

**1kV - 15kV** Convection cooled

Electrostatic high voltage source

The ESC Series is a high voltage power system with floating outputs up to 15kV ( $\pm 7500V$ ) with both bipolar and unipolar versions. The output polarity can be reversed automatically with an input signal to the remote interface connector (25 pin D-type female). Input power is 24VDC via 3-pin Molex type, non-reversible quick disconnect. MHV connectors are used for the HV outputs, and a BNC for the center tap connection.

Other features include automatic discharge, short circuit protection, output filtering options, and RS-232 or DeviceNET protocols. The ESC Series is an ideal solution to satisfy your electro-static high voltage needs in a highly controllable rack-mount package that is easily integrated into your industrial environment.



## Features

- ▶ Output voltages up to 15kVDC
- ▶ Single & dual output models
- ▶ 2U ½ 19" rack mount ( $\geq 5kVDC$  models)
- ▶ 2U 19" rack mount (15kVDC model)
- ▶ Output current range: 100 $\mu A$  – 10mA
- ▶ Auto-polarity reverse
- ▶ Auto-discharge
- ▶ Short & open circuit protection for enhanced reliability
- ▶ Input voltage 24VDC
- ▶ Built-in RF filtering available
- ▶ Output to input isolation: > 500M $\Omega$
- ▶ Analog / RS232 / DeviceNet (option)
- ▶ 3 year warranty

## Applications



- ▶ Electrostatic chucks

## Dimensions

- <5kV models:**  
241.3 x 82.6 x 158.8mm (9.5" x 3.25" x 6.25") approx.
- >5kV models:**  
241.3 x 82.6 x 317.5mm (9.5" x 3.25" x 12.5") approx.
- 15kV version:**  
482.6 x 82.6 x 317.5mm (19" x 3.25" x 12.5") approx.

## More resources

For further information click the link or scan the code

→ [xppower.com](http://xppower.com)



## Models & ratings

Model number	Part number	Max V	Max I	Configuration	Bias voltage range
ESC-1D	FP6293R2	1kV	2mA	Monopolar	n/a
ESC-2	FP6251RF	2kV ( $\pm 1$ )	3mA	Bipolar	-250V to +250V
ESC-3	FP6252RC	3kV ( $\pm 1.5$ )	2mA	Bipolar	-250V to +250V
ESC-3	FP6272R3	3kV ( $\pm 1.5$ )	2mA	Bipolar	Special Monitor
ESC-3D	FP6265R3	3kV	2mA	Monopolar	n/a
ESC-4	FP6283R2	4kV ( $\pm 2$ )	1mA	Bipolar	-250V to +250V
ESC-5	FP6294R1	5kV ( $\pm 2.5$ )	1mA	Bipolar	-1000V to +1000V
ESC-HV10	FP6269R2	10kV ( $\pm 5$ )	2mA	Bipolar	-250V to +250V
ESC-HVXP	FP6288R1	15kV ( $\pm 7.5$ )	1mA	Bipolar	-250V to +250V

## Electrical specifications

Description	Specifications
Floating bipolar output	Minimum path to chassis ground from any HV output terminal >50MΩ
Output to input isolation	>500MΩ based on standard 5kV DC hi-pot tests)
Output voltage	Output voltage is programmable and continuously variable on all models
Output current limit	Output current limit is programmable and continuously variable on all models
Output stability	1% or better of full output
Output ripple	Less than 0.5% at >35kHz operating frequency
Output voltage linearity	Better than ±1% from 10% to 100% output
Output polarity reversal	On command or programmable automatic. Note: ESC-HV10 does not include polarity reversal
Output voltage balance	Better than 1% for matched loads (dual pole units)
Output safety discharge relay	On command or programmable automatic via 100kΩ resistor network from HV output to chassis ground
Operating ambient temperature	0 to +40°C
Storage temperature/humidity/ air pressure	0 to +70°C
Humidity	10-90% non-condensing
Rf filtering	RF filtering is included on all models except ESC-HVxx

