



MPPTt (maximum power point tracking - thermal) Solar Power Technology

NORMAL MODE EXAMPLE – CLOUDY WEATHER

Description: MPPTt is the world's first high performance technology for solar thermal systems. It is a patented science and controls technology developed over the last 8 years.

Operation: This document outlines an example of how MPPTt works in normal mode.

This is a weather screenshot of a Surface power solar system on May 29th. It was cloudy with rain showers and occasional thinning of cloud but no breaks.



The following is the screen shot of the system at the location.

- The system is at HIGH temperature, this is MPPTt at work.
- The system has a **Delta T of 14.2C** in poor weather, this is MPPTt at work. *(This 14.2C is at the mid range of MPPTt but the weather is cloudy, cold and windy. However; It is significantly higher than any differential temperature controller solar hot water system would achieve. It is more than likely that a system running DTC would be OFF or only able to achieve low temperatures in this type of weather.)*
- The system protects the energy in the transfer circuit by maximising power transfer even though the weather is poor, this is MPPTt at work.

MPPTt still delivers maximum kWhrs with high temperatures in cloudy weather. This is how MPPTt works. It is not a batch ON/OFF control method like DTC (Differential Temperature Control)

The screenshot shows a web browser displaying 'Live solar hot water data display' from www.surfacepower.com/tullamore_data.html. The page features a 3D cutaway diagram of a house with solar collectors on the roof and a 300L solar cylinder. Key data points include:

- Panel Temp:** 67.3 °C
- Collector Temp:** 67.3 °C
- Hot Water Temp:** 54.1 °C
- Cylinder Bottom Temp:** 53.1 °C
- Solar Flow Temp:** 67.3 °C
- Solar Return Temp:** 54.5 °C
- Delta T:** 14.2 °C (implied from text)
- System Status:** Solar Hot Water is 'Installed', while Solar Central Heating, Solar Air Conditioning, and Solar Refrigeration are 'NOT Installed'.
- Control Settings:** Local Time is 14:12, Pump Speed is 60%, PPT is Auto, and TTY is iksnei83gb.
- Energy Production:** 1636922 Wh (Since 30 Sep 2010) is shown as 'FREE POWER'.
- Additional Data:** Solar Central Heating is 'Not Installed', Solar Hot Water version is 'ver 3.11.5', and the current 'Water Temp' is 54.1 °C.

Contact support for any assistance on support@surfacepower.com