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Varitronics Inc.

Z9000 Series Manual

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Thank you for purchasing the Z9000 series Ophthalmic Control System. Please carefully read this manual to get the best performance, and place the manual in a convenient location for future reference.

PRECAUTIONS

Installation

(1) Never position the components of the Z9000dt, Z9000-1P, or Z9000-2P Ophthalmic Control System where they will be exposed to moisture, direct sunlight, dust, salty air, chemical storage areas, excessive temperature or humidity.

(2) Install the Z9000 series Ophthalmic Control System units in a stable place.

(3) Install all accessories onto their designated and approved back boxes.

Prior to operation, always make sure that all cables and cords are properly connected.

Take the proper steps to turn off the power (leaving all personnel and patients in safe condition) if anything is found wrong with the system. See **Appendix C**.

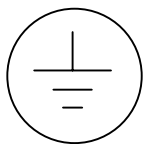
Be sure to observe the following after use:

Disconnect the main plug before any servicing is performed. Never hold and pull the AC line cord to disconnect it from wall socket. Excessive force can cause damage to internal connections.

Never attempt to modify the power supply, termination box, and or any system panels in any way. Always contact Varitronics for repair and service recommendations. Refer to this manual for replacing fuses.

If the system has not been used for a long period of time, check the operation of the system before use.

The following symbols are used throughout this manual:



Protective earth ground location.



CAUTION: Electrical shock possible.



ATTENTION: Information provided in manual.

SAFETY CONCERNS

The Z9000 series Ophthalmic Control Systems is one of the safest systems on the market today. It has been engineered with many safety features to prevent shock and fire hazard. In addition there are no electromagnetic interference concerns. Be sure to observe all precautions as stated in this manual.

VAR10082001-02/22/2002 REV 2

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1. NOMENCLATURE

1.1 Printed Circuit Board Overview:

1.1.1 The Z9000 PC Board provides discreet logic control over both room lighting and low voltage auxiliary devices. The board also recharges battery operated handheld ophthalmic devices (provided by others).

1.1.2 The board has three user changeable fuses and one internal fuse that is only to be accessed by a factory authorized technician. See **Appendix A** for fuse requirements.

1.1.3 There are two dipswitches on the bottom of the board to supply configurable automatic functions. To change the factory default settings, refer to **ADJUSTMENTS: Programming the Z9000 Ophthalmic Control System.**

1.1.4 The board has configurable jumpers (J3, J6) to provide incandescent or incandescent with fluorescent room lighting control. See **Appendix A** for jumper settings.

1.2 Termination Box A

1.2.1 Termination Box A requires a standard four gang back box (provided by others).

1.2.2 This box provides 115VAC to interconnect room lights and other high voltage accessories.

1.2.3 Refer to **Appendix B** for wiring diagrams.

1.3 Termination Box B

1.3.1 Termination Box B requires a standard single gang back box (provided by others).

1.3.2 This box provides low voltage to interconnect remote accessories.

1.3.3 Refer to **Appendix B** for wiring diagrams.

1.4 Remote Accessories

1.4.1 Fixation, Muscle, and Indirect that terminate through Box B (See **Appendix B.**) are low voltage devices.

1.4.2 Slit Lamp is terminated through Box A and Slit Lamp extension plate (See **Appendix B.**) and is 115VAC device.

2.0 PERFORMANCE AND SPECIFICATIONS

2.1 Performance Description

2.1.1 The Varitronics' Z9000 Ophthalmic Control System is a device used for coordinating the switching of incandescent and fluorescent room lighting (the fluorescent lighting is optional) with the instrumentation and test devices used in the ophthalmologic exam room. Several models are available but the electric requirements are the same for all.

2.1.2 The electronic device combines solid-state electronics with hard-wired line current by means of a connecting cable.

2.1.3 The location of the main power box will vary depending on which model is purchased. These units are meant to work with 115 VAC only.

2.1.4 Have the doctor or architect check all intended locations before installing.



ATTENTION: Installation of the Varitronics' Ophthalmic Control System is the responsibility of the end user.

2.2 Electrical Specifications For All Z9000 Models

DEVICE	MAXIMUM LOAD
Incandescent Room Lighting	300 Watts
Optional Fluorescent lighting	80 Watts
Slit Lamp	40 Watts
Auxiliary Outlet	60 Watts
Lamp Receptacle	60 Watts
Projector Receptacle	60 Watts
Indirect Ophthalmoscope Hanger	1 AMP at 6 VAC
Fixation Lighting	12vdc at 40 ma
Muscle Light	12vdc at 40 ma
Charging Current For Handheld Devices	40 to 70 ma
Z9000 System Total	700 Watts



CAUTION: Input voltage 115 VAC 60 Hz

2.3 Z9000 Physical Specifications - See Appendix D for the following units:

2.3.1 Z9000 Desk Top Unit

2.3.2 Z9000-1P One Piece Cabinet Mount Unit

2.3.4 Z9001-2P Two piece cabinet mount unit

2.3.4.1 Z9001 Control Panel Unit for Z9001-2P

2.3.4.2 TW9001 Top Well Unit for Z9001-2P

2.3.4.3 CB9001 Control Box for Z9001-2P

3.0 INSTALLATION



ATTENTION: For location of back boxes, please refer to architectural drawings. All electrical wiring should conform to the NEC 2002 Code. Some facilities require hospital grade MC cable. Low voltage wire for Fixation Lights should be plenum rated cable. Heights should conform to the latest ADA regulations.

3.1 Determine the location for the Power Box “A”. Box “A” should be located in an accessible area, typically in the open space created by the leg space under a writing surface or behind a cabinet if a built in Ophthalmic Control System is purchased. This requires a four-gang box and will contain the high voltage wires. The switched leg from a switch at the door brings power to Power Box “A” and then is distributed to the various 115 VAC devices. This switch must be a double pole switch that disconnects both the hot and neutral voltage lines. The fused circuit must be on the hot voltage line. Please see electrical schematics for exact details. Determine the location for Box “B”. Box “B” the connections for low voltage functions. Place this single gang box next to Power Box “A”, approximately 3” apart.

3.2 Determine the location for the Indirect Ophthalmoscope Hanger. Recommend location: 60” above floor, 36” from sidewall. It requires a single gang box and a 4 conductor low energy wire provided by Varitronics. This wire runs back to Box “B”. Follow the color code when installing the Hanger to the box. Voltage load: 6VAC, 1 amp maximum.

3.3 Determine the location for the Fixation and Muscle Lights. These lights require a single gang box (2) and the 2 conductor (plenum 18 AWG) low energy wire running back to Box “B”. Fixation light is normally mounted in the patient’s line of sight, 3” from the ceiling on the wall-facing patient. Muscle light is mounted eye level with patient, normally 47” from the floor below fixation light. Voltage requirements: 12VDC, 40ma maximum.

3.4 Determine the location for the Auxiliary Outlet. The Auxiliary Outlet is a 115VAC switched receptacle that receives its power through the Ophthalmic Control System. This outlet requires a single gang box and is connected to the Power Box “A”, wire 5. This is also available on faceplate of single Box “A”. Maximum load: 60 watts.

3.5 Determine the location for the Slit Lamp Box. This plate requires a single gang box and 4 conductors 12 AWG wire running back to Power Box "A". Location is not critical, but box should be placed on wall behind instrument stand, 12" above floor. Maximum load: 40 watts.

3.6 Determine the location for the Lamp Receptacle. The Lamp Receptacle requires a single gang box with a standard duplex outlet. The wire connecting the outlet runs back to Power Box "A", wire #4. Typical location is next to the slit lamp box. This is also available on a one-gang plate. Maximum load: 60 watts.

