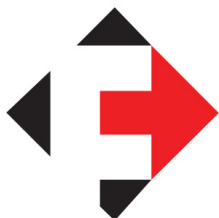


LaserLine Manufacturing., Inc.

GL3000P

OWNER'S MANUAL

Guidance Alignment Laser



MS FOSTER

SERVING THE TRANSPORTATION INDUSTRY

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GL3000P

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SYSTEM OVERVIEW: WHAT IT DOES & HOW IT WORKS

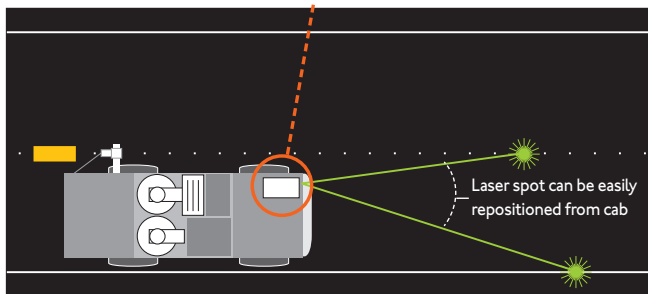
The GL3000P Guidance Alignment Laser

THE SYSTEM

The GL3000P Laser uses an ultra high visibility green laser to establish visual line control for your paint striping machine, asphalt distributor, road widener, pavement profiler or virtually any application requiring vehicle line control.

The Operator adjusts the laser spot to the desired reference point on the road surface remotely from inside the cab. The laser spot is impacted directly on the road surface and shows the Operator exactly where the vehicle is relative to "on line." The laser spot is on the road ahead of the Operator so that the reference is in the driving field of view instead of a T.V. screen or boom pointer.

It is fast to set up and easy to use.



THE PRODUCT

- Main Housing — Weatherproof, containing optic plate mounting platform, micro processor electronics, laser, laser mounting assembly, laser driver board, automatic cooling and heating system, X-Y positioning control mechanism, drive motors, and optics. The entire unit is dry nitrogen purged to protect all components.
- 25 Feet of Interconnect Cable with a waterproof, mil spec, in-line connector mounted between the laser main housing and the control panel mounted in the cab.
- Control Panel allows the Operator to turn the unit on and off as well as aim the laser spot toward or away from the vehicle as well as left and right.
- 15 Feet of 12 Volt DC Cable running from the control box for connection to vehicle's 12VDC power.

THE ADVANTAGES

- For truck control, you can set your reference 20 to 30 feet out in front of the vehicle impacting on the road.
- You are looking in your natural driving field of view at the reference point.
- You can reduce or eliminate pre-marking and the high cost associated with it.
- Eliminates using a boom and the problems associated with it such as bouncing on rough surfaces, safety, and the mechanical size and constraint of the mechanism.
- Safer! Drive up to intersections without the worry of injury or damage to people or other vehicles caused by mechanical arm extending out in front of the truck.
- Eliminates having to drive looking at a T.V. screen instead of the road. Reduces or eliminates the problem of "white-out" in low sun conditions.
- Greatly increases the machine's maneuverability.
- Much less strain on the Operator. It reduces fatigue and increases skill load.
- It's more versatile. It's easier. It's faster. It's safer.

