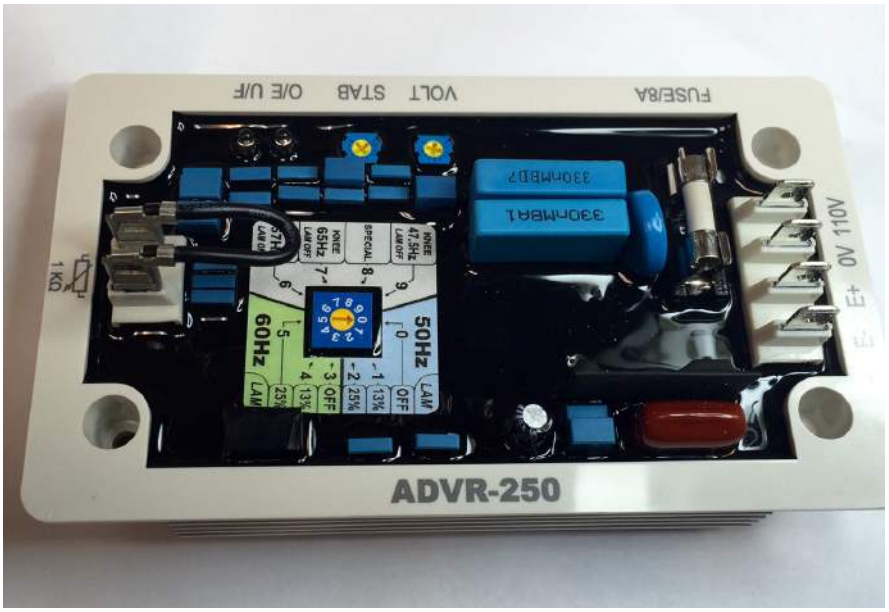
ADVR-250

Generator Automatic Voltage Regulator Operation Manual



Analog / Digital · Single-phase detection · Excitation Current 3.5 Amps. For use in brushless, self-excited (shunt) generators
Compatible with Leroy Somer* R250/R230, AVR

*Notice：Technical terms, brand names and model numbers used here are only for reference · these are not original manufacturer products · however, are compatible with these products.

SECTION 1 : SPECIFICATION

Sensing Input (0V, 110V) Average Reading

Voltage	85 – 140 Vac, 1 phase 2 wire
Frequency	50/60 Hz, Potentiometer setting

Excitation Output (E+, E-)

120V 1 phase	Continuous	63 Vdc	3.5A
	Max. 110 Vdc 5A for 10 secs.		
Resistance	Min. 18 ohms,	Max.100 ohms	
Fuse Spec.	Slow blow 5 x 20mm 8A		

External Voltage Adjustment (1K ohm)

Max.+/- 14% @ 1 K ohm 1 watt potentiometer

Voltage Regulation

Less than +/- 0.5% (with 4% engine governing)

Build Up Voltage

5 Vac 25 Hz residual volts at power input terminal

Soft start ramp time

3 seconds +/- 10%

Typical System Response

Less than 20 milliseconds

EMI Suppression

Internal electromagnetic interference filtering

Static Power Dissipation

Max. 4 watts

Under Frequency Protection (Factory Presets)

50 Hz system	knee point at 48 Hz
60 Hz system	knee point at 58 Hz

Over Excitation Current Limiting

Excitation Current 5 A +/- 10 %

Voltage Thermal Drift

Less than 3% at temperature range -40 to +70 ˚C

Under Frequency Knee Point Thermal Drift

Less than +/- 0.1 Hz at -40 to +70 ˚C

Environment

Operating Temperature	-40 to +70 ˚C
Storage Temperature	-40 to +85 ˚C
Relative Humidity	Max. 95%
Vibration	5.5 Gs @ 60 Hz

