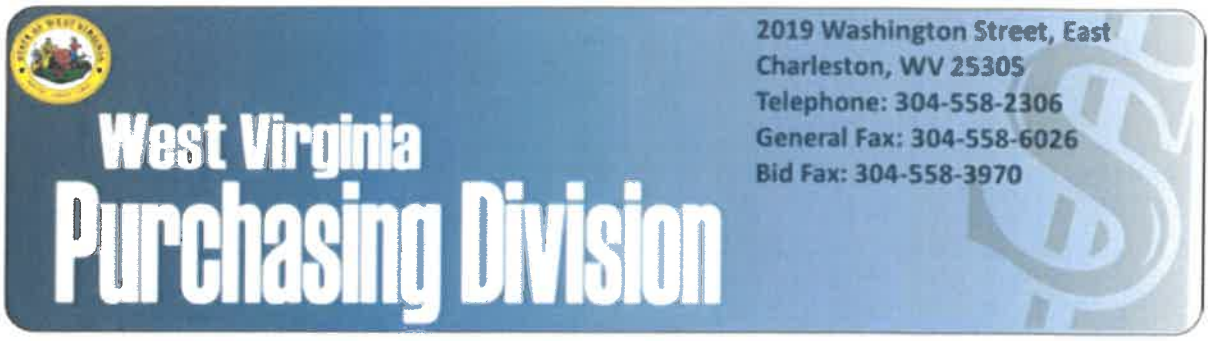
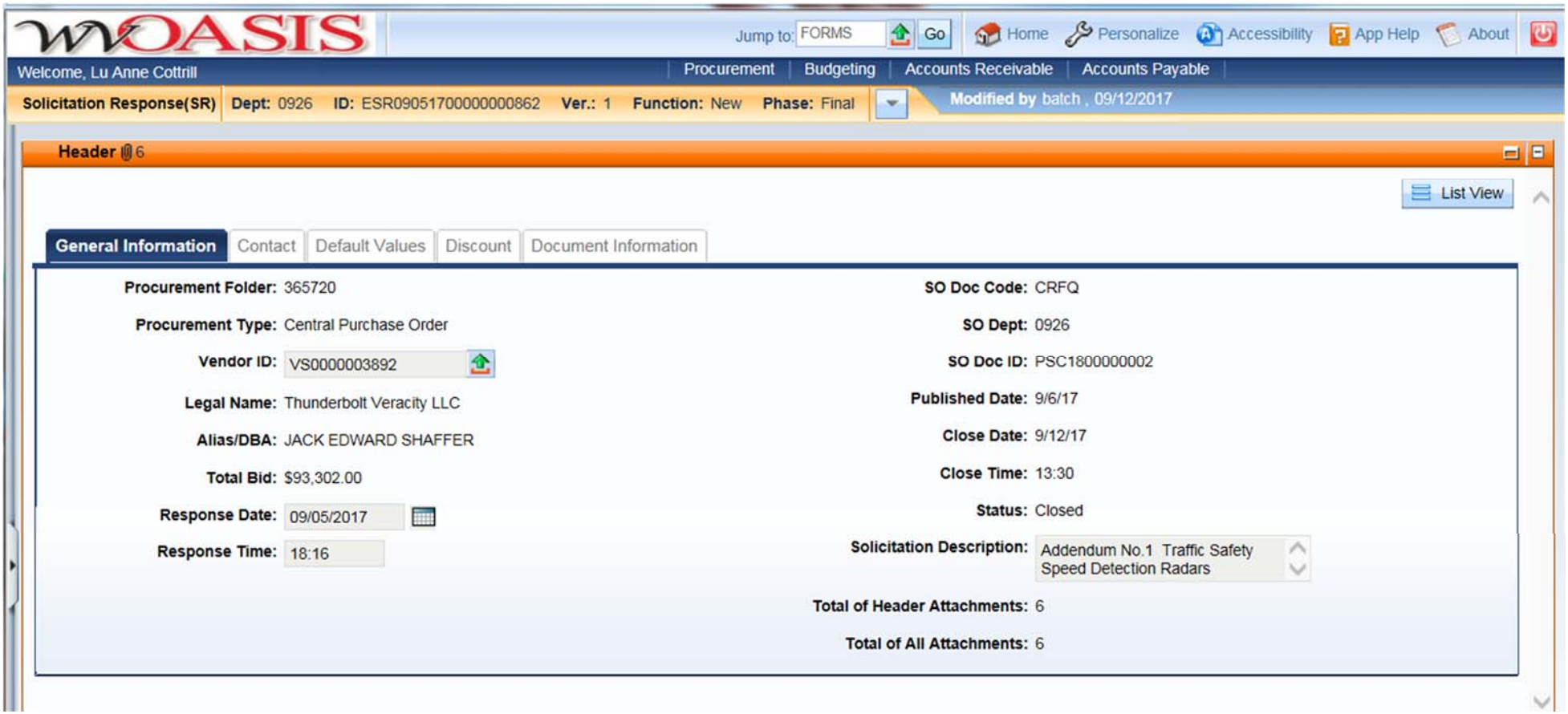


The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


WVOASIS
Jump to: FORMS Go
Home
Personalize
Accessibility
App Help
About
Welcome, Lu Anne Cottrill
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0926 ID: ESR09051700000000862 Ver.: 1 Function: New Phase: Final
Modified by batch , 09/12/2017
Header 6
List View
General Information
Contact
Default Values
Discount
Document Information
Procurement Folder: 365720
Procurement Type: Central Purchase Order
Vendor ID: VS0000003892
Legal Name: Thunderbolt Veracity LLC
Alias/DBA: JACK EDWARD SHAFFER
Total Bid: $93,302.00
Response Date: 09/05/2017
Response Time: 18:16
SO Doc Code: CRFQ
SO Dept: 0926
SO Doc ID: PSC1800000002
Published Date: 9/6/17
Close Date: 9/12/17
Close Time: 13:30
Status: Closed
Solicitation Description: Addendum No.1 Traffic Safety Speed Detection Radars
Total of Header Attachments: 6
Total of All Attachments: 6

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder : 365720

Solicitation Description : Addendum No.1 Traffic Safety Speed Detection Radars

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2017-09-12 13:30:00	SR 0926 ESR09051700000000862	1

VENDOR

VS0000003892

Thunderbolt Veracity LLC

JACK EDWARD SHAFFER

Solicitation Number: CRFQ 0926 PSC1800000002

Total Bid : $93,302.00 **Response Date:** 2017-09-05 **Response Time:** 18:16:55

Comments:

FOR INFORMATION CONTACT THE BUYER

Melissa Pettrey

(304) 558-0094
melissa.k.pettrey@wv.gov

Signature on File **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Thirty-nine new speed detection radars. Contract Item 3.1.1	39.00000	EA	$2,150.000000	$83,850.00

Comm Code	Manufacturer	Specification	Model #
49211810			

Extended Description :

Contract Item 3.1.1
Thirty-nine, new, Kustom Signals Directional Golden Eagle II, or equal, Speed Detection Radars.

