M-69907

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ARC LAMP POWER SUPPLY

MODEL 69907

USER MANUAL

Please read these instructions completely before operating this equipment. The specification and operating instructions apply only to the model(s) covered by this manual. If there are any questions or problems regarding the use of this equipment, please contact Newport or the representative from whom this equipment was purchased.

Rev: 10-06-08

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I INTRODUCTION

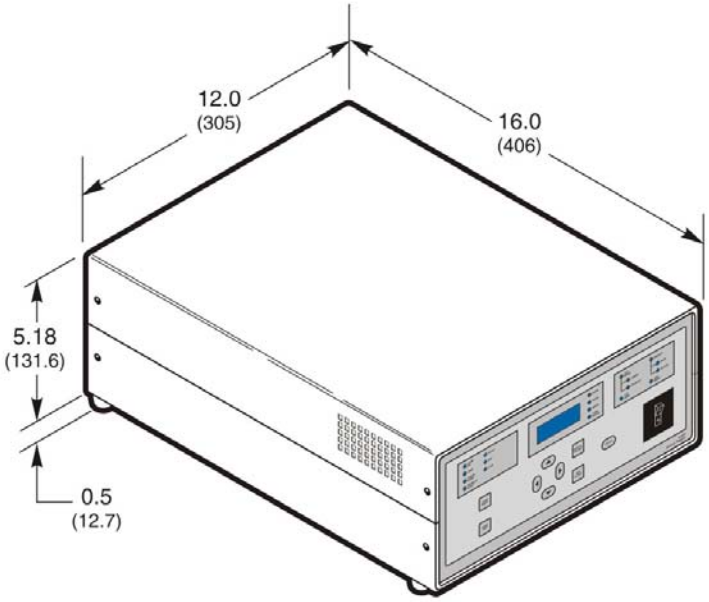
I.1 DESCRIPTION / FEATURES

The Newport model 69907 power supply was designed to meet the needs of a regulated source of power or current for proper operation of high power ARC light sources. The 69907 provides constant power/current operation of these sources of radiation, which is usually required whenever a radiometric measurement is being made or whenever highly stable light output is needed. (Constant current operation is also available.)

Features include:

- Adjustable output with preset so that the output can be set before running the lamp.
- Digital display is included for precise monitoring of current, voltage, power and lamp running time.
- LED indicators show the status of important power supply functions.
- Start/stop control ignites lamp at preset value to minimize overshoot/undershoot of power to lamp. Stop allows shut down of lamp with continued cooling until lamp reaches room temperature.
- Safety interlock connector provides a way of safeguarding against accidental exposure to UV light when used with a NEWPORT lamp housing.
- Remote I/O connector on the rear panel of the 69907 provides remote metering capability and direct connection to the NEWPORT 68950 Light Intensity Controller. The 68950 is typically used when a high level of long term stability is required.
- RS-232 Communication allows remote operation and monitoring of the power supply.
- Optional IEEE Communication allows remote operation and monitoring of the power supply.

I.2 DIMENSIONS



I.3 ORDERING INFORMATION

Arc Lamp	Lamp Description	Power Range Watts	Typical Voltage VDC	Typical Current ADC	Average Life (Hours)	Lamp Housing [1]	Lamp Socket Adapter
MERCURY LAMPS							
6282	50W Hg	40 - 55	22	2.3	200	50W-500W Research Housing [1]	66158
6281	100W Hg	80-110	20	5	200		66150
6283	200W Hg	160 - 220	57	3.5	1000		66144
XENON LAMPS							
6251	75W Xe	60-82	14	5.4	400	50W-500W Research Housing [1]	66150
6263	75W Xe Ozone Free						
6257	100W Xe Ozone Free	80-110	14	7	500		66150
6253	150W Xe	120-165	20	7.5	1200		66151
6254	150W Xe UV						
6255	150W Xe Ozone Free						
6256	150W Xe Compact						66152
MERCURY-XENON LAMPS							
6289	200W HgXe	160 - 220	20-25	8-9.5	1000	50W-500W Research Housing [1]	66169
6290	200W HgXe Ozone Free						

Table 1 Arc lamps for Model 69907 300W power supply

[1] Models 66901-66905, 66912, 67001, 67003, 67005, 67006. The difference between these housings is the condenser lens. Once you have established which condenser is most suitable for your applications, contact a Newport sales representative / engineer.

Please refer to the solar simulator manual for lamp adaptors and operation conditions when using the power supply in these systems.

