



MPS
MICRONIX POWER SYSTEMS

PRODUCT MANUAL
DEFENDER SERIES CABINET



INTRODUCTION

The MPSDefender cabinet has been designed to provide a reliable and robust solution for the solar industry. Multiple inverter and MPPT configurations are built into the design for ease of installation minimising time spent on site.

Micronix Power Systems (MPS) manufactures the cabinet in Australia, feeding money back into the local economy.



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SPECIFICATIONS

Depth with lock	630mm
Width including hoods	1130mm
Height including plinth	1850
Weight empty	95kg
Construction	3mm Aluminium
Mounting rails	19-inch rack mount compatible
Rack unit capacity	18RU per side
AC MCB capacity standard model	18 DIN
DC MCB capacity standard model	18 DIN
MCCB capacity Standard model	2 x Noark 160A – 250A
AC MCB capacity high power model	12 DIN
DC MCB capacity high power model	18 DIN
MCCB capacity high power model	1 x Noark 160A – 250A 1 x Noark 315A – 400A

TRANSPORTATION

- ✔ Road, air and sea are the designated methods of transport.
- ✔ Local shipping labels and regulations should be met.
- ✔ The Cabinet should not be placed upside down at any time.
- ✔ The cabinet may be placed on its back during shipping with the door facing upright. The cabinet shall be empty.
- ✔ The cabinet shall be palletised for transport to minimise damage while forklift loading.
- ✔ The cabinet can be supplied with lifting lugs. When using lifting lugs, care should be taken to evenly spread the load across all 4 lifting points.
- ✔ Total allowed weight of internal components should be less than 370KG when using lifting lugs.
- ✔ Forklift loading directly to the underside of the cabinet is not allowed with a loaded cabinet as this may cause deformation of the bottom plate.

STORAGE

- ✔ The cabinet can be stored indefinitely with no ill effect.

HANDLING

- ✔ Safe work practices should be followed during transportation and installation.
- ✔ If damage to the cabinet occurs during transport or installation, it must be checked for its ability to be water resistant and structurally safe.

This manual should be followed for correct installation of the cabinet/s.

FLOOR MOUNTING

- ✔ The cabinet has plinths built into the base of the cabinet. All weight should be directed through these plinths.
- ✔ The mounting surface shall be level before mounting the cabinet to ensure correct weight distribution.
- ✔ The mounting surface shall be capable of accepting the weight of a fully loaded cabinet.
- ✔ If the mounting surface is not level, twisting of the cabinet may occur leading misalignment of the door.

LOCATION

- ✔ Local regulations should be followed when determining a mounting location for the cabinet.
- ✔ Direct sunlight should be avoided to reduce heat load.
- ✔ Salt spray in coastal locations should be avoided.
- ✔ Suitable vermin protection should be used to suit the location.

VENTILATION

- ✔ The cabinet is supplied with an upper and lower hood. Each hood is capable of mounting 2 x 120mm fans.
- ✔ It is recommended to have free flowing air around the cabinet to ensure sufficient cooling.
- ✔ MPS can supply a fan kit as pictured below.

CABLE ENTRY

- ✔ 25mm cable entry points are provided at the rear of the cabinet exiting from the cable section.
- ✔ Additional holes may be drilled into the cabinet. Holes should be sealed with suitable IP rated accessories.

EARTHING

- ✔ Earthing may be carried out with the supplied din rail earth connectors.

STANDARD CABLE KIT

- ✔ The cabinet is supplied with a cabling kit for ease of installation. This cabling kit is capable of working in the following configurations.

1 x Victron RS450/100 MPPT

1 x Victron Multiplus-II 3000 or 5000

HIGH POWER CABLE KIT

- ✔ The cabinet can be supplied with an additional cabling kit for higher power inverter and MPPT. This cabling kit is capable of working in the following configurations.

1 x Victron RS450/200 MPPT

1 x Victron Multiplus-II 8000 or 10,000

MAINTENANCE

The cabinet is designed to minimise maintenance ensuring maximum reliability and trouble-free operation. The below items can be checked as part of a regular maintenance program regardless:

- ✔ Check for signs of water or condensation inside the cabinet
- ✔ Check for signs of vermin
- ✔ Remove excessive dust build up
- ✔ Check the operation of fans
- ✔ Check for ground movement underneath cabinet

DISPOSAL

- ✔ The cabinet has been designed for ease of recycling at its end of life. 99% of the cabinet by weight can be recycled
- ✔ A suitable recycling facility should be used if disposal of the cabinet is required.



Available through Battery Works Australia.

www.battery.com.au

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Archerfield Queensland 4108

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Sydney

📍 U9/49-63 Victoria St
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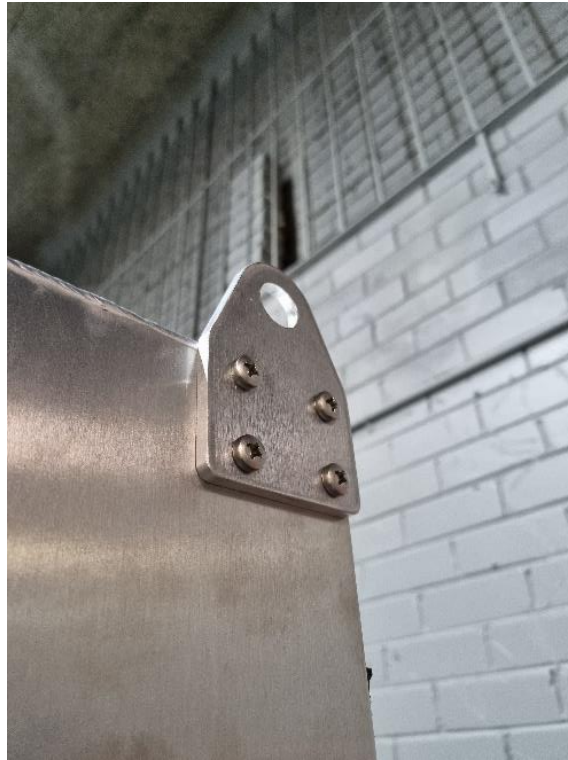
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LIFTING LUGS