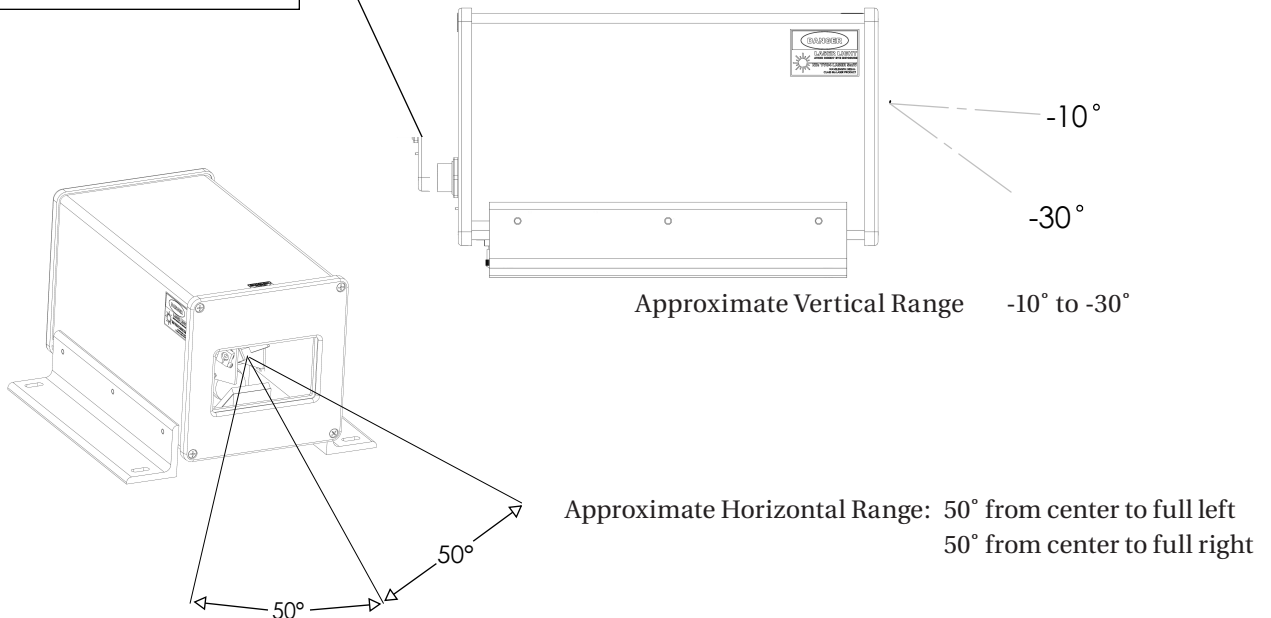
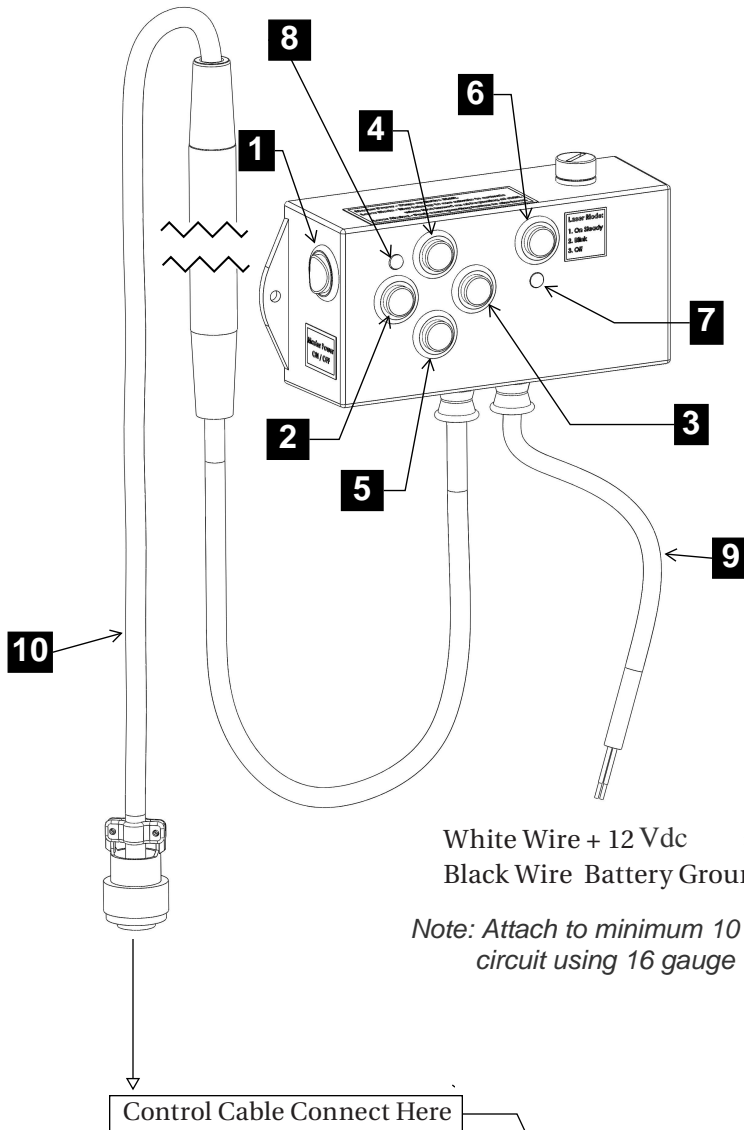
OPERATOR CONTROLS

