GAMMA HIGH VOLTAGE

RR SERIES

REGULATED HIGH VOLTAGE POWER SUPPLIES

1.5-550 kV | 30 W-30 kW

RR SERIES

REGULATED HIGH VOLTAGE POWER SUPPLIES

The Gamma RR Series is a versatile family of regulated high voltage power supplies for laboratory, production, test, and application-specific systems. Advanced switch-mode technology provides precise constant-voltage and constant-current operation across a broad range of rack-mount, bench, and high voltage stack configurations.

1.5-550 kV
CONFIGURABLE OUTPUT

30 W-30 kW
CONFIGURABLE POWER

<0.005%
LINE REGULATION

>75%
FULL-LOAD EFFICIENCY

KEY CAPABILITIES

- Constant-voltage / constant-current operation with automatic crossover
- Remote programming of output voltage and current using a 0 to +10 V source
- Overload, arc-over, and short-circuit protection
- Remote output-voltage and true output-current monitoring
- External interlock / output inhibit
- Optional computer control via USB, RS-232, RS-485, or Ethernet; GUI available

DESIGNED FOR FLEXIBLE INTEGRATION

Standard model selections span 60 W through 3000 W and 1.5 kV through 400 kV. Extended configurations from 30 W to 30 kW and 1.5 kV to 550 kV are available. Custom master/slave configurations provide coordinated control of multiple power supplies. Positive, negative, reversible-polarity, rack-mount, bench, and open-stack configurations can be tailored to the application.

Typical applications
High voltage test systems • Electron and ion optics • Detector bias • Research instrumentation • Industrial process equipment • Custom laboratory systems

Extended/custom configurations are application dependent. Contact Gamma for final ratings and configuration review.

Get in touch +1 386-677-7070 gammahv.com 1096 N US Highway 1, Suite 109 | Ormond Beach, FL 32174

RR SERIES

FEATURES AND SPECIFICATIONS

1.5-550 kV | 30 W-30 kW

FEATURES

Low stored energy: High-frequency operation (>20 kHz) minimizes stored energy for personnel and load protection.

Remote programming: Output voltage and current can be programmed by external potentiometers or a 0 to +10 V source. Internal limits prevent commands above front-panel settings.

Automatic crossover: Dual control loops provide precise constant-voltage / constant-current regulation through overload and arc-over conditions.

Protection: Inherent overload, arc-over, and short-circuit protection, enhanced by surge and reactive limiting.

External polarity reversal: Available on reversible units using a rear-mounted reversing mechanism.

External interlock: A rear-terminal contact closure enables output; open contacts inhibit high voltage.

Floating ground: Low-end return may be isolated from chassis ground. Consult factory.

Remote monitoring: Rear-terminal signals provide output-voltage and true output-current monitoring.

Integrated rack-mount construction: RR power supplies are typically delivered as a single rack-mount enclosure. Higher-voltage configurations may use an external high-voltage stack.

ELECTRICAL SPECIFICATIONS

PARAMETER	RATING
Input voltage	Below 600 W: universal AC input 600 W: 105-125 VAC, 7 A max, 50-60 Hz 1000 W: 220 VAC, 7 A max, 50-60 Hz 3000 W: 220 VAC, 17 A max, 50-60 Hz Three-phase input also available
Output voltage	Continuously adjustable from zero to rated maximum
Voltage regulation	Line: better than ±0.005% over specified input range Load: 0.005% through 600 W; 0.01% at 1 kW and 3 kW
Current regulation	Line: better than ±0.005% over specified input range Load: better than 75 uA for a 75% compliance-voltage change
Ripple	60 / 150 W: 0.02% 300 / 600 / 1000 W: 0.05% 3000 W: 0.1%
Temperature coefficient	100 ppm/°C from 0 to 60°C
Stability	0.01% per hour; 0.03% per 8 hours
Efficiency	Typically greater than 75% at full load

CONTROLS, INDICATORS, AND CONNECTIONS

Controls: HV power, 10-turn output-voltage control, and 10-turn output-current control.
Indicators: HV power, output-voltage meter, output-current meter, and mode indication on 600 W and larger units. Standard meter accuracy is ±2% of full scale.
High voltage: Ten feet of shielded HV cable with bushing for a re-entrant receptacle.
Low voltage: Rear terminal connections for interlock, voltage/current programming, and V/I monitor signals.