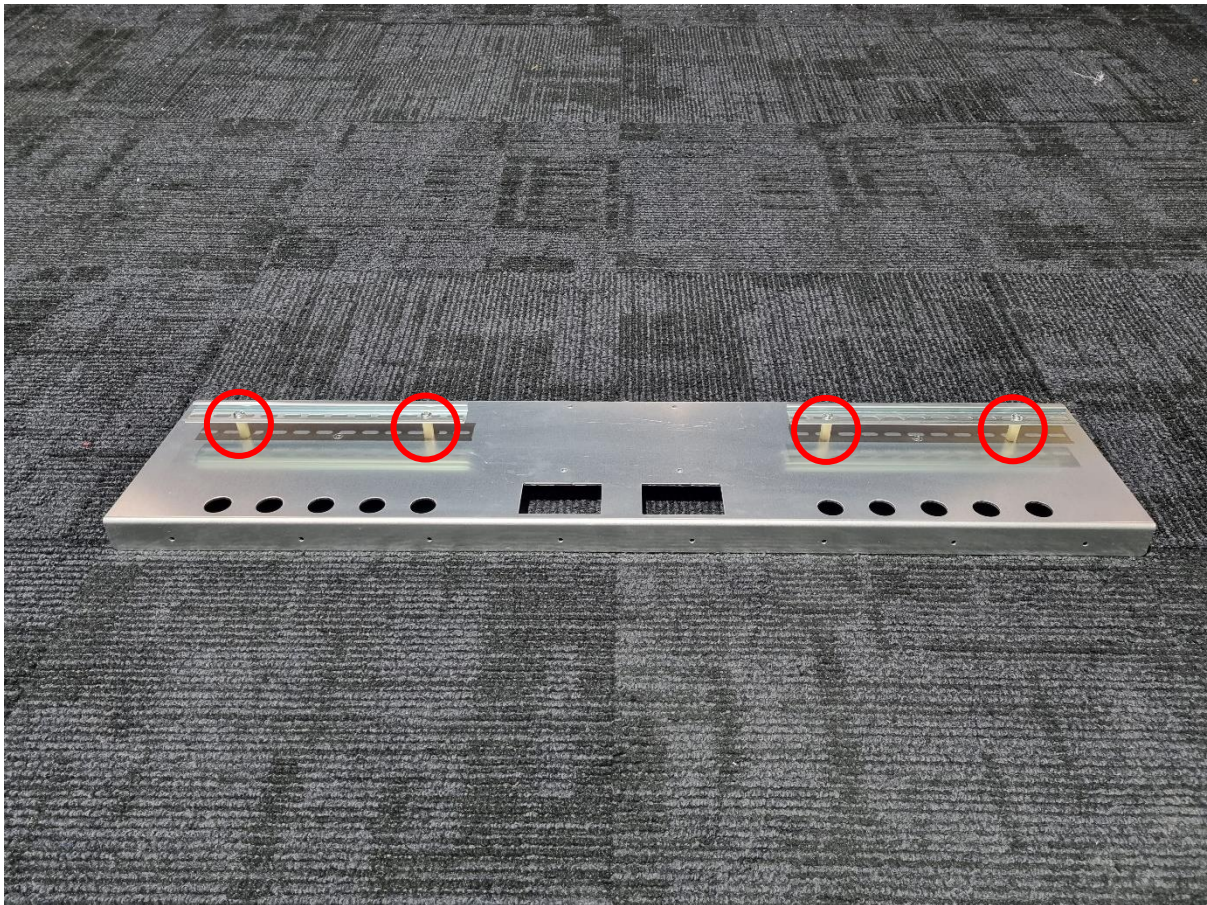
Install lifting lugs using the supplied stainless M6 x 16mm screws, spring washers and nuts. If the lifting lugs are to be kept on the unit it is recommended to use an appropriate sealant to ensure a watertight seal.



CIRCUIT BREAKER MOUNTING PLATE

Mount the DIN rail to the circuit breaker mounting plate using the supplied M6 x 45 screws and 25mm spacers.

