



MAGPULS
MP 1 - HC Series
HiPIMS Pulse Power Supply Unipolar



Highest flexibility

Supreme performance for Ambitious Metallic Sputtering through HiPIMS processes

MAGPULS MP1-HC series Uni-Polar HiPIMS Pulse Power Supplies are designed for both R&D applications and continuous operation in Industrial usage. They are suitable for operating with single magnetron for non-reactive HiPIMS deposition on substrates, especially metals. Individual operating modes and enhanced ARC-management allows MP1-HC operate very effectively in achieving high quality coatings. Typical applications of MP1-HC are production of Hard Coatings on Tools and Solar PV Cells.

MP1-HC series PS are made up of mainly two units. The first unit is the DC power supply, which provides DC power into the big capacitor bank of the pulse unit. The second unit is the Pulsar, an intelligent circuitry, which is equipped with highly sophisticated ARC management capability.

MP1-HC series PS can deliver up to 60 kW of output power and pulse current of up to 1500 A (peak current). Higher current & power ranges are available.

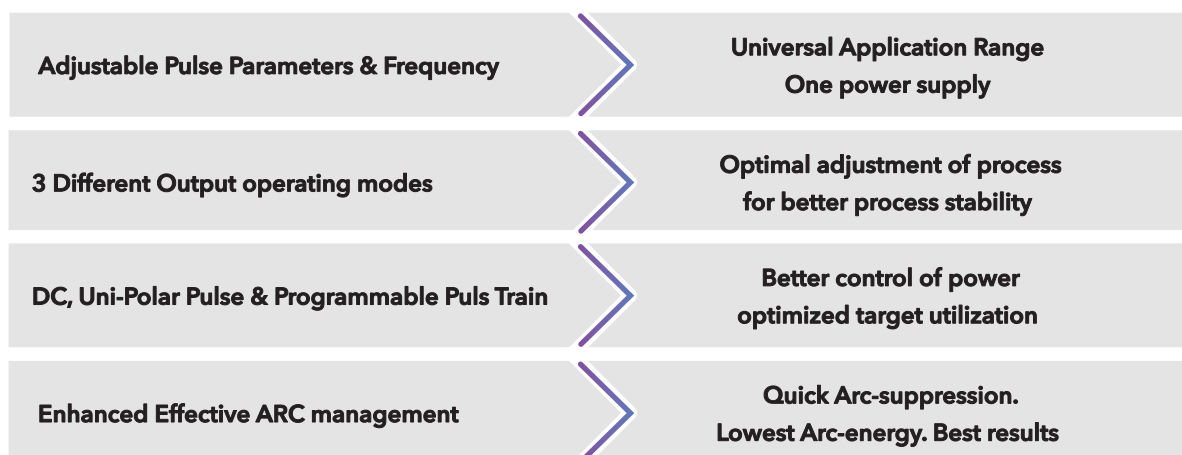
Duty Cycle can be adjusted to achieve higher target utilisation & for better optimisation of the processes. Enhanced ARC management provides best coating results without process interruptions. Optionally, there is an external Optical Input Interface for controlling of the pulse PS externally. It also has an Optical Output Interface for triggering or synchronization of other pulse power supplies of MP1 or MP2 series.



VOLTAGE PULSING - Discrete Advantage

MAGPULS Pulse Power Supplies are designed on Voltage Pulsing Technology (VPT). Unlike in Current Pulsing Technology, the user can set the amplitude of the Pulse (voltage) in VPT Pulsars. This provides a very tight control on the process. Stable plasma condition is easily achievable at low pulsing frequencies, well below 30kHz. Pulsing current is in correlation with the plasma impedance & temperature stress on the coating products can be controlled very effectively.

