

# HITEK POWER MSP SERIES

ULTRA-LOW RIPPLE, MULTI-PURPOSE  
MASS SPECTROMETRY POWER SUPPLY MODULES



The HiTek Power® MSP series is a range of multi-purpose, low ripple, unipolar, precision mass spectrometry power supplies, ideal for use in sample ionization, mass filter, and ion detector applications. The modular design of the MSP mass spectrometry high voltage power supply provides an array of performance features and combinations such as customizable cable length and connector types.

## PRODUCT HIGHLIGHTS

- Ultra-low ripple (as low as 10 mV) to ensure the best resolution in high performance mass spectrometry applications
- Input DC noise rejection filter
- Small footprint and modular design, available with either positive or negative output polarity
- Efficient and reliable operation
- Output voltages from 1 to 20 kV available customer-defined derivatives upon request
- High stability with low drift to ensure consistent performance over extended periods of operation
- Robust design, tolerant of input signal noise, reduces system integration costs
- Ideal solution for precision mass spectrometry where high reliability and performance are essential

## TYPICAL APPLICATIONS

- Sample ionization mass spectrometer
- Mass filter mass spectrometer
- Ion detector mass spectrometer

## AT A GLANCE

### Max Output Voltage

20 kV

### Max Output Power

10 W

### Control

Analog

### Type

Low ripple mass spectrometry

### Temp Coefficient

<25 ppm per °C

## ELECTRICAL SPECIFICATIONS

Output Power	10 W, max
Output Voltage	1 to 20 kV
Output Current	0.4 to 10 mA
Input Voltage	+24 VDC $\pm$ 10%
Input Current	1 A, max
Line Regulation	< 10 ppm over specified input range
Load Regulation	< 10 ppm for 10 to 100% load change
Ripple	< 4 ppm (5 kV unit)
Voltage Control	0 to +10 V = 0 to 100 %, accuracy $\pm$ 2% Can also be controlled by internal or external potentiometer (See connection details.)
Current Control	Fixed at approximately 110 to 130% of max
Voltage Monitor	0 to +10 V = 0 to 100%, accuracy $\pm$ 2%
Current Monitor	0 to +10 V = 0 to 100%, accuracy $\pm$ 2%
Stability	< 0.002% (20 ppm) in 15 minutes, < 0.01% (100 ppm) in eight hours (after one hour warmup)
Temperature Coefficient	25 ppm/ $^{\circ}$ C at max output voltage (tested with external voltage control) (Optional 10 ppm / $^{\circ}$ C)
Protection	The units are fully protected against short circuit and intermittent arcs to ground

## Environmental

Cooling	Convection cooled
Operational Temperature	10 to 50 $^{\circ}$ C (50 to 122 $^{\circ}$ F)
Storage/Transport Temperature	-20 to 85 $^{\circ}$ C (-4 to 185 $^{\circ}$ F)
Altitude	Sea level to 2000 m (6500')
Humidity	80% max relative humidity up to 31 $^{\circ}$ C (88 $^{\circ}$ F), reducing linearly to 50% at 40 $^{\circ}$ C (104 $^{\circ}$ F); non-condensing

