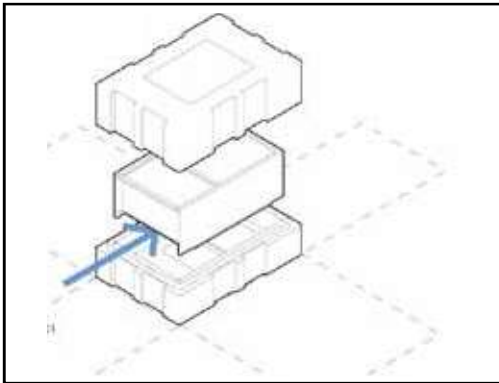
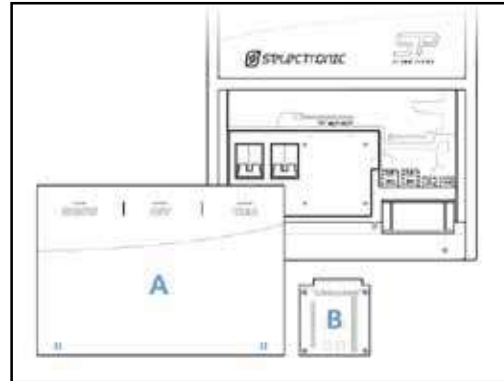




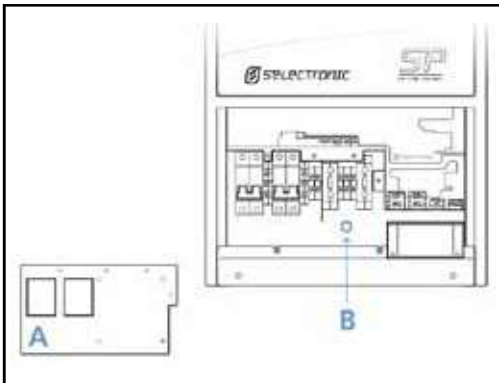
Installation of SPMC models



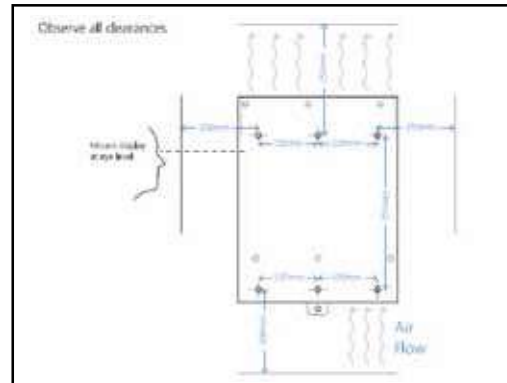
1 - Unpack the SP PRO onto a flat surface. When removing the SP PRO from its packaging carefully inspect for any damage that may have occurred in transit. Damage must be reported to your supplier immediately.



2 - Remove the cover plate(A) by unscrewing the two thumbscrews near the bottom of the SP PRO. Using the T10 torx driver undo the 4 screws securing the expansion card(B) and gently sliding the card down.



3 - Using the T10 torx driver remove the terminal cover(A) by undoing the 4 screws. Use the 6mm allen key to remove the transit bolt(B) positioned below the DC battery terminals.



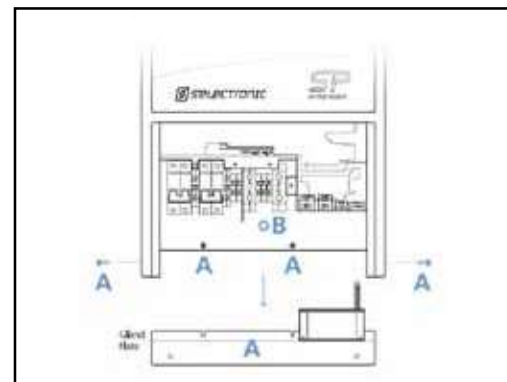
4 - Choose a suitable weight bearing and temperature resistant surface to mount the SP PRO. Max temperature is ambient +30 degrees C, max weight is 40kg. The display of the SP PRO should be at eye level.

