


REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
A	RELEASE	08/09/00	PRL

INSTRUCTION MANUAL

for

0560 Series

High Voltage Power Supply

CONTRACT NO.		 <small>7313 SW TECH CENTER DRIVE PORTLAND, OR 97223 PH: (503) 598-9595 FAX: (503) 682-8164 WWW.CPSHV.COM</small>				
PREPARED P. R. Lubicki	DATE 08/09/01					
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SAFETY

THIS POWER SUPPLY GENERATES VOLTAGES THAT ARE DANGEROUS AND MAY BE FATAL. OBSERVE EXTREME CAUTION WHEN WORKING WITH THIS EQUIPMENT!

High voltage power supplies must always be grounded.

Do not touch connections unless equipment is off and the capacitances of both the load and power supply are discharged.

Do not ground yourself or work under wet or damp conditions.

LINE VOLTAGE CHANGES REQUIRE: 5 A FUSE FOR 120VAC AND 3.15 A FUSE FOR 220VAC!

SERVICING SAFETY

Maintenance may require removing the instrument cover with the power on.

Qualified personnel aware of the electrical hazards should do servicing.

WARNING notes in the text, call attention to hazardous operation with this equipment that could lead to possible injury or death.

CAUTION notes in the text indicate procedures to be followed to avoid possible damage to equipment.



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Features:

- Low cost high voltage power supply
- 10,000 V, 25mA output
- Line powered 120/220 VAC, 50/60 Hz
- Ground leakage detection safety circuit
- Remote programming
- Voltage and current precision monitoring

1. Introduction:

This CPS series of power supplies is designed for system component or stand-alone laboratory use in applications requiring a stable and regulated source of high voltage power. The applications include, but are not limited to the following: Electrophoresis, Capacitor charging, Phototube systems, Laser systems, etc.

Model 560 is a low-cost high voltage power supply designed for embedded systems. Its high voltage output is isolated from the AC line voltage and the case. A special circuit monitors leakage current to the case and the logic signal (LO in the case of excessive leakage) may be used to disable high voltage output for leakage currents greater than 500 μ A.

The unit is designed to safely withstand continuous short circuits without damage.

Several 0560 power supplies can be used in parallel for heavy loads exceeding 25mA for high power applications.

2. Electrical Specification:

- | | |
|------------------------------------|---|
| <i>Output Voltage (DC):</i> | Adjustable and controlled from 0 – 10 kV |
| <i>Output Voltage Programming:</i> | 0 – 5 V continuous programming for full output voltage swing |
| <i>Output Polarity:</i> | Positive or Negative (factory select) |
| <i>Output Current:</i> | Maximum 25mA (in order to increase the current rating several supplies can be used in parallel operation) |
| <i>Output Protection:</i> | All models are completely short circuit and arc proof. Output voltage is self-restoring after short removal |
| <i>Regulation:</i> | Line regulation <1% of output change for line variations of \pm 20%. Load regulation <1% of output change for load swing from 0 to 25mA |

