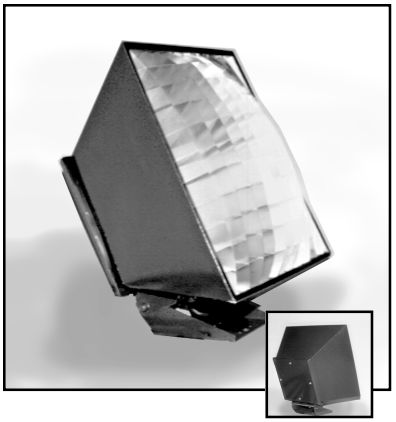
HotZONE™ - ELE-X5C/L Series

ELECTRIC RADIANT HEATER

Installation, Operation & Maintenance Manual



Hot ZONE

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The Radiant Optics, Inc. Warranty

Radiant Optics, Inc. warrants to the original puchaser new goods or parts to be free from defects in material and workmanship for the following periods of time from the time of delivery: ceramic emitter, ten years; gas control system, one year; electric elements, one year when used with a timer switch or 2000 hours of continual use; all other heater components, three years.

This warranty of material and workmanship specifically excludes ordinary and routine servicing and maintenance associated with the goods sold.

What is Not Covered by the Warranty

The warranty does not cover: 1) installations not made in accordance with installation instructions; 2) where the operation of the product varies substantially from our operation instructions: 3) malfunctions resulting from misuse, negligence, alteration and accident; 4) loss of time, inconveniences, loss of use of the products, other consequential damages.

The above constitutes our sole warranty. THERE IS NOT WARRANTY OF MERCHANTABILITY AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF.

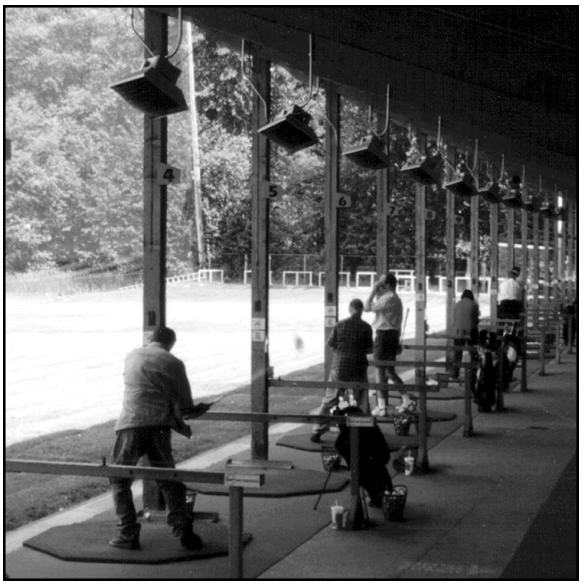
ABOUT YOUR HotZONE™ HEATER

This electric radiant heater is the most efficient means of converting electricity into heat and directing it into your work area. It uses a patented IRLens[tm] that increases projected heat into the target area by five times! The new CerIR[tm] heater element attains the highest effective heating temperature for a commercial heater, which means it converts more of the electricity into radiant heat.

HotZONE[tm] heaters come in 1.5, 3.0 and 5.0 KW capacities and have projected heat patterns that are Circular (for spot heating) and Linear (for aisle heating). These lenses are lightweight aluminum grids that look like a four-walled honeycomb structure and are capable of magnifying without overheating. Plan your installation “with the result in mind” by identifying the area you want heated. Imagine the heater as a kind of spotlight and place it so as to cover your target area.

The heaters have many voltage combinations in order to accommodate installation sites with existing wiring and to minimize the expense of new installations. The different voltage combinations allow for a variety of heater controls including on/off, staging and others. This line of electric heaters is listed with ETL and ETLc (for Canada) by ITS and is approved for use throughout the US and Canada.

All HotZONE[tm] heaters have a variety of options and accessories summarized in the Options, Accessories and Control chart. Options have to be ordered with the heater as they are part of the heater while accessories are additional items that are individually ordered.



Golf Driving Range Installation with heaters mounted at nine feet and capable of raising the target area (you) by 20 degrees F.

IMPORTANT INSTRUCTIONS

When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read all instructions before using heater.

2. To avoid surface burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, and curtains at least 5-1/2 feet from the front of the heater and keep them away from the sides and rear.

3. Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended.

4. Do not operate any heater after it malfunctions or has been dropped or damaged in any matter. Return heater to authorized service facility for examination, electrical or mechanical adjustment, or repair.

5. Use heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or personal injury.

6. Heater must be installed according to NEC and all local electric codes.

7. Use supply wires suitable for 90 degrees C.

8. Do not insert or allow foreign objects to enter or block any ventilation or exhaust opening as this may cause an electric shock or fire, or damage the heater.

9. To prevent a possible fire and to increase the life of the heater element install heater with the junction box on the low side.

10. A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable liquids are used or stored.

11. Do not install closer than the Minimum Clearances to any surface.

12. Do not install less than the Minimum Mounting Height from the floor.

13. Servicing should be done only while the heater is disconnected from the supply circuit.

WARNING: Risk of fire relating to use with or near combustible materials. Not suitable for residential or household use.

LISTED
CONFORMS TO
AMSI/UL STD. 1025
CERTIFIED TO
CAN/CSA STD. C22
No.46
41344

Important: Please make certain that the person who is to use and install this heater carefully reads and understands these instructions. The Model and Serial label for the heater is located on the back of top of the heater.

