

## Technical Data

### TECHNICAL CHARACTERISTICS

#### *Output Data*

Output power	10kW
Output voltage	0V to -1200V (voltage for nominal pulse and DC-mode).
Output Current	1000A (pulse peak) maximum. 20A average current for <500V.
Pulse frequency	10Hz-1kHz at 1000/1200V, 1000A, with lower energy pulses the frequency can be increased (5kW max at 2kHz).
Regulation	Voltage / Power / Current
Pulse width	5 $\mu$ s to 1000 $\mu$ s or DC.
Duty cycle	<50% or DC 100%.
Arc detection / handling	<3 $\mu$ s.
Current arc trip level(absolute)	Adjustable 10A to 1200A.
dl/dt arc trip level (Delta in %)	5% (less restrictive) to 95% (more restrictive).
Voltage stability	$\pm$ 2.5%.
Voltage ripple	<5% rms.

#### *Projected Applications*

HiPIMS, Uni-Polar / Bi-Polar (optional) / Dual Magnetron (optional)

DC magnetron sputtering

DC-pulse magnetron sputtering

DC Bias

DC-pulse Bias

HiPIMS Bias- DC

HiPIMS Bias DC-pulse Uni-Polar / Bi-Polar (optional)

hiPlus (Positive Voltage Reversal, optional)

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### *Input Line*

Nominal voltage:	400Vac 3ph $\pm 15\%$ (no neutral required).
Input:	nominal current $< 21A$ .
Dielectric strength:	2500V, 50Hz, 1 minute.

### *Adjustable positive Voltage*

Pulse voltage :	0V to 400V regulated, or no pulse -> Upp
Pulse current :	50Amp max
Pulse length :	5us to 200us -> ton
Delay:	1us to 50us (from end of negative pulse to start positive pulse)
Power :	1KW at 1kHz

### *Cooling Data (Air & Water)*

Force ventilated air cooling	Front - air inlet, rear - air outlet.
Water cooling	15 liters/minute.

### *Interface Data*

USB connection	Standard USB cable type B.
Profibus	Optional.
EtherCAT	Optional.
Ethernet	Optional.

### *Output Connection Data*

Power connection	M6 screws.
Cable type	Triax cable recommended, coaxial, or twisted screen cable.

# 10KW HiPIMS-Power Supply **hiP-V** 1000A

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### ***Input Connection Data***

Input connection	3-phase wires 6mm <sup>2</sup> cross-section.
Mains cable	copper 2.5 - 6mm <sup>2</sup> cross-section.
Protection	earth connection type 2.5 - 6mm <sup>2</sup> cross-section.
Internal main	16A circuit breaker.
Interlock	24V DC (required for operation).

### ***Environmental Conditions***

Operation Ambient temperature:	0°C to 40°C.
Temperature inside the box	0°C to 70°C.
Humidity	up to 90% (creepage distances as per EN-61010-1).
Maximum Height	1200m.
Protection	IP20.

Not protected for water ingress. Protected against ingress of parts bigger than 12mm.  
It is intended for indoor use.

### ***Acoustic Noise***

The equipment will produce an acoustic noise lower than 60dBA measured at 1 meter distance.

### ***Case***

The unit is contained in a 19" rack module, 742mm deep and 9U high (405mm approx.).

The weight is 92kg. Refer to drawing P-004353.

### Output Average Characteristic

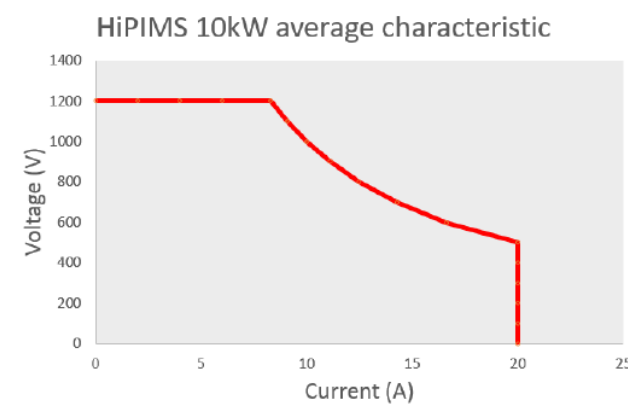


Figure 4-1. Output Average Characteristic

### REFERENCE STANDARDS

The 10kW pulsed power supply described in this document is fully compliant, but not only, with the following standards:

*EN 61000-3-12-2006*

Electromagnetic compatibility (EMC) part 3-12: limits for harmonic currents produced by equipment connected to public low-voltage systems with input current greater than 16 a and equal to or less than 75 a per phase.

*EN 61010-1:2002*

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements.

*MIL STD 217*

Reliability Prediction of Electronic Equipment.

*EN 61204-3-2002*

Low voltage power supplies, d.c. output - Part 3: Electromagnetic compatibility (EMC).

*EN 61000-6-3-2006*

Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light- industrial environments.

*EN 61000-6-2-2006*

Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments.