

## LD Series - Tube Heater Specification Sheet

**⚠ WARNING:** This heater must be installed and serviced by trained gas installation and service personnel only! Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment. Protect yourself and others by observing all safety information. Retain instructions for future reference.



# LD SERIES TUBE HEATERS

## ENGINEERING SUBMITTAL DATA - LOW INTENSITY GAS FIRED INFRA-RED TUBE HEATERS & ACCESSORIES.

Qty.	<input checked="" type="checkbox"/>	Model #	Gas Type (circle one)	MBTU's	Length	U-Tube Length	Weight	Typ. Mount Height	Field use only
									"Type" Tube Pkg #1 ***
		LD 10-40	N or LP	40 / 28	12'-3"	N/A	85#	10' Min.	10-3 Titanium
		LD 15-40*	N or LP	40 / 28	17'-0"	N/A	100#	10' Min.	15-3 Titanium
		LD 15-50	N or LP	50 / 35	17'-0"	N/A	100#	10' Min.	15-3 Titanium
		LD 20-40*	N or LP	40 / 28	21'-7"	13'-0"	120#	8' Min.	20-3 Titanium
		LD 20-50	N or LP	50 / 35	21'-7"	13'-0"	120#	9' Min.	20-3 Titanium
		LD 30-50*	N or LP	50 / 35	31'-3"	**17'-10"	160#	9' Min.	30-3 Titanium

\* CSA Design Certified for installation in residential applications.

\*\* Model requires 5EA-SUB accessory package.

\*\*\* Type packages refer to the tube package that will ship with models (length, diameter, combustion tube type and radiant tube).

For additional literature on this and other products, please visit [www.reverberray.com](http://www.reverberray.com).

Project: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Contractor: \_\_\_\_\_

Engineer: \_\_\_\_\_

Local Representative: \_\_\_\_\_

Customer Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Phone #: \_\_\_\_\_

Model #: \_\_\_\_\_ Date of Installation: \_\_\_\_\_

Serial #: \_\_\_\_\_

Notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Printed in U.S.A.  
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Form# LSLD-3M-07/03 (ID)



## Specifications & Clearances

### APPROVALS

- IAS, CGA, CSA.
- Certain models are residentially certified to CSA No. 7-89.

### ENAMELED CONTROL BOX

- Sight glass for burner inspection.
- 4" male duct air inlet.
- Outside air collar (4") attached.
- Totally enclosed components.

### POWER SUPPLY

- 120 V.A.C., 60 Hz GRD, 3-wire.
- 25 V.A.C. thermostat connection.
- Ignition current-4.8 amps.
- Running current-1.1 amps.
- 24V controls.

GAS SUPPLY-W.C.P.	NAT	LP
• Manifold pressure	3.5"	10.0"
• Min. Inlet pressure	5.0"	11.0"
• Max. Inlet pressure	14.0"	14.0"

### GAS CONNECTION

- 7/8" flare-M FPT Connection to 1/2"x24" SS (304) flex connector provided.
- 1/2" F NPT gas cock included.

### CONTROLS

- 100% safety shut off.
- Dual pressure switches.
- Silicon carbide hot surface igniter.
- Flame rod sensing.
- Pre-purge controls.
- Self-diagnostic - LED "soft-lockout"

### EMMITER & COMBUSTION TUBES

- 16ga. 3" O.D. titanium alloy treated combustion chamber.
- 16ga. 3" O.D. aluminized steel radiant tubes.

### OPERATIONAL LIGHTS

- Light #1-Indicates high fire.
- Light #2-Indicates low fire.
- Light #3 (red)-Indicates applicable fault code.

### VENTING

- Sidewall or roof -3" diameter pipe. Up to 20ft.
- Venting is required for residential applications.

### WARRANTY

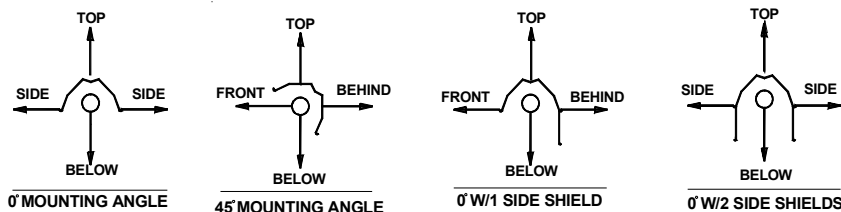
- 1 year - Burner box components.
- 3 years-Combustion and radiant tubes.
- 5 years-Stainless steel burner.