Dimensions

140.0 (L) x 81.0 (W) x 46.0 (H) mm
5.51 (L) x 3.19 (W) x 1.81 (H) inch

Weight

300 g +/- 2%
0.66 lb +/- 2%

SECTION 2 : APPEARANCE / DIMENSIONS / INSTALLATION DRAWING

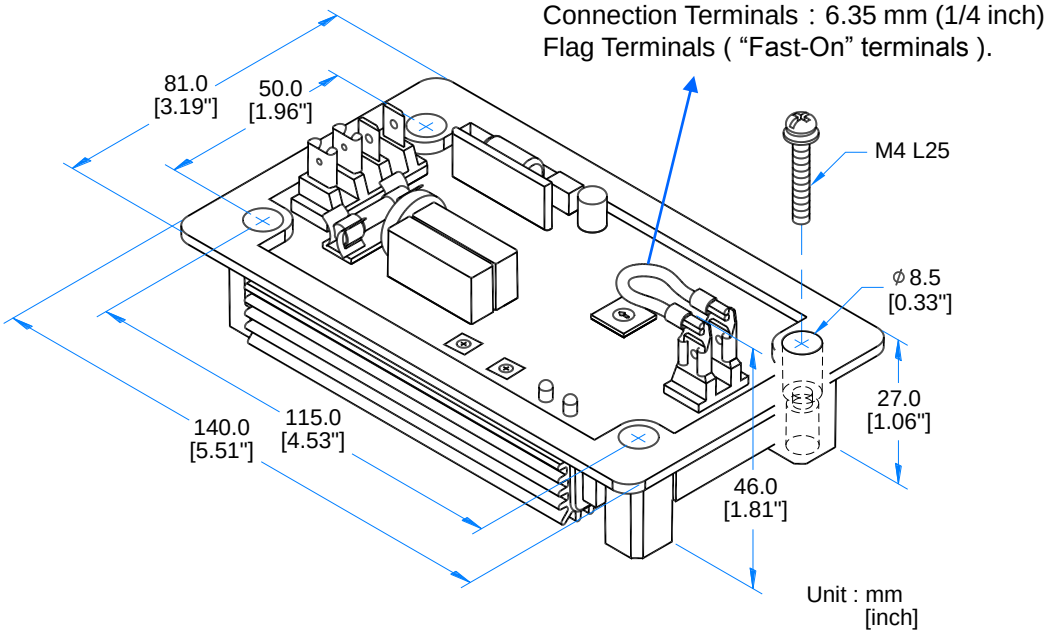
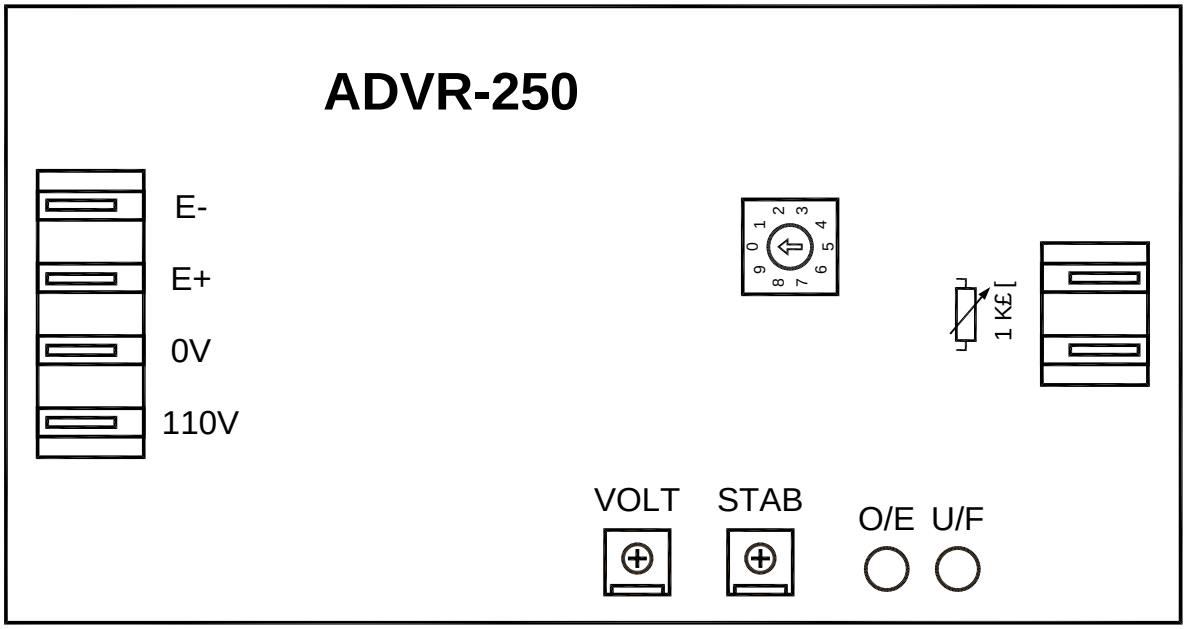


Figure 1 Outline Drawing

SECTION 3. Potentiometer Adjustment



0V 110V ：Power Supply and Sensing Input

E+ E- ：Excitation Output

VOLT ：Voltage Adjustment

STAB ：Stability Adjustment

O/E ：Over Current Protection Indicator Lamp

When over current protection is operating (Excitation Current >5A)，this lamp will light

U/F ：Under Frequency Protection Indicator Lamp

(1KΩ) ：External VR input，Must be shorted with a jumper when not in use.