Comments: 5 year warranty antenna to antenna
best standard warranty in industry,
61+ years in radar manufacturing
and distribution. LEMO locking connectors
on our cables for longevity along

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Four new speed detection lasers. Contract Item 3.1.2	4.00000	EA	$2,363.000000	$9,452.00

Comm Code	Manufacturer	Specification	Model #
49211810			

Extended Description :

Contract Item 3.1.2
Four, new, Kustom Signals ProLaser IV, or equal, Laser Speed Detection Device. Hand held

Comments: Please see the Brochures attached.

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DragonEye™

Hand-Held Speed LIDAR-DL

Advanced Hand-Held Speed Enforcement

Designed to be the new leader in law enforcement speed measurement, the DragonEye Speed Lidar® provides superior target acquisition and range performance in a compact, lightweight package. With 4-point rubber cushioning and robust, waterproof mechanical design, the DragonEye Speed Lidar ® stays on target when other units are headed for the shop. Incorporating advanced features such as obstruction mode, anti-jamming, onboard data logging and cloud storage options, the DragonEye Speed Lidar® gives you the latest in speed enforcement technology.

NEW!

> Bluetooth Streaming Data with Cloud Storage Optional

>6 Month On-Board Data Storage

> Certification Date Reminder

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DragonEye™

Advanced Hand-Held Speed Enforcement

Key Features

- Superior vehicle acquisition and tracking algorithms even at long ranges with detailed accuracy checking routines.
- True color head-up display shows accurate vehicle colors while the aiming reticle defines laser beam coverage on the target vehicle.
- Rugged construction: Shock resistant, floating internal aluminum optical bench structure with four point external rubber cushion, maintains alignment in tough law enforcement conditions.
- New Bluetooth connectivity for live data streaming.
- New onboard data storage. Recall up to 6 months of speed/range records with date stamp.
- Compact, lightweight and extremely well balanced in your hand.
- High resolution rear matrix display with auto-on backlight.
- Easy to use controls with dedicated brightness, volume and weather buttons.
- Advanced anti-jamming allows speed readings while most guns are blanked or display error codes.
- Obstruction Mode allows targeting through tree limbs wires and fences

Specifications

Weight:	2.5 lb (1.14 kg) with batteries
Dimensions:	.5 x 6.75 x 9.75 inches (11.4 x 17.1 x 24.8 cm)
Acquisition Time:	1/3 Second
Speed Accuracy:	+/- 1 MPH (+/- 2 km/h)
Max. Range:	6000 ft (1828 m)
Minimum Range:	Speed Mode 50 ft (15 m
Range Mode	10 ft (3 m)
Weather Mode	250 ft (76 m)
Speed Max/Min:	+/- 5 to 200 MPH (+/- 8 to 320 KPH)
Speed Mode:	True, full time, continuous tracking history
Dist. Accuracy	+/- 0.5 ft (+/- 15.0 cm) one sigma
Dist. Resolution:	0.1 ft (3.0 cm)
Beam Width:	2.5 feet @ 1000 ft (2 5mr)
Laser Source:	Diode, 905 +/- 10 nm
Eye Safety:	FDA CDRH Class 1
Temperature:	-22° F to +140° F (-30° C to +60°C)
Waterproof:	IP67
Power Source:	Two C-cells; High Quality Alkaline or NiMH Rechargeable
Battery Life:	24 – 32 Hours of Operation (Alkaline C- cell), typical use
Data Interface:	RS 232, Bluetooth
Certification:	IACP, CE

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Genesis II Select™

Features

- Large 32 Bit Processor
- Faster Target Tracking
- Track Through Lock
- True Audio Doppler in All Modes
- Backlit Remote Control
- Waterproof Antennas
- Track Vehicles in All Four Directions*
  Same Direction Approaching
  Same Direction Receding
  Opposite Lane Approaching
  Opposite Lane Receding
  * Dual antenna system required
- Vehicle Speed Sensing Using the Optional VIP
- Serial Port for VIP, RS232 Data Export, or Speed Overlay Onto Video.
- Detachable Front Display
- Choice of Optional K, Ka-Band or K Directional Antennas

*Backed by the **Best Warranty** in the Industry*

Decatur is the oldest Police Traffic Radar manufacturer and has been serving Law Enforcement for 0ver 60 years.

Add the optional VIP™ for added performance

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rev. 8-24-16

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Radar
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Video

5 YEAR WARRANTY

Genesis II Select™

Specifications

- DSP 32 Bit Processing
- Size: 5.25 in x 1.45 in x 4.10 in
- Weight: 1.3 lbs
- Speed Range: Stationary
  2 mph - 210 mph
- Speed Range: Moving Opposite
  10 mph - 210 mph
- CAN/VSS - Auto Switching
  Using the Optional VIP
- Operating Temperature
  -22° F to +158° F
- Meets International robustness standard IEC 529:1989 and European Community Standard EN60529 Classification IP44

Antennas

- 100% Waterproof Antennas
- Easy Mounting
- Mix and Match:
  Ka-Band, K-Band
  K-Band Directional
- Smallest Antenna in the Industry

Unit Features

- Track Through Lock

- Detachable Front Display
- True Audio Doppler
  in All Modes
- Easy to Read, Easy to Use

- Track Vehicles in All Four Directions*

Same Direction Closing
Same Direction Away
Opposite Lane Closing
Opposite Lane Away

* Dual antenna system required

Decatur Electronics

Radar Innovation for Over 60 Years

Decatur Electronics, Inc.
3433 East Wood Street, Phoenix, AZ 85040
Phone 619.795.4600 . Fax 619.795.8650
800.428.4315

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rev. 8-24-16

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DragonEye

Speed LIDAR

User's Manual

Rev 9/6/2012

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DragonEye

Speed LIDAR

User's Manual

SONCELL NORTH AMERICA

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Table of Contents

Welcome to Decatur Electronics, Inc.

Thank you for choosing the DragonEye — A highly advanced speed LIDAR that will reward your department with years of dependable service. We urge you to study this manual before using the DragonEye so you can maximize the benefits of this sophisticated LIDAR device. We believe you will be pleasantly surprised by the features and advantages.

If you are as pleased with its performance as we think you will be, ask your Decatur sales representative about other products including the Decatur Genesis™ line of radars, the Onsite™ line of speed trailers, dollies, and pole signs and the Responder™ line of in-car video systems.

—The Management and Staff at Decatur Electronics,
The Nation's Oldest Radar Company

About This Manual

This manual contains valuable information to help you set up, use and maintain your LIDAR, so you can optimize its life and keep it at peak performance. Please take a moment to read through it, and keep it handy for future reference.

Note the following symbols in this manual:

Indicates a warning message about safety precautions. Please read it carefully.

Indicates a helpful tip, notice or precaution to note.

1. Safety Information

All service needs should be referred back to the manufacturer.

GENERAL WARNINGS

- When replacing batteries in the DragonEye you should replace both batteries with new ones even if you suspect that only one cell is defective.
- Use rechargeable Nickel-Metal-Hydride or high quality Alkaline C-cell batteries only.
- Opening the DragonEye (other than battery replacement) automatically voids any warranty still in effect. There are no user serviceable parts inside.

NOTICES AND PRECAUTIONS

The DragonEye Speed LIDAR is a Class 1 Laser product in accordance with U.S. 21DFR parts 1040.10 and 1040.11, which is safe for use in all intended operation modes. However, standard precautions should always be taken with laser products:

- Avoid staring into the output aperture of the device.
- Avoid directing the LIDAR at other individuals for prolonged periods.
- Do not direct the output of the LIDAR at anyone using optical instruments such as binoculars as this will increase the risk of eye hazard.
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- **Do not point the device at the sun!** Do not aim the LIDAR directly at the sun as this could damage the internal components.

