

## Class 200 Equipment SSR SERIES VOLTAGE REGULATORS

The SSR Series Voltage Regulators provide reliable, high performance voltage regulation for 50/60 and 400 Hz brushless generators requiring 12A of excitation at either 32, 63 or 125 Vdc. The SSR Voltage Regulator receives its power for precise voltage regulation from a PMG (Permanent Magnet Generator), self excitation from the generator line, or other AC sources. Supplied with each regulator is a spike suppression chassis for PMG and power isolation transformer applications.

### FEATURES

- Regulation accuracy better than  $\pm 0.25\%$
- Adjustable frequency compensation
- Selectable single or three-phase sensing
- Built-in parallel droop or cross current compensation
- Overexcitation shutdown
- Solid state voltage buildup
- EMI suppression built-in
- Modular replaceable parts for ease of service
- Applicable for 50, 60 or 400 Hz systems
- Compatible with single phase PMG generator (50 to 240 Hz power input range)
- Spike suppression chassis
- Compatible with a wide range of accessory control and protective devices
- CSA certified, CSA File Number LR 23131

### ADDITIONAL INFORMATION

#### INSTRUCTION MANUAL

Request Publication 9185900990

**FEATURES and  
APPLICATIONS**  
this page

**DESCRIPTION and  
SPECIFICATIONS**  
Page 2

**ACCESSORIES  
and INTERCONNECTS**  
Page 3

**OUTLINE and  
DIMENSIONS**  
Page 4

## DESCRIPTION

The SSR voltage regulator is completely solid state and uses state-of-the-art circuitry to provide high performance with a wide range of standard features. Voltage is internally or remotely adjustable, with single- or three-phase customer selectable sensing over a wide range. The SSR has a variable frequency compensated operating characteristic (See Figures 1 and 2).

During start-up, the solid state voltage build-up circuit operates from generator output residual voltages as low as 5% of nominal. The built-in over-excitation limiting removes the output power if the exciter field voltage exceeds a predetermined level. After removing field power, the regulator maintains its shutdown state until the generator has decreased below 5% of nominal.

The SSR may also be used with generator equipped with single-phase permanent magnet generators (PMG) for excitation power. With this application or applications where a power isolation transformer is incorporated, use suppression chassis P/N 9261500100 or P/N 9261500101, supplied with each regulator.

Maintenance of the SSR voltage regulator is simplified by the use of replaceable modules. Sensitive electronic equipment is protected from the effects of moisture, contaminants, vibration, and shock, by encapsulation.

## SPECIFICATIONS

### OUTPUT POWER:

SSR Model	Continuous Voltage*	Forcing Voltage*	Continuous Current	Forcing Current
SSR 32-12	32 Vdc	50Vdc	12Adc	20Adc
SSR 63-12	63Vdc	100Vdc	12Adc	20Adc
SSR 125-12	125Vdc	200Vdc	12Adc	20Adc

\*At 115V input on SSR 32-12 and SSR 63-12 and at 230V input on SSR125-12.

### EXCITER MINIMUM FIELD DC RESISTANCE:

SSR Model	Field Resistance (Minimum)
SSR 32-12	2.5 ohms
SSR 63-12	5.0 ohm
SSR 125-12	10.0 ohms

### POWER DISSIPATED: Less than 30 Watts

AC INPUT POWER: Designed for 50/60 Hz, self-excited, or 50-240 Hz separately-excited (PMG) applications.

SSR Model	Rated Voltage	Burden
SSR 32-12	90 to 153 Vac, single phase, 50 to 240 Hz	700 VA
SSR 63-12	90 to 153 Vac, single phase, 50 to 240 Hz	1200 VA
SSR 125-12	170 to 305 Vac, single phase, 50 to 240 Hz	2400 VA

AC INPUT SENSING: Designed to regulate generator voltage at any frequency from 50 to 400 Hz

50 Hz Voltage	60/400 Hz Voltage
90-110 Vac	90-132 Vac
170-242 Vac	187-264 Vac
340-457 Vac	374-528 Vac
	540-660 Vac

INPUT SENSING BURDEN: 3.5 VA per phase nominal.

PARALLELING COMPENSATION INPUT: 5A from Current Transformer with 10 VA maximum burden at 0.8 pf

REGULATION ACCURACY:  $\pm 0.25\%$  from no-load to rated

THERMAL STABILITY:  $\pm 0.5\%$  voltage variation for any 50°C (122°F) temperature change within operating temperature range.

