

PV Logic[®]
MHD Flexi



Solar
Technology
International
Without boundaries

User manual



MHD Semi-Flexible Solar Panels

110wp/150wp/200wp/250wp/290wp

Important: please read before first use.

Technical helpline 01684 774 000

PV Logic MHD Flexi kit contents

All MHD Flexi panels are available in front and rear exit options. Add 'R' to the product codes listed below for the rear exit panels e.g. STPVFU290R

Letters after item descriptions refer to the picture below.

STPVFU110 - 100 wp Solar Kit

1 x 110wp Flexi PV panel (top exit, rear exit) (a)
1 x Fuseholder and fuse (not shown)
1 x Diode box - not shown - rear exit only
1 x 4m Cable bundle - not shown - rear exit only
1 x Instruction manual (f)

STPVFU110MA - 100wp Solar Kit including Charge Controller

As STPVFU110 above but including:
1 x 10Ah Charge controller (b)
1 x Instruction manual (f)

STPVFURT110 - 100wp Complete Solar Roof / Deck Top Kit

As STPVFU110 above but including:
1 x 10Ah Charge controller (b)
1 x Tube bonding agent (c)
1 x Waterproof cable feed gland (not shown)
1 x Instruction manual (f)

STPVFU150- 150wp Solar Kit

1 x 150wp Flexi PV panel (top exit, rear exit) (a)
1 x Fuseholder and fuse (not shown)
1 x Diode box - not shown - rear exit only
1 x 4m Cable bundle - rear exit only (not shown)
1 x Instruction manual (f)

STPVFU150MA - 150wp Solar Kit including charge controller

As STPVFU150 above but including:
1 x 10Ah Charge controller (b)
1 x Instruction manual (f)

STPVFURT150 - 150wp complete solar Roof / Deck Top Kit

As STPVFU150 above but including:
1 x 10Ah Charge controller (b)
1 x Tube bonding agent (c)
1 x Waterproof cable feed gland (not shown)
1 x Instruction manual (f)

STPVFU200- 200wp Solar Kit

1 x 200wp Flexi PV panel (top exit, rear exit) (a)
2 x 0.9m cable attached to the panel with MC4 connectors (d)
2 x 3m cables with MC4 connectors (e)
1 x Fuseholder and fuse (not shown)
1 x Instruction manual (f)

STPVFU200MA - 200wp Solar Kit including Charge Controller

As STPVFU200 above but including:
1 x 20Ah Charge controller (b)
1 x Instruction manual (f)

STPVFURT200 - 200wp Complete Solar Roof / Deck Top Kit

As U200 above but including:
1 x 20Ah Charge controller (b)
2 x Tube bonding agent (c)
1 x Waterproof cable feed gland (not shown)
1 x Instruction manual (f)

STPVFU250- 250wp Solar Kit

1 x 250wp Flexi PV panel (top exit, rear exit) (a)
2 x 0.9m cable attached to the panel with MC4 connectors (d)
2 x 3m cables with MC4 connectors (e)
1 x Fuseholder and fuse (not shown)
1 x Instruction manual (f)

STPVFU250MA - 250wp Solar Kit including Charge Controller

As STPVFU250 above but including:
1 x 20Ah Charge controller (b)
1 x Instruction manual (f)

Special note

When handling the panel during delivery, storage and prior to installation please be very careful not to allow the panel to bend. This will be difficult for one person to manage, particularly if fitting the larger flexi panels 150w above. 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

STPVFURT250 - 250wp Complete Solar Roof / Deck Top Kit

As STPVFU250 above but including:
1 x 20Ah Charge controller (b)
3 x Tube bonding agent (c)
1 x Waterproof cable feed gland (not shown)
1 x Instruction manual (f)

STPVFU290 - 290wp Solar Kit

1 x 290wp Flexi PV panel (top exit, rear exit) (a)
2 x 0.9m cable attached to the panel with MC4 connectors (d)
2 x 3m cables with MC4 connectors (e)
1 x Fuseholder and fuse (not shown)
1 x Instruction manual (f)

STPVFU290MA - 150wp Solar Kit including charge controller

As STPVFU290 above but including:
1 x 20Ah Charge controller (b)
1 x Instruction manual (f)

STPVFURT290 - 290wp complete solar Roof / Deck Top Kit

As STPVFU290 above but including:
1 x 20Ah Charge controller (b)
3 x Tube bonding agent (c)
1 x Waterproof cable feed gland (not shown)
1 x Instruction manual (f)



Kit shown: STPVFU290R

Please read all instructions carefully before work begins.

Please refer to circuit diagram and at all times observe correct polarity; RED (BROWN) = POSITIVE (+) BLACK (BLUE) = NEGATIVE (-).

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 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.

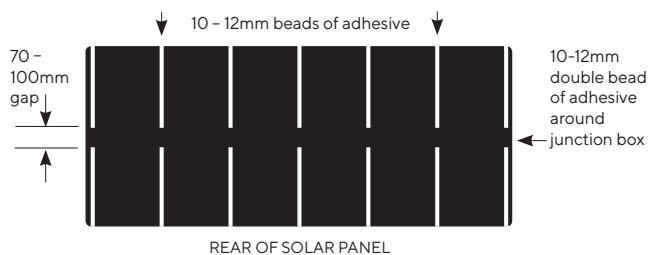
If fitting a panel to a flat roof, run a 10mm thick bead of adhesive (as per the pattern shown below) at about 150mm to 200mm spacing, leaving a 70 to 100mm gap in the centre of the panel. This allows water to exit and air to travel between the roof and panel. Apply even pressure to the panel to compress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

NOTE – STPVFU200, STPVFU250 and STPVFU290 are fitted with twin cables and MC4 connectors. If using a cable gland during installation for the top/front exit panels, the MC4 connectors will need to be removed to feed the wires through the cable gland and new MC4 connectors attached using crimping pliers



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 black outer sheath should be removed approximately 20mm and the inner red and black cables will be revealed. Remove this sheath and the copper cable will be visible. **RED = POSITIVE (+) BLACK = NEGATIVE (-)**.
- 2.2 Connect to a charge controller by following 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 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.

