



**MCH1**  
**PWM SOLAR CHARGE CONTROLLER**  
**12V / 2A /SHUNT**

board dimension 54x59 MM

The economical solution for low capacity requirement in PV system is met with this compact controller. It operates in shunt mode with high efficiency. It has very low IVD and OVD values to have full utilization of battery. Its low quiescent current helps in having a longer shelf life of the system.

Convenient terminals on board are provided to make connections to panel, battery and load. Bat Low indicator LED and Charging LED are provided with relimate cables so that these can be fixed on front panel of box. On-board adjustments for battery upper limit (while charging) and lower limit (while discharging) are provided for fine tuning by OEMs. These are set to default values before dispatch.

Battery charging is done with PWM mode. This has distinct advantages over conventional on-off type of charging. PWM charging gives better SOC of battery, utilises full power from panel and totally eliminates gassing or over charge even with continuous charging without draining.

Provision is made to have controlled output available for add-on cards like mobile charging kit, display etc. This is done with a spare 2-way relimate base on the kit.

**Salient Specifications:**

SYSTEM: 12V  
 CAPACITY: Panel 30Wp Max, Load 2 A Max  
 REGULATION: LOW LOSS, SHUNT TYPE  
 NLC: No Load Current/Quiescent current < 1 mA  
 OVD: Output Voltage Drop < 300mV at 2 A load  
 IVD: Input Voltage Drop < 300mV at 2 A charge  
 LVD: Low Voltage Disconnect, 11 V  
 HVD: High Voltage Disconnect, 14.4 V  
 LVR: Low Voltage Reconnect, 12.7 V  
 HVR: High Voltage Reconnect, 14.35 V

**PROTECTIONS:**

Reverse polarity of Battery and Panel  
 Reverse current flow from battery to panel

APPLICATION: IN DOOR USE ONLY.  
 AMBIENCE: Operating Temp 0 to 50 Deg C, 90% RH  
 DIMENSIONS: 54 x 59 mm

**Indicators and Controls:**

**CHRG** : Green LED. 1. Green: When panel is connected properly and voltage is more than 12V. When battery is charged, it starts flickering on/off indicating the onset of PWM absorption mode.

**BTLO** : Red LED. When battery voltage is less than LVD level, it turns on and disconnects the supply to the load. It will be on only when battery is charged above LVR level.

When battery is connected for the first time, its voltage must be more than LVR to have supply at output. If BTLO is on, battery must be charged first through panel. Once in loop, battery will work between LVD and HVD as specified.

**IMP:**

*It is recommended to use 2A external fuse in series with battery cable to avoid accidental high currents from panel to battery or from battery to the load. This may happen if very big panel is connected or very high load is connected to output of controller. Without fuse thus provided, excess current may damage the kit beyond repairs.*

Mfd by:  
 MACON  
[www.macon.in](http://www.macon.in)

This kit is available in compact moulded housing.  
 See MCH1i.