I.4 69907 REPLACEMENT ITEMS

International

Model	Item Description
70010	Line Cord International Color Code
[1]88010720	Plug (Great Britain, Ireland) 13A, 250VAC
[1]88010801	Plug (Continental Europe) 16A, 250 VAC
[1]88010732	Plug (Switzerland) 10A, 250VAC
70050	Xe, HgXe Lamp interconnect cable
70051	Hg Lamp interconnect cable

Table 2

[1] Contact PANEL COMPONENTS CORPORATION
P.O. Box 115, Oskaloosa, IA 52577 (USA)
(515) 673-5000

II SAFETY NOTES

II.1 UV HAZARDS

- *Our ARC Lamps produce considerable ultraviolet and infrared radiation. Avoid excessive exposure of the eyes or skin to radiation from these lamps. Protective eyewear, gloves, and UV Warning Signs are available from Newport.*

- 49125 UV Safety Spectacles
- 49126 UV Safety Goggles
- 49121 Protective Gloves
- 79004 Lighted Warning Signs (115 VAC, 250 mA, 50/60 Hz)
- 79005 Lighted Warning Signs (230 VAC, 125 mA, 50/60 Hz)

II.2 ELECTRICAL HAZARDS

- Make all connections to or from the power supply with the power off. There may be up to 200 volts present at the output terminals; this could be dangerous if care is not exercised when the power supply is on.

- *Do not use the power supply without its cover in place. Lethal voltages are present inside.*

II.3 FIRE HAZARDS

- *Arc lamps are extremely hot during operation, and for several minutes after being shut off. Keep flammable objects away from the lamp and lamp housing.*

- *Newport Research (Fan-Cooled) Housings are equipped with a condenser lens. The re-focused output of this lens can cause ignition of flammable targets (ex: wooden walls, certain chemicals).*

II.4 KEEPING THE LAMP IN GOOD CONDITION

- *Never touch the lamp envelope or element with uncovered fingers, even during installation, or its lifetime and performance can be negatively affected.*

- *Do not run the lamp more than 10% above its current or power rating. Source lifetime will decrease dramatically at higher operating point.*

III USING THE POWER SUPPLY

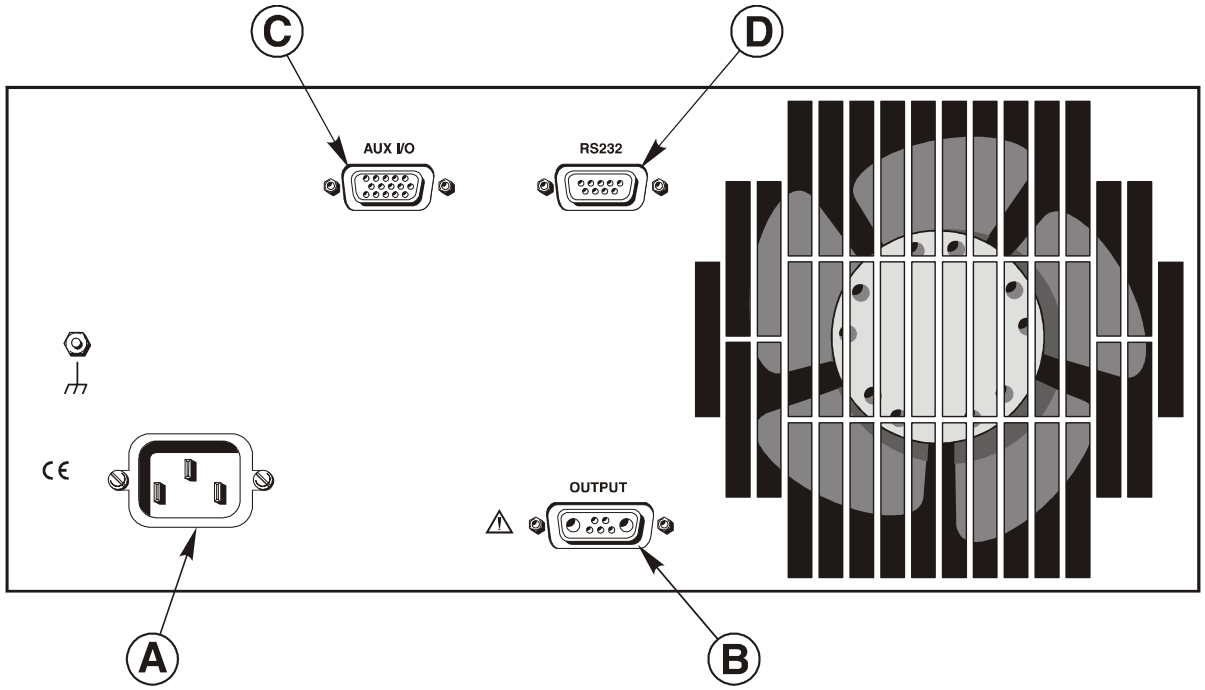


Figure 1

III.1 REAR PANEL CONNECTIONS

AC MAINS CONNECTION

NOTE: The Recommended Line Voltage For the 69907 is 95-264 VAC, 50/60 Hz.