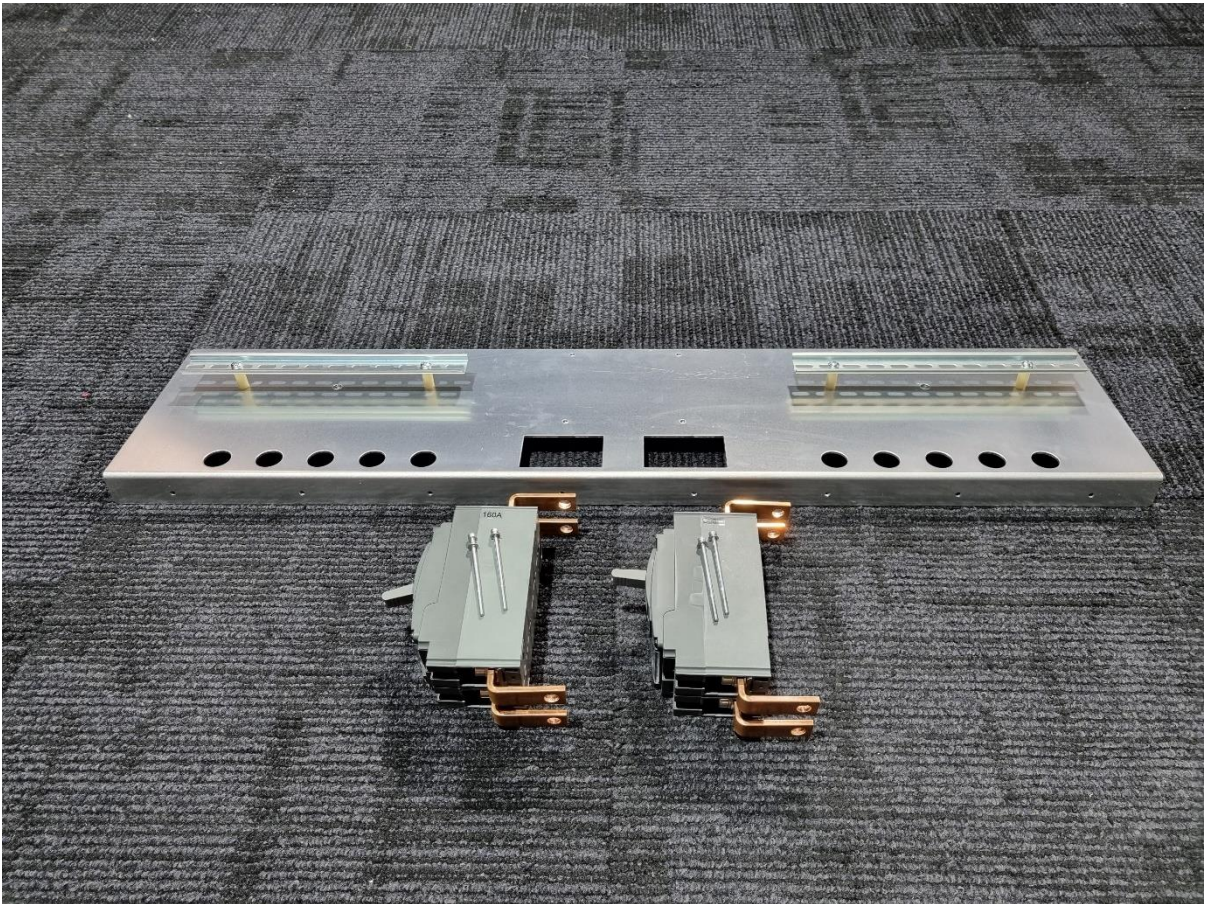
It is recommended to do this before installation to save working in tight spaces.



MOULDED CASE CIRCUIT BREAKERS

Mount supplied bus bars to the circuit breakers ready for installation.

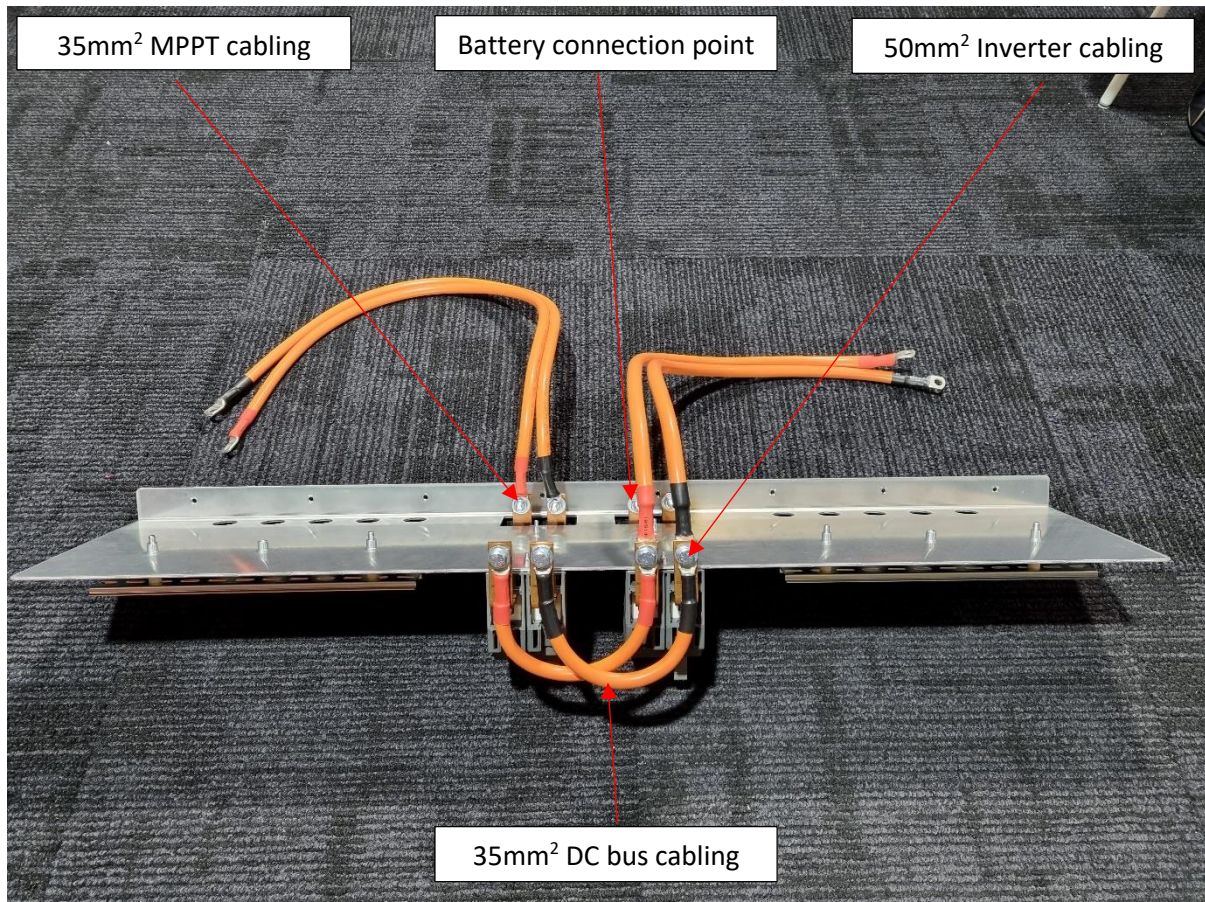
It is recommended to do this before installation to save working in tight spaces.