### OTHER

- One reflector center support per reflector.
- Stainless steel turbulator baffle included.
- Stainless steel upgrades (burner box and reflectors only) are available.
- Made in U.S.A.
- Visit [www.reverberray.com](http://www.reverberray.com).

LD CLEARANCES TO COMBUSTIBLES (IN.) *					
MODEL NO.	MOUNTING ANGLE	SIDE		TOP	BELOW
		FRONT	BEHIND		
LD (10,15,20) - 40	0°	15	15	6	45
	45°	58	8	10	45
	0°	42	8	6	45
	0°	20	20	6	45
	0°	NA	NA	NA	NA
LD (15,20,30) - 50	0°	11	11	6	48
	45°	39	8	10	48
	0°	29	8	6	48
	0°	16	16	6	48
	0°	7	7	6	30

\* See cover page for models certified for residential use.



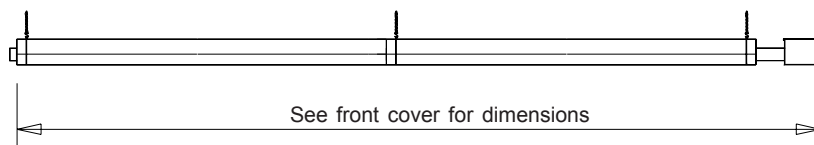
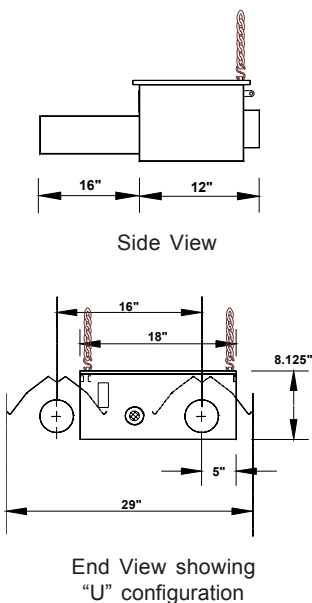
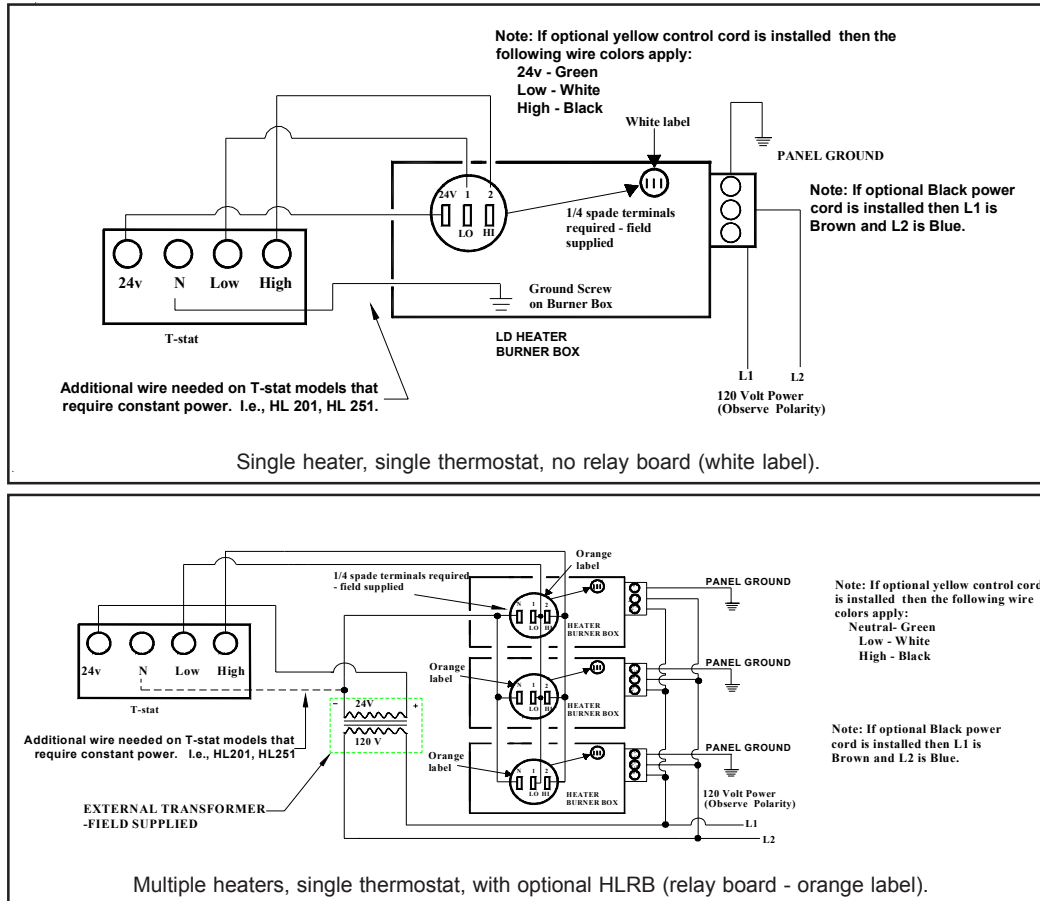
### OPTIONAL ACCESSORIES