FREQUENCY COMPENSATION: Refer to Figures 1 and 2. Select from 50 or 60 Hz and a V/Hz or 2V/Hz curve in the field.

VOLTAGE BUILD-UP: From 5% of nominal.

TRANSIENT RESPONSE TIME: 1.5 cycles @ 60 Hz.

VOLTAGE ADJUST RANGE: External adjustment  $\pm 10\%$  of nominal. Internal adjustment minimum, see below:

Tap	Minimum Adjustment Range
120	90-132 Vac
240	170-264 Vac
480	340-528 Vac
600	540-660 Vac

STORAGE TEMPERATURE RANGE: - 40°C (- 40°F) to +85°C (+185°F).

OPERATING TEMPERATURE RANGE: - 40°C (- 40°F) to +70°C (+158°F).

SHOCK: Withstands 15 Gs in each of three mutually perpendicular planes.

VIBRATION: Withstands the following:

Frequency	Force
5- 26 Hz	1.2 G
27- 52 Hz	0.036 inch double amplitude
53-1000 Hz	5.0 G

WEIGHT: 12 lbs (5.5 kg) net  
15 lbs. (7.0 kg) shipping

## ACCESSORIES

The SSR series voltage regulators are designed to be compatible with any of the following Basler accessories and equipment:

- a. Remote mounted Overexcitation Circuit Breaker, Part Number 9185900014.
- b. VAR/Power Factor Controller (SCP 250).
- c. Current Boost System (CBS 212).
- d. Current Transformers (CT2 through CT50).
- e. Exciter Diode Monitor (EDM 200).
- f. Minimum/Maximum Excitation Limiter (EL 200).
- g. Auto-Synchronizer (BE1-25A).
- h. Auto-Synchronizer (BE3-25A).
- i. Manual Voltage Control (Consult Factory).
- j. Suppression Chassis P/N 9261500100 for SSR32-12 and 63-12 or P/N 9261500101 for SSR 125-12.

