

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 63Vdc @ 12Adc and 125Vdc @ 10Adc 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, 50/60Hz or 400Hz
- Power input from shunt connections or PMGs operating at 50 to 400Hz
- 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 and SPECIFICATIONS

Pages 2 and 3

INTERCONNECT DIAGRAM

Page 3

DIMENSIONS

Page 4

ORDERING

Page 4



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 50-400Hz, and the sensing can be configured for 50/60 or 400Hz. They are UL recognized, CSA certified, and CE compliant.

SPECIFICATIONS

INPUTS

Power Input

	AVC63-12	AVC125-10
Voltage:	90-153Vac, single or three phase	180-264Vac, single or three phase
Burden:	1092VA	1750 V
Frequency:	50 to 400Hz	50 to 400Hz
Minimum Build-up Voltage:	6.0Vac	12.0Vac

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 Input

Sensing Voltage Range:	Style option A: 90-139Vac; Style option B: 180-264Vac
Burden:	<1VA per phase
Current Input:	1 or 5 Amp
Burden:	<10 VA
Frequency:	Style option 1: 50/60Hz; Style option 2: 400Hz

Auxiliary Input

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

OUTPUTS

DC Output

	AVC63-12	AVC125-10
Continuous voltage:	63Vdc	125Vdc
Continuous current:	12.0Adc	10.0Adc
10 second Forcing Voltage:	125Vdc	250Vdc
10 second Forcing Current:	24.0Adc	20Adc
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

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

AGENCY APPROVALS

UL 508	"Industrial Control Equipment", File #E97035
CSA C22.2 Number 14	"Industrial Control Equipment", File #LR23131
GOST-R	Russian safety requirements for voltage regulators
CE	EMC and LVD
CE Conformity:	Radiated Emissions: EN50081-2 Radiated Immunity, Electric Field: EN61000-4-3 (10V/m) Radiated Immunity, Conducted: EN61000-4-6 (10VRMS) Conducted Emissions: EN50081-2 (EN55011, Class A) ESD Immunity: EN50082-2 (4kV contact, 8kV air) EFT Immunity: EN50082-2 (2kV coupling clamp)

SPECIFICATIONS, continued

AGENCY APPROVALS, continued

CE Conformity, continued:

Magnetic Immunity: EN50082-2 (30ARMS, 50Hz)

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:

18-2000Hz, 4.5Gs

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, 40-65Hz

Style option 2: UF kneepoint, 300-430Hz

Parallel Droop:

0-10% with a load of 0.8PF lagging at rated input current

Stability:

Adjustment of min. to max. of the stability range

External Voltage Adjustment:

Via a 10k Ω external pot (not included)

