

EA63-2.5

Generator Automatic Voltage Regulator Operation Manual



Self Excited Automatic Voltage Regulator
Compatible with Basler AVC63-2.5*

* Use for reference only and not a genuine Basler product
Use with Kutai EP200 Paralleling Module for parallel operation

SECTION 1 : SPECIFICATION

Sensing Input

Voltage 90 – 130 Vac @ 120 Vac
 180 – 260 Vac @ 240 Vac
 1 phase 2 wire, DIP switch selectable
 Frequency 45/65 Hz, adjustment

Output

Voltage Max. 50 Vdc @power input 120 Vac
 Max. 63 Vdc @power input 240 Vac
 Current Continuous 2.5A
 Intermittent 4A for 60 sec.
 Resistance Min. 25 ohms
 Fuse Spec. Slow blow 5 x 20mm S505-3.15A / 250V

External Voltage Adjustment

Max. +/- 15% @ 5K ohms 1 watt potentiometer

Voltage Regulation

Less than +/- 1% (with 4% engine governing)

Build Up Voltage

5 Vac residual volts at power input terminal

EMI Suppression

Internal electromagnetic interference filtering

Static Power Dissipation

Max.10 watts

Under Frequency Protection

Adjustable range 45 – 55 Hz

Voltage Thermal Drift

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

Environment

Operating Temperature -40 to +60 °C
 Storage Temperature -40 to +85 °C
 Relative Humidity Max. 95%
 Vibration 1.5 Gs @ 5 – 30 Hz
 5.0 Gs @ 30 – 500 Hz

Dimensions

101.0 (L) x 69.0 (W) x 22.0 (H) mm

Weight

107 g +/- 2%

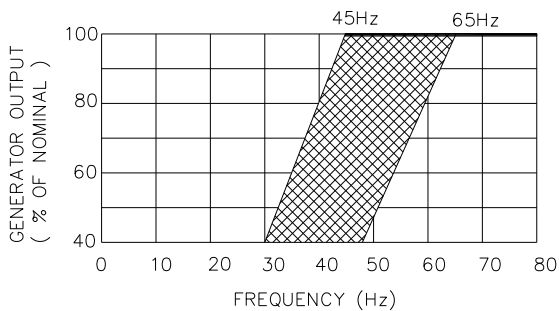


Figure 1 Typical Frequency Compensation Curves

TYPICAL FREQUENCY COMPENSATION CURVES (See Figure 1)

1. When the frequency of the generator is lower than the factory setting, the rated phase voltage will decrease to protect the regulator or exciter because of over exciter current.
2. Factory Setting : 45 Hz +/- 4%

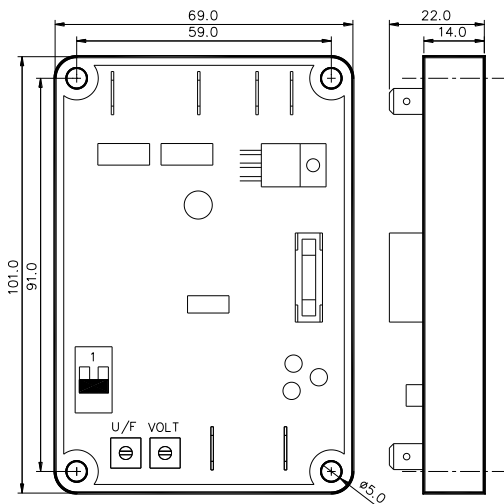


Figure 2 Outline Diagram Unit : mm

ATTENTION

1. AVR can be mounted directly on the engine, genset, switchgear, control panel, or any position that will not affect operation. For dimension reference, please see Figure 2.
2. All voltage readings are to be taken with an average-reading voltmeter.

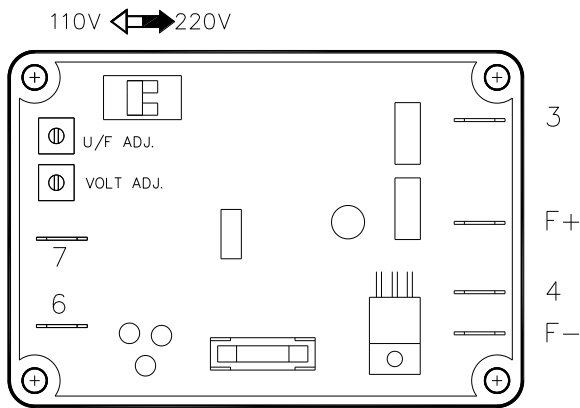


Figure 3 Potentiometer and Connector Locations

SECTION 2 : WIRING

2.1 Operation

The following system operation procedures provide instructions for adjusting the EA63-2.5 voltage regulator. Symptoms resulting from a faulty regulator and certain generator system problems are included, together with suggested remedies.

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.

2.2 Preliminary SET-UP

- 2.2.1 Verify that the voltage regulator specifications conform with the generator system requirements.
- 2.2.2 Ensure the voltage regulator is correctly connected to the generator system.
- 2.2.3 Install the fuses as described in Fuses.
- 2.2.4 Set the regulator 「VOLT ADJ」 and external 「VOLT ADJ」 (if used) as follows :
 Regulator 「VOLT ADJ」 : Fully CCW
 Remote 「VOLT ADJ」 : Centered

2.3 System Start-UP

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

NOTE :

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

- 2.3.2 Start prime mover and bring up to rated speed.

