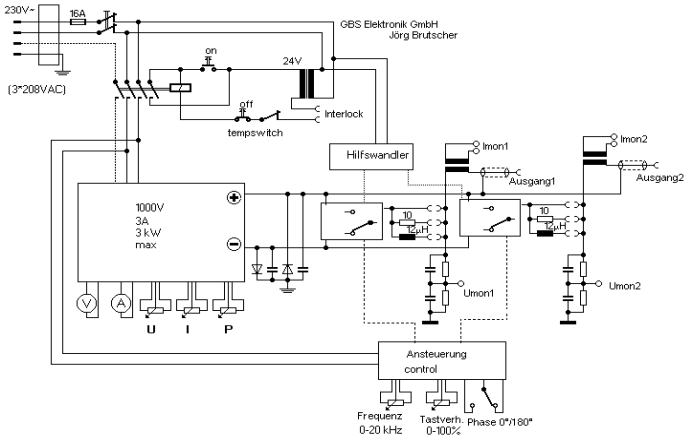
RUPmag4

Pulse generator for magnetron sputtering

The pulse generator RUPmag4 is a smaller pulse generator for magnetron sputter applications. It allows frequencies up to 20 kHz, voltages up to 1000V and a power up to 3 kW for both channels.
Depending on operation mode, it allows to operate two magnetrons in parallel or one magnetron in bipolar mode. Both outputs can be connected alternatively through a protective resistor, a protective inductor or directly. Typically, the positive output is connected to ground whereas the negative output is connected to the magnetron cathode.



Principal scheme RUPmag4

Voltage and Current

Internal power supply 0-1000V adjustable, maximum current 3.5A, maximum power 3 kW. Peak current up to 80A, peak short circuit current up to 130A.
The internal power supply is principally potential-free. But the positve pose must not get more negative than ground, and the negative supply must not get more positive than ground. Diodes inhibit otherwise operation.

Waveform and frequency

square wave,
rise times around 100-200 ns,
fall times about 500-700ns.
Both outputs can be operated synchronous or with 180° phase shift.
duty cycle 0%-100%,
adjustable, error <5%.
Frequency 1-20 kHz, adjustable.

Mechanical, included items

Small 19" rack, 600*600*860mm (width*depth*height).
Digital meters for voltage and average current.
10-turn Potentiometers for adjustment of voltage, max. current and max. power.
10-turn Potentiometers for frequency and duty cycle.
Switch for Phase 0°/180°
2 voltage monitor outputs 1:100
2 current monitor outputs 100 mV/A, AC coupled
Outputs with 4mm laboratory plugs.
Optional connectable output resistor: 10 Ohm, 100W
Optional connectable output inductor: 12 µH
Manual with complete circuit diagrams included.

Environmental conditions

Environmental temperature 5-35°C
Humitity 0-80%, the pulse generator is intended for use in dry laboratory rooms.
protection class I, IP20
supply voltage 220V-240V~, 16A max, optional 3*208VAC, 60Hz, 10A max.

Safety

External interlock
The pulse generator is protected against short circuits and flashovers by protection resistors, by fast arc detection switch off, and over temperature monitors. Positive pulses without protection resistors are not allowed as the arc detection does not work in this case. Maximum short circuit current 130 A.
The pulse generator, correctly connected, will be conformal to regulations about electromagnetic compatibility (EMC). It is the responsibility of the user that the outputs cannot be touched in operation.

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