## Interface connections

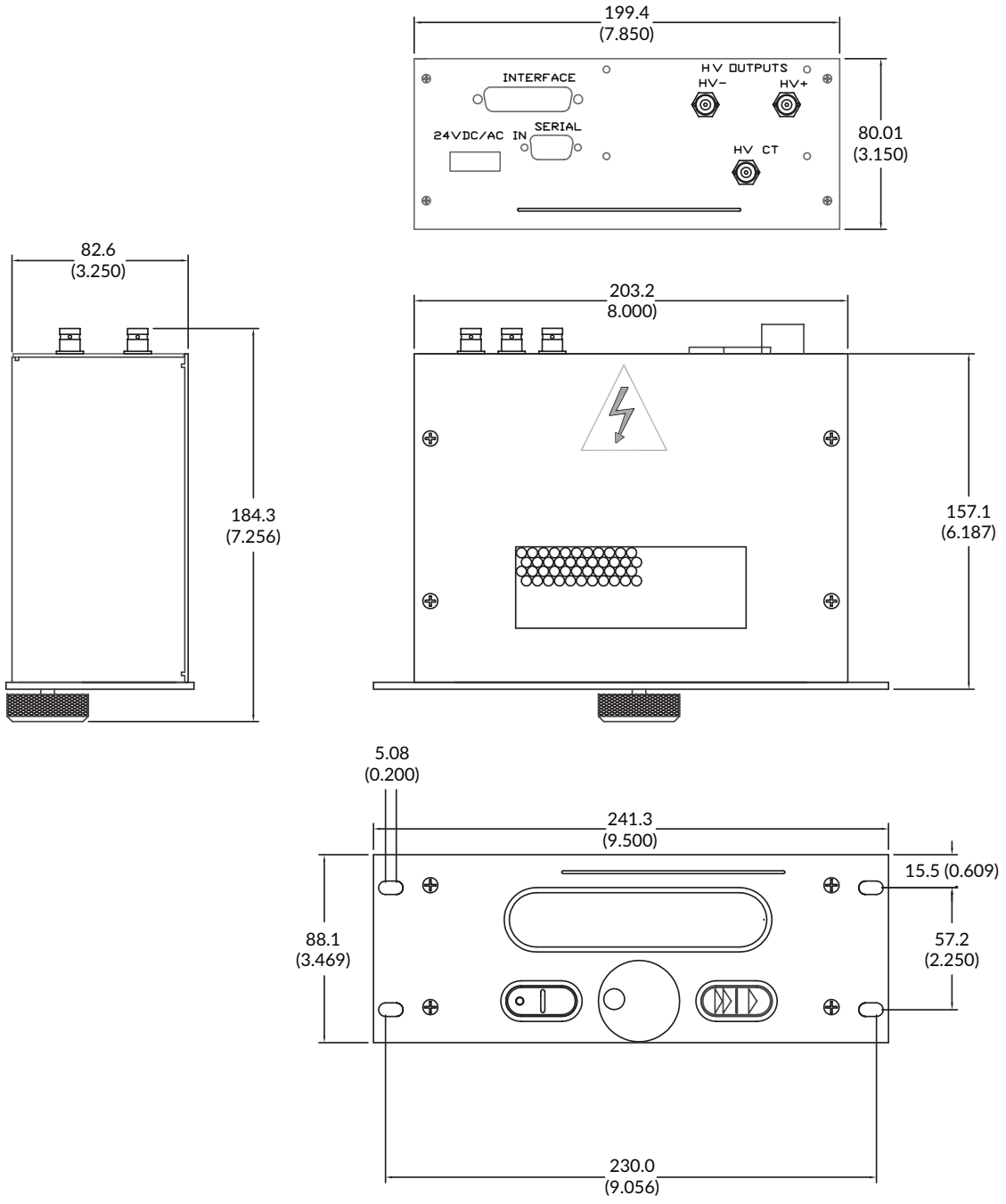
Description	Specifications
DC Power Input Connection	3 pin Molex type, non-reversible quick disconnect. 3m (10ft) included. 24VDC input. Molex P/N - consult factory
DC Output Connection	MHV connectors for HV+ and HV-, (SHV for model ESC-HVXP) BNC connector for HV-CT (not used on models ESC-1D or ESC-3D)
Remote Signal Interface	25 pin D-type female for analog remote (DB-25s) P pin D-type female for RS-232 (DB9s)
Fusing Requirements	External

## Mechanical specification

Description	Specifications
Mounting	Standard EIA rack mounting with ½ rack filler panel
Cooling	Convection (do not block vents)
Weight	907 to 2267g (2 to 5lbs.) approx. depending on model

## Mechanical details

Example: 1kV to 3kV



**Notes:**

1. All dimensions shown in mm (inches).
2. Weight: 907 to 2267kg (2 to 5lbs) approx. depending on model.

## Remote analog interface connections

Signal pin	Function
1	Voltage set point, analog return
2	Current set point, analog return
3	Output voltage monitor (10V full scale, 2k $\Omega$ minimum load)
4	Positive output current monitor (10V full scale, 2k $\Omega$ minimum load)
5	Monitor circuit analog return
6	HV enable digital return
7	Polarity change digital return
8	Discharge command digital return
9	HV on indicator negative, open emitter
10	Polarity indicator return/ground
11	Reserved
12	+15VDC source (25mA)
13	Circuit common/15V return
14	Voltage set point, analog positive (10V full scale, 200k $\Omega$ input Z)
15	Current set point, analog positive (10V full scale, 200k $\Omega$ input Z)
16	Center tap terminal voltage monitor (input voltage range $\pm$ 250VDC max. Other voltage ranges available on request, consult factory)
17	Negative output current monitor (10V full scale, 2k $\Omega$ minimum load)
18	HV enable digital input positive (opto-isolated, digital input, 5-24VDC capable)
19	Polarity change digital positive (opto-isolated, digital input, 5-24VDC capable)
20	Discharge command digital positive (opto-isolated, digital input, 5-24VDC capable)
21	HV on indicator positive, open collector (40VDC/50mA max. rating)
22	Polarity indicator. Hi (15VDC) = positive polarity, Lo = reversed output polarity
23	No connection
24	+15VDC source (25mA max.)
25	Circuit common/15V return

## Certifications

Models up to 4kV output are TUV certified. Contact factory for model specific details.