PV Logic®
Flexi

Solar
Technology
International
Without boundaries

User manual

Semi-Flexible Solar Panels

5wp/10wp/20wp/55wp/60wp/80wp

Important: please read before first use.

Technical helpline 01684 774 000

PV Logic Flexi kit contents

Letters after item descriptions refer to the picture below.

STPVF005 - 5wp Solar Kit
1 x 5wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)
2 x Croc clips – not shown

STPVFRT005 - 5wp Complete Solar Roof / Deck Top Kit
As STPVF005 above but including:
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

STPVF010 - 10wp Solar Kit
1 x 10wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)
2 x Croc clips – not shown

STPVFRT010 - 10wp Complete Solar Roof / Deck Top Kit
As STPVF010 above but including:
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

STPVF020 - 20wp Solar Kit
1 x 20wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)

STPVF020MA - 20wp Solar Kit including Charge Controller
As STPVF020 above but including:
1 x 10Ah Charge controller (c)

STPVFRT020 - 20wp Complete Solar Roof / Deck Top Kit
As STPVF020 above but including:
1 x 10Ah Charge controller (c)
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

STPVF055ET - 55wp Solar Kit
1 x 55wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)

STPVF055ETMA - 55wp Solar Kit including Charge Controller
As STPVF055 above but including:
1 x 10Ah Charge controller (c)

STPVFRT055ET - 55wp Complete Solar Roof / Deck Top Kit
As STPVF055 above but including:
1 x 10Ah Charge controller (c)
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

STPVF060ET - 60wp Solar Kit
1 x 60wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)

STPVF060ETMA - 60wp Solar Kit including Charge Controller
As STPVF060 above but including:
1 x 10Ah Charge controller (c)

STPVFRT060ET - 60wp Complete Solar Roof / Deck Top Kit
As STPVF060 above but including:
1 x 10Ah Charge controller (c)
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

STPVF080 - 80wp Solar Kit
1 x 80wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuseholder and fuse (b)

STPVF080MA - 80wp Solar Kit including charge controller
As STPVF080 above but including:
1 x 10Ah Charge controller (c)

STPVFRT080 - 80wp Complete Solar Roof / Deck Top Kit
As STPVF080 above but including:
1 x 10Ah Charge controller (c)
1 x Tube bonding agent (d)
1 x Waterproof cable feed gland (e)

Special note

The PV Logic MHD Flexi range of panels are NOT highly flexible. They are designed to fit flush to a surface with a curve of no greater than 3 degrees or 3cm per 1m panel length.
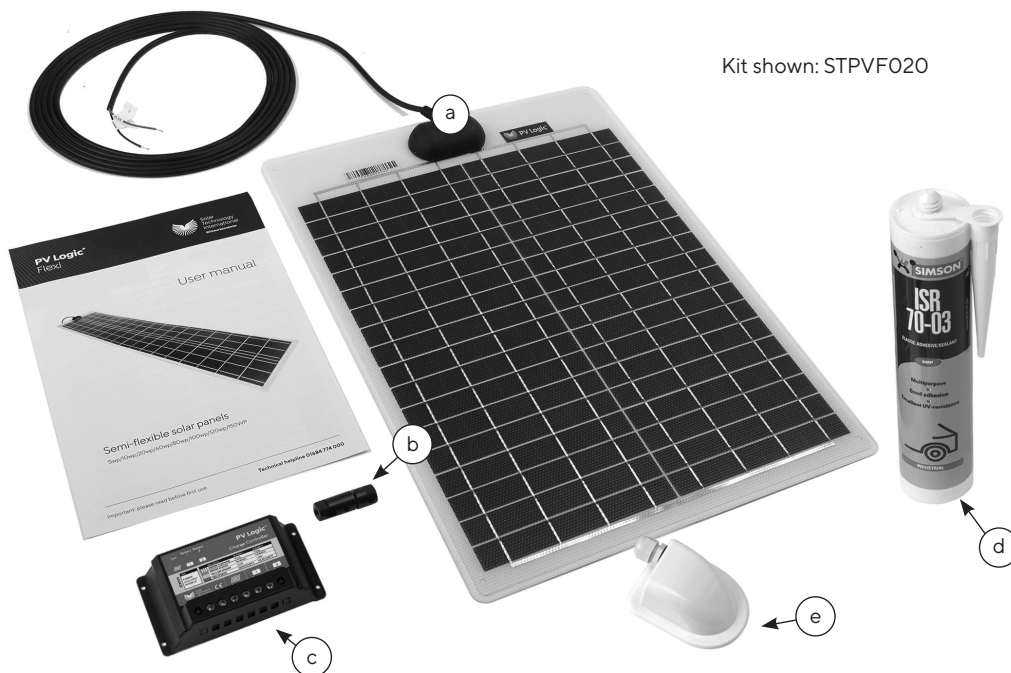
Therefore, when handling the panel during delivery, storage and prior to installation please be very careful not to allow the panel to bend. Once installed, the panel is extremely tough and resilient but before the panel is fitted it is vulnerable to solar cell breakage if the panel bends excessively. Therefore, we recommend using two people to handle the panel and box at all times prior to, and during, installation. Failure to follow this guidance will invalidate the warranty.

