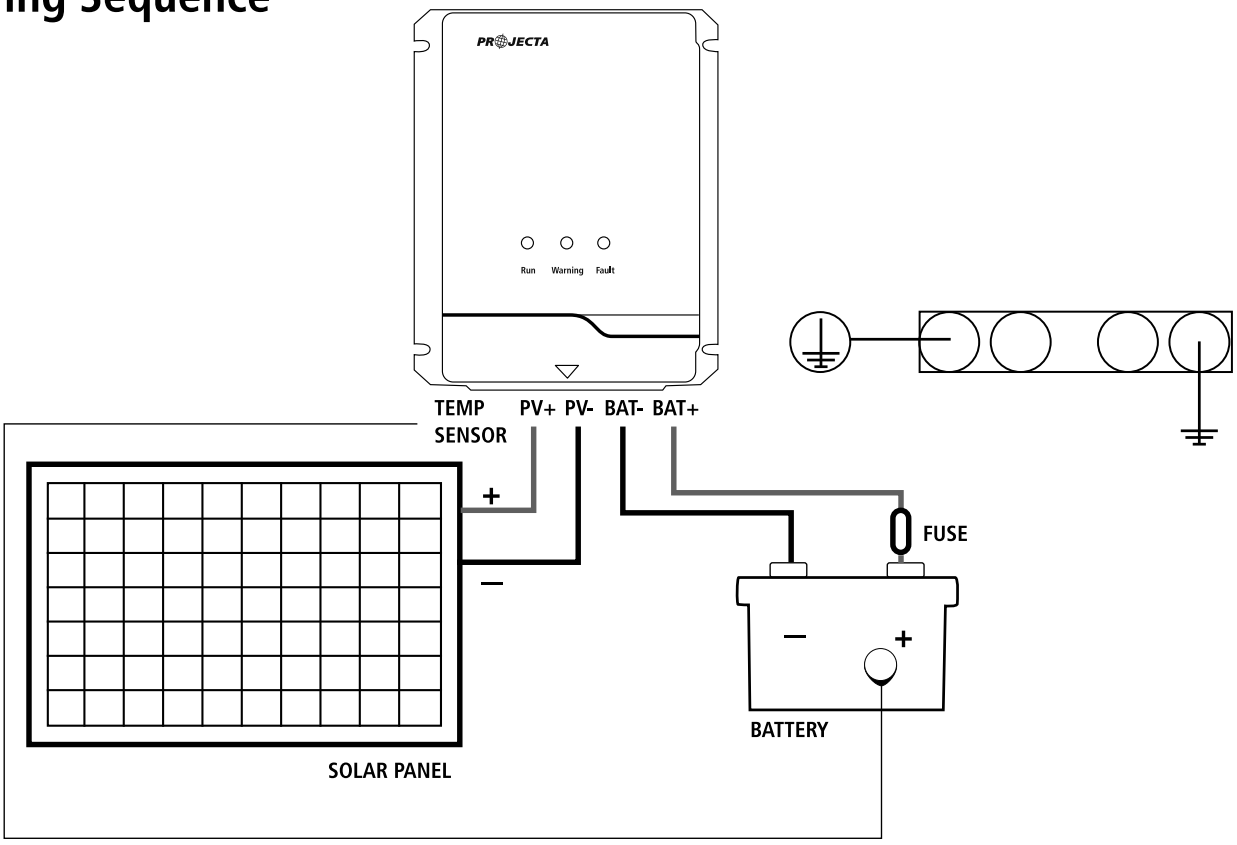


4. Insert the bare wires of the cable into the terminal and tighten the screws



5. Check the wiring condition and replace the wiring cover plate

5. Wiring Sequence



1. Connect the positive battery wire followed by the negative battery wire.
2. Connect the positive solar array input wire followed by the negative solar array input wire (make sure your solar panels are fully covered to prevent electrical shock).
3. Connect the external temperature sensor (optional) to its terminal shown above, and place the sensor on the side of a battery.

The controller is not designed to run without a battery voltage reference. In the event of replacing/servicing the battery, always disconnect the solar input or fully cover the panels, then remove/replace the battery.

6. Operation

6.1 Pre-operation Check

Please check the installation and wiring carefully before operation:

Step 1: Make sure the SC550 is installed correctly

Step 2: Make sure the cable layout and distancing are meeting the requirements of all the equipment in the system.

Step 3: Make sure the ground wire is properly connected firmly and reliably.

Step 4: Make sure Battery and PV array circuit breakers (or fuses) are disconnected.

6.2 Power ON Test

Make sure the battery voltage and solar panel voltage are within the permissible range before turning on the breaker:

Step 1: Reconnect circuit breaker or fuse for the battery.