CAUTIONS

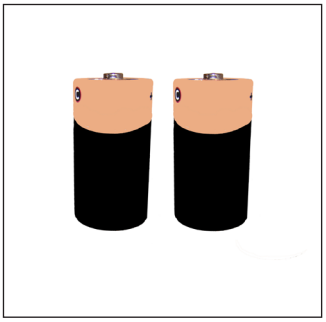
- Do not expose the DragonEye to excessive moisture. Never submerge the device.
- Do not drop the DragonEye on hard surfaces since damage could occur. Units damaged by dropping or abuse are not covered for warranty repair.

Violation of these guidelines may void the warranty.

2. Receiving Inspection

- When you receive your unit, inspect all components for freight damage that might have happened during shipping or unloading.
- Notify the freight company immediately of any damage, preferably while the driver is present. Record the damage on the bill of lading and keep a record of the problems or damage. Take pictures to document any damage.
- The package should include the following pictured items along with this User's Manual.

DragonEye speed LIDAR



Two C-Cell batteries

Carry Case

If your DragonEye LIDAR was ordered with any special accessories, please check for those items and for any packing lists or special instructions that might be included with those additional items.

3. Getting Started

3.1 Introduction

The DragonEye Speed LIDAR is a high performance electro-optical product providing accurate speed and distance measurements custom designed for the law enforcement community. The LIDAR provides pinpoint target identification via its clear heads-up display targeting system and fast target acquisition using sophisticated, robust data processing algorithms. The DragonEye Speed LIDAR was designed for light-weight operation and long battery life. It provides numerous useful settings and features including advanced ECCM (Electronic Counter Counter Measures), weather/obstruction modes and a USB interface for easy data interface and upgrades.

3.2 Diagrams

Use the diagrams and descriptions in this section to quickly familiarize yourself with the DragonEye LIDAR controls and features.

The DragonEye LIDAR is a compact easy to use speed and distance measurement tool. The system has a four point rubber cushioning system to minimize the shock of unintended impacts. The following diagram shows the location of the key external features of the device.

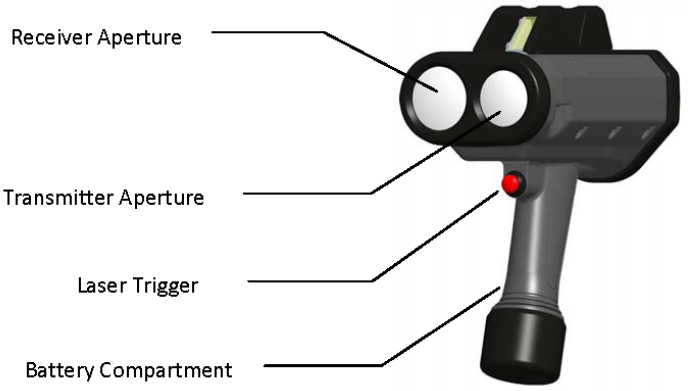


Figure 3.2a
Front view

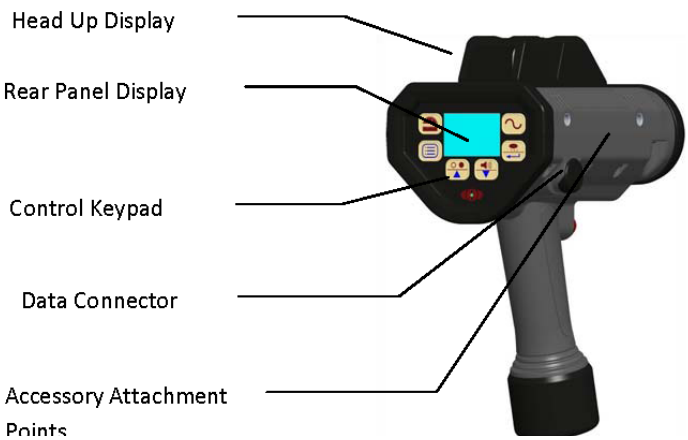


Figure 3.2b
Rear view

3.3 Display Descriptions

The following figures show typical displays for both the rear panel and the HUD (Head-Up Display). Special menu displays and HUD indicators will be covered in their respective selections of this manual.

3.3.1 Rear Panel Display (LIDAR in Speed Mode)

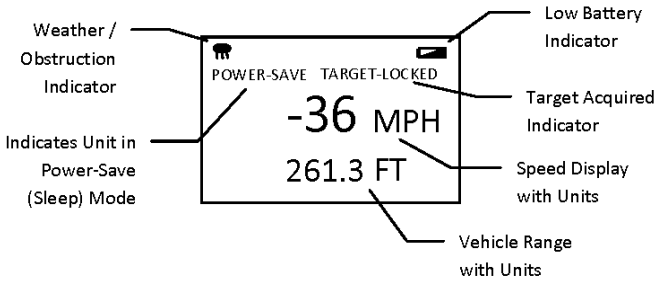


Figure 3.3.1
Rear Panel

3.3.2 Head-Up Display (LIDAR in Speed Mode)

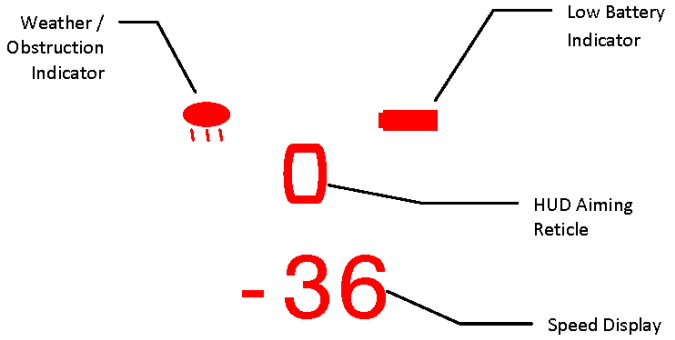


Figure 3.3.2
Head-Up Display

4. Controls and Indicators

The DragonEye LIDAR has an ergonomically styled handle with a sealed laser fire trigger and an easy to use back panel keypad to select modes of operation and tailor settings for particular conditions. The most frequently used functions have been assigned a dedicated button to allow for extremely fast setup and operation. Following is a description of the available controls for your LIDAR system. Additional details are provided in the "Advanced Controls and Modes" section.

4.1 Laser Fire Trigger

The Laser Fire Trigger is used to turn-on the DragonEye LIDAR when the unit is off and to initiate laser firing when the unit is awake and ready. Simply click the trigger and the LIDAR will wake up and be ready to fire in a fraction of a second.

- If the unit has been off for an extended period or new batteries have just been inserted, the device will automatically run the Self Test routine.

4.2 Rear Panel Controls

All remaining controls are located on the rear panel, adjacent to the display. The following diagram shows the location of the various buttons. Further descriptions of the button functions are detailed in the following sections.

- Some control buttons are dual use and their secondary function is indicated by the blue symbol located below the primary symbol on the button. These secondary functions are active only in "menu mode" after pressing the menu button.

