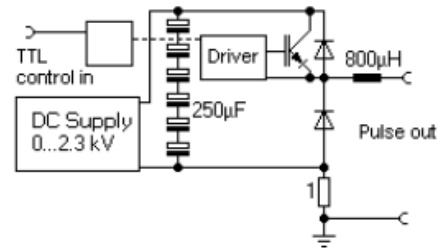


Hydropuls mini

Small scale high voltage pulse generator

The pulse generator Hydropuls mini is a small scale high voltage pulse generator for resistive loads. It is an economical design and optimized for delivering arbitrary square wave pulses up to the millisecond range. It includes protection against overloading and supports frequencies up to 100 Hz.



principal scheme of Hydropuls_mini

Voltage and current

- Voltage 0... +2300V, adjustable
- average current 400 mA max.
- maximum output power 700W
- output impedance 2 Ohm in series with a 800µH inductor.
- peak current around 10 A, exceeding this will switch off the pulse.

pulse shape and frequency

- square wave, rise and fall time depending on load
- pulse width 1 µs - µ (useful maximum pulse width with currents > 400 mA or power >700W is determined by the discharge of the internal pulse capacitor of 250 µF) voltage drop during pulse is determined by the internal storage capacitor of 250µF. For example, a 2ms pulse with 5A will cause a voltage drop of 40V; so at 1600V pulse voltage this would be 2.5% drop.
- duty cycle up to 100% is possible.
- maximum frequency 100 Hz; there is no internal limitation to higher frequencies, but too high frequencies may cause excessive losses and cause overtemperature switch off.
- rise and fall times are determined by load and output inductor:
- for the possibly lowest useful load impedance of 100 Ohm, rise and fall times will be about 18µs.
- for a typical load of 400 Ohm rise and fall times will be 5µs.
- for an 1 kOhm load, rise time will be 2µs but fall time 5µs.
- for even higher impedances the rise time will stay short, but the fall time will increase (e.g. 500µs at 100 kOhm) as no active voltage pull down is included.

mechanical, included items, controls

- 19" rack 6 HE (483 *267 mm), 600 mm deep
- Analog display for voltage and average current
- LED indicator for overload and overtemperature 10-turn potentiometer on front plate for adjustment of voltage
- BNC connector for control input 5V (TTL) signal; a voltage >2V will switch pulse on, a voltage <1V will switch pulse off.
- BNC voltage monitor output 1:100
- BNC current monitor output 1 V/A
- output with SHV connector, 3m output cable included.
- Manual

environmental conditions

- 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 220V-240V~, 900W max.

safety

- external interlock
- the pulse generator is protected by an output inductor and a fast switch-off logic from damage by arcs or short circuits.
- short circuit currents are limited to 20 A.
- The pulse generator is conformal to regulations about electromagnetic compatibility (EMC).

not included, but strongly recommended

- Arbitrary signal generator or TTL pulse generator for control
- simple digital oscilloscope

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