3.7 Determine the location for the Projector Outlet. This outlet is normally located above the wiring surface of the desk. We recommend using a single gang outlet. This function requires a single gang box with wires running back to Power Box "A", wire #3. This is also available on a four-gang plate. Maximum load: 60 watts.

3.8 When installing overhead lights, incandescent are preferred. For most exam rooms, we recommend four recessed down-light fixtures. These lamps are to be wired in parallel. Wires shall run to Power Box "A", wire #7. Maximum load: 300 watts.

3.9 FINAL NOTES:

3.9.1 For final installation please refer to Varitronics wiring schematic.

3.9.2 The Z9000-1P must be installed in moveable cabinets only.

3.9.3 It is recommended that a 2.75" hole be drilled in the counter top. A grommet, which eases passage of the cables, is provided with each unit.

3.9.4 If fluorescent lighting is used in the exam room, one or two high hat lighting fixtures are usually installed. The dim function of the Ophthalmic Control System will automatically turn the fluorescent light off and leave the incandescent as its dim function. The fluorescent lights will be hooked to wire #8.

3.9.5 Any questions please call Varitronics at 610-356-3995.

4.0 SYSTEM OPERATION

4.1 Upon entering the exam room, turn on the switch at the door; this provides power to the Z9000 Ophthalmic Control System.

4.2 Check to see that the following steps have been taken to insure that the room lights will be *on*.

4.2.1 There are instruments in each of the rechargeable wells.

4.2.2 The Indirect Ophthalmoscope is in place on its hanger.

4.2.3 The Slit Lamp room lights switch under Slit Lamp is *off*.

4.3 Touch the DIM switch on the control panel; adjust the dimmer to the required dim point. Touch the DIM switch again; the lights should be fully *on*. Touch the OFF switch and the lights should go *off*. Touch the OFF switch again the lights should come on. Depending if your exam room is incandescent lighting only or a combination of incandescent/fluorescent lighting, the following should happen: the incandescent light will be at some preset DIM level that you have set and will remain at that level. In the off mode the Z9000 will turn both incandescent and fluorescent lights off. In the DIM mode only the fluorescent lights will be turned off automatically.

4.4 An individual well can be set to the following when the instrument is taken out of the well.

4.4.1 room lights off

4.4.2 room lights dim

4.4.3 no lighting change

4.4.4 fixation or muscle light on

4.5 When using the indirect ophthalmoscope, room lights can be set to off or dim when the indirect is lifted.

4.6 When the slit lamp control switch (optional) is turned on it will supply power to the slit lamp and dim the room lights or turn them off. Maximum load: 60 watts.

4.7 The Z9000 Ophthalmic Control System can also be programmed to dim the room lights automatically when the projector button is pressed.

4.8 The auxiliary button activates a 115VAC circuit that can be used for any device. This is wired separately from the power box mounted in the wall. Maximum load: 60 watts.

4.9 The lamp switch primarily switches 115VAC receptacle that is mounted near the instrument stand to turn the lamp on the stand on or off. Maximum load: 60 watts.

4.10 The fixation switch is a low voltage output (12 VDC 40mA) used to manually turn on the fixation light.

4.11 The muscle light is low voltage output (12 VDC 40mA) used to turn on the eye level muscle light.

5.0 ADJUSTMENTS: Programming the Ophthalmic Control System

5.1 The unit is programmed by dipswitches on the under side of the unit. Dipswitches are tiny switches that can be turned on and off using a ballpoint pen. If the switches are turned on the following automatic functions occur:

5.1.1 Switch Bank 1- First Well Dipswitch

Dipswitch	Function
1	Muscle light
2	Fixation
3	Room lights dim
4	Room lights off

5.1.2 Switch Bank 1- Second Well Dipswitch

Dipswitch	Function
5	Muscle light
6	Fixation
7	Room lights dim
8	Room lights off

5.1.3 Switch Bank 1- Third Well Dipswitch

Dipswitch	Function
9	Muscle light
10	Fixation
11	Room lights dim
12	Room lights off

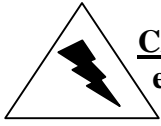
5.1.4 Switch Bank 2

Dipswitch	Function
1	Indirect Ophthalmoscope- Room lights dim
2	Indirect Ophthalmoscope- Room lights off
3	Projector- Room lights dim (default to on)
4	Not used
5	Not used
6	Not used

6. MAINTINENCE

6.1 There are no periodic maintenance requirements for the Z9000. Bulbs and external fuses should be replaced on an 'as needed' basis. Refer to section 6.2 for the proper replacement method for bulbs and section **6.3** for external fuses.

6.2 Testing and replacing lamp bulbs. If the lamp does not light, check to make sure that the associated switch is activated. If the lamp still does not light, replace the bulb with the same kind as instructed below.



CAUTION: Do not use a higher wattage bulb. Only use the supplied bulb extractor to remove and replace bulbs. Do not use forceps or any other metal tipped device to extract bulbs. Sever damage to the equipment can occur.

6.2.1 First turn the power supply off.

6.2.2 Remove the plastic lens cap form the switch or monitor light by grabbing it between you thumb and fore finger and firmly pull out.

6.2.3 Place a new bulb of the same size and wattage. Align the bulb, and then firmly push the bulb into its socket. Do not force bulb into its socket. Realign if necessary.

6.2.4 Turn the power supply on and test the bulb; if bulb still fails to light, call factory.

6.3 Follow the procedure below for changing external fuses.



CAUTION: The user shall only change the three external fuses. A qualified technician should change any internal fuses. See **Appendix A**.

6.3.1 First turn the power switch off and disconnect the main AC plug on the power supply from the wall socket. See **Precautions** at the beginning of this manual.

6.3.2 Turn the center part of the fuse holder clockwise until the holder comes out.

6.3.3 If fuse is blown, replace fuse with a new one of the same type and value. Push in and turn the fuse holder to tighten.

6.3.4 See **Appendix A: Z9000 PC Board Diagram** for correct fuse values.



CAUTION: Do not exceed the value of the fuse you are replacing. Severe damage and to the equipment can occur. Possible fire hazard.

Bulb	Mfg.	Device
12ESB	JKL	Fixation Light

6.4 It is recommended that the external surface of system panels be cleaned with a damp cloth only. Do not use harsh or abrasive chemicals to clean system panels. Do not use excessive water or liquids to clean panels.

7. TROUBLESHOOTING

7.1 If the Z9000 does not function properly, check the following points before calling for factory assistance.

7.1.1 Problem: Room lights do not go on when using light switch at door.

Solution: Check to see if Power LED is on, Indirect is on its hanger, slit lamp is turned off, and handheld instruments are in wells.

7.1.2 Problem: Dim function does not work.

Solution: Check to see if *on* or *off* switch on panel is not activated. Slide dimmer to mid position, press dim switch. If room lights are full on, call factory for service.

7.1.3 Problem: Fixation and Muscle do not work.

Solution: Check bulbs. See **Maintenance** section for proper procedure. If still not working call factory.

7.1.4 Problem: Handheld devices do not recharge.

Solution: Check battery date code. If beyond date replace batteries.

7.1.5 Problem: Auxiliary Lamp, Slit Lamp not working.

Solution: Replace Fuse marked F1. Refer to **Appendix A**.

7.1.6 Problem: System is completely non-functioning.

Solution: Check to see that door switch is *on*. Check the circular power connector is plugged in Box A mating receptacle (see **Appendix B**). Replace any blown external fuses (see **Appendix A**). See **Maintenance** section for the proper procedure to replace external fuses.

8. TERMS OF TRANSPORTATION

8.1 Method: all units will be shipped via UPS. Customer will determine shipping method options. All shipments are F.O.B. Broomall.

