



SUNSYNK BUSBAR



USER MANUAL

SUNSYNK-BB-300

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 **PLEASE RETAIN FOR
FUTURE REFERENCE**

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SAFETY PRECAUTIONS

Safety Warnings



WARNING

- Do not work on live busbars. Ensure that the busbar is unpowered by disconnecting all positive battery poles prior to removing the Sunsynk Busbar front cover.
- Work on batteries should be carried out by qualified personnel only. Observe the battery safety warnings as listed in the battery manual.

Transport and Storage

Store this product in a dry environment.

The storage temperature should be: -40°C to $+65^{\circ}\text{C}$.

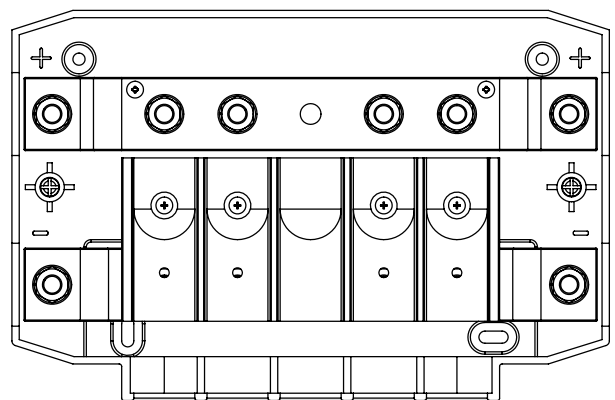
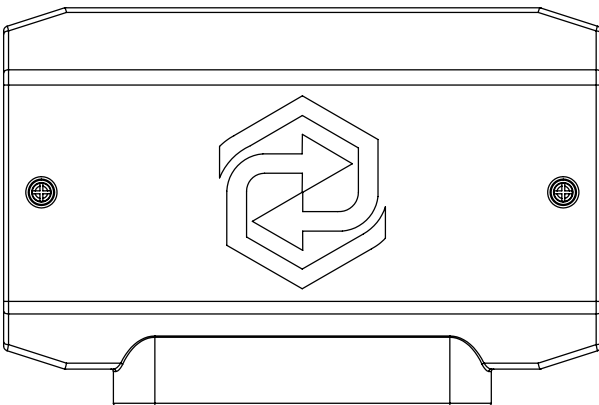
No liability can be accepted for damage in transit if the equipment is not transported in its original packaging.

INTRODUCTION

Sunsynk Busbar

The Sunsynk Busbar contains a positive and negative busbar with 4 connections for batteries, loads or chargers and a ground connection.

Sunsynk Busbar with and without cover.



Sunsynk Busbar System

The Sunsynk Busbar system is a modular busbar system that incorporates DC connections and distribution for energy.

- **Sunsynk Busbar** - A positive and negative busbar with 4 connections for batteries or DC equipment.

