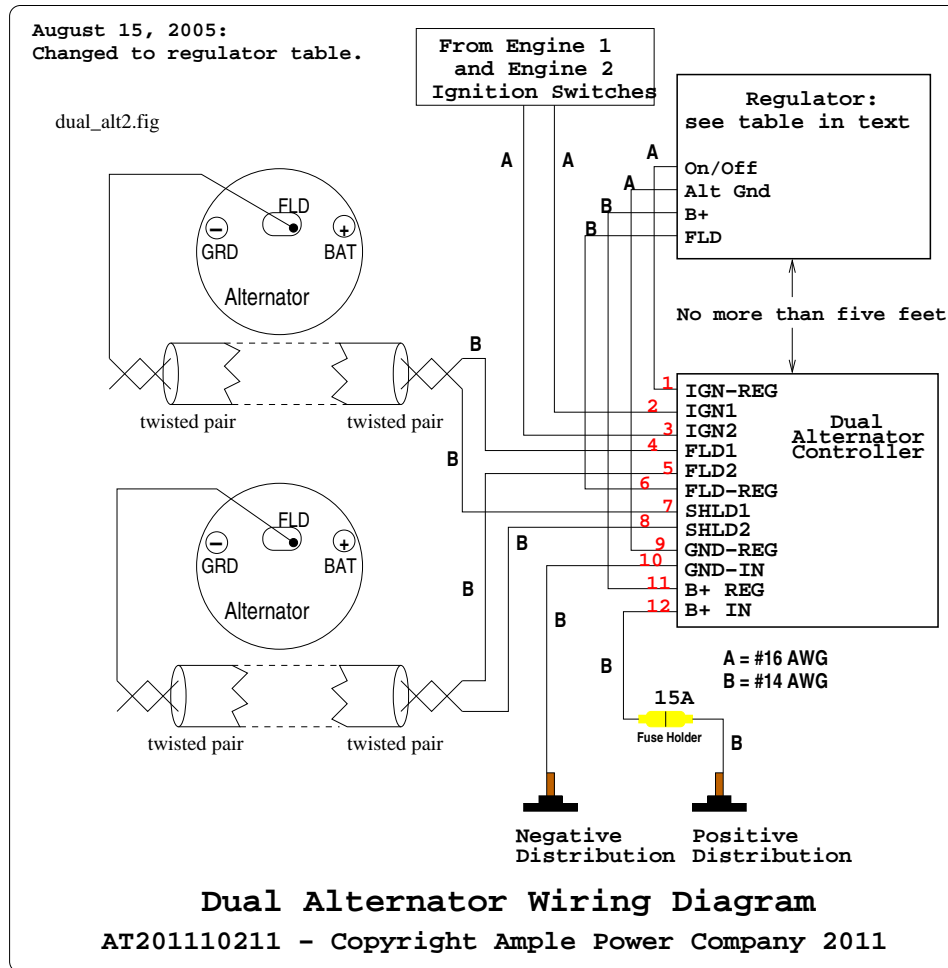


# Dual Alternator Controller

## Installation and Operating Instructions

Ample Power Models DAC-12 and DAC-24

October 21, 2011



## Mounting the Dual Alternator Controller, DAC

The DAC is protected against ambient humidity, but must be mounted in a dry location free of moisture, dust, and other environmental insults. The DAC will operate in temperatures to 60°C (140°F).

## Wiring Diagram

The wiring diagram above, is the only way to wire the DAC. Do not wire it in any other way, such as combining ground wires or battery positive wires. For safety purposes, always use fuses where shown.

Note that either the Next Step Regulator, or the Smart Alternator Regulator, V3 can be used with the DAC.

As shown, twisted pairs are connected to the DAC, but only one of the wires is connected at the alternator. The wire not connected at the alternator is a shield wire which helps to reduce electrical noise from the regulator circuits.

The twisted pair can be a cable assembly, or it can be made on the spot from two wires. To avoid mistakes, two wires of different colors should be used. A good way to make twisted pair wires is to chuck them into a small portable drill motor. Secure them on the far end, and keep tension on the wires as you slowly apply power to the drill motor. Give a little stretch after twisting to reduce the

amount of curling that takes place when tension is removed from the twisted pair.

## Signal Names and Functions

NOTE: There is one terminal block on the DAC, TB1. Orient the unit so that TB1 is on your left when viewed from the top. Pins are referred to as TB1-X where X is a number from one to twelve. With the DAC oriented as above, Pin 1 is at the top of the terminal blocks.

- **TB1-1, IGN-REG, (required)** ... this pin conducts Ignition voltage to the alternator regulator when either engine ignition is on.
- **TB1-2, IGN1, (required)** ... this is the ignition feed from designated engine #1.
- **TB1-3, IGN2, (required)** ... this is the ignition feed from designated engine #2.
- **TB1-4, FLD1, (required)** ... this is the field output to the alternator on designated engine #1.
- **TB1-5, FLD2, (required)** ... this is the field output to the alternator on designated engine #2.
- **TB1-6, FLD-REG, (required)** ... this is the field output from the regulator.
- **TB1-7, SHLD1, (required)** ... this connects to the shield wire for FLD1. It is a ground potential.

- **TB1-8, SHLD2, (required)** ... this connects to the shield wire for FLD2. It is a ground potential.
- **TB1-9, GND-REG, (required)** ... this is the ground wire for the regulator.
- **TB1-10, GND-IN, (required)** ... this is the primary ground for the DAC and regulator.
- **TB1-11, B+ REG, (required)** ... this is the power regulator field driver.
- **TB1-12, B+ IN,(required)** ... this is the main power for the DAC and field driver in the regulator.

## Regulator Wiring

The DAC can be used with any alternator regulator. If the regulator is not capable of driving two alternators simultaneously, then there should be some way to interlock the two engines to prevent regulator overload.

Acronyms in the table below are:

- SAR V2 ... Smart Alternator Regulator, Version 2
- SAR V3 ... Smart Alternator Regulator, Version 3
- Next Step ... Next Step Deep Cycle Regulator
- BIS2 ... Bolt-In System, Version 2
- EMC ... EnerMatic Controller

Regulator	On/Off	Alt. Gnd	B+	FLD
SAR V3	Pin 2	Pin 6	Pin 4	Pin 5
Next Step	Pin 2	Pin 6	Pin 4	Pin 5
SAR V2	TB1-7	TB1-10	TB1-2	TB2-10
BIS2	TB2-4	Gnd	B+	FLD
EMC	TB2-4	Gnd	B+	FLD

**Regulator Wiring Table**

**Note for EnerMatic Controller:** When the EnerMatic Controller is operating the Genie, it applies a positive signal on the *RUN* tab. This signal should be used as the ignition on/off signal from the Genie. It is only needed to close the relay which feeds field power to the alternator.

## What You Should See

The regulator should be on whenever power is present at TB1-2 or TB1-3 . Refer to the regulator manual to determine what it does when power is applied.

## Troubleshooting

First, look at the Signal Names and Functions section above and make sure that all required wires are in place and properly connected.

The DAC includes protection and noise reduction circuitry, as well as two relays that switch the regulator's field output to one or both engines. That selection is made by whichever ignition signal is active.

There is a 15A Slo Blo fuse between the B+ input, TB1-12, and the B+ to the regulator, TB1-11. There are transient absorbers on the B+ to the regulator and in the event of high voltage on TB1-12, the fuse will blow. Always make sure that TB1-11 has the same battery voltage as TB1-12.

## Support

Support for the Dual Alternator Controller is available at: <http://www.amplepower.com/phpBB3>.