DC CABLING

Mount the MCCB's to the circuit breaker mounting plate using the supplied M4 socked head cap screws and washers. Mount the DC cabling to the bus bars using supplied the M8 bolts, nuts and washers.

It is recommended to do this before installation to save working in tight spaces.



INSTALLING CIRCUIT BREAKER MOUNTING PLATE

Mount the circuit breaker mounting plate to the cabinet using the supplied M5 x 16 screws and nylock nuts. The front set of holes are for the regular circuit breaker plate. The rear set of holes are for the high current circuit breaker plate.



FAN AND GRILL MOUNTING

Install the supplied grills to the battery compartment using the supplied M4 x 12 screws

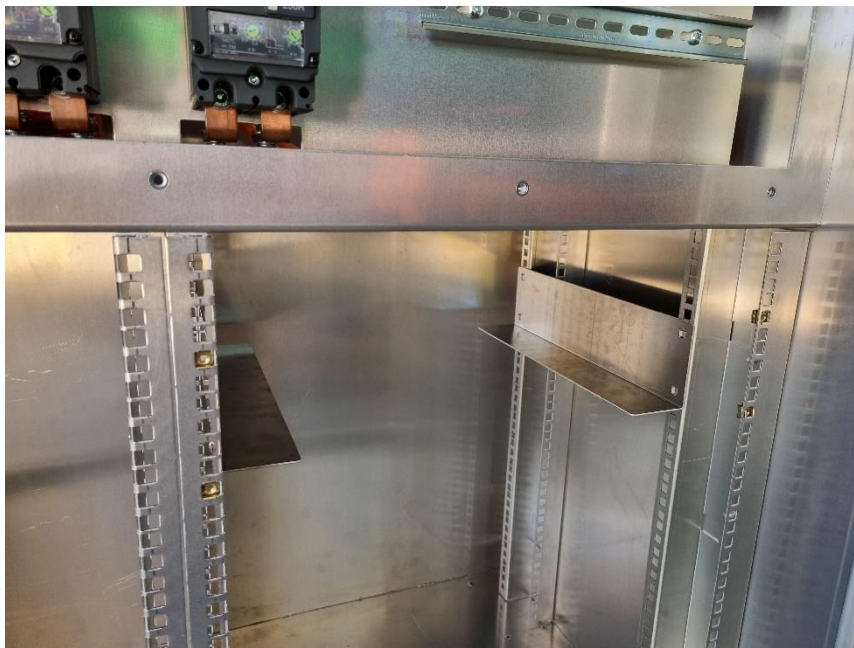
Install the supplied fans and grills to the inverter section using the supplied M4 x 50 screws. Fan cabling can return through the backing plate and reticulate to the cabling section below. A Cerbo, thermostat or inverter relay can be used to control the fans.



BATTERY MOUNTING

Clip in shelves should be used to support batteries. Each battery requires one shelf per side. The battery ears should be fixed into the mounting rails via M6 cage nuts. The cage nuts shall be placed in position before racking all batteries. The cage nuts for the middle rail can be inserted using long nose pliers due to the limited access.

Battery modules can slide in, sitting on top of the shelves. Once inserted flush with the mounting rail, they can be fixed off using M6 screws.



INVERTER & MPPT MOUNTING

Threaded holes for the Multiplus-II 3000, 5000, 8000 & 10000 are supplied on the right-hand side. Threaded holes for the Smart solar MPPT RS 450/100 and 200 are supplied on the left-hand side. Using the supplied M5 x 16 screws, mount the top mounting plate to the backing plate. After the units are hung on the mounting brackets, the supplied M5 x 35 screws can be used to fix off the bottom of the units.

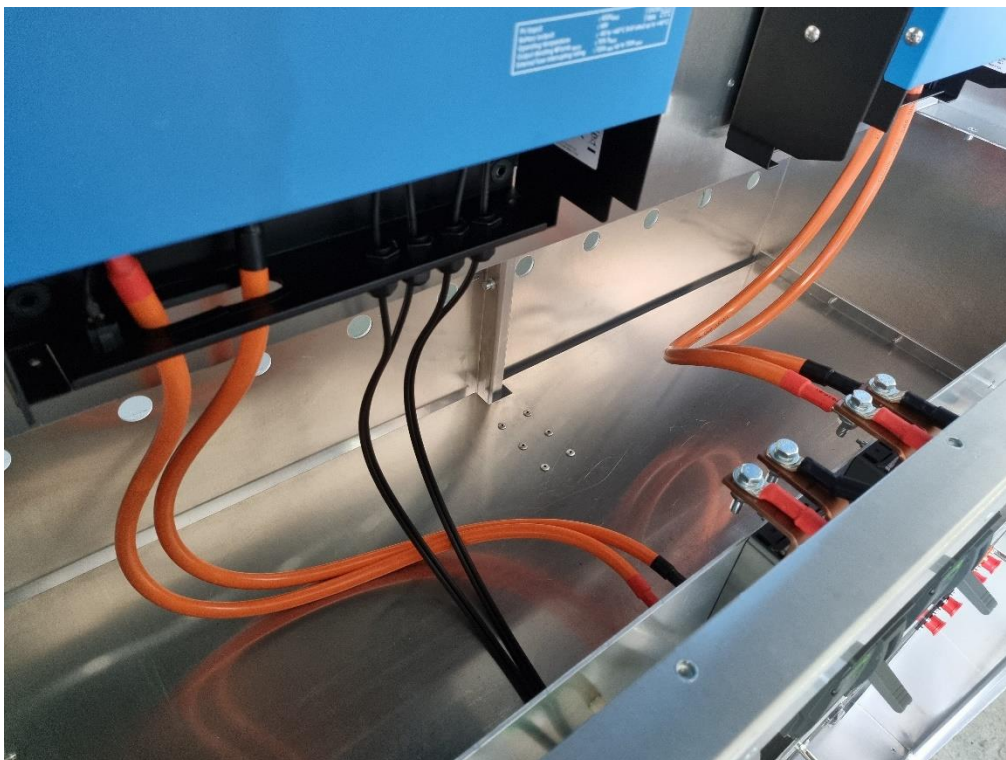
For alternative brand inverters, self-drilling screws or nut and bolt mountings can be used.