SERIAL# _____

Ampacity & Schematics
See below for Descriptions

Model	Lens*	Watt†	Volt	015		030		050	
ELE	☐ X5C	☐ 015	☐ 120	12.5	A	25	B'	41.7	C
	☐ X5L	☐ 030	☐ 120 S2	12.5	B"				
		☐ 050	☐ 208	7.2	A	14.4	B"	24.0	C
			☐ 20Y‡			8.3	C	13.9	C
			☐ 20D‡			8.3	D	13.9	D
			☐ 240	6.3	A	12.5	B"	20.8	B"
			☐ 24D‡					12.0	D
			☐ 277	5.4	A	10.8	A	18.1	B"
			☐ 277 S2			10.8	B"		
			☐ 346			8.7	A	14.5	A
			☐ 480			6.3	B'	10.4	B'
			☐ 48Y‡					6.0	C

*C=Circular 5X Pattern.
*L=Linear 5X Pattern.
† Watts in hundreds.
S2 = Staged Element
‡ 3Phase power "Y","D".

A=2wr Series, B'=3wr Series, B"=3wr Parallel, C=4wr Wye, D=3wr Delta.

INSTALLATION

Prior to installing your HotZONE[tm] heater, the following should be reviewed and adhered to. Compliance with the following will yield satisfactory heater operation and minimize equipment costs.

1. Heaters to be installed in accordance with National Electric and all local codes. This heater is ETL listed for installation both indoors and out.

2. Mount heaters outside the distance to combustibles and at least six feet from the floor. Allow for user adjustment if possible as heating requirements change. Install so that items left under the heater are not overheated.

3. Supply the correct power (voltage/amps/phase) to the heater while allowing for line losses.

4. Install controls that provide individual zone management, allows staging the heaters for low/high operation and time-out automatically when not needed for additional conservation.

MOUNTING VARIATIONS

A Awning Clamp - Adjustable, removeable mounting to pipe and bar structures.

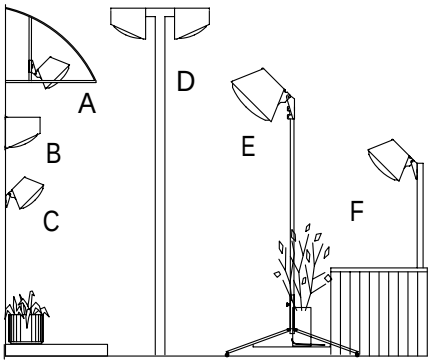
B Vestibule Enclosures - Exterior walls above people and side-walks. Comes in many colors.

C Multi-Mount - Standard mounting for walls.

D Outdoor Pole - Vestibule enclosures in the light standard format for large areas.

E Stand - Temporary and moveable stand with accessory pan for decorations.

F Deck and Yard - Another use for the standard mult-mount.



G Chain Hung Vestibule - Architectural means to place heates alongside lighting equipment.

H Jib Crane - Moveable means to place the heater up to 6' from the side wall. Base extension allows for re-direction from the floor.

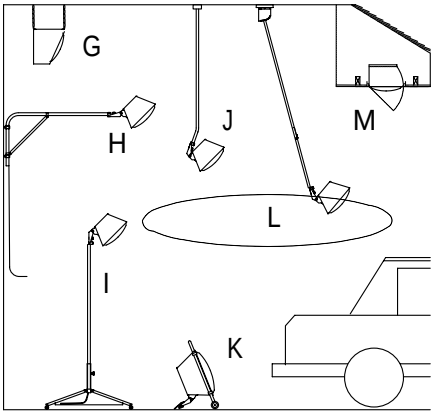
I Small Stand - For shops and garages.

J Conduit Mount - Fastest way to securely hang a heater and simultaneously provide electric service.

K Cart - Easy to use and move.

L SkyHook - An upside down "ceiling stand" that supports a heater within a 16' wide circle.

M Flush Mount - Eave and T-Bar locations both inside and out where heater can pivot down and out.



HotZONE™ heaters have Circular and Linear radiant profiles. These mounting variations are available for the Linear models as well.

MOUNTING THE HEATER

1. Mount the heater according to the following installation instructions and assure that the MINIMUM DISTANCE TO COMBUSTIBLES is maintained and the heater is at least 6' off the floor.

2. Adjust the heater to obtain a mounting angle between directly down and 45 degrees. Comfort is best obtained with the heater off to one side at 35 degrees.

3. Mount the heaters with linear lenses, ELE-X5L, such that the long side of the heater is parallel with the aisle into which the heat is to be concentrated.

4. The heater may be mounted many different ways, see Appendix A and the Mounting Variations for approved installations. Follow the instructions that come with each of those accessories.

5. The stock Multi-Mount bracket can be used in many ways. The bracket may have to be removed and flipped for some of the installations. See below for hole patterns.