Remove the mounting plate from the rear of the SP PRO.

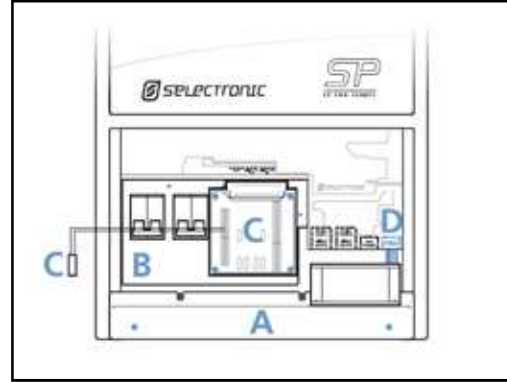
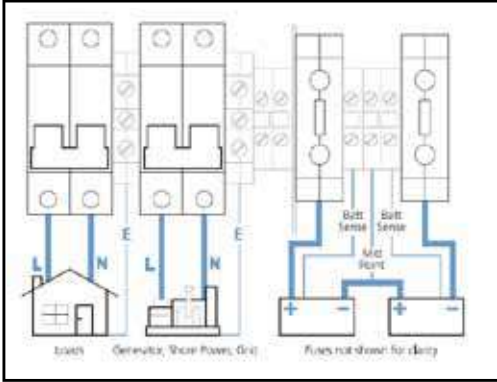
There should be no obstructions to the clear passage of air. Use the 6 x M8 holes to mount the bracket, if the SP PRO is being installed in a mobile situation use the optional mobile mounting bracket.



5 - Mount the SP PRO on the mounting plate by first hooking the top of the inverter over the projections on the mounting plate and lowering it into position. Care should be taken to observe Pinch Point warning. Secure the bottom of the inverter to the mounting plate with the transit bolt using the allen key provided.



6 - The gland plate can be removed if required to give greater access to wiring terminals using T20 torx driver. NB, internal screws need only be loosened.



7- Wiring can only be carried out by suitably qualified installers and must adhere to all relevant standards.

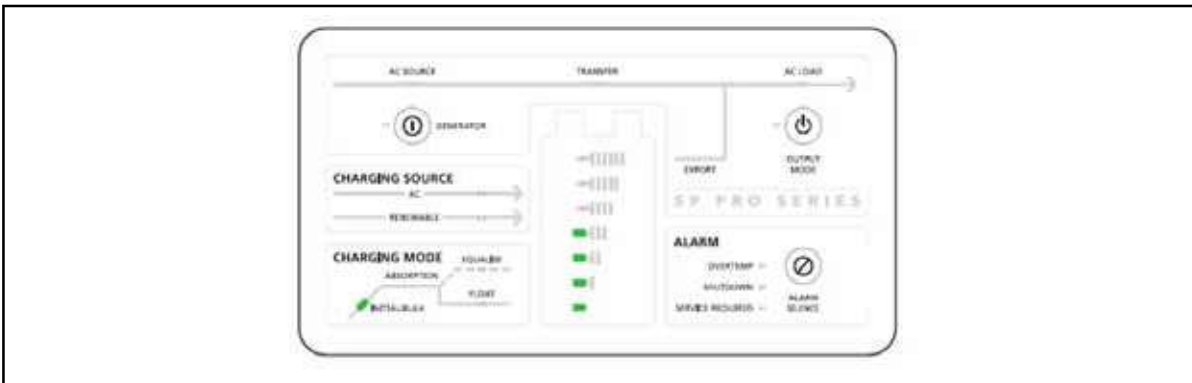


Detailed instruction for wiring SP PRO contained on the following pages. These MUST be followed before proceeding with installation.

Please bear in mind that installations performed and signed off by a Selectronic Accredited installer will benefit from additional warranty cover.

