

AVC63-12 and AVC125-10 Voltage Regulators

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

- $\pm 0.5\%$ 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

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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

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

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

Voltage Range:	Style option A: 90-139 Vac; Style option B: 180-264 Vac
Frequency Range:	Style option 1: 50/60 Hz; Style option 2: 400 Hz
Burden:	<1 VA per phase

Current Sensing

Nominal Input:	1 or 5 Amp
Burden:	<10 VA

Auxiliary Input

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

OUTPUTS

DC Output

	<u>AVC63-12</u>	<u>AVC125-10</u>
Continuous voltage:	63 Vdc	125 Vdc
Continuous current:	12.0 Adc	10.0 Adc
10 second Forcing Voltage:	125 Vdc	250 Vdc
10 second Forcing Current:	24.0 Adc	20 Adc
Minimum Field Resistance:	5.25 Ohms	12.5 Ohms

(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

	<u>AVC63-12</u>	<u>AVC125-10</u>	<u>Time Delay</u>
Timing Initiation:	125 Vdc ±10%	250 Vdc ±10%	Approx. 10 sec.
	210 Vdc ±10%	370 Vdc ±10%	<1 sec.

AGENCY APPROVALS

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

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 $\pm 10\%$ 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 k Ω external pot (not included)

CONNECTIONS

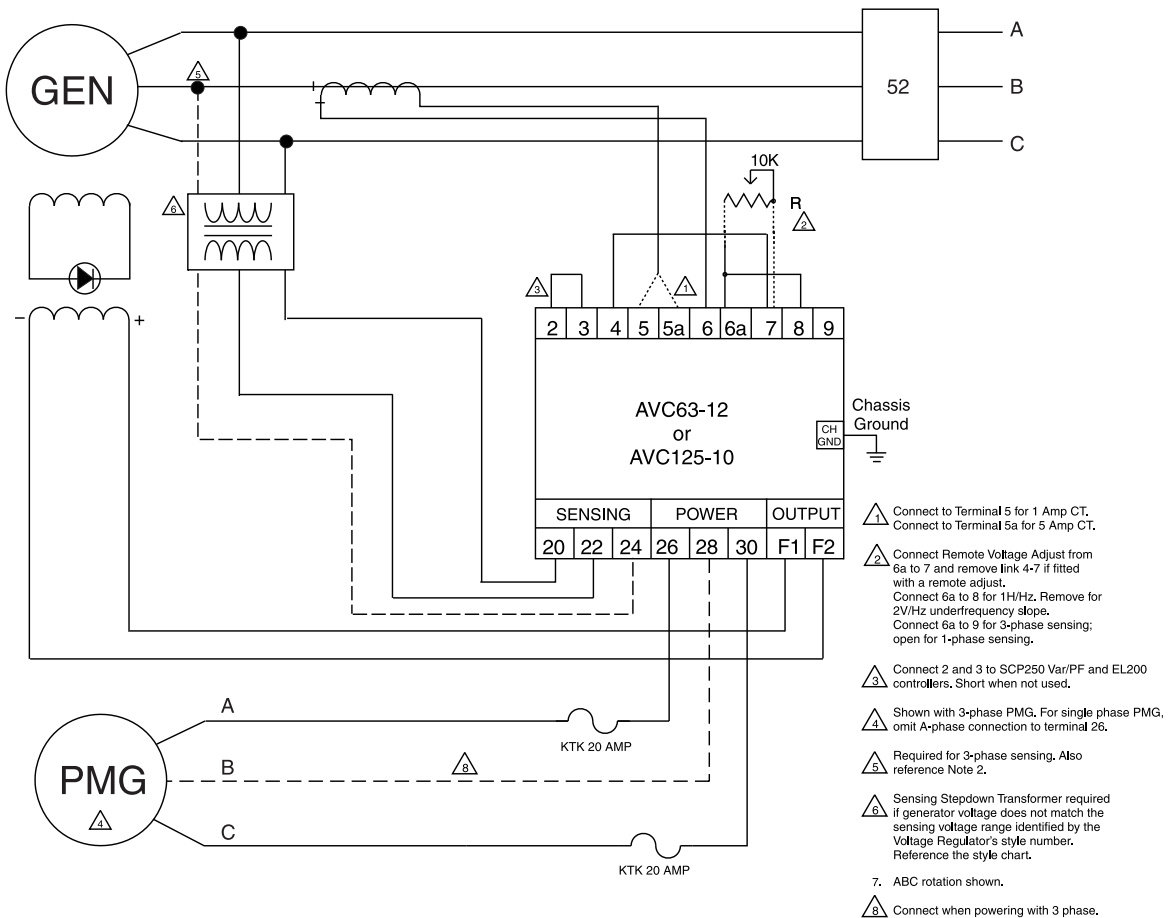


Figure 1 - Typical Connections

Consult Instruction Manual for detailed interconnection instructions.

DIMENSIONS

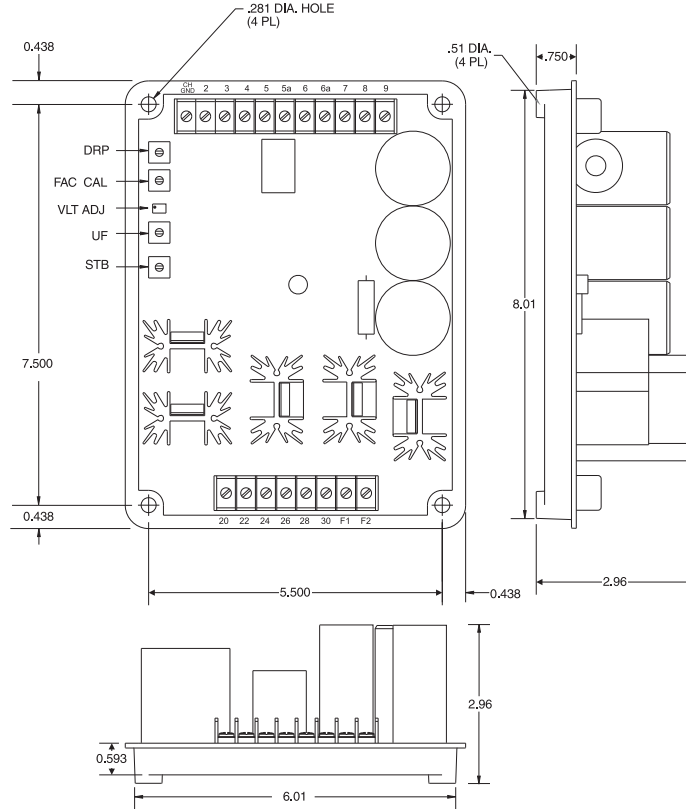
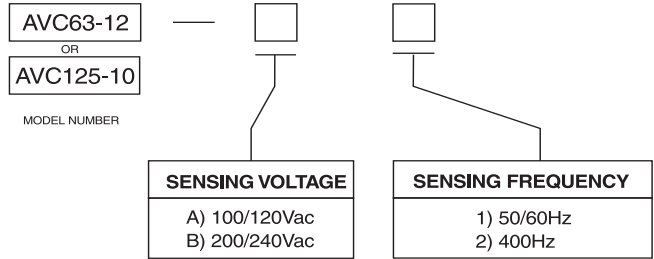


Figure 2 - Dimensions

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



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