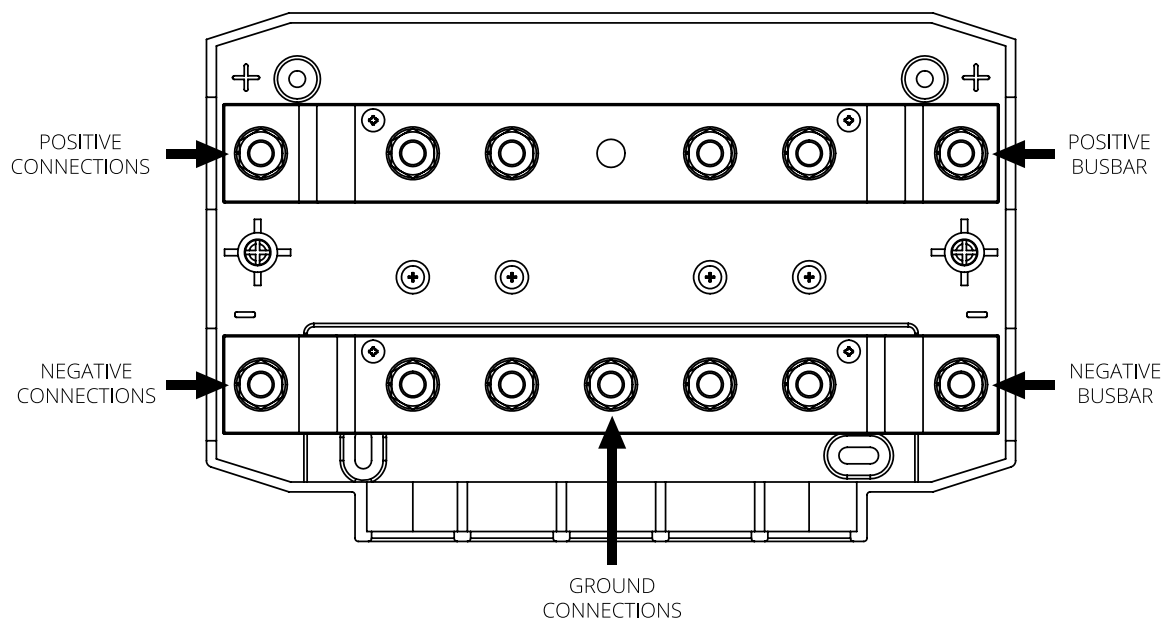
FEATURES

Internal Parts and Wiring Diagram

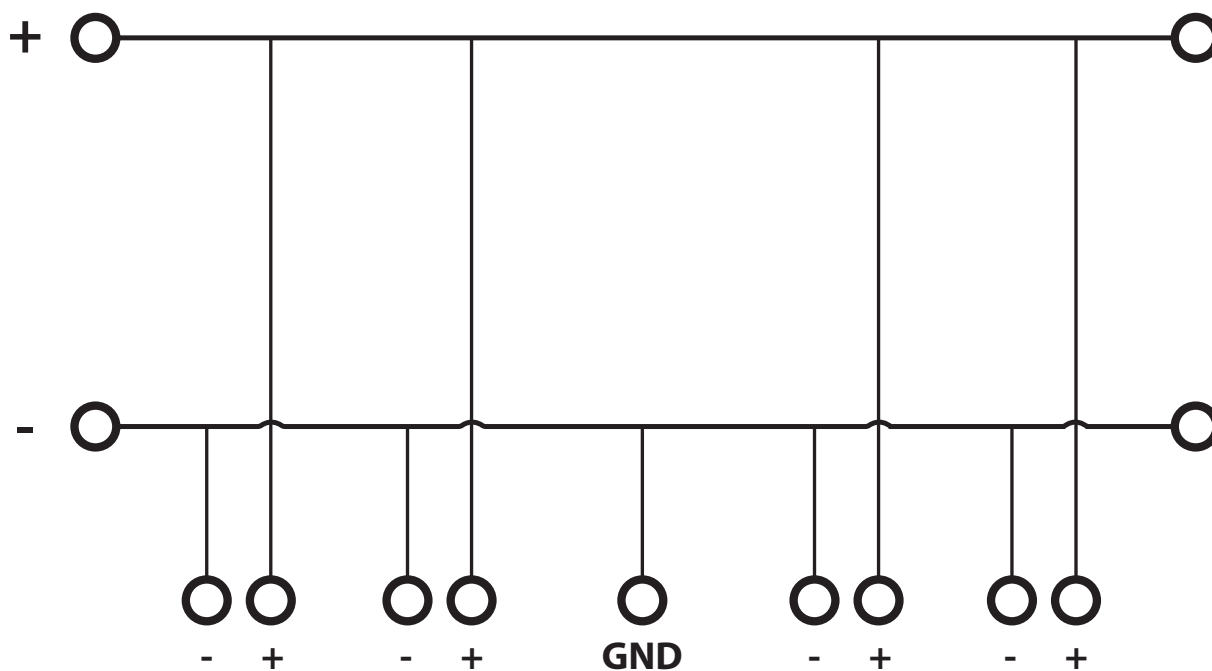
The internal physical parts and the wiring diagram of the Sunsynk Busbar indicating the following parts:

- Positive busbar
- Negative busbar
- Positive connections
- Negative connections
- Ground connection

The internal physical parts of the Sunsynk Busbar.



The internal wiring diagram of the Sunsynk Busbar.



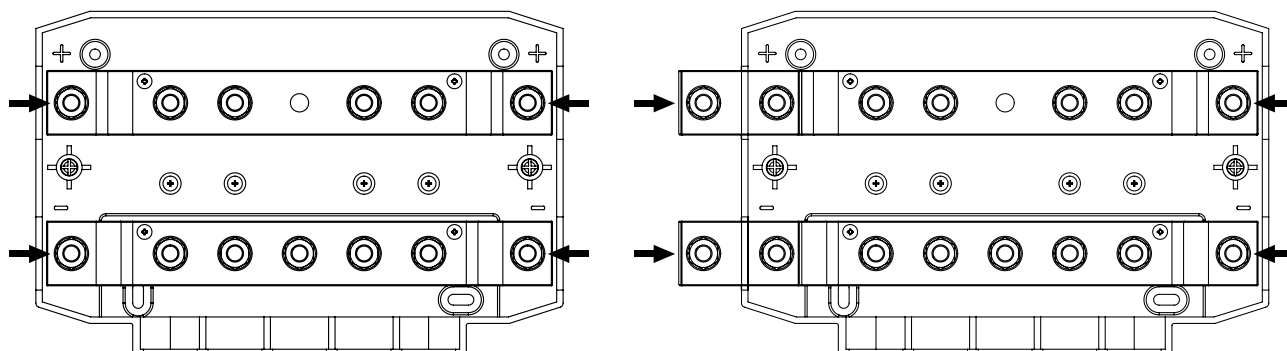
SYSTEM DESIGN

Interconnecting Sunsynk Busbar with Links (Links sold separately, part number PP-0121)

