EY series

1.2kW Rack mount

HVAC-DC power supplies

The EY series of 1.2kW high voltage supplies with outputs from 0 - 1kV to 0 - 60kV DC, feature flexible embedded controls with low ripple & noise.

Automatic crossover from constant voltage to constant current regulation provides protection against overloads, arcs, and short circuits.

The EY series are air insulated, fast response units, with tight regulation and extremely low arc discharge currents, in a 2U 19" rack mount case.

Features

- Output voltages 0-1kVDC to 0-60kVDC
- 2U 19" rack mount
- RS232/USB control & monitor standard, Ethernet is optional
- Output voltage & current regulated
- Low ripple <0.03% RMS of rated voltage at full load
- Voltage & current monitor outputs
- Single phase AC input
- Efficiency >85%
- Air Insulated
- Short circuit, arc & overload protection
- CE marked for EMC, low voltage (LVD) & RoHS directives
- Operating temperature: -20°C to +40°C
- 3 year warranty

Applications

- Ion implant
- E-beam/Ion beam
- Industrial technology
- Capacitor charging
- High voltage bias

Dimensions

88.1 x 482.6 x 520.7 mm (3.5" x 19.0" x 20.5")
2U 19" rack mount

More resources

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→ xppower.com

Models & ratings

Positive polarity	Negative polarity	Reversible polarity[1]	Output voltage	Output current	Max. stored energy	Output cable[2]
N/A	N/A	EY001R1.2-22	0 to 1kVDC	0 to 1200mA	1.0J	RG-58U
N/A	N/A	EY1.5R800-22	0 to 1.5kVDC	0 to 800mA	1.1J	RG-58U
N/A	N/A	EY002R600-22	0 to 2kVDC	0 to 600mA	1.0J	RG-58U
N/A	N/A	EY003R400-22	0 to 3kVDC	0 to 400mA	1.1J	RG-58U
N/A	N/A	EY005R240-22	0 to 5kVDC	0 to 240mA	1.2J	RG-58U
N/A	N/A	EY006R200-22	0 to 6kVDC	0 to 200mA	1.4J	RG-58U
EY008P150-22	EY008N150-22	EY008R150-22	0 to 8kVDC	0 to 150mA	1.3J	RG-58U
EY010P120-22	EY010N120-22	EY010R120-22	0 to 10kVDC	0 to 120mA	1.6J	RG-58U
EY012P100-22	EY012N100-22	EY012R100-22	0 to 12kVDC	0 to 100mA	2.0J	RG-58U
EY015P080-22	EY015N080-22	EY015R080-22	0 to 15kVDC	0 to 80mA	1.6J	RG-58U
EY020P060-22	EY020N060-22	EY020R060-22	0 to 20kVDC	0 to 60mA	2.0J	RG-58U
EY025P048-22	EY025N048-22	EY025R048-22	0 to 25kVDC	0 to 48mA	1.4J	RG-58U
EY030P040-22	EY030N040-22	EY030R040-22	0 to 30kVDC	0 to 40mA	2.1J	RG-58U
EY040P030-22	EY040N030-22	EY040R030-22	0 to 40kVDC	0 to 30mA	2.8J	RG-58U
EY050P024-22	EY050N024-22	EY050R024-22	0 to 50kVDC	0 to 24mA	3.4J	RG-58U
EY060P020-22	EY060N020-22	EY060R020-22	0 to 60kVDC	0 to 20mA	4.1J	RG-58U

Notes:

1. Hardware configurable.
2. Detachable, 2.4m (8ft), shielded high voltage coaxial cable (see table for type), 1.8m (6ft) NEMA 6-15 line cord, 3m (10ft) null modem cable and 3m (10ft) USB cable are provided.

Options

Symbol	Description
NC	Blank front panel, power switch and indicator only.
ZR	Zero start interlock. Voltage control, local or remote, must be at zero before the HV will enable.
5VC	0 to 5V voltage and current program/monitor.
ARC	Arc count and quench as described in the specifications for 1kV to 6kV models.
AC	Arc Count Only
AQ	Arc Quench Only
ETH	Virtual RS-232 COM port over Ethernet network. (Requires compatible OS (eg Windows) for COM drivers)

Warning - high voltage

Before the installation or operation of this high voltage power supply, you must read and understand all the safety and operating procedures documented in the instruction manual that is included with this product. High voltage can be fatal if not used properly. Exercise extreme caution when operating this product.