CONTROLS

1. System Power Switch
(Stays on entire shift)
2. Move Left
3. Move Right
4. Move Up
5. Move Down
6. Laser Mode Switch
1st depression = On Steady mode
2nd depression = Blink mode
3rd depression = Off
7. Laser Mode Indicator (Green LED)
8. System Power Indicator (Red LED)
9. Power Cable to Vehicle 12 Vdc
10. Laser Control Cable

START UP PROCEDURE

- A Turn on the System Power Switch (1)**
 (1) 10-15 minutes prior to use. This brings the laser module to operating temperature. The Laser Mode light (7) will slow-blink until the system is at operating temperature, then go off when the laser is ready to turn on.
- B Turn on the Laser Mode Switch (6):**
 Depress once = Laser on steady
 Depress twice = Laser on blinking
 Third depression = Shuts off laser



MAINTENANCE, SERVICE & INSTALLATION SUGGESTIONS

MAINTENANCE

The only maintenance that may be required is:

- Periodically clean the Exit Window of the GL3000PM. Do this with a soft cloth. Do not use Kleenex or paper towels. Be careful not to scratch the glass.

Note: Always turn off power to the laser then cleaning the Exit Window.

SERVICE

No service is required and no service is to be performed by the Customer. Only LaserLine Mfg., is authorized to perform service. Any opening, tampering with, or modifying the GL3000PM Laser Housing by anyone other than LaserLine Mfg., Inc. will void the warranty.

Warning! Under no circumstances, attempt to open or disassemble Laser Housing. Doing so may cause exposure to potentially hazardous levels of laser radiation.

INSTALLATION SUGGESTIONS

1. Mount the GL3000P Laser on the vehicle at least 5 feet off the ground. Most Operators prefer to mount the laser on top of the cab. The higher up the laser is mounted, the farther ahead of the vehicle you can aim the laser.

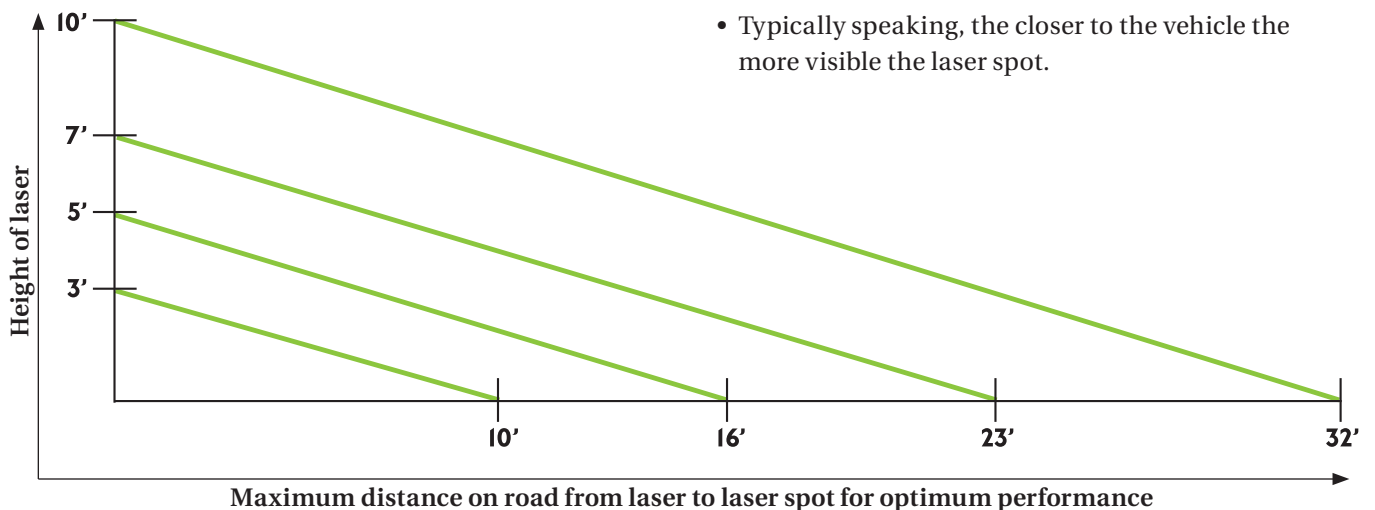
For best daylight visibility of the laser spot use the distance versus height chart (Fig. 1) as the maximum distance away from the laser the spot should be — closer will be brighter, farther away will be dimmer.