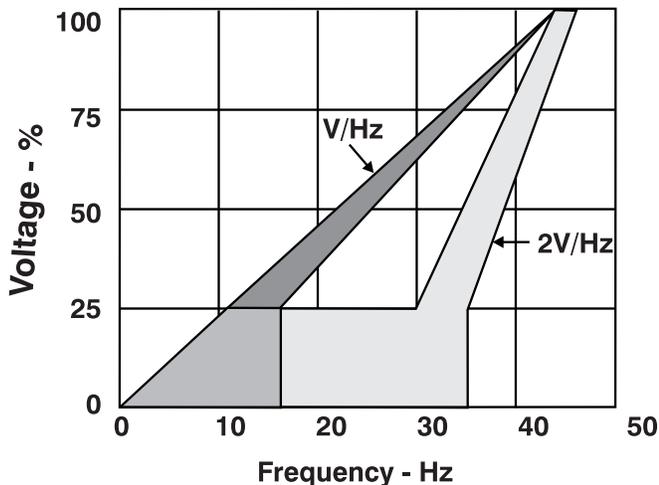


Figure 1 - 50 Hz Frequency Compensation

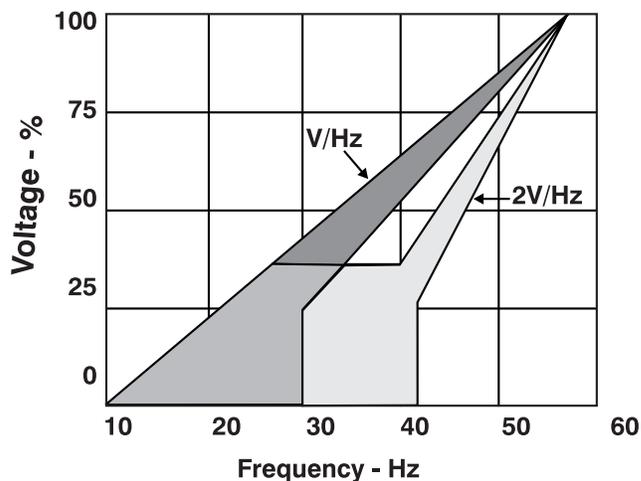


Figure 2 - 60 Hz Frequency Compensation

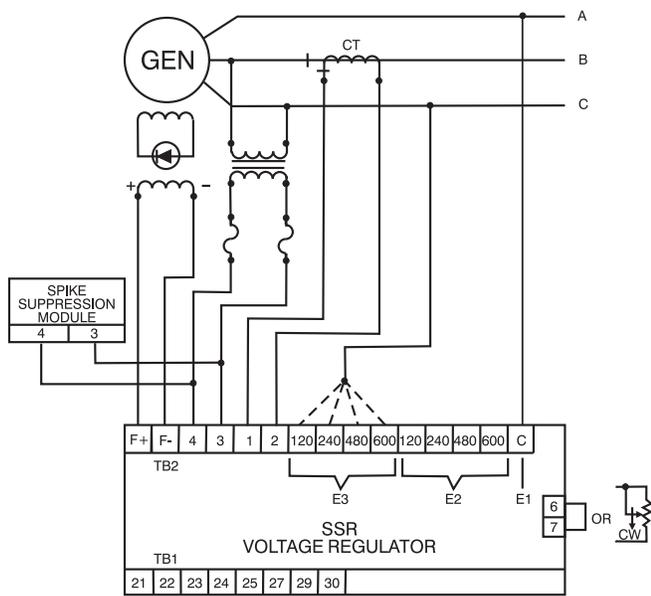


Figure 3 - Typical Interconnection Diagram

(Consult Instruction Manual for detailed interconnection instructions.)