Take all necessary precautions to protect yourself and property from harm. This is a high voltage DC power supply and if you are unsure that the product selected is suitable for your specific application please contact the XP Power Sales team.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	180		264	V RMS	Single phase. 1500VAC maximum at full load.
Input frequency	48		63	Hz	
Input connector	C14 connector per IEC60320 with mating line cord.				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage range	0		60	kVDC	See models and ratings table.
Output current range	0		1200	mA	See models and ratings table.
Polarity	Available with either positive, negative or hardware configurable reversible polarity with respect to chassis ground.				
Output control	Continuous, stable adjustment, from 0 to rated voltage or current by panel mounted optical rotary encoder or by external +10VAC signals.				
Static voltage load regulation	±0.005			%	For specified line variations.
	0.005			%	+0.5mV/mA for no load to full load variations.
Dynamic voltage regulation	For load transients from 10% to 99% and 99% to 10%, typical deviation is less than 2% of rated output voltage with recovery to within 1% in 500µs and recovery to within 0.1% in 1ms.				
Stability		0.01		%	Per hour after 30 min. warm up.
		0.05		%	Per 8 hours.
Temperature coefficient		0.01		%/°C	
Voltage rise time constant		50		ms	For all models using either HV enable or remote programming control.
Voltage decay time constant		50		ms	With a 10% resistive load.
Ripple	0.02			%	+0.5V RMS at full load.
Optical rotary encoder resolution		0.025		%	With Fine Adjustment mode selected.
		0.25		%	With Coarse Adjustment mode selected (default).
Repeatability			0.1	%	
Current regulation	0.1			%	When in current regulation mode, from short circuit to rated output voltage, at any load.
Arc count	Internal circuitry senses the number of arcs caused by external load discharges. If the rate of consecutive arcs exceeds approximately one arc per second for five arcs, the supply will turn off for approximately 5 seconds to allow clearance of the fault. After this period the supply will automatically return to the programmed kV value with the rise time constant indicated. If the load fault still exists, the above cycle will repeat. Standard on 8kV to 60kV models; optional on 1kV to 6kV models.				
Arc quench	An arc quench feature provides sensing of each load arc and quickly inhibits the HV output for approximately 20ms after each arc. Standard on 8kV to 60kV models; optional on 1kV to 6kV models.				
Slow start	Adjustable ramp time from 0 to 30 seconds. Output ramps from 0V to programmed voltage level.				

Notes:

1. Specifications apply from 5% to 100% rated voltage.
2. Operation is guaranteed down to zero voltage with a slight degradation of perfomance.

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	85			%	At full load.
HV insulating medium	Outputs are air insulated.				
External interlock	Open = OFF, closed = ON. Normally latching except for blank front panel version where it is non-latching				
Remote HV enable/disable	0 to 1.5VDC = OFF; 2.5 to 15VDC = ON				
Voltage accuracy	0.5% of setting +0.2% of rated				
Voltage monitor	0 to +10V, equals 0 to rated voltage, with an accuracy of 0.5% of reading +0.2% of rated. Output impedance is 10kΩ.				
Analog current monitor	0 to +10V, equals 0 to rated current, with an accuracy of 1% of reading +0.1% of rated. Output impedance is 10kΩ.				
RS232/USB/Ethernet programming & monitor accuracy	Resolution		0.025% of full scale for both the voltage and the current programs. 0.1% of full scale for both the voltage and the current monitors.		
	Remote setting accuracy		Voltage setting accuracy is better than 0.5% of setting +0.2% of rated.		
	Remote reading accuracy		Voltage reading accuracy is 0.5% of reading +0.2% of rated. Current reading accuracy is 1% of reading +0.1% of rated.		

