

The circuitry of the R438 Automatic Voltage Regulator (AVR) provides closed loop control of the alternator output voltage by regulating the exciter field current. The R438 can be powered by AREP or PMG field excitation system and is fitted as an option on:

- ▶ 1000 Series Alternators*
- ▶ 2000 Series Alternators
- ▶ 3000 Series Alternators

With the AREP excitation system the R438 AVR is powered by two auxilliary windings which are independent of the voltage detection circuit. With the PMG option the R438 AVR is powered by the PMG which is fitted at the rear end of the alternator.

Specification

- ▶ Steady state voltage regulation $\pm 0.5\%$
- ▶ Short circuit capability: $3 \times I_{\text{rated}}$ for 10 seconds (AREP or PMG excitation)
- ▶ Voltage sensing:
 - 0-110v Terminals = 95 to 140 volts (50/60 Hz) or
 - 0-220v Terminals = 170 to 260 volts (50/60 Hz) or
 - 0-380v Terminals = 340 to 520 volts (50/60 Hz)
- ▶ Response time:
 - Normal (1 sec) for $\pm 20\%$ voltage variation or
 - Rapid (0.3 sec) for $\pm 20\%$ voltage variation
- ▶ Remote voltage adjustment range of: $\pm 5\%$

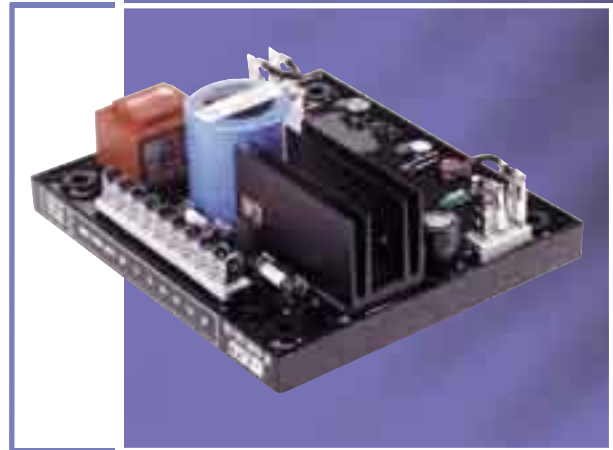
Load Adjustment Module (LAM)

On load impact, the rotation speed of the generator set decreases. When it passes below the preset frequency threshold, the LAM causes the voltage to drop by approximately 15% and consequently the amount of active load applied is reduced by approximately 25% until the speed reaches it's rated value again.

*1000 Series alternators do not have PMG option



AVR R438



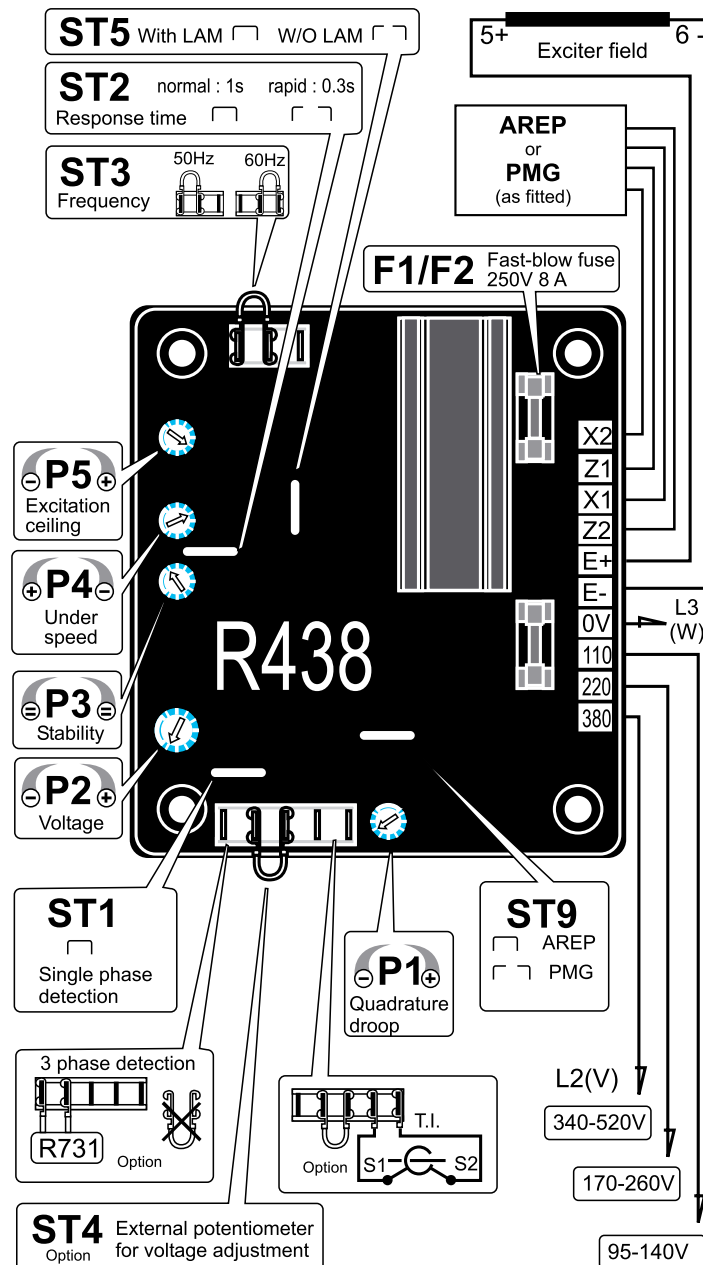
Automatic Voltage regulator



Adjustment Capability

The R438 AVR features the following adjustment capabilities (please note that no adjustments should be made prior to careful consultation of the alternator installation and maintenance manual):

- ▶ Quadrature droop adjustment
- ▶ LAM threshold (under speed) adjustment
- ▶ Alternator output voltage adjustment
- ▶ Excitation ceiling adjustment
- ▶ Stability adjustment



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