8.2 All units to be bubble wrapped and packed in corrugated cardboard boxes (200 lb. burst/65 lb. Limit) lined with peanuts.

8.3 All boxes sealed with non-asphaltic reinforced sealing tape.

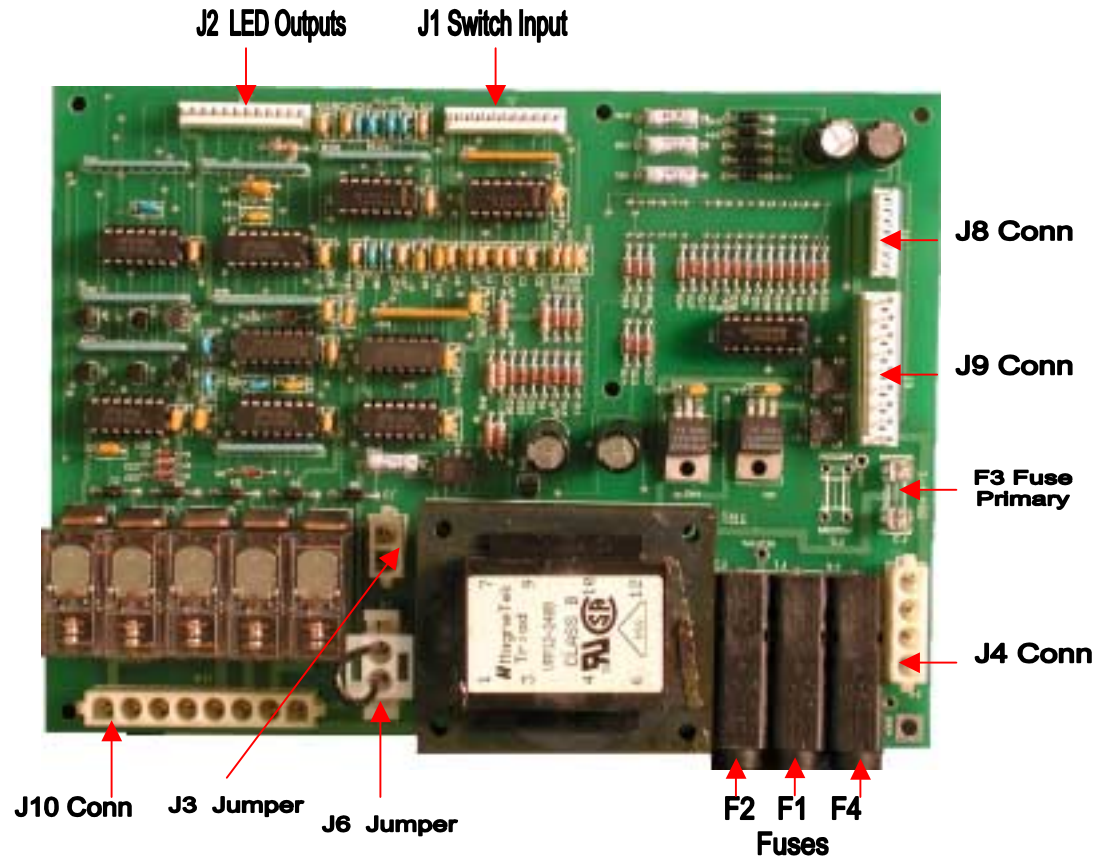
8.4 Equipment to be shipped or stored under the following environmental conditions: Humidity range 0 to 98%, Temperature 0 to 120 degrees Fahrenheit.

APPENDIX A

Z9000 PC Board

Pin	J1	J2
1	0V	+5 Volts
2	On	On
3	Off	Off
4	Projector	Projector
5	Muscle	Muscle
6	Fixation	Fixation
7	Aux1	Aux1
8	Lamp	Lamp
9	Dimmer	Dimmer
10	Child	Pwr LED
11	Aux2	Child
12	-----	Aux2

Pin	J10
1	Dimmer
2	Incandescent
3	Dimmer
4	Fluorescent
5	Projector
6	Lamp
7	Aux1
8	Slit Lamp Return



Pin	J8
1	0 Volts
2	Well Common
3	Recharge Voltage
4	Recharge Voltage
5	Recharge Voltage
6	Switch Return Well
7	Switch Return Well
8	Switch Return Well

Pin	J9
1	Indirect Feed
2	Com: Low Voltage
3	Aux2 DC
4	Child DC
5	Muscle DC
6	Fixation DC
7	Indirect Return
8	6 VAC
9	6 VAC

Pin	J4
1	Ground
2	Neutral
3	Hot switch in
4	Fused hot return (Slit Lamp)

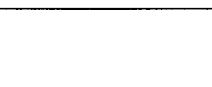
J3 Jumper: For fluorescent and indirect.
J6 Jumper: For incandescent light only.

F1 = 6 ¼ ASB: lamp, slit lamp, & auxiliary
 F2 = 6 ¼ ASB: room lights
 F3 = ¾ ASB: transformer primary
 F4 = 4 ASB: transformer secondary

APPENDIX B

120 VOLTS

LOW VOLTAGE



BOX A: FOUR GANG



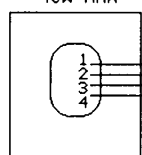
BOX B: ONE GANG

MOUNT BOX A & B

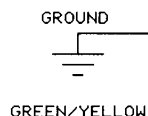
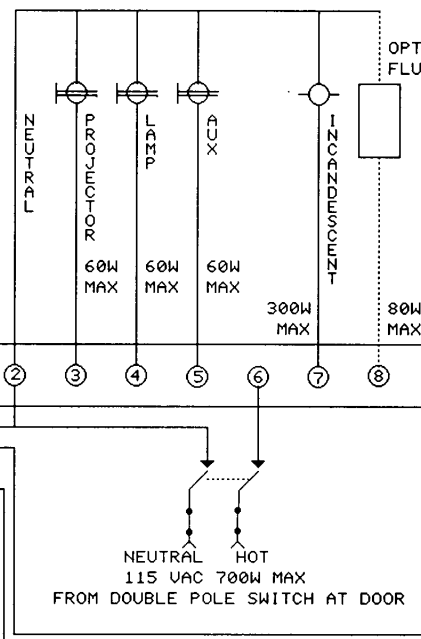
DIRECTLY IN WALL, UNDER VARITRONICS LIGHTING SYSTEM

NOTES:

IDENTIFICATION NUMBERS 1-10 ARE PRINTED ON THE INSULATION JACKET OF EACH WIRE. NUMBER ONE IS NOT USED. GREEN/YELLOW IS GROUND. INDIVIDUALLY WIRE NUT AND TAPE ANY UNUSED WIRES.

SLIT LAMP PLUG
40W MAX12 GAUGE WIRE
THROUGH CONDUIT

POWER BOX A

GROUND
GREEN/YELLOW

NEUTRAL HOT
115 VAC 700W MAX
FROM DOUBLE POLE SWITCH AT DOOR

NOTES:

☐ IF DESKTOP UNIT:
REQUIRES 1 3/4" HOLE
IN DESK TO PASS CONNECTOR
CABLE.

