EA05A

1. INTRODUCTION

Sensing Input

Voltage	220 / 380 / 440 VAC, 1 phase2 wire DIP switch selectable
Frequency	50 / 60 Hz, DIP switch selectable

Power Input

Voltage	100 ~ 300 VAC, 1 phase 2 wire

Output

Voltage	Max. 63 VDC @ 220 VAC input
	Max. 90 VDC @ 240 VAC input
Current	Continuous 5A
	Intermittent 7A for 10 sec
Resistance	Min. 15 ohm Max. 100 ohm

Voltage Regulation

< ±0.5% (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

7% with 1K ohm 1 watt trimmer

EMI Suppression

Internal electromagnetic interference filtering

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

3 sec.

Dimensions

101mm L * 69mm W * 47.5mm H

Weight

183g + 2%

2. WIRING

When generator supply is over load, N phase will be different with the sharing load by 3 phases (load imbalance). Hence, the voltage from N phase to 3 phases (R.S.T.) will be altered. When the rated voltage of the traditional single input's AVR is above 220V, it will increase the voltage drift rate by using N phase as the detective input. It will also cause the voltage imbalance.

EA05A can improve the above situation, and increase the generator's rated voltage usage space, such as 380V, 440V. We can all detect by the "Phase voltage".

1. When the rated phase voltage of the generator is 220VAC, the input terminals B, C and sensing terminals A, C can join together (as show as Figure3. It's the original setting) or connect independent.(as show as Figure2).
2. When the rated phase voltage of the generator is 380V, 440V, the input terminals B, C and sensing terminals A, C must separate connect the wiring (as show as Figure 4 or Figure 5). The voltage between B and C must not be over 300 VAC.
3. F+, F- terminals connect to the generator field. (J and K)

FEXT. VR is the potentiometer (1KΩ 1W). These two terminals must be by-pass when external potentiometer is needless.

P.S. A, B, C, F+, F- the usage of wire gauge are AWG16 or 1.25mm^2 85°C above 600V.

The EXT.VR connection wires must be made of isolated wiring.

3. ADJUSTMENTS

The voltage setting for 220V 380V 440V and the frequency setting for 50/60HZ is show in Figure7 Please check the voltage/frequency selector setting is correct before start the generator.

CAUTION

The generator or AVR may be damaged if the voltage frequency selector setting is incorrect.

UFRO DIP:
Close - please refer to solid curve in Figure8.
Open - please refer to dotted curve in Figure8.

1. Before you turn on the generator, please turn the voltage adjustment and stability adjustment full anti-clockwise. After the generator is on and run stably, turn the voltage adjustment clockwise to reach the required out voltage. (If there is an external potentiometer, turn the external potentiometer to the middle position before adjust internal voltage potentiometer.)
2. Adjust "Stability Adjustment" clockwise slowly to change the feedback time between AVR and the generator. If the adjustment is too big, it might cause the voltage instable. If too small, the load voltage will change too much at heavy load. Our suggestion is to trace by the multi-meter DCV. To adjust "stability adjustment", you just need to make the multi-meter waving smaller. It can also improve the full load's voltage drift rate.

4. 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. (The set battery is a suitable source.)
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, replace voltage regulator

5. TROUBLE SHOOTING

SYMPTOM	CAUSE	CORRECTION
Voltage does not build up	Engine speed is too low.	Please refer to the Generator Manual.
	Residual voltage is too low.	Please refer to the section introduction of excite.
	B,C,F+,F- wires are not connected well.	Please refer to Figure 2 ~ Figure 5.
	Defective Generator.	Please refer to the Generator Manual.
Out voltage low	The input wiring of A,B,C are not correct.	Please refer to Figure 2 ~ Figure 5.
	Check the external potentiometer.	Check wiring and potentiometer.
	Under frequency.	Please refer to the Generator Manual.
	The exciter does not match the AVR.	Please refer to the Generator Manual.
	The voltage / frequency selector setting is not correct.	Please refer to Figure 7.
Fuse blown	The exciter flash is too large or wiring doesn't connect well.	Please refer to the Generator Manual Please refer to Figure 2 ~ Figure 5.
Out voltage high	A,C terminals are not connect or wiring incorrect.	Please refer to Figure 2 ~ Figure 5.
	The voltage / frequency selector setting is not correct:	Please refer to Figure 7.
Out voltage instable	Stability Adjustment doesn't adjust well.	Please refer to the section introduction of Adjustment.