Verify that the front panel power switch is in the off position, and then connect the provided AC cable between the IEC style socket (A in Figure 1) on the rear panel and the wall outlet.

LAMP CONNECTIONS

With the power supply off, connect the cables from the Newport lamp housing/igniter to the OUTPUT connector, (B in Figure 1), which provides all the signals necessary to interface this power supply to Newport lamp housing and igniter.

Table 3 gives signal information at the rear terminals of the power supply. Please note that the 70051 cable has A1 and A2 pins reversed in the cable assembly.

Table 3

PIN	SIGNAL	
A1	LAMP (-)	Connection to lamp negative terminal
A2	LAMP (+)	Connection to lamp positive terminal
1	GND	Ground for interlock (fan/elapsed time indicator if in housing)
2	INTERLOCK (+)	Connected to +12V to satisfy interlock
3	+12V	Dc voltage for interlock (fan/elapsed time indicator if in housing)
4	IGNITOR DRIVE	Momentary ground connection to fire Newport igniter
5	INTERLOCK (-)	Connected to GND to satisfy interlock

MATING CONNECTOR:

- Body: ITT# DAM-7W2P-K87 (includes pins 1-5)
- Pins: ITT# DM 53745-1 (requires 2 per connector, A1 and A2)
- Backshell: Standard 15-pin D-SUB

INTERLOCK

The 69907 has a safety interlock feature, which must be satisfied before the power supply output will activate and which, if broken during operation, will disable the power supply.

When connected to a Newport Research housing, cables must be attached, the housing must be closed properly and any over temperature sensor satisfied for the power supply to drive the lamp.

The cable used for the other applications includes 2 pairs of interlock wires in each cable, which are shorted together to represent a satisfied interlock condition. If an interlock is desired with these configurations, separate the brown and blue interlock wires at the lamp/element end of the cable and tie them into the interlock system. A contact closure is required to satisfy the interlock.

REMOTE CONNECTOR

Access to the internal metering and control signals is provided through this connector (C, Figure 1). It is a High Density 15 pin D-SUB connector with the following pin assignments:

Pin 1 External control input. A 2.5–5 volt DC signal will decrease the output approximately 20% maximum. 5 Vdc represents maximum turn down.
Pin 2 Not used.
Pin 3 Input control common.
Pin 4 Not used.
Pin 5 Remote start common
Pin 6 Not used.
Pin 7 Remote start/stop. Momentary contact with remote start common will start lamp if lamp is off. When lamp is on, this action will stop the lamp.
Pin 8 Not used.
Pin 9 Remote meter output: Power 0-2.0V indicates 0-300W.
Pin 10 Remote meter output. Current 0-2.0V indicates 0-12A.
Pin 11 Remote meter output: Voltage 0-2.5 indicates 0-100V.
Pin 12 Not used.
Pin 13 Not used.
Pin 14 Not used.
Pin 15 Not used.

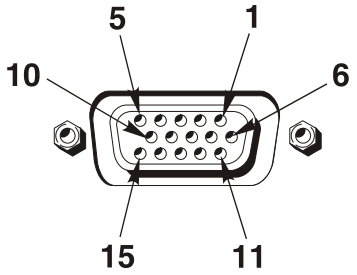


Figure 2

Remote Connector 15- Pin D-SUB Assignment

RS-232 CONNECTOR

Access to all of the power supply operating functions can be controlled via a RS-232 communications link to a PC. (D**,** *Figure1*. It is a 9-pin D-SUB connector with the following pin assignments:

Pin 1	Not used.
Pin 2	TX.
Pin 3	RX.
Pin 4	Not used.
Pin 5	GND.
Pin 6	Not used.
Pin 7	Not used.
Pin 8	Not used.
Pin 9	Not used.

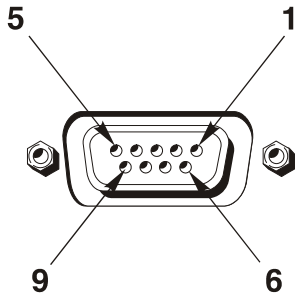


Figure 3

RS-232 Connector 9- Pin D-SUB Assignment

The cable for the RS-232 connection can be ordered from Newport as follows:

Computer	**Power Supply**	**Newport Part Number**
Female DB9	Male DB9	10-60-018
Female DB25	Male DB9	10-60-015

Please contact your Newport sales representative to order the cable.

