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AR-1 Alternator Regulator

Installation and User's Manual, v. 0.1

AR-1 ALTERNATOR REGULATOR OVERVIEW

Genasun's AR-1 Alternator Regulator has been designed specifically for charging lithium batteries. Dedicated differential battery voltage sense lines ensure fast and accurate charging. A lithium-specific charge algorithm and highly accurate charge setpoints ensure long battery life.

INSTALLATION

Lithium batteries are sensitive to overvoltage, so in addition to the normal regulator connections, Genasun's alternator regulator has been provided with dedicated positive and negative battery sense lines. These sense wires not only ensure accurate charging, but also faster charging, because they allow the regulator to compensate for voltage drops along the alternator cables. Below is an overview of each of the six connections needed to operate the alternator regulator.

+Batt, -Batt: battery voltage sense lines, should be connected very close to batteries for best charging.

+Alternator, -Alternator: These lines supply current to the alternator field. Connect near alternator output.

Field: Field output; other end of alternator field should be grounded.

Power (IGN): Internal power supply/enable for regulator. Connect to engine IGN, 12V nominal.

OPERATION

The regulator has three stages of operation, each of which are indicated by green blinks of the indicator LED.

- 1. Startup Delay;** Quick Green Blinks. Once powered on, the alternator regulator waits for approximately one minute before beginning to charge, in order to allow the engine to warm up.
- 2. Bulk Charge;** Slow Green Blinks. The alternator is run at full power to quickly charge the batteries.
- 3. Float Charge;** Solid Green. The regulator adjusts the power output from the alternator as necessary to keep the batteries at their specified float voltage. #define

TROUBLESHOOTING

Repeating red blinks of the LED indicate that the regulator has shut down. The number of blinks indicated the error condition as follows:

- 2 Blinks:** High Regulator Temperature.
- 3 Blinks:** Wiring Error. Field positive common, or +/-Batt connected incorrectly.
- 4 Blinks:** Battery Voltage Too Low.
- 5 Blinks:** Battery Voltage Too High.
- 6 Blinks:** Power (IGN) Voltage Too Low.
- 7 Blinks:** Power (IGN) Too High.