

WHAT YOU NEED

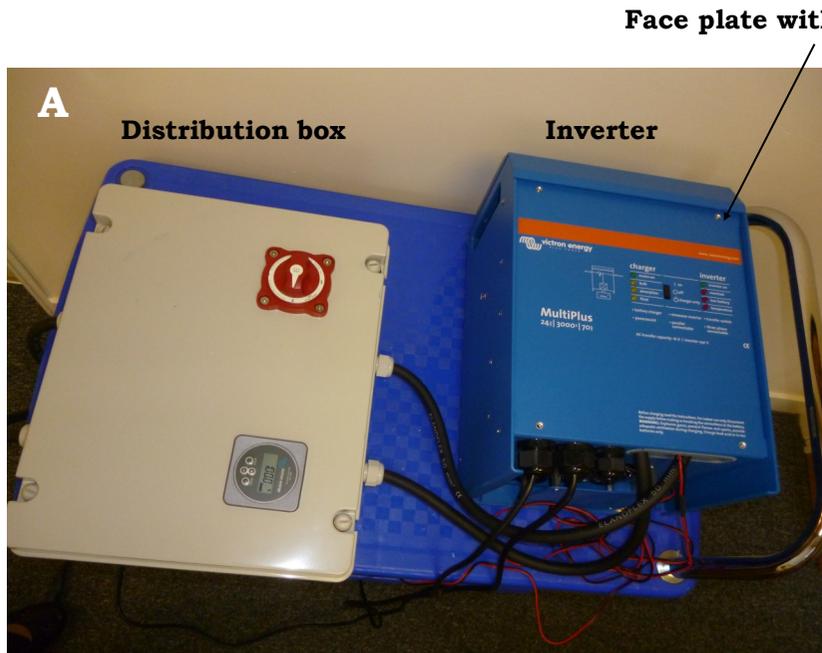
Inverter, battery cables and battery linker cable, distribution box with battery monitor supplied by KT

10 mm and 13 mm Spanner (Wrench) or Adjustable Spanner or sockets. Screw driver.

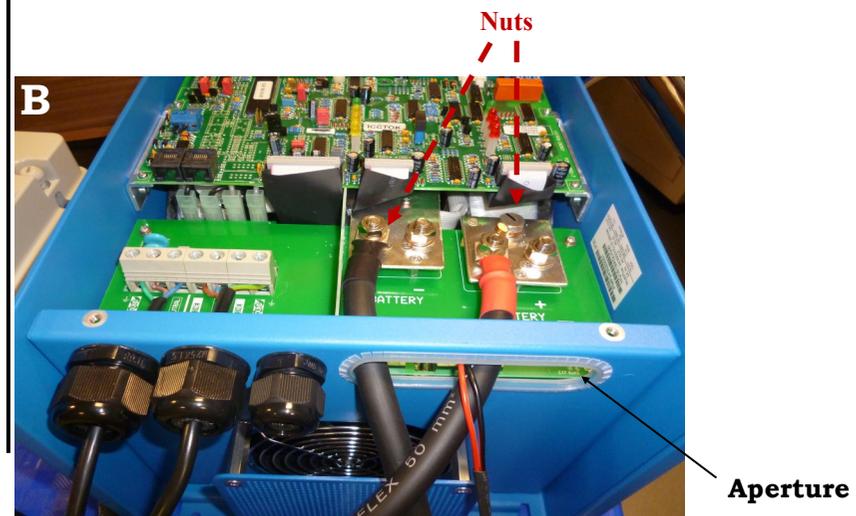
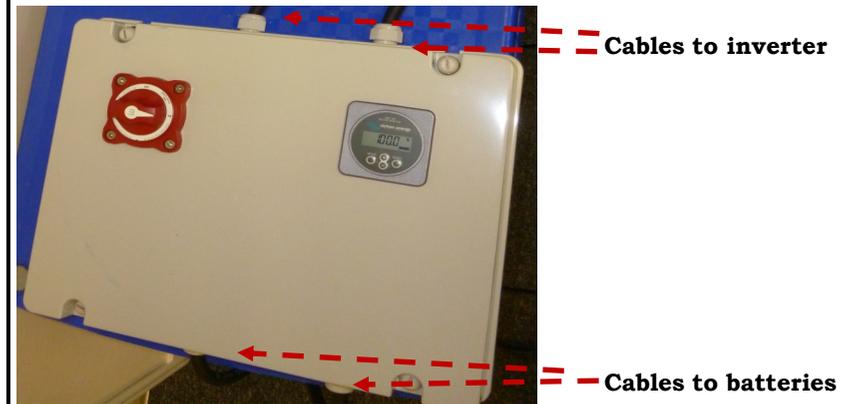
Two Deep Cycle Batteries:
We recommended Victron AGM Battery 12V 220Ah Deep Cycle C-20

1. Connect the inverter to the distribution box

- 1.1 **Victron 24/3000/70-16 Inverter model:** Unpack the blue inverter and white distribution box and lay out the Inverter as shown in **(A)**, next to a mains electricity socket and the equipment to be used with the UPS battery back-up.