MAIN CONNECTING
CABLE

VARITRONICS
LIGHTING SYSTEM
POWER CHASSIS

MAXIMUM ROOM LIGHTING: 300W

NOTES:

FIXATION: ORANGE, BLUE
MUSCLE: BROWN, BLUE

BOX B

INDIRECT: CONNECT LIKE WIRES.
GREEN TO GREEN
BLACK TO BLACK
WHITE TO WHITE
RED TO RED

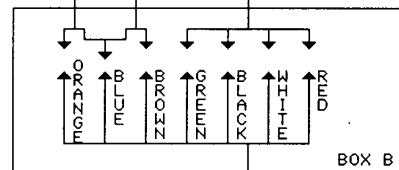
FIXATION
12V 40MA

ONE GANG

MUSCLE
12V 40MA

INDIRECT
ONE GANG

SUPPLIED BY VARITRONICS

PLENUM
2 COND 18 AWG

6V 1A

INDIRECT
ONE GANG

CEILING

3"

FIXATION

PATIENT'S EYE LEVEL

MUSCLE

55"
OR PATIENT'S
LINE OF SIGHT

FLOOR

CONSULT DR FOR EXACT LOCATION

NOTES:

MUSCLE, FIXATION, AND INDIRECT
REQUIRE SINGLE GANG BOXES
SUPPLIED BY OTHERS.

NOTES:

LOCATION OF ALL BOXES SHOULD BE VERIFIED WITH DOCTOR.

INSTALLATION OF BOXES AND CONDUIT SHOULD BE DONE TO MEET YOUR LOCAL AND NATIONAL BUILDING CODES.

BE SURE TO CHECK FOR PROPER GROUNDING.

FOR PROPER TESTING ALL INSTRUMENTS SHOULD BE IN WELLS, AND INDIRECT ON HOOK.

INPUT VOLTAGE: 115 VAC
TOTAL SYSTEM LOAD: 700W MAXIMUM

- ☐ J-3 & J-6 LOCATED IN CHASSIS
- ☐ INCANDESCENT (J-6)
- ☐ INCANDESCENT AND FLOURESCENT (J-3)

VARITRONICS INC.

610 356 3995

WIRING FOR:
Z9000 DESKTOP UNIT
& Z9000-1P

DRAWING: Z9000DT.P01

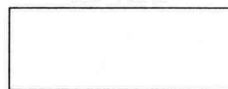
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SHEET 1 OF 1

120 VOLTS

LOW VOLTAGE



BOX A: FOUR GANG



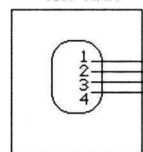
BOX B: ONE GANG

MOUNT BOX A & B
DIRECTLY IN WALL, UNDER VARITRONICS LIGHTING SYSTEM

NOTES:

IDENTIFICATION NUMBERS 1-10 ARE PRINTED
ON THE INSULATION JACKET OF EACH WIRE.
NUMBER ONE IS NOT USED. GREEN/YELLOW
IS GROUND. INDIVIDUALLY WIRE NUT AND
TAPE ANY UNUSED WIRES.

SLIT LAMP PLUG
40W MAX



12 GAUGE WIRE
THROUGH CONDUIT

ONE GANG BOX MOUNTED ON WALL
BEHIND INSTRUMENT STAND.

NOTES:

12 GAUGE WIRE	POWER BOX A TERMINAL
1(GREEN)	TO 1(GROUND)
2(WHITE)	TO 2(NEUTRAL)
3(BLACK)	TO 10(SLIT LAMP FEED)
4(RED)	TO 9(SWITCH TRIGGER)

REQUIRED 12 GAUGE WIRES
ARE SUPPLIED BY OTHERS

SWITCH

WELL UNIT

VARITRONICS
LIGHTING SYSTEM
POWER CHASSIS

MAXIMUM ROOM LIGHTING: 300W

NOTES:

FIXATION: ORANGE, BLUE
MUSCLE: BROWN, BLUE

BOX B

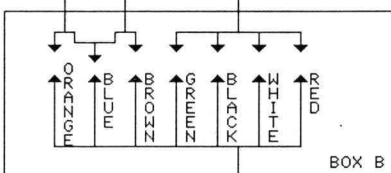
INDIRECT: CONNECT LIKE WIRES.
GREEN TO GREEN
BLACK TO BLACK
WHITE TO WHITE
RED TO RED

FIXATION
12V 40MAMUSCLE
12V 40MA

6V 1A

INDIRECT
ONE GANG

SUPPLIED BY VARITRONICS

PLENUM
2 COND 18 AWGLOW VOLTAGE
CONNECTOR

CONNECTOR

MAIN CONNECTING
CABLE

NOTES:

☐ IF DESKTOP UNIT:
REQUIRES 1 3/4" HOLE
IN DESK TO PASS CONNECTOR
CABLE.

CEILING



FIXATION

PATIENT'S EYE LEVEL



MUSCLE

55"
OR PATIENT'S
LINE OF SIGHT

FLOOR

CONSULT DR FOR EXACT LOCATION

NOTES:

MUSCLE, FIXATION, AND INDIRECT
REQUIRE SINGLE GANG BOXES
SUPPLIED BY OTHERS.

NOTES:

LOCATION OF ALL BOXES SHOULD BE VERIFIED WITH DOCTOR.

INSTALLATION OF BOXES AND CONDUIT SHOULD BE DONE TO
MEET YOUR LOCAL AND NATIONAL BUILDING CODES.

BE SURE TO CHECK FOR PROPER GROUNDING.

FOR PROPER TESTING ALL INSTRUMENTS SHOULD BE
IN WELLS, AND INDIRECT ON HOOK.

INPUT VOLTAGE: 115VAC
TOTAL SYSTEM LOAD: 700W MAXIMUM

- ☐ J-3 & J-6 LOCATED IN CHASSIS
- ☐ INCANDESCENT (J-6)
- ☐ INCANDESCENT AND FLOURESCENT (J-3)

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WIRING FOR:
Z9000-2P

DRAWING: Z90002P.P01

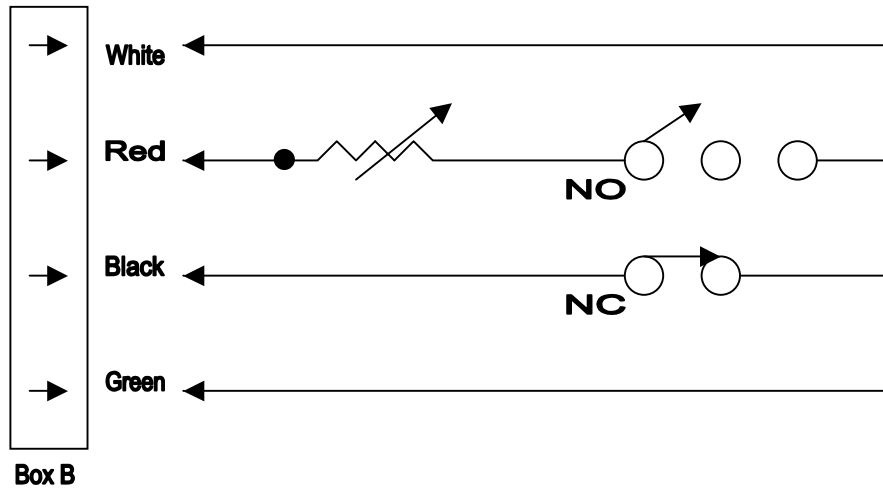
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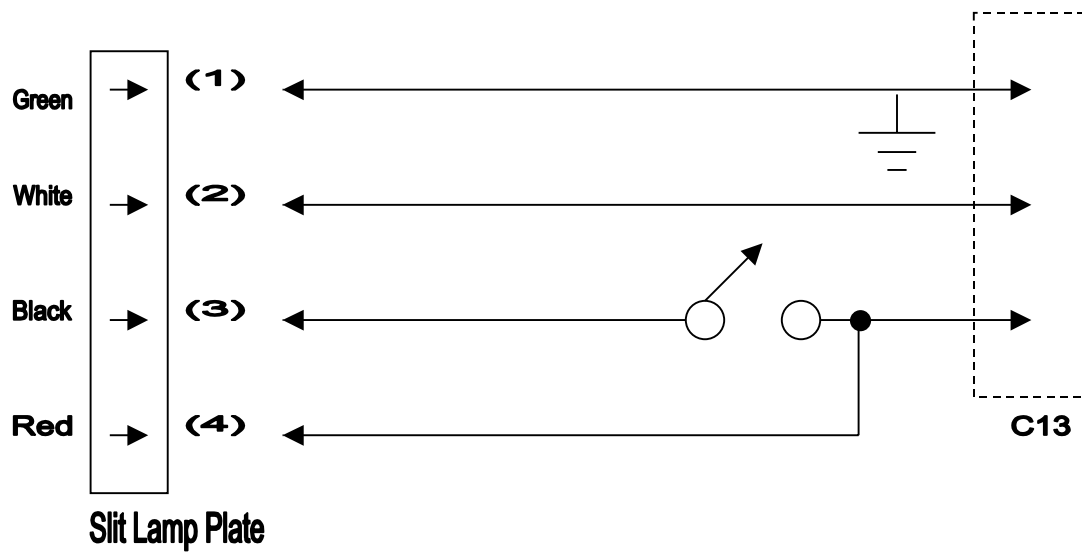
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SHEET 1 OF 1

