



Technical Data

TECHNICAL CHARACTERISTICS

Output Data

Output power	10kW
Output voltage	0V to -1200V (voltage for nominal pulse and DC-mode).
Output Current	2000A (pulse peak) maximum. 20A average current for <500V.
Pulse frequency	10Hz-1kHz at 1000/1200V, 2000A, with lower energy pulses the frequency can be increased (5kW max at 2kHz).
Regulation	Voltage / Power / Current
Pulse width	5 μ s to 1000 μ s or DC.
Duty cycle	<50% or DC 100%.
Arc detection / handling	<3 μ s.
Current arc trip level(absolute)	Adjustable 10A to 2200A.
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)

10KW HiPIMS-Power Supply **hiP-V** 2000A



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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 litres/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.



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Input Connection Data

Input connection 3-phase wires 6mm² cross-section.

Mains cable copper 2.5 - 6mm² cross-section.

Protection earth connection type 2.5 - 6mm² 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.



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Output Average Characteristic

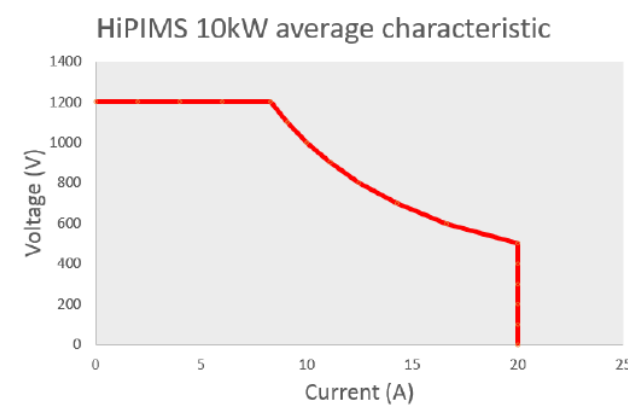


Figure 4-1. Output Average Characteristic

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.