2. The laser must be mounted to a stable surface. If the laser base is vibrating (too flimsy a mount) on the vehicle, the vibration is magnified at the laser spot and can make it difficult to see. Stability of the laser mount is very important.

3. **Warning!** Do not mount the laser inside the cab and shoot the laser beam through the windshield. This is an unsafe practice as the laser beam can reflect back off the windshield into the Operator's eyes (back scatter).

4. **Warning!** Do not mount the GL3000P laser unit in a location that allows the laser beam to be directed to hit any shiny or reflective surface on the vehicle such as chrome, side mounted rear view mirrors, or glass surfaces.

FIG. 1 VEHICLE HEIGHT TO LASER SPOT ON ROAD CHART



USING THE GL3000P LASER

1. Turn the laser “On” 10 to 20 minutes prior to striping operation. This allows the GL3000P system to reach optimum operating temperature and power.

Note: When outside air temperature is over 95° F (35° C), operate laser in “Blink” mode.

2. Place vehicle with paint gun package at your desired location on the road.
3. Aim the laser spot to the desired reference point on the road, i.e. existing centerline stripe, road edge, etc. Once you have located the laser spot as your reference, as you are driving the spot will indicate your position relative to “on” center. If you are moving too far to the right, the laser will be to the right of your reference. If you are moving too far to the left, the laser will be to the left of your reference. The laser spot is designed to be used as a reference about 15 to 35 feet in front of the vehicle. The laser spot reference on the road usually appears the brightest at this distance. *See page 4 figure 1 for details.*
4. The laser spot reference ahead of you is more visible or less visible depending on conditions such as the surface you are driving on and the brightness and location of the sun. One of the worst conditions is driving into low sun on new asphalt. This creates a condition where the surface looks almost white from all the glare.
5. Laser Enhancement Glasses (part number 3000-0435) block out glare and increase laser spot visibility for the driver in daylight operations.

EXTREME TEMPERATURE SAFETY SYSTEM

The GL3000P has an internal cooling and heating system designed to allow the laser to operate at it’s maximum potential. This system is also designed to protect the laser and your investment.

In the event of extreme ambient heat (above 120° F, or 48.8° C), the GL3000P has an automatic feature designed to prevent damage to the laser and electronics. When operating temperature is exceeded, the following can occur:

- A. If the laser is operating in the “Steady” mode, the system will automatically go to “Blink” mode to try and cool the unit down internally.
- B. If cooling system cannot keep up and the heat specification has been exceeded, the laser shuts off. The status light on the control panel will blink “Slow” indicating operating temperature has been exceeded and the laser has been automatically turned off.

Once the cooling system has caused the interior temperature to drop within its operating temperature, the slow blinking light will go off (no light). The system will then be ready for restart.

To restart (turn “On”) the laser, depress the On/Off button and operate system in “Blink mode only” to keep interior operating temperature as low as possible. “Blink” mode creates 50% less interior heat than the “Steady” mode.