CABLING

Terminate the DC cabling to the inverter and MPPT.

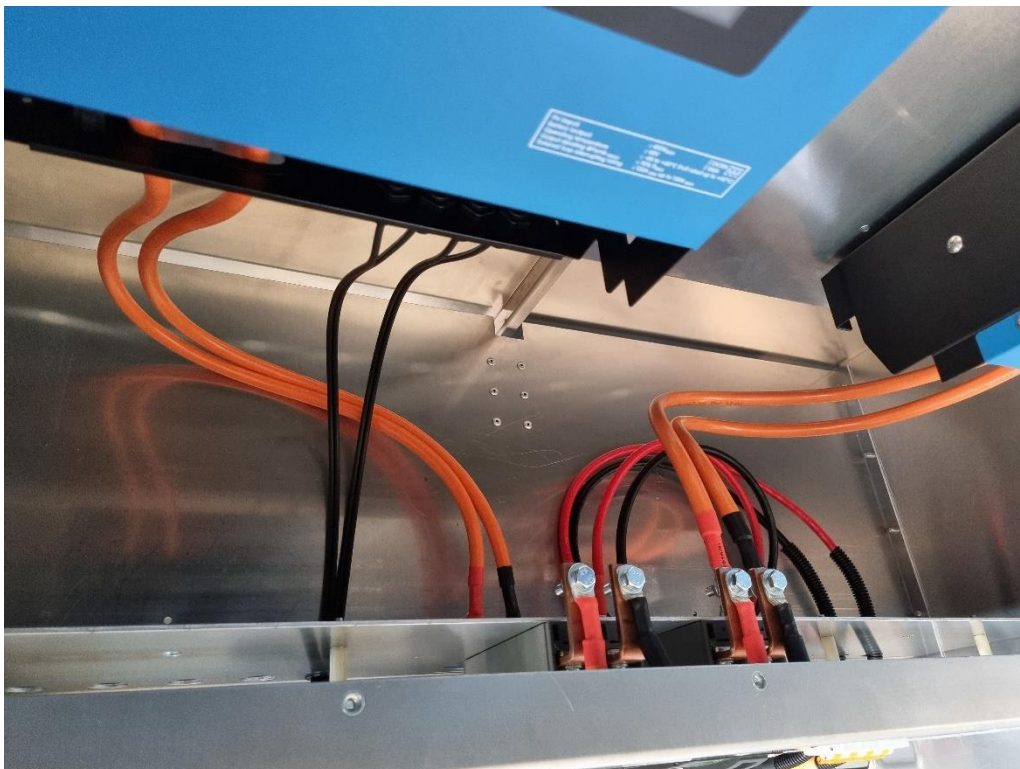
Terminate the 4mm² solar DC cable from the MPPT channels to your choice of DC circuit breaker or din rail mounted PV isolator.



BATTERY CABLING

Connect battery cabling to battery connection point on MCCB bus bars.

Battery cabling can be shrouded when passing through the AC section. This also helps to prevent damage to cabling when passing through penetrations.