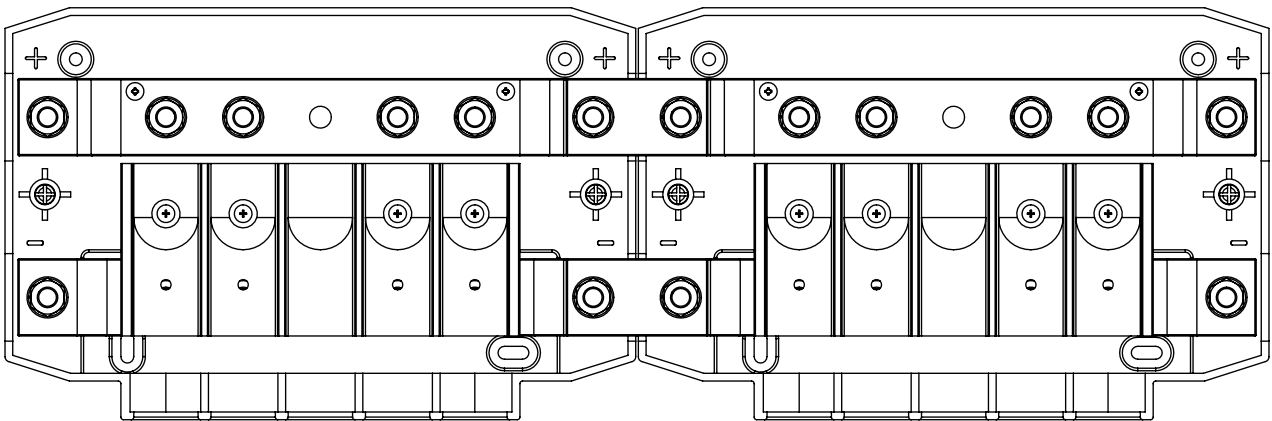
Each Sunsynk Busbar can connect to other Sunsynk Busbar's on both sides using the links and M8 bolts provided.

If the Sunsynk Busbar is the first in line, the last in line or is used by itself, it is possible to connect batteries, loads or chargers directly by adding/exposing the link. However, we do not generally recommend this because additional insulation and fusing is needed.

Sunsynk Busbar connections: the arrows indicate where the other Sunsynk Busbar's can connect.

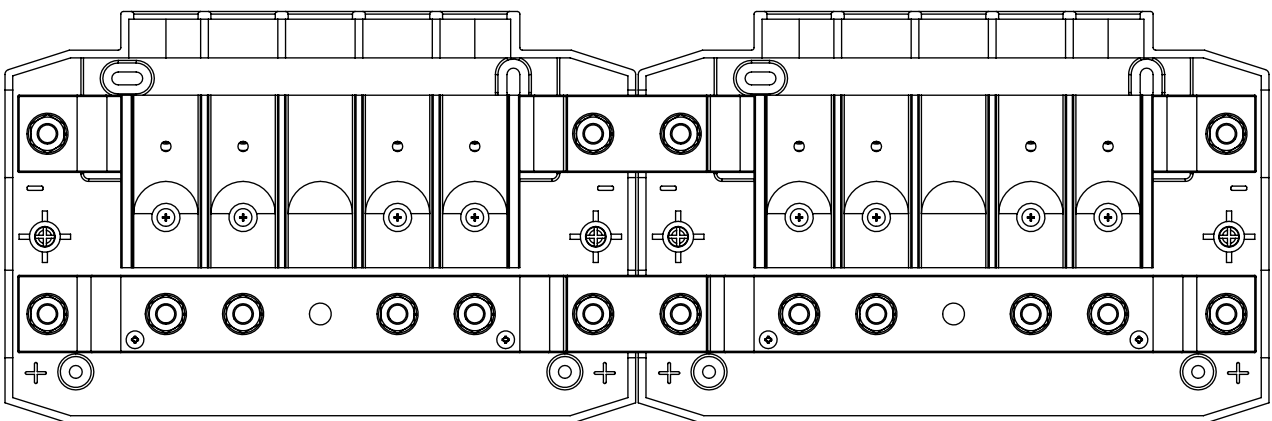


Orientation of Sunsynk Busbar



The Sunsynk Busbar can be mounted in any orientation. However, IP22 suggests it is mounted as above.

