



HITEK POWER® MSP SERIES
MASS SPECTROMETRY POWER SUPPLY MODULES





The MSP series consists of high stability, unipolar source modules that perform reliably even under short-circuit or arc conditions. They are available either as positive or negative output voltage modules, and can be set by internal potentiometer, external voltage, or external potentiometer.

MODULAR DESIGNS, CUSTOM SOLUTIONS

The modular design of AE high voltage products for mass spectrometry enables an array of performance features and combinations. From simple options, such as cable length and connector type, to complete custom designs, we deliver solutions that precisely fulfill your specific requirements.

FEATURES

- › Output power: 0 to 10 W
- › Output voltage: 10 V to 20 kV
- › Ripple: < 10 to < 200 mV
- › Temperature coefficient: 10 or 25 ppm/°C
- › Stability: 0.002% (20 ppm) in 15 minutes, < 0.01% (100 ppm) in eight hours after warmup
- › Screened case for low magnetic radiation
- › High reliability
- › Versatile control options



PROVEN POWER-CONVERSION TOPOLOGIES, CONTROL METHODS, AND MECHANICAL EXPERTISE



SPECIFICATIONS

Output Power	10 W, max, depending on model
Output Voltage	10 V to 20 kV, depending on model
Output Current	0.4 to 10 mA, depending on model
Input Voltage	+24 VDC \pm 10%
Input Current	1 A, max, depending on model
Line Regulation	< 10 ppm for a 1 V input voltage change
Load Regulation	< 10 ppm for 10 to 100% load change
Ripple	< 10 to < 200 mV, depending on model
Voltage Control	0 to +10 V = 0 to 100 %, accuracy \pm 2% Can also be controlled by internal or external potentiometer (See connection details below.)
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	10 or 25 ppm/ $^{\circ}$ C at max output voltage (tested with external voltage control)
Cooling	Convection cooled
Protection	The units are fully protected against short circuit and intermittent arcs to ground
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)
Operational Altitude	Sea level to 2000 m (6500')
Storage/Transport Altitude	Sea level to 18000 m (59,055')
Reliability	MTBF > 50,000 hours
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 (ref EN61010-1)
Safety	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.
RoHS	Meets the requirements of EU Directive 2011/65/EC on the Restriction of use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).
Construction	A fabricated aluminum alloy case is used for good heat dissipation and screening.

Mechanical Specifications

Dimensions	See <i>Output and Ordering Information</i> table, on page 4.
Weight	See <i>Output and Ordering Information</i> table, on page 4.
Casing	Aluminum, clear non-chrome passivate finish
Output Cable	Unterminated URM76; 1 m (3.3') of screened output cable
Connectors	Various options are available upon request.



OUTPUT AND ORDERING INFORMATION

Model	Output Voltage	Output Current	Ripple (pk to pk)	Size	Weight
MSP-102*	10 V to 1 kV	10 mA	< 10 mV	147 mm x 98 mm x 47 mm (5.8" x 3.9" x 1.9")	0.8 kg (1.8 lb)
MSP-252*	10 V to 2.5 kV	4 mA	< 15 mV	147 mm x 98 mm x 47 mm (5.8" x 3.9" x 1.9")	0.8 kg (1.8 lb)
MSP-502*	25 V to 5 kV	2 mA	< 20 mV	147 mm x 98 mm x 47 mm (5.8" x 3.9" x 1.9")	0.8 kg (1.8 lb)
MSP-103*	50 V to 10 kV	1 mA	< 50 mV	200 mm x 98 mm x 47 mm (7.9" x 3.9" x 1.9")	1 kg (2.2 lb)
MSP-153*	75 V to 15 kV	0.66 mA	< 100 mV	200 mm x 98 mm x 47 mm (7.9" x 3.9" x 1.9")	1 kg (2.2 lb)
MSP-203*	100 V to 20 kV	0.4 mA	< 200 mV	210 mm x 120 mm x 46 mm (8.3" x 3.9" x 1.9")	1 kg (2.2 lb)

* Please add the required suffix to the model number:

P: Positive polarity

N: Negative polarity

e.g. MSP-502P for a positive unit

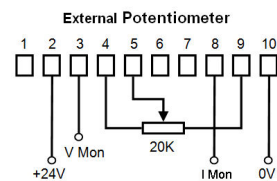
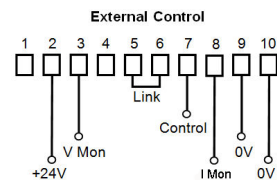
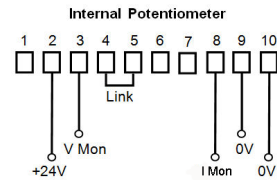
INTERFACE CONNECTIONS

Molex KK Series 3003 0.2" 10-Way Connector,
Mating Half Shell 10-01-1104 and Crimps 08-50-0108.