When starting the system in high ambient heat, the system will first go into the “cool down” mode to bring the interior temperature to within the operating range. You will get a slow blinking light on the control panel. Once the slow blinking light stops, depress the “Start” button again and the laser will come on.

GL3000P SPECIFICATIONS

Laser	532nm Class IIIA	Laser Housing and Mount	
Power	12 Volt DC Positive or Negative Ground	Height	7"-1/8 Inches
Power Draw	4.00 Amps (Maximum Operating)	Length	11"-3/4 Inches
	0.03 Amps (Sleep Mode)	Width	Housing 6"-1/4 / Base 10"-0 Inches
Recommended Ambient		Cable Length From Laser Housing to Control Box	25 Feet
Operating Temperature	+36°F to +120°F / +2.2°C to +48.8°C	12 Volt Power Cable Length from Control Box	15 Feet
Storage Temperature	-40°F to +150°F / -40°C to +65°C	Shipping Weight	25 Lbs.

GL3000P WARRANTY

This product is guaranteed against defects in materials and workmanship with parts and labor, under normal working conditions **24 months** from the date of purchase, except as noted herein.

LaserLine Mfg., Inc. liability under this warranty is limited to repairing or replacing any product returned to an authorized service center for that purpose. Any evidence of attempts to repair this unit by other than factory authorized personnel automatically voids the warranty.

Warning! Under no circumstances, attempt to open or disassemble Laser Housing. Doing so may cause exposure to potentially hazardous levels of laser radiation.

FACTORY SERVICE CENTER

LaserLine MFG., INC.
1810 S.E. First Street, Suite H,
Redmond, OR 97756

FACTORY SERVICE: New Product Warranty service policy for new products stated above.

SERVICE WARRANTY: 1 year on replacement Parts, 90 days on Labor.

FOR ALL WARRANTY: Call **Order Processing** for RMA # at 541-548-0882. The Unit will be repaired and returned by prepaid freight.

NON-WARRANTY

Send to: LaserLine MFG., INC. at above address.

CAUTION!

Do not expose this Laser to:

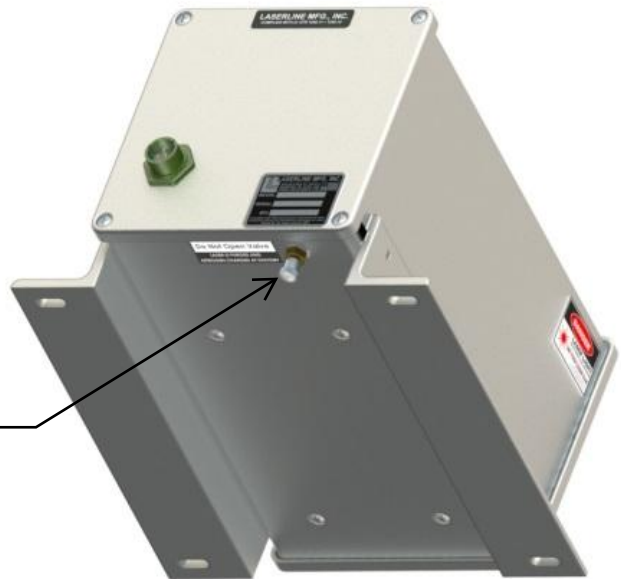
- High pressure washing
- Car wash



When cleaning front window, use window cleaner with paper towel or clean cloth. No abrasives.

Store in clean, dry environment when not in use.

WARNING!
Do not open or tamper with the purge valve, front, rear or top covers. Laser is filled with dry nitrogen to prevent moisture from damaging internal electronics and optics. No user access to interior components! Removal of covers will violate IEC/OSHA Regulations and Factory Warranty.



LASER SAFETY CONSIDERATIONS

When operating Class IIIa lasers with an output of less than 0.005 watts (5mW):

1. Operators and crew members shall read this manual and become familiar with all-operating procedures and Safety considerations on the vehicle.
2. Post at least one 3.5" x 5" Laser warning placard (Item 1) at each laser location.
3. Turn the laser off when it is not required or if left unattended.
4. Don't look directly into the laser or at the Laser Spot on a reflective surface. DO NOT point the laser at another person.
5. Set the laser up well above the heads of employees when possible. Otherwise, set it up well below.
6. Have "Laser Operator Training and Qualification" card (Wallet size) (Item 2) in the possession of individual responsible for laser operation.

