

Isolated Battery Banks

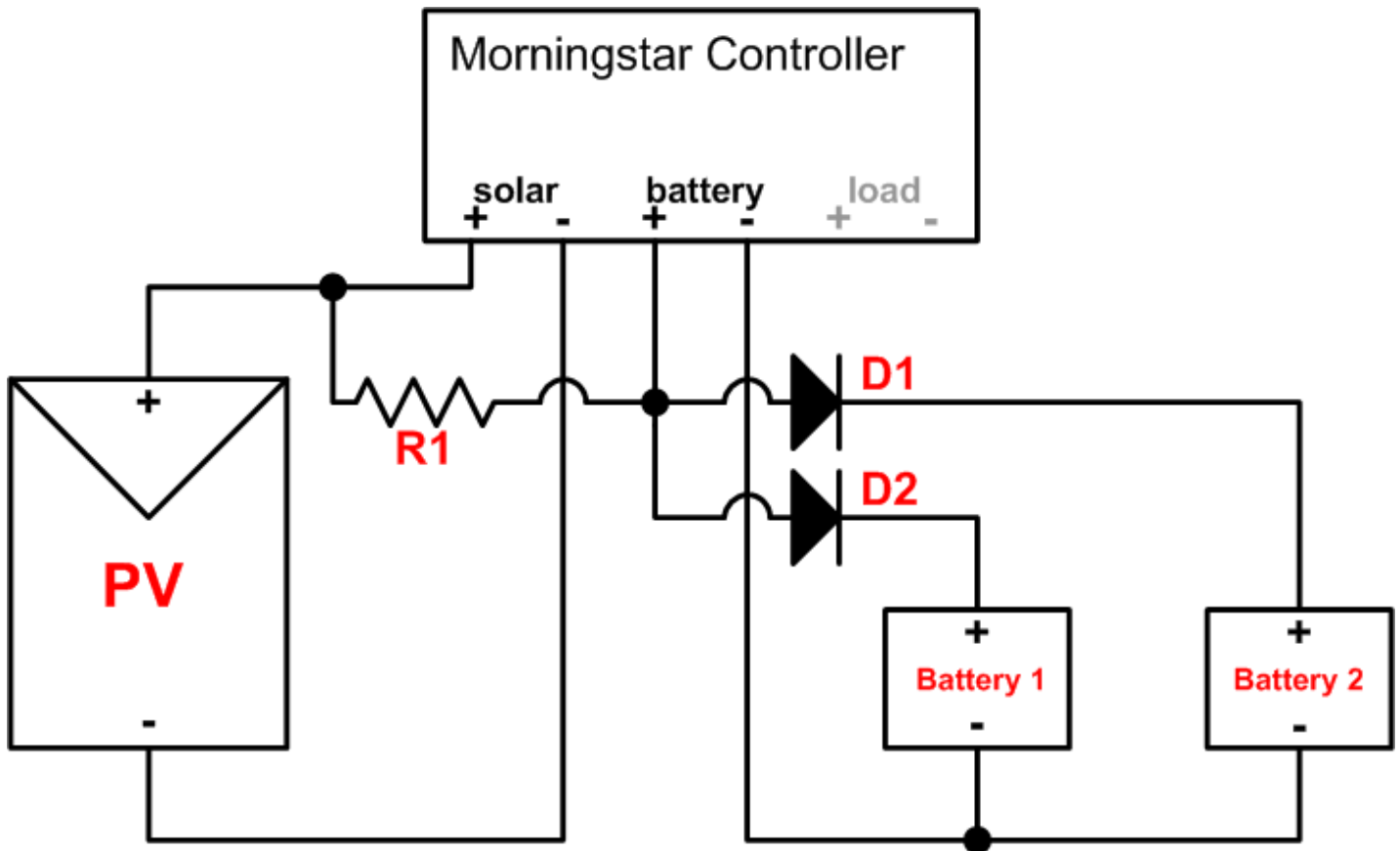
Charging with 1 Controller

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Abstract:

There is often a need to charge two or more isolated batteries with the same off-grid solar system. Morningstar's SunSaver-Duo charge controller is designed to charge 2 isolated battery banks with an adjustable charging priority. We recommend the use of this controller for isolated battery bank applications. See Morningstar's website for more details.

Other Morningstar controllers can be wired to charge isolated battery banks, but there are some significant limitations. This tech note shows the wiring schematic and outlines some of the challenges with this approach.



Notes

- Use Schottky diodes for D1 & D2
- R1 = 500Ω 2W
- Due to the voltage drop across the diodes, voltage regulation of the battery will be lower.
- Do not use the Load terminals on the controller. Wire all loads directly to the batteries.
- Use fuses and disconnects as code and regulations require.
- If you can not have diode drops between the controller and battery, refer to the Morningstar document: “Charging Isolated Battery Banks With One PV Array”
- The controller requires current from the PV array for power. The controller will power off at night and resume charging each morning. Morningstar controllers that auto-Equalize the batteries on a calendar basis will not be able to count day-night cycles and Equalizations will not occur as expected.