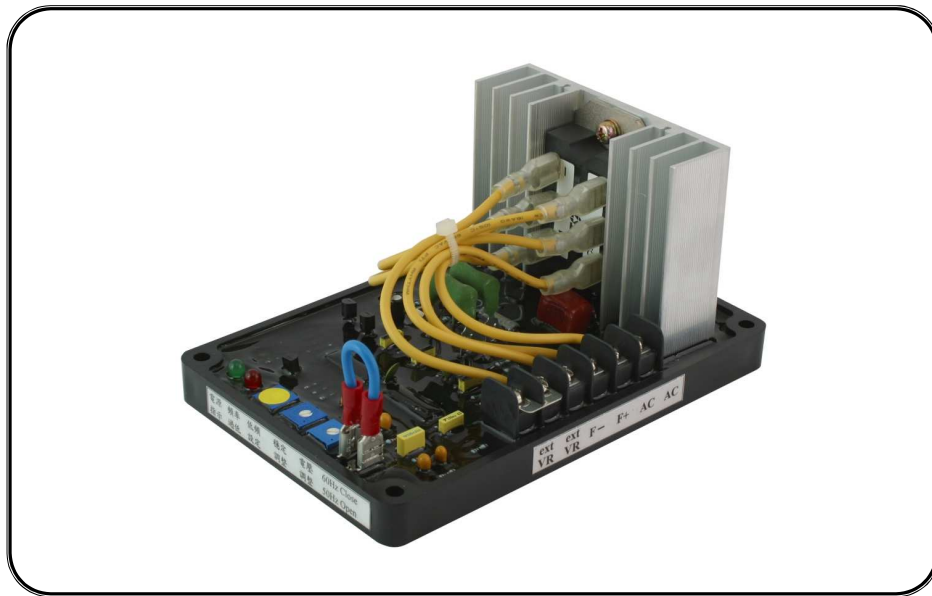


# MODEL 808

## *Generator Automatic Voltage Regulator Operation Manual*



Self Excited Automatic Voltage Regulator  
8 Amp AVR For Full Wave Generators

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Sold by :

FLIGHT SYSTEMS, INC.  
505 Fishing Creek Rd.  
Lewisberry, PA 17339  
[www.flightsystems.com](http://www.flightsystems.com)  
PH: 717 932 9900

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## 1. INTRODUCTION

### Sensing & power Input

Voltage 160 ~ 280 VAC, 1 phase, 2 wire  
Frequency 50 / 60 Hz, selectable

### Output

Voltage Max. 170 VDC @ 240 VAC input  
Current Continuous 7A  
Intermittent 12A for 10 sec  
Resistance Min. 8 ohm, 15 ohms at 125VDC output

### Voltage Regulation

<  $\pm 1\%$  ( 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 Adjustmen

$\pm 10\%$  with 5K ohm 1 watt trimmer

### Unit Power Dissipation

Max. 8 watt

### Under Frequency Protection (Factory Setting)

60 Hz system presets knee point at 55 Hz  
50 Hz system presets knee point at 45 Hz

### Soft Start Ramp Time

2 sec.

### Dimensions

150mm L \* 100mm W \* 74mm H

### Weight

approx. 475g / 16 oz.

## 2. WIRING (Refer to Fig4, Fig5)

- Connect the generator field to F+ and F-.
- Connect sensing & power input to "AC" terminals.
- If desired, connect external trimmer to "Ext.VR"
- Select 50Hz or 60 Hz system with jumper.

## 3. NOTE

### 3.1 Note before installation (Refer to Fig1)

### 3.2 Note when generator running

- The temperature of AVR may be over 60°C when generator set is running.
- Please don't touch the heat-sink when the generator is running, it could cause burns!

### 3.3 Procedure of generator running

#### 3.3.1 Setting

1. Check to be sure the wiring is correct.
2. Check if 15A 250V protection fuse is
3. Turn the volt trimmer fully counterclockwise.
4. Turn the external trimmer to midway position if fitted.
5. Turn the stability trimmer fully counterclockwise.
6. Connect a 110VDC voltmeter to field F+, F-

terminals.

7. Connect a 300VAC voltmeter to generator output voltage terminals.

### 3.3.2 Start the generator

1. Start generator with no load. Adjust the speed to the correct RPM's for 50 or 60 Hz.
2. Carefully turn volt trimmer clockwise until rated voltage is reached.
3. Turn stability trimmer clockwise until the output voltage is not stable, carefully turn stability trimmer anticlockwise until rated stable voltage is reached. That is the best match point between AVR and generator.

## 4. ADJUSTMENT

### 4.1 Under frequency adjustment

- Jumper "COM, 50Hz" terminals for 60Hz system, open when 50Hz.
- Under frequency setting procedure, if necessary:
  1. Start the generator set and the output voltage is normally.
  2. Adjust the generator speed controller until under frequency point is reached.

3. Carefully turn U/F trimmer until the U/F LED is illuminated. ( 50Hz is setting at 45Hz,60Hz is setting at 55Hz when outgoing ).

#### 4.2 Voltage adjustment

- Carefully turn volt trimmer until rated voltage is reached.
- Fitted a external VR 5000Ω 1 watt between “ Ext.VR ” terminal, if necessary.

#### 4.3 Stability adjustment

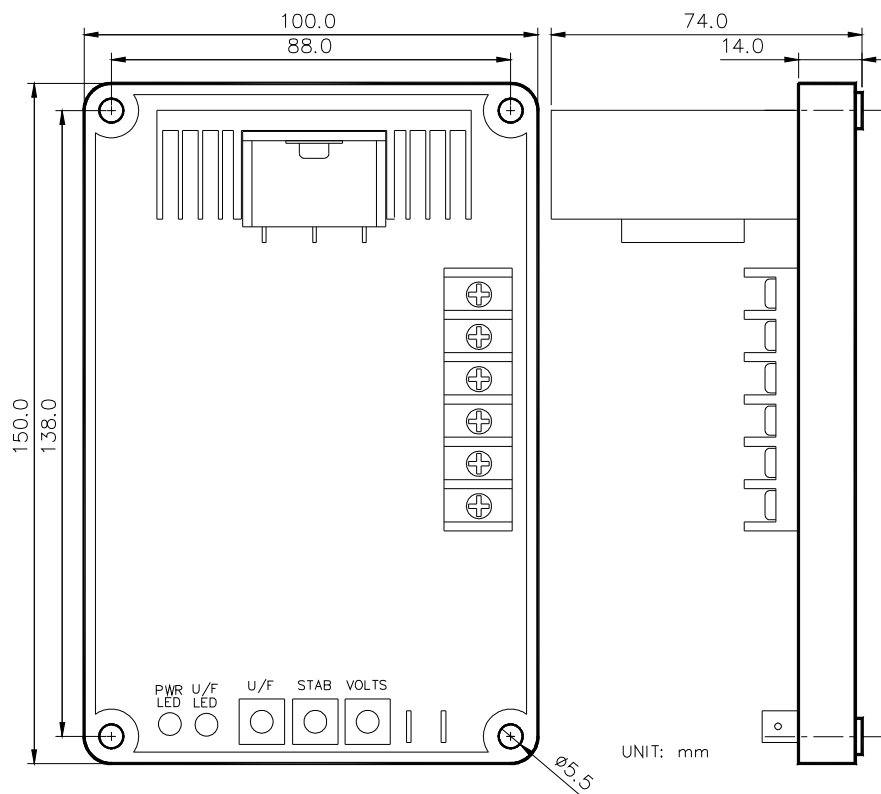
- Carefully turn stability trimmer until output voltage is stable.

### 5. FIELD FLASHING

When the regulator is operated with the generator for the first time, the polarity of residual magnetism may be reversed or too small to achieve the necessary build-up voltage for the regulator. If reversing the field connections does not induce build-up, and the residual voltage is less than the specified value of 5 Vac, shut

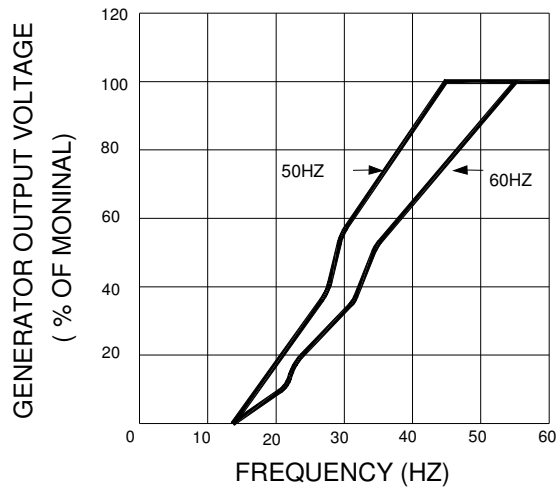
down the Prime-mover and proceed with the following steps :