- ☐ **SSCBAO.** Upgrade burner box to 304 series stainless steel.
- ☐ **SSRAO.** Upgrade aluminum reflector to 304 series stainless steel.
- ☐ **HLRB.** Relay board, required on heaters sharing a common thermostat or a single vent.
- ☐ **PC-36.** Three prong power cord set. Allows heater to be plugged into 120V grounded outlet.
- ☐ **5EA3"-SUB.** Substitute one 10' radiant tube and reflector for two 5' pieces. This is ideal for making "U" heaters for 30' models. Maximum of one per heater.
- ☐ **OD-KIT.** For use when applying heaters outdoors.
- ☐ **24VAO.** For use with low voltage thermostat. Provide field 24V supply (10VA is sufficient.) *Specify 24 VAO (add on) to install optional, internal 24V relay. Provide external 24V supply with this option.*



# Field Data & Accessories

## Typical Field Wiring Diagram



OPTIONAL ACCESSORIES (Consult Tube Heater Accessory Guide (LPKTH) for additional accessories)			
QTY.	PART#	DESCRIPTION	NOTES
	WIV-4	4" combustion air intake - sidewall cap	Used to duct fresh (cold) air 0-30 ft. to a heater. Sidewall only.
	WVE-GALV	4" unvented exhaust termination cap	Required on all units when operating unvented.
	DB-DSK	3" sidewall vent kit	Required for all single sidewall vents. No roof venting.
	4-DSK	4" sidewall vent kit	Required for all common sidewall vents. No roof venting.
	DB-Y	3" x 3" x 4" common Y vent fitting	Used for joining two heaters on one vent. Same T-stat required.
	DB-E6	90 degree, 3" radiant elbow	Used for making a "L" tube shaped heater. Max. two per unit.
	RE	Reflector elbow shield	Reflector and accessories used to cover E6.
	DB-TF1B	180 degree, 3" radiant "U" bend	Used for making a "U" shaped heater. Max. one per unit.
	SMB	Single mount bracket	Provides units with "U" bend uniform mounting points. One per 10'.
	RU	Reflector "U" shield	Reflector and accessories used to cover TF1B.
	DB-TR60	5' x 3" tube & reflector extension	Optional 5' extension package. Max. two per unit.
	DB-10EA	10' x 3" tube & reflector extension	Optional 10' extension package. Max. one per unit.
	SSE	Side shield extension	Reflector side guard used to lower side clearances. Each 5' in length.
	PG	Protective guard	Protects heat exchanger from contact or objects. Each 5' in length.
	PLQ	Warning plaque	Restates the clearance to combustible warning.
	BK	Angle mounting bracket 10-25-45 Deg.	Rotates unit to preset mounting angles.

See accessory guide for 3" diameter tube accessories.