INSTALLATION MOUNTING REQUIREMENTS

Minimum Distances to Combustibles *†
Espaces Pemises Des Combustibles

KW		015		030		050	
	Lens	C	L	C	L	C	L
Angle	*L'angle*	0º/45º	0º/45º	0º/45º	0º/45º	0º/45º	0º/45º
Side	*Côté*	9"/9"	15"/15"	18"/18"	30"/30"	30"/30"	48"/48"
Front	*Front*	9"/30"	6"/32"	18"/41"	9"/45"	30"/59"	15"/66"
Back	*Arriére*	12"/12"	6"/6"	18"/18"	9"/9"	30"/30"	15"/15"
Top	*Sommet*	6"/6"	6"/6"	9"/9"	9"/9"	12"/12"	12"/12"
Below ‡	*Dessous*	48"	48"	66"	66"	96"	96"

Minimum Mounting Height
Le minimum Monter l'Hauteur

‡ Below	*Dessous*	72"	72"	96"	96"	96"	96"

* Distances to non-combustibles may be less, check with factory.
† Combustibles not to fall within specified areas, check factory for exceptions.

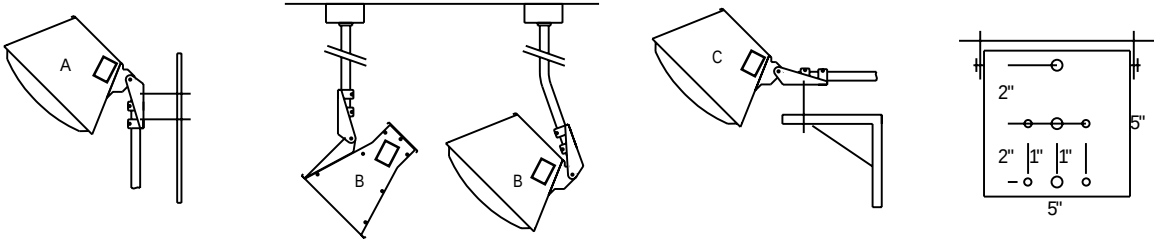
a) Mount with the stock multi-mount bracket directly to a wall or upright. Use screws, bolts or u-bolts as required. (See A below.)

b) Hang the heater directly from an electrical junction box with EMT connected with compression fittings. Attach the EMT to the bracket securely. If feeding wire in wet locations allow room at the end of the pipe for the flex junction. (See B below.) A 20 degree bend in the last 8" -12" of the EMT give a "pendant" style look to the installation of 5XC heaters where the junction box has to be on the bottom side. (See B below.)

c) For horizontal mounting to a flat surface, a single bolt placed in one of the middle holes allows for a left/right adjustment. (See C below.)

WARNING: ALWAYS POSITION THE JUNCTION BOX ON THE LOW SIDE OF THE HEATER. FAILURE TO DO THIS MAY RESULT IN OVERHEATING THE JUCTION BOX, EARLY HEATER ELEMENT FAILURE AND WILL VOID THE WARRANTY.

Standard Bracket Mountings



ELECTRICAL CONNECTION

All wiring must be in accordance with the National and Local Electrical Codes. The heater housing must be properly grounded. Refer to the label on the heater for model identification.

1. Install circuit protection for each heater or bank of heaters as required by the NEC and local codes.

2. Connect the service to the heater with properly sized conductors and wire nuts rated for 90°C. Use waterproof conduit or flex if installed outdoors or in wet areas.

3. Attach grounding wire to the green screw in the bottom of the junction box.

4. Connect service to the high temp wires according to the wiring schematics. Heaters have 2, 3 or 4 wires with the neutral marked. Configurations marked with an apostrophe (e.g. B') have no connection to the marked wire and are to to be capped with a wire nut.

5. Junction Box has 17.3 cubic inches (112 cubic centimeters) of wiring space and a 1/2 inch threaded hole.

6. Supply heater control equipment as required to turn heaters on and off. Consider additional controls to allow the heater to come on in stages for heaters with multiple elements.

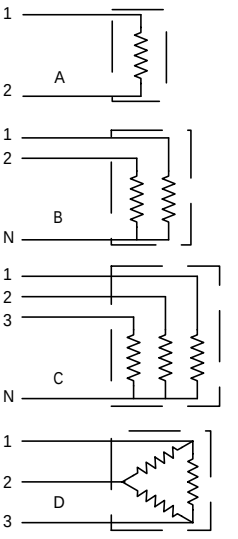
CAUTION: Use conductors suitable for 90° C (194° F) for field connections in junction box.

HotZONE™ heaters have Circular and Linear radiant profiles. The part numbers for each Circular and Linear heater is charted against it's ampere draw and schematic. Heaters with alternate connections have their schematic reference underlined, those with staging are reversed and those that do not use the nuetral line are marked with an apostrophe.

Wiring Schematic Chart for each Heater by Part Number

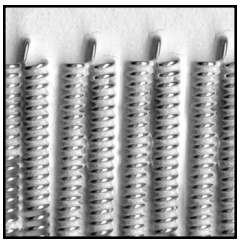
	015			030			050		
VOLT	C/L	Amp	Sch.	C/L	Amp	Sch.	C/L	Amp	Sch.
120	7501/7506	12.5	A	75301/75310	25.0	B	75501/75511	41.7	C
120 S2	7502/7507	12.5	B						
				75303/75312		C	75503/75513		C
208	7503/7508	7.2	A	75302/75311	14.4	B	75502/75512	24.0	C
20Y‡				75303/75312	8.3	C	7550375513	13.9	C
20D‡				75304/75313	8.3	D	75504/75514	13.9	D
240	7504/7509	6.3	A	75305/75314	12.5	B	75505/75515	20.8	B
	7502/7507		B'	75301/75310		B'			
				75309/75318		B	75509/75519		B
24D‡							75506/75516	12.0	D
277	7505/7510	5.4	A	75306/75315	10.8	A	75507/75517	18.1	B
277 S2				75307/75316	10.8	B			
346				75308/75317	8.7	A	75508/75518	14.5	A
480				75309/75318	6.3	B'	75509/75519	10.4	B'
							75505/75515		B
48Y‡							75510/75520	6.0	C

Schematics



‡ 3Phase power "Y","D". Alternate **Staged** Schematics with ' require N lead to be capped.