Step 2: Reconnect circuit breaker or fuse for the PV array.

Step 3: Select the correct battery chemistry settings.

Step 4: Observe the LED light to check the SC550 can power on and it is working normally.

6. Operation (continued)

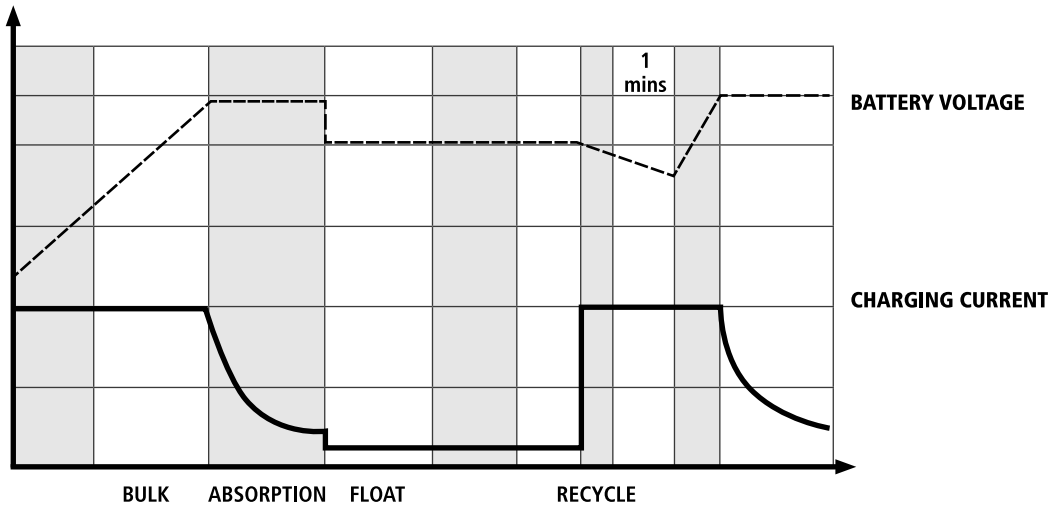
6.3 Power OFF

The SC550 will contain residual power and heat after power OFF. To avoid electric shock or burn risk, please cool down the SC550 for 5 minutes after power OFF. Then uninstall the SC550 with protective gloves:

Step 1: Turn off the circuit breaker for the solar panel.
Step 2: Turn off the circuit breaker for the battery.

6.4 Charging Stages

The SC550 multicharged algorithm is designed to charge the battery with high efficiency and reliability.



Bulk Charge (Stage 1) – Utilising MPPT technology, the controller will deliver maximum rated current until batteries rise to absorption level.

Absorption Charge (Stage 2) – the controller will deliver constant voltage based on the battery chemistry setting until the charge current is less than 4A, then the controller will turn to float charge mode.

Float Charge (Stage 3) - When the battery is fully charged, it will reduce the voltage to float voltage to ensure the battery is topped up optimally.

Recycle Charge (Stage 4)- After 10 days of Float charge, the controller will return to bulk charge and charge the battery to set voltage point.

7. Alarm Code

There are 2 fault types:

WARNING: The warning light flashes under abnormal conditions.

FAULT: The fault light flashes under abnormal conditions that prevent the controller from charging.

WARNING

CODE	NAME	DESCRIPTION	LED WARNING	TROUBLESHOOTING
04	BAT_unconnect	Battery connection failure	Flash 4 times	• Check whether the battery circuit breaker is off. • Check whether the battery power cable has a good connection
06	T_BAT_OT	Battery over temperature	Flash 6 times	• Check whether the installation ambient temperature is too high • Check whether the battery wiring is tight and reliable. • Check whether the battery cable matches the requirement.
08	TypeSet _Mismatch_Err	The controller model error	Flash 8 times	• Check whether the model is correct. • Please contact your dealer.
14	NTC_Board_Fault	The NTC of the controller is fault	Flash 14 times	• Please contact your dealer.

FAULT

CODE	NAME	DESCRIPTION	LED WARNING	TROUBLESHOOTING
01	U_Bus_OV	PV voltage is too high	Flash 1 time	• Check the string of PV array. • Make sure the PV open circuit voltage lower than the maximum range of MPPT controller. • If it happens frequently, please contact your dealer.
02	U_BAT_OV	Battery over voltage	Flash 2 times	• Check whether the controller matches to the battery voltage. • If it happens frequently, please contact your dealer
03	U_BAT_OV_HD		Flash 3 times	
04	Buck_ShortCut	Battery short circuit	Flash 4 times	• Check and restore the wiring to see if the controller can operate normally. • If there is no wiring error, please contact your dealer.
05	I_Buck1_OC	Output over current	Flash 5 times	• Check the output connection. • If there is no wiring error, please contact your dealer

FAULT (Continued)

CODE	NAME	DESCRIPTION	LED WARNING	TROUBLESHOOTING
07	T_Board_OT	Over-temperature inside	Flash 7 times	• Check whether ambient temperature is over limitation of the controller. • Check the installation ambient ventilation. • If the ambient temperature and ventilation is normal, please contact your dealer
09	PSU_LV	Auxiliary power under-voltage	Flash 9 times	• Please contact your dealer

7.1 Battery Temperature Sensor

As an option, the unit provides a port to connect the external battery temperature sensor. If it is used, the unit will optimise the charging performance subjected to the battery temperature.