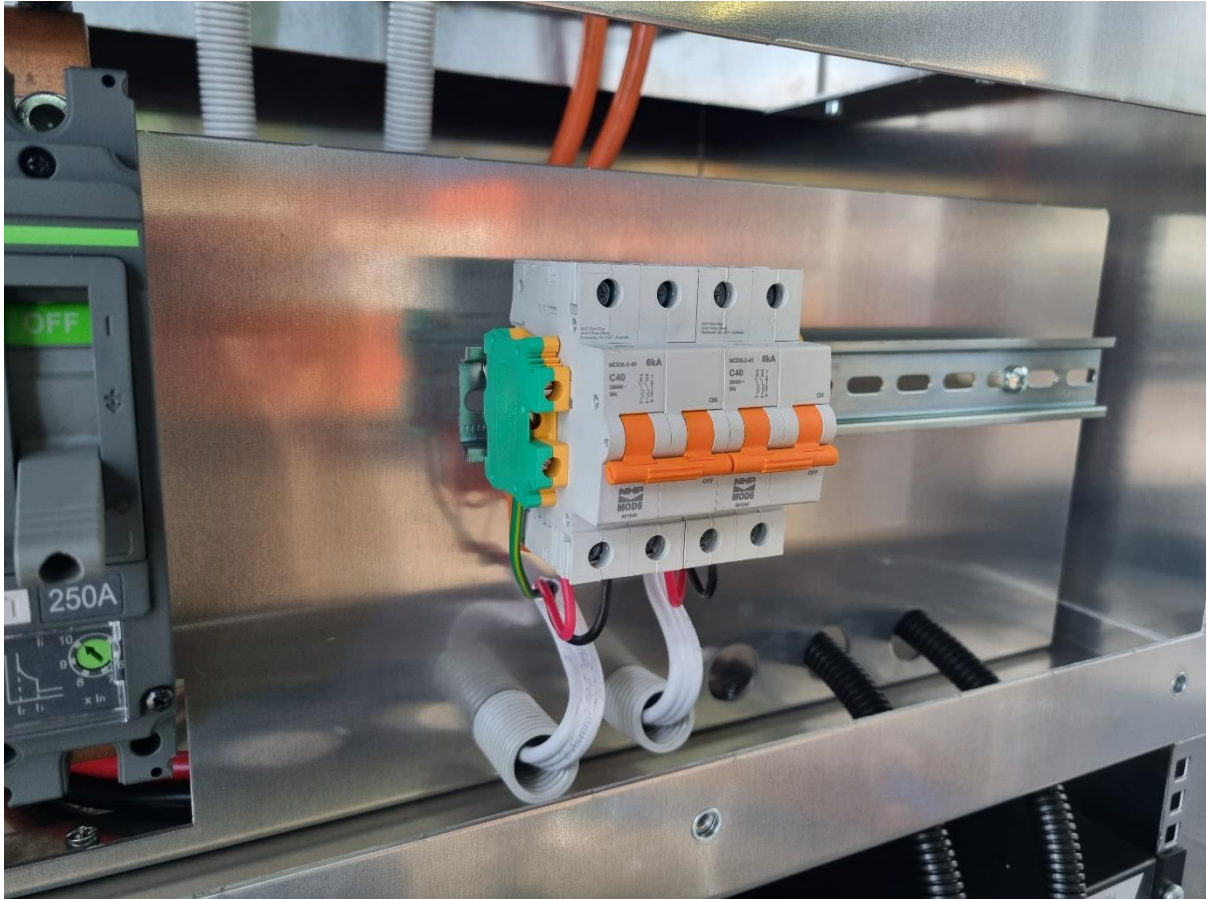
AC CABLING

Conduit is recommended to keep segregation between AC and DC circuits between the inverter and the AC circuit breaker section. Install conduit and suitably sized cabling between inverter and AC section.



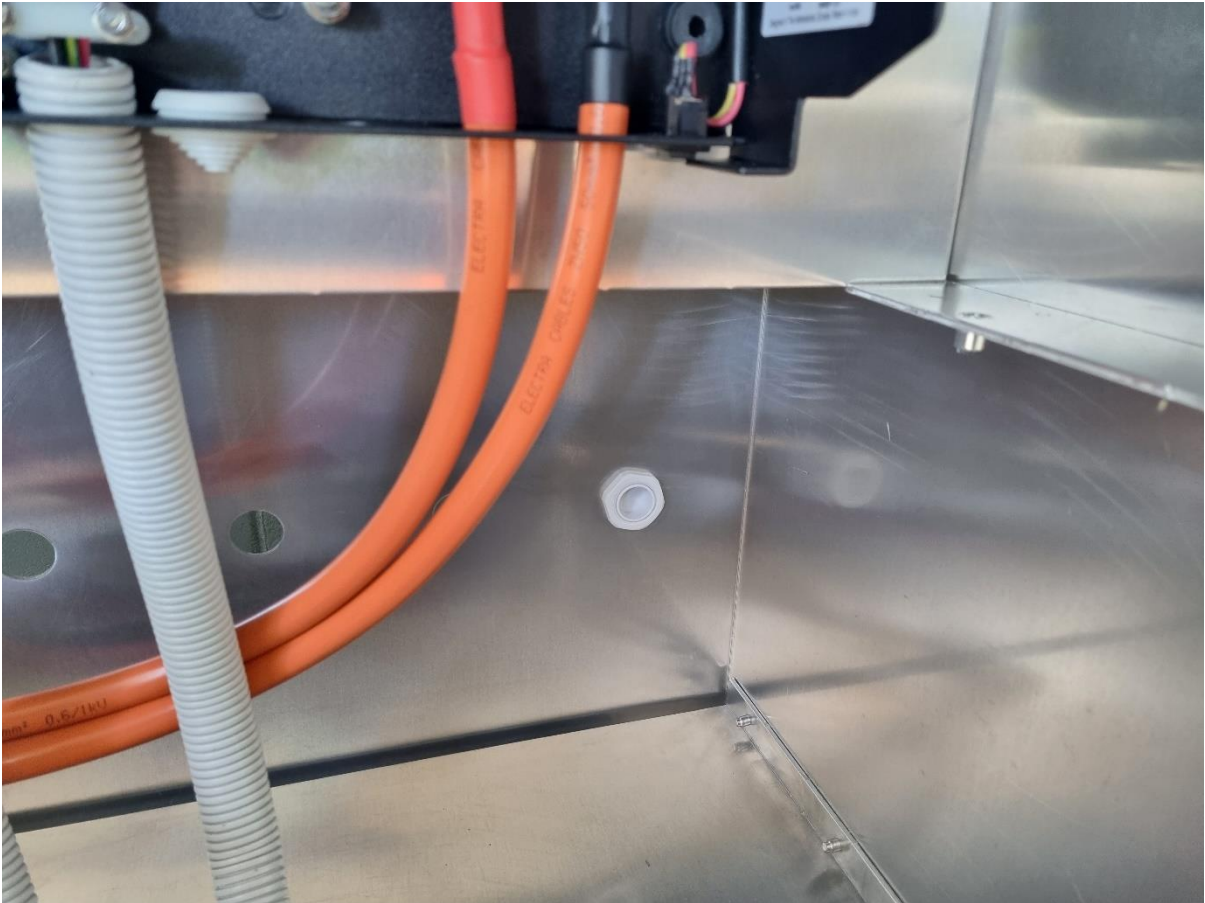
EARTHING

Install the DIN rail earthing connectors by clamping over the DIN rail then screwing down the middle screw. This clamps the DIN rail providing a bond to the cabinet chassis.



REAR ENTRY HOLES

Pre punched 25mm cable entry holes are supplied at the rear of the cabinet. These can be used to reticulate cabling into and out of the cabinet. If not used they can be blanked with the supplied blanks making sure the O-ring creates a watertight seal.



BOTTOM COVERS

Install the bottom covers to the MPPT and Inverter using a screwdriver from underneath.



ESCUTCHEON AND TOP PLATE

Install the escutcheon and top plate using the supplied M6 x 16 screws.

Install the supplied pole fillers to blank off any unused DIN rail section.



