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 010 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).

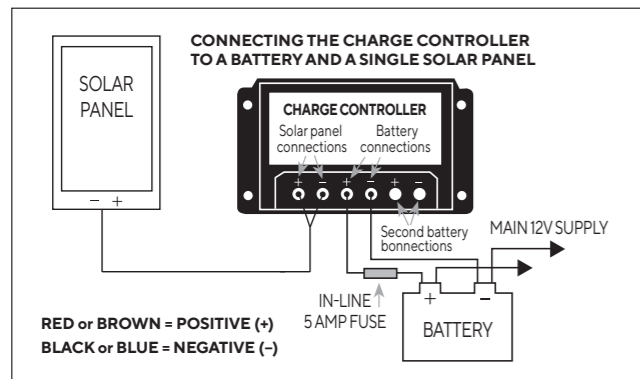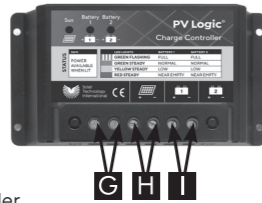4.3 Measure the distance between your battery terminals and the charge controller.

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 10w or 20w Flexi and 1.5mm for the 60w and 80w 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. Crimp the supplied ring terminals to the cable end and attach the cable to terminals G of the charge controller, ensuring the positive and negative polarity is observed).

4.7 Using the cut section of cable as described in 4.4, attach one end to the terminals H in the same way as described in 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 fixeddirectly 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. Some battery clamps have connection screws fitted, in which case, strip 20mm of cable from the red and black cable, crimp the supplied ring terminals and connect to the battery clamp screws.

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 an inverter into the system

9.1 Should you require your solar system to power 240V appliances, you will need to connect an inverter. Select an inverter power (measured in watts) that is most appropriate for the power of your appliances (also measured in watts). The inverter will be ideally positioned reasonably close to the battery. Most inverters come with pre-fixed cable so fix the loose end directly onto the battery terminals (positive to positive / negative to negative) – contact 01684 774000 for more information.

CONNECTING THE CHARGE CONTROLLER TO A BATTERY AND MULTIPLE SOLAR PANELS

SOLAR PANEL   SOLAR PANEL
CHARGE CONTROLLER
Solar panel connections   Battery connections
Second battery bonnections
MAIN 12V SUPPLY
IN-LINE 5 AMP FUSE
BATTERY
SOLAR PANEL   SOLAR PANEL
RED or BROWN = POSITIVE (+)
BLACK or BLUE = NEGATIVE (–)
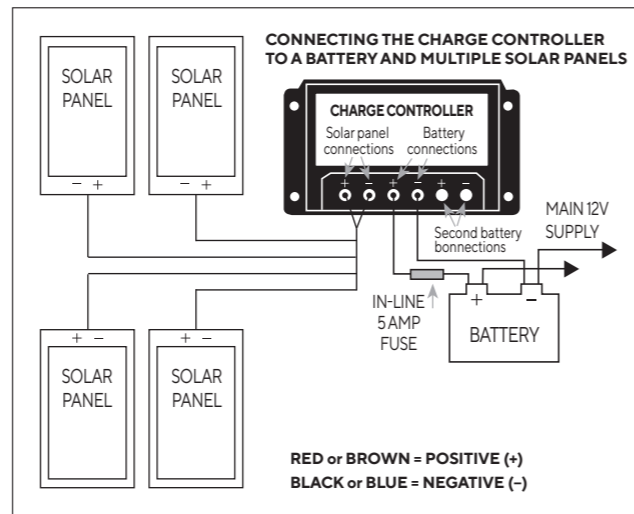
Warranty

Solar Technology International flexi solar panels are supplied with a 5 year panel build warranty and 20 year cell performance warranty.

5 Year build warranty
This guarantee's the panel from mechanical failure and water ingress during this period. Void if the outer layers of the panel have been penetrated.

20 Year cell performance warranty
The solar cells are guaranteed to perform for the long term and this warranty specifically confirms that by year 20 the cells will be outputting no less than 80% of their new value. For example, a 100wp solar panel is guaranteed to deliver no less than 80wh by year 20 when tested under Standard Test Conditions.

In the event of a successful warranty claim in both cases, Solar Technology International will, at its discretion provide one of the following remedies; **1.** Replace the defective solar panel or **2.** Refund the percentage of the cost of the solar panel to the customer representing the percentage of the time period between new and year 10 and in the case of a claim on the cell performance a percentage will be paid according to the power output less than 80%.

Solar Technology International Ltd does not accept liability for any 3rd party damage how so ever caused or any costs associated with the return of faulty products.

Solar Technology International Without boundaries

PV Logic®
Flexi

User manual

Semi-Flexible Solar Panels

5wp/10wp/20wp/60wp/80wp/100wp/120wp/150WP

Important: please read before first use.

Technical helpline 01684 774 000

PV Logic Flexi kit contents

Letters after item descriptions refer to the picture opposite.

