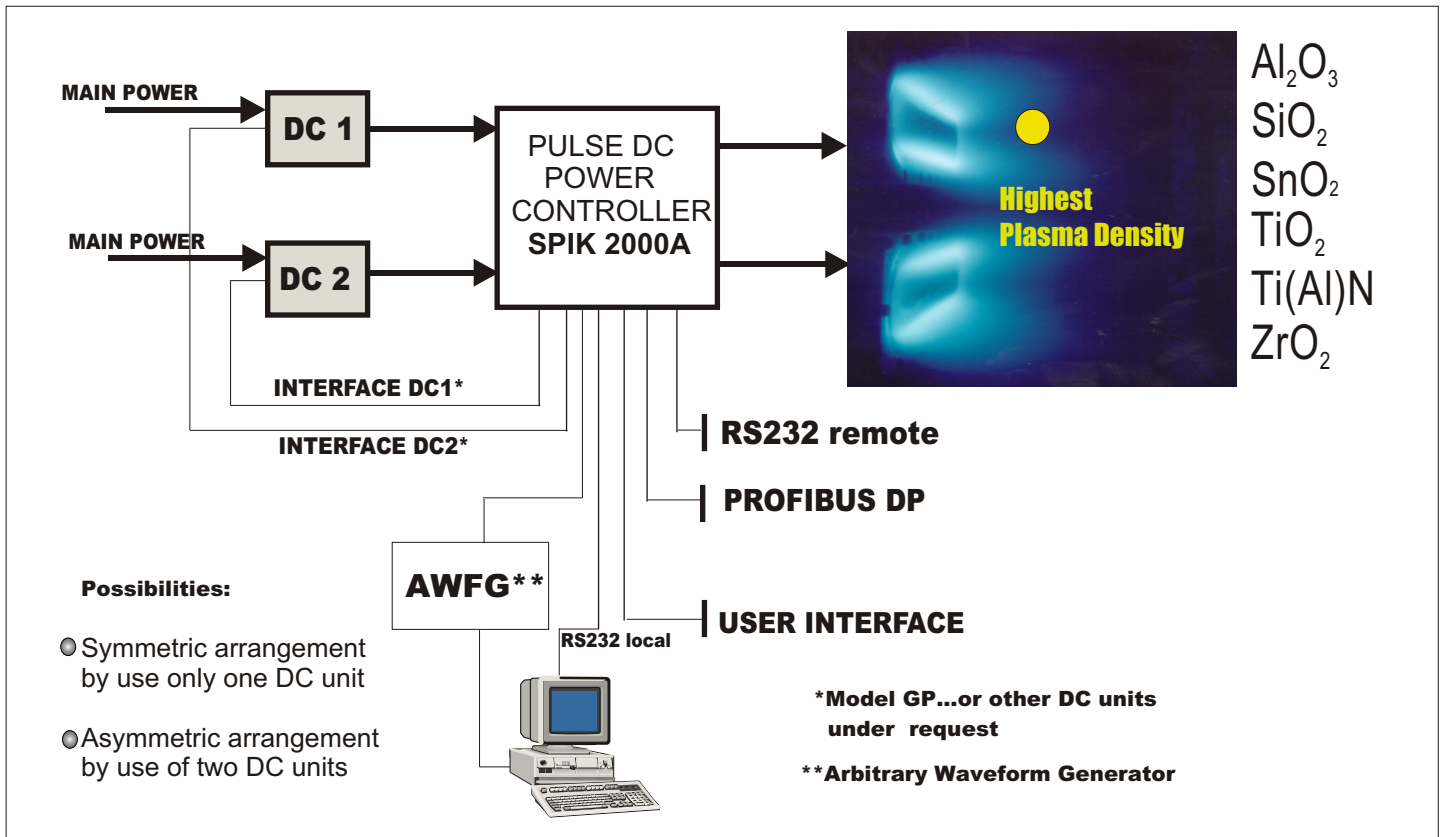




PULSE DC POWER CONTROLLER TECHNOLOGIES

Patent PENDING AND APPLIED

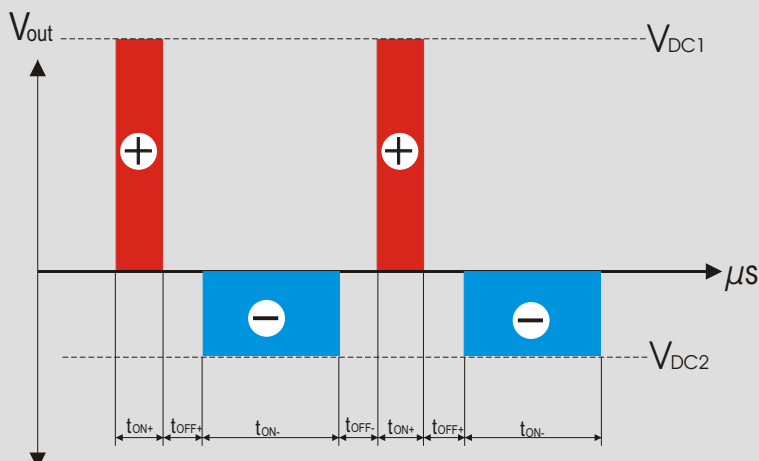
MELEC GmbH Moritzenmatten 21 77815 Bühl Phone +49(0)7223/902833
Telefax +49(0)7223/902834 e-mail: MELEC@T-online.de <http://www.melec.de>



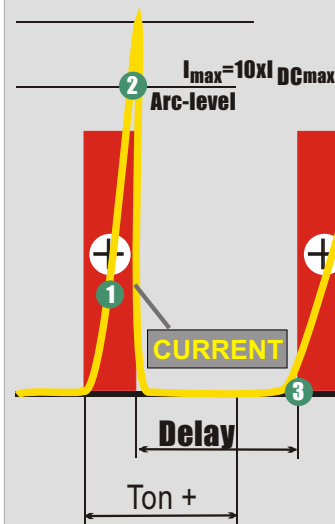
BIPOLAR PULSE TRAIN

Symmetric: Condition $V_{DC1}=V_{DC2}$
