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Fax: (203) 378-2457
E-MAIL 73163.1321@compuserve.com

POWER SUPPLY

MODEL 6060/6061

Please read these instructions completely before operating this equipment. If there are any questions or problems regarding the use of this equipment, please contact: ORIEL INSTRUMENTS - or - the representative from whom this equipment was purchased.

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Z.A. De Courtaboeuf
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I. SAFETY

This power supply provides, at its outputs, a high voltage (1200-1500V) to "break down" calibration lamps and then a low current to sustain the discharge through the lamp. **Make sure that the output is connected to an appropriate pencil lamp before operating the supply.** Supply voltage (110 or 220 VAC) terminals inside the power supply are exposed if you remove the cover. **Potentially lethal voltages exist within the power supply.**

DO NOT OPEN THE SUPPLY WHEN IT IS PLUGGED INTO THE LINE

PROTECT YOUR EYES FROM UV RADIATION EMITTED BY THESE LAMPS

THE **6060** IS SET INTERNALLY FOR **110** VAC INPUT.
THE **6061** IS SET INTERNALLY FOR **220** VAC INPUT.

This Power Supply is suitable for the Oriel Pencil Lamps listed below:

Lamp Model No.	Type	Operating Current* (mA)	Rated Life** (Hrs)	DC Power Supply	
				110V	220V
6034	Hg-Ne	18	500	6060	6061
6035	Hg(Ar)	18	5000	6060	6061
6030	Ar	10	500	6060	6061
6031	Kr	10	1000	6060	6061
6032	Ne	10	250	6060	6061
6033	Xe	6	250	6060	6061

*NOTE: Prolonged operation above these limits will cause the lamp handle to melt. Use the current monitor feature to avoid this condition.

** This data is for AC operation

II. SUMMARY OF CONTROLS

On the Front Panel:

a. Illuminated OFF/ON switch

b. Current adjustment knob marked 0, 10, 20mA (at max)
adjusts the lamp current

c. Mode and Polarity Switch (marked DC+/ AC/DC-)
selects AC or DC operation and its polarity.

On the Rear Panel:

a. Terminals for monitoring the lamp current with a DC voltmeter
10mV = 1mA lamp current

III. SUMMARY OF CONNECTIONS

a. Line Power Cord (on the rear panel)

b. Lamp Power Cord (on the rear panel)
connects to pencil style mercury lamps

IV. DESCRIPTION

IV.1 AC MODE

Switching to this mode is required to start the lamp. When in this mode the current is reversed every ~30ms. Unlike conventional AC supplies, the current reversal is not at line frequency with resulting deep modulation of the light at twice line frequency. Instead of sinusoidal current pulses, "top hat" pulses are used with minimal reversal time. The resulting light output is shown in Fig 1. The modulation depth on reversal depends on the type of lamp. The figure shows the total UV and visible light from a 6035 mercury lamp.

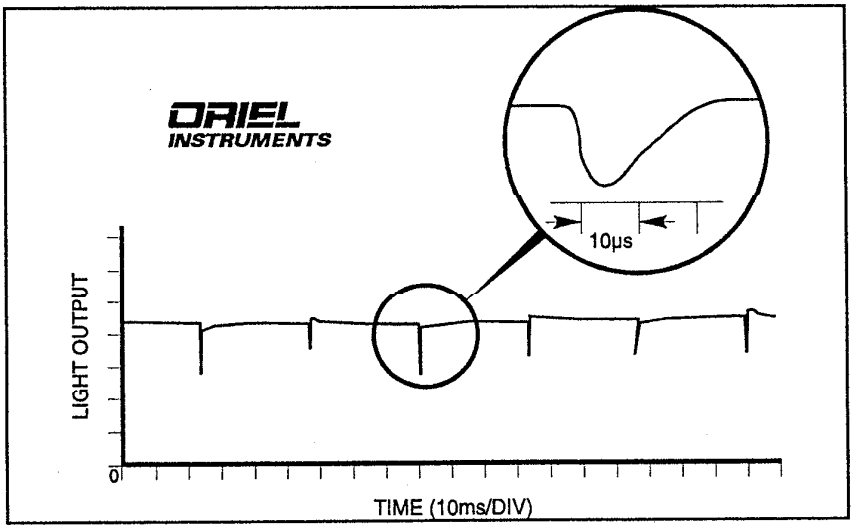

Figure 1

Output intensity of 6035 Lamp operated by 6060 Power Supply with switch set on AC.

