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Using Multiple Charge Controllers to Charge one Battery

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Sometimes a project needs more charge current than you can get with one charge controller. It is generally acceptable to use more than one charge controller connected to one battery if you are careful.

Dingo Pup
Dingo Pup controllers (soon to be released) are standard Dingo controller hardware with custom firmware that makes them work together with a Dingo controller for charging one battery. A bus cable and double adaptor is needed to chain each Dingo Pup onto the bus. This system works very well and allows up to 10 units to work together. With the new Dingo 80 (also soon to be released) this will allow a total of 800A charge current.

PLA
It is possible to synchronize up to 3 X PL series controllers using a PLA. The PLA forces the PL charge controllers to work in the same charging mode at the same time.

Ordinary PL or Dingo controllers with no Pup or PLA
It is possible to charge one battery with multiple controllers even without using Dingo Pup units or a PLA unit. The performance is good, but not as good as the other solutions. The main problem with using multiple controllers is towards the end of the boost phase of charging. All controllers measure voltage slightly differently and it always happens that one controller switches to ABSB after all the others. If most of the controllers have switched to ABSB and only one is still trying to get to the boost voltage, the system can get stuck. It has only small charging current available. The battery voltage stays above the ABSB voltage and below the boost voltage for a long time and control of the battery voltage is lost. The worst case is that this takes many hours or even days and there is no proper charge control. The best way to fix this problem is with a Dingo and Dingo Pups. The second way is with a PLA. The third way is to set the boost voltage lower than normal on all the controllers in the system. If one controller has more solar installed than the others, it should have slightly higher boost setting so that it switches last. Also set the ABSB time to be short. For example, for a flooded 12V battery, the normal boost setting is 15V. You could set 14.5V to make it easier for the last controller to get there. If one controller has a larger solar array than the others (a good idea) it could have 14.6V BOST. ABSB could be set for 0.5h. These settings are only examples, but they would be practical. Lower voltages would be better for sealed batteries.