Kit shown: STPVF020

Please read all instructions carefully before work begins.

Please refer to circuit diagram and at all times observe correct polarity; POSITIVE = RED (or brown) cable; NEGATIVE = BLACK (or blue) cable.

Note – we recommend a Solar Technology 10Ah or 20Ah charge controller is added to any system (if not included in this kit), unless the 10wp (STPVF010) panel has been purchased in which case this can be connected direct to the battery terminals (unless the battery has a smaller capacity than 70Ah, in which case a Charge Controller must be used). The STPVF010 is fitted with a reverse feed diode in the junction box and this prevents battery drain when the panel is used without a charge controller.

Step 1: Positioning the Flexi panel(s)

1.1 Select a location that is generally free from shade, has a solid surface and is within 3-4m of the charge controller and/or battery. If the Roof Top Kit has been selected please also refer to Step 3.1

1.2 If the panel is to be free standing, go to Step 2.

1.3 Ensure all panel(s) can be sited close to one another (if a multi panel system has been selected), and that the cables can be correctly positioned. Note – cables from a multi panel system will be all fed directly to the charge controller.

1.4 If fixing using a bonding agent, mark the area with a pencil line where the panel(s) are to be fixed (the bonding agent is very strong and instantly bonds, so there is **only one chance** to get the location correct). Clean the area well and ensure any grease or other film is removed.

If fitting a panel to a flat roof, run a 10mm thick bead of adhesive (as per the pattern shown below) at about 150mm to 200mm spacing, leaving a 70 to 100mm gap in the centre of the panel. This allows water to exit and air to travel between the roof and panel. Apply even pressure to the panel to compress the adhesive from 10mm to 5mm.

On a ribbed roof use the same method but apply double lines of adhesive on the peak of each rib, leaving the rib base open.

If the panel has a rear cable exit, apply a circle (or two circles if space permits) around the junction box to ensure the roof hole is well sealed.

Please check the manufacturer's recommended curing time if using another bonding agent.