8 - Important points

- Failure to fill any holes in the gland plate (A) will reduce IP rating and compromise thermal design.
- Failure to connect the fan to the appropriate socket (D) will result in over heating.
- Installation of the battery temperature sensor (C) is imperative for the correct and accurate charging of your batteries.



9 - The SP PRO is ready to go.



Battery Cabling Requirements

Minimum Recommended Copper Battery Cable Sizes

Total distance of one conductor from the SP PRO to the battery terminals	Minimum Size Copper Battery Cables based on cable loss < 2% (V-75, V90 OR V-90HT INSULATION)				
	SPMC 240	SPMC 241	SPMC 481	SPMC 482	SPMC 1201
< 2 m	50 mm ²	70 mm ²	50 mm ²	50 mm ²	35 mm ²
2 - 5 m	70 mm ²	50 mm ² x 2	50 mm ²	70 mm ²	35 mm ²
5 - 10 m	Note 1	Note 1	70 mm ²	70 mm ² x 2	50 mm ²
> 10 m	Note 1	Note 1	Note 1	Note 1	Note 1

Note 1: This cable length/product combination is not recommended.

Note 2: V-75, V90 or V-90HT insulated cables are required to be spaced apart by at least the diameter of the cable. For cables with higher grade insulation, no spacing is required.

Fusing

Recommended Battery Fuse Sizes

Product	SPMC 240	SPMC 241	SPMC 481	SPMC 482	SPMC 1201
Battery Fuse Rating (A)	250	250	160	250	160



The DC Breaking Capacity (normally specified in kA at a maximum DC voltage) of the fuse must be greater than the maximum DC Short Circuit current for the sites connect battery system.



DC Wiring

The SP PRO does NOT contain an internal fuse or DC breaker. The DC wiring must be fitted with appropriate fusing or circuit breakers.

The fuse or circuit breaker must be located in a user accessible position and be in close proximity to the battery system. The battery system must not be accessible by the user.

There are four DC wiring connections that should be made. B+ and B-, pre charge and optional mid point monitoring. DC wiring should be fed up through the appropriate gland and terminated into the correct terminals. Connect the battery negative lead with the insulation stripped back 28 mm to the SP PRO's Battery Negative screw terminal. Tighten the hex screw with the Allen key provided. Repeat the same process with the positive battery lead.

Copper wiring must be used through out



Multiple Hazardous Energy Sources

DC wiring is fed from multiple sources including internal capacitors. Care must be taken to ensure that under no circumstances can the user access or touch wiring even after the operation of external circuit breakers or fuses assemblies.

AC Wiring

The AC cabling should be sized according to maximum demand through (consumed by the AC Load) and consumed by the SP PRO (consumed by the charging of batteries). The SP PRO is fitted with 63A circuit breakers which are suitable for accepting up to 25 mm² cables. The 63 A circuit breakers will protect 16 mm² cables but additional external protection must be provided if a lighter duty cable is used.

AC wiring should be fed up through the appropriate gland and terminated to the SP PRO.

Connect the AC load wiring to the SP PRO: earth stripped back 16 mm to the load earth terminal, neutral and active stripped back 12 mm to the Load Circuit Breaker.

Connect the AC source wiring to the SP PRO: earth to the AC Source earth terminal, neutral and active to the AC Source Circuit Breaker.

Copper wiring must be used though out.



Multiple Hazardous Energy Sources

AC wiring is fed from multiple sources. Care must be taken to ensure that under no circumstances can the user access or touch wiring even after the operation of external circuit breakers.

Earth Wiring

The inverter shall be earthed to the installations Earth system. A minimum copper earthing conductor of 6 mm² shall be used. For further information see AS3000 Table 5.1 – Earthing conductor size.

Earth the inverter by connecting earth wiring from the switchboard to the inverter Earth terminal. The SP PRO is suitable for Multiple Earth Neutral systems.

Copper wiring must be used through out.