P.S. Please use the fuse of the original plant.

6. FIGURE AND SIZE

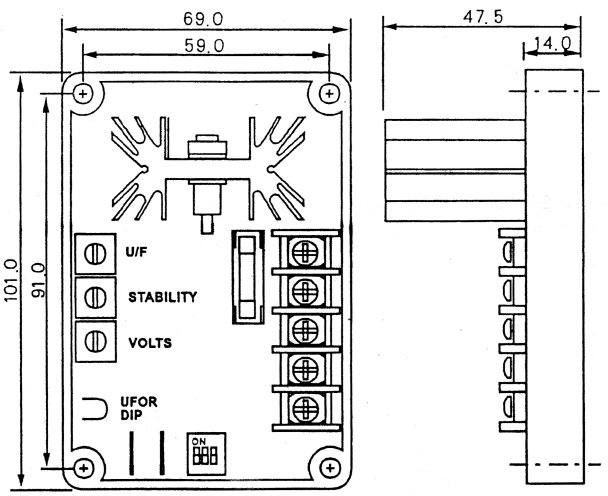


Figure 1

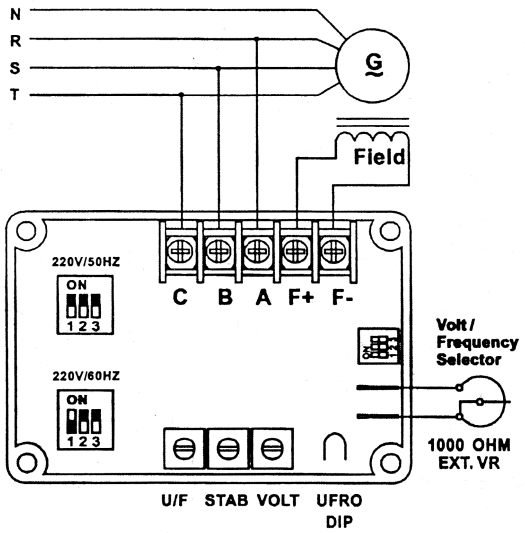


Figure 2

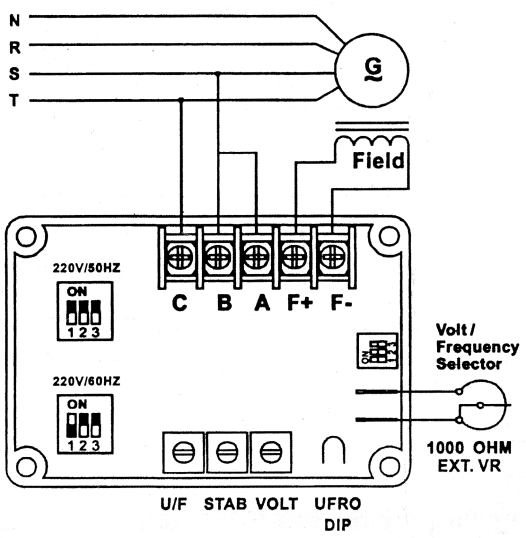


Figure 3

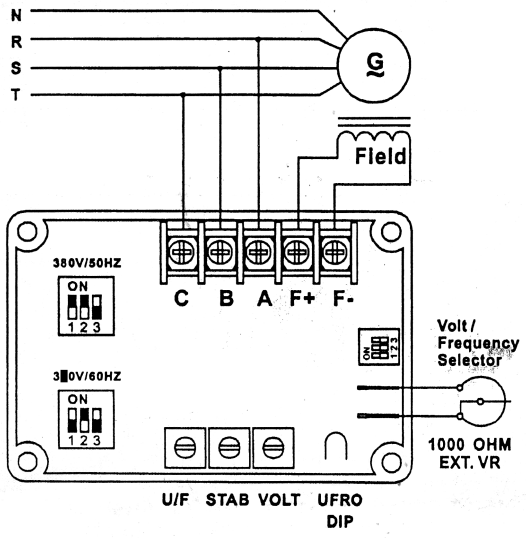


Figure 4

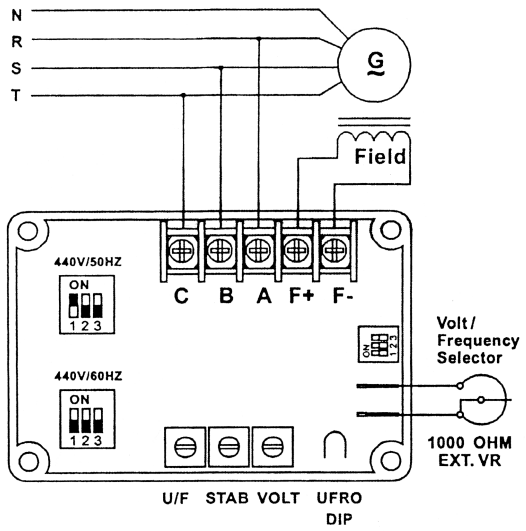