Indirect Ophthalmoscope Schematic





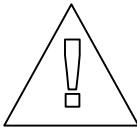
Slit Lamp Schematic



APPENDIX C

Z9000 Product Labels

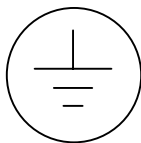
Exterior Labels


	<p>CAUTION: Electrical shock hazard. Disconnect all power before servicing by a qualified technician. No user serviceable parts inside.</p>			<p>WARNING: For continued protection against fire hazard, replace with same type and rating of fuse only.</p>
	<p>ALERT: Wiring diagram and individual load information provided in manual.</p>	<p>MODEL: Z9000 Desktop <input type="checkbox"/> 1P <input type="checkbox"/> 2P <input type="checkbox"/> Full Load: 700 Watts 115 VAC 60 Hz Only</p>		
		<p>Varitronics Inc. 620 Parkway Broomall, PA 19008 Tele: 610-356-3995</p> <p>Serial No. _____ Date Tested _____ By _____ Lot No. _____</p>		

FUSE LABEL

F1	F2	F4
6 ¼ ASB	6 ¼ ASB	4 ASB

INTERIOR LABELS



	<p>CAUTION Check for proper grounding to insure safe operation of equipment.</p>
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Full Load: 700 Watts 115 VAC 60 HZ Only
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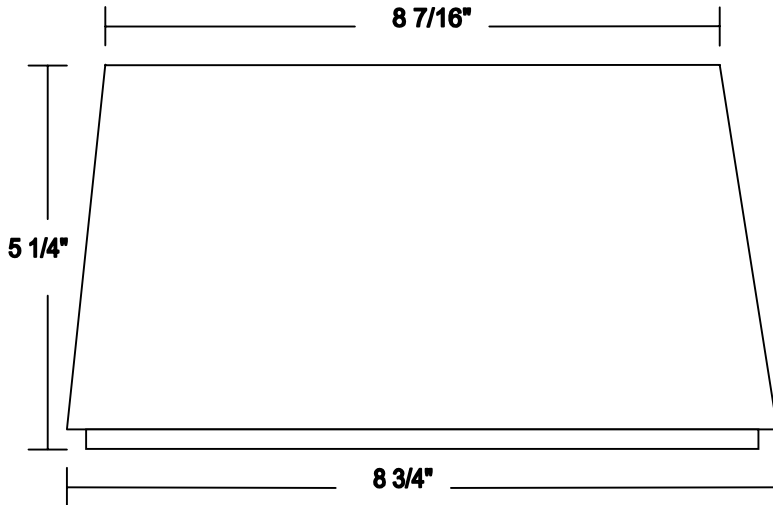
APPENDIX D

Specification Sheet: Z9000

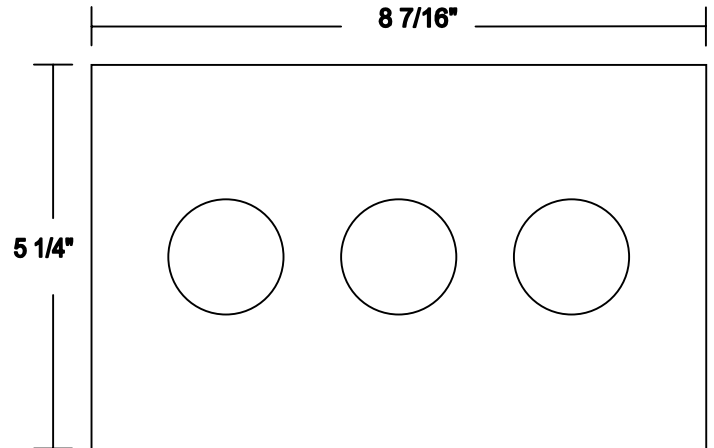
Not to scale.