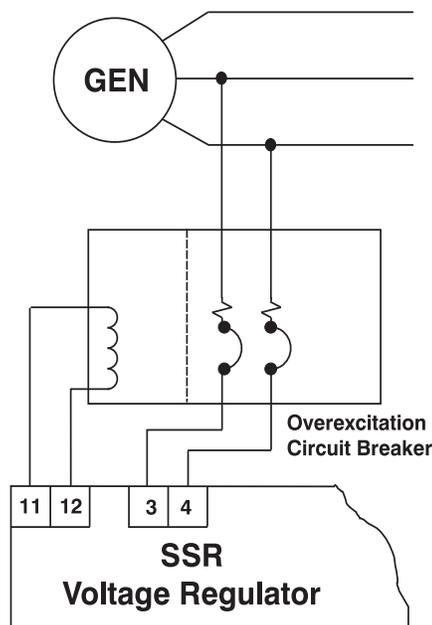


Figure 4 - Typical Overexcitation Circuit Breaker Interconnection

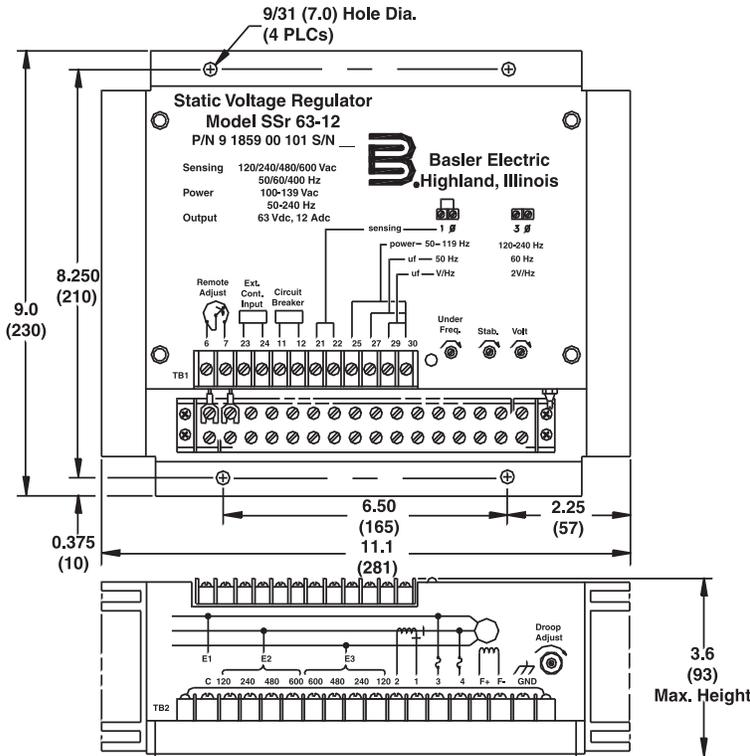


Figure 5 - Typical Outline Drawing, SSR

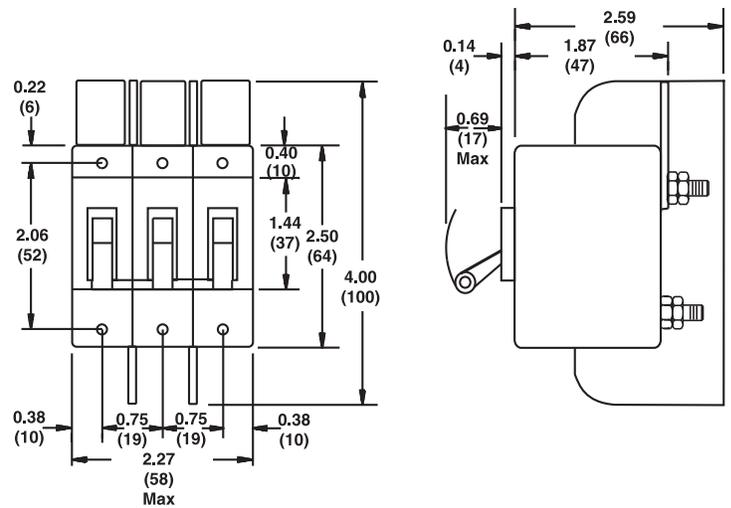


Figure 6 - Optional Circuit Breaker Outline Drawing

Note: All dimensions are in inches (millimeters)  
All drawings and data subject to change without notice.

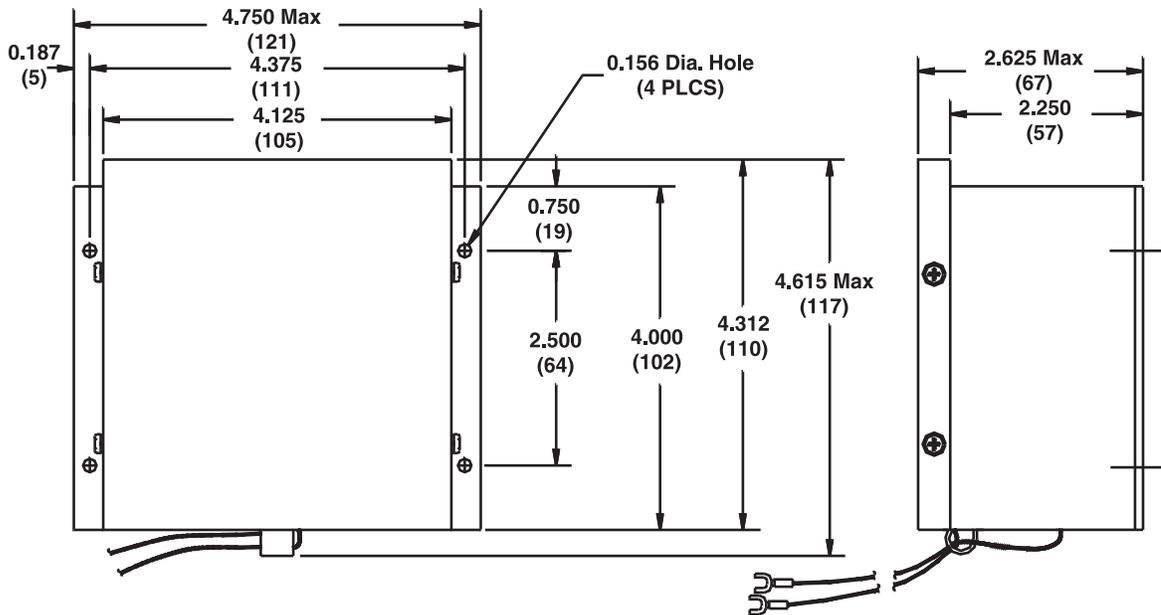


Figure 7 - Dimension Drawing, Suppression Chassis 9261500100/101



ISO 9001-2008

Highland, IL USA Wasselonne, France  
Taylor, TX USA Suzhou, China



12570 State Route 143, Highland, Illinois 62249-1074 USA

Tel +1 618.654.2341 Fax +1 618.654.2351

e-mail: info@basler.com

www.basler.com

P.A.E. Les Pins, 67319 Wasselonne Cedex FRANCE

Tel +33 3.88.87.1010 Fax +33 3.88.87.0808

e-mail: franceinfo@basler.com

No. 59 Heshun Road Loufeng District (N),  
Suzhou Industrial Park, 215122, Suzhou, P.R. China  
Tel +86(0)512 8227 2888 Fax +86(0)512 8227 2887

e-mail: chinainfo@basler.com

111 North Bridge Road #15-06 Peninsula Plaza  
Singapore 179098

Tel +65 68.44.6445 Fax +65 65.68.44.8902

e-mail: singaporeinfo@basler.com