Warranty

This Solar Charge Controller is supplied with a 24-month warranty. Should a failure occur during this time Solar Technology International Ltd will repair or replace any faulty part, at its discretion. 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. To make a warranty claim please telephone Solar Technology International Ltd on +44 (0) 1684 774000.

These warranty conditions in no way affect your statutory rights. A full set of Solar Technology International Ltd terms and conditions are available on request.

Solar Technology International Ltd

We are manufacturers of some of the world's most advanced solar energy products from solar toys to full scale industrial solar modules. To find out more please visit www.solartechnology.co.uk

If you have any questions about this product or regarding these instructions please contact the Solar Technology International Technical Help Line on +44 (0) 1684 774000 or alternatively please write to: Solar Technology International Ltd, Unit 6, Station Drive, Tewkesbury, Gloucestershire GL20 7HH, UK.

Solar Technology International

Without boundaries

PV Logic®

User manual

MPPT Pro Solar Charger Controller

Covering
15A MPPT charger control 12v/24v DC (STCC15M)

Important: please
read before first use.

Technical helpline
01684 774 000

Installation and operation manual

Specification Summary

- Nominal system voltage: 12/24VDC*
- Maximum PV input voltage: 40V DC

*The controller will recognise the system rated voltage upon first connection. If the battery voltage is lower than 16V, it will recognise the system as 12V. If the battery voltage is greater than 16V, it will recognise the system as 24V. You can charge a 12v battery from a panel rated from 15v up to 40v (VOC).

Important safety information

General safety information

- Read all of the instructions and cautions in the manual before beginning installation.
- There are no user serviceable parts inside the controller. Do not disassemble or attempt to repair it.
- Install external fuses/breakers as required.
- Disconnect the solar module and fuse/breakers near to battery before installing or adjusting the controller.
- Do not allow water to enter the controller.
- Confirm that power connections are tightened to avoid excessive heating from loose connection.

General information

- 12/24V automatic recognition.
- Efficient MPPT charging, algorithm increases power from solar panel to battery by up to 20% and increases battery lifetime.
- Unique dual battery charging function.
- Bluetooth interface.
- Reverse current protection.
- Optional Remote display.

This controller is for off-grid solar systems and has the additional functionality that it can charge two batteries simultaneously. The charging process has been optimised for long battery life and improved system performance. The comprehensive self-diagnostics and electronic protection functions can prevent damage from installation mistakes or system faults.

Though the controller is easy to operate and use, please take your time to read this manual and become familiar with it. This will help you make full use of all the functions and improve your solar PV system.

This controller is designed to prioritise the battery connected to the 'Battery 1' connections first, before then allowing a charge to the battery on the 'Battery 2' connections. In practice this means that battery 1 will be around 70% + charged before the controller will start charging battery 2. It will then bring the batteries up evenly to a full charge.

Please note: If charging two batteries that are interconnected on the same circuit (eg in parallel) only connect one battery to 'Battery 1' and do not connect the second battery to 'Battery 2'. Battery 2 connection is only for charging a completely separate circuit with a battery on. For example the engine battery of a motorhome.

Product features

(1) Solar charging status LED indicator
(2) Solar module terminals, connect solar module
(3) Battery terminals, connect to battery 1
(4) Battery terminals, connect to battery 2
(5) Remote display connection.

Installation instructions

Note – When mounting the controller, ensure free air through the controller heat sink (back plate). There should be at least 6 inches (150mm) of clearance above and below the controller and 3 inches (75mm) each side to allow for cooling. If mounted in an enclosure, ventilation is highly recommended.

WARNING: Risk of explosion! Never install the controller in a sealed enclosure along with batteries! Do not install in a confined area where battery gasses can accumulate.

1. Choose mounting location. Locate the controller on a vertical surface protected from direct sun, high temperature and water.

2. Check for clearance. Place the controller in the location where it will be mounted. Verify that there is sufficient room to run wires and that there is sufficient room above and below the controller for air flow.

3. Mark and drill holes. Use a pencil or pen to mark the four mounting hole locations on the mounting surface and drill pilot holes.

4. Secure controller. Place the controller on the surface and align the mounting holes with the drilled holes in step 3.

5. Secure the controller in place using self tapping screws (not supplied).
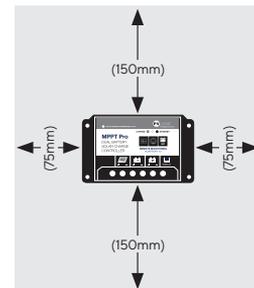
Wiring

**WARNING: Risk of explosion or fire!** Never short circuit battery positive (+) and negative (–).

WARNING: Risk of electric shock! Risk of electric shock! Exercise caution when handling solar wiring. The solar module(s) high voltage output can cause severe shock or injury. Cover the solar module(s) from the sun before installing solar wiring.

When installing a fuse and holder, make sure that the distance between the fuse holder and the positive terminal of battery is at most 150mm. Only install a fuse holder when setting up. Do not insert a fuse at this time.

The controller can accept 12V or 24V nominal off-grid solar module(s).

Solar connection

Connect the + and – from the solar panel to the solar inputs on the charge controller.

