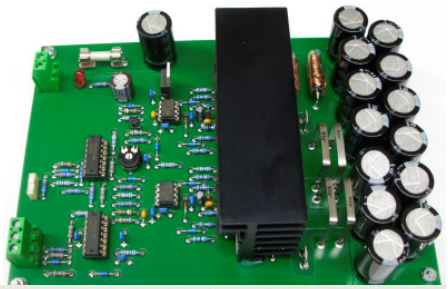
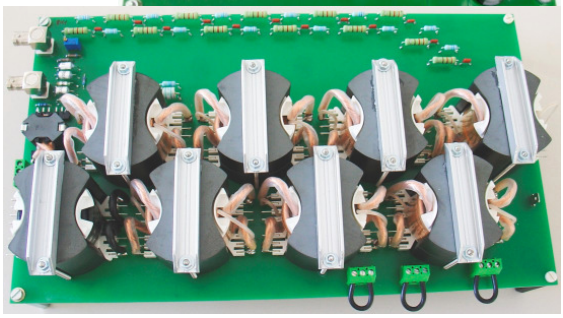
Datasheet Minipuls 4

kit for efficiently generating high frequency high voltage

The kit Minipuls 4 was developed for the generation of sinusoidal voltages in the range 5-20 kHz and amplitudes up to 20 kV peak (corresponding to 40 kVpp or 14 kV RMS). The kit consists of two boards: the full bridge board which is completely low voltage and the high voltage transformer cascade board. Power supply can be achieved with a standard laboratory power supply. Control is by external signal.





Full bridge board:

- Supply voltage 15-40 V
- Maximum input power <320W
- max. average output power 300W, peak power may be higher for a limited amount of time.
- peak current limit 40A.
- overtemperature shutdown
- Power supply fuse 10A.
- Nominal pulse frequency 10 kHz; recommended frequency range 5-20 kHz; possible frequency range 0-50 kHz.
- Waveform: The full bridge delivers square wave signal with either positive voltage, negative voltage, or a 0V pause, depending on input control signal.
- Size 127*178mm, weight 0.37kg

Control, Input, Output

- Connector for supply voltage 15-40V.
- Control is always external by control input, the control logic is selectable.

Behavior control input:

	logic: +/- 5V	logic: TTL
T1 on (output positive)	5V>U>3.2V	5V>U>3.2V
off (output 0V)	2V>U>-2V	2V>U>1.2V
T2 on (output negative	-3V>U>-5V	1V>U>0V

voltage at control input with no signal source connected:1.4V

Input currents control input < 0.5mA

- Inhibit input:

operation possible	input open or U<1.5V
operation stopped	U>1.54V

Current at inhibit input <0.5mA.

- All Inputs with screw terminals, output with 6.3mm plugs.

Transformer cascade PM62

- 7 cascaded output transformers PM 62
- maximum output voltage 20 kV peak at 10kHz, depending on load and also on frequency.
- Maximum peak output current 220mA.
- voltage monitor output (BNC) 1:2000
- current monitor output (BNC) 10V/A
- The upper 3 transformer stages can be shorted by Jumpers and therefore deactivated. This allows to reduce the transformer ratio of nominal 1:184 to 1:158, 1:132, 1:106 and therefore to drive higher capacitive loads respective lower impedances with however lower output voltages.
- Overvoltage limiting by spark gap at 24kV (3.4kV per transformer stage).
- Size 199*345mm, weight 4.1 kg.

Environmental

- operational temperature range 0-35 °C
- humidity 0-80%, the kit is designed to for operation in dry laboratory rooms.
- protection class III, IP 00, except HV output.

Safety, EMC

- There is NO protection against touching the on the cascade board! The high voltage output is the secondary of a high voltage transformer and has a very small stored energy (output capacity <<100pF). But it can deliver a current which is higher that what can be considered safe. Therefore, at least the cascade has to be mounted close to the load and such that it cannot be touched during operation. Also the ground connection must not be omitted otherwise HV will appear at the control side.
- As the intended use is barrier discharge loads with open connection, high frequency noise may be emitted, which may disturb sensitive instruments. It is the duty of the user to monitor and limit disturbances by appropriate measures or to live with them.

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