Heater Element - CerIR™



The HotZONE™ heater's performance is the most efficient infrared source available for comfort heating. The CerIR™ heating elements operate at a higher surface temperature than any other heater - approximately 1000° C (>1800 F°) for maximum efficiency. HotZONE™ heaters have the lowest operating cost when based on delivered heat.

The element is resistant to thermal and mechanical shock while operating. It works well in outdoor and marine use. The element has an expected life of 2000 hours when used for comfort spot heating.

MAINTENANCE

To obtain the maximum performance from your heater, we recommend the following be done at least once a year:

1. With an air hose regulated to 30 psi, blow off any dust and dirt from in front of the heater that has accumulated on the reflective surfaces of the heater and reflective lens. (Accumulated dirt degrades performance by up to 10%.)

2. Blow off any accumulated dirt on the vent holes of the heater and make sure the lid is not bent such that the vent area is reduced.

3. When storing the heater in a dry, dust-free place and be sure the lens-assembly is protected from any possible damage.

SERVICE & TROUBLESHOOTING

HotZONE™ heaters require almost no service other than replacing the element after about 2000 hours of use. Service is similar for the circular and linear heaters. Replace the heater element by:

a) Remove the lid and detach all the ring terminal nut and screw joints.

b) Remove the heating element while threading the sleeved wires through the metal wrap.

c) Reverse these steps with the new element. Replace ring terminal nuts and screws as necessary. For heaters without ring terminal ends on the wires, contact the factory for a set of crimp on ring terminals and hardware.

Heaters with damage to the reflective lens can be functionally fixed by bending reflectors back into the original shape. Order parts as needed from the factory.

If the heater barely glows, check for the correct voltage (under a load condition) and confirm correct wiring connection. Three phase devices where one leg is off will operate with reduced output.

If the heater glows a bright orange-white the voltage on the unit may be too high and the element will fail within minutes. Disconnect immediately and correct the wiring.

If the heater has the correct voltage and is wired correctly and still does not glow, inspect the face of the element for small dark burnt areas that indicate a wire failure. Replace as necessary. Almost all element failures are visible from the front of the element.

CHANGING THE RAYHEAD ON YOUR HEATER

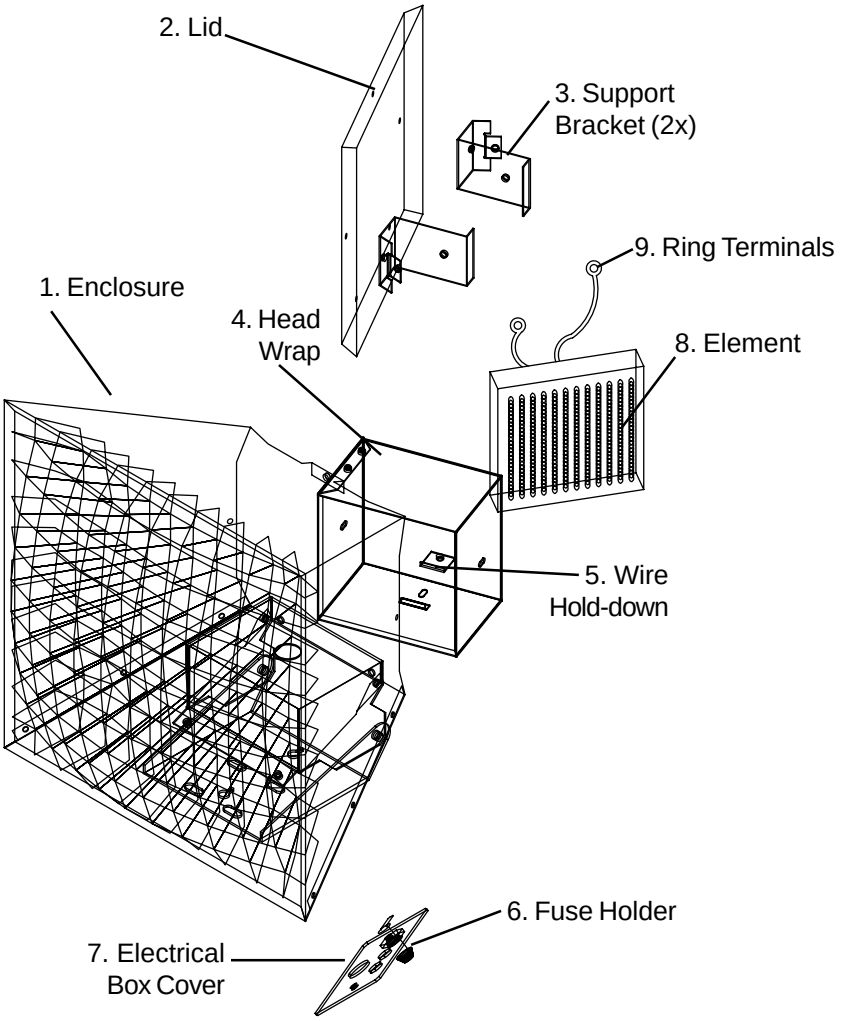
To change the rayhead on your heater:

1.Remove the lid with the 4 or 5 Phillips head screws.

