

# RUP7

## Rossendorfer Universal Pulse Generator

The pulse generator RUP7 is designed to supply high power to low impedance (few ohms) or even complete inductive loads. It has also a high stored energy as to supply full pulse power for times in the millisecond range.

The pulse generator consists of 5 pulse modules with paralleled outputs which are powered separately.

The pulse modules itself consists of a capacitor bank of 3mF and a semi full bridge for switching the output power. The modular design has the advantage of scaleability and partitions the energy storage, which is a safety advantage in case of failures. The device is fully protected against arcs and overloading.

### operation modes

#### Standard pulse

Control signal switches both transistors on and off, remaining inductive energy will be fed back to the capacitor bank through the diodes. An overcurrent event will also switch off both transistors and additionally inhibit pulse for 20 ms.

#### Inductor pulse

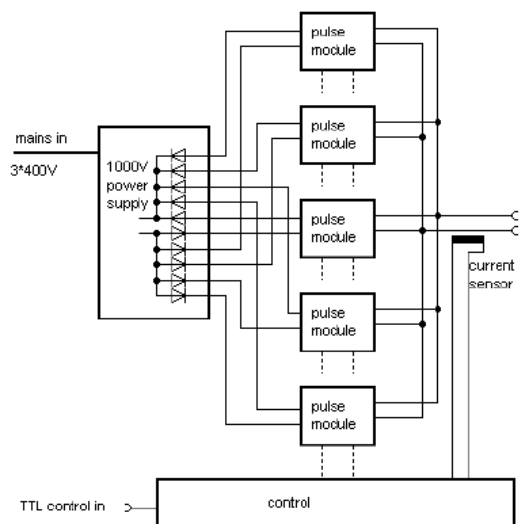
Same as standard pulse, but current will normally increase to the set overcurrent level, then only the upper transistor is switched off, leaving the current free running until the end of the control pulse. There is no inhibit time.

#### DC mode

Both transistors are allways on; an overcurrent event will switch off both transistors and inhibit operation for 20 ms.

### Voltage and current

Output voltage 1000V max., adjustable.  
Average output current 5A max.



principal scheme RUP7

peak current 600A positive (adjustable limit)

Output voltage is potential free, but any output should not be allowed to deviate more than 1V from ground.

### pulse shape and frequency

square wave, rise and fall time depending mainly on load inductance. Intrinsic switching times are in the range 0.1 - 0.5µs.

max. pulse width is limited by stored energy in the 15mF total capacitor bank. So a 600A, 5ms pulse will cause a 200V voltage drop during pulse.

duty cycle may be varied from 0% to 100%.

Frequency: up to 1kHz, principally even higher as long as internal switching losses do not exceed limits.

### means of control

10-turn potentiometers for adjustment of voltage (0-1000V), current limit (0-600A)

Main power switch

buttons for high voltage on / off, switch for operation mode

LED for pulse generation on

LED for current threshold exceeded

meters for voltage and average current connectors

CE connector for mains supply

BNC TTL input for pulse control

voltage monitor output 1:100

current output monitor 10mV/A

high current connectors for pulse output, 3m output cable

10mm<sup>2</sup> included

### mechanical, environmental, included items

19" rack 1400\*600\*800 mm

environmental temperature 5-35°C

humidity 0-80%, the pulse generator is intended for the use in dry rooms.

protection class I, IP20

supply voltage 3\*400V (tolerance 380VAC...450VAC) 16A, 50-60Hz

manual, full schematics included

### safety

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external interlock, outputs are potential free

The output and everything connected to it has dangerous voltages and must not be touched during operation. The device contains large capacitors which may stay charged significant time after switching off. This has to be considered when handling the inside of the device. The output currents must not be allowed to flow through protective grounding systems otherwise severe disturbances may result. This device is only for laboratory use by experts.

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