20KW HiPIMS-Power Supply **hiP-V**

Technical Data

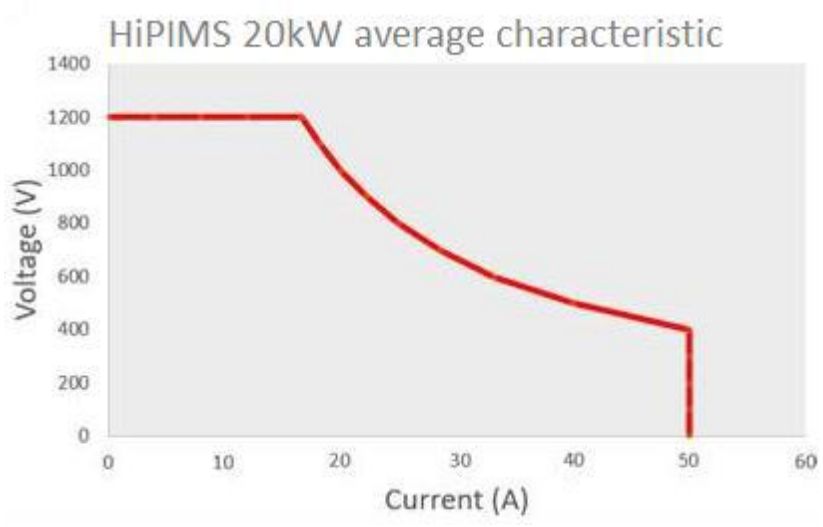
HiPIMS your System

TECHNICAL CHARACTERISTICS

Output Data

Output power :	20kW
Output voltage	0V to -1200V (voltage for nominal pulse and DC-mode).
Output Current	2000A (pulse peak) maximum. 50A average current for <500V.
Pulse frequency	1kHz at 1000/1200V, 2000A, with lower energy pulses the frequency can be increased (10kW max at 2kHz), (can be extended optional).
Regulation	Voltage / Power / Current
Pulse width	5µs to 1000µs or DC (can be extended up to 5ms, optional)
Duty cycle	<50% or DC 100%.
Arc detection / handling	<3us.
Current arc trip level(absolute)	Adjustable 10A to 2200A.
dI/dt arc trip level (Delta in %)	5% (less restrictive) to 95% (more restrictive).
Voltage stability	±2.5%.
Voltage ripple	<5% rms.

Output Average Characteristic



4A-PLASMA® TECHNOLOGY & ENGINEERING

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20KW HiPIMS-Power Supply **hiP-V**

HiPIMS your System

Technical Data

Projected Applications

HiPIMS, Uni-Polar / Bi-Polar (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 (variable Positive Voltage Reversal, optional)

Master/Slave and Bias synchronization operations possible

Input Line

Nominal voltage :	400Vac 3ph ±10% (no neutral required)
Input nominal current :	<40A
Dielectric strength :	2500V, 50Hz, 1 minute

Adjustable positive Voltage

Pulse voltage : 50V to 400V regulated, or no pulse -> Upp

Pulse current : 50Amp max

Pulse length :5us to 50us -> ton

Delay: 5us 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

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Technical Data

HiPIMS your System

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.

Input Connection Data

Input connection :	3-phase wires 10mm_2 cross-section
Protection earth: connection type	10mm_2 cross-section
Internal main :	40A circuit breaker
Interlock :	24V_{dc} (required for operation)

Environmental Conditions

Ambient temperature: :	0ºC to 40ºC
Temperature inside the box: :	0ºC to 70ºC
Humidity: :	up to 90% (the equipment is designed with creepagedistances 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.

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20KW HiPIMS-Power Supply **hiP-V**

Technical Data

HiPIMS your System

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 10U high (444mm approx.)

The weight is 96kg.

The protection is IP20. It is not protected for water ingress; it is protected against ingress of parts bigger than 12mm. It is intended for indoor use in a laboratory.

The case is forced ventilated; the air ingress is done by the front side and the exhaust by the rear side.

The semiconductors are water-cooled.

See DRW. P-004706.

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

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REFERENCE STANDARDS

The 20kW pulsed power supply described in this document is fully compliant, but not only, with the following railway 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 lightindustrial Environments

EN 61000-6-2-2006 Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments

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