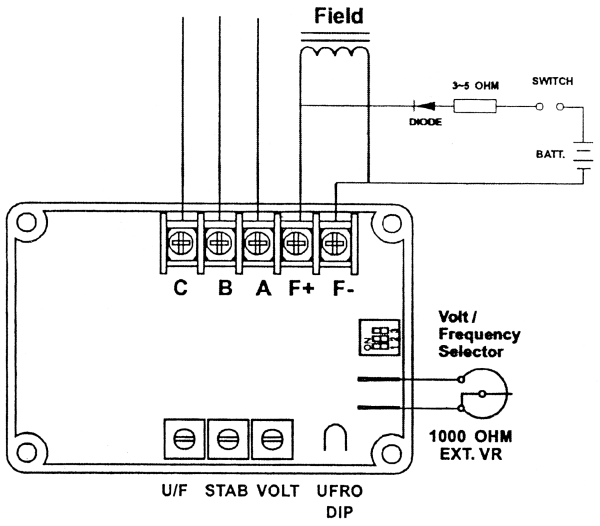


Figure 5



Flash with Battery
Figure 6

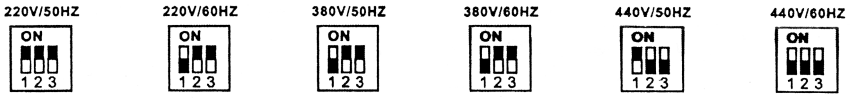
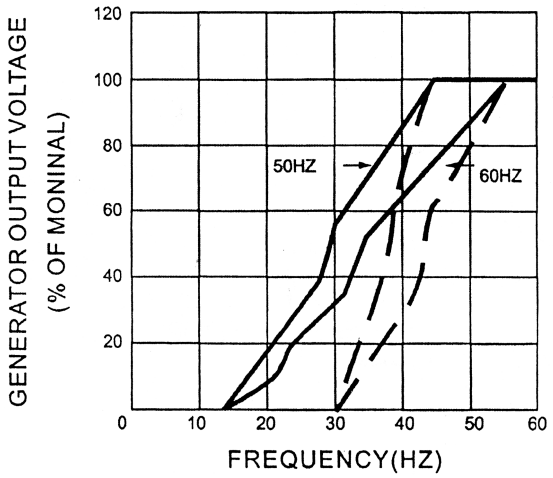
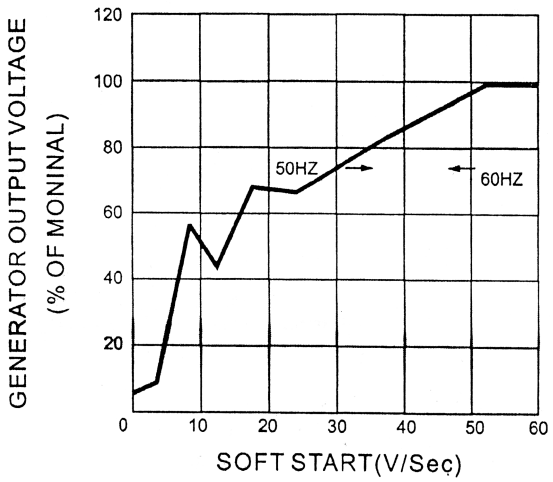


Figure 7



Frequency Compensation Curves
Figure 8



Soft Start Curve
Figure 9