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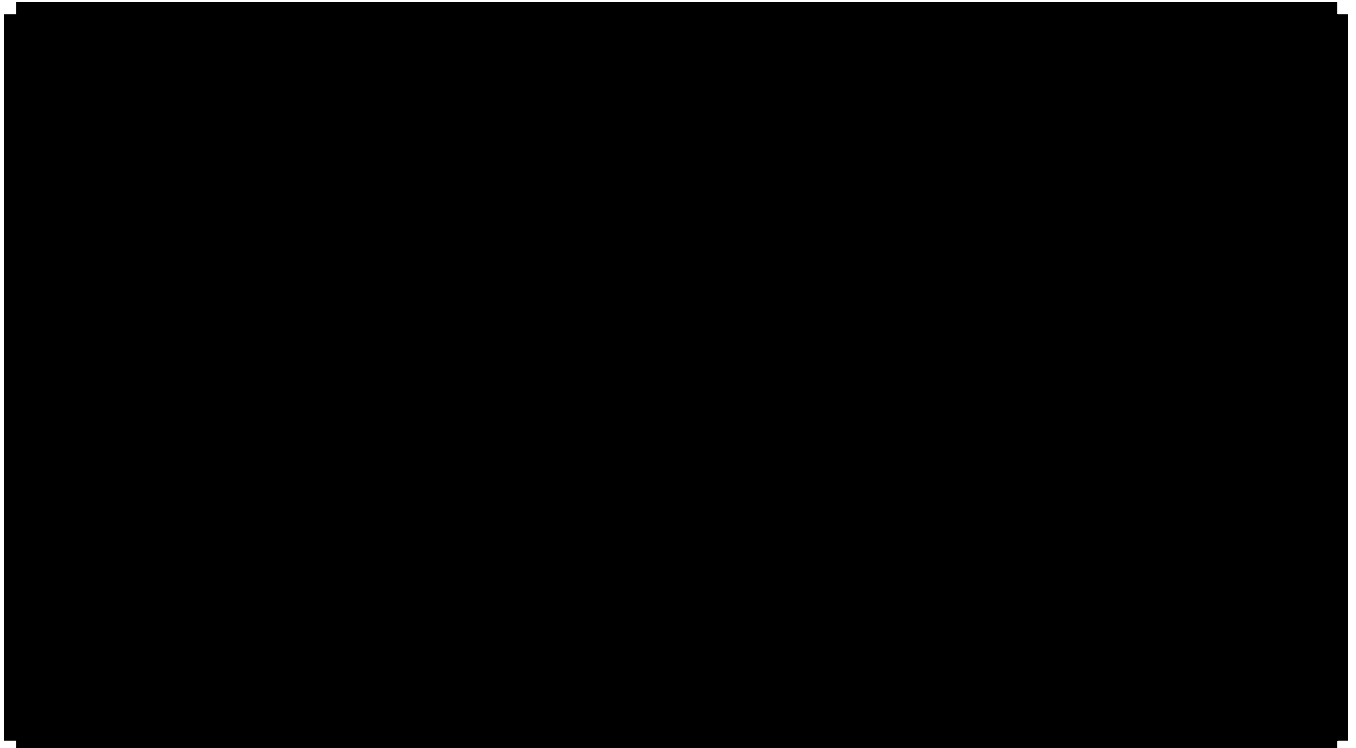
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<i>Ripple:</i>	Less than 1.0% at full load
<i>Voltage monitor:</i>	1 V per 2 kV
<i>Current monitor:</i>	1 V per 5.0mA
<i>Ground Leakage detection:</i>	The power supply is shut off in less than 1 second, if leakage current is equal or greater than 500 μ A
<i>Operating temperature:</i>	Within the range of 0 to 50 °C
<i>Enable pin:</i>	Yes (active low)
<i>Input voltage and frequency:</i>	115 V _{RMS} or 220 V _{RMS} selectable for frequency range 47 – 60 Hz

3. Block Diagram:**Fig. 1. Block diagram of 0560 high voltage power supply**

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4. Mechanical Specification:*Output Terminals:*

Alden HV connector 15 kV DC - "V1" High Voltage Connector. Case ground - #10 threaded stud with nut. Floating HV return - #8 threaded stud with nut. Input/Output signals - DB25 I/O connector

Unit Package:

5" H, 5.615" W, 11" D – see Figure 2. Four mounting holes placement at the bottom (UNC 10-32) see Figure 2 and IMPORTANT notice below

