

Ample Power Company

Smart Alternator Regulator



V3... The New Standard for Alternator Regulators

We hate to disappoint the thousands of users who think the Ample Power Smart Alternator Regulator, V2, is the best way to charge batteries, however, there is now a better way . . . the V3. Combining the best features of the V2, with the best features of the Next Step Regulator, and adding a few new wrinkles to the art of battery charging, the V3 is the culmination of years of engineering.

Using a microcomputer with twice the memory of the V2 and the Next Step, the V3 is packed with features you'd expect from Ample Power. You certainly don't want to try this with the competition, but you can short the field output of the V3 and it will live to tell you about it . . . even if you forgot to fuse the B+ line! In fact it tells you immediately by flashing its red LED 3 seconds on, and 6 seconds off.

What's New?

The SAR-V3 has all the features that have made the SAR-V2 so popular, and incorporates the following new features.

- Much improved field short circuit protection . . . no more worries about losing the regulator when the alternator brushes short.

- Dual alternator current limit inputs permit throttling the horsepower drawn by the alternator. This feature lets even small engines use a large alternator, by reducing alternator output when watermaker pumps or other loads are run. Dual current limit is standard on the V3 . . . it was optional on the V2. The Next Step has no current limit capability.
- Battery equalization can be enabled and will be automatically terminated at the appropriate voltage or time.
- No adjustments required . . . set the dip-switches for your battery type and you're done!
- Both error and status signals are now available for use with remote indicators or audible alarms.
- A new yellow LED shows when the parallel solenoid is actuated.
- The regulator stays partially active all the time and will open and close the parallel solenoid as appropriate to maintain a second battery. With the V3 there's no need to purchase another product to keep the starter battery charged when a battery charger or solar panels are being used instead of the engine.
- Even without the engine running, the SAR-V3 will flash the red LED should too high a voltage be applied to the battery.
- A pluggable terminal block permits wiring the harness prior to mounting the SAR.

Smart Discharge Detection

What if the regulator is in float, and the alternator can't keep up with demand? The SAR-V3 is smart enough to sense this condition and go into the absorption state so that a full charge will be returned when the load demand lessens and the alternator can once again continue charging.

Charge State Indicator

An LED keeps the user informed about the progress of charging. The green LED flashes on/off codes indicating the charge step at the moment. A terminal is provided that can drive a remote indicator.

Error Indicator

A red LED only flashes when faults are detected, such as loss of sense input, or over-voltage on the battery. Other faults such as shorted field driver or shorted field are reported. Errors are identified by the duration of on and off times for the

red LED. This mechanism permits rapid troubleshooting of the charging system.

Easy to Adjust

The SAR-V3 has no set-point adjustments . . . just choose your battery type on the dip-switches. There are two current limit potentiometers corresponding to two input signals that activate current limiting.

Performance Enhancements

The SAR-V3 improves on earlier design performance with these important additions:

- an output to drive a parallel solenoid which connects the house and starter batteries during charge
- an input signal to limit the absorption voltage when halogen lights are on
- an input signal that holds the regulator at the absorption set-point (compatible with Energy Monitor II)
- two alternator drive capability.

Parallel Solenoid Signal

The SAR-V3 has also been designed to provide a new level of system integration. The unit drives a parallel solenoid to simplify charging a starter battery at the same time a house battery is charged. This parallel signal is active even when the engine isn't running.

With the parallel solenoid driver, the SAR-V3 is ideal for motorhomes and fifth-wheel homes. The loads which are normally drawn from the starter battery can stay connected as wired . . . the standard solenoid will supply 85 Amps continuously, (400 A intermittent). The same parallel solenoid can even be used with a manual parallel switch to connect the house and starter batteries.

Temperature Sensing

To provide an ideal charge regimen, the SAR-V3 senses battery temperature and compensates the various set-points. Temperature compensation corrects the output voltages from -4 to 140° Fahrenheit (-20 to 60 °C). Above 140 °F, the regulator cuts off completely to prevent thermal runaway. The SAR-V3 continues to operate below -4 °F, but does not continue to increase battery voltage. Depending on the battery type, the battery voltage can range from 15.9 Volts on an extremely cold battery to 13.5 Volts on an extremely hot battery. Charge profiles follow time-proven regimens customized for each battery type.