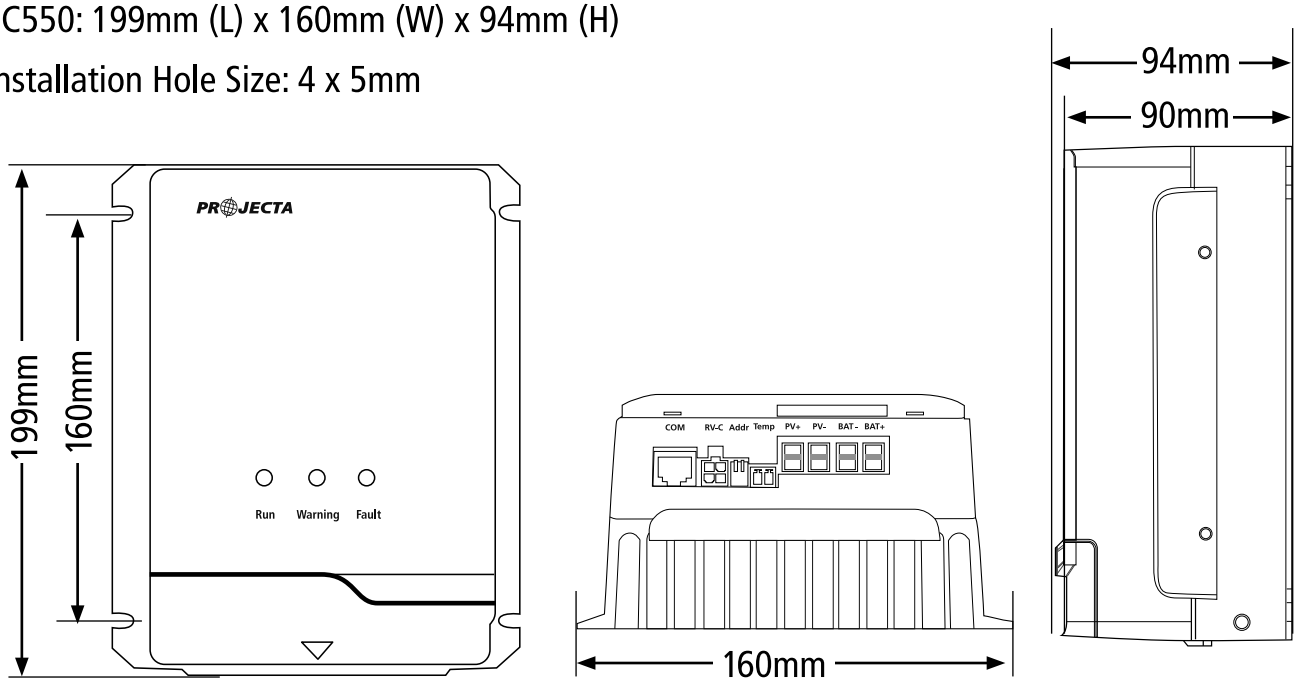
8. Controller Specifications

MODEL	SC550			
System wiring grounded	Negative grounded			
Battery Voltage	12V/24V			
Maximum Charging Current	50A			
Maximum Charging Power	12V: 735W 24V: 1470W			
Maximum Solar Input Power	12V: 800W 24V: 1600W			
Maximum Solar Open Circuit Voltage	100 VDC			
MPPT Voltage Range	(Vbat + 6VDC) ~90VDC			
Maximum Solar Short Circuit Current	50A			
Maximum Efficiency	>97%			
Maximum MPPT Efficiency	>99%			
Standby Power Consumption	<0.8W @12VDC <1W @24VDC			
BATTERY VOLTAGES				
Battery Type	**LFP**	**GEL**	**AGM**	**WET**
Bulk Charge Voltage	14.2V/28.4V	14.1V/28.2V	14.4V/28.8V	14.7V/29.4V
Absorption Charge Voltage	14.2V/28.4V	14.1V/28.2V	14.4V/28.8V	14.7V/29.4V
Absorption Stage Time-Out	8 hours (then transition to float stage)			
Float Charge Voltage	13.6V/27.2V	13.7V/27.4V	13.5V/27V	13.6V/27.2V
Temperature Compensation	Default Setting: -3V / °C / cell			
OTHERS				
Storage Temperature	-40°C ~70°C			
Operating Temperature	-40°C ~70°C (Power derating over 40°C)			
IP Rating	IP20			
Dimensions	199mm (L) x 160mm (W) x 94mm (H)			
Weight	1.85kg			
Cooling	Natural Cooling			