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

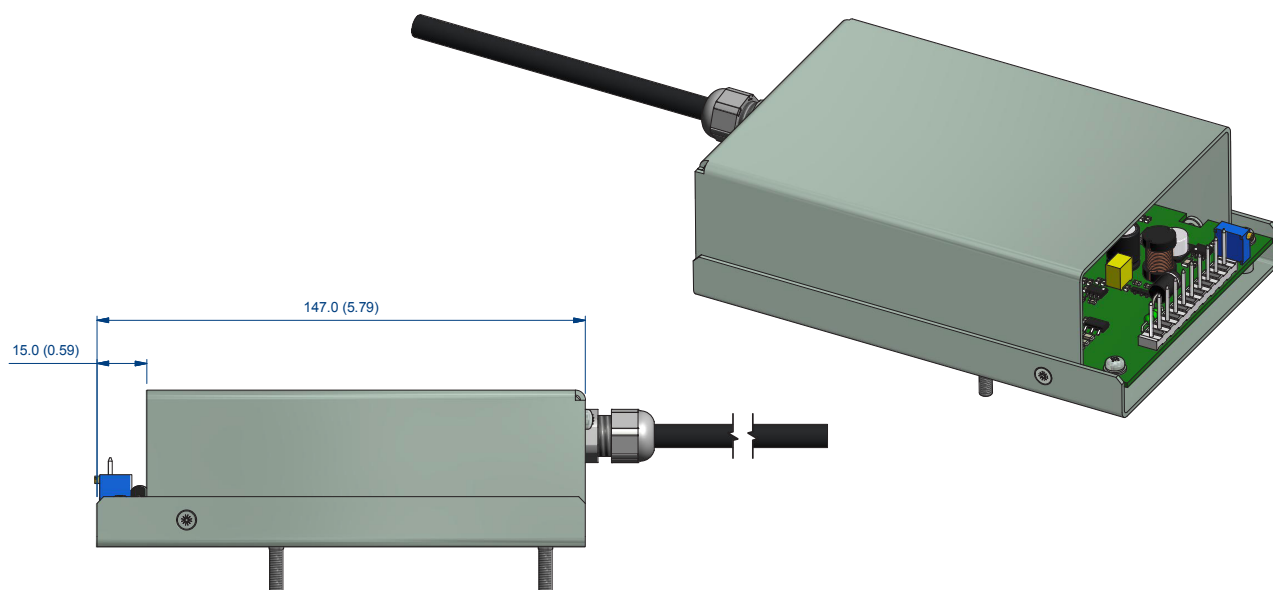
CONTROL LINK DIAGRAM

If the current monitor option is fitted,
an external resistor of less than 50K
with a clamp device or link must be
fitted between pins 8 and 9.