RESULT :

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

- 2.3.3 Slowly adjust the regulator VOLT ADJ CW until the generator output voltage reaches the nominal value. If used, adjust the remote VOLT ADJ 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 rated value, check generator for short or excessive load.

- 2.3.4 Check regulator under normal operating and loading conditions.

RESULT :

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

- (1) 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.
- (2) Replace voltage regulator.

WARNING

Please make sure you have read and understand the contents of the instruction manual prior to installation. Incorrect wiring connection may result in irreversible damage to the product and other equipments.

2.4 Operational Test

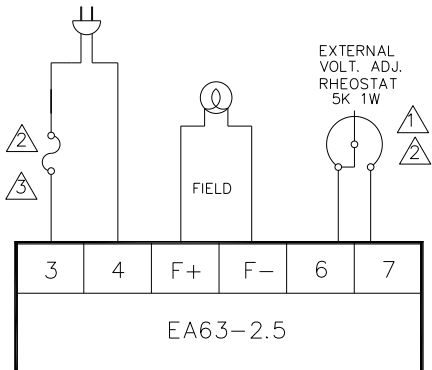
- 2.4.1 Connect the test setup as shown in the following figure, Operational Test. Do not apply power. Ensure that the light bulb is rated for 120V and is less than 100W.
- 2.4.2 Adjust the regulator VOLT ADJ and/or remote VOLT ADJ to maximum CW.
- 2.4.3 Apply 240V, 50/60 Hz power to the regulator. The light bulb should illuminate.
- 2.4.4 Slowly adjust the regulator VOLT ADJ control CCW. At the regulation point, the light bulb should extinguish.

2.5 The following notes (Δ) apply to the interconnection diagrams :

- 2.5.1 If external pot is not used, short terminals 6 and 7.
- 2.5.2 Item not supplied by KUTAI ELECTRONICS.

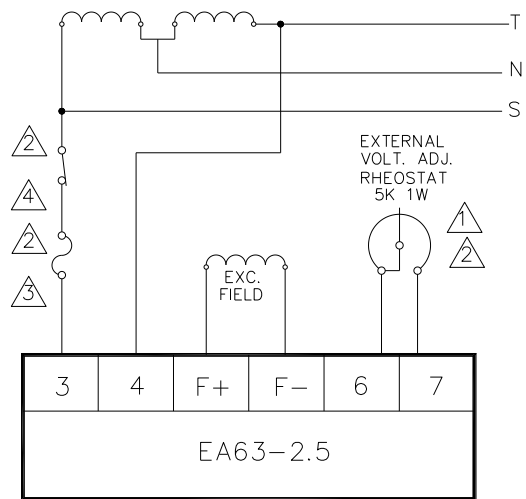
2.5.3 Select fuses with high interrupting capacity.

2.5.4 Excitation On / Off Switch (If used).

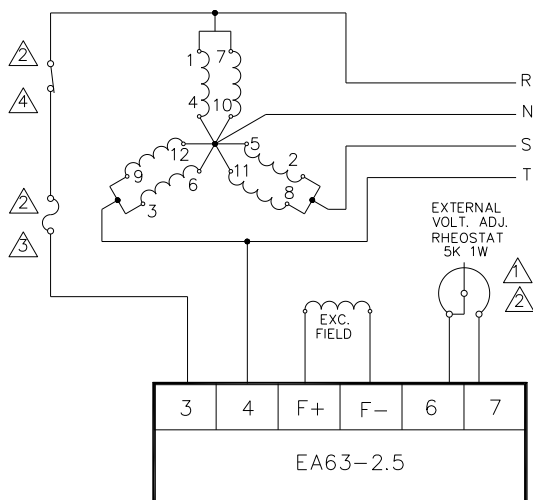


NOTE : IF GLASS TYPE FUSE IS USED,
 Δ ENCLOSE FOR SAFETY

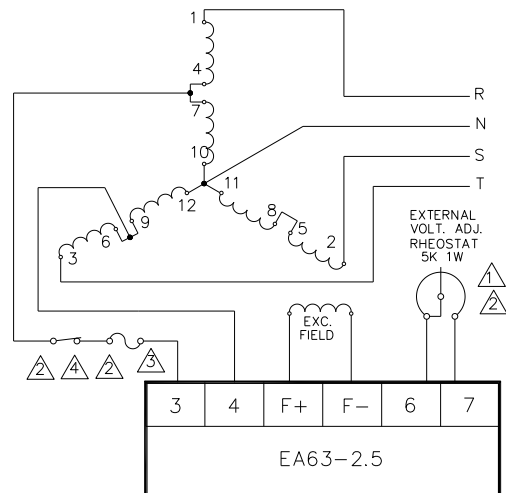
**Operational Test
 Figure 4**



**Interconnection Diagram, 120 / 240 V Nominal,
 1-phase, 3-Wire
 Figure 5**



**Interconnection Diagram, 120 / 208 V Nominal,
 3-phase, 4-Wire, Wye Connection
 Figure 6**



**Interconnection Diagram, 277 / 480 V Nominal,
 3-phase, 4-Wire, Wye Connection
 Figure 7**

- ※ Use only original supplied spare protection fuse for fuse replacement.
- ※ Appearance and specifications of products are subject to change for improvement without prior notice.