

60W Solar Charger Booster Maximum Power Point Tracker

Operating Instructions
Please read these instructions before use



This revolutionary maximum power point tracker solar charger was designed using the technology that won GSL Electronics the prestigious "2008 EDN Innovation award". A simple, compact, low cost and highly efficient way to charge lead acid or lithium 12V, 24V or 48V batteries from crystalline or amorphous solar panels from as low as 6V.



BMPPT - 60 Unit

PATENT APPLIED FOR - 2010901565

BMPPT - 60 Specifications

Efficiency Typical	95%
Input Voltage	6V to 25V
Output Voltage (Pb/Li)	14V / 14.5V, 28V / 29V, 56V / 58V
Output Power	80W @ $V_{BAT} / V_{MP} \approx 2$, 60W @ $V_{BAT} / V_{MP} > 4$
Quiescent Current	0.003A
Thermal Protection	Multilevel Type
Dimensions (mm)	35mm X 75mm X 100mm
Indications	Dual LED Display - Battery OK / Low
Battery and Panel Autoselect	✓



BMPPT-60 General Information:

- Green LED flashing – battery charging and all normal.
- Red LED flashing – battery voltage low
- This BMPPT - 60 is designed to auto detect and charge 12V / 24V / 48V batteries.
- The BMPPT - 60 can be set of Pb (Lead Acid) or Li (Lithium) type batteries via link. (See Pg.3).
- The BMPPT - 60 has a built in multilevel over temperature protection to improve product reliability while maximising output power availability.
- The maximum panel voltage for proper operation of the BMPPT - 60 is 25V.
- The minimum panel voltage for proper operation of the BMPPT - 60 is 6V

Important Notes:

- The output of the BMPPT60 is always higher or equal to the input meaning that the panel's open circuit voltage must always be lower than the battery charge voltage.
- Use wires suitable for at least 10A, but if wire runs are over 3m then larger wires are recommended to limit voltage drop and losses.
- Install the unit in a dry place out of direct sunlight and away from flammable liquids or gases.
- A Battery Fuse (BF) is required and must be located as close to the battery as possible, its sizing depends on the wire size and load ratings.
- Before connecting battery always check battery and PV panel polarity and connections.
- A Panel Fuse (PVF) or input fuse is required, a 10A 24V slow blow fuse is recommended for the BMPPT60.

Settings And Configurations:

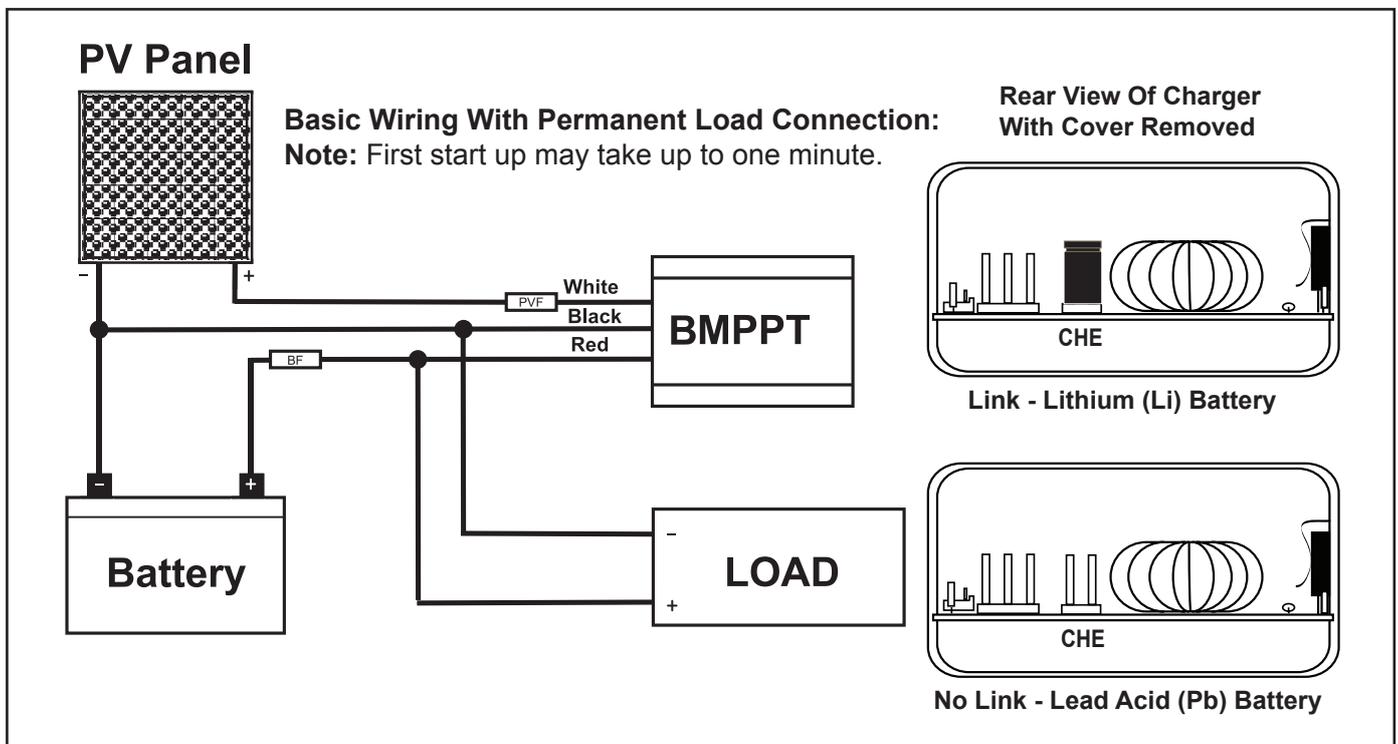
The battery chemistry (either Lead Acid or Lithium) is controlled by the CHE Link located behind the rear cover.