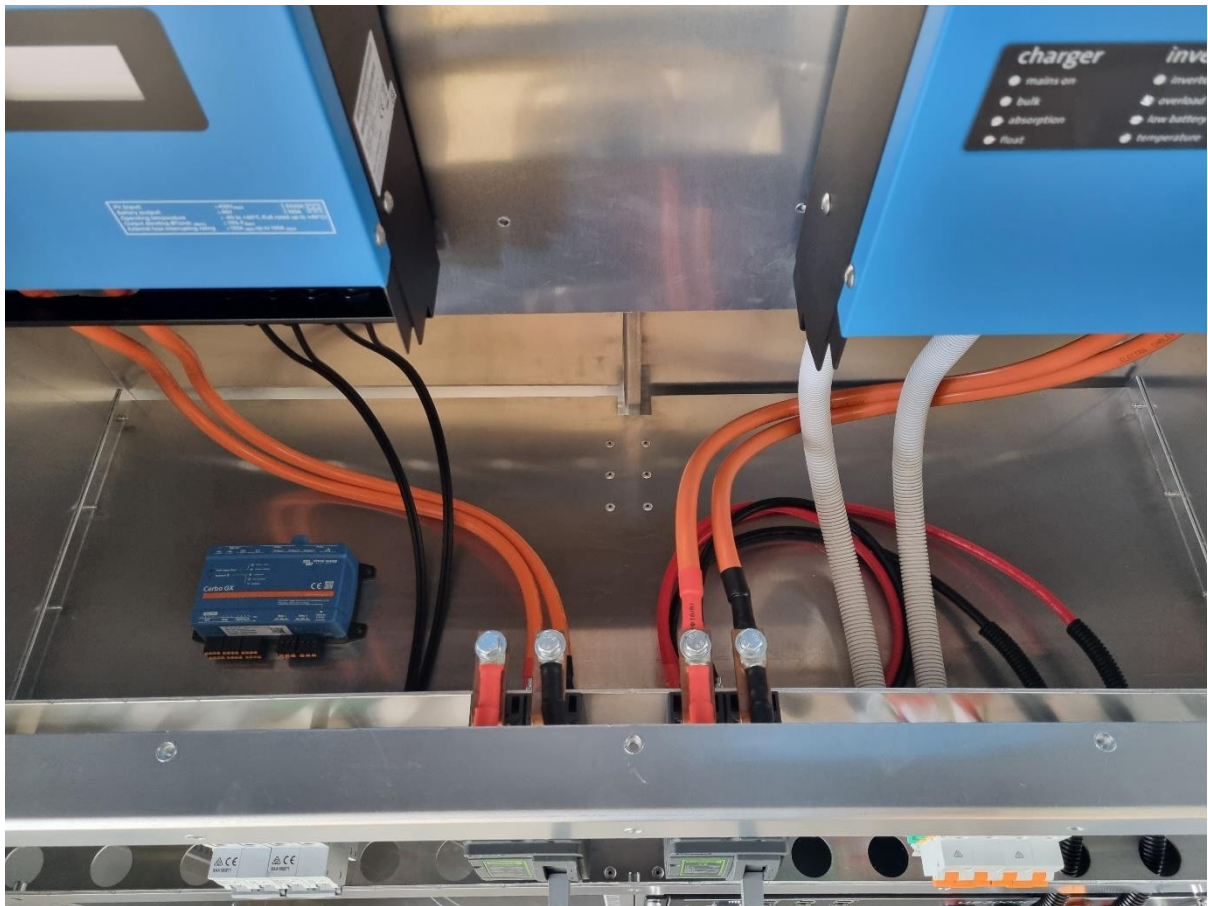
GX TOUCH MOUNT

Install the GX touch to the universal mounting plate. One side has holes for the Touch 50, the other has holes for the Touch 70. Cabling can be reticulated through the rear of the top plate.



ACCESSORIES

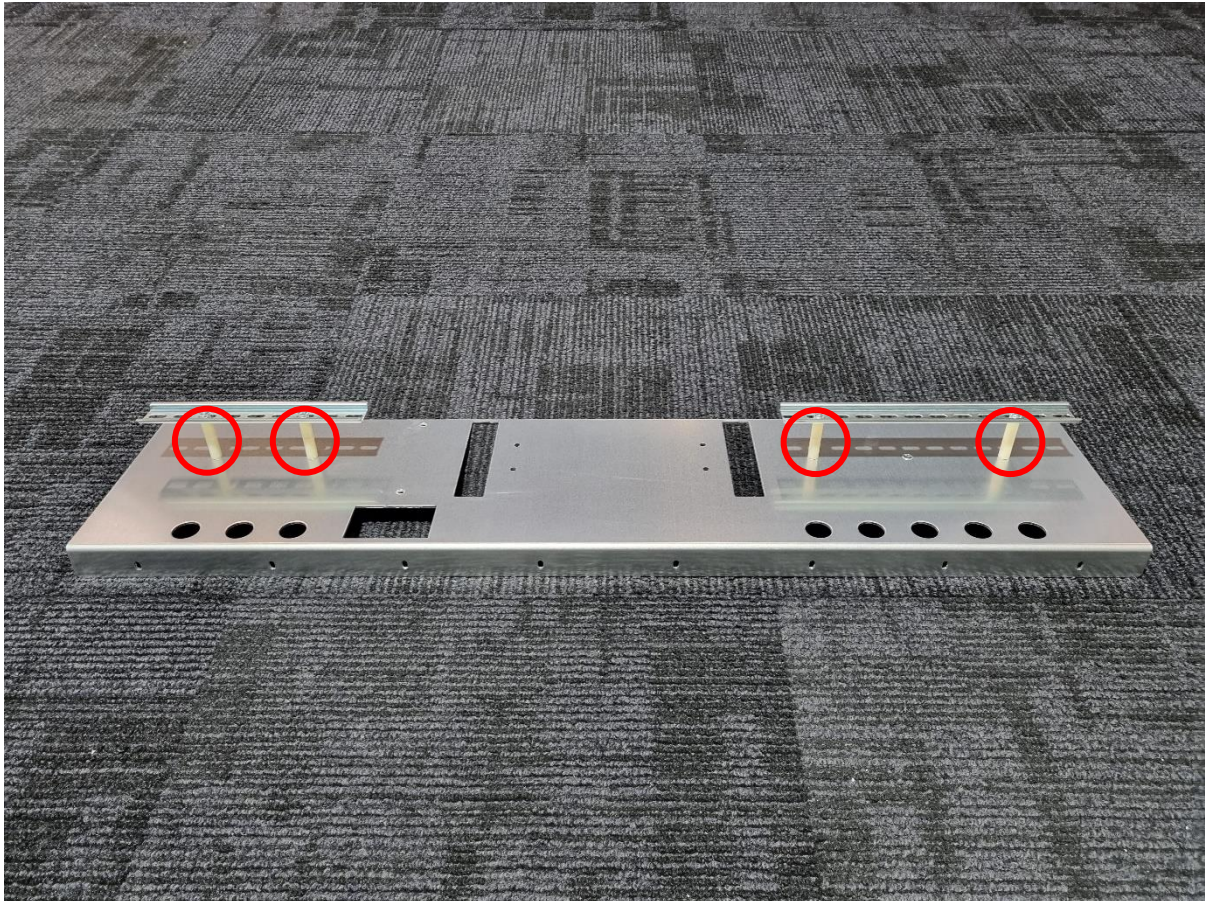
Accessories such as Cerbo GX, Smart shunt & communications equipment can be mounted inside the cabling section. If screws are to be used, care should be taken not to interfere with the battery section below.