1). Warning Placard



2). Operators Card

LASER OPERATOR TRAINING AND QUALIFICATION CARD

By signing below, _____ indicates that he/she is familiar with the laser safety consideration on the reverse side of this card and is qualified to operate Laserline Manufacturing, Inc. laser(s) with a power output of less than 0.005 watts. (5 mW)

Operator's Signature

Date

This card must be kept in the laser operator's possession

LASERLINE MFG, INC.
1810 SE FIRST STREET, SUITE H
REDMOND, OR. 97756, USA
Phone: 541-548-0882
Email: laserline@laserline.net
Web: Laserlinemfg.com

Front

LASER SAFETY CONSIDERATIONS

When operation laser with an output power of less than 0.005 watts (5 mW)

1. Post at least one LaserLine laser warning placard at each laser location.
2. Turn the laser off when it is not required or is left unattended for a substantial period of time.
3. Do not look directly into the laser or point the laser at another person unless a fan lens is in use and the viewer is at least 500 feet away.
4. Set the laser up well above the heads of employees when possible; otherwise, set it up well below.

Back

LASER SAFETY

The GL3000 Series Laser is a Class IIIa Laser Product generating less than 5 milliwatts of Laser Light. Class IIIa Lasers are used every day in construction and alignment applications. With every use, eye safety is a consideration.

The Operators of the laser are effectively the “Safety Persons”, and should think of themselves as the person responsible for preventing accidents and unwanted exposure.

Viewing or looking at the laser spot impacted on the road or highway is normal operating procedure for the GL3000 and is how the product is used for guidance applications. There is no known danger or hazard to the Operator or Driver using the laser in this manner.

SAFETY CONSIDERATIONS:

- When installing the GL3000 Laser, do not mount the laser inside the cab and shoot the laser beam through the windshield. This is an unsafe practice as the laser beam can reflect back off the windshield into the Operator’s eyes (backscatter).
- Do not mount the GL3000 Laser in a location that allows the laser beam to be directed to hit any shiny or reflective surface on the vehicle, such as chrome, side mounted rear view mirrors, or glass surfaces.
- Class IIIa Lasers are bright lights that can or may be aimed. Be aware of people and your surroundings.
- Therefore, think of the laser as the sun, something you do not stare back into. Do not look at the laser through optical devices, or look at it reflected off of shiny surfaces such as chrome, glass or mirrors.

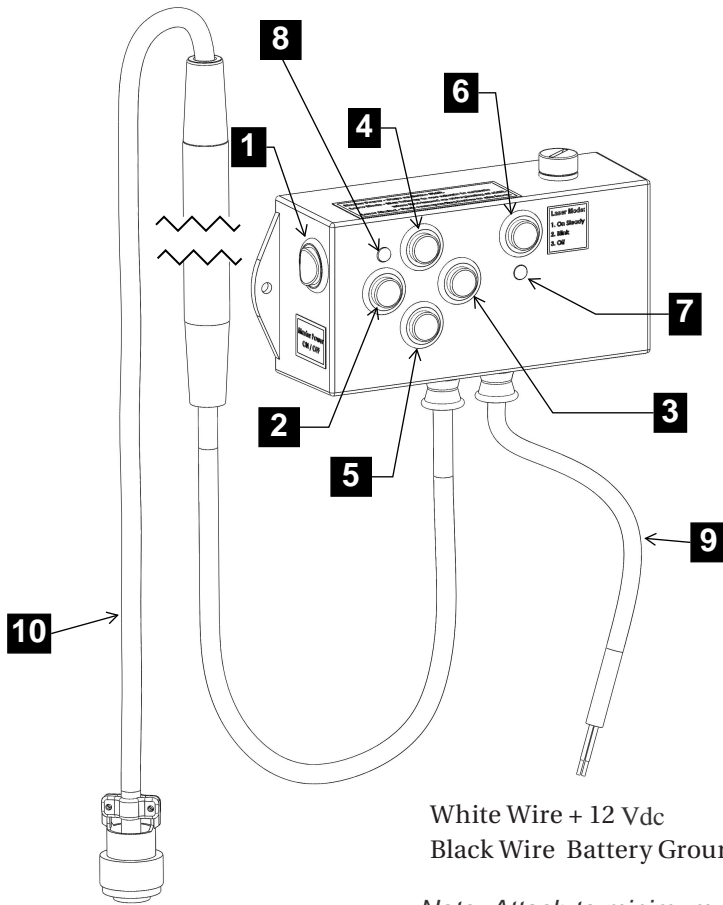
CAUTION! The use of optical instruments with this product will increase eye hazard.