2. Remove the nut & bolt from the Ring Terminals on the back of the element.

3. Remove the 2 screws fastening side of the enclosure to the support brackets.

4. Pull the head wrap, element and support bracket out of the enclosure just enough to expose the screw's on the side of the head-wrap.



CHANGING THE RAYHEAD ON YOUR HEATER

5. Remove the support brackets from the head wrap and remove the top two screws on the head wrap allowing the old element to be pushed out and replaced by the new element.

6. Push the new element tight to the face of the headwrap and replace the top two screws.

7. Set the headwrap with the support brackets into the enclosure and pull the excess wire back through the electrical box and secure with clamp. Position the support brackets on each side of enclosure and replacing and tightening the two screws.

8. Reinstall the nut and bolt in to ring terminals.

9. Place lid onto enclosure and tighten screws.

10. Push 1/4" plug into fuse holder and reconnect wire with a wire nut.

11. Place on the electrical box cover and tighten screws.

12. Test Unit.

If the voltage has been changed you must update your ETL label on the heater. Take a ball point pen, cross out the old voltage and put an "x" in the new voltage to update your label. If the voltage has not changed the label does not need to be updated.

CONVERTING HEATER TO A DIFFERENT VOLTAGE

Element with the same number of wires

1. For elements that have the same 2,3 or 4 wire connection to the element, follow directions for changing the rayhead.

2. Test Unit

3. Take a ball point pen, cross out the old voltage and put an "x" in the new voltage to update your label. (If the voltage has not changed the label does not need to be updated.)

Elements with different numbers of wires

4. For elements with different numbers of wire connectors to the element, remove the electrical box cover with the fuses.

5. Remove the rayhead as above.

6. Unscrew the wire nut and unplug the fuse(s)

7. Remove or Add wires as needed and reseal the passage-way with silicone

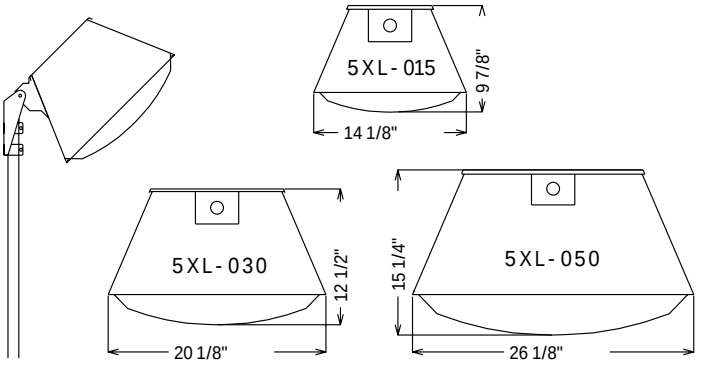
8. Aquire a differrent fuse plate and screws as needed.

9. Test Unit

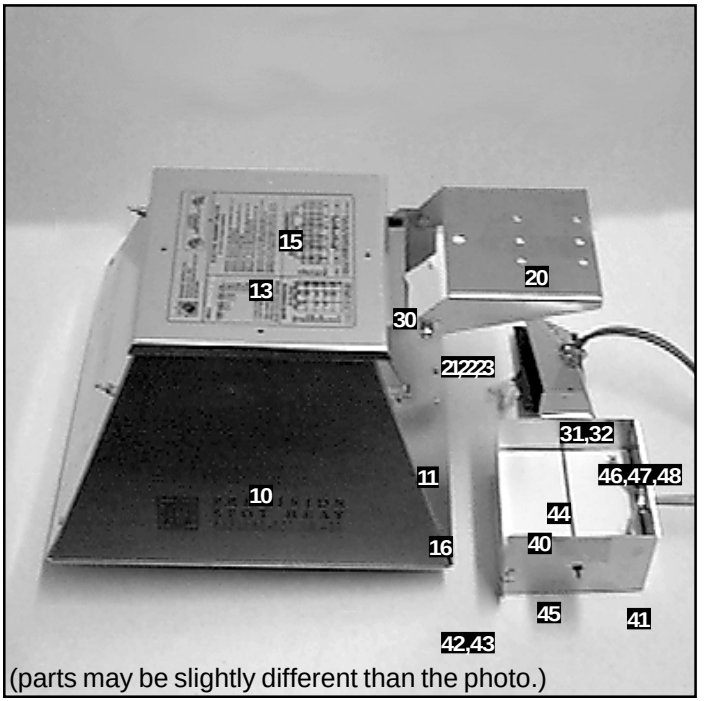
10. Update the ETL Label (see #3).

ELE-X5C
PART & DIMENSIONS

All replacement parts must be obtained from the manufacturer at RADIANT OPTICS, INC. 14522 NE N Woodinville Way #107 Woodinville, WA 98072 Phone (425) 806-3990 Fax (425) 806-3991. No parts other than those specified below should be used on this heater. Please specify heater model and serial number when ordering.



