

Background:

A modern RV with all its amenities is a power hungry vehicle. To satisfy those requirements a high power generation and storage system is essential. Typically; lithium ion batteries, a 2nd auxiliary alternator and solar inputs provide the solution, but with an associated complexity that must be optimized for safety and durability.

Also, a critical parameter of any energy system is the SOC (State of Charge)....knowing how much “fuel” is in the tank is essential for optimized charging , system reliability and owner confidence. The ability to safely handle a mixed chemistry system (lead-acid and lithium) with multiple inputs has been both a concern and challenge.

Solution:

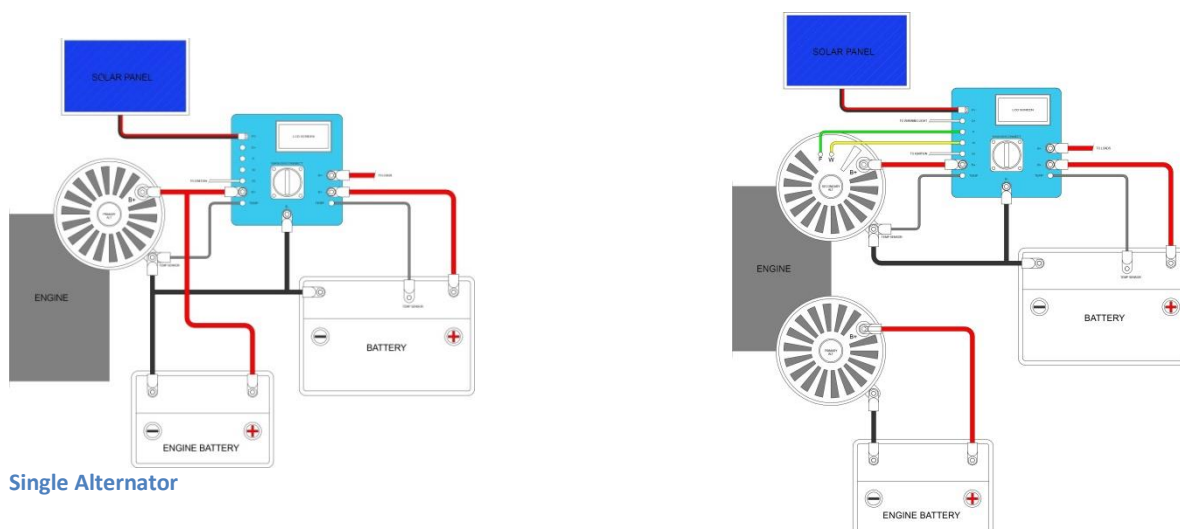
The RVCC handles system complexity with charge optimization and full system component protection. A single device that controls both the alternator while utilizing the solar input to safely charge a mixed chemistry system. Using “current” as the primary charge parameter, an accurate SOC is achieved, providing the owner with an energy assurance unmatched by “voltage” based regulation. The RVCC advanced program provides safe-guards for the alternator, lithium batteries and vehicle engine.

Purpose of the device:

Provide an independent regulated charge to the RV’s house battery from either a single or dual alternator arrangement, with the ability to integrate the charge input from a solar array.

The RVCC regulates the charge based on parameters such as; voltage, current, and temperature, so the 2nd alternator will be optimized while providing protection to all components.

Connection diagrams:



Single Alternator

Proposed features:

Feature Group	Feature	Description
Power distribution	Current Rating	The device is designed to handle both 12V and 24V systems with auto-detection. It is rated for currents not exceeding 250A through any connection at any time. All handled with copper bars 6mm or ¼" thick.
	Manual main disconnect	Engages the house battery. If the engine is connected to the start battery then it still can be used. Disables all system for storage or service.
	2 spare switches	Two switches are relays and can be activated programmed depending on system's conditions: scheduled tasks, surplus of solar energy, etc.
	Spare load output	Set of M8 or 5/16" power post for spare powerful loads; such as an inverter. Up to 250A.
	Solar Regulator	Can handle solar panels up to 40V and 10A (400 watt) . 2 sets of M6 or ¼" power post connections to connect panels of the same type.
	Alternator Regulator	Can handle both high output and conventional alternators with available FIELD input (without internal regulator). Supports up to 2 alternators on the same engine. Alternator(s) must be of same voltage as the battery voltage. • P or N type of field coil • RPM sensor • Current sensor • Alternator temperature sensor • Outputs to tachometer and warning light • Supports all battery chemistries; 3 charging stages: warm-up, bulk, and float • Field reduction switch Filed limitations based on current, engine RPM, alternator temperature
Charging	LCD screen	Alfa-numeric, monochrome, illuminated, no touch screen
	Wi-Fi	• Works in access point or station mode. No special software or drivers required. System status can be seen on any device running an internet browser.
Interface features	Diagnostics and setup	Via USB interface and PC software
	Measurements	Current sensing on all charge sources and battery, voltage measurement at all contact points, temperature measurements for the alternator(s) and house battery.
	Mounting	Mounted on a flat surface with all the wiring going into an opening beneath the enclosure or panel-mounted with all the wiring behind the panel.

Summary:

The RVCC integrates several charge-control devices into a single convenient easy to install package. Providing electrical system control, safety and confidence while allowing a full user control and system status reporting through a WiFi or direct interface. The RVCC is an "all in one" solution to charge system complexities.

Safe power when you need it!