IV.2 DC MODE

When you have started the lamp with AC mode and the lamp has warmed up for a few minutes, you can switch to DC+ or DC-. The current through the lamp is then true DC and the light output, as shown in Figure 2 has very little ripple. It is important to switch polarities as described in the operation section. DC Mode is ideal for radiometry or quantitative luminescence with detection such as photodiode arrays which have 'gating time', 'window' or exposure time. With DC Mode you can be sure of getting the same light energy in the same interval.

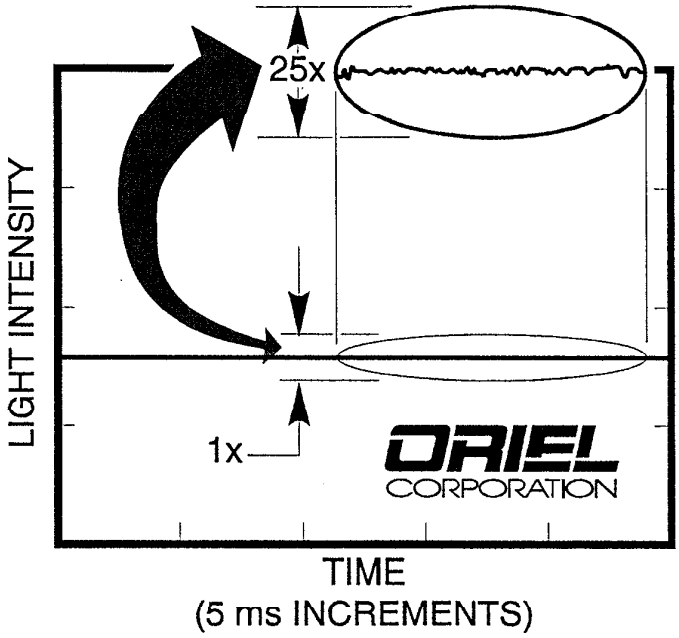

Figure 2

Output intensity variation of 6035 Lamp operated by 6060 Power Supply with the switch set on DC. The 25X expanded sensitivity scale shows the low ripple.

V. OPERATION - CURRENT SETTING AND MONITORING

When starting a new lamp you should make sure the power supply is off; then connect the lamp to the output cable, switch the power supply to **AC** and set the current knob to mid range or higher. After the lamp has warmed up you can leave it in AC or switch to DC mode and monitor the current using a laboratory voltmeter. Output jacks on the rear of the unit provide a DC output voltage (irrespective of the AC/DC switch setting) proportional to the lamp current. 1 mA lamp current provides 10 mV, so for the 6035 Hg(Ar) lamp you should turn the current adjust so your voltmeter displays 100mV.

Note that the current monitoring jacks are isolated from the high start voltage. You can use currents other than the rated current to change the intensity of a line or intensity balance between lines. You may **shorten** the life of the lamp by doing this. Reducing the current will not necessarily prolong life. If the current is reduced too much the lamp will pulse; starting and extinguishing quickly. Avoid this type of operation, it may damage the lamp and the power supply.

RESTARTING THE LAMP

You must always have the switch in **AC** mode to start the lamp. Normally you do not need to reset the current. The lamp should restart at the rated current setting and reach that current after warm up. As the lamp ages you may need to set the current knob at a higher setting to start and after warmup turn the current down to the operating level.

IMPORTANT CONSIDERATION FOR DC MODE

When you operate the 6034 and 6035 mercury lamps in DC Mode, a slow migration of the mercury takes place. To avoid permanent damage to the lamp, you should reverse the polarity each time you switch to the DC Mode.

