

Power Supply

Model No. D2-005

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Please read [Limited Warranty](#) and [General Warnings and Cautions](#) prior to operating the D2-005.

Link to [D2-005 Power Supply web page](#)

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D2-005 Power Supply

Description

The Power Supply is a quiet, linear power supply providing $\pm 15V$ and $5V$. It is in a separate box to isolate 60 Hz and EM interference. One power supply can power two complete laser systems, or four electronics modules.

Symbols

A list of symbols which appear on the D2-005, and their definitions, is provided below.



- Warning: consult manual



- Warning: risk of electrical shock. Consult manual.



- Alternating Current



- Chassis Ground

Warnings

This manual must be consulted in all cases where the Caution symbol is marked, in order to find out the nature of the potential hazards and any actions which have to be taken to avoid them.

Caution: Risk of Electrical Shock Do Not Open – The D2-005 contains high voltage components and should never be opened in any circumstance except by trained Vescent personnel.



There are no serviceable parts in the D2-005. Only Vescent is authorized to service this product.



Nothing must obstruct airflow from the top panel vent. Never place anything on top of the D2-005.



A potential hazard exists if the D2-005 comes into contact with water or other conductive liquids, and exposure to these should be avoided.

Special care must be given to replacing the provided mains power cord, such that any replacement cords are appropriately rated.

If the D2-005 is used in a manner not specified by Vescent or in this manual, the protection provided by the equipment may be impaired.

Purchase Includes

- D2-005 Power Supply
- VPN00464 Power Cord

Absolute Maximum Ratings

Note: All modules designed to be operated in an indoor laboratory environment with filtered air. There are no known altitude restrictions on the D2-005.

Parameter	Rating
Environmental Temperature	>15°C and <30°C
Environmental Humidity	<60%

Environmental Dew Points	<15°C
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Specifications

		Units
Current Limit		
+15V	1.5	A
-15V	1.5	A
+5V	6	A
Output Regulation	0.05	%
Input Voltages	100±10, 120±10, 230±10	V
Input Frequency	50, 60	Hz
Power Rating	160	VA

Replaceable fuses located in the power entry module are rated at 2A, 250V @115VAC or 1A, 250V @230VAC

Intended Use

The D2-005 is intended to supply low-noise DC electrical power to the following Vescent D2 products:

- D2-105 Laser Controller
- D2-125 Reconfigurable Laser Servo
- D2-135 Offset Phase Lock Servo
- D2-210 Spectroscopy Module
- D2-260 Beat Note Detector