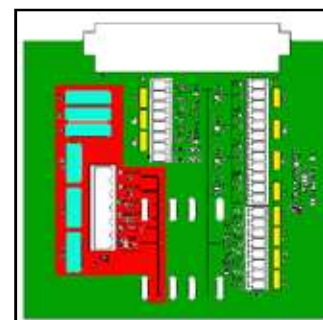
SPMC 1201 Expansion Card Warning



SPMC 1201 models - Hazardous Voltage - 120 V Battery

Expansion card connects to both Hazardous and Safety Extra Low Voltage (SELV) wiring. The connector and wiring to J4 (marked in RED) MUST be treated as Hazardous and be physically segregated from other wiring connected to expansion card.

Protective cover MUST be installed on the Expansion card.



Current Shunt Wiring



SPMC 1201 models - Hazardous Voltage - 120 V Battery

Current shunts connections are both internally and externally connected to battery negative terminal and MUST be treated as Hazardous. Double insulated sense cabling MUST be used.

DC Shunts MUST be installed into the battery negative lead. Ensure that the shunt ONLY measures the renewable or other DC load current and not any current feeding to or from the inverter.

The sense wires for the externals shunts should be fed up through the appropriate gland and terminated to the SP PRO expansion card. The sense cabling should be kept as short as possible. "CAT5" type cabling or any multi conductor multi strand cable is suitable for shunt sense wiring. Remember that these small cables are connected to battery negative and an inadvertent short circuit with either lead to battery positive would short circuit the battery bank. It is recommended that both these wires be fused.

The polarity of these shunt sense leads is not important if they are configured to either "Load" or any of the input selections, such as "Solar"; however polarity is important when using the shunt in "Dual" mode – that is where the shunt is used for both input and output measurement to obtain a nett result.

In "Dual" mode, the sense leads must be connected correctly – expansion card shunt terminal 1A or 2A to the solar and load side, 1B or 2B to the battery negative side.

Battery Temperature Sensor



SPMC 1201 models - Hazardous Voltage - 120 V Battery

Battery temperature sensor is internally connected to battery negative terminal and MUST be treated as Hazardous. Sensor cable is double insulated.



The battery temperature sensor will be pre-wired to the expansion card and must be installed in thermal contact with the centre of a side of a battery, insulated from external temperature effects for accurate charging results. If the cable provided is not long enough it may be extended, polarity of the cable is not important.

Generator Control Wiring

Generator control wiring should be fed up through the appropriate gland and terminated to the SP PRO Expansion card - at a minimum; one of the four relay outputs for a generator run signal. "CAT5" type cabling or any multi conductor multi strand cable is suitable for all control wiring. The Expansion Card can be plugged in and out of the SP PRO for ease of wiring.

Serial Port Connection

The communication cable can be attached to either of the RJ45 sockets on the control board.



Gland Plate Fitout

To maintain the IP rating and safety approval of the SP PRO, all gland plate holes must be completely filled. For any unused holes, plug these with the supplied blanking plugs. If the plug is metal; once installed from the underside of the gland plate, ensure that it is secured in place by bending all of the inner fingers tabs over flush.

Initial Start up Procedure

Before turning on the SP PRO double check all connections, paying particular attention to correct polarity. Give each cable a firm tug to ensure it is securely fitted. If satisfied everything is well, attach the terminal cover plate and insert and secure the expansion card.



SPMC 1201 models - Protective cover **MUST** be installed on Expansion card.

Connect the pre charge wires and wait until all LEDs are lit and stable.

Connect battery cables

Press output mode button (long press > 1 second) once, AC Load LED will be steady blue. You can now start to use your SP PRO by turning on both AC Source and AC Load circuit breakers.

Replace top cover and tighten thumb screws.



To maintain IP rating, thumb screws must be tightened enough that they require a screw driver to loosen.

Labelling

Regulations mandate the application of warning and control labels to the various circuit breakers, isolators and switch boards in the installation.

The SP PRO behaves like a UPS and will continue to provide power to the load upon interruption of mains supply. Warning signs must indicate which circuits or switchboards operate in this manner. For further information see AS4777.1 section 5.6 Additional Requirements for UPS systems.