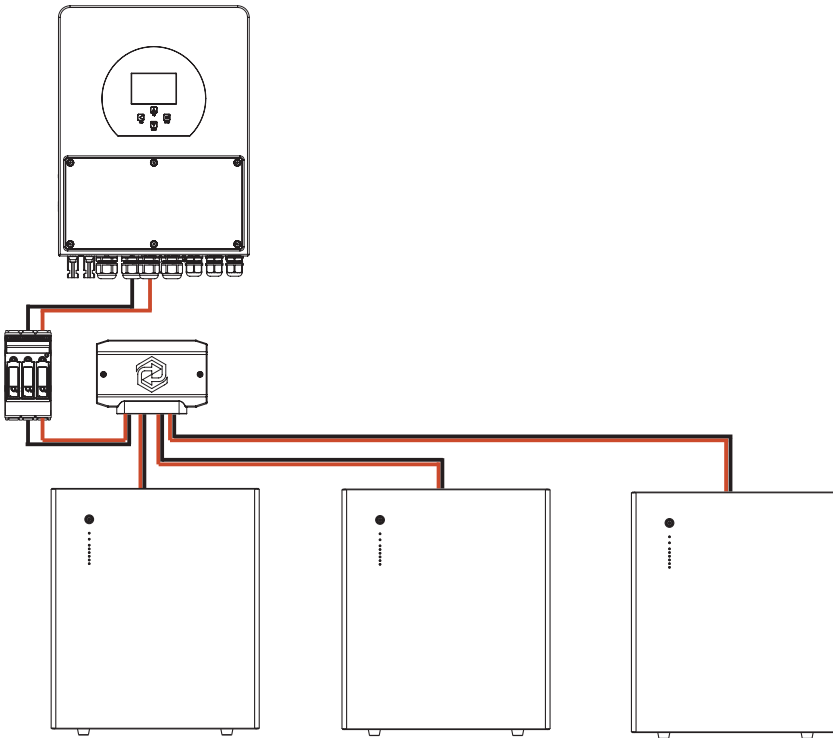
Example of Sunsynk Busbar mounted upside down.



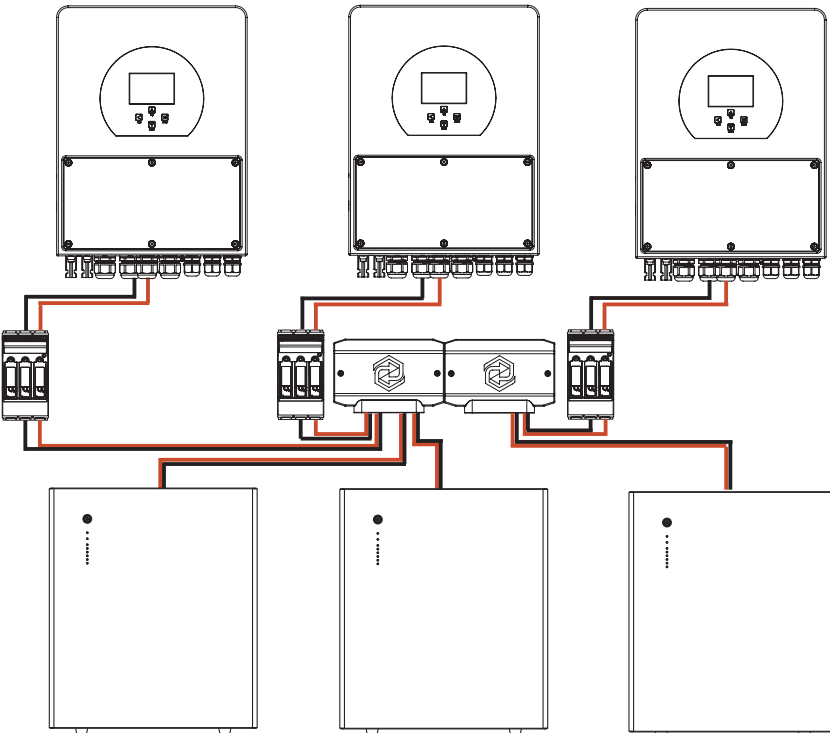
System Example

The below diagram demonstrates the system when one Sunsynk Busbar is used.

Note: Typically battery cables are to be of equal lengths, this is not represented in the below diagrams.



Multiple Sunsynk Busbar's can be connected to each other thus creating a longer busbar with more connections for batteries and/or loads.



The Sunsynk Busbar does not contain fuses. All connected load, chargers or batteries need to be fused externally.

System Sizing

Current Rating

The Sunsynk Busbar is rated for a nominal current of 800A, for 12, 24 or 48 system voltages.

To give an idea of how much power the Sunsynk Busbar is rated at different voltages, see the below table. The power rating will give you an indication how big the connected inverter/charger system can be.

System Voltage	12V	24V	48V
800A	12kW	24kW	48kW

Fusing

The Sunsynk Busbar does not have fuses, fusing needs to be done externally.

Always use fuses with the correct voltage and current rating. Match the fuse rating to the maximum voltages and currents that potentially can occur in the fused circuit.



The total value of the fuses of all circuits should not be more than the current rating of the Sunsynk Busbar.

