



# HIGH VOLTAGE POWER SUPPLIES

PS-5  
PS-5C

Technical Description  
Rev. 2202

2022  
Lithuania



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### 1.1. Warranty Statement

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The HV power supplies are protected by a one-year warranty covering labor and parts. The warranty enters into validity since the shipment date. Any evidence of improper use or unauthorized repair attempts voids the warranty.

### 1.2. Service Contact Information

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For service/warranty requests, please contact:

EKSMA OPTICS, UAB  
c/o EKSMA Optics, UAB  
Dvarcioniu st. 2B  
LT-10233 Vilnius, Lithuania

Phone: +370 5 272 99 00  
Fax.: +370 5 272 92 99  
E-mail: [info@eksmaoptics.com](mailto:info@eksmaoptics.com)  
Website: [www.eksmaoptics.com](http://www.eksmaoptics.com)

## 2.1. General Information

### 2.1.1. Models

The table below lists standard options. Custom voltage modifications may be delivered on request.

**Table 1. Models**

<b>Catalog number</b>	<b>HV output tuning range, kV</b>	<b>Maximal HV current, mA</b>	<b>Output voltage control</b>
PS-5-1.8	+0.8 ... +1.8	2.8	By potentiometer
PS-5C-1.8	+0.7 ... +1.8	2.8	By CAN interface
PS-5-2.8	+1.8 ... +2.8	1.8	By potentiometer
PS-5C-2.8	+1.1 ... +2.8	1.8	By CAN interface
PS-5-4.0	+3.0 ... +4.0	1.3	By potentiometer
PS-5C-4.0	+1.6 ... +4.0	1.3	By CAN interface
PS-5-4.4	+3.4 ... +4.4	1.2	By potentiometer
PS-5C-4.4	+1.8 ... +4.4	1.2	By CAN interface
PS-5-5.0	+4.0 ... +5.0	1.0	By potentiometer
PS-5C-5.0	+2.0 ... +5.0	1.0	By CAN interface

### 2.1.2. Main Components

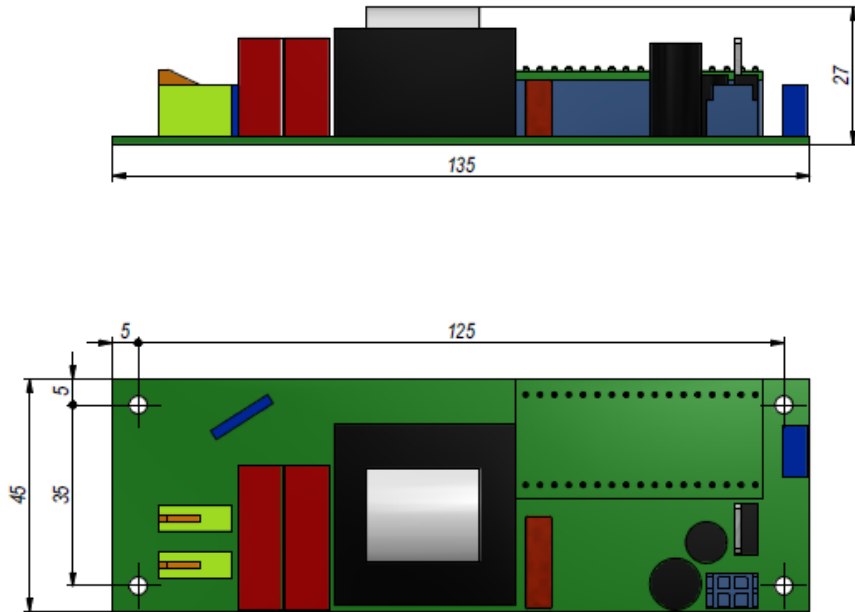
**Table 2. Main components**

<b>Component</b>	<b>Quantity</b>	<b>Notes</b>
High voltage (HV) power supply	1	-
DC power cable (l=1.5m)	1	-
Technical description	1	-