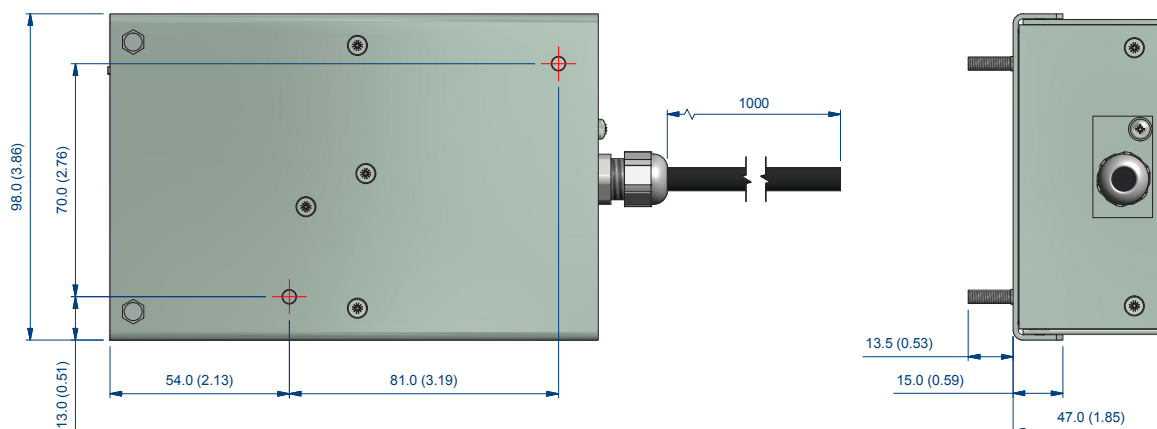
MSP-102
MSP-252
MSP-502

Drawing dimensions are in mm (inches).
Design developments may result in specification changes.



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

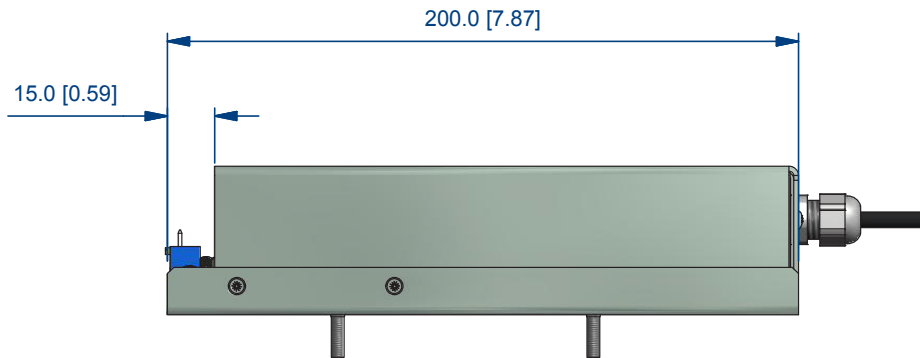
DIMENSIONS mm (in)



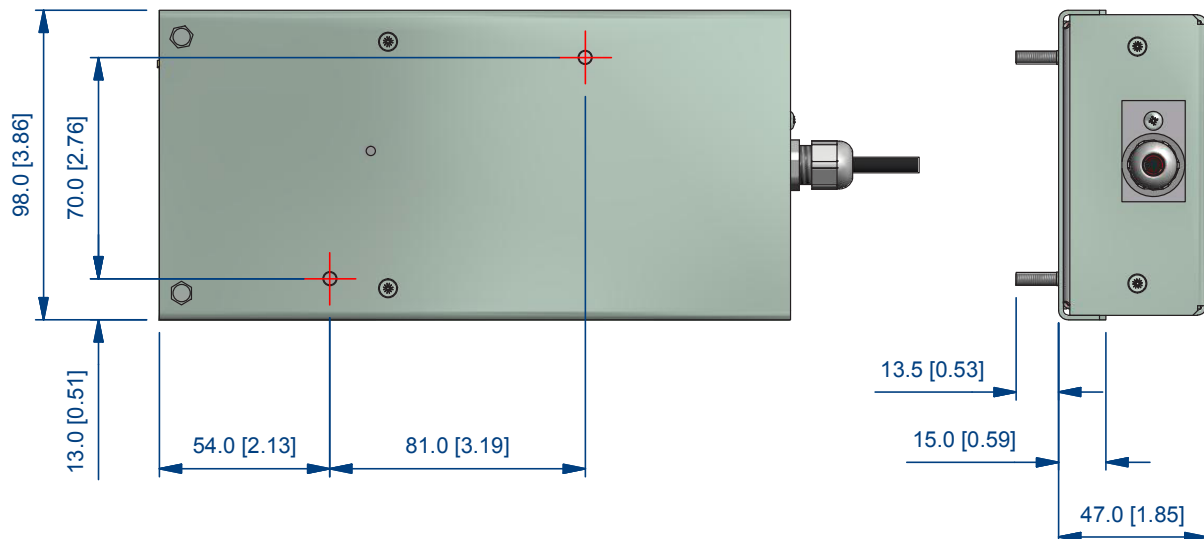


MSP-103 MSP-153

Drawing dimensions are in mm (inches).
Design developments may result in specification changes.