ELE-5XC	Unit	015	030	050
Length	in	14 1/8	20 1/8	26 1/8
Width	in	14 1/8	20 1/8	26 1/8
Depth	in	9 7/8	24 1/2	15 1/4
Weight	lbs	8	12	22
UPS	-	Yx4	Yx2	Yx1



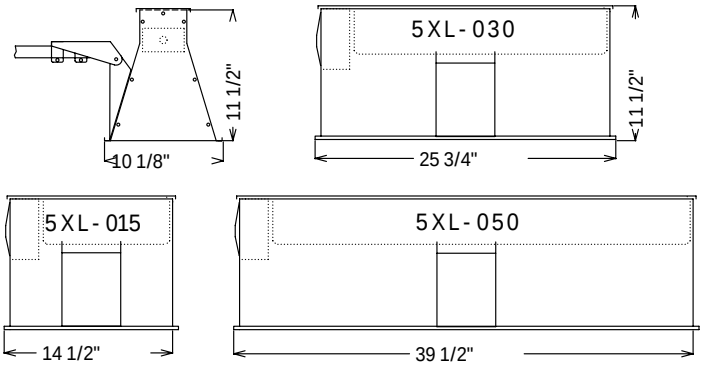
(parts may be slightly different than the photo.)

#	ELE-5XC PARTS	015	030	050
10	Shell Wrap	1	1	1
11	Shell Back	1	1	1
13	Lid	1	1	1
14	Unuts 8-32	6	4	4
15	Screws 8-32x1/2	7	7	7
16	Rivets 5-32x1/8	4	4	6
20	MultiMount	1	1	1
21	LockNut 1/4-20	2	2	2
22	Bolt 1/4-20x3/4	2	2	2
23	Friction Washer 1/4/20	2	2	2
30	Ele Junction Box	1	1	1
31	Lid (w/gasket)	1	1	1
32	Lid Screws 6-24x3/8	2	2	2
33	Standoffs 3/8"	4	4	4
34	Screws 10-32x3/4	4	4	4
35	Rubber Seal	1	1	1
36	Ground Screw	1	1	1
40	Element	1	1	1
41	Wrap	1	1	1
42	Unut 8/32	1	1	1
43	Screw 8-32x1/2	1	1	1
44	Rod 1/8"	1	1	1
45	PushNut 1/8"	2	2	2
46	RingTerminals	#	#	#
47	HT Wire	#	#	#
48	HT Sleeve	1	1	1
50	Lens Set	1	1	1
60	Label (for color)	1	1	1
61	Install Label	1	1	1

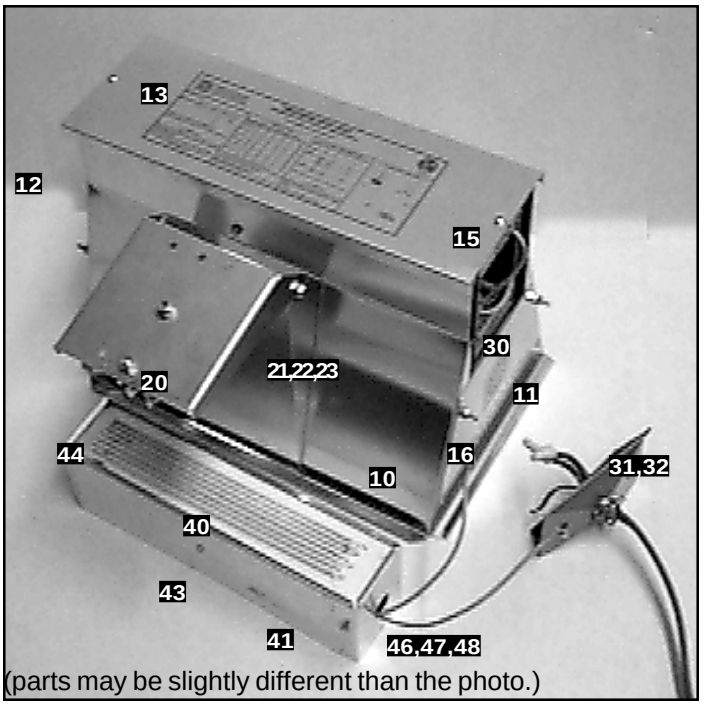
= variable amount based on specific model.

ELE-X5L
PART & DIMENSIONS

All replacement parts must be obtained from the manufacturer at RADIANT OPTICS, INC. 14522 NE N Woodinville Way #107 Woodinville, WA 98072 Phone (425) 806-3990 Fax (425) 806-3991. No parts other than those specified below should be used on this heater. Please specify heater model and serial number when ordering.



ELE-5XL	Unit	015	030	050
Length	in	14 1/2	25 3/4	39 1/2
Width	in	10 1/8	10 1/8	10 1/8
Depth	in	11 1/2	11 1/2	11 1/2
Weight	lbs	8	12	22
UPS	-	Yx4	Yx2	Yx1



(parts may be slightly different than the photo.)

