To avoid of possible personal injury or equipment damage please read and understand the use’s manual before installation.

SSC63-4A (A.V.R)

110 / 220 VAC  50/60HZ
OUTPUT : 63VDC 4A

INTRODUCTION

The SSC63-4A Voltage Regulators are designed for use on 50/60 Hz brushless generators. The regulator includes frequency compensation, overexcitation shutdown, a solid-state build-up circuit, and EMI filtering.

ELECTRICAL SPECIFICATIONS

Dc Output Power :
4 Adc at 63 Vdc (252W) maximum continuous,
7 Adc at 100 Vdc (700W) forcing one minute
(at 120 Vac input).
9 Adc at 134 Vdc (1206W) forcing for 10 seconds (at
153 Vac input).

Exciter Field Dc Resistance :
15 ohms, minimum; 100 ohms maximum.

Ac Power Input :
Operating range: 95 Vac to 139 Vac,
± 10%, Single
phase, 50/60 Hz, Burden: 450 VA.

Sensing Input :
95-139 Vac,
± 10% , or 190-277 Vac,
± 10%, single
phase, 50/60 Hz.

Response Time :
Less than 1.5 cycles for
± 5% change in
sensing voltage.

EMI Suppression :
Internal electromagnetic interference filter (EMI filter)

Overexcitation Shutdown :
Field voltage shuts down after time delay if exciter
field voltage exceeds 95 Vdc,
± 5% (See Overexcitation
Shutdown for inverse time delay curve and
description).

Voltage Build-up :
Internal provisions for automatic voltage build-up from
generator residual voltage as low as 6 Vac.

Power Dissipation :
15 Watts maximum.

Terminations :
< 1/4 inch “Fast-On” terminals.

PHYSICAL SPECIFICATIONS

Operating Temperature:
-25 °C (-13 °F) to + 60 °C (+140 °F).

Storage Temperature:
-40 °C (+40 °F) to + 85 °C (+185 °F).

Weight:
10 oz (0.28 kg) Net.

FUSES :
Although the SSC63-4A has an internal fuse, it is
recommended that fuses with high interruption
capability be installed per the interconnection diagram to protect wiring form faults before the regulator. A spare fuse is included with the SSC63-4A (internal fuse). It is mounted “piggyback” to the orginal fuse. Refer to the Outline Diagrams.

NOTE

Fuse must be installed per the interconnection diagrams to avoid interrupting field current.

1. Adjust the UF Rheostat fully CCW.
2. Start the generator and set at rated voltage.
3. Adjust the generator frequency to the desired knee point frequency.
4. Slowly adjust the UF ADJ rheostat clockwise (CW)
until the generator voltage just begins to decrease.

OVEREXCITATION SHUTDOWN

Overexcitation shutdown is included that removes the
output power if the exciter field voltage exceeds 95 Vdc. If exciter field voltage exceeds 95 Vdc ±5%, the
regulator automatically removes field current, after a
time delay. The time delay is inversely proportional to
the magnitude of the detected overvoltage condition.
At 134 Vdc, the field voltage is removed after
approximately 10 seconds. Refer to the following figure.

V/Hz “CORNER FREQUENCY” SELECTION
AND ADJUSTMENT

For 60 Hz systems, the regulator is preset at the
factory for a 55 Hz “corner frequency”. For 50 Hz
systems, a 45 Hz “corner frequency” is achieved by
connecting a jumper across terminals Hz1 and Hz2.

The corner frequency can be adjusted by the UF ADJ rheostat on the AVR. Clockwise rotation results in
raising the corner frequency (shifting the curve to the
right). To set the UF rheostat :

1. Adjust the UF Rheostat fully CCW.
2. Start the generator and set at rated voltage.
3. Adjust the generator frequency to the desired
knee point frequency.
4. Slowly adjust the UF ADJ rheostat clockwise (CW)
until the generator voltage just begins to decrease.

STABILITY ADJUST RHEOSTAT (STAB)

An internal screwdriver adjustable potentiometer
provides adjustment to the response rate of the
generator output voltage to a change in load.
Clockwise rotation of this adjustment provides an increase in the response time and therefore decreases the amount of voltage overshoot (increased stability). Counter-clockwise rotation of this adjustment provides a decrease in the response time (faster response time) and therefore increases the amount of voltage overshoot (decreased stability).

OPERATION

The following system operation procedures provide instructions for adjusting the SSC63-4A voltage regulator. Symptoms resulting from a faulty regulator and certain generator system problems are included, together with suggested remedies.

PRELIMINAR SET-UP

1. Verify that the voltage regulator specifications conform with the generator system requirements.
2. Ensure that the regulator wires are as follows:
   a) If the remote voltage adjust rheostat is not to be connected, ensure terminals 6 and 7 are shorted with a jumper.
   b) If a 55 Hz “corner frequency” for 60 Hz systems is desired, ensure that the Hz1 and Hz2 terminals are open. If a 45 Hz “corner frequency” for 50 Hz systems is terminals are shorted together with a jumper.
   c) For 120V nominal sensing, ensure that terminals V1 and V2 are not connected. For 240V sensing, ensure that terminals V1 and V2 are connected together.

NOTE

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

RESULT:

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

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.

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 that 100W.
2. Adjust the regulator VAR and/or remote VAR, and the STABILITY adjust to maximum CCW.
3. Apply 120V, 50/60 Hz power to the regulator.
4. Slowly adjust the regulator VAR control CW. At the regulation point, the light bulb should extinguish. Small adjustments above and below this level should cause the light bulb goes on and off rapidly.
5. Fail the STABILITY ADJ fully CW. Now adjust the regulator VAR above and below the regulation point. The light bulb should still to off and on, but the transition from off to on (and vice versa) should be much slower than in the paragraph above.

NOTE:

If glass type fuse is used. ENCLOSURE FOR SAFETY

Operational Test