III.2 FRONT PANEL CONTROLS AND DISPLAYS

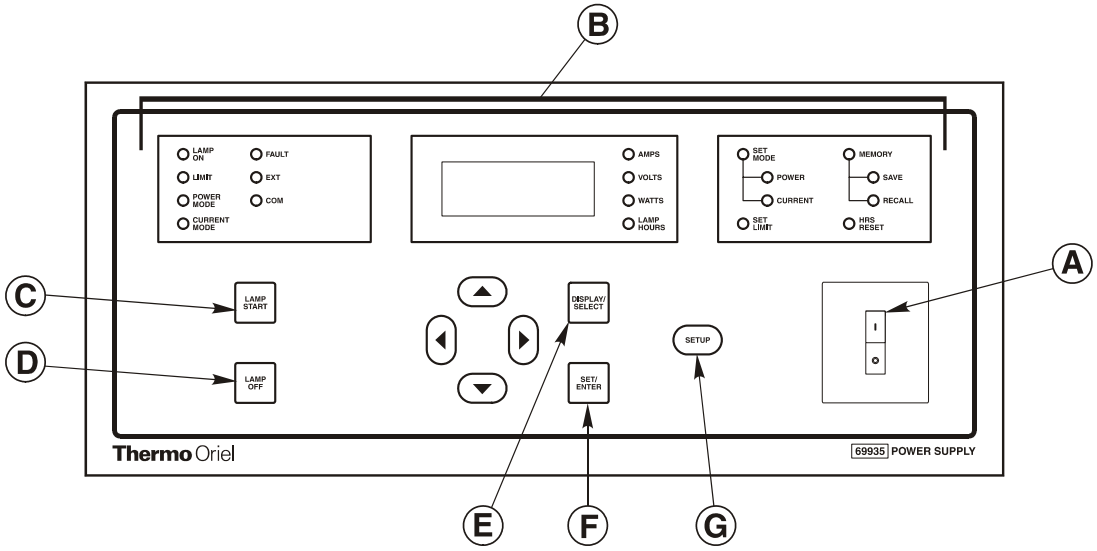


Figure 4:

Front Panel Display

POWER

This is the AC mains power switch and circuit breaker. In the "ON" position ac power will be switched into the main circuitry of the power supply, (A in Figure 4). There is no output until the "LAMP ON" button is pressed with the interlock satisfied. The circuit breaker will turn off the power supply in the event of an electrical overloaded.

DISPLAY SECTION

The display section, (B in Figure 4, consists of a multi-function LED display and several LED indicators. It is divided into three areas - meter (center), status indicators (left), and setup indicators (right).

The METER AREA contains the display and units indicators. It normally displays one of four parameters; current (AMPS), voltage (VOLTS), power (WATTS), and Lamp operating time (LAMP HOURS). It is also used when setting current/power preset, current/power limit, user memory load/save, and to display type of fault.

The STATUS AREA contains seven indicators:

LAMP ON -	Flashes while ramping up to and down from the preset current or power level, and illuminates continuously when the output is at the preset value.
LIMIT -	Illuminates when the output current/power reaches the limit.
POWER MODE -	Illuminates when the power supply is set to regulate output power.
CURRENT MODE-	Illuminates when the power supply is set to regulate output current.
FAULT -	Illuminates when the safety interlock loop is open, Power supply failure, and lamp housing failure.

EXT - Illuminates when the remote input is active, typically when the NEWPORT 68950 Intensity Controller is connected.

COMM - Illuminates when the power supply front panel is locked out via RS232 command. Control is through RS232 only.

The SETUP AREA is only active in setup mode. Each of the four indicators flashes while advancing through the parameters. See section III.3 for a detailed description of setup mode.

LAMP START

This button, (C in Figure 4 starts the lamp at the preset power or current level, provided there are no fault conditions.

LAMP OFF

If the lamp is on, pressing this button (D in Figure 4 removes power to the lamp. The housing will still be powered allowing cooling fans to continue running until the lamp has reached a safe handling temperature.

DISPLAY/SELECT

Each time you press and release this button (E in Figure 4), the digital meter and associated units indicators switch between one of four functions - current (AMPS), voltage (VOLTS), power (WATTS), and lamp operating time (LAMP HOURS).