## Written Specifications

### HEATER PARAMETERS/SPECIFICATIONS

- Gas fired two-stage radiant tube heaters shall be furnished and installed in accordance with governing codes and as shown per drawing(s) provided. Two-stage radiant tube heaters shall be **RE-VERBER-RAY LD SERIES** of the model numbers and inputs(s) in BTU/H as manufactured by Detroit Radiant Products Company, Warren, MI 48089.
- Two-stage radiant tube heaters shall be Design Certified by CSA and comply with current Occupational Safety and Health Act (OSHA) Requirements. The supplier shall provide the CSA Certification Number and the heaters shall bear the CSA Seal of Certification. The heaters low fire and high fire modes of operation must be Design Certified by CSA.
- The supplier shall provide a manufacturer's published warranty covering the heater's stainless steel burner for a period of five (5) years, combustion and radiant emitter tube assembly for a period of three (3) years, and all components utilized in the heater control assembly for a period of one (1) year.
- The supplier shall furnish the owner/contractor with \_\_\_\_\_ copies of the engineering specification forms, showing physical dimensions, installation detail, recommendations, control wiring diagrams, and spare parts list.
- Two-stage radiant tube heaters shall be designed to satisfactorily operate at a minimum inlet pressure of \_\_\_\_\_ inches W.C. to a maximum inlet pressure of \_\_\_\_\_ inches W.C.
- Two-stage radiant tube heaters shall be designed to operate without adjustments when burning natural gas having a heat value of \_\_\_\_\_ BTU per cubic foot with a specific gravity of \_\_\_\_\_, or when burning propane gas have a heat value of 2500 BTU per cubic foot with a specific gravity of 1.53.
- An Installation, Operation, and Maintenance Manual shall be supplied with each heater.

### TWO-STAGE RADIANT TUBE HEATER BURNER CONTROLS

- The two-stage radiant tube heater's normal sequence of operation shall include a defined input differential. Heater must be CSA Design Certified to operate at an input differential of at least 30% between the low fire and high fire modes.
- Heaters shall be equipped with a direct silicon carbide ignition system with a three (3)-time ignition trial to sensing mode and an infinite trial after sensing mode. Power supplied to each burner shall be 120 VAC, 60 Hz. Flame sensing shall be via an independent sensing rod and circuit.
- The control assembly shall be Design Certified by CSA, shall provide main burner regulation, and shall be of the redundant type.
- Heater controls shall include two safety differential pressure switches: one to monitor exhaust back pressure and one to monitor combustion air flow, so as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
- The heater shall incorporate a self-diagnostic ignition module, include an external LED readout display, and recycle the heater after an inadvertent shutdown.
- The heater's control system shall be designed to shut off the gas

flow to the main burner in the event either a gas supply or power supply interruption occurs.

- The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation and a post purge upon completion, effectively removing all products of combustion from heat exchanger and/or radiant tubes.
- Heater control assembly shall include staging indicator lights that define the units operating input ranges.
- No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
- The thermostats shall be two-stage operating on 24 volts. No external transformer shall be required, except in multiple heater scenarios.
- Total heater shutdown shall occur in the event of circuit control lockout, including burner operation and combustion air blower. An interruption of power (reset thermostat) will restart the firing sequence.
- The heater controls shall provide a 60 second post purge as an integral part of the control assembly.

### TWO-STAGE RADIANT TUBE HEATER CONSTRUCTION

- Heater's control housing shall be totally enclosed with a corrosion resistant enameled steel exterior. The controls shall be easily serviceable by removing one (1) panel.
- The main burner assembly shall be constructed of stainless steel.
- Heater's combustion chamber shall be 3" O.D. 16ga. titanium alloy treated or aluminized steel finished with a high emissivity rated, corrosion resistant, black coating.
- Heater's radiant emitter tube shall be 3" O.D. 16ga. aluminized steel finished with a high emissivity rated, corrosion resistant, black coating.
- The heater's combustion chamber and radiant emitter tube shall incorporate a 3" slip fit connection in which the upstream tube slides into the next tube and is held by a bolted clamp.
- Safety pressure switches shall incorporate atmospheric sensing termination fittings designed to eliminate blockage due to moisture or foreign matter.
- The silicon carbide ignitor shall be readily accessible and serviceable without the use of tools.
- Reflectors shall be .025 polished aluminum with a multi-faceted design which includes reflector end caps. Reflectors shall be rotatable from 0 to 45 degrees when required. The heater's reflector hanging system shall be designed to permit expansion while minimizing noise and/or rattles. Reflectors shall be assembled to the heater without the use of tools.
- The heaters shall utilize a downstream turbulator baffle for maximum thermal efficiency.
- Heaters shall be equipped with a sight glass allowing a visual inspection of ignitor and burner operation from the floor.
- The two-stage radiant tube heaters shall be designed such that, at the customer's option, outside combustion air may be supplied without the use of additional supply fans. An air intake collar shall be supplied as part of the burner control assembly to accept a 4" O.D. supply duct.

