

# MPPT



## 20 or 40 or 60 or 100 amp MPPT Unit



Microcare MPPT Solar Charge Controllers are proudly South African. The Microcare MPPT utilizes PWM and microprocessor technology to provide greater than 96% efficiency from your solar panels. The actual charge current increase you will see over standard PWM controllers varies primarily with module temperature and battery voltage.

In comfortable temperatures, current increase typically varies between 10 to 25%, with 30% or more easily achieved with a discharged battery and cooler temperatures. The units are fully programmable and may be run in parallel to share the charge current. Using the communication port, one unit can be installed as the Master and the others as slaves. A remote sensor is available for accurate voltage and temperature measurements.

What you can be sure of is that the Microcare MPPT charge controller will deliver the highest charge current possible for a given set of operating conditions. The ability to step down a high voltage solar array to a low voltage battery can save you money by reducing the size of the cabling required and making the installation less expensive.



### Features:

- Automatic selection of Battery voltage (12v-48v)
- Automatic selection of Panel Power Point (20voc-150voc)
- Circuit Breaker protection - Full input and output protection
- Electronic charge protection
- 4 Line LCD Display
  - Battery Voltage
  - Charge Mode (Equalize, Boost and Float.)
  - Charge Current
  - Panel Voltage
  - State of charge of battery %
  - Output Power from Panels
- Data Logger
  - 24hr Average
  - 8 day logger

- All features are fully programmable
- Accessories. Remote Voltage / Temperature Sensors, Daylight Switch, Relay Interface. Radio Link.
- >96% efficiency
- Customized Dealer's name and phone no

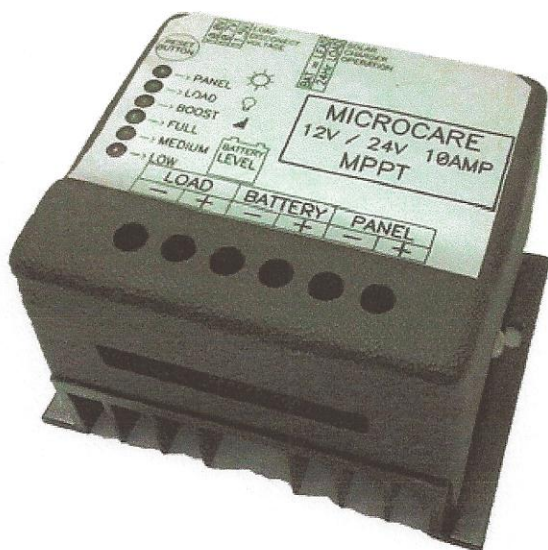
### **Specifications:**

Output Current Rating	20, 40, 60 or 100amp available
Nominal Battery Voltage	Multi-Voltage (Automatic/Manual selection of voltage - 12/24/36/48v battery set)
PV Input Voltage	Open Circuit Absolute Maximum 150VDC
Charge Algorithm	3-stage Equalize/Boost/Float
Equalize Voltage	>12v charges to 15v per battery plus 1hr
Boost Voltage	Charges to 14.5v switches to Float when charge current is < 10amps plus 1hour
Float Voltage	13.8v per battery
Power Conversion	DC/DC Switch Mode
Output Efficiency	97% Typical @ 48 Volts 40 Amps Output
Voltage Step down Capability	Can charge a lower voltage battery from a higher voltage PV array.
Status display	<ul style="list-style-type: none"> <li>• 4 X 20 LCD Screen with Backlight</li> <li>• Battery Voltage</li> <li>• State of Charge of Battery</li> <li>• Charge Mode (Equalize/Boost/Float)</li> <li>• Charge Current.</li> <li>• Panel Voltage</li> <li>• Output Power</li> </ul>
Data Logger	<ul style="list-style-type: none"> <li>• 24hr Average</li> <li>• 8 day history</li> </ul>
Power Consumption	Less than 1 watt
Environmental Rating	0 – 40C
Input	20, 40, 60 or 100 amp DP Input Circuit Breaker
Output Connection	25, 50, 63 or 100 amp DP Circuit Breaker Electronic Charge current Limit.
Protection System	<ul style="list-style-type: none"> <li>• Lighting Protection</li> <li>• Reverse polarity Panel/Battery</li> </ul>
Warranty	12 months
Cabinet Dimension	20/40amp 210mm (L) x 220mm (W) x 110mm (H)  60amp 300mm (L) x 220mm (W) x 120mm (H)  100amp 350mm (L) x 220mm (W) x 120mm (H)
Weight	20amp and 40amp 3kgs / 60amp 4kg / 100amp 4.5kg



The MICROCARE MPPT REGULATOR is designed to interface between the solar panel, the batteries and the load. The tracker will always find the optimum power point of the solar panel system to ensure that maximum power is extracted from the solar panel and put into the batteries.

