

Using excess energy to pump water

Note: All voltages given are scaled relative to 12V eg. for a 24V system the voltages given in the example should be multiplied by 2, and for a 48V system the voltages should be multiplied by 4.

SET -> **PROG** = 4

Note: Check that all CHRG, REG, and MODE menu settings are correct if changing from a preset programme of 0-3, as the prog 4 settings may be different. The default values used for prog 0-3 can be found in the PL Reference Manual under the section 'Settings used in Programs 0-3'.

SET -> REG -> **HYST** = **0.4V** (increase this value if pump is switching too regularly when in float)

SET -> MODE -> **LSET** = **6** (Load terminal will turn ON when excess energy is available)

SET -> MODE -> **GSET** = ? (set this = 6 if using the 'G' terminal instead of LOAD terminal)

SET -> MODE -> **BSET** = **0** (B- input used for batt neg voltage sensing, **not** for 2nd batt control)

Notes:

1. This setup uses a slightly modified form of the 'Second Battery Control' function as discussed in the PL Reference Manual...
(available from the download section of www.plasmatronics.com.au).

2. A relay (driven by the PL regulator) is used to start / stop the pump.

Alternatively the LOAD terminal(s) could be used to directly drive the water pump as long as the maximum current the pump can draw is less than the maximum current rating of the LOAD terminal(s), **and** the pump is designed to run from the system voltage range.

3. Connect the relay between the LOAD- terminal and battery positive on a PL20/40 or to the LOAD POS and LOAD NEG terminals of a PL60.
Don't forget to install a protection 'catch diode' across the relay (band of diode to +ve side).

Alternatively you could use the 'G' terminal(s) to switch the relay (NB. The "G" terminal has a max current rating of 120mA for PL20/40 and 300mA for the PL60)

Don't forget to install a protection 'catch diode' across the relay (band of diode to +ve side).

4. The relay will turn the water pump ON when the regulation state is in *float* for more than approx 1 minute, and will turn the water pump OFF when the battery voltage drops below FLTV-HYST (Float voltage setting minus the Hysteresis setting for more than approx 1 minute).
5. If you find the relay / pump is switching too frequently when the regulator is in float mode, try increasing the value of HYST (hysteresis) under the REG menu (shouldn't be necessary in most well designed systems). The maximum switching speed is approx 60 seconds (ie. there is a minimum 60 sec delay between turning the pump on/off)