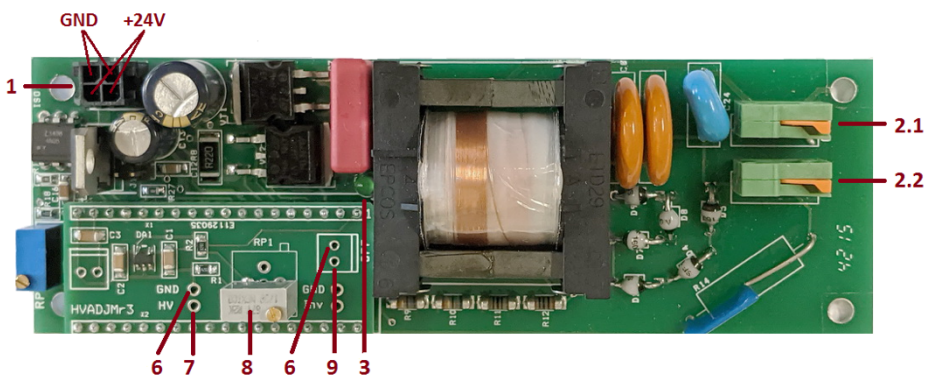
## 2.2. Technical Specifications

**Table 3.** Technical specifications

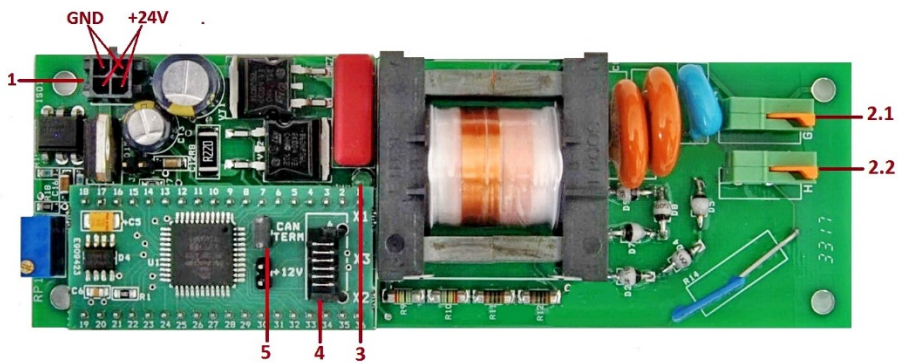
<b>Parameter</b>	<b>Value(s)</b>
Output voltage polarity	Positive
Maximum HV output power at maximal output voltage, <i>W</i>	5
Output voltage ripple, %	<0.5
Output voltage control	Internal potentiometer
	CAN interface (-C models)
Low voltage DC requirements	24±1 V, 350 mA
Maximum ambient temperature for operation, °C	45
Dimensions, <i>mm</i>	135×45×27
Weight, <i>g</i>	100



**Figure 1.** Outline drawing and dimensions of the HV power supply



**Figure 2.** Top view of the HV power supply with potentiometer control



**Figure 3.** Top view of the HV power supply with CAN interface control (-C models)



**Table 4.** Controls and connections of the HV power supply

#	<i>Port</i>
1	+24V DC supply input
2.1	GND for HV output
2.2	+HV output
3	LED "+24V" or "No errors" on <b>-C</b> models
4	CAN interface connector
5	CAN terminator
6	GND pins
7	Pin for HV measurement. 1:1000 output.
8	HV tuning potentiometer
9	Pin HV output off (HV output is off when pin connected to GND)

Equipment is designed to be safe under normal environmental conditions according to 1.4.1.61010-1@IEC:2010 (Safety requirements for electrical equipment, control and laboratory use):

1. indoor use;
2. altitude up to 2000 m;
3. temperature 5°C to 35°C;
4. maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 35°C;
5. POLLUTION degree 1: no POLLUTION or only dry, non-conductive POLLUTION occurs.

**Warning:**

***The safety of the system incorporating HV power supply is the responsibility of the assembler of the system.***

Operating the power supply is allowed to persons acquainted with the operation manual and having permission to deal with voltages over 1000 V.

Do not remove unit covers while power cable is connected to the mains (if applicable).

**WARNING**

***Direct contact with the exposed inner parts of the system when it is powered may cause human injuries or death.***

Do not operate the unit until it is **grounded** and the load is connected.

Do not use the unit if any defects have been detected.

