

**Subject:** MPPT Settings

**Created:** 03 April 2014

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## Purpose:

To walk you through the process of adjusting the inverter MPPT settings.

## What is it?

EnaSolar inverters give you the ability to adjust the MPPT settings.

## Why adjust the MPPT settings?

To allow the inverters to be used for wind turbines, micro-hydro or other DC power sources.

## How?

1. Turn the inverter AC and DC switches to the OFF position.
2. Undo the four front panel screws and let the front panel hang from its cables supporting it.
3. Connect the USB cable between your PC and the old front panel. In the EnaSolar Inverter Configuration Software go to **Advanced Settings** menu, **MPPT Settings** tab.
4. Make the adjustments as required:
  - **MPPT Operating Mode** – Select the DC Input Operating Mode from the drop down menu.
    - **MPPT PV:** for PV inputs, or other DC inputs where the inverter uses a modified “perturb and observe” type algorithm to find the MPPT.



### MPPT Disabled CC: MPPT Disabled – Constant Current.

For test purposes only – do not use!

The inverter keeps the input at a constant current.



### MPPT Disabled CV: MPPT Disabled – Constant Voltage.

For test purposes only – do not use!

The inverter keeps the input at a constant voltage set point.

- **MPPT Table:** The inverter uses the MPPT Table to determine the output power based on the input voltage. This is used for some wind and micro hydro systems.
- **MPPT PV Mode Settings** – Set the desired PV mode settings.

### Please note:

- These settings only apply if the DC Input Operating Mode is MPPT PV.
- These settings should only be changed if you are connecting a different type of input to the inverter (other than PV) and want to change the way the MPPT algorithm is behaving (e.g. for micro-hydro or wind).



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- **Minimum MPPT Voltage:** This is the minimum voltage that the algorithm will reduce the input voltage to. Defaults to 120V. Do not reduce it below this value.
- **MPPT Delay:** This is how often the MPPT algorithm decides to make a change (“perturb”) to the input voltage and take a sample (“observe”) of the power. Defaults to 100 (=200ms). Some systems require a slower sample rate.

For Ecoinnovation supplied micro hydro, set the MPPT delay to 1000 (2 seconds).

- **MPPT Voltage Step:** This is the size of the voltage change made (“perturb”) as a percentage of the input voltage. Defaults to 1%.
- **MPPT Sweep Interval:** This is the interval for the inverter to periodically sweep across the full input voltage range to check for any other maximum power points, in case of shading or other panel issues. It defaults to 10 minutes (600s).  
If it is set to 0, the sweep is disabled – this may be required for some devices – e.g. micro-hydro. Setting the value too low, means the inverter will spend more time sweeping rather than operating at its efficient point (the sweep takes 1-4 seconds).
- **MPPT Disabled CV Mode Settings** – Set the DC Input Voltage Setpoints.  
**Please note:**
  - These settings only apply if the DC Input Operating Mode is MPPT Disabled CV (Constant Voltage).
- **DC Input Voltage Setpoint:** This is the voltage setpoint for the input. The inverter will adjust the input current to maintain the input voltage.
- **MPPT Table Mode Settings:**  
**Please note:**
  - These settings only apply if the DC Input operating Mode is MPPT Table.
- **Table:** The table allows 6 entries of volts, input power to be defined (plus the “0, 0” entry which cannot be changed). The first entry should be for a voltage above 100V.
  - The inverter will linearly interpolate between datapoints entered.
  - Each voltage entered in the table should be greater than the previous voltage (otherwise the entry will not be accepted).
  - The inverter will not increase the power above the last power value entered in the table.
- **Rate Limit Inc Power:** This is the maximum rate the inverter power will increase based on a change of input voltage (e.g. - to allow the wind turbine to spin up, before power is increased)
- **Rate Limit Dec Power:** This is the maximum rate power will decrease based on a change of input voltage. Generally left at 0.