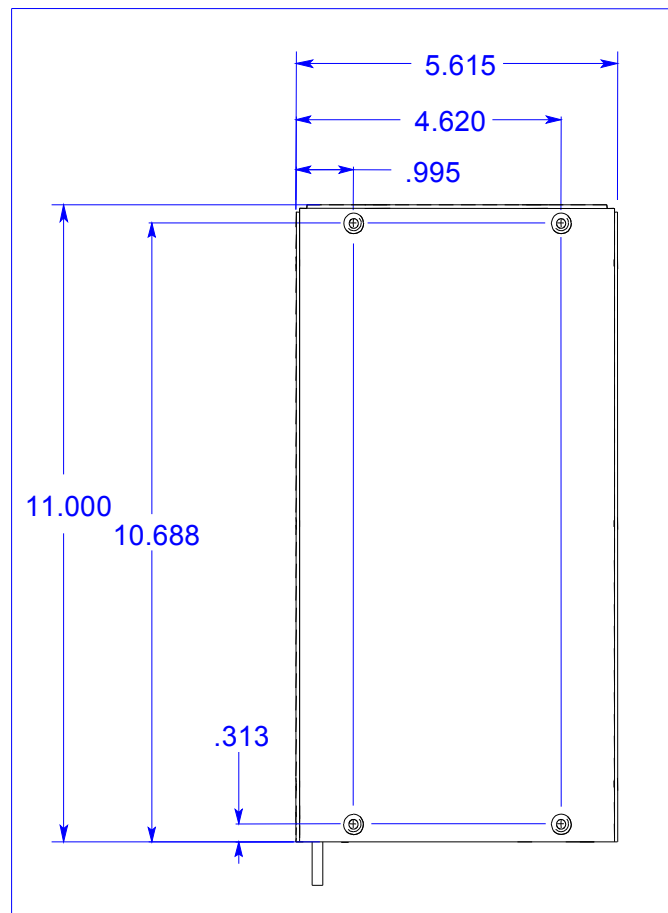


Fig. 2. Placement of mounting holes on the bottom panel of 0560 power supply

IMPORTANT

AS-032-2ZI SELF-CLINCHING FLOATING PEM FASTENERS ARE USED AS MOUNTING HARDWARE. TO MOUNT THE POWER SUPPLY TO METAL PANEL, USE SCREWS THAT PENETRATE THE ENCLOSURE'S INTERIOR FOR MAXIMUM 1/8".



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I/O DB25 Pin-out:

1	V Program “+”
2	V Program “-” (Signal Ground)
3	Not Connected
4	Output Voltage Monitor
5	Signal Ground
6	Signal Ground
7	Not Connected
8	Not Connected
9	Not Connected
10	Signal Ground
11	High Voltage Enable (Active Lo)
12	Not Connected
13	Test Use Reference (+13 V, 5mA)
14	Signal Ground
15	Signal Ground
16	Not Connected
17	Output Current Monitor
18	Signal Ground
19	Signal Ground
20	Ground Leakage Current Detection Logic
21	Not Connected
22	Not Connected
23	Not Connected
24	Not Connected
25	Not Connected

5. Operation:

WARNING

THIS EQUIPMENT GENERATES DANGEROUS VOLTAGES THAT MAY BE FATAL.
PROPER GROUNDING OF ALL HIGH VOLTAGE EQUIPMENT IS ESSENTIAL!



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IMPORTANT

BEFORE CONNECTING THE POWER SUPPLY TO THE AC LINE, FOLLOW THIS STEP-BY-STEP PROCEDURE!

DO NOT CONNECT THE POWER SUPPLY TO THE AC LINE UNTIL STEP G IS REACHED. FAILURE TO FOLLOW THESE PROCEDURES MAY VOID THE WARRANTY.

Step A

Check the input voltage rating of the supply (operating voltage selection) and make certain that the properly rated power source is to be used.

Step B

The chassis of the high voltage power supplies must be grounded. Use Case Ground connection. Case Ground connections are for shielding and safety only.

Step C

Attach the high voltage output cable to the load. Load should be connected between high voltage output and high voltage return. For the HV output connector: red HV wire is the high-voltage output, and black HV wire is the Case Ground for shielding purpose. HV return is floating from the Case Ground. It is a #8 threaded stud with nut, which is located below the Alden HV connector marked HV RTN.

Step D

Plug the high voltage-mating plug into the HV output receptacle on the front panel of the power supply and hand tighten until it is clamped.

Step E

Connect the DB25 I/O mating plug to the interface on the front panel of the high voltage power supply. Make certain that mating plug pins match the pin-out of the interface!

Step F

For initial turn-on, adjust the programming voltage to 0.0 V.

Step G

The input power may now be connected.

Step H

To adjust the required voltage, the following must be done: 1. Power supply must be turned on (ON/OFF switch in ON position). 2. Power supply must be enabled (active low). 3. Programming voltage then can be adjusted to a required output voltage. 4. To turn off the power supply, disconnect the power.



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WARNING

AFTER TURNOFF, DO NOT HANDLE THE LOAD UNTIL THE CAPACITANCE HAS BEEN DISCHARGED!

LOAD CAPACITANCE MAY BE DISCHARGED BY SHORTING TO GROUND!

WARNING

The voltage monitor of the power supply does not read the output voltage when the line is disconnected or turned off even if a charge (voltage) still exist across the load.

CAUTION

Always operate the unit with the cover on. Do not attempt to access or repair any internal circuits. Dangerous and lethal voltages are generated inside the module.

6. Warranty:

COMPUTER POWER SUPPLY, Inc. (CPS) warrants equipment of its manufacture against defective materials or workmanship for a period of one year from the date of shipment.

CPS will repair or replace any defective product, which was not damaged by negligence, misuse, improper installation, accident or unauthorized repair or alteration by the buyer.

This warranty is applicable to the original Buyer only and constitutes the sole and exclusive warranty of Seller. No other warranty is made, expressed or implied.