Special note -

Rear exit panels have cables that exit rear of the panel allowing the panel to be fitted with no protrusions on the top surface. This will require a hole drilled in the roof 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.

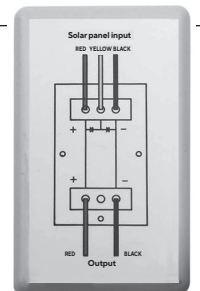
The shading diode box for the 110wp and 150wp Flexi solar panels **must be fitted**. (The shading diode is contained within the junction boxes for panels of 200wp and above).

Please wire as per picture.

TOP Connections
(+) = Red / Centre = Yellow / (-) = Black

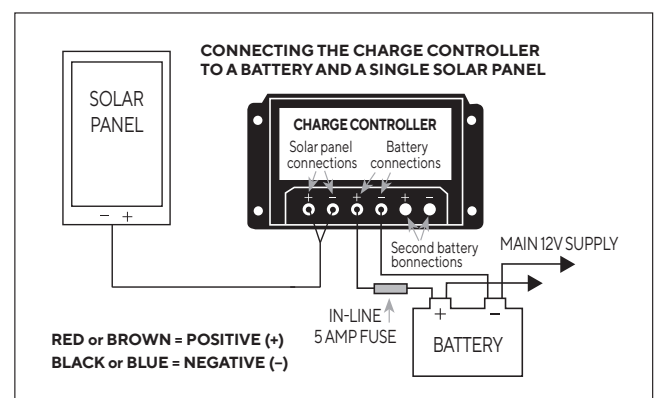
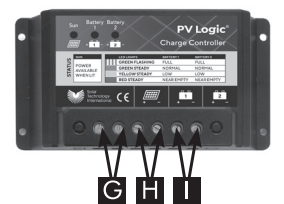
Bottom connections
(+) = Red and (-) = Black

These go to the panel connections of the voltage regulator using the additional 4m, 2-core cable supplied.



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

- 4.1 Position the charge controller as close as possible to the battery (must be a dry location).
- 4.2 Measure the distance between your battery terminals and the charge controller.
- 4.3 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.solartechology.co.uk
- 4.4 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.
- 4.5 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.
- 4.6 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 4.5.



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Step 5: Fitting the fuse

- 5.1 Fit the fuse on the positive cable (red) on the cable section between the charge controller and the battery.
- 5.2 Cut the red cable and strip 5mm of the red insulation from both the cut ends. Twist the bare wire ends tightly and fit into the screw terminals on each of the fuse holder pieces.

Step 6: Connecting to the battery

- 6.1 Take the cable end coming from the charge controller and strip the red and black insulation (6cm) from the inner cable ends. Now twist the bare wire ends, wrap around the battery terminals, and fix into position using your battery clamps.
- 6.2 When connecting to a battery always observe correct polarity.
- 6.3 If a second battery is being connected to the solar system see the instructions contained within the charge controller.

NOTE: RED = POSITIVE (+) BLACK = NEGATIVE (-)

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

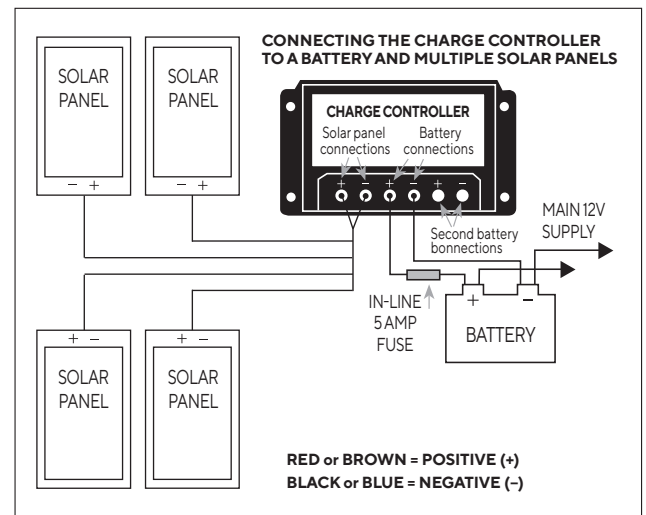
Options

Adding a second battery to a dual battery charge controller

- 8.1 Connect a second battery to the dual battery Charge Controller with an additional piece of 2-core, 1mm cable (not supplied) and follow steps 1, 2 & 3 above (not forgetting to add a fuse on the positive line as described in step 2). Power from the Charge Controller will be diverted to the second battery only when the primary battery is fully charged.

Expanding the Flexi PV system

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



Warranty

PV Logic MHD flexi solar panels are supplied with a four year panel build warranty from the date of purchase from Solar Technology International. This guarantees the panel from mechanical failure and water ingress during this period. The warranty is void if the outer layers, or edges, of the panel have been penetrated, damaged or cracked or the recommended handling, storage, installation and care procedures have not been followed. The warranty is also invalidated if the panel has been abused, or not used for the purpose intended.

The manufacturer nor any of its employees, agents, distributors or resellers are liable for any third-party damage howsoever caused. The extent to which the manufacturer is liable to a customer is limited to the purchase price paid by the customer for the product. We will not accept any costs associated with the return of faulty product.