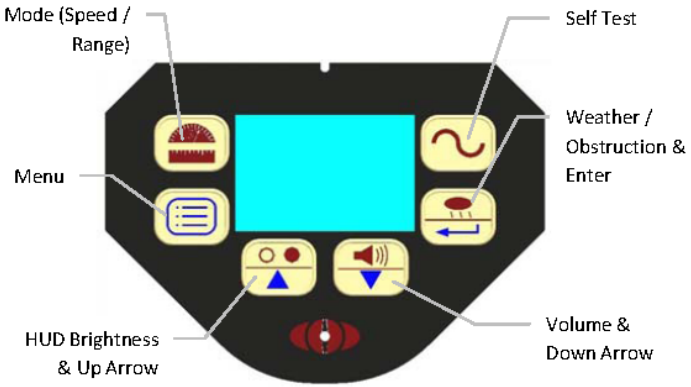


Figure 4.2
Rear Panel

4.2.1 Mode Control

Pressing toggles between Distance and Speed Measurement Modes. In Speed Mode the rear display will show "MPH" and "FT" for Miles-Per-Hour and Feet; or "KPH" and "M" for Kilometers-Per-Hour and Meters for devices programmed with SI units. In Range Mode the display will simply show "FT" or "M" for range measured in Feet or Meters.

- The LIDAR is factory set for English or SI (metric) units and cannot be changed by the operator.

4.2.2 Self Test Initiation

Press  to initiate the system Self Test sequence. All critical internal timing electronics and software components are checked. Also, all display components are illuminated to allow the user to verify proper operation. A pass or fail indication is given at the end of the self-test. A "pass" indication then returns the operator to the current mode of operation, while a "fail" indication will halt operation indicating the need for service.

4.2.3 HUD Brightness Control

Use the  button to toggle through the six HUD brightness levels. (*Note: Level 1 and Level 2 are typically used for night operation only and will most likely not be visible in normal daylight conditions!)*

4.2.4 Rear Panel Display Backlight

The backlight for the rear panel display is fully automated and does not have an on/off control. The backlight will be illuminated after each range or speed reading. It will be switched off during targeting.

4.2.5 Volume Control

The  button toggles through the four volume levels for the audible target tracking indicator. Use Level 1 to set audio OFF.

4.2.6 Weather/Obstruction Control

The  button toggles the system through three environmental modes:

1)  **Weather Mode**: Ellipse and rain indicator on; minimum range of device set to approximately 250 feet (76 m).

2)  **Obstruction Mode**: Only ellipse indicator is on; minimum range is adjusted to ignore obstruction by requiring the obstruction to be targeted with an initial range reading, and then verified with enter button; (See "Advanced Controls and Modes").

3) **Normal Mode**: No indicators on; no change in minimum range of the LIDAR.

4.2.7 Menu/Exit Menu

The  button is used to enter and exit the LIDAR's Menu system. The Menu system allows the operator to adjust certain parameters and features as well as enter the Time/Distance mode. (See "Advanced Controls and Modes").

After the Menu button is pressed, the blue functions on the dual use buttons become active. After all settings have been selected, pressing  again will exit the menu system.

The general description of blue function buttons are as follows:

4.2.8 Up and Down Arrows

While in the Menu system, the  buttons are used to navigate through the menu options, to highlight a desired item, or to scroll through various values.

4.2.9 Enter Button

The  button is used to select or activate a particular menu item or value.

4.3 Battery Voltage Indications

When the LIDAR unit's batteries begin to run low on power, the battery indicator  will illuminate on both the rear panel display and HUD. (*The rear panel low battery symbol will be partially filled in*). The unit may continue to be used, and may last a considerable amount of time particularly with low volume settings; however a replacement set of batteries should be handy to avoid down time.

When the batteries reach the end of their capacity, the rear panel will display:

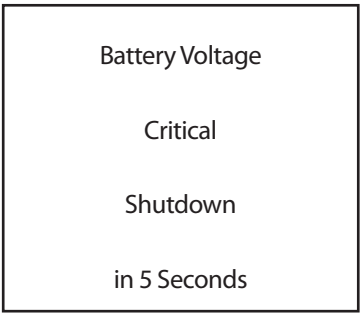


Figure 4.3
Rear Panel showing batteries need replaced

The Unit will then automatically countdown to turn off.

- Significant gains in battery life can be realized by setting the audio and HUD brightness settings at the lowest levels required for your environment. Even if you have received the "Battery Voltage Critical Warning", you may be able to restart the LIDAR and gain usable time by switching the brightness and volume to the lowest acceptable levels.

4.4 Jam / ECM Attempt Indication

The DragonEye LIDAR contains sophisticated counter measures to defeat LIDAR "Jamming" devices available in the consumer market place, while continuing to display accurate speed readings. The system also indicates when a jammer or other Electronic Counter Measure (ECM) is detected on the target vehicle by displaying the phrase "Jam ECM" on the rear display and flashing the " \ \ \ " symbol in the HUD. Note that extremely bright surfaces on the target vehicle, such as high beam headlights or sun reflections can cause the jam indicators to turn on. If you experience any difficulty locking in a speed reading when "Jam" is indicated, try moving the HUD aiming point to another location on the vehicle.

5. Basic Operation

The following sections give an overview of the basic operation of the DragonEye LIDAR for normal speed measurement applications. Be sure to review the "Recommended System Checks" section to understand the suggested daily performance checks and periodic certifications. Additional details of special features and other operation modes are in the "Advanced Controls and Modes" section.

5.1 Battery Installation

Unscrew the end cap at the bottom of the handle by turning counter-clockwise.

Insert two "C" cell batteries, positive end first, into the handle compartment. Replace the end cap and screw clockwise until the cap is securely in place. ***Do not over tighten!***

The DragonEye LIDAR is designed to use quality alkaline "C" cells from brand name manufacturers. The device also functions with rechargeable NiMH "C" cells supplied with the optional "Rechargeable Battery Kit".

Figure 5.1
Battery Installation

- The LIDAR's battery end cap forms part of the watertight seal protecting the unit from rain and moisture. Please be sure to change batteries in a dry environment.

5.2 Powering On

When fresh batteries are installed, the unit will NOT automatically power up. Simply click the laser fire trigger to turn on the unit. The LIDAR's rear panel and Head-Up Display will activate.

- If the LIDAR is inactive for a period of time, it will automatically power down to conserve battery life. If this happens, simply click the fire trigger again to wake up the unit.

5.3 Selecting Speed Mode

The LIDAR will normally power up in "Speed" mode, unless it was recently used in a different mode. If "Speed" mode is not displayed on power up, simply press  until the back panel displays:

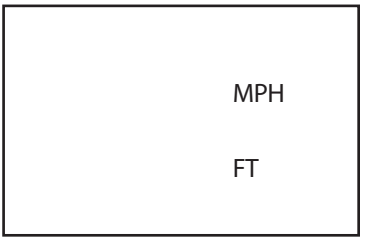


Figure 5.3
Back Panel indicating Speed Mode is active

5.4 Using the HUD Sighting System

The Head-Up display provides a precision aiming reticle, speed reading, and other status information. To find the sighting reticle, click the trigger to wake up the LIDAR and look directly through the HUD letting your eyes focus on a target well in front of the LIDAR unit. If you haven't used a HUD device before, it might take a minute or two for your eyes to adjust the first time.