Cabling

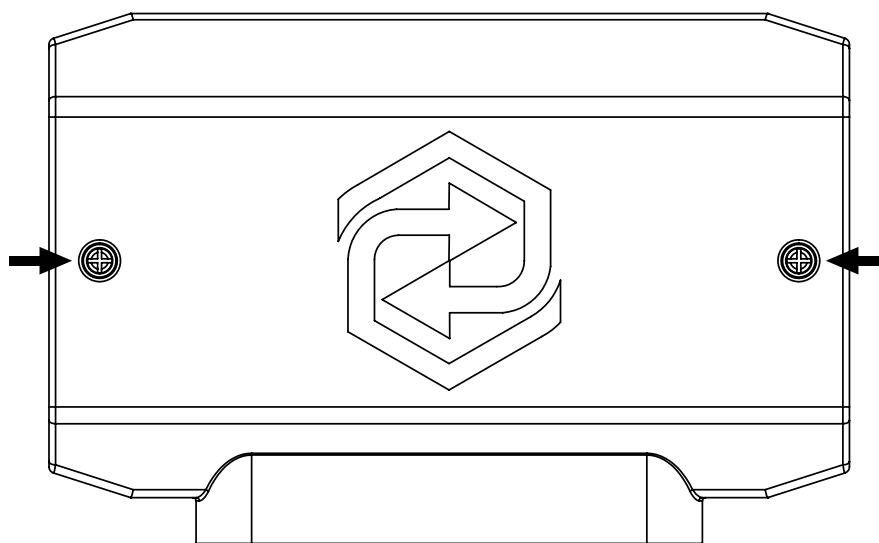
The current rating of the wires or cables used to connect the Sunsynk Busbar to batteries and/or the DC loads has to be rated for the maximum currents that can occur in the connected circuits. Use cabling with a sufficient core surface area to match the maximum current rating of the circuit.

INSTALLATION

Mechanical Connections

Connection Features

The Sunsynk Busbar can be opened up by unscrewing 2 cover screws.



Mounting and Interconnecting

This paragraph explains how to attach several Sunsynk Busbar's to each other and how to mount the Sunsynk Busbar assembly into its final location.

When mounting onto the wall, please use the drill template and screw pack that are provided. The mounting positions in the busbar match the drill template guide.

These are the points to take into consideration when interconnecting and mounting the Sunsynk Busbar:

- Remove the easy break access windows for linking busbar's shown in the below illustrations.
- Connect all Sunsynk Busbar's to each other using the M8 holes, bolts and links provided.
- Place the washer and nut on the bolts and tighten the bolts using a torque of 14Nm.
- Mount the Sunsynk Busbar in its final location using the 5mm mounting holes.

Figure 1: easy break access windows and linking position.

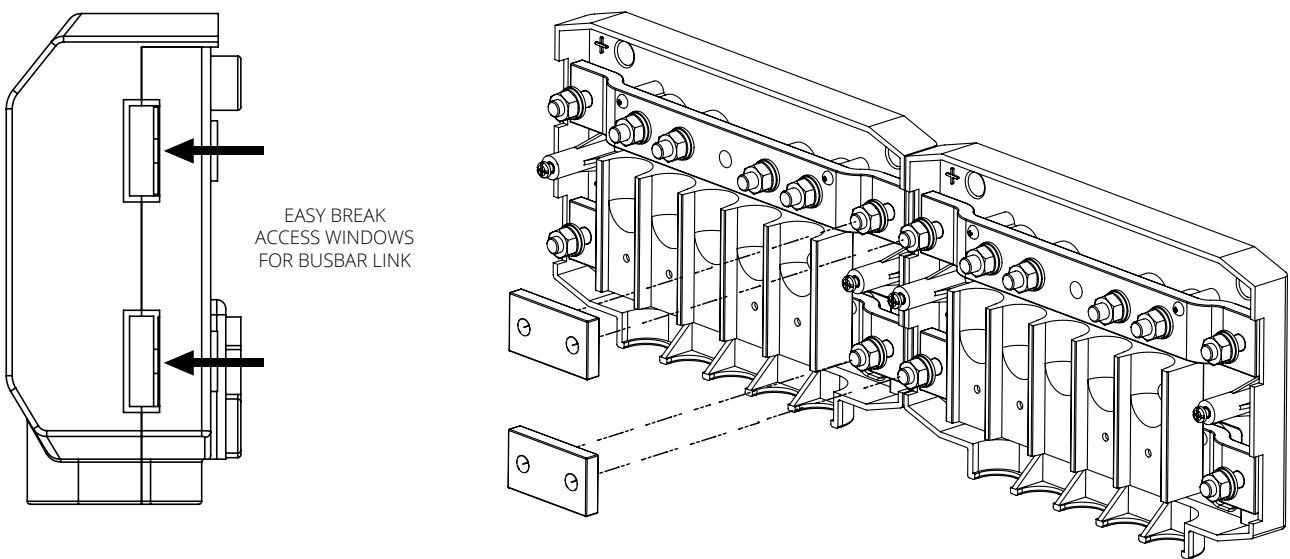
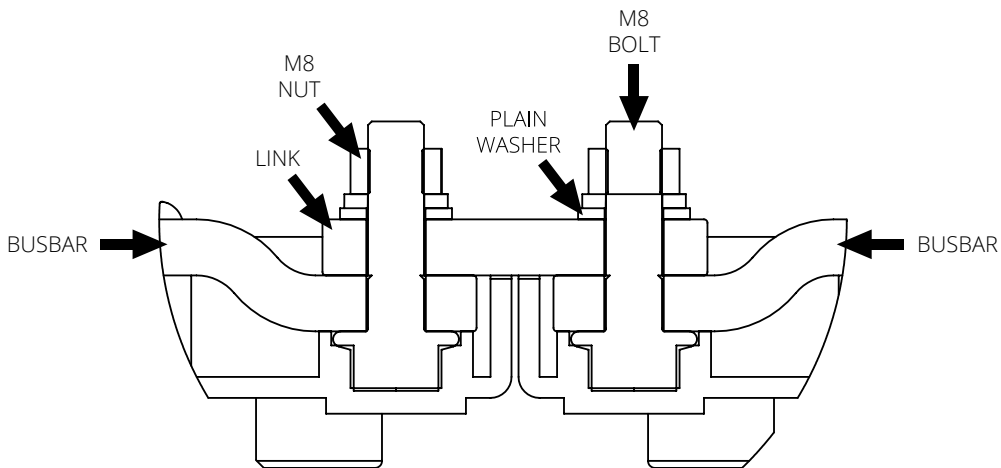