CONNECTIONS

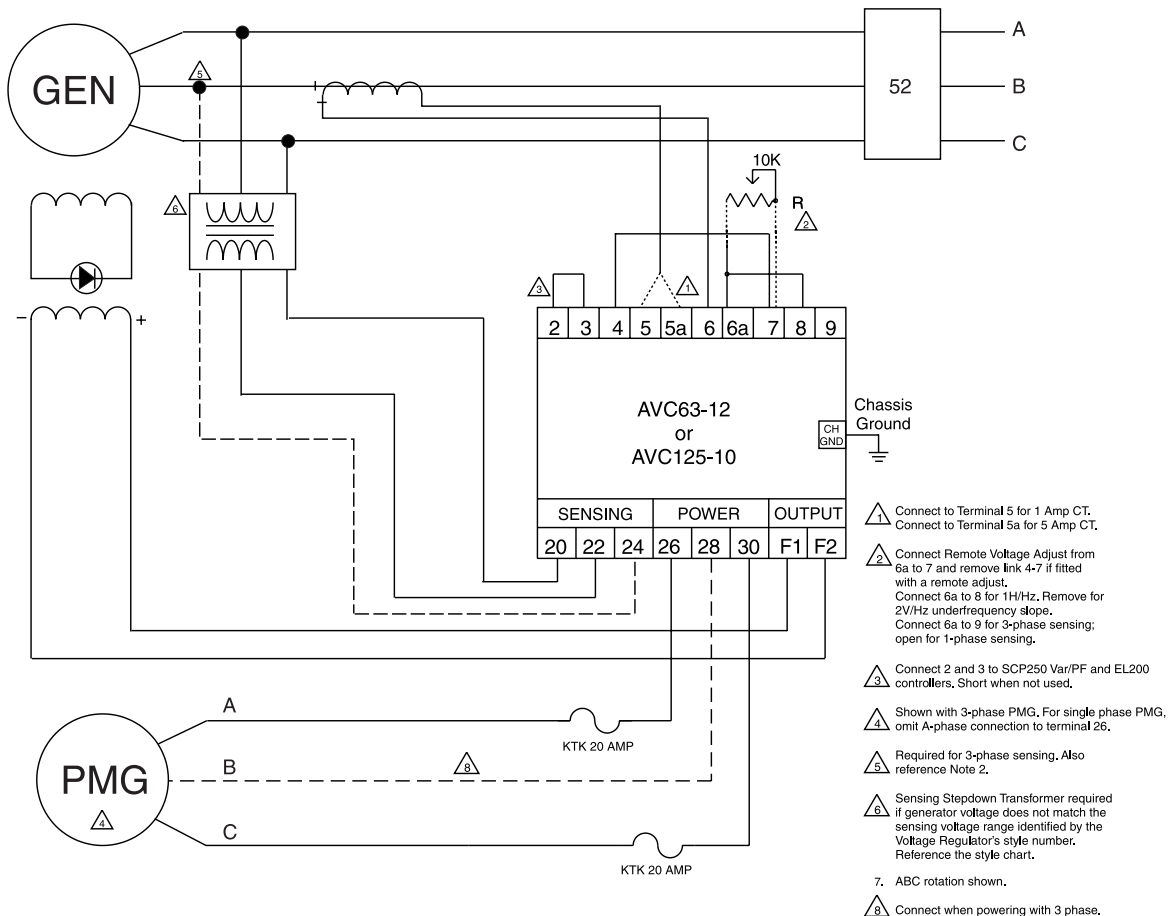


Figure 1 - Typical Connections

Consult Instruction Manual for detailed interconnection instructions.

DIMENSIONS

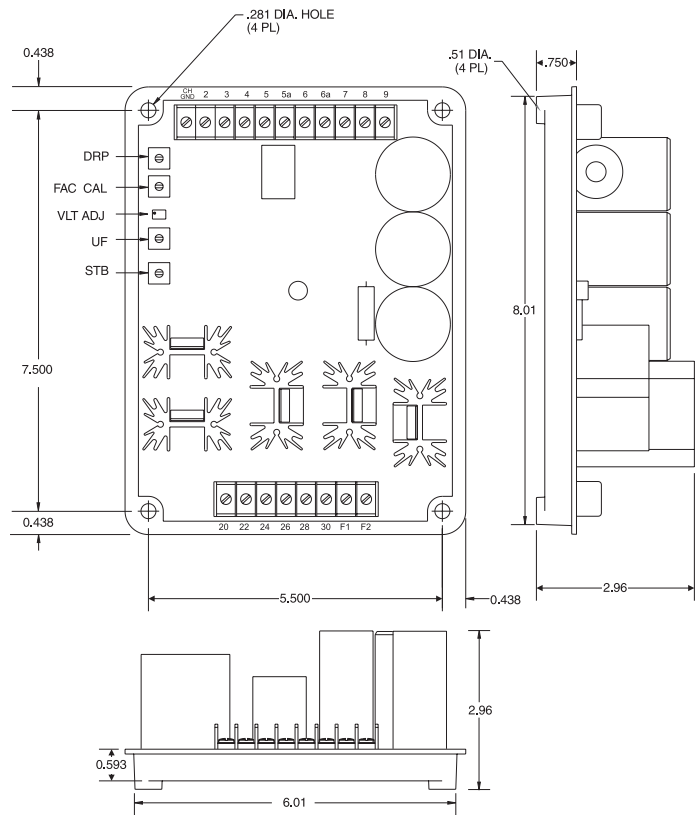


Figure 2 - Dimensions

HOW TO ORDER

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

AVC63-12
OR
AVC125-10
MODEL NUMBER

SENSING VOLTAGE

A) 100/120Vac
B) 200/240Vac

SENSING FREQUENCY

1) 50/60Hz
2) 400Hz

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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