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-20		+40	°C	
Storage temperature	-40		+85	°C	
Protection	Automatic current regulation protects against all overloads, including arcs and short circuits. Thermal switches and RPM sensing fans protect against thermal overload. Fuses, surge-limiting resistors, and low energy components provide ultimate protection.				
RoHS	Restriction of the use of Hazardous Substances				

EMC: emissions

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN61000-6-4		
Radiated	EN61000-6-4		

EMC: immunity

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN61000-6-2:2005		
Radiated	EN61000-6-2:2005		
Line harmonics	EN61000-3-2		

Safety approvals

Certification	Standard	Notes & conditions
EN	EN61010/IEC61010	Safety
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Notes:

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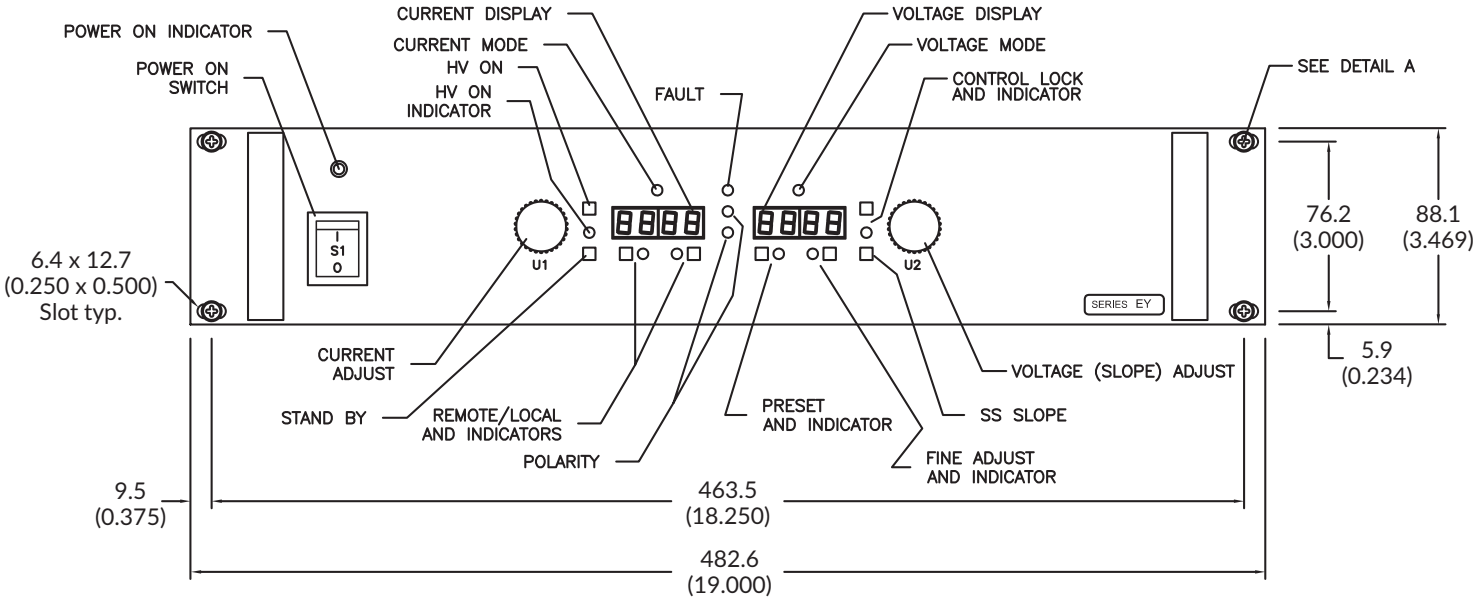
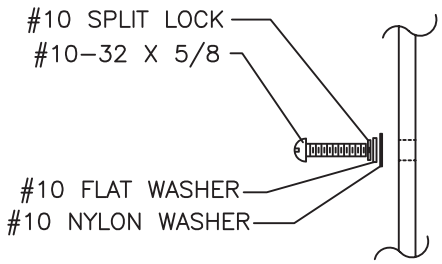
Mechanical details