Using this system up to 30% more power can be extracted from the solar panel than using shunt or series pass regulators. The regulator is also able to charge batteries of a lower voltage than the solar panel. By means of LEDs it will show the status of the system. It also incorporates various charge modes which will automatically increase the charge level to the batteries when first starting up or if the battery voltage falls below the min volts. The regulator will read the nominal battery voltage. This unit is designed to run on a 12/24 volt battery set. It will then read the solar panel voltage and automatically find the optimum power point. The charging, battery values and boost modes are then automatically adjusted.



Via links the load voltage disconnect can be selected, whether the battery is lead acid or sealed, and whether the unit operates as a normal load shedder or as a day/night switch.

### JUMPER SELECTION

Load disconnect. Place the jumper onto the selected low voltage disconnect.

Remove the battery jumper for Sealed Gel Batteries.

Remove the jumper if the DAYLIGHT SWITCH is required

### CONNECTING THE UNIT.

Ensure that all cabling used is kept as short as possible as volt drops caused by long cables will reduce the efficiency of the TRACKER. Connect the unit as shown in the diagram. Minimum recommended wire diameter = 4 mm<sup>2</sup>

First connect the **Load** and then the **Battery**.

The Led display will show the TRACKER checking the battery voltage. The MEDIUM led will flash once for a 12 volt battery and twice for a 24volt system. At the same time the buzzer will sound once for a 12 volt and twice for a 24 volt system.

Connect the solar panel. The PANEL led will come on if there is panel power.

The Regulator will now read the solar panel voltage and select the optimum power point. If there is sufficient power in the solar panel the TRACKER will now start charging.

### CHARGING THE BATTERIES.

**BOOST MODE:** The batteries are charged until they reach the boost voltage 14.8 or 29.6. When the batteries reach this level the tracker will hold this rate for a minimum of 1/2 hour indicated by flashing BOOST LED and then switch to Float Mode. If the batteries fall below the BOOST voltage then the timer is reset ie at night or during cloudy days. This ensures that the batteries are fully Boosted.

**FLOAT MODE: Boost Light is off** - The batteries are now essentially in trickle charge mode

### 6 LED DISPLAY

- Panel
- Load
- Boost
- Full Battery
- Medium Battery
- Low Battery

## **AUDIABLE BUZZER**

When the batteries are connected for the first time the buzzer will sound once for 12 volt and twice for a 24 volt battery set. The buzzer will beep when the battery voltage has reached within 1/2 a volt of the battery load disconnect for a 12 volt system and within one volt of load disconnect for a 24 volt battery set. The Buzzer will beep 10 times when the load disconnect is about to trip.

## **RESET BUTTON.**

Pushing the reset button cancels the buzzer. If the unit is in LOAD SHED the reset button will reset the load but if the voltage is too low then the load disconnect will operate.

### **MAXIMUM SOLAR PANEL**

VOLTAGE: 50.0 V DC

MAXIMUM BATTERY SYSTEM: 24 DC<

MAXIMUM CHARGE CURRENT: 10A DC

MAXIMUM LOAD: 10 AMPS

LOAD DISCONNECT VOLTAGE: 10.0 v 20.0v

10.7 v 21.4v

11.5 v 23.0v

2 Volts above load disconnect for a 12v

AUTO RESET VOLTAGE: system

4 volts above load disconnect for a 24v

system.

FLOAT CHARGE VOLTAGE: 13.8v 27.6 volts DC

BOOST CHARGE VOLTAGE: 14.8v 29.6 volts DC

MAXIMUM PANEL SIZE: 12 volts 120 watts

24 volts 240 watts