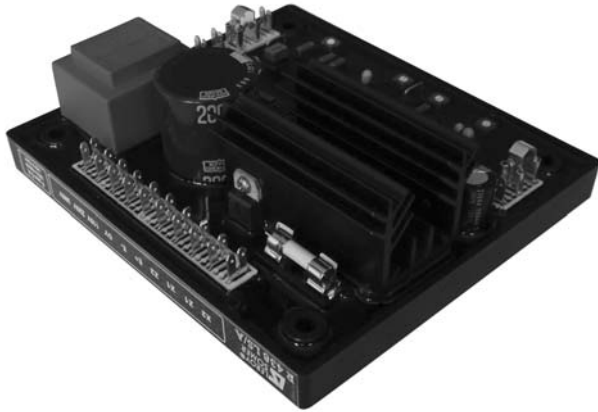


# AUTOMATIC VOLTAGE REGULATOR - R438



The circuitry of the R438 Automatic Voltage Regulator (AVR) provides closed loop control of the generator 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 Generators\*
- 2000 Series Generators
- 3000 Series Generators

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 generator.

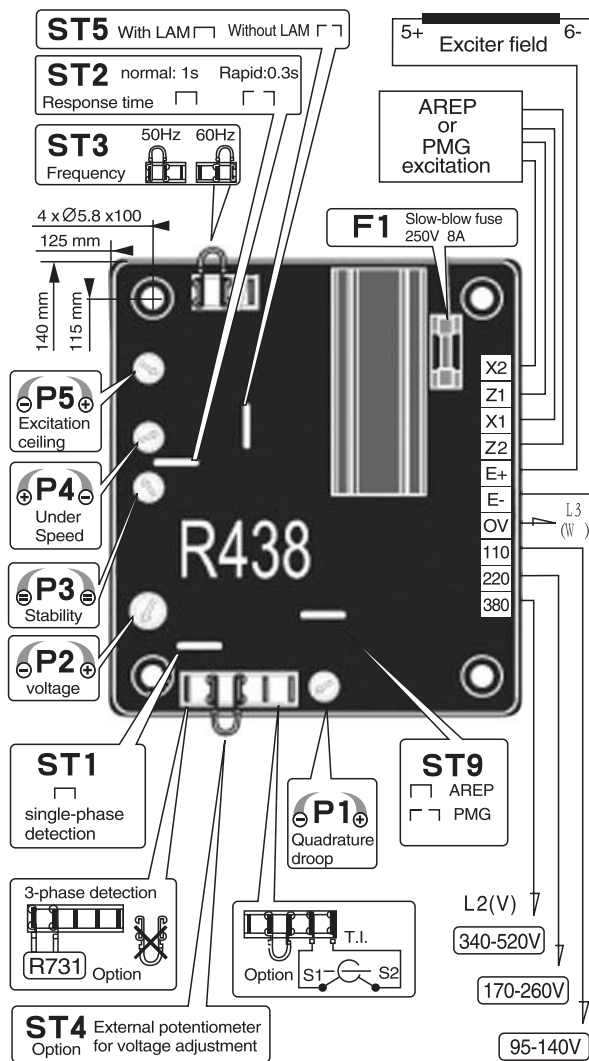
## SPECIFICATION:

- Voltage regulation  $\pm 0.5\%$
- Short circuit capability: 3 x Irated for 10 seconds (AREP or PMG excitation)
- Voltage sensing:  
95 to 140 volts (50/60 Hz) or  
170 to 260 volts (50/60 Hz) or  
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



**ADJUSTMENT CAPABILITY:**

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

- Quadrature droop adjustment
- Generator output voltage adjustment
- Stability adjustment
- LAM threshold (underspeed) adjustment
- Excitation ceiling adjustment