Regulation specifications apply over 10% to 100% of rated output. For 150 kV and above, consult factory.

Get in touch +1 386-677-7070 gammahv.com 1096 N US Highway 1, Suite 109 | Ormond Beach, FL 32174

OPTIONS

ZVS - Zero-voltage start interlock
Requires the output-voltage control to be set to zero before high voltage can be applied.

VOV - Variable overvoltage protection
Shuts down the supply when output exceeds a rear-panel setpoint adjustable from 20% to 110% of rated voltage.

VOL - Variable overload trip
Shuts down the supply at a front-panel current setpoint adjustable from 20% to 110% of rated current. Standard on 600 W, 1 kW, and 3 kW units.

SAPM / DAPM - Analog metering
Single or dual analog panel meters may be specified in place of standard digital metering.

SS - Slow start
Linearly ramps output to the setpoint. Factory-set ramp time is available from 1 to 15 seconds.

SBP - Slave bipolar operation
Pairs two equal-voltage units as a bipolar system. Outputs track within 2% from 10% to full rated output.

ADDITIONAL OPTIONS

TTL - Compatible enable
Provides a TTL-compatible enable input.

FT - Auxiliary output / focus tap
Independent front-panel-adjustable auxiliary output up to 15 kV at 300 uA maximum. Other ratings and multiple taps are available.

RCP - Remote control panel
Replaces the standard front panel and includes 20 feet of shielded interconnection.

220 - 220 VAC input
Provides 220 VAC, 50-60 Hz input where not already standard.

BC - Bench cabinet
Deluxe bench-style cabinet available for all standard models.

CIC - Computer-control interface
USB, RS-232, RS-485, and Ethernet interface options. A graphical user interface (GUI) is available for computer-control units. Contact factory for protocol and control details.

TYPICAL ENCLOSURE SIZING GUIDE

Enclosure limits are shown by power class, including fixed and reversible voltage ranges and maximum weight.

LOW-POWER ENCLOSURES

Height	60 W			150 / 300 W		
	Fixed	Reversible	Weight	Fixed	Reversible	Weight
3U (5.25 in)	Up to 125 kV	Up to 40 kV	35 lb max	Up to 125 kV	Up to 40 kV	35 lb max
6U (10.5 in)	-	50-100 kV	75 lb max	-	50-100 kV	75 lb max
3U open stack	-	-	-	150-400 kV	N/A	25 lb max + HV assembly

HIGH-POWER ENCLOSURES

Height	600 / 1000 W			3000 W		
	Fixed	Reversible	Weight	Fixed	Reversible	Weight
3U (5.25 in)	Up to 125 kV	Up to 40 kV	35 lb max	-	-	-
6U (10.5 in)	-	50-100 kV	75 lb max	-	-	-
3U open stack	150-400 kV	N/A	25 lb max + HV assembly	-	-	-
9U (15.75 in)	-	-	-	Up to 125 kV	Up to 50 kV	150 lb max
6U open stack	-	-	-	150-400 kV	N/A	85 lb max + HV assembly

Ordering: Add option codes and polarity suffixes to the model number. Units are available in positive or negative polarity; reversible-polarity limits depend on voltage and power. Final mechanical drawings are application specific and provided on request.

Get in touch +1 386-677-7070 gammahv.com 1096 N US Highway 1, Suite 109 | Ormond Beach, FL 32174

MODEL SELECTOR - 60 / 150 / 300 W

Select the required output-voltage range, then choose the power column. Current ratings are in mA. Blank cells indicate that the standard combination is not listed.