9. Controller Dimensions

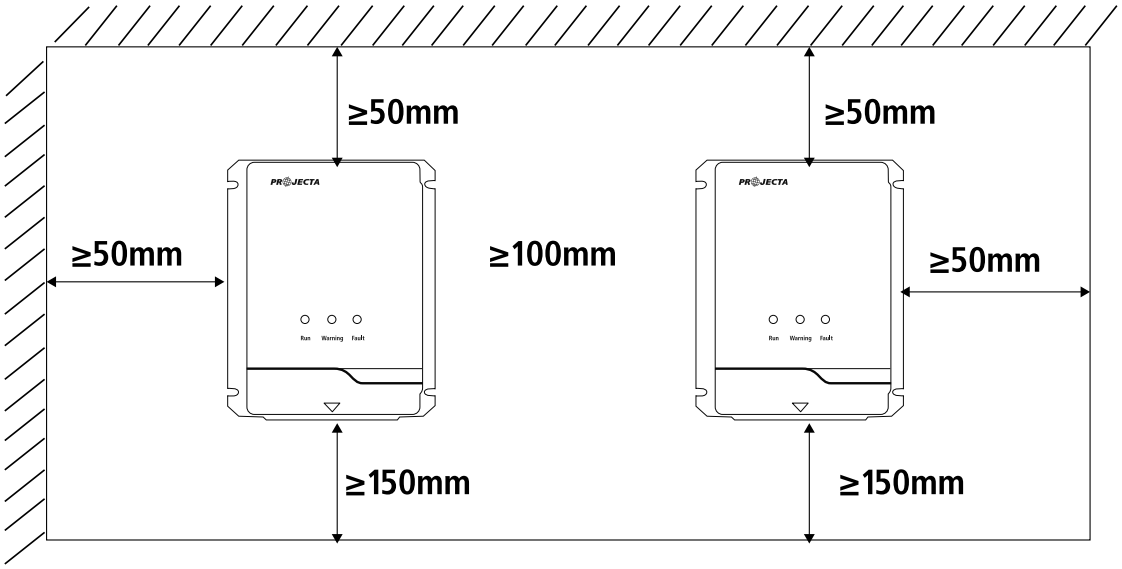
SC550: 199mm (L) x 160mm (W) x 94mm (H)

Installation Hole Size: 4 x 5mm



10. Installation

A good ventilation can guarantee the normal operation of equipment. Please always guarantee the enough clearance around SC550 upon installation. Please refer to following image for minimum clearance.



Please choose a flat and clean surface for installation, mark the position for the 4 mounting points and use the 4 x M5 mounting screw sets supplied.

Please tighten the screws properly and make sure all 4 screws are installed to avoid falling.

Install SC550 as close to the batteries as possible. This will reduce the voltage drop and ensure maximum performance of the equipment.

Cyber Security Compliance Information

This product contains Bluetooth® functionality that connects with mobile phones or other smart devices.

To view the "Statement of Compliance" with the Cyber Security (Security Standards for Smart Devices) Rules 2025, scan the QR code below:

WARRANTY STATEMENT

Brown & Watson International Pty Ltd ("BWI") of 1500 Ferntree Gully Road, Knoxfield, Vic., telephone (03) 9730 6000, fax (03) 9730 6050, warrants that all products described in its current catalogue will under normal use and service be free of failures in material and workmanship for a period of five (5) years from the date of the original purchase by the customer as marked on the invoice. This warranty does not cover ordinary wear and tear, abuse, alteration of products or damage caused by the purchaser.

To make a warranty claim the consumer must deliver the product at their cost to the original place of purchase or to any other place which may be nominated by either BWI or the retailer from where the product was bought in order that the warranty assessment may be performed. The consumer must also deliver the original invoice evidencing the date and place of purchase together with an explanation in writing as to the nature of the claim.

In the event that the claim is determined to be for a minor failure of the product then BWI reserves the right to repair or replace it at its discretion. In the event that a major failure is determined the consumer will be entitled to a replacement or a refund as well as compensation for any other reasonably foreseeable loss or damage.

This warranty is in addition to any other rights or remedies that the consumer may have under State or Federal legislation.

IMPORTANT NOTE

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 reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

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