- 1.2 Unscrew the inverter face plate and keep the screws safe.
- 1.3 Connect the two battery cables which come from the top end of the distribution box **(D)**.
- 1.4 To connect the cables, first pass the cables through the inverter aperture. Loosen the large nuts and attach the cable with a red sleeve to the **(+)** positive terminal in the inverter **(B)**. Secure the cable with the black sleeve to the **(-)** negative terminal.
- 1.5 Tighten the nuts.



2. Connect the T-sense cable

- 2.1 A thin red/black T-sense cable with metal terminal pins is supplied with the inverter.
- 2.2 Note: you may have to remove the metal terminal ends of the cable **(E)** to prepare them **(F)** to fit firmly into the T-sense apertures of the inverter.

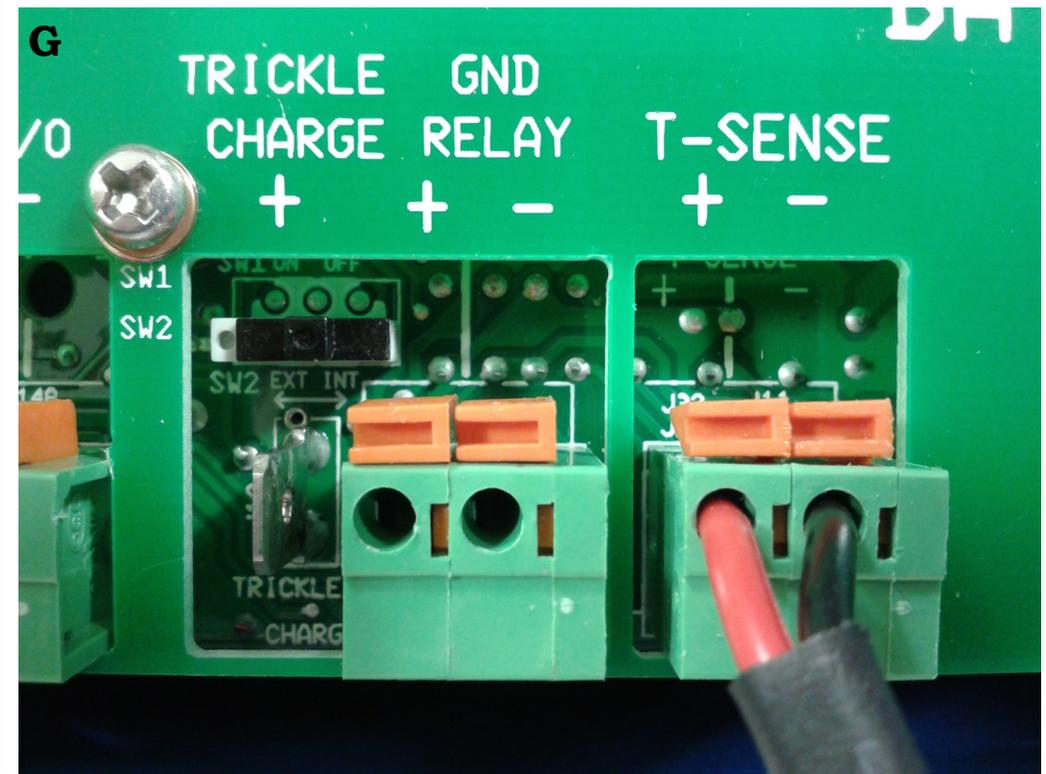


T-sense cable ends with pins removed



T-sense cable ends with pins removed and cable twisted

- 2.3 Locate the T-sense terminals in the inverter (bottom right of the inverter). Two green sockets with orange clips marked 'T-sense' and (+) and (-) as seen in **(G)** below.
- 2.4 Connect the Red and Black T-sense cable ends to the inverter:
- 2.5 Press down on the orange clips using a screwdriver.
- 2.6 Insert the **Red** cable end into the positive (+) aperture and release the orange clip.
- 2.7 Insert the **Black** cable end into the negative (-) aperture and release the orange clip.