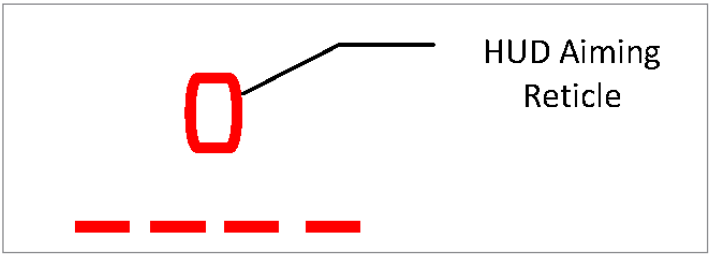


Figure 5.4
HUD aiming

- Make sure the LIDAR's brightness setting is on medium or high if working in daylight.).

The LIDAR's laser beam is invisible, but will be contained within the aiming reticle. This is your aim point for target vehicles.

5.5 Roadside Setup

When first learning to use the DragonEye LIDAR, it is best to select a straight stretch of roadway with a line of sight of 500 ft (150 m) or more.

Approaching or receding vehicles should be targeted such that your line of sight through the HUD is as parallel as possible to the path of the target vehicle. This will minimize the "cosine effect" as described in Chapter 10 of this manual.

- The cosine effect applies to both RADAR and LIDAR systems and always results in a slightly lower than actual reading..

A good rule of thumb for approximately straight roadways is to target a vehicle at a range which is at least ten times the operator's perpendicular distance to the vehicle's lane of travel. For example, if the operator is 30 feet (9 m) from the vehicle's lane of travel, the vehicle should be targeted at 300 feet (90 m), or greater. This would result in a measured speed reading which was approximately 0.5% less than actual.

5.6 Measuring Vehicle Speeds

For approaching targets, aim the LIDAR's reticle at the front grill or front license plate of the vehicle. Good targets for receding vehicles are the license plate or tail lights. Use the boundaries of the reticle pattern to ensure only the intended vehicle is being targeted. Squeeze and hold the laser fire trigger while maintaining your aim.

You may hear an intermittent audible tone as the LIDAR searches for a valid target signal. You will also see "----" displayed in the HUD indicating the laser is firing and a reading is being acquired. Once target vehicle data is identified, the LIDAR will product a continuous lower frequency tone. When the data from the vehicle reaches an acceptable accuracy level, audible tone will switch to a continuous, higher frequency and the vehicle speed reading will be displayed in the HUD and on the back panel.

- At typical distances the acquisition sequence can happen very quickly and you may simply hear the high frequency tone and see the speed display immediately.

A positive speed reading will be shown for an approaching vehicle, while receding vehicles are indicated with a negative reading. *(Both the HUD and the back panel will show a "-" sign for receding vehicles.)*

The DragonEye LIDAR will continuously update the target's speed reading at an approximate rate of 3 times-per-second as long as the trigger is depressed and the data quality is acceptable. While not required, it is recommended to track the vehicle for at least 1 second to establish robust confidence in the speed reading.

5.7 Speed Display Lock

Once a desired speed reading is acquired, the operator can "lock" the speed reading on the rear panel display by simply releasing the laser fire rigger. If a speed reading is lost after tracking a vehicle, the last speed reading will flash for approximately two seconds, giving the operator an opportunity to lock in the vehicle's speed. *(The flashing speed reading will be immediately over written if the operator acquires a new speed reading.)*

5.8 Speed Display Lock Retention

Once a speed is locked into the rear display, it will be retained there for up to 20 minutes. If the laser fire trigger is depressed within 30 seconds after the speed is locked, the display will clear and prepare for a new reading. If no buttons are pressed for 30 seconds after

the speed reading is locked, the unit will go into a sleep mode, turning off the HUD and displaying "Power-Save" on the rear panel along with the locked reading. In the Power-Save state, a first laser trigger pull will "wake" the LIDAR but retain the locked reading. A second pull will then clear the reading. This feature is intended to aid in preventing the operator from accidentally clearing the locked reading.

5.9 Range Mode

The LIDAR system can be used to measure distances to variety of targets. To enter Range Mode, press the Mode Button  until the rear panels displays:

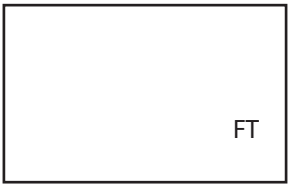


Figure 5.9
Back Panel indicating Range Mode active

Use the aiming reticle in the HUD to select your desired target. Squeeze and hold the trigger until a range reading is displayed in the HUD and on the rear panel display. The trigger may be continuously held as the unit is moved from target to target for quickly checking multiple ranges. The last range reading in the display is locked when the trigger is released. Range readings are displayed in tenths of a foot on the rear panel and in the HUD up to 999.9 feet (or 999.9 m). Above this, range readings are displayed to the nearest integer foot or meter.

The maximum target distance is 6000 feet (1828 m) which can be obtained from highly reflective surfaces such as retro-reflective road signs or vehicle tail lights. The range to non-retro-reflective targets will vary depending upon their infrared reflectivity. Typical ranges are >1800 feet (548 m) from a tree with green foliage, >2000 feet (610 m) to a white concrete building and 1000 feet (305 m) from a very black, non-reflective target. The minimum range (in "Normal" Weather/ Obstruction Mode) is 10 feet (3 m).

6. Advanced Controls and Modes

6.1 Weather and Obstruction Modes

The  button is used to select one of three environmental operating modes:

1. Normal Mode
2. Weather Mode
3. Obstruction Mode

To select a particular Weather/Obstruction mode simply press the  button. The rear panel will display the current mode of operation. Continue to press the  button to toggle through the three modes selecting the desired mode as described below:

6.1.1 Normal Mode

In Normal Mode, the LIDAR has no additional restrictions placed upon the minimum distance at which a target can be acquired (besides the normal minimum range specification). If rain, snow, fog or other obstacles are present in the line of sight to the target, it is possible the LIDAR will receive signals from these objects preventing a reading from being displayed on the targeted vehicle. To select Normal Mode, toggle through the three modes and select "Normal". Wait for a couple of seconds and the LIDAR will return to Range or Speed mode. No special icons will be displayed.

6.1.2 Weather Mode

Select Weather Mode to improve the LIDAR's ability to shoot through rain, snow, fog, or other airborne particulates such as heavy dust or sand. After pressing  , toggle through the three modes to select Weather Mode; wait for a couple of seconds and the LIDAR will return to Range or Speed mode with the Weather mode activated. The Weather indicator  will be displayed in both the HUD and the rear panel display. ***In Weather mode, the LIDAR will not acquire any targets within 250 ft (76 m). However, due to its smart target-lock capability, the LIDAR will continue to track oncoming cars inside the 250 ft limit, provided they were initially acquired outside of this range.***

6.1.3 Obstruction Mode

Select Obstruction Mode to allow the LIDAR to detect targets beyond small obstructions such as tree limbs, wires or see through fence material. Toggle through the three modes using the  button and stop on Obstruction Mode. Wait for a couple of seconds and the LIDAR will prompt you to "shoot the obstruction" or press the Menu button  to exit without effecting changes. If Obstruction Mode is desired, aim at the obstruction and pull the trigger to measure the distance to the obstruction. The distance will be displayed in the rear panel. If you are not sure you hit the correct object, simply pull the trigger to acquire another range. Once you are satisfied with the range reading, press the Enter button  to accept. The obstruction symbol  will be displayed in the HUD and on the back panel. The LIDAR will now ignore all objects up to and slightly beyond the obstruction.