Desk Top Unit

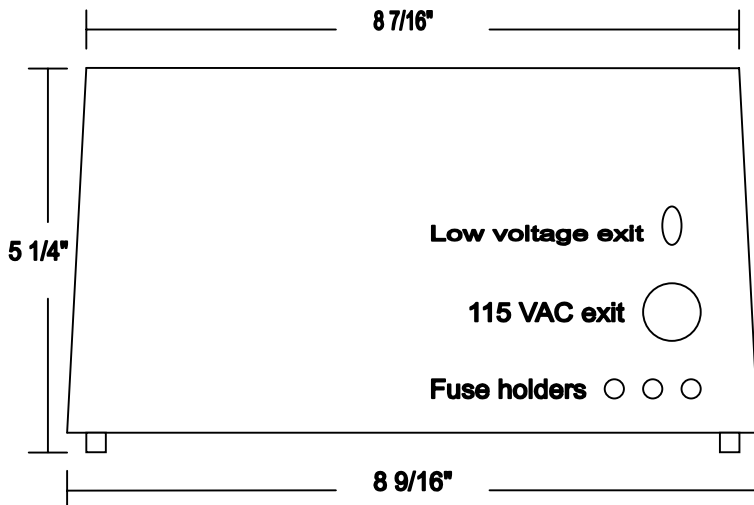
Front



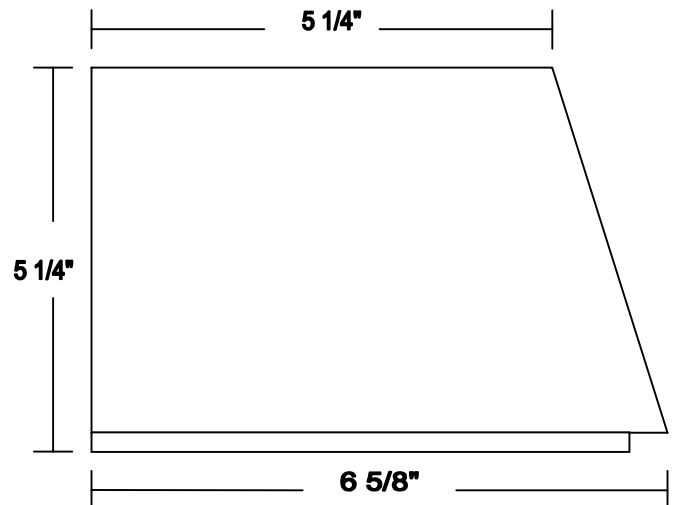
Top



Back



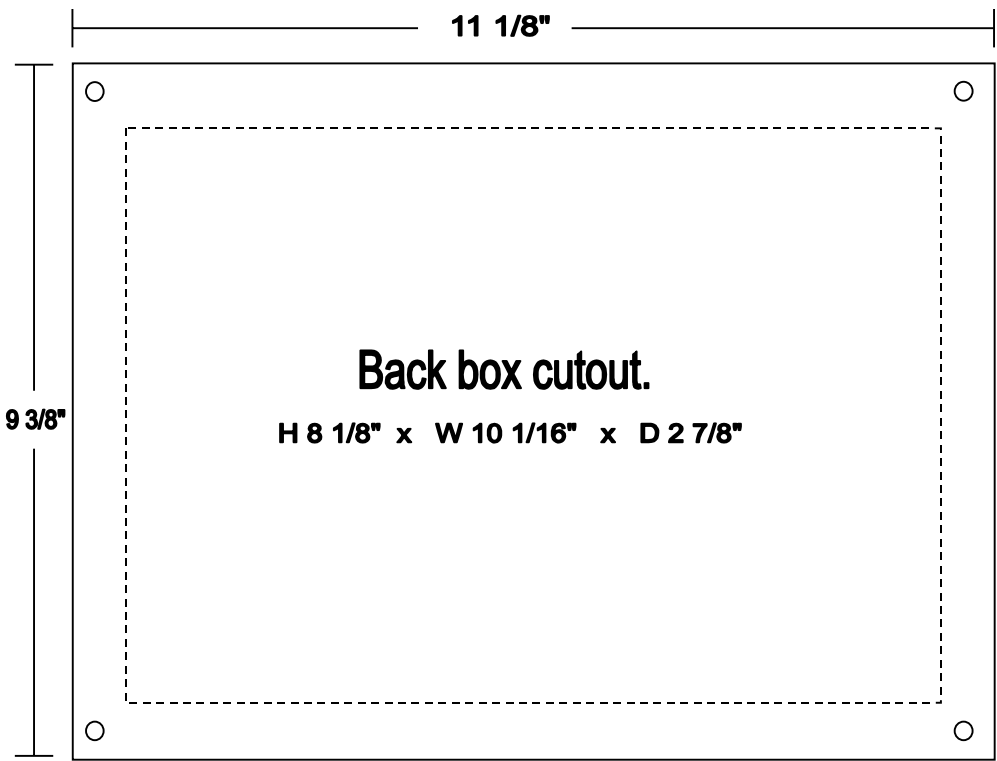
Side



**Note: Hole required for cable
in desk cabinet is $2 \frac{1}{2}"$.**

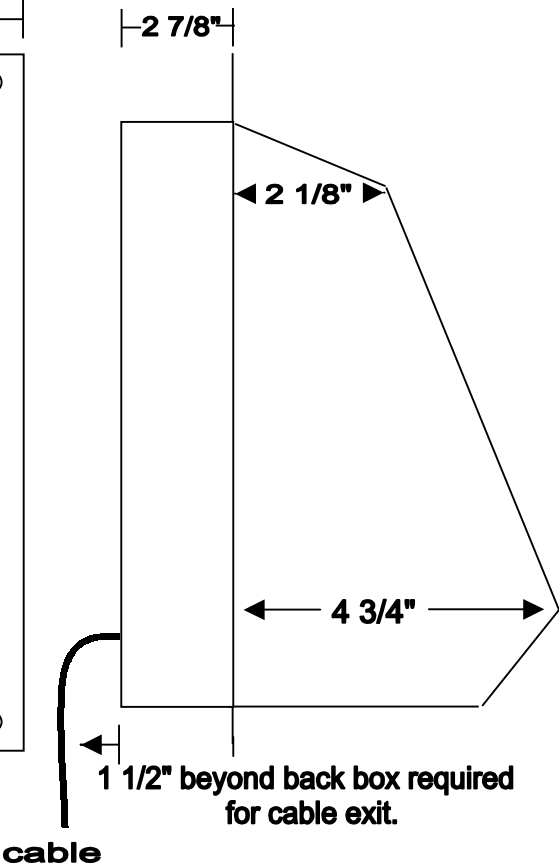
Specification Sheet: Z9000-1P **Not to scale.**

Face plate.



**Use face plate as template
for mounting holes.**

Side view.

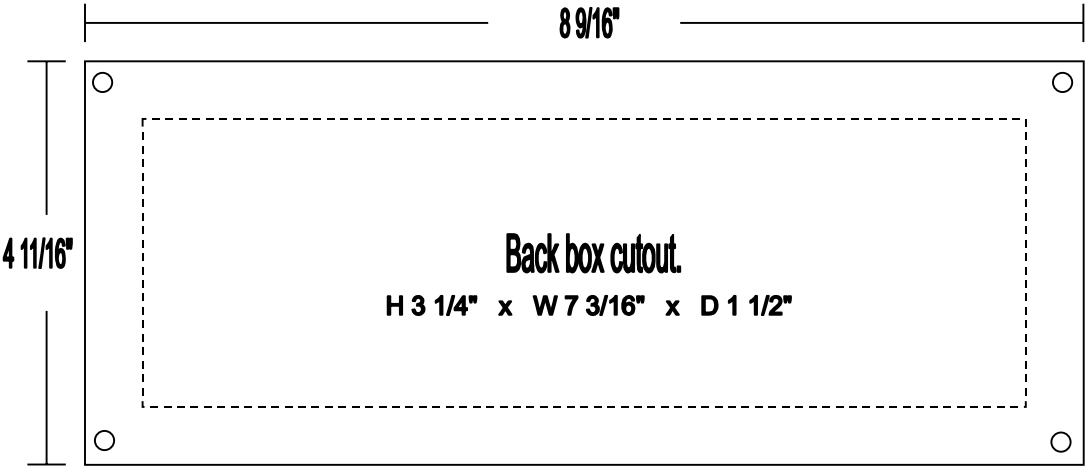


**Note: Hole required for cable
in back of desk cabinet is 2 1/2".**

Specification Sheet: Z9001-2P Part No. Z9001

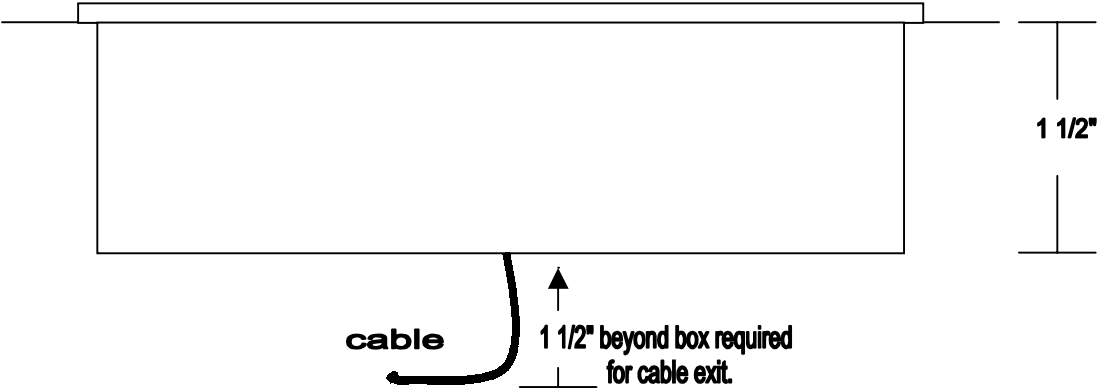
Not to scale.

Push Button Control Unit
Face plate.



Use face plate as template
for mounting holes.

