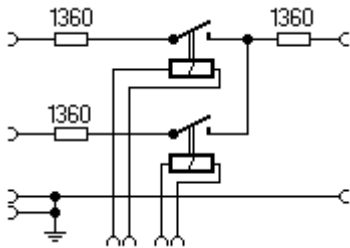


HV relais 10

OEM circuit board for switching between two voltages up to 10 kV

The HV relais 10 is designed to switch two different HV input signals to an output. It is intended for small currents and voltages up to 10 kV. It comes as a single OEM circuit board. It is intended to be integrated within a device or mounted in a housing.



Principal schematic

Function, high voltage side

The board consists mainly of two high voltage reed relays which switch two inputs to one output. The reed relays are controlled by separate 24 V coils. As mechanical switching causes extremely fast transients, there are 2*680 Ohm in series with each input, so in total there are always 2.7 kOhm between any input and output. These resistors, which are special high voltage proof resistors, limit the current and reduce electromagnetic disturbances caused by switching.

- Maximum voltage at any input/output: 10 kV
- Maximum RMS current: 50 mA
- Maximum stored energy in any input/output: ~100 J max., which corresponds to 2 μ F at 10 kV.
- Impedance across open relays: 0.8 pF, >10GOhm.

Relais control

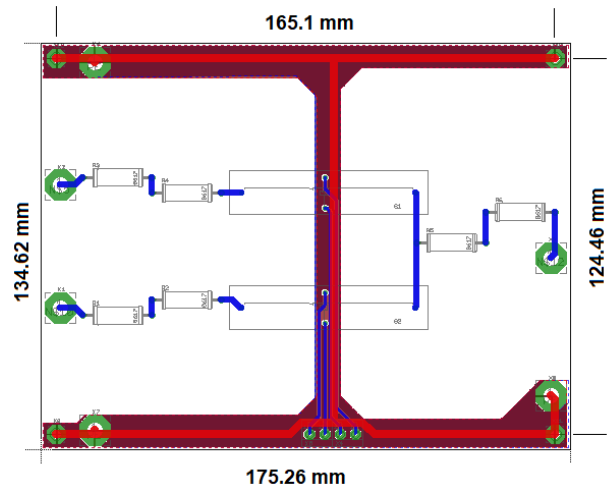
The relays are controlled by a nominal 24 VDC coil with a 465 Ohm resistance, resulting in 52 mA current at nominal voltage.

- Minimum pull in voltage: 18V
- Minimum drop out voltage: 2 V
- Operate time inc. bounce: 3 ms
- Release time: 1.5 ms

Connections, mechanical

- Circuit board, size 175*135mm.
- Mechanical fastening to bolts with M3 screws in the edges, distances 165.1 *124.46 mm. These screws are on ground potential.

- Inputs and output connections by holes for M5 screws.
- 3 additional screw holes M5 for ground connection.
- 2*2 screw cable clamps for relays coils.



Board layout

Environmental

- Operation temperature range 0-50 °C
- humidity 0-80%, the board is intended for use in dry laboratory rooms within a housing.

Safety

- The board can handle dangerous voltages up to 10kV. It should be mounted inside a housing such that it cannot be touched during operation.
- For isolation, the recommended distance for voltages up to 10 kV is 20 mm, preferably a bit larger. So also the mounting bolts for the board should have a length of at least 20 mm.
- Do not switch large capacitor banks with this. Otherwise the current limiting resistors will be destroyed.

The datasheet is preliminary.

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