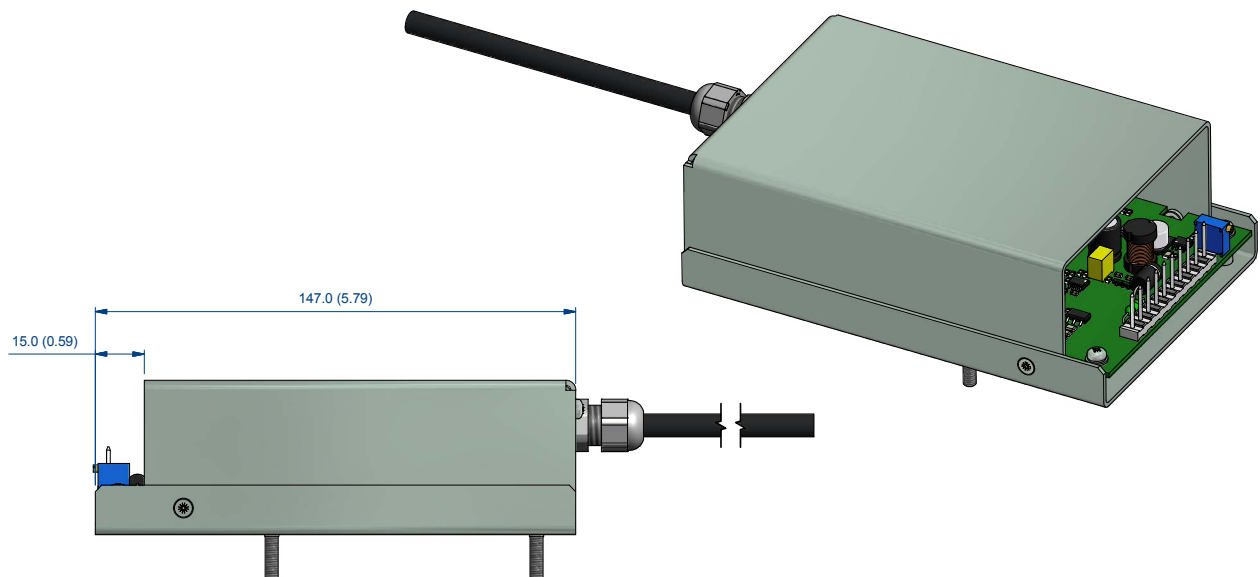
## Regulatory

Certifications	Meets the requirements of the Low Voltage Directive, 2006/95/EC by complying with BS EN61010-1:2010 when installed as a component part of compliant equipment. Units are CE marked accordingly.
	Meets the requirements of EU Directive 2011/65/EC on the Restriction of use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).

**MECHANICAL SPECIFICATIONS**

Physical	Model MSP-102, MSP-252, MSP-502	Model MSP-103, MSP-153	Model MSP-203
Dimensions (W x H x D)	98 mm (3.9 in) x 47 mm (1.9 in) x 147 mm (5.8 in)	98mm (3.9 in) x 47 mm (1.9 in) x 200 mm (7.9 in)	120 mm (4.7 in) x 46 mm (1.8 in) x 210 mm (8.3 in)
Weight (Approx.)	0.8 kg (1.8 lb)	1.4 kg (3.75 lb)	1.6 kg (4.3 lb)
Output cable	Unterminated URM76; 1 m (3.3 ft) screened output cable		
Construction	Aluminium, clear non-chrome passivate finish		

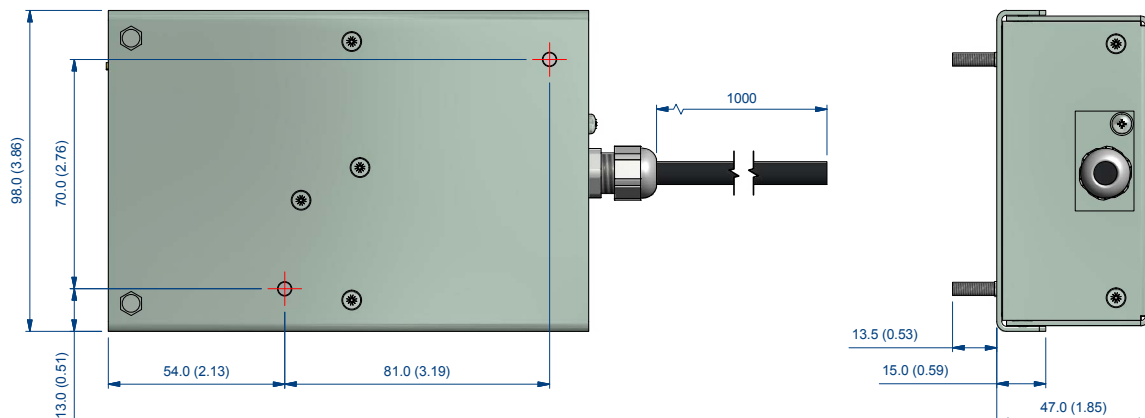
**1 to 5 kV Output Voltage Units**



MOUNTING: 2 OFF M4 STUDS; LENGTH AND POSITION AS SHOWN

DIMENSIONS mm (in)

Drawing dimensions are in mm (inches).