Features and Benefits



Magpuls Stromversorgungs Systeme GmbH

Im Unterfeld 19, 76547 Sinzheim,
 Deutschland, Germany

☎: +49 7221 987 850 | ✉: info@magpuls.net

www.magpuls.de

World Wide Sales & Support through Dynamic Partners



	MP1-HC 400	MP1-HC 750	MP1-HC 1000	MP1-HC 1500
OUT PUT				
Voltage	0 - 1000 V			
Current	0 - 20 A DC 0 - 400 A Pulse	0 - 40 A DC 0 - 750 A Pulse	0 - 60 A DC 0 - 1000 A Pulse	0 - 120 A DC 0 - 1500 A Pulse
Power	0 - 10 kW DC	0 - 20 kW DC	0 - 30 kW DC	0 - 60 kW DC
Pulse Frequency	DC or 0.05 Hz - 50 kHz	DC or 0.05 Hz - 30 kHz		
Max. Frequency with Max. Pulse Current	50 kHz at 100 A 5 kHz at 400 A	30 kHz at 120 A 5 kHz at 750 A	30 kHz at 150 A 5 kHz at 1000 A	30 kHz at 240 A 5 kHz at 1500 A
Pulse Time Settings Ton / Toff	5.0 μs up to 100 sec / 5.0 μs up to 100 sec			
Duty Cycle	0.005 % to 100 %			
Pulse wave form	DC+ Unipolar pulse Programmable Pulse Train			
IN PUT				
Max. Voltage	0 - 1000 V			
Max. Current	0 - 20 A DC	0 - 40 A DC	0 - 60 A DC	0 - 120 A DC
Max. Power	0 - 10 kW DC	0 - 20 kW DC	0 - 30 kW DC	0 - 60 kW DC
Mains Supply	1 Φ 230 V AC 50/60 Hz or 1 Φ 115 V AC 50/60 Hz			
ARC-MANAGEMENT				
I _{max} -Detection	0 - 400 A peak	0 - 750 A peak	0 - 1000 A peak	0 - 1500 A peak
ARC-Detection Time	< 200 ns			
Off Time after ARC-Detection	30 μs up to 1000 ms			
ARC-Recovery Time	≥ 200 μs			
di/dt Dynamic Change	Var. di/dt threshold: 0 A/μs up to 2000 A/μs			
Voltage Drop ΔU	Var. U threshold: 0 % up to 100 % U _{bc} (Option)			
U x I - Cross Detection	Var. U threshold: 0 V up to 1000 V Var. I threshold: 0.1 x max. I _{peak} up to 1 x max I _{peak} (Option)			
INTERFACE				
Analog	1 (up to 3) 15 pin-Sub-D for controlling external DC power supplies			
Digital	15 pin Sub-D user Interface with floating potential contactors			
RS 232	9 pin Sub-D			
Ethernet	RJ 45			
Profibus	9 pin Sub-D (Option)			
TEMP MANAGEMENT				
Cooling System	Air cooling	Water cooling (max. water pressure 6 bar)		
Cooling Temperatur	Max. 35°C	20°C - 30°C		



	MP1-HC 400	MP1-HC 750	MP1-HC 1000	MP1-HC 1500
ENV CONDITION				
Ambient Temperature	+ 5 °C up to + 35 °C			
Max. Humidity	80 % non condensing			
Max. Operation Altitude	1500 m above sea level			
MECHANICAL DATA				
Construction	19"-Rack 6 HU		19"-Rack 12 HU	
Dimensions H x W x D	266.7 mm x 483 mm x 650 mm		533.4 mm x 483 mm x 700 mm	
Weight	36 kg	42 kg	80 kg	85 kg
DISPLAY & CONTROLS				
Display	Graphic color display			
LED Display	Power, OK, Start / Stop			
Controls	Graphical menu via function keys, arrow keys and continuous rotating knob			
SUITABILITY				
Application	Hard Coating on Tools & Bits, Solar PV			
Process	PVD, Plasma Nitriding, Pulse Plasma & Single Magnetron Sputtering			
Material	Metals			

Please contact us for information on higher capacity models & other variants

OUT PUT Waveforms