70 – 100mm gap

10 – 12mm beads of adhesive

10-12mm double bead of adhesive around junction box

REAR OF SOLAR PANEL
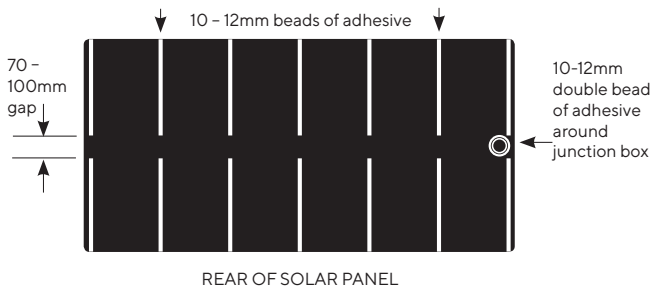
Please note

- Once the panel is fixed to the roof allow the adhesive 24 hours to cure before moving the vehicle.
- Do not put excessive pressure on the roof when bonding panel to surface – a 10mm bead will be compressed to 5mm. Try to avoid pushing down unevenly, apply gentle pressure across the panel when setting the panel down then leave it to set off.
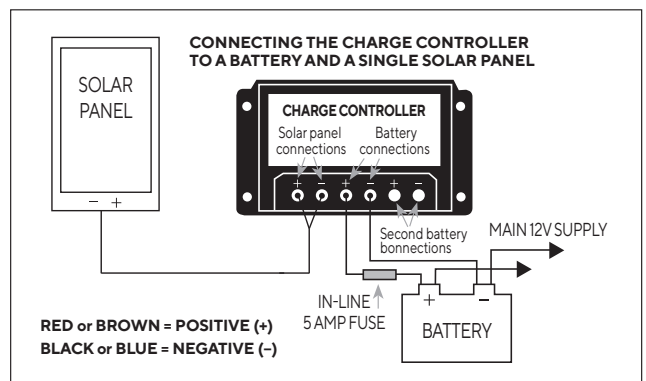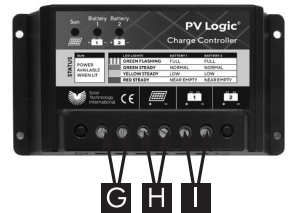
Step 2: Prepare the cable

2.1 The Flexi range are all fitted with a 4m cable. The black outer sheath should be removed approximately 20mm (longer if connecting the 10wp panel direct to a battery) and the inner red and black cables will be revealed. Remove this sheath and the copper cable will be visible (red is positive and black is negative).

2.2 If a charge controller is being used please read Step 4.

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Step 3: Fix the cable feed gland (only for roof top kits)

3.1 If a roof top kit containing two Flexi panels has been selected a double cable feed gland has been supplied where two cables can fit through each gland grommet.

3.2 The cable feed gland is a completely waterproof unit designed to cover a hole that has been drilled to channel the Flexi cable from the outside to inside. The location of the Flexi panel(s) (as discussed in Step 1.1) will have been determined, to a certain extent, by the desired location of the cable feed hole. The cable entry point should allow the cable(s) to be easily routed to the charge controller (if used) and the battery.

3.3 Now slacken the feed grommet(s) on the cable feed gland to allow the cable to be easily threaded through it and allow the cable(s) to pass through the drilled hole.

3.4 Mark the area around where the gland is to be fixed and squeeze a 6mm line of adhesive on the underside of the gland ensuring there are no gaps. Now fix the gland onto the dry, clean surface. The bonding agent will take 24 hours to cure. Ensure this process is completed at roughly the same time as Step 1.4.

3.5 Now push the cable(s) from the solar panel(s) through the gland grommet so that it is reasonably taught. The threaded grommet can now be tightened ensuring a perfect seal is made around the cable itself.

Step 4: Connecting the Flexi cable to a charge controller (if supplied)

4.1 A charge controller will be necessary for STPVF020 and above and if using the STPVF010 on a battery smaller in capacity than 70Ah.

4.2 Position the charge controller as close as possible to the battery (must be a dry location).

4.3 Measure the distance between your battery terminals and the charge controller.

4.4 Cut the measured length of cable from the 4m cable fitted to the panel (or use any DC, 2 core cable at 1mm diameter for the 10wp or 20wp Flexi and 1.5mm for the 60wp and 80wp Flexi*) so that there is sufficient cable length from the Flexi panel to reach the charge controller.