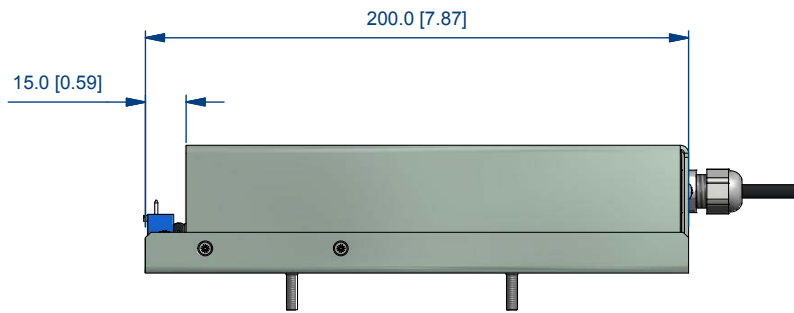
Design developments may result in specification changes.

MECHANICAL SPECIFICATIONS (CONTINUED)

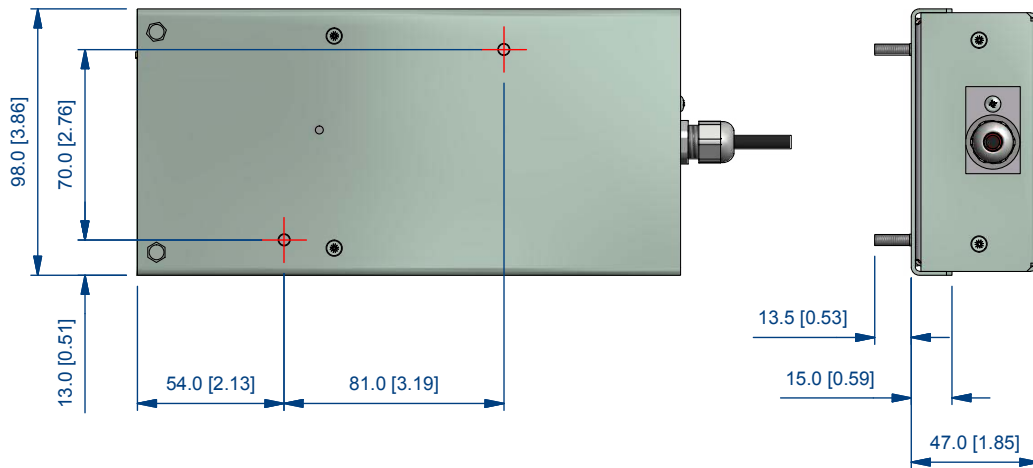
10 to 15 kV Output Voltage Units



Drawing dimensions are in mm (inches).



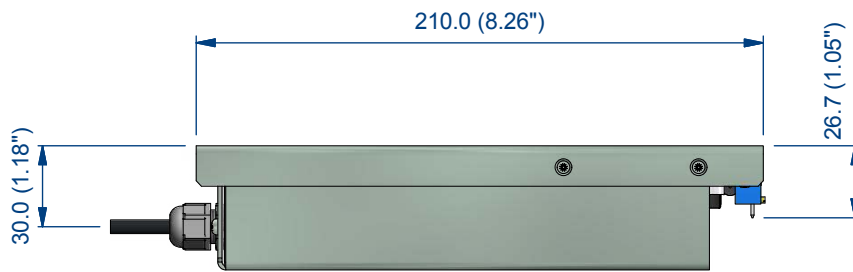
MOUNTING: 2 OFF M4 STUDS; LENGTH AND POSITION AS SHOWN  
DIMENSIONS mm (in)