Absorption Hold

The SAR-V3 interfaces to the Energy Monitor II and will stay in the absorption voltage until the Monitor releases it to float. The interface can also be used with a switch to hold the regulator in the absorption state or force it into the float state.

Halogen Lamp Protection

While batteries need a voltage higher than 13.8 to charge fully, the higher voltage will take its toll on halogen lights, reducing their life considerably. The SAR-V3 includes an input that locks the set-point to 13.8 Volts when desired. This naturally slows the charge process but the locking feature can be used when long hours of motoring at night are expected. On motorhomes, the LOCK input can be connected to the headlights so that the regulator is locked out of high voltages whenever the headlights are on.

Dual Alternator Rated

The SAR-V3 Regulator is rated to drive the fields of two alternators in parallel. No additional circuitry is required if both alternators are mounted on the same engine. When the alternators are mounted on separate engines, a Dual Alternator Controller, DAC, is available which permits either or both engines to be run without applying field power to an alternator that isn't rotating.

Features at a Glance

- Fast, Full, Multi-Step Charging
- Automatic Compensation for Battery Temperature
- Adjustable Dual Current Limits
- Automatic Equalization Termination
- 'Smart' Error Lamp Output Identifies Problems
- 'Smart' Status Lamp Indicates Charge State
- Dip-switches select Charge Set-points
- Compatible with all Battery types
- Synchronizes operation with Energy Monitor II, H1 unit
- Lockable at 13.8 (27.6) Volts
- Easy Installation with pluggable terminal block
- Precision Reference Control Over Time and Temperature
- Field Driver is Short Proof
- Signals available for remote error and status indicators
- Voltage runaway indication even without engine running
- Operates parallel solenoid for cross charging house and starter battery for any charge source, (battery combining function).

Dimensions and Mounting

The SAR-V3 Regulator is 5.8 inches, (148 mm) long by 6.7 inches, (171 mm) wide. It stands 1.65 inches, (42 mm) off its mounting surface. It can be mounted in any orientation. The housing is marine grade aluminum which has been clear anodized.

Ordering Information

| | | |
|-------------------------------------|-------|-------------|
| SAR-V3, 12-Volt, P-type | | #SAR-V3-12P |
| SAR-V3, 24-Volt, P-type | | #SAR-V3-24P |
| Parallel Solenoid, 12-Volt, 100A | | #SOL12-100 |
| Parallel Solenoid, 12-Volt, 200A | | #SOL12-200 |
| Parallel Solenoid, 24-Volt, 100A | | #SOL24-100 |
| Parallel Solenoid, 24-Volt, 200A | | #SOL24-200 |
| Dual Alternator Controller, 12 Volt | | #DAC-12 |
| Dual Alternator Controller, 24 Volt | | #DAC-24 |

SARV3 . . . Pricing Information

| Description | Model | List Price (\$) | Add to Cart |
|----------------------|-----------|-----------------|-------------|
| Alternator Regulator | #SARV3-12 | 449.00 | |
| Alternator Regulator | #SARV3-24 | 499.00 | |

Regulator Accessories . . . Pricing Information

| Description | Part Number | List Price (\$) | |
|----------------------------|-------------|-----------------|--|
| Parallel Solenoid | #SOL12-100 | 38.00 | |
| Parallel Solenoid | #SOL12-200 | 84.00 | |
| Parallel Solenoid | #SOL24-100 | 48.00 | |
| Parallel Solenoid | #SOL24-200 | 97.00 | |
| Dual Alternator Controller | #DAC12 | 160.00 | |
| Dual Alternator Controller | #DAC24 | 195.00 | |
| Battery Temperature Sensor | #2018 | 44.00 | |
| Twisted Pair Wire | #2018-WIRE | 24.00 | |