



Highest Flexibility

Supreme performance for Single Magnetron Sputtering, Plasma Nitriding & BIAS Application processes.

MAGPULS MP1-S1 Series Uni-Polar Pulse Power Supplies, specially designed for continuous operation and Industrial usage, are suitable for operating with single magnetron for non-reactive sputtering deposition on substrates such as metals. Individual operating modes and enhanced ARC-management allows MP1-S1 Pulse Power Supplies operate effectively in achieving superior quality deposition. Typical applications of MP1-S1 are production of Hard Coatings, Plasma Nitriding & Biasing.

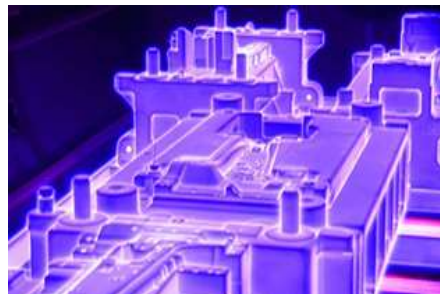
MP1-S1 Units are designed to operate in the frequency range of **1 to 100 kHz** and can deliver power up to **60 kw** with pulse current up to **400 A** (peak current). Higher frequency / current / power ranges are available.

MP1-S1 Series PS is made up of mainly two units. 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.

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, 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 100kHz. Pulsing current is in correlation with the plasma impedance & temperature stress on the coating products can be controlled very effectively.



KEY FEATURES

- Adjustable Pulse Parameters & Frequency
- 3 Different Output operating modes
- DC, Uni-Polar Pulse & Programmable Pulse Train
- Enhanced Effective ARC management

BENEFITS & ADVANTAGES

- Universal Application Range - One power supply
- Optimal adjustment of process for better process stability
- Better control of power - optimized target utilization
- Quick Arc-suppression. Lowest Arc-energy. Best results



Technical Data

OUT PUT	MP1-35	MP1-100	MP1-200	MP1-400
Voltage	0 – 1000 V	0 – 1000 V	0 – 1000 V	0 – 1000 V
Current	0 – 5.3 A DC 0 – 35 A Pulse	0 – 38 A DC 0 – 100 A Pulse	0 – 50 A DC 0 – 200 A Pulse	0 – 120 A DC 0 – 400 A Pulse
Power	0 – 3 kW DC	0 – 15 kW DC	0 – 30 kW DC	0 – 60 kW DC
Pulse Frequency	DC 0.05 Hz – 100 kHz			
Max. Frequency with Max. Pulse Current	100 kHz @ 10 A 25 kHz @ 35 A	100 kHz @ 25 A 20 kHz @ 100 A	100 kHz @ 50 A 20 kHz @ 200 A	100 kHz @ 80 A 20 kHz @ 400 A
Pulse Time Settings T _{on} / T _{off}	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	0 – 1000 V	0 – 1000 V	0 – 1000 V
Max. Current	0 – 5.3 A DC	0 – 38 A DC	0 – 50 A DC	0 – 120 A DC
Max. Power	0 – 3 kW DC	0 – 15 kW DC	0 – 30 kW DC	0 – 60 kW DC
Mains Supply	1 Φ 230 VAC 50/60 Hz			
ARC-MANAGEMENT				
I _{max} - Detection	0 - 35 A peak	0 - 100 A peak	0 – 200 A peak	0 – 400 A peak
ARC – Detection Time	< 200 ns			
Off Time after ARC Detection	30 μs to 1000 ms			
ARC – Recovery Time	≥ 100 μs			
di/dt Dynamic Change	Var. di/dt threshold: 0A/μs up to 2000A/μs			
Voltage Drop ΔU	Var. U threshold: 0% up to 100% U _{DC} (Option)			
U x I – Cross Detection	Var. U threshold 0V up to 1000V 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		
Cooling Temperature	Max. 35°C	20° C – 30°C		
Cooling Medium	Air	Water (Max water pressure 6 bar)		



