

EA230

Generator Automatic Voltage Regulator Operations Manual



Self Excited Automatic Voltage Regulator
Compatible with Leroy Somer R230*

* Use for reference only and not a genuine Leroy Somer product

1. INTRODUCTION

Sensing Input

Voltage 120 VAC (90 ~ 140 VAC)
1 phase 2 wire 50/60 Hz

Output

Voltage Max. 100 VDC @ 120 VAC input
Current Continuous 8A
Intermittent 10A for 10 sec
Resistance Min. 15 ohm

Voltage Regulation

< ± 1% (with 4% engine governing)

Voltage Build-up

Residual voltage at AVR terminal > 5 VAC

Thermal Drift

0.03% per °C change in AVR ambient

External Volts Adjustment

±5% with 1K ohm 1/2 watt trimmer

EMI Suppression

Internal electromagnetic interference filtering

Unit Power Dissipation

Max. 6 watt

Under Frequency Protection

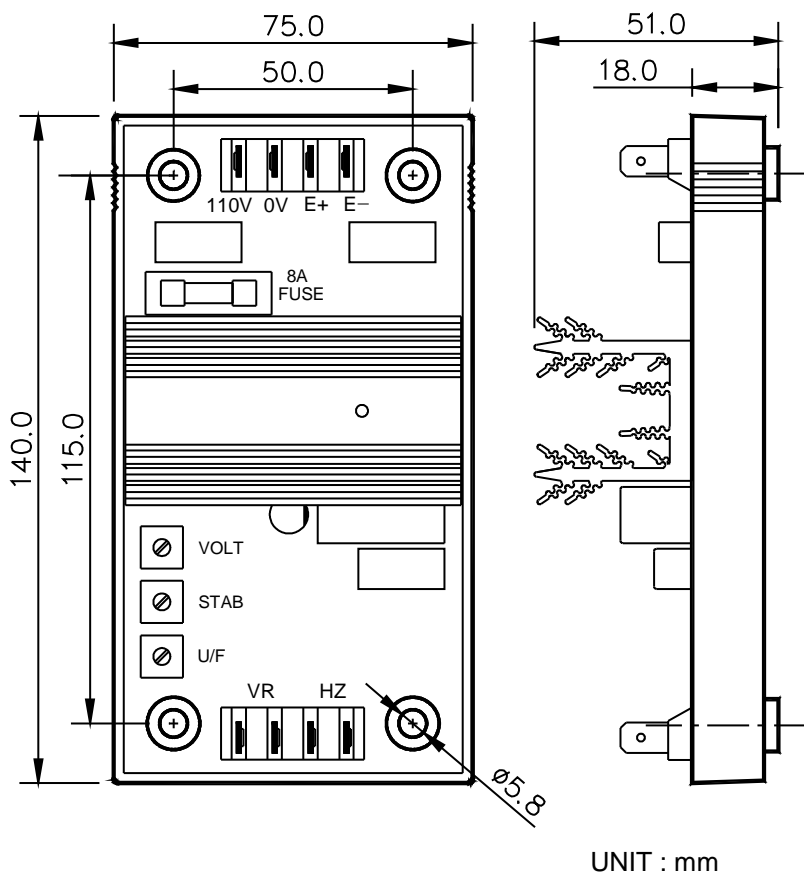
Knee point 47 ~ 57 Hz (adjustable)

Dimensions

140mm L * 75mm W * 51mm H

Weight

310g ± 2%



OUTLINE / DIMENSION

Place the EA230 inside of the generator, in a moisture-proof and anticorrosive space.

The Outline and Drilling Diagram see Figure 1

Connecting Terminal : "Fast-On" terminals 6.35mm (1/4 inch).

Figure 1 Outline Diagram

2. WIRING

2.1 Operation

The following system operation procedures provide instructions for adjusting the EA230 voltage regulator. Symptoms resulting from a faulty regulator and certain generator system problems are included, together with suggested remedies.

2.2 WIRING (Refer to Fig2, 3)

1. Connect E+1, E- to Generator field
2. Connect the sensing port at 100V, 0V
3. External voltage regulator is as Figure 2, 3

Complete the following steps before proceeding with the system start-up.

CAUTION

Meggers and high potential test equipment must not be used. Incorrect use of such equipment could damage the semiconductors contained in the regulator.