Output kV	60 W Model	mA	150 W Model	mA	300 W Model	mA
0-1.5	RR1.5-40	40	RR1.5-100	100		
0-3	RR3-20	20	RR3-50	50	RR3-100	100
0-5	RR5-12	12	RR5-30	30	RR5-60	60
0-10	RR10-6	6	RR10-15	15	RR10-30	30
0-15	RR15-4	4	RR15-10	10	RR15-20	20
0-20	RR20-3	3	RR20-7.5	7.5	RR20-15	15
0-30	RR30-2	2	RR30-5	5	RR30-10	10
0-40	RR40-1.5	1.5	RR40-3.75	3.75	RR40-7.5	7.5
0-50	RR50-1.25	1.25	RR50-3	3	RR50-6	6
0-60	RR60-1	1	RR60-2.5	2.5	RR60-5	5
0-80	RR80-.75	0.75	RR80-1.8	1.8	RR80-3.75	3.75
0-100	RR100-.6	0.6	RR100-1.5	1.5	RR100-3	3
0-125	RR125-.5	0.5	RR125-1.2	1.2	RR125-2.5	2.5
0-150	N/A		RR150-1	1	RR150-2	2
0-200	N/A		RR200-.75	0.75	RR200-1.5	1.5
0-300	N/A		RR300-.5	0.5	RR300-1	1
0-400	N/A		RR400-.375	0.375	RR400-.75	0.75

SELECTION AND ORDERING NOTES

- Standard model guide covers 60 W through 3000 W and output ranges through 400 kV. Lower, higher, and extended configurations are available.
- All standard models can be supplied in positive or negative polarity. Add P, N, or R to the model number as applicable; confirm reversible-polarity availability with Gamma.
- For output voltages of 150 kV and above, consult the factory. Specifications and physical configuration may vary with voltage, polarity, options, and application requirements.

Get in touch +1 386-677-7070 gammahv.com 1096 N US Highway 1, Suite 109 | Ormond Beach, FL 32174

MODEL SELECTOR - 600 / 1000 / 3000 W

Select the required output-voltage range, then choose the power column. Current ratings are in mA. Blank cells indicate that the standard combination is not listed.

Output kV	600 W Model	mA	1000 W Model	mA	3000 W Model	mA
0-1.5						
0-3	RR3-200	200	RR3-333	333	RR3-1000	1000
0-5	RR5-120	120	RR5-200	200	RR5-600	600
0-10	RR10-60	60	RR10-100	100	RR10-300	300
0-15	RR15-40	40	RR15-65	65	RR15-200	200
0-20	RR20-30	30	RR20-50	50	RR20-150	150
0-30	RR30-20	20	RR30-33	33	RR30-100	100
0-40	RR40-15	15	RR40-25	25	RR40-75	75
0-50	RR50-12	12	RR50-20	20	RR50-60	60
0-60	RR60-10	10	RR60-17	17	RR60-50	50
0-80	RR80-7.5	7.5	RR80-12.5	12.5	RR80-37.5	37.5
0-100	RR100-6	6	RR100-10	10	RR100-30	30
0-125	RR125-4.8	4.8	RR125-8	8	RR125-24	24
0-150	RR150-4	4	RR150-6.6	6.6	RR150-20	20
0-200	RR200-3	3	RR200-5	5	RR200-15	15
0-300	RR300-2	2	RR300-3.3	3.3	RR300-10	10
0-400	RR400-1.5	1.5	RR400-2.5	2.5	RR400-7.5	7.5