SET/ENTER

Depressing the "SET/ENTER" button, (F in Figure 4), at any time displays the preset power or current level. Holding the "SET/ENTER" button for 3 seconds allows the preset value to be changed to any value within valid limits (upper limit set in setup mode). The display will show the present value with one digit blinking. Pressing the up or down arrow will allow changes to this digit. Pressing the left or right arrow button will flash the digit to the right or left of presently blinking digit and allow changing that digit by using the up or down arrows. Pressing "SET/ENTER" will lock this value in as the new preset. **NOTE: If the LAMP ON indicator is on, any change to preset is immediate to the output during adjustment without pressing "SET/ENTER".** (This allows fine-tuning of output light intensity.) The factory default preset for current is 7.5A, and the factory default preset for power is 150W.

Factory Restore

The power supply can have all parameters restored to factory setting by applying AC power while holding down the "LAMP OFF" button. This will set the Power limit to 300 Watts, Current limit to 12 Amps, mode to power, and preset to 150Watts.

III.3 SETUP MODE

Depressing the SETUP button (G in Figure 4), when the LAMP ON indicator is off enters setup mode**. If LAMP ON indicator is illuminated the SETUP button is inactive.** Once in setup mode, there are four main items that may be set up – SET MODE, SET LIMIT, MEMORY, and HRS RESET. Pressing SETUP at any time will exit the setup mode. Newport recommends scrolling through the setup parameters a second time before exiting setup to verify all parameters. **CAUTION: Be sure to press "SET/ENTER" after each adjustment or the selection will not be entered and system will revert to previous setting.**

SET MODE

The "SET MODE" indicator should flash. This allows you to change from the default power regulation mode to current regulation mode. If the mode is correct and no changes are desired, pressing "DISPLAY/SELECT" will move on to "SET LIMIT". To change the mode, press the up or down arrow. This will alternately illuminate the "CURRENT " and "POWER " indicators. Press "SET/ENTER" to enter the selection and move on to the next item.

SET LIMIT

The "SET LIMIT" indicator should flash. This allows you to change the power limit or current limit within the range of 40 - 300 WATTS and 1.5 - 12.0 AMPS dependant upon the mode of operation. The display shows the limit in AMPS if in current mode, and WATTS if in power mode with the least significant digit blinking. If the limit is correct and no changes are desired, pressing "DISPLAY/SELECT" will move on to "MEMORY-SAVE". To change the limit, press the up or down arrow. Pressing the left or right arrow button will flash the digit to the right or left of presently blinking digit and allow changing that digit by using the up or down arrows. Pressing "SET/ENTER" will lock this value in as the new limit and advance the setup to memory.

MEMORY

The "MEMORY" indicator will flash. The "SAVE" led will be illuminated allowing you to save up to five front panel setups. If you do not wish to save any parameters, pressing "DISPLAY/SELECT" will move on to "MEMORY –RECALL". The display shows "1", which means "save to memory location "1"". Pressing the up or down arrows will increment the number through the 5 possible locations. Pressing "SET/ENTER" will save the active parameters to this location for future use by recalling the parameters from memory and advance the setup to memory recall. **(NOTE: Be sure to record what is saved to each location as that is the only way you will know what it contains without recalling each location and checking the parameters.)**

The "MEMORY" indicator will flash. The "RECALL" led will be illuminated allowing you to recall up to five front panel setups that you had previously saved. If you do not wish to recall any parameters, pressing "DISPLAY/SELECT" will move on to "HRS RESET". The display shows "1", which means "recall from memory location "1"". Pressing the up or down arrows will increment the number through the 5 possible locations. Pressing "SET/ENTER" will recall the saved parameters from this location to the active parameters and advance the setup to "HRS RESET.

HRS RESET

The "HRS RESET" indicator should flash. The display will indicate accumulated lamp hours since last reset. If you do not wish to reset the lamp hours, pressing "DISPLAY/SELECT" will move on to "SET MODE". Pressing and holding "SET/ENTER" until the display goes blank will reset lamp hours and advance setup to "SET MODE".

III.4 LAMP OPERATING TIME FUNCTION

The 69907 keeps track of operating time whenever the lamp is running. The digital display shows operating time from 0 - 9999 hours. This function may help you determine when to replace the lamp, and monitor the performance over time. Refer to Table 1 for average lifetimes of compatible arc lamps.

To reset the operating time to 0 hours, shut off the lamp (if it is presently running) and enter the setup mode and follow procedures in section III.3.

III.5 OPERATING THE LAMP

Please refer to Figure 4

CURRENT MODE:

If you are not using a NEWPORT light source, use the manufacturers specifications. If the lamp operating power and voltage are known, but the operating current is not, then determine the current setting by using Ohm's Law: amperes = power ÷ volts.