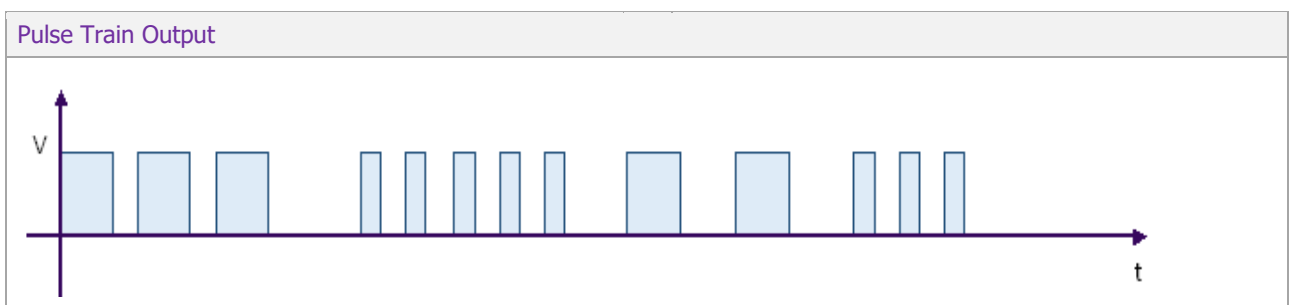
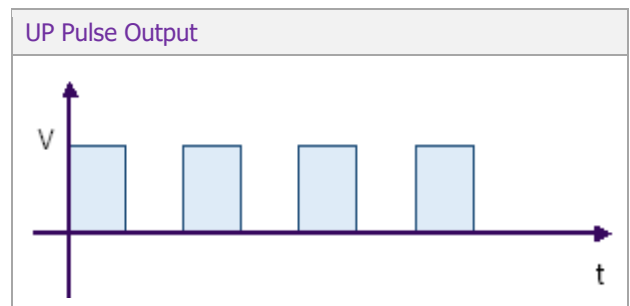
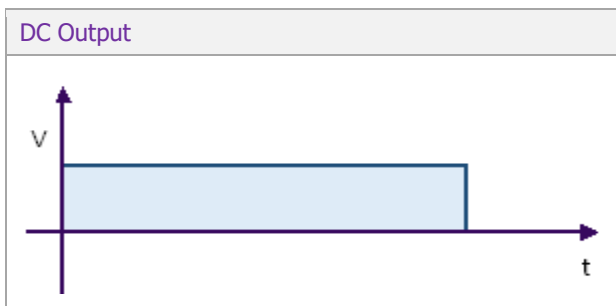
Technical Data

ENV CONDITION	MP1-35	MP1-100	MP1-200	MP1-400
Ambient Temperature	+5° C up to +35° C			
Max. Humidity	80 % non condensing			
Max. Operating Altitude	1500 m above sea level			
MECHANICAL DATA				
Construction	19" – Rack 5 HU			19" – Rack 6 HU
Dimension H x W x D	222.25 mm x 483 mm x 650 mm			
Weight	36 kg	25 kg	32 kg	40 kg
DISPLAY & CONTROLS				
Display	Graphic color Display			
LED Display	Power, OK, Start / Stop			
Controls	Graphical Menu via Function Keys, Arrow keys & Continuous Rotating Knob			

SUITABILITY	
Application	Hard Coating on Tools & Bits and BIAS application
Process	PVD, Plasma Nitriding, Pulse Plasma & Single Magnetron Sputtering
Material	Metals

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

OUTPUT Wave Forms





PRODUCT Images

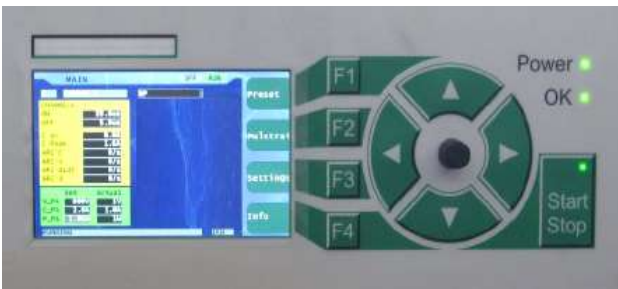
Front Facia with Controls



Rear side with connecting cables



Control Panel



Display Panel