Front view





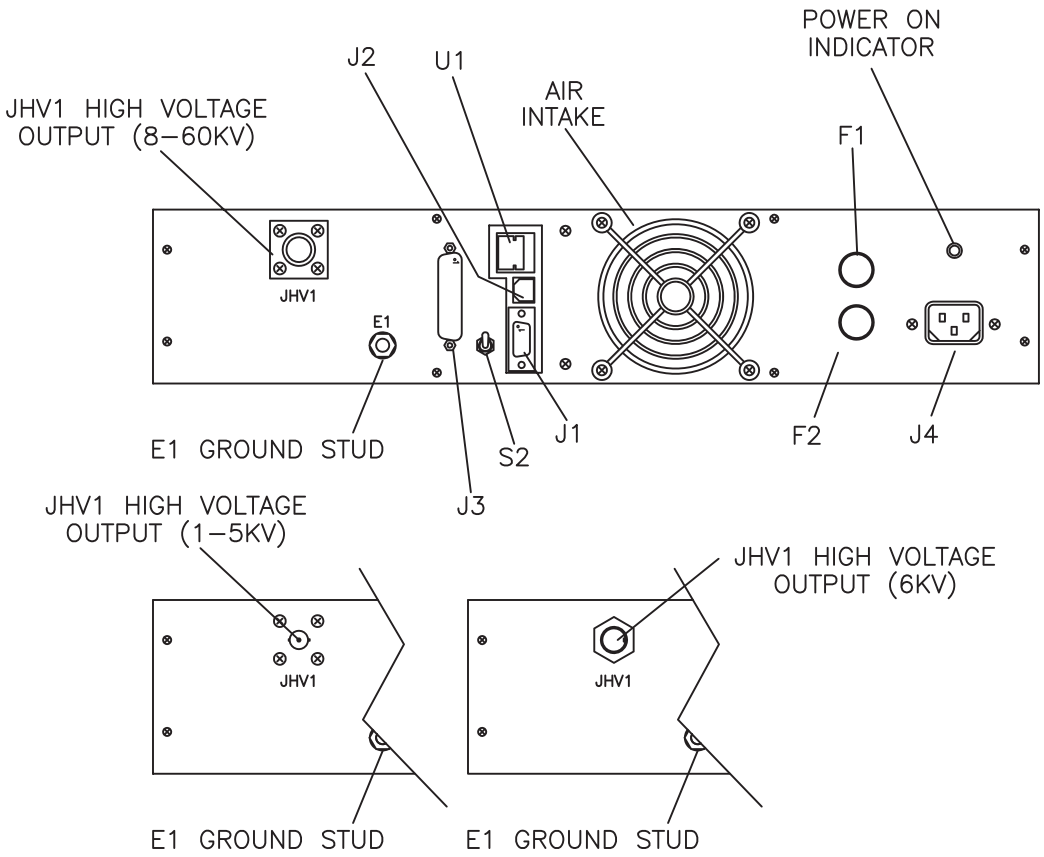
DETAIL A

Notes:

1. All dimensions shown in mm (inches).
2. Weight: 8.4kg (18.5lbs) approx.

Mechanical details

Rear view



J1	
Pin	**Function**
1	DCD
2	RX
3	TX
4	DTR
5	COMMON
6	DSR
7	RTS
8	CTS

J2	
Pin	**Function**
1	+5V
2	D-
3	D+
4	COMMON

U1 Option	
Pin	**Function**
1	TXD+
2	TXD-
3	RXD+
4	E POWER+
5	E POWER+
6	RXD-
7	E POWER-
8	E POWER-