### 5.1. Installation of PS-5

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#### 5.1.1. Ground the HV Power Supply

Provide proper ground connection to the HV module. In order to prevent electrical breakdown, ensure that the distance between the bottom of HV module and the surface below is more than 6 mm.

#### 5.1.2. Connect DC Power Supply

Connect the +24V DC power supply to the HV module. The DC power supply must be able to provide the maximum current as per 2.2 TECHNICAL SPECIFICATIONS.

#### 5.1.3. Set HV Voltage

Turn on +24V DC power supply.

Set the output voltage using the potentiometer (**#8** in **Figure 2**). Ways to control of the output voltage:

1. Measure the output high voltage directly if your control equipment is capable of measuring high voltage.
2. Alternatively, measure the voltage between points **#6** and **#7** in **Figure 2**. This voltage converts to output voltage approximately as  $1V \sim 1\text{ kV}$ .

#### 5.1.4. Connect the Load

Turn off +24V DC power supply.

Connect the HV supply load. Check that the connection cables are firmly attached.

HV output can be turned off when pins **#6** and **#9** in **Figure 3** are interconnected.

## 5.2. Installation of PS-5C

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CAN-USB converter is recommended for operation. It can be ordered from Eksma Optics. It comes together with software and a set of connection cables.



**Figure 4.** CAN-USB converter

### **5.2.1. Ground the HV Power Supply**

Provide proper ground connection to the HV module. In order to prevent electrical breakdown, ensure that the distance between the bottom of HV module and the surface below is more than 6 mm.

### **5.2.2. Connect CAN Cable**

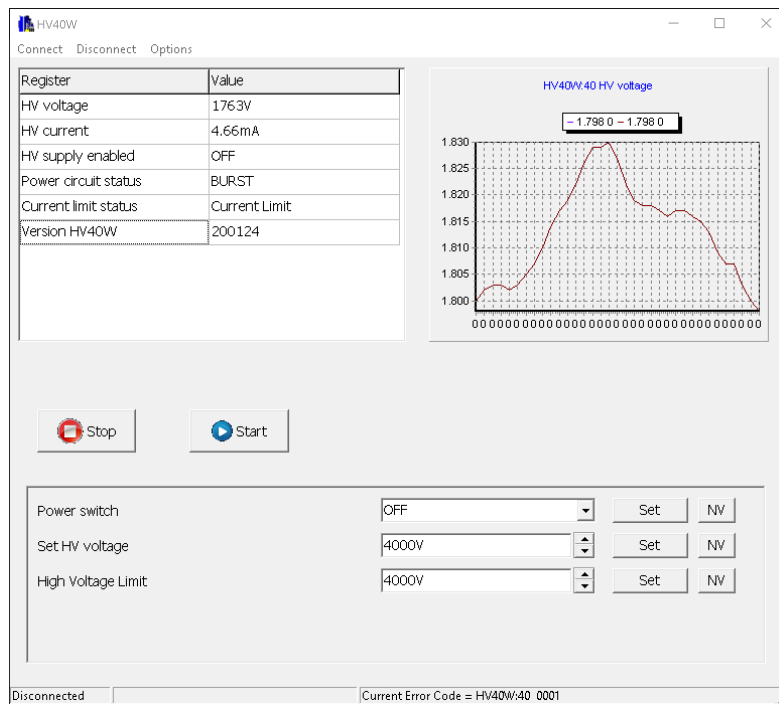
Connect CAN cable to connector (#4 in **Figure 3**) from USB-CAN converter and USB cable between USB-CAN converter and PC.

### **5.2.3. Connect DC Power Supply**

Connect the +24V DC power supply to the HV module. The DC power supply must be able to provide the maximum current as per 2.2 TECHNICAL SPECIFICATIONS.

### **5.2.4. Set HV Voltage**

Turn on +24V DC power supply. Use Control panel application to control via PC. It gives possibility to turn ON/OFF and set high voltage output as well as to read-out actual status.



**Figure 5. Control panel application**

Use CANBrowser software to read-out actual status of HV power supply and save CSV file while need for technical service or consultation of manufacturer. CSV file includes list of CAN control registers and actual settings.

### 5.2.5. Connect the Load

Connect the load. Check that the connection cables are firmly attached. Turn on HV supply via CAN Browser or Control panel application.