HIGH POWER CIRCUIT BREAKER MOUNTING PLATE

Mount the DIN rail to the circuit breaker mounting plate using the supplied M6 x 45 screws and double stacked 25mm spacers.

It is recommended to do this before installation to save working in tight spaces.

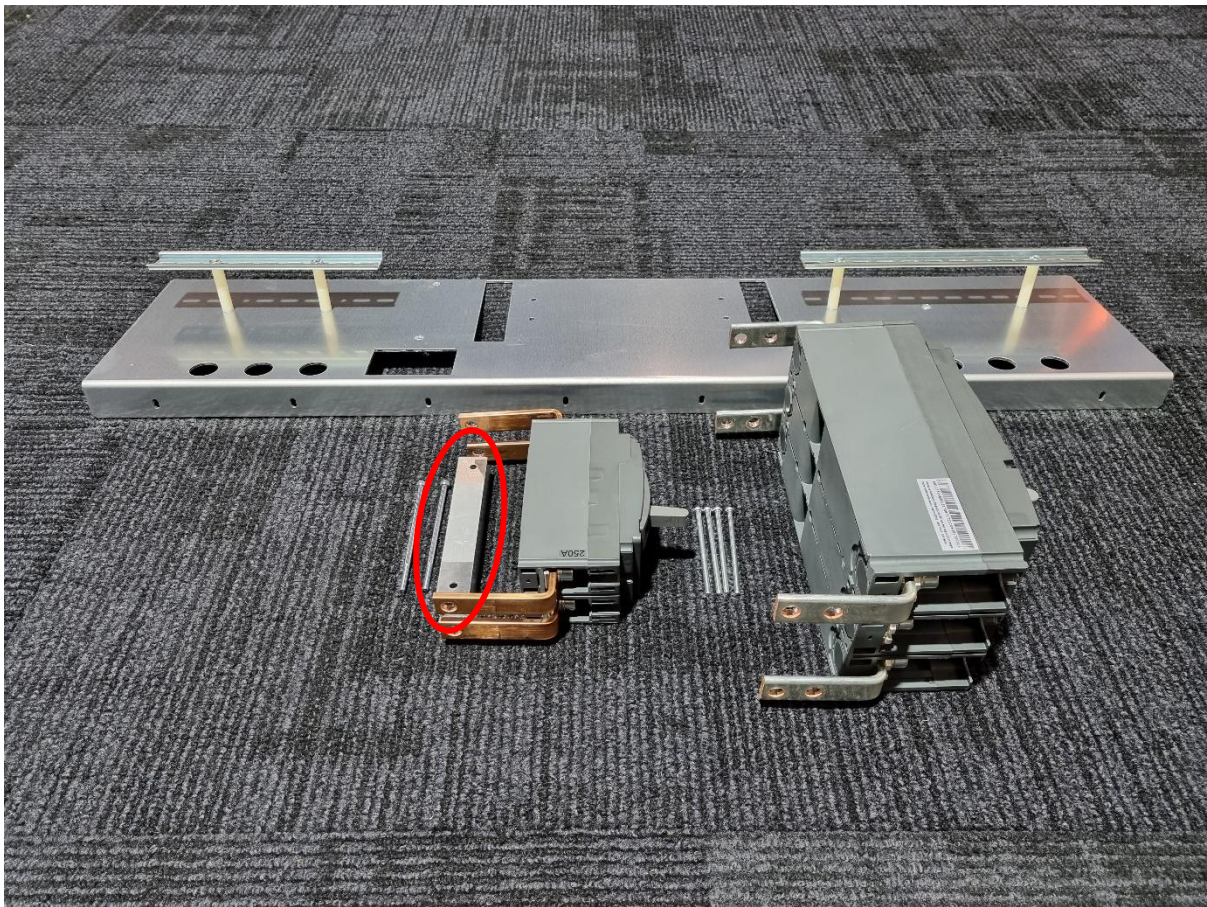


HIGH POWER MOULDED CASE CIRCUIT BREAKERS

Mount supplied bus bars to the circuit breakers ready for installation.

Take note of the 25mm spacer required for the 250A circuit breaker

It is recommended to do this before installation to save working in tight spaces.



HIGH POWER DC CABLING

Mount the MCCB to the circuit breaker mounting plate using the screws supplied with the 400A circuit breaker. The standard screws supplied with the 250A circuit breaker are to be replaced by the supplied 110mm M5 socked head cap screw as the standard screws are not long enough.

Mount the DC cabling to the bus bars using supplied the M8 bolts, nuts and washers.

It is recommended to do this before installation to save working in tight spaces.

