Perfection in sight: Pulsed processes for spotless films.
TruPlasma DC Series 4000.

The TruPlasma DC Series 4000 power supplies are especially designed to serve reactive sputtering processes of difficult materials. Whether PVD or PECVD, the generators prove themselves in critical industrial plasma processes. These include solar cells manufacturing, production of semiconductors and hard coating applications. At output powers ranging from 5 to 20 kilowatts, the generators deliver their maximum power across a wide load impedance range. Fast DSP control allows thereby for stable processes and low arc-time related losses.

TruPlasma DC Series 4000 combines the advantages of HÜTTINGER’s excellent arc management and DC pulse technology. Thus reaching even less droplets and lower substrate damages in critical coating processes. Combined with an inherent very low stored energy, this considerably improves the overall process quality and production throughput.

Benefits
- Limited droplets and substrate damage rates
- Increased production yield
- Stable plasma and low arc-related time losses
- Easy process optimization and user friendly operation
- Allows for a wide range of applications with one device

Features
- Low Arc Energy
- Short after-arc break and recovery time
- Fast DSP Control
- Synchronous Pulsing
- Wide range of adjustable parameters: frequency and pulse parameters

Brilliant Reflections: HÜTTINGER makes optical coatings shine.
Output Parameters

Output Power
5 kW, 10 kW, 20 kW

Output Frequency
2 kHz – 100 kHz

Output Voltage
800 V

Output Current
12.5 A, 25 A, 50 A

Regulation Modes
Power, voltage, current, SimReg

Efficiency
88 % – 94 %

Operation Duty Cycle
100 %

Regulation
Line ± 10 %
Load 10 % – 90 %

Accuracy
± 0.5 %

Repeatability
± 0.2 %

Output Polarity
Negative

Arc Detection Criteria

Arc Handling Capability
Up to 2 kArcs / sec

Pause time
1 µs – 10 µs

Arc Detection Time
500 ns

I_max Detection
Var. I_max threshold: 10 % – 130 %

Cross Detection (U x l)
Var. U, threshold: 0 V – 600 V
Var. I, threshold: 10 % – 100 %

Dynamic Voltage Change
Var. dU threshold: 0 V – 400 V

Environmental Specifications

Ambient Temperature
+5 °C to +35 °C operating
-25 °C to +55 °C storage

Rel. Air Humidity
80 % non condensing

Max. Operating Altitude
2 000 m above sea level

Input parameters

Line Voltage
3 x 400 V ± 10 %

Line Frequency
50 Hz / 60 Hz ± 5%

Cooling Specifications

Cycling System
Forced Air Cooling / Fan Control

Max. Inlet Air Temperature
+ 35 °C

Interfaces

Analog
25 pin Sub-D

RS 232 / RS 485
9-pin Sub-D

PROFIBUS
9-pin Sub-D

Connection Type
Rear

V/I Diagram

Pulse mode

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Line Frequency
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