Inputs, Outputs, and Controls

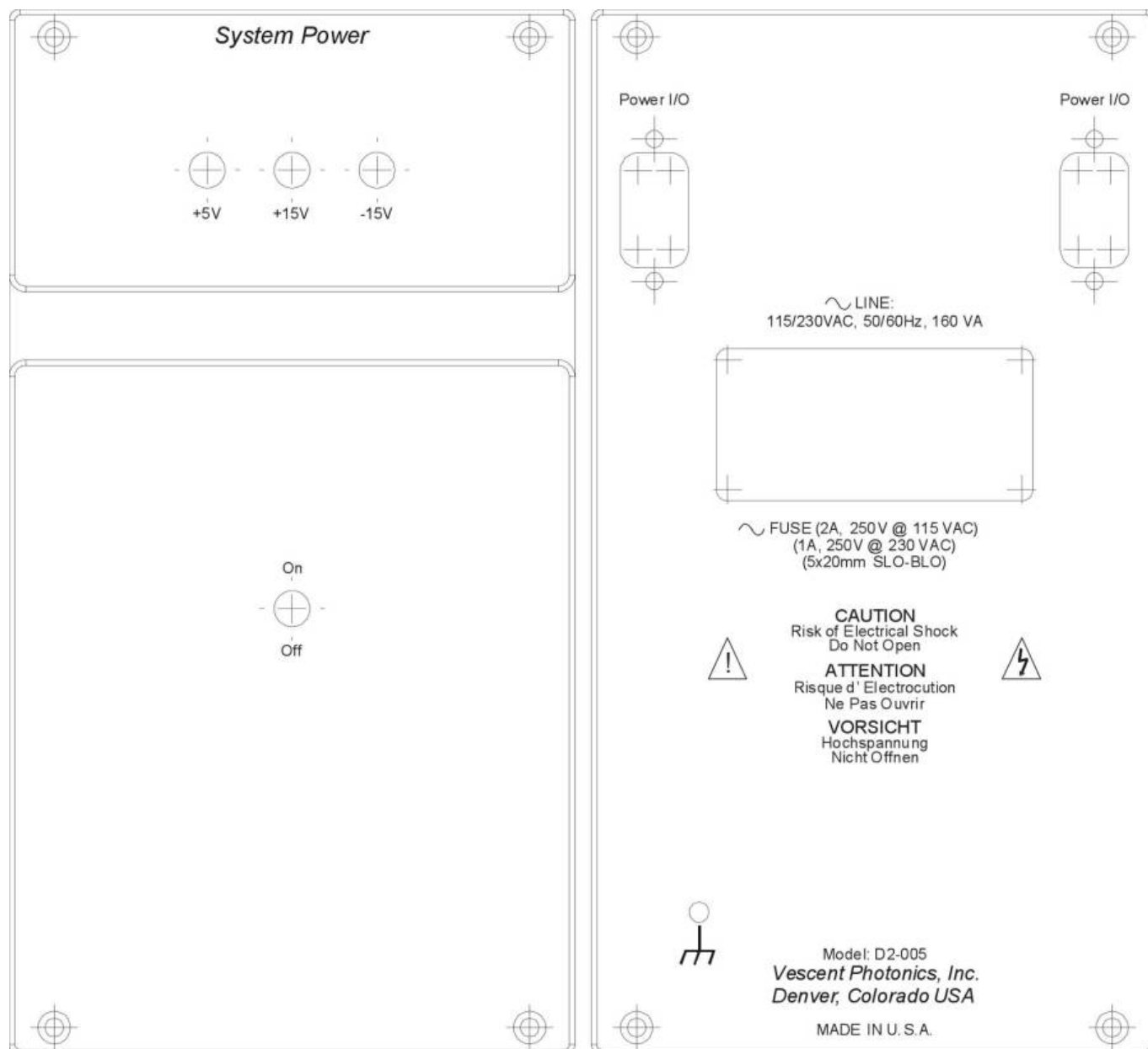


Fig. 1: Schematic drawing of the front and back panels of the D2-005

Monitor Section

The monitor section contains three blue status LEDs indicating proper voltage on the +15,-15, and 5V power lines. If there is a voltage sag on any of the power lines, the blue status LED will turn off.

Front Panel Controls

A single switch on the front panel of the D2-005 toggles whether power is enabled or disabled. Flipping the switch to the “On” position turns the power supply on, enables the fan, and illuminates the three LEDs on the front. Flipping it to the “Off” position turns the power supply, fan, and LEDs off.



Do not position the D2-005 such that it is difficult to operate the switch.

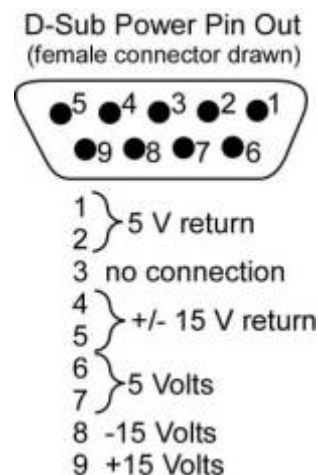
Back panel I/O

Power I/O (9-pin D-sub)



Always turn off the D2-005, make connections to the device, and then re-energize the D2-005. Never connect this D2-005 Power Supply to a device when it is switched on and supplying power.

Power is supplied to the D2-005 via a standard C13 to Type-B power cord. Connections to additional electronics modules are made through 9-pin D-sub connectors via any compatible serial cable. The D2 Electronics implement a “daisy chain” power configuration, in which each subsequent unit can be powered through the unit before it in the chain and does not need to be powered directly by the D2-005. There are two 9-pin D-sub connectors on the back of the D2-005. Either or both can be used to power external electronics, however, current is shared between the two connectors. The maximum power rating for the 5V line is 30W (6A), and for the ± 15 V line is 22.5W (1.5A). The pin outs are shown in the following figure:



In some system configurations, the D2-005 can radiate observable line noise on nearby D2 instruments and other electronics. This will appear as a signal at the frequency of your mains electricity (typically either 50 Hz or 60 Hz). This noise can easily be removed by moving the D2-005 at least 18 inches (45cm) away from other electronics, rotating it 90° such that the sides of the D2-005 face away, or by moving the entire power supply to a different shelf. To accommodate this, all D2-005's are shipped with a 5' DB9 cable as of January 1, 2022.



If you are considering using an Uninterruptible Power Supply (UPS) to guarantee operation of your Vescent products through a brown out or black out, great care should be taken in choosing the model. Lower cost models tend to produce modified square wave voltage profiles. The high-frequency components of such a voltage profile may interact poorly with the D2-005 (and down-stream active Vescent modules).



If you do choose to use a UPS, select a model that will provide a sine wave voltage profile without higher harmonic components to avoid potential damage to your high-value equipment.

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