- You must have at least a partially clear line of sight to the target beyond the obstruction. Also please note that Obstruction Mode is designed for overcoming one, fairly well defined obstruction. It is not intended to function with multiple obstructions at differing distances along the line of sight.

6.2 Minimum and Maximum Ranges (Range Window)

While in Speed mode, the Minimum and Maximum Range settings are used to set limits (or a range window) outside of which, speed readings will not be displayed.

To adjust either of these settings, press the Menu button  and then use the up/down arrows  to display "Minimum Range" or "Maximum Range". Press the Enter button  to select. The display will give you the option to use the up/down arrows to set the range or 'shoot object' to use the LIDAR's range function to set the range limit. To manually set the range, simply use the up/down arrow buttons to set the desired limiting distance. If the arrow buttons are held down, the units will change in larger increments after about 10 seconds. When the desired range value is in the display, press

the Enter button  to accept. Note, once the operator begins to use the up/down arrow buttons to set the range limit, the "shoot" option will no longer be available. Alternatively, the Minimum and/or Maximum range values may be set by "shooting" a target that represents the particular range limit (such as a school zone or work zone sign). To shoot the Minimum or Maximum range, enter the desired menu and instead of using the up/down arrows, pull and hold in the LIDAR trigger and aim at the target that represents the Minimum or Maximum range. You may range to the target multiple times until you are positive the correct target has been selected. Press the Enter button  to confirm the value. Once the Minimum and/or Maximum range values are set, the LIDAR will display only speeds between these values. If a vehicle is acquired outside of this range window, a target acquired audible tone will be heard but dashes (- - - -) will be displayed in the HUD and on the rear display in the speed reading area. Also the word "window" will be displayed to indicate the target was acquired outside of the allowable range window. To quickly remove the Range Window settings, use the Menu button, then use the arrow buttons to select "Load Defaults". Press the Enter button to reset all user settings to default values.

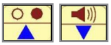
- The adjustable Maximum Range Menu may not be available on some units were jurisdictions may fix the maximum range allowed for the LIDAR devices.

6.3 Direction Filter

The DragonEye LIDAR allows the user to set the system to display speeds on:

1) Only approaching vehicles
2) Only receding vehicles
3. Both approaching and receding vehicles

The default value is set for both approaching and receding vehicles.

To set the Direction Filter, press the Menu button  then use the up/down arrows  until "Direction Filter" is displayed on the rear panel. Press the Enter button  and then use the up/down arrows to display the desired filter setting: APPROACH, RECEDE, or BOTH. Press Enter  to accept the setting.

The LIDAR will return to the current operating mode (range or speed).

- If a vehicle is targeted in a direction opposite that of the Filter selection, the LIDAR will still output the solid audible tone, however the HUD and rear panel will show "- - - -" in the speed display area. The rear panel will also display the indication "Approach" or "Recede" to indicate that a vehicle has been targeted traveling in a direction opposite to that of the Filter.

6.4 Differential Distance Test

The Differential Distance Test is an optional accuracy check preferred by some jurisdictions. It is not a manufacturer required test for daily system checks. This function provides a slightly different test for LIDAR Units set up in English versus Metric units, so please review carefully.

6.4.1 Differential Distance: LIDAR in English Units (MPH)

The (MPH) Differential Distances Test uses two fixed targets separated by a precisely known distance. Using the LIDAR's range function to determine the separation between the targets, coupled with the internal acquisition period of the LIDAR's speed mode, the test provides a simulated speed reading (in MPH) which should be double the target separation measured in feet.

Use two flat targets, approximately 2ft x 2ft square, painted flat white. Place the targets at precise distances from a "zero" point where the LIDAR will be positioned. The targets should be set at integer feet values from the LIDAR zero point and should be approximately 25 ft apart. Recommended target distances are

50.0 ft and 75.0 ft from the LIDAR unit. Ensure the front end of the LIDAR unit is positioned exactly at the zero point, using a tripod if necessary.

On the LIDAR unit, press the Menu button  then use the up/down arrows until "Diff Distance" is displayed. Press Enter  . Carefully obtain a range reading from the first target and then press Enter  . Carefully obtain a range reading from the second target and then press Enter  . The LIDAR will then display the simulated speed on the rear display. The speed reading should be within +/-1 MPH or twice the range separation as measured in feet. For example, using the target distances of 50.0 and 75.0 ft, the simulated speed reading should be 2 x 25.0 = 50 MPH +/-1 MPH. So a simulated reading of 49, 50, or 51 would pass the test. Press Menu  to exit the Differential Distance Test and return to the normal operating mode.

If the LIDAR does not pass the test, carefully recheck the distances and reposition the targets and LIDAR if necessary then repeat the test. If the unit continues to fail the test, please contact customer service.

6.4.2 Differential Distance: LIDAR in Metric Units (KPH)

The (KPH) Differential Distance Test uses two fixed targets separated by a precisely known distance. Using the LIDAR's range function to determine the separation between the targets, the KPH Differential Distance test provides a quick check of the LIDAR's ability to measure the distance between two targets.

Use two flat targets approximately 0.5m x 0.5m square, painted flat white. Place the targets at precise distances from a "zero" point where the LIDAR will be positioned. The targets should be set at integer feet values from the LIDAR zero point and should be approximately 10m apart. Recommended target distances are 20.0m and 30.0m from the LIDAR unit. Ensure the front end of the LIDAR unit is positioned exactly at the zero point, using a tripod if necessary.

On the LIDAR unit, press the Menu button then use the up/down arrows until "Diff Distance" is displayed. Press Enter. Carefully obtain a range reading from the first target and then press Enter. Carefully obtain a range reading from the second target and then press Enter. The LIDAR will then display the simulated speed on the rear display. The distance should be within 0.5m of the actual distance between the targets.

If the LIDAR does not pass the test, carefully recheck the distances and reposition the targets and LIDAR if necessary then repeat the test. If the unit continues to fail the test, please contact customer service.

6.5 Timed Distance Mode

The Timed Distance Mode allows the LIDAR unit to be used to determine a vehicle's average speed over a known distance between two visible reference objects along a roadway.

To enter the Timed Distance Mode, press Menu and then use the up/down arrows to display "Timed Distance" on the rear display. Press Enter. The rear panel will display:

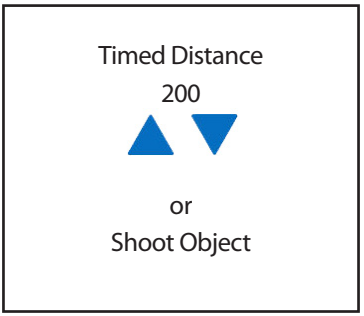


Figure 6.5
Rear Panel indicating Timed Distance Mode active

The operator may now enter the reference distance in feet (meters) between the two reference objects using the up/down arrows. Alternatively, the operator may shoot the two reference points to determine the distance to be traveled.

- The reference distance must be at least 200 feet (60 meters).
- If the operator elects to shoot the distance to the reference objects, please ensure both reference points are on one side of the operator and in a straight line with the operator's position. The LIDAR will subtract the two readings to determine the distance.