1. With the Prime-mover at rest and the regulator’s field output wires disconnected, apply a DC source ( NOT grounded ) of not more than 3~12 Vdc with Positive to F+ and Negative to F-, in series with a current-limiting resistor of 3~5 ohms 20 watt.
2. Allow approximately 3 seconds before removing the DC source.
3. With the voltage regulator disconnected ( wires 3 and 4 ), start the prime mover and measure the “ residual ” voltage available at the auxiliary winding. If this voltage is greater than 5 Vac, reconnect voltage regulator, and voltage build-up should be successful. If less than 5 Vac is measured, repeat field flashing procedure.
4. If repeating steps a. and b. does not result in generator voltage build-up, and residual is greater than 5 Vac, call Tech. Svc. 717 932 9900.

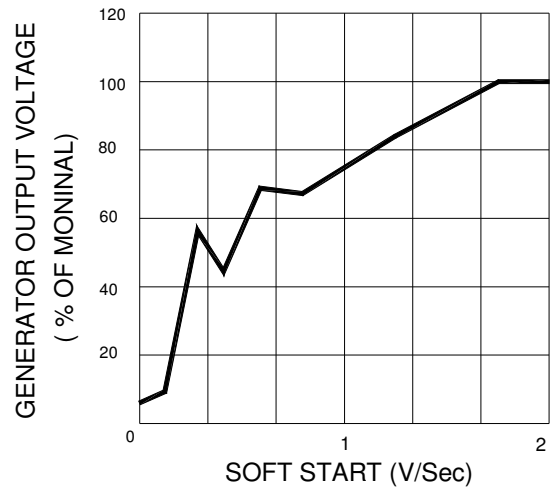


U/F      Adjustment  
 STAB    Stability Adjustment  
 VOLTS   Volt Adjustment

Outline dimension  
 Figure 1



Frequency Compensation Curves  
Figure 2



Soft Start Curve  
Figure 3

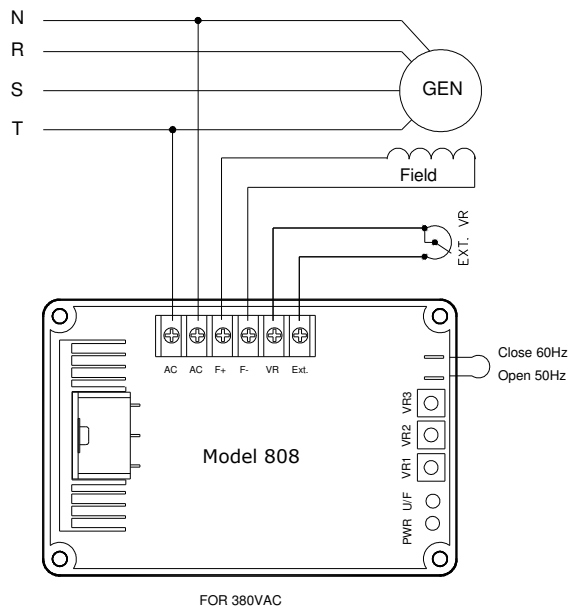


Figure 4

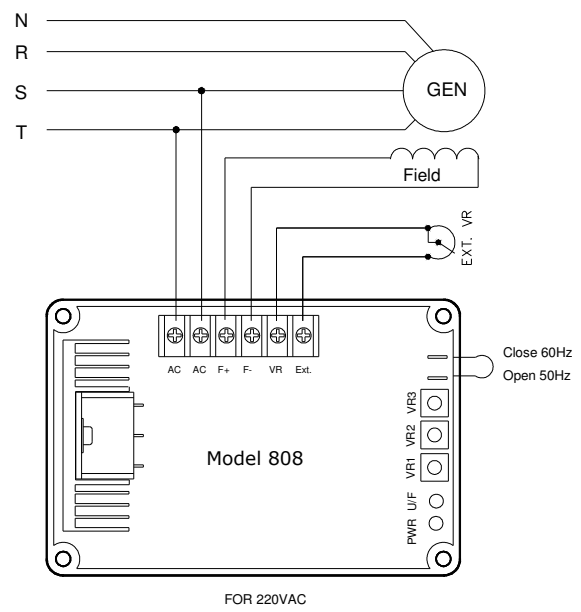


Figure 5