* Additional cable can be supplied by Solar Technology International – www.solartechnology.co.uk

4.5 Now connect the cable end fixed to the Flexi to the charge controller. Strip back 20mm of the black outer sheath of the cable end to be connected to the charge controller.

4.6 Strip back 20mm of the black and red inner sheaths to reveal the bare cable.

4.7 Using the cut section of cable as described in Step 4.4, attach one end to the terminals H (see image above) in the same way as described in Step 4.6.

CONNECTING THE CHARGE CONTROLLER TO A BATTERY AND A SINGLE SOLAR PANEL

SOLAR PANEL

CHARGE CONTROLLER

Solar panel connections   Battery connections

Second battery bonnections

MAIN 12V SUPPLY

IN-LINE 5 AMP FUSE

BATTERY

RED or BROWN = POSITIVE (+)
BLACK or BLUE = NEGATIVE (–)

Step 5: Fitting the fuse

5.1 The fuse is fitted on the positive cable (red) on the cable section between the charge controller and the battery or if fitting the 10wp Flexi without a charge controller direct to the battery. Fit the fuse on the positive cable as close to the battery as possible.

5.2 Cut the red cable and strip 5mm of the red insulation from both the cut ends. Twist the bare wire ends tightly. Fit into the screw terminals on each of the fuse holder pieces.

Step 6: Connecting to the battery

6.1 If the STPVF010 has been selected, the crocodile clips can be fixed directly to the terminals of a 12v battery (greater in capacity than 70Ah) ensuring that the correct polarity is observed. If a smaller battery is to be used, purchase a charge controller and follow Step 4. This entails checking the battery at regular intervals with a digital voltmeter and when the battery is showing a volt reading of 14v or above, disconnecting the Flexi PV until the battery level has reduced.

6.2 For the STPVF020 and above (where a charge controller is being used), take the cable end coming from the charge controller, strip the red and black insulation (6cm) from the inner cable ends, twist the bare wire, wrap around the battery terminals and fix into position using your battery clamps.

6.3 When connecting to a battery always observe correct polarity.

6.4 If a second battery is being connected to the solar system see the instructions contained within the charge controller.
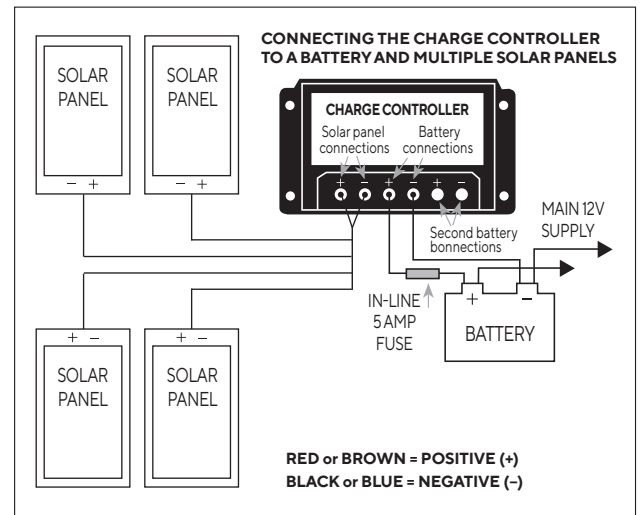
NOTE: RED = POSITIVE (+)   BLACK = NEGATIVE (−)

Step 7: Testing the system

7.1 Testing can also be completed with a digital volt meter. Solar Technology International can supply special test instructions if required – please email hello@solartechnology.co.uk

Options

Expanding the Flexi PV system

8.1 If multiple panels will be joined to form a mini solar array, please contact help@solartechnology.co.uk for a document titled 'Expanding a solar system' or call the Tech Help Desk on 01684 774000.

CONNECTING THE CHARGE CONTROLLER TO A BATTERY AND MULTIPLE SOLAR PANELS

RED or BROWN = POSITIVE (+)
BLACK or BLUE = NEGATIVE (−)