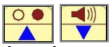
To shoot the distances, simply aim at the longer range reference object first and pull the trigger to obtain a distance reading. Release the trigger to lock in the distance reading. If you are not satisfied with the reading, you may simply aim and shoot the first reference object again. Once you are satisfied with the reading, press Enter  . The unit will prompt you to shoot the second reference object. If the second reference object is located where you are standing with the LIDAR, simply press Enter  . Otherwise shoot the second reference object and press Enter when satisfied with the distance reading. The unit will show the distance between the reference objects.

At this point you have either entered the reference distance or determined it by shooting the reference objects. If the reference distance is acceptable, press Enter  . Otherwise press the Menu button to "escape" from the menu system.

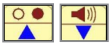
Once the reference distance is accepted, the rear display will show the reference distance and instructions to "Click Trigger to Start". Click the trigger when a vehicle crosses the first reference object point to start the timer. Click the trigger a second time to stop the timer. The unit will display the average speed of the vehicle on the rear panel.

To measure the average speed of additional vehicles, simply click the trigger once to clear the old reading and the timer is now re-armed for a new reading.

6.6 Load Defaults

The factory default settings for the LIDAR can be restored at any time by pressing  then selecting "Load Defaults" using the up/down arrows  and pressing Enter  . This command restores default brightness and audio levels as well as settings for Minimum and Maximum range values.

6.7 ECCM Control

The ECCM menu allows the operator to temporarily disable the LIDAR's Electronic Counter-Counter Measure (anti-jamming) system. To activate or disable the ECCM, press  then use the up/down arrows  to select "ECCM" and press  . Then use the up/down arrows to select "Active" or "Disabled" and press  to confirm your selection. If ECCM is disabled, the LIDAR unit will return to ECCM "Active" if it is not in use for a few hours, if the batteries are replaced, or if "Load Defaults" is selected.

- While the DragonEye is fully functional with ECCM set to "Disabled", the ECCM setting should be left in the "Active" state during normal operation to give the full protection against laser detectors and jammers.

6.8 Input / Output Port

An eight pin DIN style connector is located on the right side of the unit. This connector can be used to collect speed and range measurement data during operation using a special USB cable. Contact Decatur Electronics at 800.428.4315 for further details regarding use of the I/O port.

7. Recommended System Checks

The DragonEye LIDAR system is designed to provide years of service with limited maintenance. The unit uses sophisticated digitally locked electronics to ensure continued accuracy. However we recommend performing the following system checks before each shift to ensure confidence in the instrument:

7.1 Self Test

Initiate the system Self Test by pressing the  button. All critical internal timing electronics and software components are checked. Also, all display components are activated to allow the user to verify proper operation. A pass or fail indication is given at the end of the self-test. A "pass" indication then returns the operator to the current mode of operation, while a "fail" indiction will halt operation indicating the need for service. The Self Test will also initiate automatically anytime the LIDAR is turning on from an "off" state such as a change in batteries or after the LIDAR is idle for a few hours.

7.2 Alignment Test

Verify the alignment of the HUD aiming reticle by selecting a target with straight boundaries such as a telephone pole or road sign at a distance of >100 feet (30 meters). Set the unit to Range Mode. While holding the trigger in, slowly pan the aim point on and off the target edge, verifying the range reading in the HUD changes as the reticle passes onto the target. The preceding verifies horizontal alignment. Rotate the unit 90º onto its side while continuing to look through the HUD and repeat the above test to verify vertical alignment.

7.3 Fixed Target Distance

The DragonEye LIDAR uses time of flight laser distance measurement as its core technology in determining vehicle speed. Therefore a quick check of the unit's ranging accuracy is suitable for daily confidence checks. Locate a flat target, at a known range between 50 and 200 feet (15 and 60 meters).

- The target distance should be carefully confirmed with a steel tape measure or professional survey device.

Ensure the front of the LIDAR unit is at the zero point, and carefully obtain range readings from the target. Verify the readings are within +/- 1 foot (+/- 0.3 meters) of the actual range. If the unit does not pass both of the above testes, carefully check your setup and perform the test again. If the unit still does not pass, please contact your specified service representative.

7.4 Certification

If your state has no regulations regarding certification of LIDAR units, then it is suggested that your LIDAR unit be returned (or sent to an authorized testing laboratory) for certification at least once per year. The certification process will provide detailed checks on alignment and mechanical integrity as well as verification testing against controlled speeds from 5 to 200 MPH (8 to 321 KPH).

8. Care, Cleaning, and Storage

Your DragonEye LIDAR is designed to keep performing with very little user maintenance. Besides replacing the batteries there are no user serviceable parts and the unit should NOT be disassembled.

8.1 Guidelines

- Avoid spilling food, beverages and other liquids on the device.
- When you are not using or transporting the device, store it in its original packaging. When storing the LIDAR in holsters or other containers used on motorbikes or vehicles, do not hard mount the LIDAR to the container; instead use a cushioned container. Hard mounting to vehicle frames can couple excessive vibration into the LIDAR unit resulting in damage to internal components.
- Store the unit in a cool dry place when possible.
- Avoid temperature extremes beyond -22˚F (-30˚C) and 140˚F (60˚C). Avoid leaving the unit in excessively hot or cold areas such as the dashboard of a car in summer or in the trunk on extremely cold nights.
- Periodic cleaning of the front lenses or HUD glass is only necessary if they acquire significant dirt or other debris that limits optical transmission. If cleaning is necessary, use compressed air or a soft brush to remove loose debris fist.
- To clean the optics, the glass surfaces should be cleaned with water and a soft cloth or tissue. Isopropyl Alcohol (rubbing alcohol) can be used if needed. Wipe from the center of the lens outward in a spiral motion.

- The HUD glass may be cleaned with a cotton swab to facilitate reaching the surfaces. *If you encounter a stain or speck that cannot be removed with gentle pressure, do not increase the cleaning pressure as this may damage the lens coatings. Small scratches and stains during the lifetime of a unit are normal and will not noticeable affect the performance of the LIDAR.*
- When cleaning the main body of the LIDAR use a soft clean cloth and a mild soap and water solution. Do not use harsh cleansers such as acetone (nail polish remover), ammonia, or other strong cleaning solutions as these may damage the polymer housing materials.

8.2 General Handling

The DragonEye LIDAR is built to be rugged and endure many types of accident impacts and drops. However, please remember that much like a camera, the LIDAR is a precision optical instrument that should be handled with reasonable care. Avoid dropping or throwing the unit into the patrol car as hard surfaces can scratch or break the glass components.