3. Connect the power in and out cables / plugs

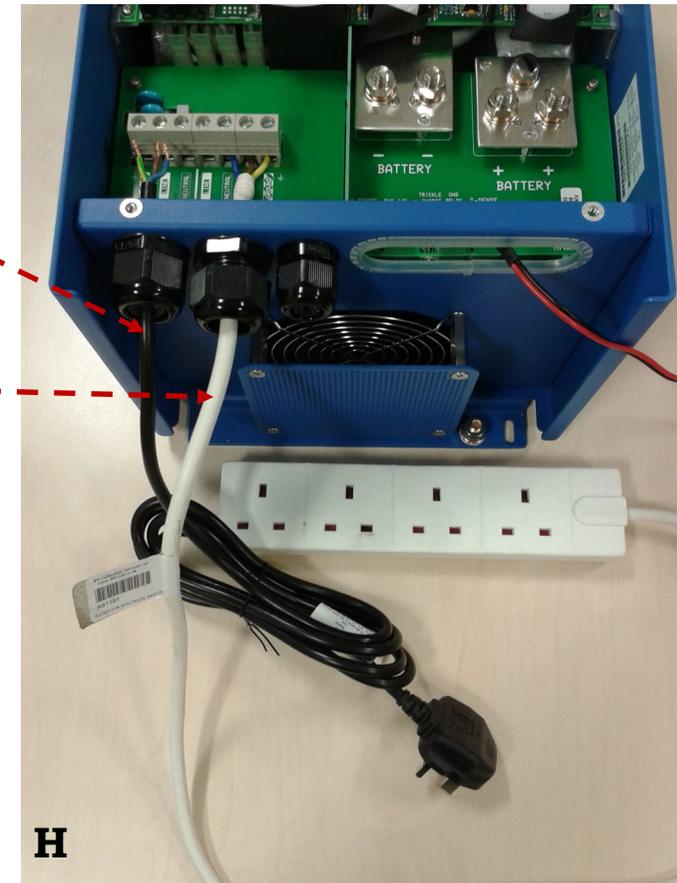
- 3.1 Connect the AC-IN and AC-OUT cables to the inverter (**G**).
- 3.2 Start by pushing the end of the power in (plug) cable through the left hand black aperture (**H**).
Connect the power in cable as shown in (G). Use a screwdriver to loosen each screw and attach as follows:
Blue to the neutral terminal
Brown to the live terminal
Yellow and green to the ground (earth) terminal.
Tighten the screws to ensure the cables are firmly in place.
- 3.3 Repeat step 3.2 for the power out; see the right hand side of photo (**G**) below.

- 3.4 Once all the connections to the inverter have been made, replace the inverter face plate using the 4 screws you used to remove it earlier.



Power in cable

Power out cable



Ensure the plug on the AC-IN cable and power out have a 13 amp fuse

4. Connecting the batteries

WHAT YOU NEED

Battery link cable supplied by KT

10 mm spanner (wrench) or adjustable spanner or sockets

2 Deep Cycle Batteries:

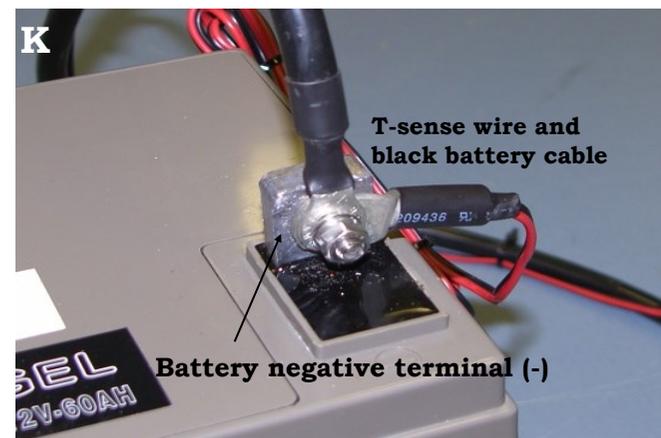
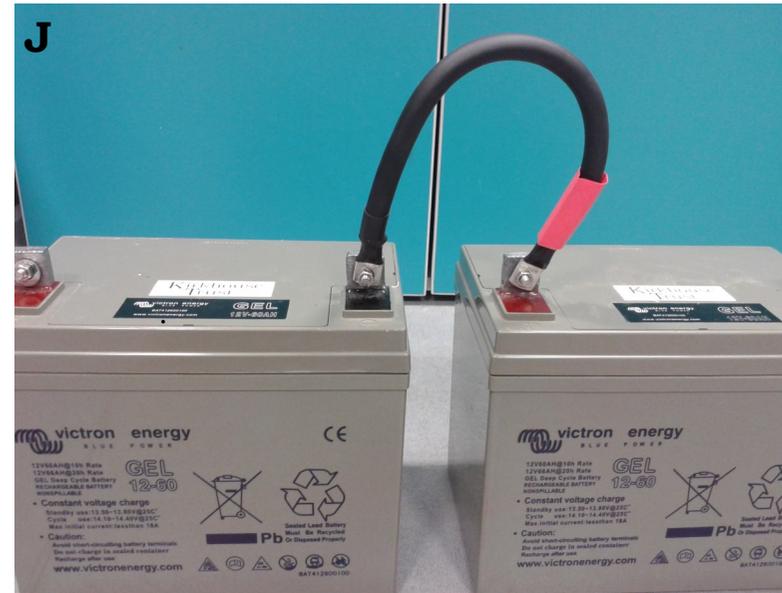
We recommended Victron AGM Battery 12V 220Ah Deep Cycle C-20

- 4.1 Once you have your inverter and distribution box ready (**I**), you can connect the batteries.