VI. TROUBLESHOOTING

The 6060 power supply contains no user-serviceable parts. **Potentially lethal voltages exist within the power supply**, and no field servicing should be attempted. (If a failure does occur, please notify ORIEL or your local representative.)

WARRANTY AND RETURNS

WARRANTY

Oriel Instruments warrants that all goods described in this manual (except consumables such as lamps, bulbs, filters, ellipses, etc.) shall be free from defects in material and workmanship. Such defects must become apparent within the following period:

1. All products described here, except spare and repaired parts: one (1) year or 3000 hours of operation, whichever comes first, after delivery of the goods to buyer.

2. Spare parts: ninety (90) days after delivery of goods to buyer.

3. Repaired items: ninety (90) days after delivery of goods to buyer.

Oriel Instruments' liability under this warranty is limited to the adjustment, repair and/or replacement of the defective part(s). During the above listed warranty period, Oriel Instruments shall provide all materials to accomplish the repaired adjustment, repair or replacement. Oriel Instruments shall provide the labor required during the above listed warranty period to adjust, repair and/or replace the defective goods at no cost to the buyer ONLY IF the defective goods are returned, freight prepaid, to an Oriel Instruments designated facility.

Oriel Instruments shall be relieved of all obligations and liability under this warranty if:

1. The user operates the device with any accessory, equipment or part not specifically approved or manufactured or specified by Oriel Instruments unless buyer furnishes reasonable evidence that such installations were not a cause of the defect.

2. The goods are not operated or maintained in accordance with Oriel's instructions and specifications.

3. The goods have been repaired, altered or modified by other than Oriel authorized personnel.

4. Buyer does not return the defective goods, freight prepaid, to an Oriel repair facility within the applicable warranty period.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY SHALL REPLACE ALL WARRANTIES OF FITNESS AND MERCHANTABILITY. BUYER HEREBY WAIVES ALL OTHER WARRANTIES, GUARANTIES, CONDITIONS OR LIABILITIES, EXPRESSED OR IMPLIED, ARISING BY LAW OR OTHERWISE, WHETHER OR NOT OCCASIONED BY ORIEL'S NEGLIGENCE.

This warranty shall not be extended, altered or varied except by a written document signed by both parties. If any portion of this agreement is invalidated, the remainder of the agreement shall remain in full force and effect.

CONSEQUENTIAL DAMAGES -

Oriel Instruments shall not be responsible for consequential damages resulting from misfunctions or malfunctions of the goods described in this manual. Oriel's total responsibility is limited to repairing or replacing the misfunctioning or malfunctioning goods under the terms and conditions of the above described warranty.

INSURANCE -

Persons receiving goods for demonstrations, demo loan, temporary use or in any manner in which title is not transferred from Oriel, shall assume full responsibility for any and all damage to the goods while they are in their care, custody and control. If damage occurs which is unrelated to the proper and warranted use and performance of the goods, then the recipient of the goods accepts full responsibility for restoring the goods to their condition upon original delivery, and for assuming all costs and charges.

RETURNS

Before returning equipment to Oriel for repair, please call the Customer Service Department at (203) 377-8282. Have your purchase order number available before calling Oriel. The Customer Service Representative will give you a Return Material Authorization number (RMA). Having an RMA will shorten the time required for the repair, because it ensures that your equipment will be properly processed. Write the RMA on the returned equipment's box. Equipment returned without a RMA may be rejected by the Oriel Receiving Department. Equipment returned under warranty will be returned with no charge for the repair or shipping. Oriel will notify you of the cost of repairs not covered by warranty before starting out of warranty repairs.

Please return equipment in the original (or equivalent) packaging. You will be responsible for damage incurred from inadequate packaging, if the original packaging is not used.

Include the cables, connector caps and antistatic materials sent and/or used with the equipment, so that Oriel can verify correct operation of these accessories.