Asymmetric: Condition $V_{DC1}\neq V_{DC2}$ **

**Different level of voltage, current and power of DC1 and DC2

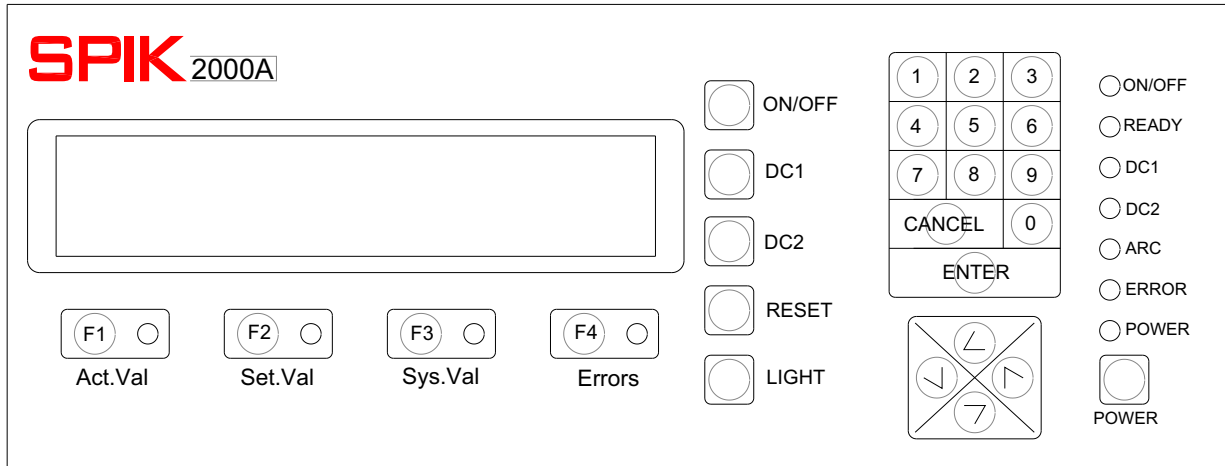


ARC AVOIDANCE



- 1 Arc is caused
- 2 The PULSE shuts off $< 2\mu s$ when the arc threshold is reached. The arc threshold is adjustable.
- 3 Moment after an arc has been caused and the adjustable delay time is over. The PULSE unit is switched on again.