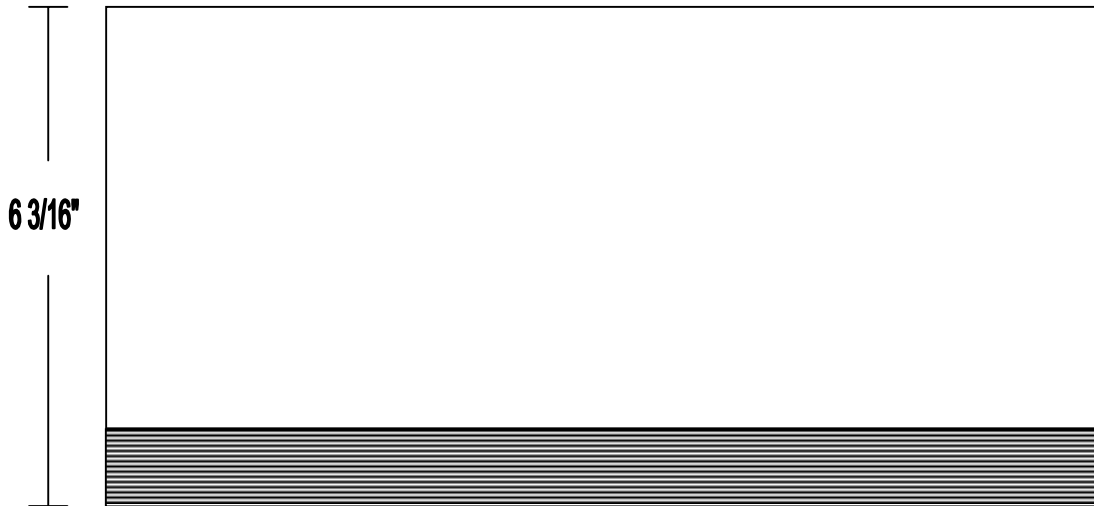
Side view.



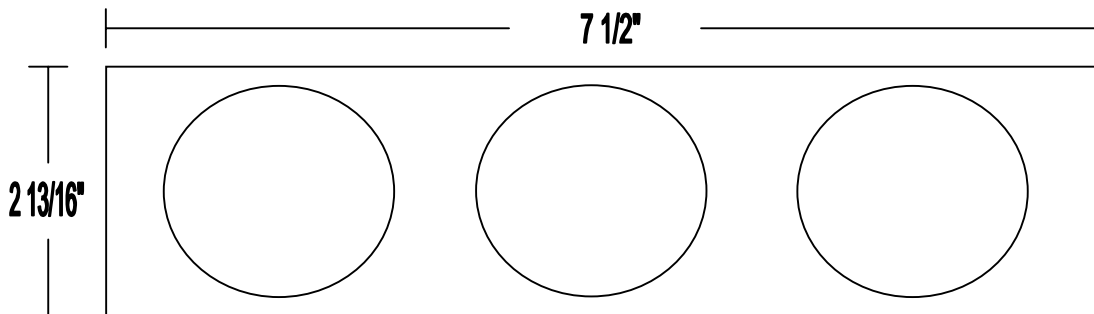
Specification Sheet: FW9001-2P Not to scale.

Front Recharge Well

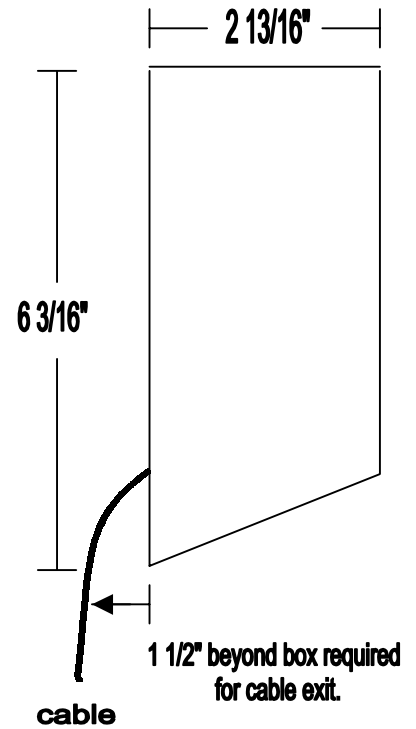
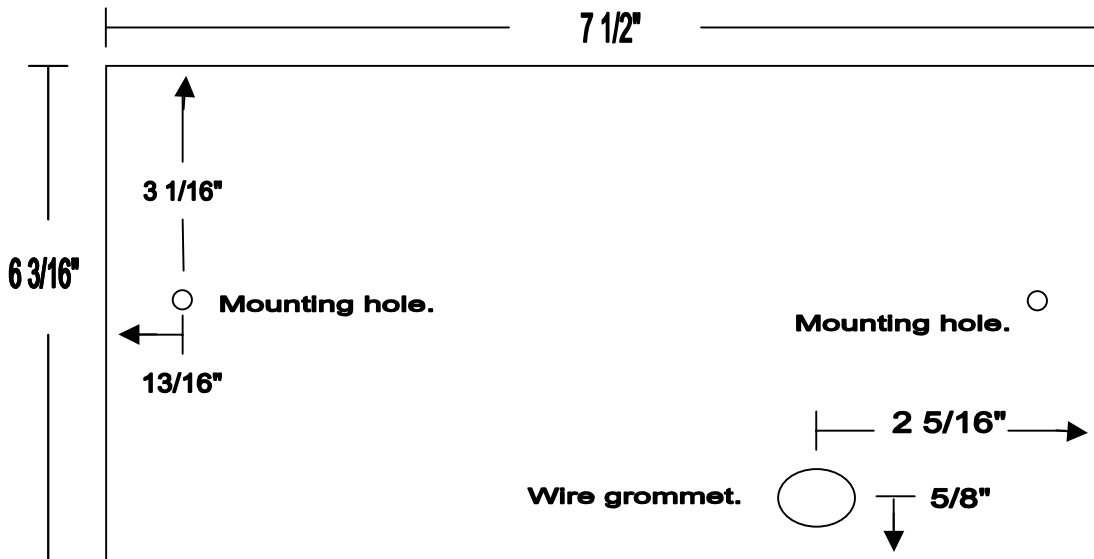
Front



