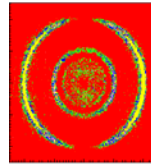


# The HV 2/4 high-voltage power supply module



The **RoentDek** 2x4kV Power Supply is especially designed for the use of biasing multi-channel-plate detectors or similar SEM devices, featuring low-ripple and regulated current limitation and protection. It is to be powered by a NIM crate or the **RoentDek** SPS2 mains adapter (**RoentDek** BIASET3). It is also possible to externally supply the operation voltage  $\pm 24\text{V}$  (800mA) and  $\pm 6\text{V}$  (100mA) DC (with low ripple as in NIM-crate standard) via the 9 pin socket on the rear panel, e.g. from the SPS2.

The switches on the side panel will set independently the respective channels to negative or positive output polarity, indicated by a LED on the front panel.

If a channel of the power supply is switched on (indicated by a LED), and the “control” switch is set to upward position, the 10-turn potentiometers at the front panel can be used for manual voltage setting  $U_a$  (10 turns correspond to 4000V, linear progression).

The voltages can also be ramped externally with an analog voltage (0 to +10 V DC) input to the Lemo00-sockets on the rear panel (10V analog input corresponds to 4000V output, linear progression). For this the “control” switch must be set to “DAC”

The A/B switch will set the display to channel A/B, the V/I switch will enable voltage or current reading of the respective channel. The accuracy of the reading is within a few volts and a few  $\mu\text{A}$  (typically  $1\mu\text{A}$ ), respectively.

The maximum current delivered is 3mA, the maximum voltage is  $\pm 4\text{kV}$ . Both can be restricted in 10% steps from 0.3mA to 3mA and 400 V to 4000.

**RoentDek** can also provide a 6kV version (6000 V, 1mA) of this module.

If the trip protection switch is set to “enable kill” the voltage will be turned off in case of over-current or over-voltage, according to the settings of  $V_{\text{max}}$  and  $I_{\text{max}}$ . Otherwise the module will try to engage the voltage again after limiting the current for a while (and usually dropping the voltage), however it will trip again if the problem persists. It will under no circumstance deliver more voltage/current than pre-set.

A TTL signal (“high”) on the “inhibit” input will also deactivate the voltage, like the event of an over-current, according to the position of the “enable kill” switch.

The red “error” LED will indicate the event of an over-current, over-voltage or “inhibit”.

The hardware ramp speed is 500V/sec max. (power switch on/off).

## Further specifications:

Operation temperature:	0 ... +50°C
Storing temperature*	-20 ... +60°C
Ripple (peak-to-peak)	< 50mV
Stability	$\Delta U_a < 2 \times 10^{-4}$ or $5 \times 10^{-5}$ of $\Delta U_e$
Temperature coefficient	< $1 \times 10^{-4}/^\circ\text{C}$

Figure: 2x4kV high-voltage power supply (front panel)