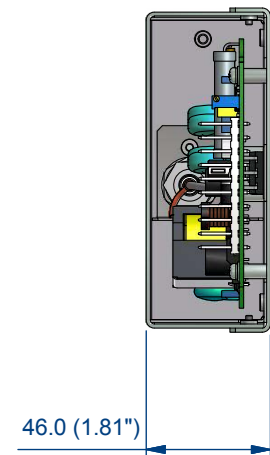
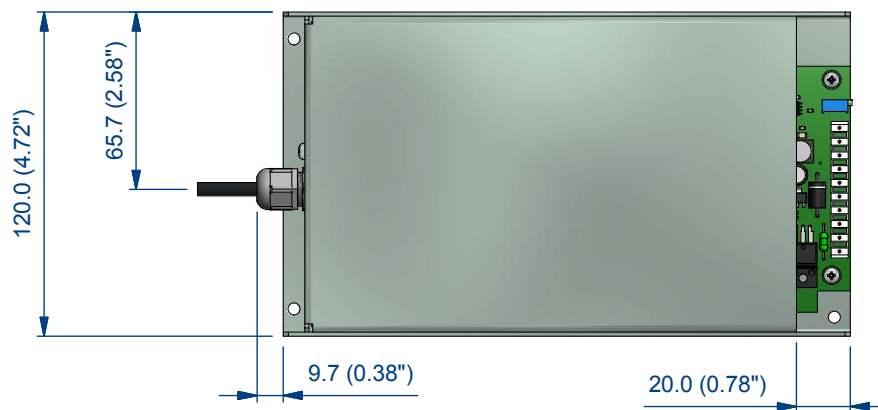
Design developments may result in specification changes.

**MECHANICAL SPECIFICATIONS (CONTINUED)**

**20 kV Output Voltage Units**



Drawing dimensions are in mm (inches).



Design developments may result in specification changes.

## INTERFACE

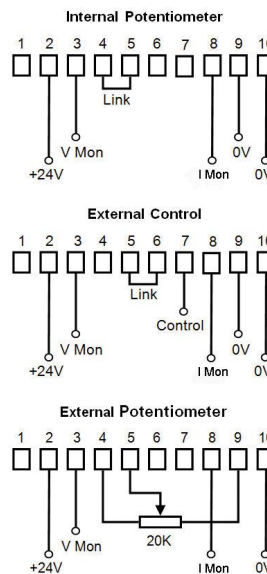
### Interface Connections

Molex KK Series 3003 0.2" 10-Way Connector

NOT CONNECTED	1
+24 VDC INPUT SUPPLY	2
VOLTAGE MONITOR	3
CONTROL LINK (+10 V REF)	4
CONTROL LINK	5
CONTROL LINK	6
VOLTAGE CONTROL	7
CURRENT MONITOR	8
SIGNAL GROUND	9
0 V INPUT	10

### Control Interface

Via an internal or external potentiometer



## STANDARD OPTIONS

Output Polarity	Positive (add suffix P to model number)
	Negative (add suffix N to model number)

## ACCESSORIES

Mating half	Shell: Molex KK series 3001 (10-01-1104)
	Crimps: Molex 2478 18-24AWG (08-50-0106)
	Available to order on request.

**ORDERING INFORMATION**

For ordering information and to find a solution for your exact requirements, please contact your local Advanced Energy sales representative.



## ABOUT ADVANCED ENERGY

Since 1981, Advanced Energy (AE) has perfected how power performs for its customers. For both end users and OEMs, AE's comprehensive portfolio of standard and custom high voltage components precisely match system specifications to deliver unparalleled energy, quality, and performance. Through close customer collaboration, design expertise, application insight, and world-class support, AE creates successful partnerships and enables customers to push the boundaries of innovation and stay ahead of evolving market needs.

PRECISION | POWER | PERFORMANCE



**CAUTION:**  
High Voltage

Read and understand all documentation before you install, operate, or maintain Advanced Energy high voltage power supplies. Follow all safety instructions and precautions to protect against property damage and serious or possibly fatal bodily injury. Never defeat safety interlocks or grounds.

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