The BMPPT - 60 factory default setting is for sealed lead acid batteries.

Always ensure that the CHE link is set for the Correct Battery Type:

To access the CHE (2 pin) links carefully remove the rear plastic cover.

CHE: Linked - Lithium Batteries , Unlinked - Lead Acid Batteries



BMPPT FAQs:

Q: What is a BMPPT?

BMPPT stands for Booster Maximum Power Point Tracker and is a specialised converter designed to maintain the PV voltage at the level in which it delivers maximum power to the load or battery while at the same time boosting the output voltage above the input. The nominal panel output power can only be ensured with the use of a BMPPT.

Q: What output can I expect from a BMPPT60?

The maximum bulk charge current with a 24V battery and a 12V 80W panel is approximately 3A, so you can expect about 15AH per day which is a close to 30W load for about 10 hours or charging a flat 24V 60AH battery in about 4 days.



Q: When is the BMPPT required?

The BMPPT is required when the panel voltage is below the battery voltage such as when a 12V panel needs to charge a 24V or 48V battery.

The BMPPT enables the parallel connection of panels which can make the system more tolerant to partial shading when compared to series panel connection.

Q: Why are BMPPTs used mainly in high power systems?

Until now and despite their overwhelming advantages BMPPTs have been excluded from low power systems because of cost. The new GSL BMPPT specifically designed for low power makes economic sense even in small systems.

Q: What sort of batteries should I use?

1. A deep cycle battery is a must due to the cyclical nature of solar systems with a recommended battery capacity of at least 100AH.
2. A larger battery will not only give longer run time during low light but also will be able to avoid available PV power being unstored such as when the battery reaches the float stage.

Q: How does PV temperatures affects charge current?

Temperature decrease increases the PVs maximum power point voltage resulting in higher panel output.

Q: What is the smallest panel size for the BMPPT-60?

The smallest panel size recommended for the BMPPT-60 is 5W, below that level the BMPPT will not function effectively.

Q: Is interference possible? and If so what do I do?

GSL's BMPPTs produce far less interference than conventional solar regulator during the absorption and float stages, that is during most of its operating time, and its designed to comply with local and international EMI standards however some interference is still possible.

If interference occurs first try and reorient the aerial or move the sensitive equipment away from the BMPPT wires. Ensure the BMPPT chassis is grounded. Grounding a battery terminal may also help and finally you can try adding ferrite clamps.

Warranty Conditions: The product is warranted to be free from defects in materials and workmanship under normal use and service for a period of 24 months from the date of sale. This warranty covers defective parts and workmanship provided that the product is shipped prepaid to the seller within 24 months of purchase of goods. This warranty is limited to the repair or replacement (at the manufacturers' discretion) of parts and shipping prepaid to the original despatch destination. We regret that no liability can be accepted for consequential or special damages of any kind howsoever arising in connection with products supplied by the seller. This warranty is in lieu of all other warranties expressed or implied. No representative is authorised to assume for the seller any other liability in connection with the seller's products.