Turn on the power supply. The"CURRENT MODE" LED should illuminate. If not, switch to "CURRENT MODE" (see section III.3). Set the display to read current (AMPS). Press and hold the "SET/ENTER" button in until the display reads the preset current with the least significant digit blinking. Using the up down arrows, you can change the blinking digit; use the left/right arrows to select another digit. Once the display is set for the desired current, press the "SET ENTER" button**.** The display will now show 0 AMPS. You can push the "SET/ENTER" button at any time to view the preset current. **(NOTE: If you cannot set the desired preset current, press "SET/ENTER" and then enter setup per section III.3 and adjust the current limit to a value 10% higher then the desired operating point.)**

Press the "LAMP START" button. The igniter will fire for approximately 5 seconds or until the lamp starts at the preset level. Once the preset level is reached, the "LAMP ON" indicator will illuminate. You can use "DISPLAY SELECT" to display current, voltage, watts or lamp operating time. To shut off the lamp, press the "LAMP OFF" button. Once the output reaches 0, the "LAMP ON" indicator will extinguish. Should the lamp fail to ignite, refer to the troubleshooting section III.6.

NOTE: If 68950 is being used, the 68950 must be off until lamp is stabilized by power-supply. Once control is shifted to 68950 all front panel controls become inactive.

POWER MODE:

Turn on the power supply. The 'POWER MODE' LED should illuminate. If not, switch to POWER MODE (see section III.3). Set the display to read power (WATTS). Press and hold the "SET/ENTER" button in until the display reads the preset watts with the least significant digit blinking. Using the up down arrows, you can change the blinking digit; use the left/right arrows to select another digit. Once the display is set for the desired wattage, press the "SET ENTER" button. The display will now show 0 WATTS. You can push the "SET/ENTER" button at any time to view the preset watts. **(NOTE: If you cannot set the desired preset watts, press "SET/ENTER" and then enter setup per section III.3 and adjust the power limit to a value 10% higher then the desired operating point.**

Press the "LAMP START" button. The igniter will fire for approximately 5 seconds or until the lamp starts at the preset level. Once the preset level is reached, the "LAMP ON" indicator will illuminate. You can use "DISPLAY SELECT" to display current, voltage, watts or lamp operating time. To shut off the lamp, press the "LAMP OFF" button. Once the output reaches 0, the "LAMP ON" indicator will extinguish. Should the lamp fail to ignite refer to the troubleshooting section III.6.

NOTE: If 68950 is being used, the 68950 must be off until lamp is stabilized by power-supply. Once control is shifted to 68950 all front panel controls become inactive.

III.6 TROUBLESHOOTING

This chart provides the basic troubleshooting information for the Newport Model 69907 power supply when used with Newport 669XX series arc lamp housing. Contact a Newport sales engineer or your local representative if more information is required.

Table 4

Symptom	Action
Power supply does not turn on, e.g. • Fan not turning • Display does not turn on	Check • Mains cord connection • Front panel circuit breaker on • AC power at wall outlet
Fault light • Display shows “iloc”	Turn off AC power and Check • Cables connected to lamp housing • Door to lamp housing is closed • If lamp was running before fault, was fan on housing operational. This indicates over temperature in the lamp housing. Ensure no blockage of cooling air on housing.
Fault light • Display shows “P S”	This message is displayed usually when trying to ignite and ignition fails. It is a result of no open circuit voltage, or open circuit voltage too low. Cycle power. If fault repeats contact Newport for RMA information.
Fault light • Display shows “L P”	This message is displayed usually when trying to ignite and ignition fails. It is a result of no current flow from supply after 5 second of trying to ignite the lamp. • Ticking sound heard from top of lamp housing during ignition cycle approximately once per second • Check lamp connection and polarity. A lamp installed upside down or with reversed polarity should be removed and replaced immediately. • Cycle power and try ignition again. • Check hours on lamp. It may be at end of life and typically will be difficult to start. • Try a new lamp • If fault repeats contact Newport for RMA information.
Lamp doesn’t start upon press of start button	If 68950 is being used, ensure it is turned off until lamp is up to operating point.

III.7 RS-232 COMMUNICATIONS

The following table list the commands used for communications with the power supply. Please see section III.1 for cable information. The baud rate is 9600 with 8 data bits, 1 stop bit and no parity.