2.3 Preliminary Set-Up

1. Verify that the voltage regulator specifications conform with the generator system requirements.
2. Ensure the voltage regulator is correctly connected to the generator system.
3. Install the correct fuse (8A / 250V) to prevent damage caused from short circuit.
4. Set the regulator "VOLT" and external "VOLT ADJ" (if used) as follows:

Regulator "VOLT " : Fully CCW

Remote "VOLT " : Centered

5. Adjust the front panel STAB control that controls the system stability. Rotation of the front panel STAB control in the counter-clockwise (CCW) direction will speed up response time and if over rotated in CCW direction, the generator voltage may oscillate (hunt).
6. Rotated the front panel STAB control CCW until the system start oscillating and then rotate CW just past the point where oscillation occurred.

2.4 System Start-Up

1. Perform preliminary set-up as described in the above paragraphs.

NOTE

All voltage readings are to be taken with an average reading voltmeter.

2. Start prime mover and bring up to rated speed.

RESULT :

Voltage should build up. If not, perform Field Flashing.

3. Slowly adjust the regulator " VOLT" CW until the generator output voltage reaches the nominal value. If used, adjust the remote " VOLT" to set the generator voltage to the exact value desired.

RESULT:

Voltage should build up to rated value. If voltage does not build up to the rated value, check generator for short or excessive load.

4. Check regulator under normal operating and loading conditions.

RESULT:

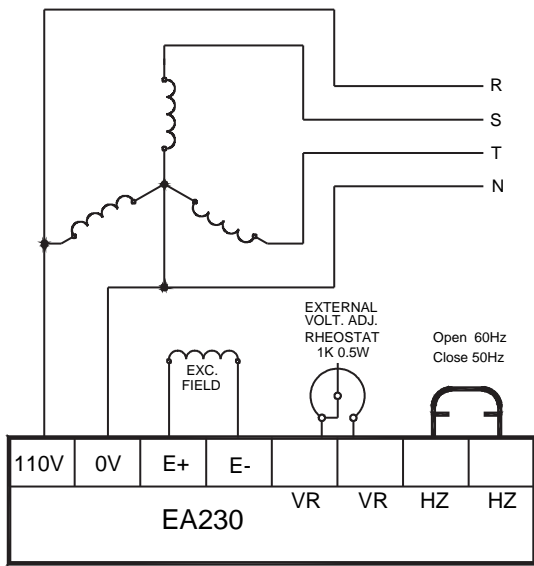
Voltage regulation should be better than $\pm 1.0\%$ no-load to full-load. If regulation is not within this range, perform the following steps :

Voltage reduction under load may be due to speed change from no load to full load. causing the frequency compensation (V/Hz) circuit to reduce voltage at lower frequencies.

Replace voltage regulator.

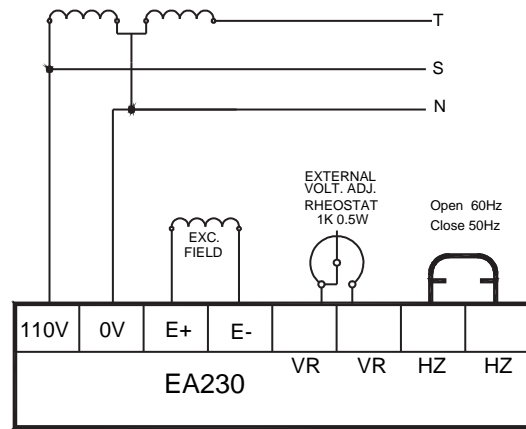
2.5 Operational Test

1. Connect the test setup as shown in the following figure, Operational Test. Do not apply power. Ensure that the light bulb is rated for 120V and is less than 100W.
2. Adjust the regulator " VOLT" and/or remote " VOLT" to maximum CW
3. Apply 120V, 50/60 Hz power to the regulator. The light bulb should illuminate
4. Slowly adjust the regulator " VOLT" control CCW. At the regulation point, the light bulb should extinguish.



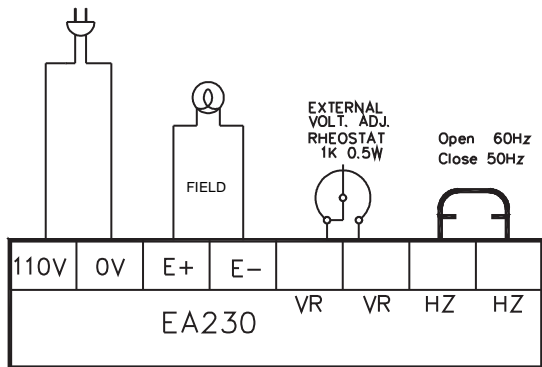
Interconnection Diagram, 120 /208 V Nominal, 3-phase, 4-Wire, Wye Connection

Figure 2



Interconnection Diagram, 120 /240 V Nominal, 1-phase, 3-Wire

Figure 3



Test Circuit

Figure 4

If the step above can't make the AVR work please contact with us.