- Viewing the laser beam or a reflection of the beam with optics, such as binoculars or cameras can be hazardous because they can gather or concentrate the laser right to the eye.
- Turn laser off in the event of potential exposures: i.e., stopped at a crosswalk in the vicinity of pedestrian traffic. Watch for the reflection off of bumpers, windows, etc.

CAUTION! Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

WARNING! Under no circumstances open or disassemble laser housing. Doing so may cause exposure to potentially hazardous levels of Laser Radiation.

CONTROLS & EMISSIONS

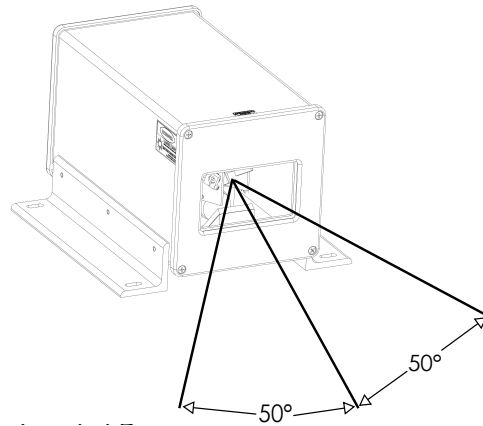


CONTROLS

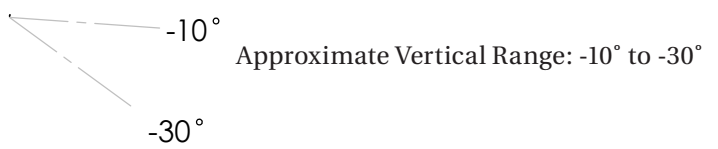
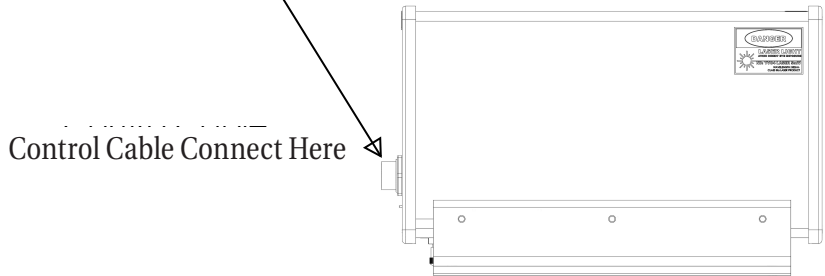
1. System Power Switch
2. Move Left
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5. Move Down
6. Laser Mode Switch
1st depression = On Steady mode
2nd depression = Blink mode
3rd depression = Off
7. Laser Mode Indicator (Green LED)
8. System Power Indicator (Red LED)
9. Power Cable to Vehicle 12 Vdc
10. Laser Control Cable

White Wire + 12 Vdc
Black Wire Battery Ground

Note: Attach to minimum 10 amp circuit using 16 gauge wire.