CONTROL PANEL



APPLICATION

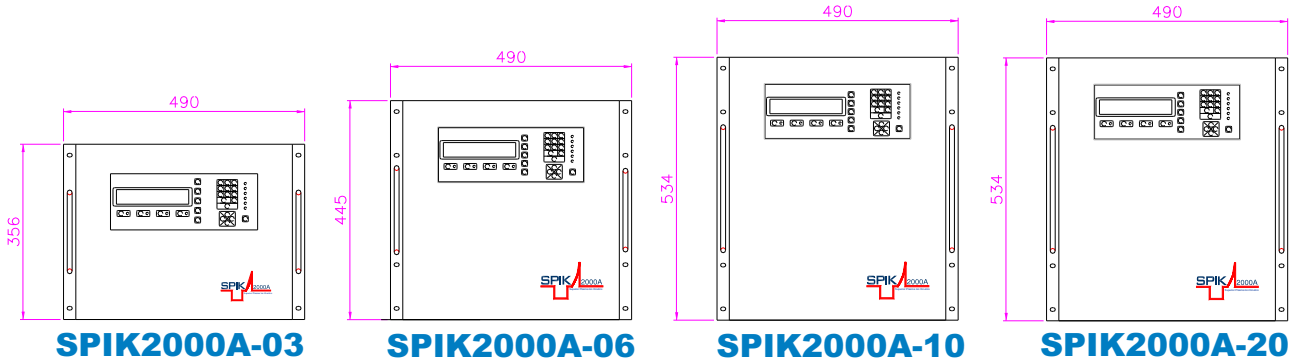
- PVD - BIAS
- Plasma - CVD
- Metallic and reactive sputtering
Single and dual magnetron application
- Nitriding
- Desmear
- Cleaning and activating
Etching

ELECTRICAL FEATURES

- Frequency: max. 50kHz
- Control panel
- Interfaces: RS232, Profibus DP user DC1 and DC2 BNC(AWFG)
- Modes: DC+
DC-
Unipolar pulse+
Unipolar pulse-
Bipolar pulse
External AWFG
- ARC management by setting of levels and delay time.
- More information see technical data sheet.

ADVANTAGES

- Full controlling of electric pulsed fields without any kind of impedance matching network.
- Different modes DC+, DC- unipolar pulse+, unipolar pulse-, bipolar pulse.
- Create by yourself rectangular pulse train by use of an external arbitrary wave form generator (AWFG).
- Highest pulse peak power generates a fully ionized plasma and metal-species will be dominate.
- Retrofit: Use your existing DC power supplies. For more information contact us.



Pulse modes	ON-times	OFF-times	Conditions
Unipolar + (UP+)	Ton+ 5μs	Toff+ 5μs	(Ton+ and Toff+) 20μs
Unipolar - (UP-)	Ton- 5μs	Toff- 5μs	(Ton- and Toff-) 20μs
Bipolar (BP)	Ton+ 5μs;Ton- 5μs	Toff+ 5μs;Toff- 5μs	(Ton± and Toff±) 20μs
AWFG	all ON- and OFF-times 5μs		min. period time 20μs

Model	SPIK2000A-03	SPIK2000A-06	SPIK2000A-10	SPIK2000A-20
Pulse Output Power (max.)	+/-30kW	+/-60kW	+/-100kW	+/-200kW
Pulse Output Voltage (max.)	+/-1000V	+/-1000V	+/-1000V	+/-1000V
*)Pulse Output Current (max.)	+/-30A	+/-60A	+/-100A	+/-200A
DC Output Power	3kW	6kW	10kW	20kW
DC Output Voltage (max.)	+/-1000V	+/-1000V	+/-1000V	+/-1000V
DC Output Current (max.)	+/-3A	+/-6A	+/-10A	+/-20A
Arc suppression	2μs	2μs	2μs	2μs
Arc Level	0 - (+/-30A)	0 - (+/-60A)	0 - (+/-100A)	0 - (+/-200A)
Arc delay time	adj. 30μs	adj. 30μs	adj. 30μs	adj. 30μs
Operation Frequency (max.)	50kHz	50kHz	50kHz	50kHz
Cooling Capacity	Air	Air	Air/Water	Air/Water
Rate	-	-	3.5L/min	3.5L/min
Pressure	-	-	1.5kg/cm ²	1.5kg/cm ²
Temperature	-	-	25°C	25°C
Dimension Height	356mm (14.0 in)	445mm (17.5 in)	534mm (21.0 in)	534mm (21.0 in)
Width	440mm (17.3 in)	440mm (17.3 in)	440mm (17.3 in)	440mm (17.3 in)
Depth	685mm (24.0 in)	685mm (24.0 in)	685mm (25.6 in)	685mm (25.6 in)
Net Weight	45kg	63kg	89kg	91kg
Interface	RS232	RS232	RS232	RS232
Interface	Profibus DP	Profibus DP	Profibus DP	Profibus DP
*under conditions of save operating areas				