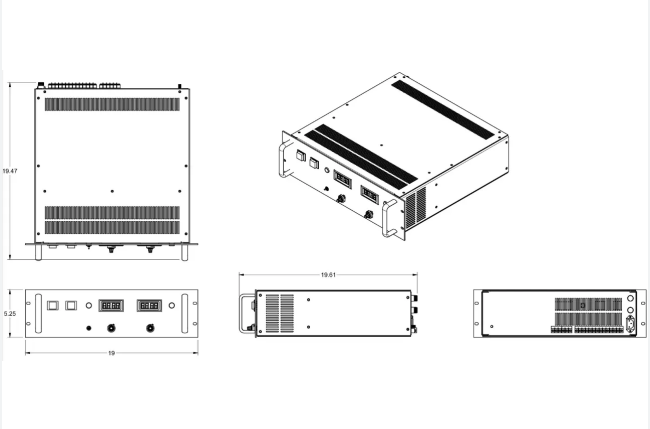
SELECTION AND ORDERING NOTES

- Standard model guide covers 60 W through 3000 W and output ranges through 400 kV. Lower, higher, and extended configurations are available.
- All standard models can be supplied in positive or negative polarity. Add P, N, or R to the model number as applicable; confirm reversible-polarity availability with Gamma.
- For output voltages of 150 kV and above, consult the factory. Specifications and physical configuration may vary with voltage, polarity, options, and application requirements.

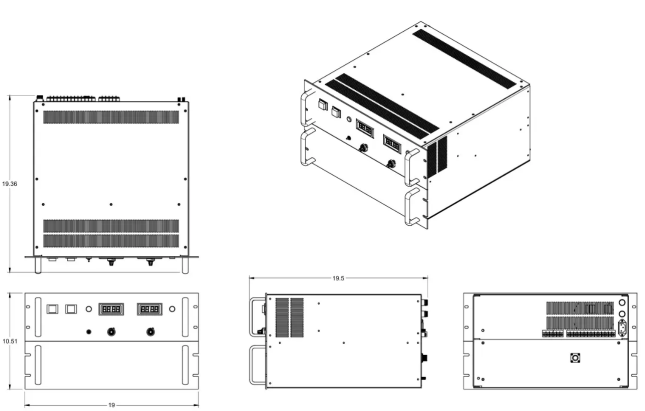
RACK-MOUNT ENCLOSURES

Representative drawings are shown below. Dimensions are in inches. Final application-specific mechanical drawings are supplied on request.

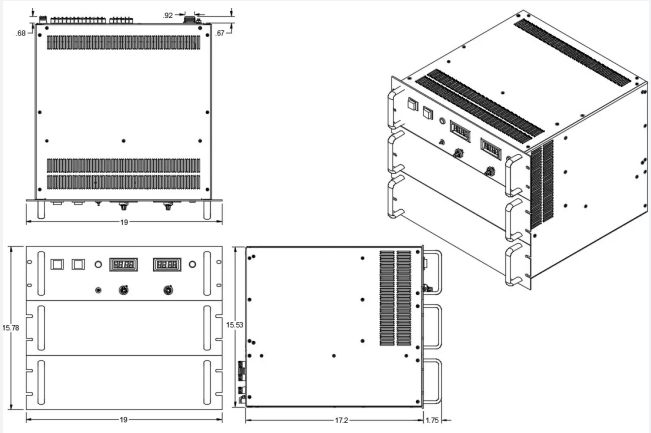
3U ENCLOSURE



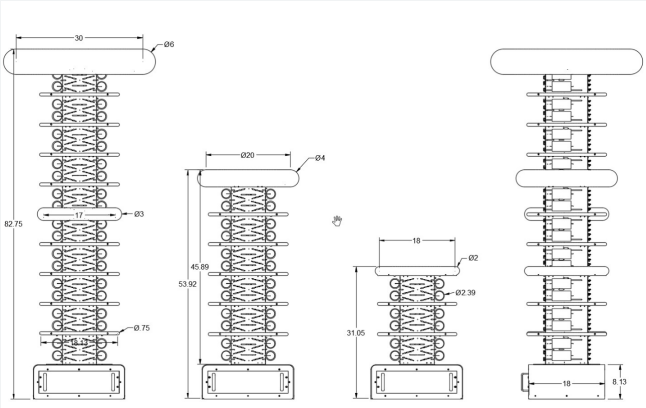
6U ENCLOSURE



9U ENCLOSURE



HIGH VOLTAGE STACKS



Configurations above the standard rack-mount voltage range may use external or open high voltage stacks. Stack height, footprint, cable termination, and clearances are application dependent.

Get in touch +1 386-677-7070 gammahv.com 1096 N US Highway 1, Suite 109 | Ormond Beach, FL 32174