

INSTRUCTIONS

FOR VOLTAGE REGULATOR AVC63-2.5 9318300106

Basler Electric
Phone: +1 618.654.2341
Route 143, Box 269
Highland IL 62249 USA

Power Systems Group
Fax: +1 618.654.2351
www.basler.com
info@basler.com

INTRODUCTION

AVC63-2.5 Voltage Regulators are intended for use on 50/60 Hz brushless generators. AVC63-2.5 features include frequency compensation, a solid-state buildup circuit, EMI filtering, and remote adjust capability.

WARNING!

To prevent personal injury or equipment damage, only qualified personnel should install, operate, or service this device.

ELECTRICAL SPECIFICATIONS

DC Output Power

Maximum Continuous: 2.5 Adc at 63 Vdc
One-Minute Forcing: 3.97 Adc at 100 Vdc (at 240 Vac input).

Exciter Field DC Resistance

25.2 Ω minimum.

AC Power Input

Single phase, 50/60 Hz
Operating range: 171 to 264 Vac, +10%
Burden: 350 VA.

Sensing Input

Single phase, 50/60 Hz
Operating Range: 171 to 264 Vac, +10%
Burden: 350 VA.

Regulation Accuracy

Better than $\pm 1.0\%$ no-load to full-load.

EMI Suppression

Internal electromagnetic interference (EMI) filter

Voltage Buildup

Internal provisions for automatic voltage buildup from generator residual voltages as low as 10 Vac.

Terminations

¼ inch quick-connect terminals.

PHYSICAL SPECIFICATIONS

Temperature

Operating: -40 to 60°C (-40 to 140°F)
Storage: -40 to 85°C (-40 to 185°F)

Vibration

Withstands 1.5 G at 5 to 29 Hz; 0.036" double amplitude at 29 to 52 Hz; and 5 G at 52 to 500 Hz.

Shock

Withstands up to 15 G in each of three mutually perpendicular axes.

Weight

3.8 oz (108 g)

FUSES

It is recommended that fuses with high interruption capability be installed per the interconnection diagram to protect wiring from faults before the regulator. See *Interconnection Drawings*.

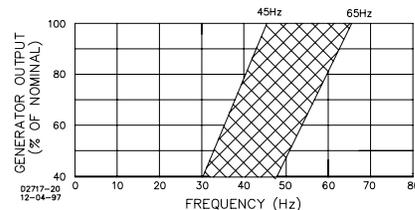
NOTE

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

V/Hz "CORNER FREQUENCY" SELECTION AND ADJUSTMENT

The corner frequency is adjusted by the **UF ADJ** rheostat on the AVR. Clockwise rotation raises 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 kneepoint frequency.
4. Slowly adjust the UF ADJ rheostat clockwise (CW) until the generator voltage just begins to decrease.



Typical Frequency Compensation Curves

OPERATION

The following system operation procedures provide instructions for adjusting the AVC63-2.5 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 system startup.

CAUTION

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

PRELIMINARY SETUP

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 fuses as described in Fuses.
4. Set the regulator **VOLT ADJ** and external **VOLT ADJ** (if used) as follows:

Regulator **VOLT ADJ**: Fully CCW

Remote **VOLT ADJ**: Centered

SYSTEM STARTUP

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 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.
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:

- a. 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.
- b. Replace voltage regulator.

OPERATIONAL TEST

1. Connect the test setup as shown in the *Operational Test Connections* illustration. Do not apply power. Ensure that the light bulb is rated for 120 V and less than 100 W.
2. Adjust the regulator **VOLT ADJ** and/or remote **VOLT ADJ** to maximum CW.
3. Apply 240 V, 50/60 Hz power to the regulator. The light bulb should illuminate.
4. Slowly adjust the regulator **VOLT ADJ** control CCW. At the regulation point, the light bulb should extinguish.

The following notes apply to the interconnection diagrams:

1. If external pot is not used, short terminals 6 and 7.
2. Item not supplied by Basler Electric.
3. Select fuses with high interrupting capacity.
4. Excitation On/Off Switch (If Used).

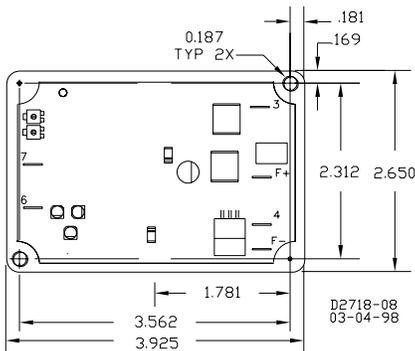
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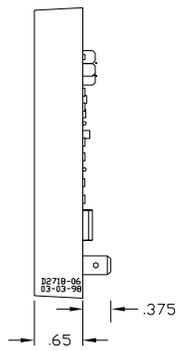
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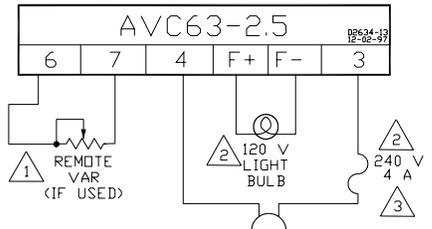
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AVC63-2.5 Dimensions, Top View