Approximate Horizontal Range: 50° from center to full left
50° from center to full right



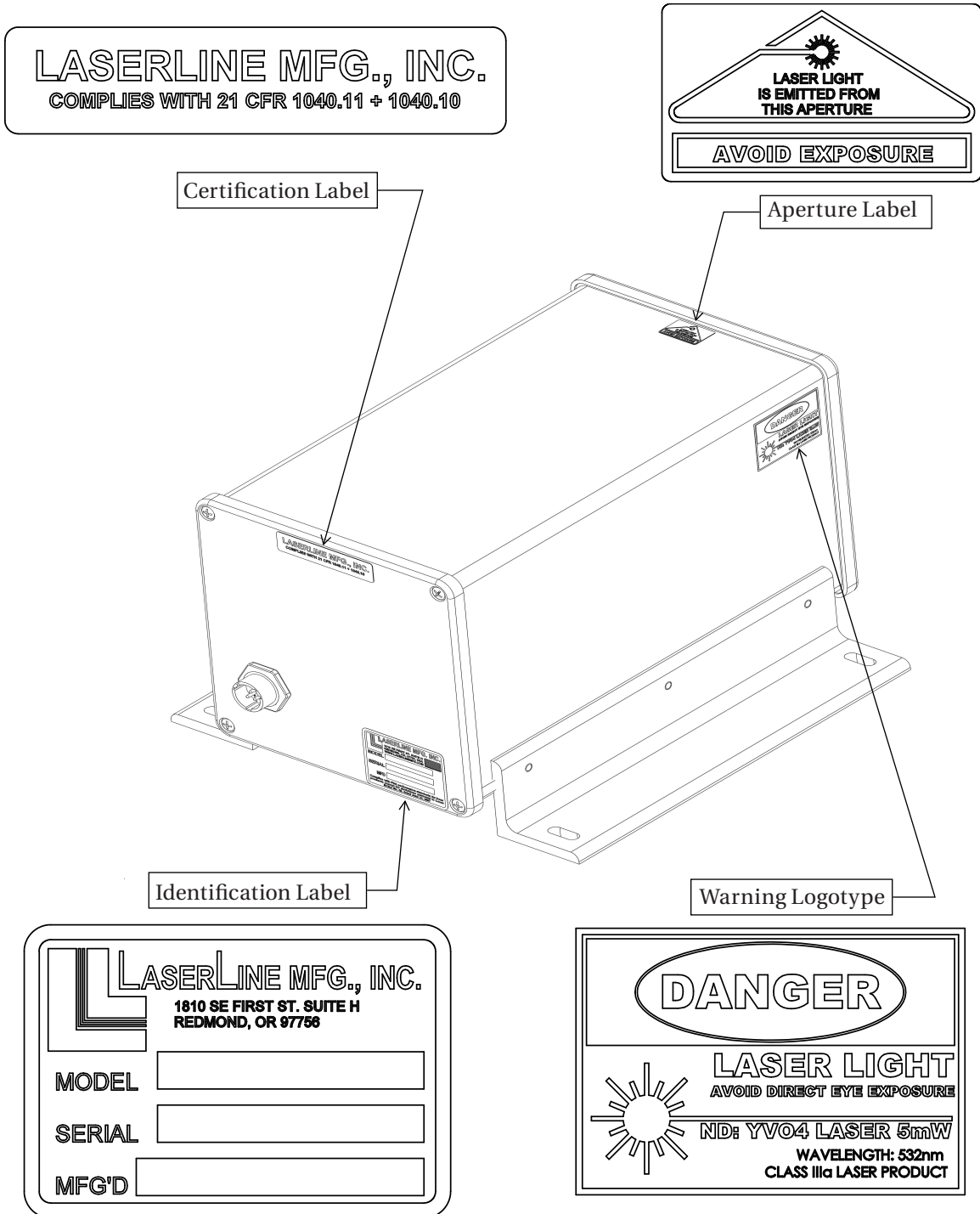
Approximate Vertical Range: -10° to -30°

LASER SPECIFICATIONS

Laser Source	YAG	Divergence	< 0.1mrad
Wavelength	532nm	Emission	CW or 2Hz
7mm Aperture Power at 20cm Distance	< 5mW	Laser Class	IIIa
Diameter	25mm		

GL3000P PRODUCT LABELING

Note: Maintain these labels in their proper locations.



NOTES