Top

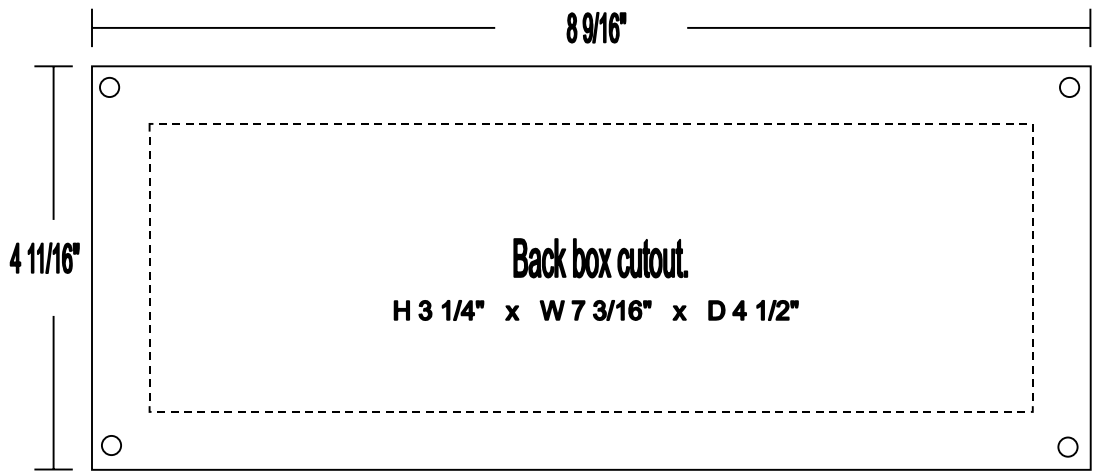


Back



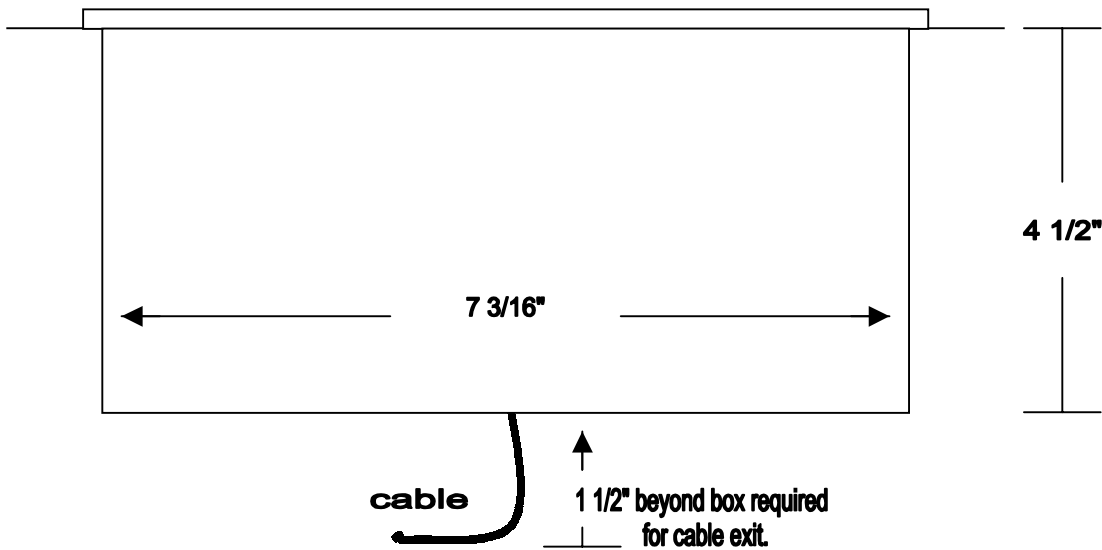
Specification Sheet: Z9001-2P **Part No. TW9001**
Not to scale.

Top Recharge Well
Face plate.



Use face plate as template
for mounting holes.

Side view.



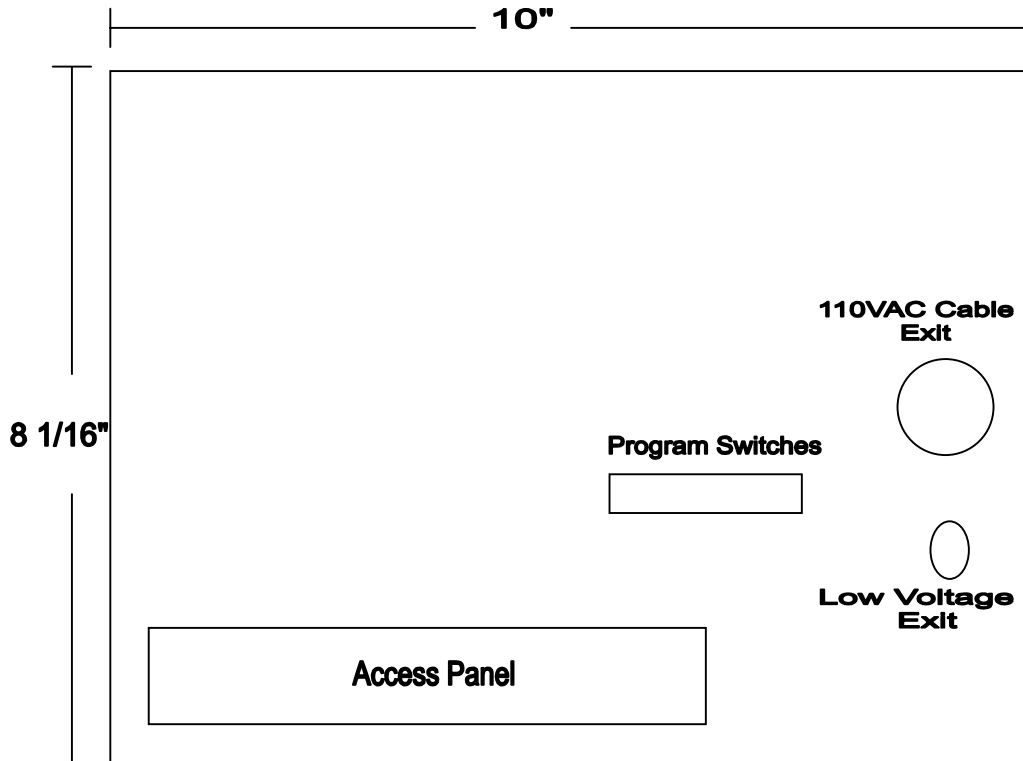
Specification Sheet: Z9001-2P Part No. CB9001

Not to scale.

Electrical Controller Box

Back

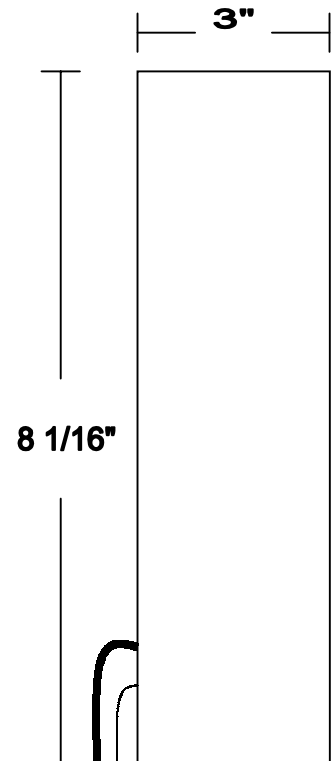
10"



Use face plate as template
for mounting holes.

Side

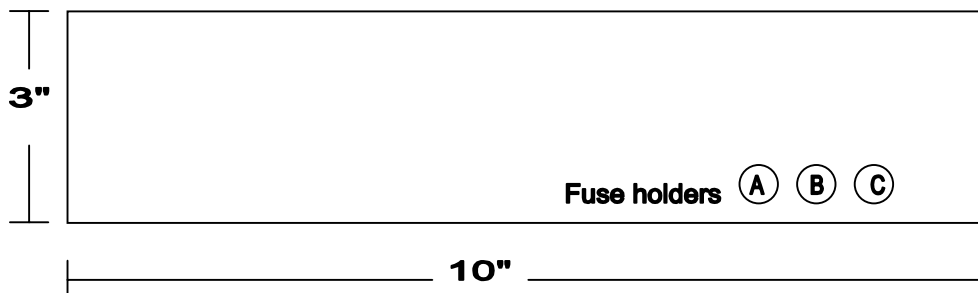
3"



Cables

1 1/2" beyond box required
for cable exit.

Top



Note: Hole required for cable
in back of desk cabinet is 2 1/2".

Fuse ratings:
A = 6 1/4 ASB
B = 5 ASB
C = 4 A

APPENDIX E

PHOTOS OF Z9000 SERIES OPHTHALMIC CONTROL SYSTEMS



Z9000 Desk Top



Z9000-1P

Z9001-2P



TW9001



Z9001



CB9001

PHOTOS OF ACCESSORIES



Slit Lamp Extension Plug



Slit Lamp Control Box



Indirect Hanger



Fixation Plate

PHOTOS OF ACCESSORIES



Box A: Power In



Box B: Fixation, Muscle, Indirect Connection