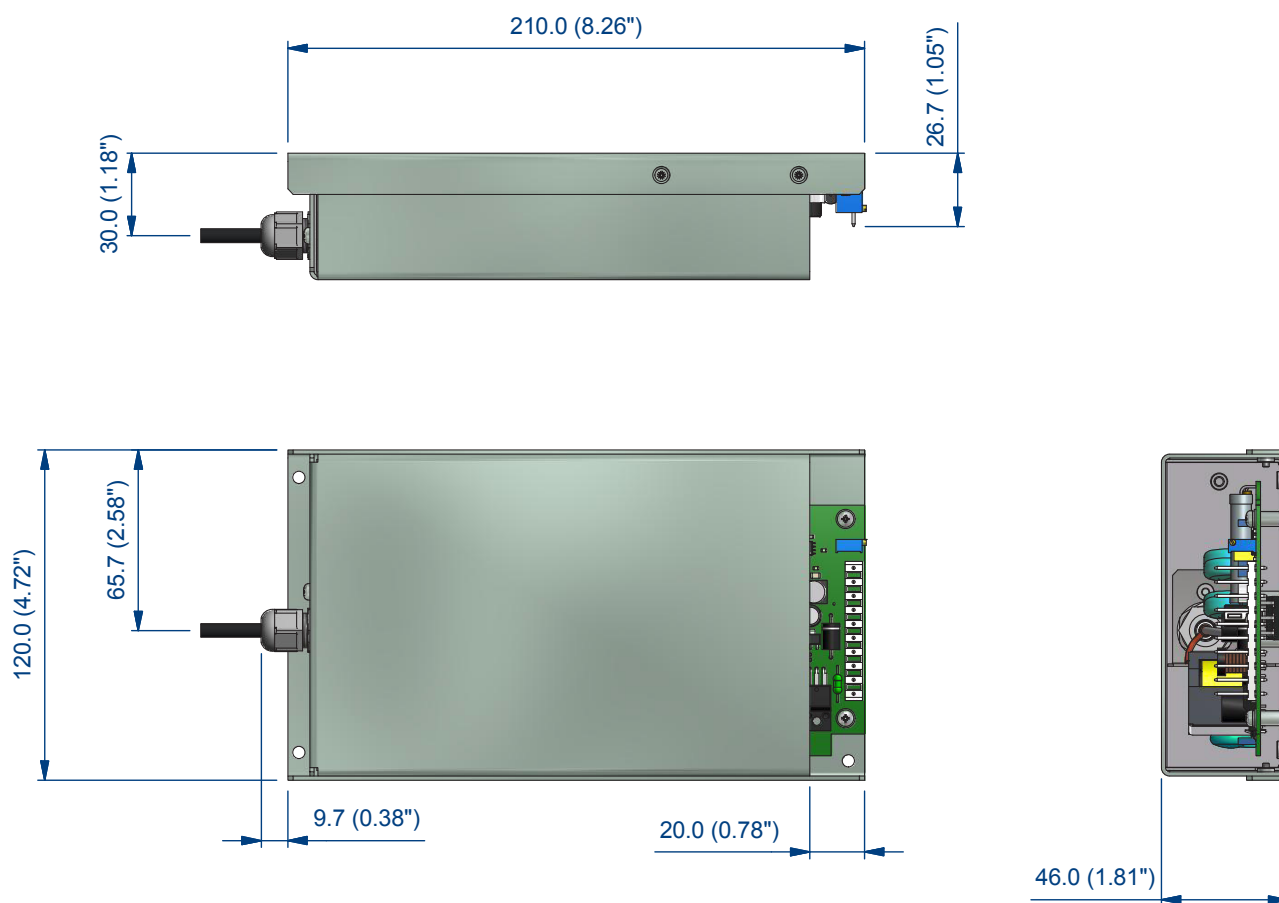
MOUNTING: 2 OFF M4 STUDS; LENGTH AND POSITION AS SHOWN
DIMENSIONS mm (in)



MSP-203

Drawing dimensions are in mm (inches).

Design developments may result in specification changes.





For international contact information, visit
advanced-energy.com.