The UVR500 voltage regulator is designed as a universal voltage regulator for replacement of most voltage regulators found in the international generator industry. The installer can select from a full range of input and output voltages limited only by the system amperage. Optional static exciter modules can be used with this regulator to increase the output amperage up to 300 amps. The UVR500 replaces all previous models of Power-Tronics’ regulators and can be altered to be used as an ac phase control in applications such as heating controls, synchronous motors and eddy current clutches.

**UVR500 Universal Voltage Regulator**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>100 to 250 vac</td>
</tr>
<tr>
<td>Output voltage</td>
<td>0.75 to 210 vdc</td>
</tr>
<tr>
<td>Maximum output</td>
<td>5 adc (fused)</td>
</tr>
<tr>
<td>Hz</td>
<td>50/60</td>
</tr>
<tr>
<td>Voltage regulation</td>
<td>Less than 1%</td>
</tr>
<tr>
<td>Physical size</td>
<td>6 x 4.65 x 1.10 inches</td>
</tr>
<tr>
<td>Total weight</td>
<td>7 oz.</td>
</tr>
</tbody>
</table>

*Power-Tronics, Inc.*

Manufacturer of Universal Voltage Regulators and Static Exciters

Kerrville, Texas USA
UVR500 Voltage Regulator connected 1/2 wave for use with generator fields requiring less than 75vdc full load. This configuration is also used when the UVR500 is used with SE350, SE900, SE1500A and SE3000A Static Exciters.

When connected to 120vac, make sure that the neutral is on terminal #2.

120/240v ac

From AC Generator Stator

Run/Idle Switch

Exciter Field

100k

It is not necessary to use external voltage adjustment. Do not jumper 7&8 if not used.

Main Voltage Adjustment
Turn CW to increase voltage

Stability Adjustment
Turn CW for stability

Operating Indicator light

UVR500 Universal Voltage Regulator
UVR500 Voltage Regulator connected Full Wave for use with generator fields requiring more than 75vdc full load. This configuration is also used when the UVR500 is used with SE450 and SE1500B Static Exciters.

When connected to 120vac, make sure that the neutral is on terminal #2.

120/240vac

From AC Generator Stator Run/Idle Switch

Exciter Field

It is not necessary to use external voltage adjustment. Do not jumper 7&8 if not used.

100k

Operating Indicator light

Main voltage adjustment: Turn CW to increase voltage

Stability Adjustment: Turn CW for stability
INSTALLATION INSTRUCTIONS
UVR500 VOLTAGE REGULATOR

Special note: The UVR500 Voltage Regulator sets up differently than the VR504A and VR505A series voltage regulators. Read these instructions before installation.

CAUTION!

Do not use a digital meter to set up a voltage regulator on a generator. False and slow readings can result in severe damage to the regulator and generator as well as injury to the installer. By using a vane type meter, you will insure quick, true and accurate readings of phase controlled power and voltage. Once the unit is set up, digital meters can be used accurately for ac voltage readings.

DO NOT hold the voltage regulator in your hand while power is applied to it. DO NOT work around voltage control equipment without safety glasses and protective gear. DO NOT set up the voltage regulator with the generator on line.

1. Select regulator configuration from the selection chart and wire up the regulator as shown in the proper schematic for that configuration.

2. Turn the voltage adjustment fully counter clockwise or 10 to 15 turns.

3. Open the run/idle switch and start prime mover, bring up to rated speed.

4. Turn on run/idle switch and raise output voltage of generator to rated voltage with the internal voltage adjustment by turning clockwise (voltage may be pulsing).

5. If the voltage is pulsing, adjust the stability adjustment clockwise until the voltage is steady. As you adjust the stability adjustment clockwise, the voltage will lower. Keep the voltage at rating with the internal voltage adjustment pot.

6. Place generator on line and observe operation (if the voltage is unstable with load, adjust the stability adjustment further clockwise until problem is corrected).

