Using advanced technology and our many years of analog regulator design experience, Basler Electric offers two high powered, low-cost analog excitation controllers, the AVC63-12 and the AVC125-10. These environmentally rugged products are ideally suited for controlling the output of brushless excited synchronous generators up to 5MW. These devices offer higher powered output and accept a variety of accessory items for new and retrofit applications where high performance and reliability are mandatory. These devices utilize a pulse width modulated power stage, state-of-the-art circuitry, and advanced methods of noise immunity. They are UL recognized, CSA certified, and CE compliant.

**FEATURES**

- ±0.5% accuracy voltage regulation
- 0.5% accuracy up to 20% THD (harmonic associated with 6 SCR loads)
- Outputs of 63 Vdc @ 12 Adc and 125 Vdc @ 10 Adc from a PWM output stage
- 1 or 2X V/Hz limiting (jumper selectable)
- Single- or three-phase average sensing (jumper selectable)
- Paralleling input from 1 or 5A CT secondaries
- Nominal sensing inputs of 120, 240, 50/60 Hz or 400 Hz
- Power input from shunt connections or PMGs operating at 50 to 400 Hz
- Accessory input
- Overexcitation shutdown
- UL recognized
- CSA certified
- CE compliant
- GOST-R certified #POCC US.ME05.B03392

**ADDITIONAL INFORMATION**

**INSTRUCTION MANUAL**
Request Publication 9337200991
**DESCRIPTION**

The AVC63-12 and AVC125-10 voltage regulators are designed to control the output of a brushless excited synchronous generator. They are designed to be very rugged, are perfect for a variety of applications, and are especially suitable where the generator is installed in a harsh environment. They can accept supplemental control inputs for utility paralleling applications where a VAR/PF control and Over/Under Excitation Limiter are used. These regulators are extremely flexible and offer jumper selection provisions for single- or three-phase sensing, 1 or 2X V/Hz, and can accept 1 or 5 Amp CTs. The power stage can accept a frequency range of 50-400 Hz, and the sensing can be configured for 50/60 or 400 Hz. They are UL recognized, CSA certified, and CE compliant.

**SPECIFICATIONS**

**INPUTS**

**Power Input**

<table>
<thead>
<tr>
<th></th>
<th>AVC63-12</th>
<th>AVC125-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>90-153 Vac, single or three phase</td>
<td>180-264 Vac, single or three phase</td>
</tr>
<tr>
<td>Burden</td>
<td>1092 VA</td>
<td>1750 VA</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 to 400 Hz</td>
<td>50 to 400 Hz</td>
</tr>
<tr>
<td>Minimum Buildup Voltage</td>
<td>6.0 Vac</td>
<td>12.0 Vac</td>
</tr>
</tbody>
</table>

*Note: For applications that require the AVC63-12 or AVC125-10 from a source that is already at the regulator's rated power input voltage level, an Inrush Current Reduction Module is needed to minimize the amount of inrush current that may occur.*

**Sensing Inputs**

**Voltage Sensing**

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Style option A: 90-139 Vac; Style option B: 180-264 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>Style option 1: 50/60 Hz; Style option 2: 400 Hz</td>
</tr>
<tr>
<td>Burden</td>
<td>&lt;1 VA per phase</td>
</tr>
</tbody>
</table>

**Current Sensing**

Nominal Input: 1 or 5 Amp

**Auxiliary Input**

±3Vdc input for use with an SCP250 VAR/PF Controller or an EL200 Min/Max Excitation Limiter

**OUTPUTS**

**DC Output**

<table>
<thead>
<tr>
<th></th>
<th>AVC63-12</th>
<th>AVC125-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous voltage</td>
<td>63 Vdc</td>
<td>125 Vdc</td>
</tr>
<tr>
<td>Continuous current</td>
<td>12.0 Adc</td>
<td>10.0 Adc</td>
</tr>
<tr>
<td>10 second Forcing Voltage</td>
<td>125 Vdc</td>
<td>250 Vdc</td>
</tr>
<tr>
<td>10 second Forcing Current</td>
<td>24.0 Adc</td>
<td>20 Adc</td>
</tr>
<tr>
<td>Minimum Field Resistance</td>
<td>5.25 Ohms</td>
<td>12.5 Ohms</td>
</tr>
</tbody>
</table>