Figure 2: connection sequence when connecting two Sunsynk Busbar's.

Correct placement of the M8 washer and nut.



Electrical Connections

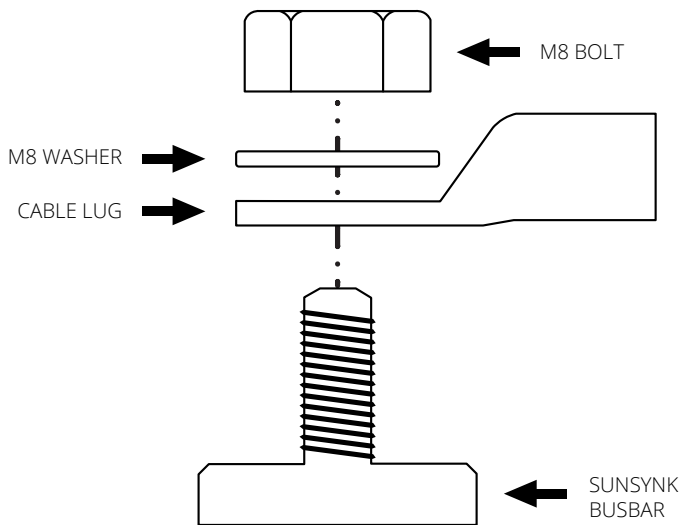
Connect DC Wires

For all DC connections the following applies:

- All cables and wires connected to the Sunsynk Busbar need to have been fitted with M8 cable lugs.
- Pay attention to the correct placement of the cable lug, washer and nut on each bolt when attaching the cable to the bolt.
- Tighten the nuts with a torque moment of 14Nm.

Figure 3: correct mounting sequence DC wires.

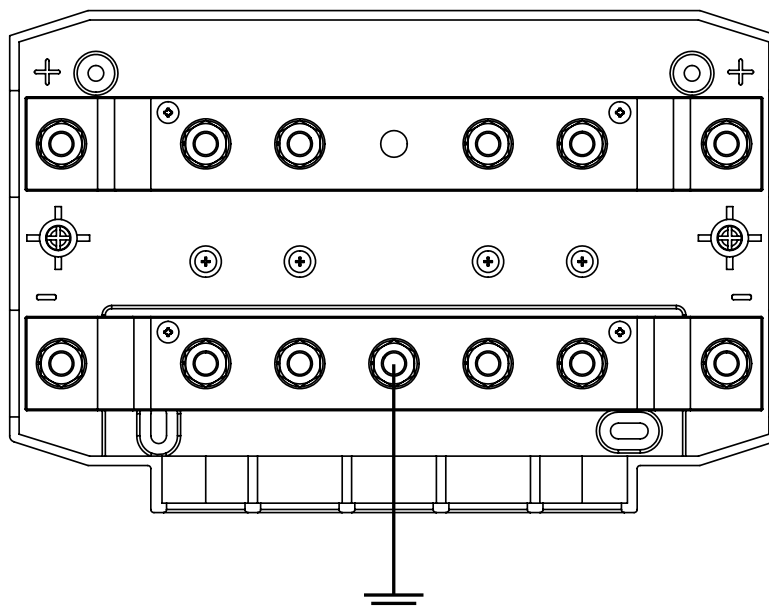
Correct placement of the M8 cable lug, washer and nut.