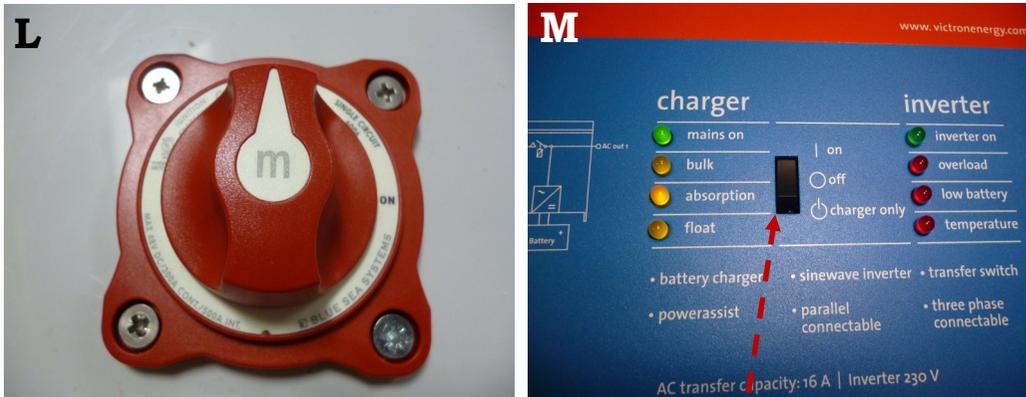
- 4.2 Connect the two 12 volt batteries (**J**) together with the short black linking lead with one **red end sleeve**.
- 4.3 Connect the cable black end to the **black negative (-) terminal first** then connect the cable **red** end to the red (+) positive terminal.

- 4.4 Connect the battery cable with the **black** end sleeve plus the thin black & red T-sense cable from the bottom of the distribution box to the **negative (-)** terminal of the battery (**K**).
- 4.5 Connect the battery cable with the **red** end sleeve from the bottom of the distribution box to the **positive (+)** terminal of the battery.



5. Switch on UPS (inverter)

- 5.1 Plug the Inverter power AC-IN lead into the mains electricity and turn the red master switch on the distribution box **(L)** clockwise to the 'ON' position.
On the inverter, press the black rocker switch to 'ON' **(M)**. The Inverter is now 'live' and connected to the batteries.
- 5.2 Connect the Inverter output lead (AC-OUT) with appropriate plug to equipment or a surge protector. Press the Inverter switch to ON. The Inverter LED will light up briefly but if the mains power is on, the Inverter will automatically revert to charging mode and charge the batteries **(M)**.
- 5.3 When switched on, LED lights on the inverter will briefly light up. When the rocker switch is "on" the inverter can take electricity from the mains and the green "mains on" LED will light



Inverter rocker switch

6. Set battery monitor

- 5.3 To set the battery monitor use the + or — buttons to scroll through to see the set values for battery voltage, current, power, ampere-hours consumed and % battery charge.
- 5.4. The settings depend on the total number of amp hours available from the batteries. It is strongly advised not to use more than 50% of the total amp hours available.



Press **SETUP** for two seconds to access these functions and use the + and - buttons to browse through the options.

Press **SELECT** to access the desired parameter.

Use **SELECT** and the + and - buttons to customize. A short beep confirms the setting.

Press **SETUP** at any time to return to the scrolling text, and press **SETUP** again to return to normal mode.

- | | |
|------------|---|
| Setting 01 | Battery capacity. Set the total amp hours of the batteries at 50% e.g. 120 Ah total, set battery capacity at 60 Ah. |
| Setting 02 | Charged voltage. Set at 28.4 V |
| Setting 03 | Tail current. Set at 1% |
| Setting 04 | Charged detection time. Leave this at the default (3 minutes) |
| Setting 05 | Peukert exponent. Leave at the default (1.25) |
| Setting 06 | Charge efficiency factor. Set at 83% |

5.5 For further information consult the BM700 Instruction Manual pages 17-21. This manual and the Instruction Manual for the Inverter can be found at www.kirkhoustrust.org. Go to 'Resources → Research Resources → Equipment Manuals'.



5.6 When the Inverter is switched from OFF to CHARGER ONLY the Charger LED will light **(M)** and send power into the batteries.

5.7 If the power supply fails, the Inverter will automatically switch from CHARGER to INVERTER mode and supply power to the equipment from the stored energy in the batteries. The digital display will show less than 24 volt **(N)**. When mains power is restored the inverter will return to CHARGE mode after 30 seconds.