J4
Input receptacle C20 per: IEC60320

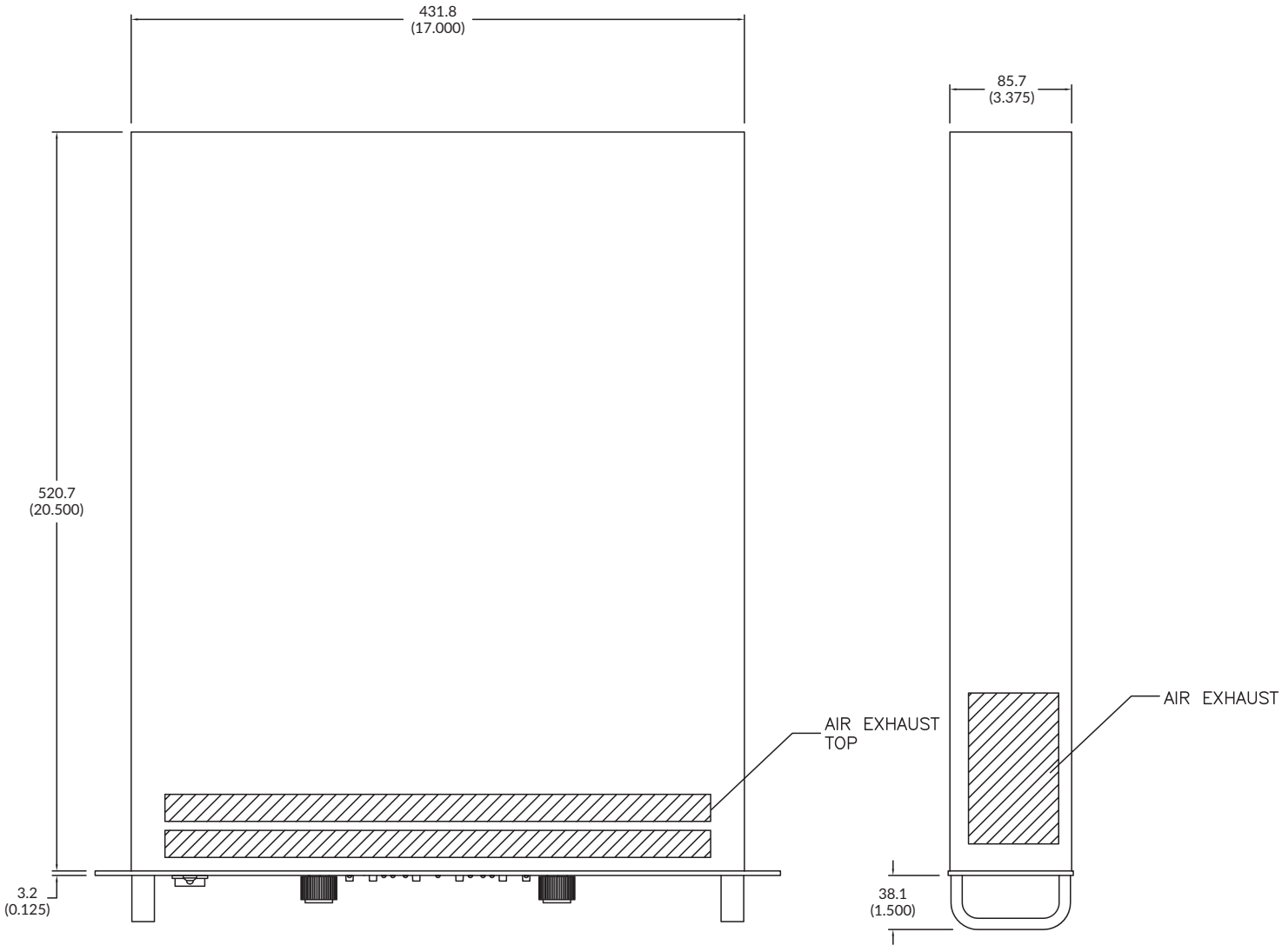
S2
CL/CT select

JHV1: HV output
1kV to 5kV KINGS SHV 1704-1 or equivalent
6kV KINGS 10kV 1064-1 or equivalent
8kV to 60kV AMPHENOL 83-1R-RFX or equivalent

J3					
Pin	**Function**	**Pin**	**Function**	**Pin**	**Function**
1	GROUND	10	CURRENT MONITOR	19	RESERVED
2	COMMON	11	COMMON	20	HV ENABLE
3	INTERLOCK	12	REFERENCE	21	HV STATUS
4	RESERVED	13	RESERVED	22	FAULT STATUS
5	RESERVED	14	RESERVED	23	MODE STATUS
6	VOLTAGE PROGRAM	15	REMOTE HV ON	24	ARC STATUS
7	CURRENT PROGRAM	16	REMOTE HV ON	25	GROUND
8	COMMON	17	RESERVED		
9	VOLTAGE MONITOR	18	RESERVED		

Mechanical details

Front & side view



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