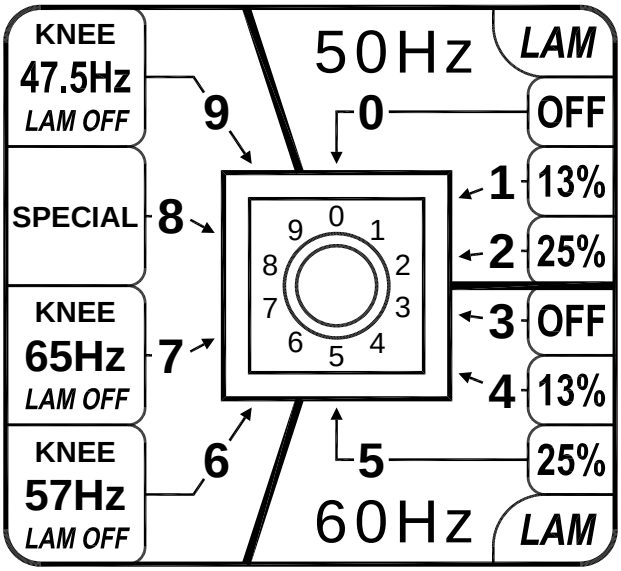
Under Frequency Protection Selection Switch ：

*Over Current Protection Function (O/E)：When the excitation current is greater than or exceeds 5A the AVR will reduce the excitation output to limit the excitation current. At this time the generator output voltage will be in a very unable state (the greater the load the lower the voltage). Over current protection will not interrupt the excitation field output.

*LAM (Load Acceptance Module) Outline
When the generator experiences momentary increases in load (more 40% of generator capacity) voltage and engine speed will decrease. The process of recovering voltage and engine speed will produce a situation where output voltage and engine speed fluctuates. In order to reduce the level of volatility, after a load is added the engine speed will slow, lowering the total power output of the generator and delaying recovery. The low frequency knee point setting should be below a nominal setting for 2Hz to cause the output voltage and engine speed to have a smooth recovery
The LAM function allows choice of reduction settings of 13% and 25%. If the generator has a fluid drive (hydro) it is recommended not to use the LAM function.

SECTION 5 U/F protection & LAM function selection

The U/F Protection function and LAM function are selected by a switch setting.



Warning!!

The switch setting must correspond to the rated frequency. An error in settings could cause damage to the generator.

50Hz Systems

0 : Under Frequency knee point 48Hz, LAM function "OFF". Use when transient loads are below 40% of rated generator capacity.

1 : Under Frequency knee point 48Hz, LAM function set to (13%) · Use when transient loads are between 40%~70% of rated generator capacity.

2 : Under Frequency knee point 48Hz, LAM function set to (25%). Use when transient loads are greater than 70% of rated generator capacity.

60Hz Systems

3 : Under Frequency knee point 58Hz, LAM function "OFF". Use when transient loads are below 40% of rated generator capacity.

4 : Under Frequency knee point 58Hz, LAM function set to (13%) · Use when transient loads are between 40%~70% of rated generator capacity.

5 : Under Frequency knee point 58Hz, LAM function set to (25%). Use when transient loads are greater than 70% of rated generator capacity.