9. Specifications

9.1 Distance Parameters

Distance Accuracy:	+/- 0.5 ft one sigma (+/- 15.0 cm)
Distance Resolution:	0.1 ft, (3.0 cm)

9.2 Electrical

Power Source:	Two C-cell batteries (High quality Alkaline or NiMH rechargeable)
Battery Life:	Up to 25 hours of operation (Alkaline C-cell)

9.3 Environment

Temperature Range:	-22°F to +140°F (-30°C to +60°C)
Waterproof	Meets IP67

9.4 Mechanical

Weight (with batteries):	2.5 lbs (1.14 kg)
Dimensions:	4.5 x 6.75 x 9.75 inches (11.4 x 17.1 x 24.8 cm)

9.5 Optics

Beam Divergence:	2.5 milliradian
Laser Source:	Diode, 905 +/- 10 nm
Eye Safety:	FDA CDRH Class 1

9.6 Speed Range Parameters

Acquisition Time	1/3 Second
Speed Accuracy	+/- 1 MPH
Minimum Range:	
Speed Mode	50 ft (15 m)
Range Mode	10 ft (3 m)
Weather Mode	250 ft (76 m)
Speed Max/Min	+/- 5 to 200 MPH (+/- 8 to 320 KPH)
Speed Mode:	True, Full time, Continuous Tracking History

10. Cosine Effect

The term "Cosine Effect" as typically used in law enforcement speed measurement refers to the reduction of a vehicle's measured speed using Radar or Laser systems as compared to the actual vehicle speed, when targeting the vehicle at an angle. The diagram below shows the line "V" as the vehicle's travel direction and the LIDAR operator's line of sight "O" to the target Vehicle. The angle between these two lines is labeled theta "Θ". Motion of the vehicle along "Line V" is projected onto the LIDAR operator's line of sight "Line O". Using standard trigonometry, this projected motion can be show to be:

$$\Delta O = \Delta V \times COS\Theta$$

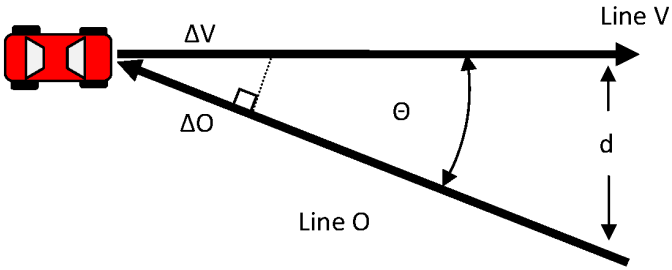


Figure 10
Cosine Illustration

11. Troubleshooting and Service Guide

Symptom	Possible Causes
Unit will not power up when trigger is pulled	1. Replace batteries. 2. Check that batteries are inserted correctly
Head-Up Display is not visible	1. Check HUD brightness setting
Audio tone indicates an acquired speed, but the displays show dashes	1. Speed is less than 5 MPH (8 KPH). 2. Speed was acquired outside the set range windows or direction filter. Adjust Min/Max Ranges or Direction settings in Menu.
Unit has difficulty acquiring speed reading	1. Use Weather or Obstruction Mode if necessary. 2. Steady LIDAR for better aiming.
Unit will not obtain readings at close ranges	1. Disable Weather Mode if on. 2. Disable Obstruction Mode if on. 3. Minimum Range in Speed Mode is 50 feet (15 meters).

12. Warranty & Service

12.1 Warranty

LIMITED WARRANTY

The DragonEye LIDAR System is warranted to be free from defects in workmanship and material for a period of 12 months from the date of purchase by the original purchaser. If any defect is discovered through normal and proper use of the unit during this period, the defect will be repaired or the unit will be replaced at our factory or at one of our authorized service center at no cost to the purchaser. The purchaser must return the defective unit to the factory or to an authorized service center, freight prepaid. We will pay for shipping charges for the return of the unit. This warranty applies only to structural defects in the external housing and defects in a unit's internal electro-optical components and circuitry, and is void as to units that have been opened without prior authorization, have experienced unauthorized repairs, or have had unauthorized modifications. This warranty does not cover the following:

- Normal wear and tear on the unit such as batteries, broken connectors, or scratched or broken exterior components including optical components.
- Damage caused by operator abuse or neglect.
- Damage caused by incorrect use of the unit, carelessness, unauthorized alterations to the unit, improper storage of the unit or unauthorized service, installation or repair made to the unit.
- Damage caused by fire, flood, lightning, vandalism, collision, Acts of God, or other events beyond the reasonable control of the manufacturer or the purchaser.
- Damage to external parts of the unit such as buttons, connectors, wires, and cables, etc.
- Damage from use of the unit in hostile operating environments.

We reserve the right to charge for repairs to a unit during the warranty period made necessary because of any of the foregoing causes at our standard rates for repair of units not under warranty. The purchaser assumes all risk of use from its purchase and use of the unit. Harmful personal contact with a unit might occur in the event of violent maneuvers, collisions, or similar circumstances, even if the unit was properly deployed and used. We are not responsible for, and we specifically disclaim any liability for injury caused by a unit in such circumstances.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THIS STATEMENT. ALL IMPLIED WARRANTIES ARE DISCLAIMED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR A PARTICULAR PURPOSE, AND WARRANTIES IMPLIED FROM A COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE. THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR A WARRANTY CLAIM WILL BE THE REPAIR OR REPLACEMENT OF A UNIT.

12.2 Service Procedure

If you have questions, want a quick problem diagnosis, or need to return your LIDAR for service:

- Call Decatur Electronics and ask to speak with a Customer Service Representative.
- Have the serial number of your LIDAR unit ready.

  Phone: 800.428.4315

13. How to Order Additional Products

To additional products or accessories, visit the Decatur Electronics website at www.DecaturElectronics.com or call the sales office at 800.428.4315

Available Accessories

Tripod Mounting Battery Endcap	S850-100
Standard Battery Endcap	S850-101
Shoulder Stock	S850-102
12 Volt Vehicle Power Supply	S850-103

Decatur
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A SONCELL NA COMPANY

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SONCELL NORTH AMERICA
A PUBLIC SAFETY COMPANY

Form **W-9**
(Rev. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
[redacted]

2 Business name/disregarded entity name, if different from above
[redacted]

3 Check appropriate box for federal tax classification; check only **one** of the following seven boxes:
[redacted] Individual/sole proprietor or single-member LLC [redacted] C Corporation [redacted] S Corporation [redacted] Partnership [redacted] Trust/estate
[redacted] Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶
Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner.
[redacted] Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
Exempt payee code (if any)
Exemption from FATCA reporting code (if any)
(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.)
[redacted]

Requester's name and address (optional)

6 City, state, and ZIP code
[redacted]

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number
[ ][ ][ ] – [ ][ ] – [ ][ ][ ][ ]

or

Employer identification number
[redacted]

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here | **Signature of U.S. person ▶** [redacted] **Date ▶** [redacted]

General Instruct[redacted]

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at *www.irs.gov/fw9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding?* on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

WV-10
Approved / Revised
08/01/15

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**

☐ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

☐ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

☐ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% vendor preference for the reason checked:**

☐ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% vendor preference for the reason checked:**

☐ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% vendor preference for the reason checked:**

☐ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

☐ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**

☐ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules.***

☐ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Thunderbolt Veracity LLC/Thunderbolt Electr **Signed:** Jack Shaffer

Date: 1/21/2016 **Title:** Owner

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"**Debt**" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"**Employer default**" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"**Related party**" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Thunderbolt Veracity LLC

Authorized Signature: Jack E Shaffer Date: 8/15/2017

State of West Virginia

County of Barbour, to-wit:

Taken, subscribed, and sworn to before me this 15 day of August, 2017.

My Commission expires Oct. 16, 2018.

AFFIX SEAL HERE

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
SUNNY D. LAKE
75 Battle Street
Philippi, West Virginia 26416
My Commission Expires Oct. 16, 2018

NOTARY PUBLIC Sunny D Lake