#	ELE-5XL PARTS	015	030	050
10	Shell Sides	2	2	2
11	End J-Box	1	1	1
12	End	1	1	1
13	Lid	1	1	1
14	Unuts 8-32	4	6	6
15	Screws 8-32x1/2	4	4	6
16	Rivets 5-32x1/8	14	14	14
20	MultiMount	1	1	1
21	LockNut 1/4-20	2	2	2
22	Bolt 1/4-20x3/4	2	2	2
23	Friction Washer 1/4/20	2	2	2
30	Ele Junction Box	1	1	1
31	Lid (w/gasket)	1	1	1
32	Lid Screws 6-24x3/8	2	2	2
33	Standoffs 3/8"	4	4	4
34	Screws 10-32x3/4	4	4	4
35	Rubber Seal	1	1	1
36	Ground Screw	1	1	1
40	Element	1	1	1
41	Wrap	1	1	1
42	Unut 8/32	2	2	2
43	Screw8-32x1/2	2	2	2
44	Screw8-32x2 1/2	0	1	2
46	RingTerminals	#	#	#
47	HT Wire	#	#	#
48	HT Sleeve	#	#	#
50	Lens Set	1	1	1
60	Label (for color)	1	1	1
61	Install Label	1	1	1

= variable amount based on specific model.

APPENDIX A - OPTIONS, ACCESSORIES & CONTROLS

Standard

5X Lens	Patented Feature that magnifies the radiant heat into its target area by a factor of five. The lens consists of an aluminum grid of reflectors placed in front of the heater that will cover a Circular (spot) or Linear (aisle) pattern.
CerIR Element	Element operates at 1800F degrees, with the highest conversion efficiency of electricity into heat, outperforming metal sheath, quartz tube and quartz lamps. It withstands thermal and vibration shock and has an expected life of 2000+ hours.
Water Proof	Design is listed for outdoor installation and can be mounted in damp and wet locations.
Multi-Mount	Universal mounting bracket is adjustable in many ways allowing for direct mounting to a Stand, Pole, Wall, Jib, Awning Framework and Ceiling hung conduit pipe while preserving waterproof integrity.
Serviceable	Designed for easy service, speeding element replacement.

Options

Color	Powder coat finishes of almost any color with a variety of Glosses (20%-90%), Textures (mild, wrinkle, sand & hammer-tone) and Veined (silver, gold copper % black traces).
Marine	Extreme weather construction with all non-ferrous construction. Suitable for use in farm facilities in US and Canada.
Heavy Duty	Heavy gauge aluminum construction with a lens guard.

Accessories

Flush Mounts	Fixture frame that allows direct mounting in any ceiling cavity that is vented, such as eaves and drop ceilings. The heater can be adjusted from a vertical through 45 degree projection angle. Comes in all colors (above).
Vestibules	Architectural enclosures for all the heaters in the color options above. Designed for attachment to a wall, pole or suspended by chain. Projects heat at 25 or 65 degrees from vertical. Pole standoffs for a look that matches outdoor lights.
Cart	A mobile accessory for circular heaters that adds a pair of wheels, handle and rear adjustable tilt bumper for easy adjustment and relocation. Includes a crossed wire lens guard. (Note: this combination is not listed.)
Stands	Lightweight stands for 20/45/60 pound heaters at elevations up to 8', 10', 12'. The stands are galvanized and have an optional pan base (for a plant, etc.) and wheels.
Jib Arms	Crane type arms that supports 30/50 pound heaters 3' and 6' from a wall or vertical column. Product allows for electric service through the arm and an optional extension for changing the heaters' direction from ground level.
Sky Hooks	An upside down stand for the ceiling that provides for complete 3D placement of the heater within a 14' diameter area. A tensioned pulled takes up cord slack and eliminates floor cords and stands.

Controls & Connections

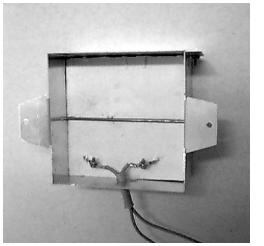
On/Off	Simple on/off methods that use direct connections or relays. Switches can control single or multiple heaters.
Staging	Switches that turn on parts of the heater individually or parts of the service to multiple heaters for time of lower heat requirements.
Infinite Control	Continuous "dimming" of heater from 100% down to 0%.
Thermostat	Used to provide freeze protection in addition to other controls or for automatic staging limits.
Electric Cords	Various cords with plugs, wire lengths.
Plug Sets	Plug and receptacles in sets or individually for semi-permanent installations.

