

**HiPSTER<sup>®</sup> 6**  
*BiPolar*

# A flexible **bipolar** HiPIMS pulser for the latest generation of coatings



## HiPSTER BiPolar 6 HiPIMS Pulser

Our HiPSTER BiPolar HiPIMS units belong to a new generation of HiPIMS technology. They are designed by experts in the field with an excellent track record of plasma process development and thin film deposition in order to generate robust and repeatable HiPIMS processes.

With the new ultra-fast switching technology and extended HiPIMS pulse control the HiPSTER BiPolar is a perfect tool when developing and running state-of-the-art HiPIMS processes. Also, upgrading your existing magnetron system to HiPIMS has never been easier. The HiPSTER BiPolar can be connected either to two existing DC power supplies (positive and negative output) or to our tailor-made HiPSTER DC units.

### FEATURES

- Bipolar operation provides ion acceleration without the need of substrate biasing
- Stable and robust discharge process (constant voltage and no unwanted oscillations)
- Can be triggered externally (multiple power supplies)
- New switching technology allowing HiPIMS pulsing frequencies up to 10 kHz
- Tested using a wide range of magnetrons and processes (incl. reactive HiPIMS)
- Add Ionautics' reactive process control for increased stability and higher deposition rate

### APPLICATIONS

- **Hard coatings:** Smoother and denser elemental as well as reactively deposited compound coatings, which result in increased hardness, reduced corrosion, and less friction
- **Optical coatings:** Increased optical properties through smoother interfaces and denser structures
- **Diffusion barriers:** Better performance through increased coating density
- **Electrical coatings:** Improved conductivity enabling reduced coating thickness and reduced heat load. Also increased isolation in the case of insulators can be obtained
- **3-D coatings:** Uniform film coverage on complex shaped substrates

 **IONAUTICS**

## General Output Specifications

Output Average Power:	≤ 6000 W
Regulation Modes:	Voltage, Current, Power, Pulse current
Pulse Frequency:	50 to 10 000 Hz*
Arc control - reaction time:	< 2 μs

\* External triggering has an extended range; contact Ionautics for more details.

## Negative Pulse Specifications

Output Peak Voltage:	≤ 1000 V
Output Peak current:	≤ 600 A
Pulse Duration:	3.5 μs to 1000 μs

## Positive Pulse Specifications

Output Peak Voltage:	≤ 300 V
Pulse Duration:	1.5 μs to 500 μs
Pulse Delay:	1.5 μs to 500 μs**

\*\* From end of negative pulse

## Input Specifications

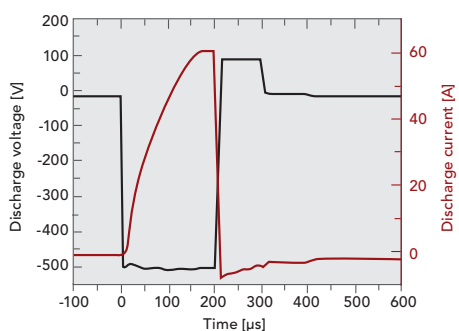
Input Voltage AC:	1 phase + N, 100-240 VAC, 50/60 Hz
Input Current at 230 V:	0.3 A
DC Charging Input:	1000 V max, fully floating +/-1 kV from ground
Trigger In:	Ground-Referenced 5V CMOS input
Remote Communication:	RS-232

## Dimensions

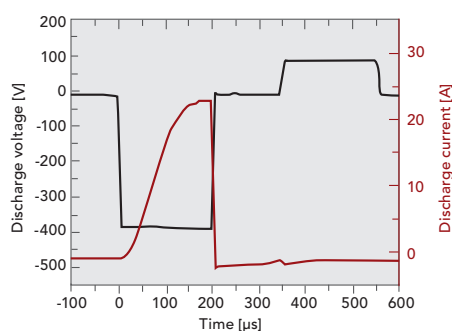
Size:	19" rack (3U) 135 mm (H) x 483 mm (W) x 390 mm (D)
Weight:	17 kg

## Environmental Specifications

Operating Temperature:	+5°C to +40°C
Storage Temperature:	-25°C to +55°C
Relative Humidity:	max 85% non-condensing
Air Pressure:	80 kPa to 106 kPa
Cooling:	Air Cooling
Pollution degree:	2 (or better). Cooling air must normally be free of corrosive vapors and conductive particles.
Norms:	CE certified



Bipolar operation with short delay (1.5 μs) between negative and positive pulses.



Bipolar operation with long delay (140 μs) between negative and positive pulses.



**DANIEL LUNDIN**  
Professor

Expert in the field of HiPIMS processes and magnetron sputtering with focus on deposition processes and process characterization.



**ULF HELMERSSON**  
Professor

Expert in the field of physical vapor deposition, such as magnetron sputtering and HiPIMS processes with focus on material science.



**RAFAEL SANCHEZ**  
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In charge of sales and marketing worldwide. 10 years of experience in thin film deposition using magnetron sputtering.

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**CONTACT>>>>**