Table 5

Sent command	PS Response	Notes
STB?↵ **See table 5A for ver 7 and earlier**	STBXX↵ (HEX) Bit 7 – Lamp On Bit 6 – Ext Bit 5 – Power/Current Mode Bit 4 – Cal Mode Bit 3 – Fault Bit 2 – Comm Bit 1 – Limit Bit 0 – Interlock	Send status of led's lit on front panel (1=LED ON) BIT 1= power mode BIT 0= current mode
ESR?↵	ESRXX↵ (HEX) Bit 7 – Power On Bit 6 – User Request Bit 5 – Command Error Bit 4 – Execution Error Bit 3 – Device Dependant Error Bit 2 – Query Error Bit 1 – Request Control Bit 0 – Operation Complete	Send error register
AMPS?↵	XX.X↵	Send amps as displayed on front panel
VOLTS?↵	XX.X↵	Send volts as displayed on front panel
WATTS?↵	XXXX↵	Send watts as displayed on front panel
LAMP HRS?↵	XXXX↵	Send lamp hrs as displayed on front panel
A-PRESET?↵	XX.X↵	Send preset value
P-PRESET?↵	XXXX↵	Send preset value
A-LIM?↵	XX.X↵	Send current limit
P-LIM?↵	XXXX↵	Send power limit
IDN?↵	XXXXX↵	Send power supply model number
START↵	ESRXX↵ (See ESR command for Hex value definition)	Start lamp, update front panel
STOP↵	ESRXX↵ (See ESR command for Hex value definition)	Stop lamp, update front panel,
RST↵	ESRXX↵ (See ESR command for Hex value definition)	Reset Power Supply to Factory Defaults

RSTHRS↵	ESRXX↵ (See ESR command for Hex value definition)	Reset lamp hours to 0
MODE=X↵ **See table 5A for ver 7 and earlier**	ESRXX↵ (See ESR command for Hex value definition)	Set desired mode if lamp is off, use last settings of that mode, Else return ESR error bit
COMM=X↵ X = 1 for panel lockout X = 0 for panel unlock	ESRXX↵ (See ESR command for Hex value definition)	Lockout/unlock front panel keys
SAVE=X↵ X = Memory location 1-5	ESRXX↵ (See ESR command for Hex value definition)	Save operation parameters to location specified
RECALL=X↵ X = Memory location 1-5	ESRXX↵ (See ESR command for Hex value definition)	If lamp off, set operation parameters to those of memory location. Else return ESR error bit
A-PRESET=XX.X↵ **See table 5A for ver 7 and earlier**	ESRXX↵ (See ESR command for Hex value definition)	With power supply in current mode, lamp ON or OFF, sets current to PRESET value if < current limit (A-LIM); else returns ESR error bit 5 (Command Error)
P-PRESET= XXXX↵ **See table 5A for ver 7 and earlier**	ESRXX↵ (See ESR command for Hex value definition)	With power supply in power mode, lamp ON or OFF, sets current to PRESET value if < power limit (P-LIM); else returns ESR error bit 5 (Command Error)
A-LIM=XX.X↵	ESRXX↵ (See ESR command for Hex value definition)	Set Current limit if current preset > limit, Preset = Limit
P-LIM=XXXX↵	ESRXX↵ (See ESR command for Hex value definition)	Set Power limit if power preset > limit, Preset = Limit

Table 5a

STB?↵	ESRXX↵ (See ESR command for Hex value definition)	Set Power limit if power preset > limit, Preset = Limit
MODE=X↵	ESRXX↵ (See ESR command for Hex value definition)	Set desired mode if lamp is off, use last settings of that mode, Else return ESR error bit
A-PRESET=XX.X↵		With power supply in current mode, lamp ON or OFF, sets current to PRESET value if < current limit (A-LIM); else returns ESR error bit 5 (Command Error)
P-LIM=XXXX↵	ESRXX↵ (See ESR command for Hex value definition)	With power supply in power mode, lamp ON or OFF, sets current to PRESET value if < power limit (P-LIM); else returns ESR error bit 5 (Command Error)

IV APPLICATIONS

IV.1 REMOTE CONNECTOR

The signals, which are available at the remote connector, allow you to monitor the current, voltage and watts output of the supply from a remote location via a meter or an A/D converter and a computer. There is also a remote start/stop input so that the lamp can be started/stopped with a simple momentary contact closure at a remote location.

A control input is also included at the remote connector, which is intended for use with the Newport Model 68950 Intensity Controller. When the 68950 is connected, a sample of the light at all or selected wavelengths is compared to a reference. Any difference between the two is sent into the power supply to compensate for this change. The result will be improved stability in light output over time.