APPENDIX B - REPLACEMENT HEATER ELEMENTS

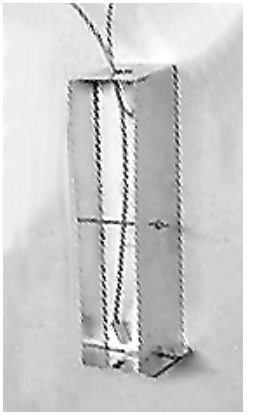
7501	ELE-X5C-120-015	1500	1	12.5	120	A		
7506	ELE-X5L-120-015	1500	1	12.5	120	A		
7502	ELE-X5C-120-015-S2	1500	1	12.5	120	B	240	B'
7507	ELE-X5L-120-015-S2	1500	1	12.5	120	B	240	B'
7503	ELE-X5C-208-015	1500	1	7.2	208	A		
7508	ELE-X5L-208-015	1500	1	7.2	208	A		
7504	ELE-X5C-240-015	1500	1	6.3	240	A		
7509	ELE-X5L-240-015	1500	1	6.3	240	A		
7505	ELE-X5C-277-015	1500	1	5.4	277	A		
7510	ELE-X5L-277-015	1500	1	5.4	277	A		
75301	ELE-X5C-120-030	3000	1	25.0	120	B	240	B'
75310	ELE-X5L-120-030	3000	1	25.0	120	B	240	B'
75302	ELE-X5C-208-030	3000	1	14.4	208	B		
75311	ELE-X5L-208-030	3000	1	14.4	208	B		
75303	ELE-X5C-20Y-030	3000	3	8.3	208	C	120	C
75312	ELE-X5L-20Y-030	3000	3	8.3	208	C	120	C
75304	ELE-X5C-20D-030	3000	3	8.3	208	D		
75313	ELE-X5L-20D-030	3000	3	8.3	208	D		
75305	ELE-X5C-240-030	3000	1	12.5	240	B	480	B'
75314	ELE-X5L-240-030	3000	1	12.5	240	B	480	B'
75306	ELE-X5C-277-030	3000	1	10.8	277	A		
75315	ELE-X5L-277-030	3000	1	10.8	277	A		
75307	ELE-X5C-277-030-S2	3000	1	10.8	277	B		
75316	ELE-X5L-277-030-S2	3000	1	10.8	277	B		
75308	ELE-X5C-346-030	3000	1	8.7	346	A		
75317	ELE-X5L-346-030	3000	1	8.7	346	A		
75309	ELE-X5C-480-030	3000	1	6.3	480	B'	240	B
75318	ELE-X5L-480-030	3000	1	6.3	480	B'	240	B
75501	ELE-X5C-120-050	5000	1	41.7	120	C	20Y	C
75511	ELE-X5L-120-050	5000	1	41.7	120	C	20Y	C
75502	ELE-X5C-208-050	5000	1	24.0	208	B		
75512	ELE-X5L-208-050	5000	1	24.0	208	B		
75503	ELE-X5C-20Y-050	5000	3	13.9	208	C		
75513	ELE-X5L-20Y-050	5000	3	13.9	208	C		
75504	ELE-X5C-20D-050	5000	3	13.9	208	D		
75514	ELE-X5L-20D-050	5000	3	13.9	208	D		
75505	ELE-X5C-240-050	5000	1	20.8	240	B	480	B'
75515	ELE-X5L-240-050	5000	1	20.8	240	B	480	B'
75506	ELE-X5C-24D-050	5000	3	12.0	240	D		
75516	ELE-X5L-24D-050	5000	3	12.0	240	D		
75507	ELE-X5C-277-050	5000	1	18.1	277	B		
75517	ELE-X5L-277-050	5000	1	18.1	277	B		
75508	ELE-X5C-346-050	5000	1	14.5	346	A		
75518	ELE-X5L-346-050	5000	1	14.5	346	A		
75509	ELE-X5C-480-050	5000	1	10.4	480	B'	240	B
75519	ELE-X5L-480-050	5000	1	10.4	480	B'	240	B
75510	ELE-X5C-48Y-050	5000	3	6.0	480	C	277	C
75520	ELE-X5L-48Y-050	5000	3	6.0	480	C	277	C

* Alternate connections for dual service elements are under "ALT SCH "
Schematics with an apostrophe(eg B') do not use "N". See page 7.
Heater elements that can be staged for High/Low are highlighted.

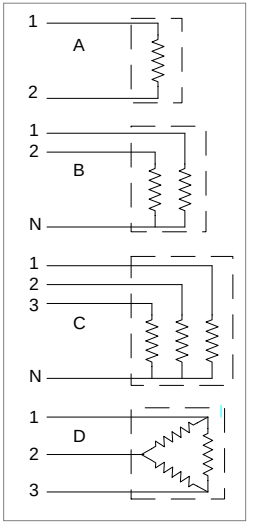
ELE-X5C Element



ELE-X5L Element

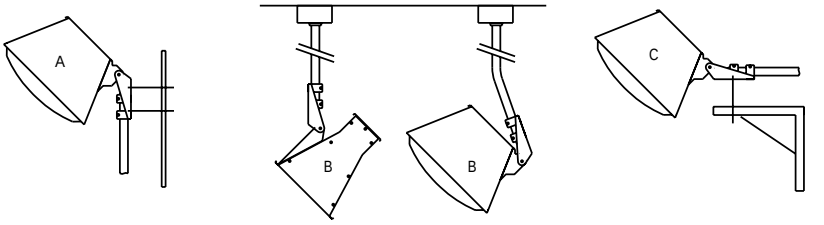


Schematics



QUICK INSTALLATION SUMMARY

THE BARE ESSENTIALS OF INSTALLING THIS HOTZONE™ ARE BELOW, SEE THE MANUAL FOR SPECIFIC INSTUCTIONS AND WARNINGS.



1. Mount heater in a safe location by complying with the distances to combustibles on all sides of the heater including items that may be moved under the heater. Use the universal mounting bracket when possible.

2. Install the heater so that the junction box is on the low side of the X5C heaters and on the side of the X5L heaters. Failure to do this may result in overheating the juction box, early heater element failure and will void the warranty.

3. Connect to the correct voltage in a NEC approved cirucuit with supply wires suitable for 90 degrees C. Provide for controls that allow each heater to be turned off and/or staged for low/high operation. Wire according to schematics below. Refer to manual for alternate configurations that do not use the neutral line.