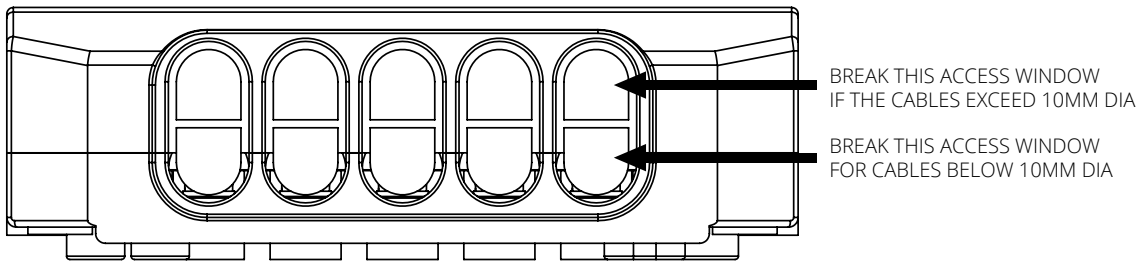
Ground and Negative Connections

Connect the ground wire: this only applies if the system requires a ground connection. There should only be one ground connection per system.

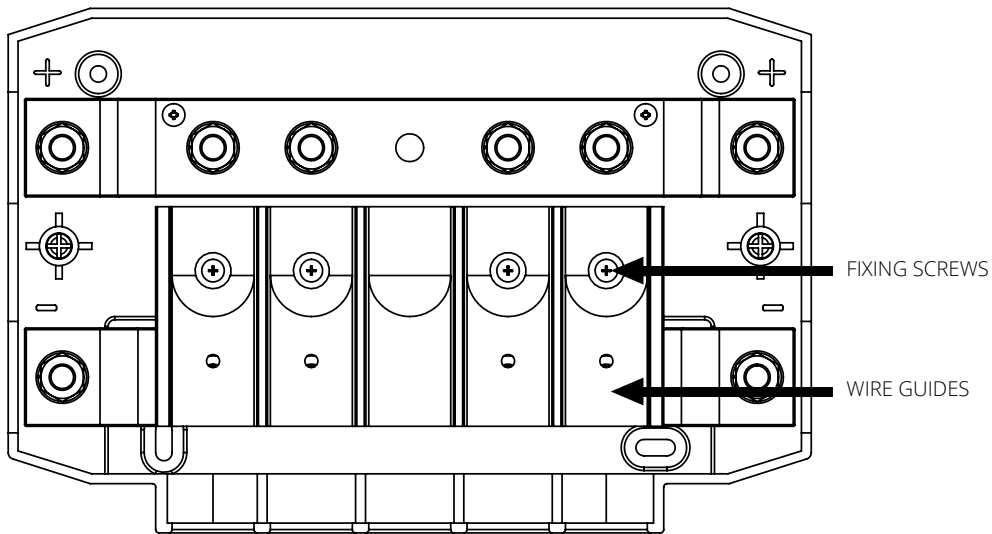
Ground connection.



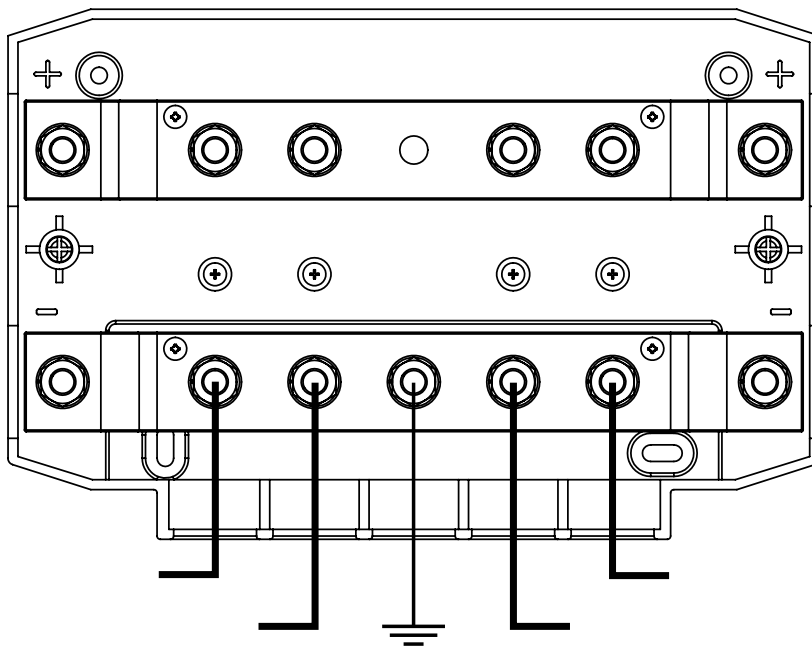
Connect the negative wires: remove the relevant access windows if the wire diameters exceed 10mm, as shown below.