When the control input is active, the front panel “EXT” LED will illuminate. At this time the preset value of current/power becomes a maximum setting, and is otherwise overridden by the control input. The “LAMP ON”, “LAMP OFF”, “SET/ENTER” and “DISPLAY/SELECT” functions are always active.

V SPECIFICATIONS

Output Ratings	
Power	40 – 300 W
Current	1.5 – 12 A
Voltage (open circuit)	200 VDC
Voltage (loaded)	0 – 70 VDC
Operating Modes	Constant power Constant current
Voltage ripple into ohmic	
Load (load, power)	3.4 Ω, 200 W
%Voltage ripple (true RMS)	< 0.1%
Light ripple (true RMS)	< 0.5%
Meter accuracy (%full scale)	< 0.05%
Digital meter resolution	
Voltage:	0.1 VDC
Power:	1 W
Current:	0.1 A
Safety interlock voltage	12 VDC/GND
Line Regulation	.01%
Input Ratings	
Voltage	95 – 264 VAC
Current (max)	4 .5A
Power Factor	> 0.99
Frequency	47 – 63 Hz
Circuit Breaker	5 A, 2 POLE
Ambient operating	
Temperature	10 – 40 °C
Weight	20 lbs (9 kg)

VI DECLARATION OF CONFORMITY

DECLARATION OF CONFORMITY

Manufacturer's name:	Oriel Instruments
Manufacturer's address:	150 Long Beach Boulevard
	Stratford, CT 06497
	USA
declares that the product:	
Product Name	Arc Lamps Power Supply
Model Number:	69907, 69910, 69911, 69920, 69922, 69907-xxxx, 699110-xxxx, 69911-xxxx, 69920-xxxx, 69921-xxxx
conforms to the following Product Specifications:	
Safety:	EN 61010-1: 1993 + A2/IEC 1010-1: 1990 + A1 + A2
EMC:	EN 50081-1: 1992
	EN 55022: 1994 / EN 55011: 1993 Class B
	EN 50082-1: 1992
	IEC 801-2:1991 / IEC 1000-4-2: 1995
	ENV 50140: 1993 / EC 1000-4-3: 1995 / EN 61000-4-3: 1995
	IEC 801-4: 1988 / IEC 1000-4-4: 1995
complies with the following Directives:	
- the EMC Directive	89/336/EEC
- the Low Voltage Directive	73/23/EEC
and accordingly, carries the CE mark.	

George Buzel (Signature)

George Buzel (Name)

Director of Engineering (Title)

VII WARRANTY AND RETURNS

Newport 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 become apparent within the following period:

1. All products described here, except spare parts: one (1) year or 3000 hours of operation, whichever comes first, after delivery of the goods to the buyer.
2. Spare parts: ninety (90) days after delivery of goods to the buyer.

Newport's liability under this warranty is limited to the adjustment, repair and/or replacement of the defective part(s). During the above listed warranty period, Newport shall provide all materials to accomplish the repaired adjustment, repair or replacement. Newport 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 a Newport designated facility. If goods are not returned to Newport, and the user chooses to have repairs made at their premises, Newport shall provide labor for field adjustment, repair and/or replacement at prevailing rates for field service, on a portal-to-portal basis.

Newport shall be relieved of all obligations and liability under this warranty of:

1. The user operates the device with any accessory, equipment or part not specifically approved or manufactured or specified by Newport unless buyer furnishes reasonable evidence that such installations were not the cause of the defect. This provision shall not apply to any accessory, equipment or part which does not affect the safe operation of the device.
2. The goods are not operated or maintained in accordance with Newport's instructions and specifications.
3. The goods have been repaired, altered or modified by other than authorized Newport personnel.
4. Buyer does not return the defective goods, freight prepaid, to a Newport 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, GUARANTEES, CONDITIONS OR LIABILITIES, EXPRESSED OR IMPLIED, ARRISING BY LAW OR OTHERWISE, WHETHER OR NOT OCCASIONED BY NEWPORT'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

Newport shall not be responsible for consequential damages resulting from misfunctions or malfunctions of the goods described in this manual. Newport'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 Newport, shall assume full responsibility for any and all damage while in their care, custody and control. If damage occurs, unrelated to the proper and warranted use and performance of the goods, 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 Newport for repair, please call the Customer Service Department at (203) 377-8282. Have your purchase order number available before calling Newport. The Customer Service Representative will give you a Return Material Authorization number (RMA). Having an RMA will shorten the time required for 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 Newport Receiving Department. Equipment returned under warranty will be returned with no charge for the repair or shipping. Newport will notify you of any repairs not covered by the warranty, with the cost of the repair, before starting the work.

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 Newport can verify correct operation of these accessories.