SOLAR PANEL

CHARGE CONTROLLER

CHARGE CONTROLLER

20 AMP IN-LINE FUSE (NOT PROVIDED)
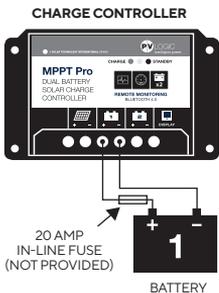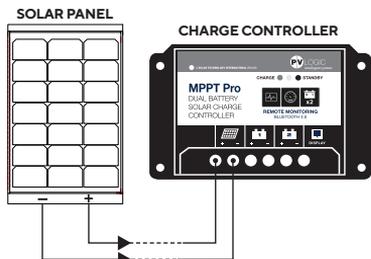
BATTERY

Battery connection 1

Connect the + and – from the 1st battery via a fuse (with fuse removed) to the 'Battery 1' output on the charge controller.

CHARGE CONTROLLER

20 AMP IN-LINE FUSE (NOT PROVIDED)

BATTERIES
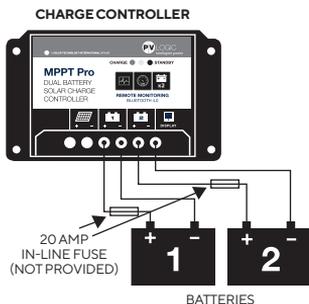
Battery connection 2 (optional)

Connect the + and – from the 2nd battery via a fuse (with fuse removed) to the 'Battery 2' output on the charge controller.

Please note this battery must be on a separate electrical circuit and not connected back to 'Battery 1' in anyway.

Once all connections are made please double-check the wiring. Confirm correct polarity at each connection. Verify that all four or six (if a second battery is being charged) terminals are tightened and then replace the fuse(s) back into the holders.

When battery power is applied, and the controller starts up, the battery LED indicator will indicate as below.

Operation

Solar charging status indicator

- **GREEN ON** = Whenever sunlight is available for battery charging and a battery is connected
- **RED ON** = Battery connected but no solar charge available / solar panel connected and producing power, but no battery connected.

Connecting the MPPT Pro to your Bluetooth enabled device

1. Download and install the software 'PV Mobile Suite' from Apple 'apps' or Android 'Google Play' or go to www.solartechnology.co.uk/support-1/pv-logic/controller-support/15-amp-mppt/

   MPPT Pro App Icon

2. Once the App is installed on your device, open this up and it will see the charge controller (only if the controller is connected and operating and you are within 8m). You will see 'PV-xxxxxx', 6 numbers (Fig. 1). Take a note of these numbers as you will be asked to enter them (as a pass code) when you press PV-xxxxxx. Enter only the 6 numbers.

   Note – you will need to log in each time you start up the App – the xxxxxx will be in a number format and that is your password to get into the controller.

3. Your App will now connect to the controller and show you this screen (Fig 2).

4. Clicking on the 'Activity monitor' will give you this screen (Fig 3 overleaf). This screen gives you information on what your solar system is doing as well as the charge in the batteries.

Fig 1

Fig 2

Fig 3   Fig 4   Fig 5

5. Clicking the 'back arrow' (top left) will take you back to the main screen.

6. Battery options screen (Fig 4) shows you all the settings currently selected for your battery type. Please select the correct type from Sealed – Gel – Flooded and press the 'send' button at the bottom. This will send the settings and information to the controller.

7. To create a custom set of settings (do not do this unless you know all your battery's settings) select the correct system voltage and press 'done'. Now click on the 'custom' tab and select the settings you require. Once completed click the 'send' button. Now go back to the main screen (top left back arrow) select 'profiles', then select 'save current' and give it a name. This will now save the custom settings into the App (Fig 5).

8. Clicking on the 'dashboard' button will give you this screen (Fig 6). This screen shows you a simple graphical display of the solar input and battery status.

9. Clicking on the 3 lines ≡ (Fig 7) at the top left hand corner of the home screen will bring up options. From here you are able to change the language of the application.

Fig 6   Fig 7

Troubleshooting

- **Solar charging LED indicator off during daytime when sunshine falls on PV modules properly**.
  - PV array disconnected
  - Check that PV and battery wire connections are correct and tight.

NOTE – If the LED is off. Measure battery voltage with multi meter. At least 11V is needed to start the controller.

NOTE – No charging status LED indicator with normal connection. Measure the input voltage of solar module, the input voltage must be higher than battery voltage!

Technical specifications

Nominal System Voltage	12/24VDC (automatic system voltage recognition)
Battery Voltage Range	11-36V
Rated Battery Current/Solar Current	15A
Self-consumption	≤24mA
Operating temperature	-35°C to +55°C
Overall dimensions	150 x 85 x 40mm
Mounting hole size (in case)	3.8mm
Terminals	6mm^2
Net weight	220g

The below information is based on a 12v/24v Lead Acid battery however can change depending on the type of battery being charged.

Over Voltage Disconnect Voltage	16V/32V
Charging Limit Voltage	15.5V/31V
Equalize Charging Voltage	14.8V/29.6V
Float Charging Voltage	13.8/27.6V

Accessories

MPPT Pro remote display (STCC15DIS)

Remote back lit LCD display showing the current solar charging status, battery status (both batteries) and changing current.

Includes a 5m cable that simply plugs into the bottom of the MPPT Pro controller.

CHARGE CONTROLLER   REMOTE DISPLAY