Special Systems

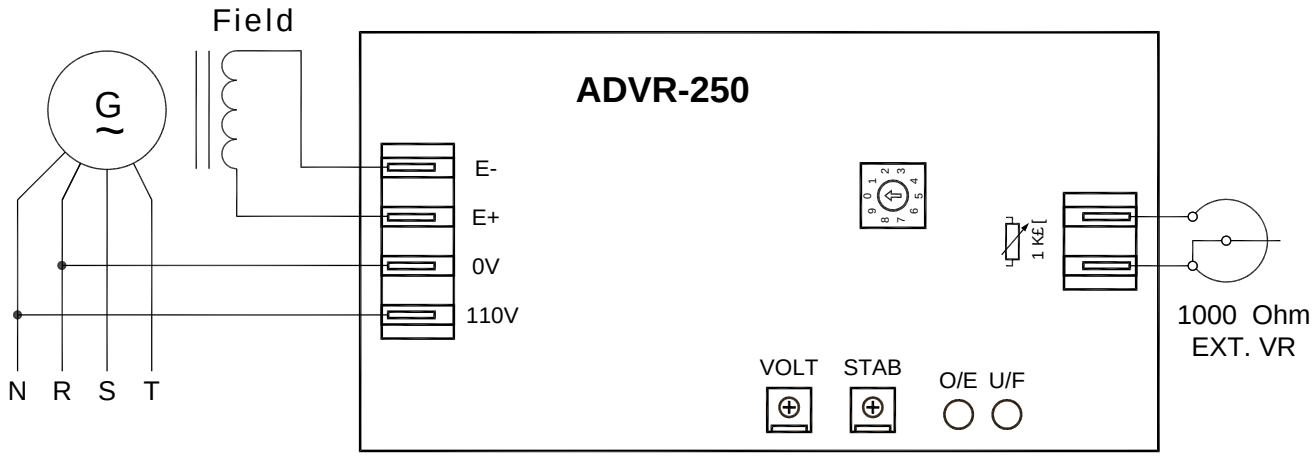
6 : Under frequency knee point 57Hz · LAM function "OFF". Under a load, engine speed variations can be greater than 2Hz

7 : Under frequency knee point 65Hz · LAM function "OFF"

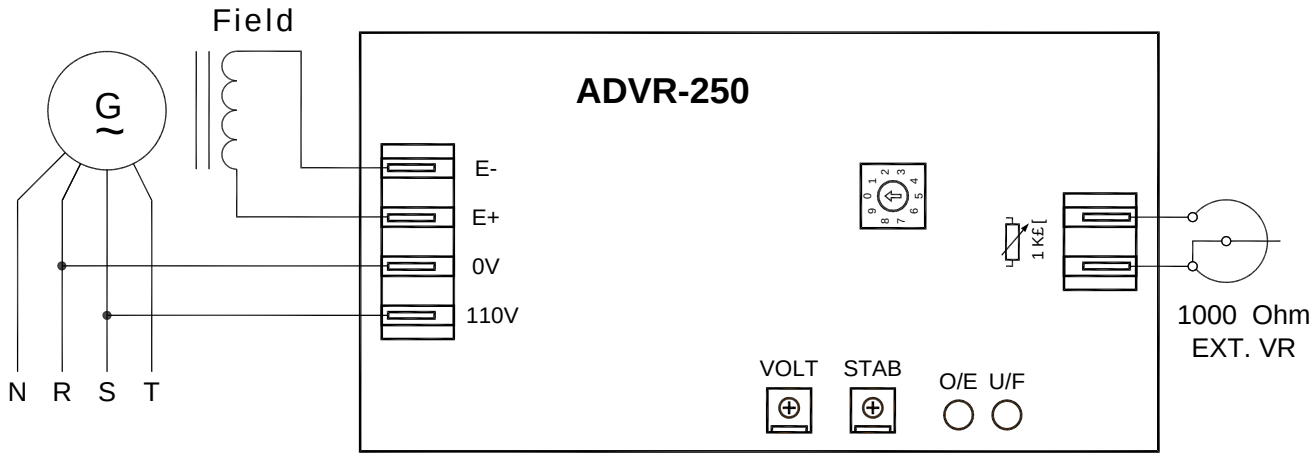
8 : Factory setting of the Under Frequency knee point is 48Hz and LAM function "OFF". This option is supplied for special projects, which must be ordered separately and are set at the factory.

9 : Under frequency knee point 47.5Hz · LAM function "OFF". Under a load, engine speed variations can be greater than 2Hz.

SECTION 4. Connection Diagrams



190/220V



110V

※ Use only original supplied spare protection fuses as replacements.

※ Please accept our apologies if any modifications in performance, specification or appearance are made without prior notice.

Warning*!!*

Before using a Megger or a Withstand Voltage Tester, removes the wires connecting to the AVR to prevent high voltage damage to the regulator.