Special Notes:

It is not necessary to jumper terminals 7 & 8 when not using a remote voltage adjustment. If you do use a remote voltage adjustment, use a 10 to 100k pot rated at 1/2 watt. Also use shielded cable if the remote pot is further than 5 feet from the regulator.

Do not place exciter, remote adjustment and power leads in a common cable or conduit.

If this unit is going to be used on a brush type of exciter, the shunt fields must be isolated from any other part of the generator.
UVR500 Bench Check Procedures

Test procedures

1. Connect up test unit as shown in Test 1.
2. Turn voltage and stability adjustments fully counter clockwise (approximately 25 turns).
3. Apply 120 vac to the voltage regulator. The test light should be off and the orange indicator light should be on.
4. Turn the voltage adjustment clockwise until the test light turns fully on.
5. Turn the stability clockwise until the test light turns off.
6. Remove voltage from the regulator and rewire the test light connections to the Test 2 wiring configuration.
7. Repeat testing as done from step 2 thru step 5. There will be a difference in the brilliance of the test light during this test. It will be 1/2 brilliance of the first test.
8. Turn the voltage and stability adjustments fully counter clockwise and remove voltage from the regulator.
9. If the regulator performed all of the tests, it is good. If it did not perform all of the tests, it is defective.
# TROUBLESHOOTING

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>1. Residual input voltage to the voltage regulator is below 3.5 vac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO VOLTAGE</td>
<td>1, 2, 3, 5, 7, 9, 11, 13, 15, 20</td>
<td>2. Internal fuse is open or blown.</td>
</tr>
<tr>
<td>PULSATING VOLTAGE</td>
<td>4, 5, 6, 12, 16</td>
<td>3. Open exciter field or defective generator.</td>
</tr>
<tr>
<td>FLICKERING VOLTAGE</td>
<td>6, 7, 14, 4</td>
<td>4. Stability adjustment is not properly adjusted.</td>
</tr>
<tr>
<td>HIGH VOLTAGE</td>
<td>6, 7, 8, 9, 12, 13, 17, 18, 20</td>
<td>5. Open diode in exciter or shorted rotor in generator.</td>
</tr>
<tr>
<td>VOLTAGE DROP ON LOAD</td>
<td>5, 8, 10, 12, 16</td>
<td>6. Loose component in voltage regulator.</td>
</tr>
<tr>
<td>LOW VOLTAGE</td>
<td>5, 8, 12, 13</td>
<td>7. Loose wiring connections.</td>
</tr>
<tr>
<td>POOR VOLTAGE REGULATION</td>
<td>4, 10, 12, 13, 16</td>
<td>8. Input voltage to regulator is too low.</td>
</tr>
<tr>
<td>NO VOLTAGE CONTROL</td>
<td>13, 15, 19, 20</td>
<td>9. Exciter field is grounded.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. Stability adjustment is set too far clockwise.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11. Exciter fields are reversed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12. Wrong selection of regulator wiring configuration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14. SCR or Inverter drive effecting generator wave form.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15. Regulator needs external flashing circuit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16. Isolation transformer is too small.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17. Isolation transformer is needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18. Exciter fields are not isolated from other circuits.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19. Input and field circuit are being fed by a common cable or conduit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20. Incorrect hookup or wiring.</td>
</tr>
</tbody>
</table>

Mfg. by:

**POWER-TRONICS, INC.**

Kerrville, Texas USA

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![Voltage Regulator Image]

This voltage regulator contains (2) replaceable fuses located on the printed circuit card.

The fuses are the solder in type and are located on the component side of the printed circuit card as shown in the diagram below.

![Fuses Diagram]

To remove the printed circuit card from the regulator housing, remove the 4 short screws from the front of the housing.

Fuse rating: 5 amps @ 240vac

Littlefuse # 263005

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Need Help ???
Call (830) 895-4700 or visit our web site on the Internet at: http://www.pwrtron.com