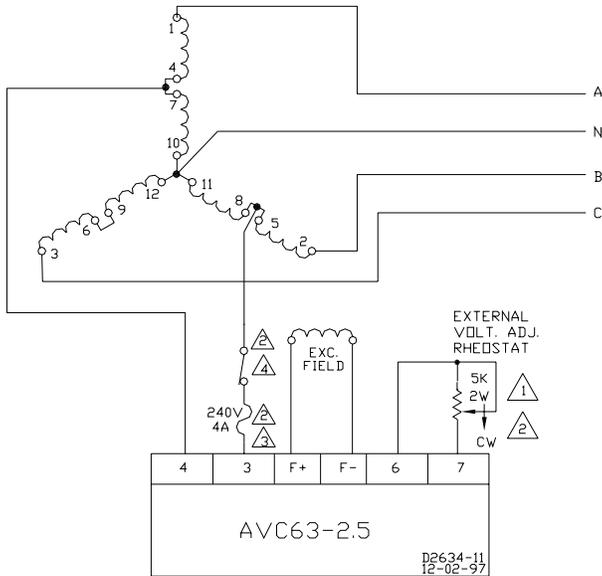


AVC63-2.5 Dimensions, Side View

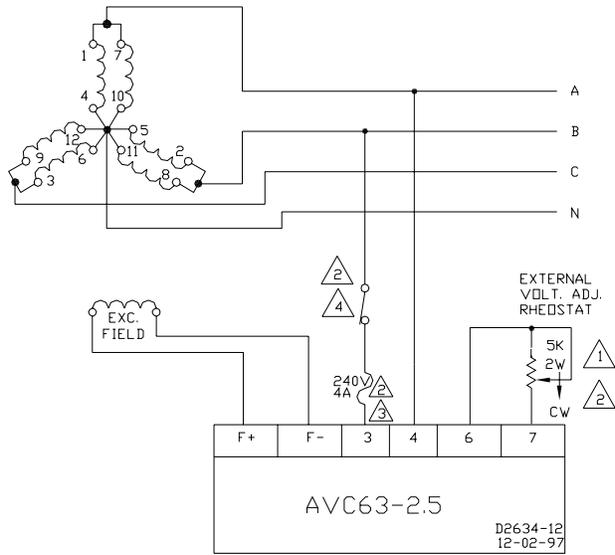


NOTE: 240 VAC, 50/60 HZ
 3 If glass-type fuse is used, enclose for safety.

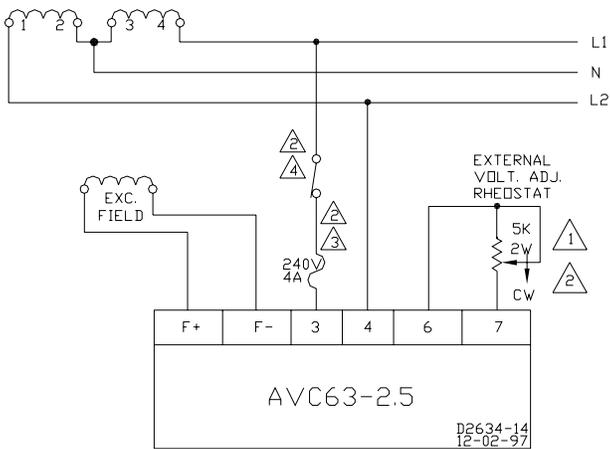
Operational Test Connections



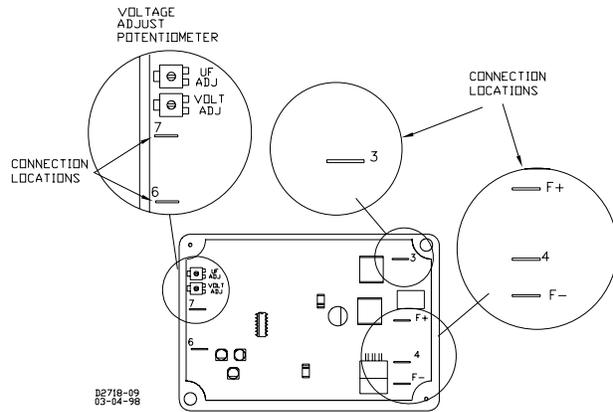
Interconnections, 277/480 V Nominal, 3-Phase, 4-Wire, Wye Connection



Interconnections, 120/208 V Nominal, 3-Phase, 4-Wire, Wye Connection



Interconnections, 120/240 V Nominal, 1-Phase, 3-Wire



Locations of Controls and Connectors