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

STPVFRT005 - 5wp Complete Solar
Roof / Deck top kit
1 x 5wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
2 x Terminals (c)
2 x Croc clips – not shown
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

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

STPVFRT010 - 10wp Complete Solar
Roof / Deck top kit
1 x 10wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
2 x Terminals (c)
2 x Croc clips – not shown
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF020 - 20wp Solar Kit
1 x 20wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)

STPVF020MA - 20wp Solar Kit
including charge controller
1 x 20wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVFRT020 - 20wp Complete Solar
Roof / Deck top kit
1 x 20wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF060 - 60wp Solar Kit
1 x 60wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)

STPVF060MA - 60wp Solar Kit
including charge controller
1 x 60wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVFRT060 - 60wp Complete Solar
Roof / Deck top kit
1 x 60wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF080 - 80wp Solar Kit
1 x 80wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)

STPVF080MA - 80wp Solar Kit
including charge controller
1 x 80wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
8 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVFRT080 - 80wp Complete Solar
Roof / Deck top kit
1 x 80wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF(B)100 - 100wp Solar Kit
1 x 100wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
6 x Terminals (c)

STPVF(B)100MA - 100wp Solar Kit
including charge controller
1 x 100wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
8 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVF(B)RT100 - 100wp Complete Solar
Roof / Deck top kit
1 x 100wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF120 - 120wp Solar Kit
2 x 60wp Flexi premium panel with 4m pre-wired cable (a)
1 x Fuse (b)
8 x Terminals (c)

STPVF120MA - Premium 120wp Solar Kit
including charge controller
2 x 60wp Flexi premium panel with 4m pre-wired cable (a)
1 x Fuse (b)
8 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVFRT120 - Premium 120wp Complete Solar
Roof / Deck top kit
2 x 60wp Flexi premium panel with 4m pre-wired cable (a)
1 x Fuse (b)
8 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding Agent (e)
1 x Double gland - not shown

STPVFS120 - 120wp Solar Kit
1 x 120wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)

STPVFS120MA - 120wp Solar Kit
including charge controller
1 x 120wp Flexi PV panel with 4m pre-wired cable (a)
1 x Fuse (b)
8 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVFSRT120 - 120wp Complete Solar
Roof / Deck top kit
1 x 120wp Flexi PV Panel with 4m pre-wired cable (a)
1 x Fuse (b)
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

STPVF(B)150 - 150wp Solar Kit
1 x 150wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
6 x Terminals (c)

STPVF(B)150MA - 150wp Solar Kit
including charge controller
1 x 150wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
8 x Terminals (c)
1 x 10Ah Charge controller (d)

STPVF(B)RT150 - 150wp Complete Solar
Roof / Deck top kit
1 x 150wp Flexi PV panel with 1m rear exit cable
  available with black or white back sheet - not shown
1 x Fuse (b)
1 x Diode box - not shown
1 x 4m Cable bundle – not shown
6 x Terminals (c)
1 x 10Ah Charge controller (d)
1 x Tube bonding agent (e)
1 x Waterproof cable feed gland (f)

Technical helpline 01684 774 000

Kit shown: STPVF020

Special note

1. The PV Logic 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. Flexing and bending greater than this **WILL** cause micro cracks in the cell circuit resulting in premature failure. In these circumstances the warranty provided with this product will be void.

2. If any kit comprising of a single or multiple 80w Flexi panel has been purchased and the rear of the panel has a clear, dimpled surface (same as the top surface), please see attached special instructions for bonding and **ONLY** use the glue and applicator provided in this pack. If the 80w panel has a white back surface proceed as noted below and overleaf.

Please read all instructions carefully before work begins.

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

PV Logic Flexi panels are designed to withstand the harshest environments on the planet from -40 to +80 degrees. The top surface is made from ETFE, which is particularly resistant to damage, scratching and delamination. The surface has a special self healing property if light scratching occurs. The cell circuit is fully encapsulated in a water tight envelope and mounted on a powder coated aluminium sheet providing strength and heat dissipation without magnetic interference.

We expect that this product will give you many years of clean, silent and efficient electricity but if you are not satisfied or have a technical question please do make contact either with your retailer or direct to us at Solar Technology International, UK at **hello@solartechnology.co.uk** or **01684 774000**.

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.

   Now apply a thin line (approx 6mm wide) of bonding agent to the outside edge of the underside (not the solar cell side) of each panel and an additional wavey line going the full length of the panel. Carefully place the side with the bonding agent within the positioning pencil lines drawn earlier. Firmly press down on the panel so that the bonding agent squeezes near or on the edge of the panel (it does not matter if the agent squeezes further but it is not as neat). Repeat this process until all panels are fixed. The bonding agent generally takes 24 hours to cure. Please check the manufacturers recommended curing time if using another agent.

1.5 In some cases it may be desirable to both bond and screw the Flexi PV in position. If this method is selected, drill a hole not more than 4.5mm wide through the outer panel layers and through the pilot hole pre-drilled in the aluminium sheet. Ensure a liberal blob of bonding agent is applied to both the holes in the substrate and where the panel has been drilled, ensuring that once the screws are fixed the hole will be sealed (Note – once the bonding agent is applied to the holes, time is limited before it 'sets 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 approx 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).

   Now the supplied ring terminals can be crimped to the cable end for either connecting to the supplied crocodile clips to connect direct to a battery (STPVF010 only) or to a charge controller if a 20wp panel or larger has been purchased. If wiring a multi panel system, repeat the above for each and fix all cable terminals to the + and – terminals on the charge controller.

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

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 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 now 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 or 1.5.

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.

Special note – 100wp & 150WP only

The 100w has a cable that exits rear of the panel allowing the panel to be fitted with no protrusions on the top surface. This will require a hole drilling in the roof of between 20mm and 25mm diameter to allow the bell cap to fit. Ensure this hole is adequately applied with silicon or similar prior to fixing the panel in position to ensure weather resistance.

Shading diode box for the 100w Flexi (this must be fitted).

Please wire as per picture.

TOP (+) = Red   (–) = Black
Center connection = Yellow

Bottom connections output (+) and (–) go to the panel connections of the voltage regulator using the additional 4m, 2-core cable supplied.