*(Forcing levels are determined with nominal input power applied.)*

**REGULATION ACCURACY**

Regulation accuracy: ±0.5% of voltage set point no load to full load, average responding

Temperature drift: ±0.5% voltage variation for a 40°C change in ambient temperature

Response time: ≤4 msec

**OVEREXCITATION SHUTDOWN**

**Timing Initiation**

<table>
<thead>
<tr>
<th></th>
<th>AVC63-12</th>
<th>AVC125-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 Vdc ±10%</td>
<td>250 Vdc ±10%</td>
<td>Approx. 10 sec.</td>
</tr>
<tr>
<td>210 Vdc ±10%</td>
<td>370 Vdc ±10%</td>
<td>&lt;1 sec.</td>
</tr>
</tbody>
</table>

**AGENCY APPROVALS**

<table>
<thead>
<tr>
<th></th>
<th>AVC63-12</th>
<th>AVC125-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL Recognition</td>
<td>Standard 508, File E97035</td>
<td>Standard CAN/CSA-C22.2 No. 14-95, File LR 23131</td>
</tr>
<tr>
<td>CSA Certification</td>
<td>Standard CAN/CSA-C22.2 No. 14-95, File LR 23131</td>
<td></td>
</tr>
<tr>
<td>GOST-R Certification</td>
<td>Per relevant standards of Gosstandart of Russia</td>
<td></td>
</tr>
<tr>
<td>CE Conformity</td>
<td>Radiated Emissions: EN50081-2</td>
<td>Radiated Emission, Electric Field: EN61000-4-3 (10 V/m)</td>
</tr>
<tr>
<td></td>
<td>Radiated Immunity, Conducted: EN61000-4-6 (10 Vrms)</td>
<td>Conducted Emissions: EN50081-2 (EN55011, Class A)</td>
</tr>
<tr>
<td></td>
<td>ESD Immunity: EN50082-2 (4 kV contact, 8 kV air)</td>
<td>EFT Immunity: EN50082-2 (2 kV coupling clamp)</td>
</tr>
</tbody>
</table>
SPECIFICATIONS, continued

AGENCY APPROVALS, continued

CE Conformity, continued: Magnetic Immunity: EN50082-2 (30 Arms, 50 Hz)
Safety: EN61010-1

MECHANICAL SPECIFICATIONS

Operating temperature: -40°C to +70°C
Storage temperature: -40°C to +70°C
Shock: 20 Gs in three mutually perpendicular planes
Vibration: 18-2000 Hz, 4.5 Gs
Salt Fog: Per MIL-STD-810E, Method 509.3, 48 hours of testing
Weight: 2.5 lbs. (1.10 kg)
Shipping weight: 4.5 lbs. (1.98 kg)
Unit dimensions: 6.376” (162.0mm) wide x 8.38” (212.8mm) high x 2.96” (75.2mm) deep

ADJUSTMENTS

Voltage Adjustment: Minimum of ±10% of nominal
Volts per Hertz:
Style option 1: UF kneepoint, 40-65 Hz
Style option 2: UF kneepoint, 300-430 Hz
Parallel Droop: 0-10% with a load of 0.8 PF lagging at rated input current
Stability: Adjustment of min. to max. of the stability range
External Voltage Adjustment: Via a 10 kΩ external pot (not included)

CONNECTIONS

Figure 1 - Typical Connections
Consult Instruction Manual for detailed interconnection instructions.
AVC Series (AVC63-12, AVC125-10)

HOW TO ORDER

These regulators are selected by the style chart at right. For example, if an AVC125-10 is required with 200/240 Vac sensing at 400 Hz, the complete model number is AVC125-10-B2.

ACCESSORIES

The AVC63-12 and AVC125-10 are designed to operate with the following accessories. For additional product compatibility, please contact your application specialist at Basler Electric or your sales representative.

- MVC112 Manual Voltage Controller
- EDM200 Exciter Diode Monitor
- EL200 Min/Max Excitation Limiter
- ICRM-15 Inrush Current Reduction Module is required when energizing the AVC63-12 and AVC125-10 from a source that is already at the regulator’s input power ratings. This module minimizes the amount of inrush current that could be seen when power is applied.

- SCP250 VAR/PF controller
- CBS212A Current Boost System
- RA70 Reference Adjuster External Voltage Adjust