To reach the negative connections remove the wire guide shown below. The wire guide can be temporary removed by removing the 4 screws from the Sunsynk Busbar.



Negative connection.



Positive Connections

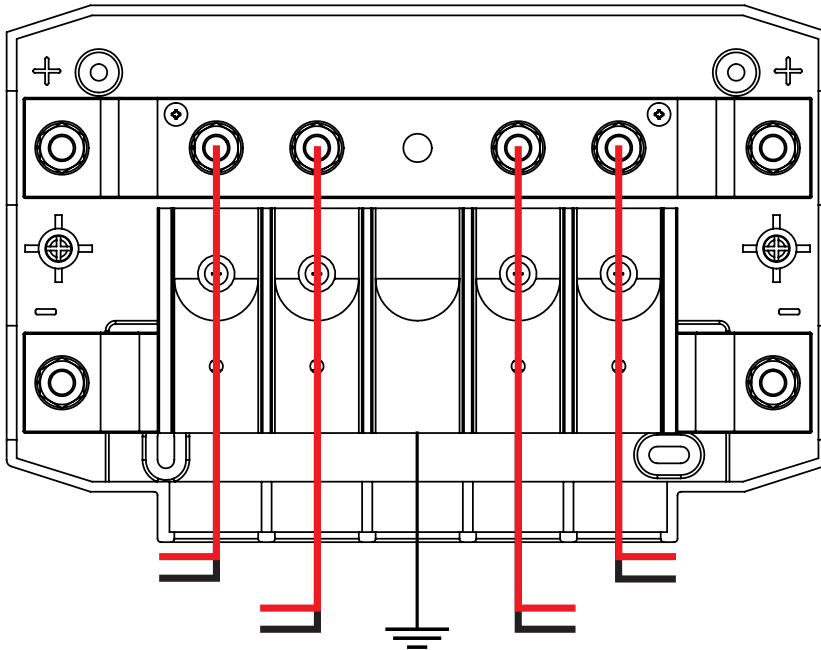


Before making any positive connections, make sure that the positive wires are not powered. Disconnect all positive cables from the battery prior to connecting them to the Sunsynk Busbar. This is to prevent accidental short circuits.

Connect all positive wires.

Power the Sunsynk Busbar system by connecting the positive battery pole(s).

Positive Connection.



COMMISSIONING THE SUNSYNK BUSBAR

Commissioning sequence:

- Check polarity of all DC cables
- Check cross sectional area of all DC cables
- Check if all cable lugs have been crimped correctly
- Check if all cable connections are tight (don't exceed maximum torque)
- Tug slightly on each battery cable to check if the connections are tight and if the cable lugs have been crimped correctly.

TROUBLE SHOOTING AND SUPPORT

Consult this chapter in case of unexpected behaviour or if you suspect a product fault.

The correct troubleshooting and support process is to first consult the common issues as described in this chapter.

Should this fail to resolve the issue, contact the point of purchase for technical support.

Cabling Issues

Cables heat up

This can be caused by a wiring or connection issue. Check the following:

- Check if all cable connections are tightened with a torque moment of 14Nm.
- Check if all fuse connections are tightened with a torque moment of 14Nm.
- Check if the surface area of the cable core is large enough for the current through that cable.
- Check if all cable lugs have been crimped correctly and are tight enough.

WARRANTY

This product has a 5 year limited warranty. This limited warranty covers defects in materials and workmanship in this product and lasts for five years from the date of original purchase of this product. To claim warranty the customer must return the product together with the receipt of purchase to the point of purchase. This limited warranty does not cover damage, deterioration or malfunction resulting from alteration, modification, improper or unreasonable use or misuse, neglect, exposure to excess moisture, fire, improper packing, lightning, power surges, or other acts of nature. This limited warranty does not cover damage, deterioration or malfunction resulting from repairs attempted by anyone unauthorised by Sunsynk to make such repairs. Non-compliance with the instructions in this manual will render the warranty void. Sunsynk is not liable for any consequential damages arising from the use of this product. The maximum liability of Sunsynk under this limited warranty shall not exceed the actual purchase price of the product.

TECHNICAL SPECIFICATIONS

Power	
Voltage Range	9 - 60Vdc
Current Rating	800A
Connections	
Busbar	M8
Physical	
Enclosure Material	ABS
Enclosure Dimensions (HxWxD)	165x245x75mm
Unit Weight	1.8kg
Busbar Material	Tinned Copper
Busbar Dimensions (HxW)	8x30mm
Environmental	
Operating Temperature Range	-40°C to +60°C
Storage Temperature Range	-40°C to +60°C
Humidity	Max. 95% (Non-condensing)
Protection Class	IP22



CONTACT US

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