SonaSwitch™ 1650S Laser Series

Wave-length λ Typ. (nm)	Output Power (mW) max.
650	5

LASER RADIATION

AVOID DIRECT EYE EXPOSURE

CLASS 3R LASER
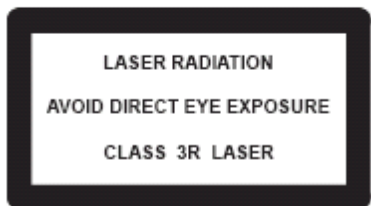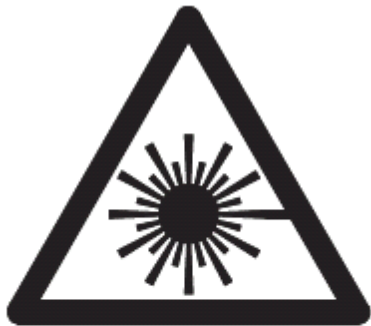
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Operations and Installation Manual

Warning:

Do not use any SonaSwitch™ Ultrasonic Sensor in any application to protect human life, health or safety or in any application where failure of a SonaSwitch™ Ultrasonic Sensor may result in human injury or death. This sensor must not be used in any environment where risk of an explosion is possible.

General:

This operations and installation manual will provide general guidelines and suggestions in using the SonaSwitch™ 1650S Laser series sonar detection module in many detection applications. If further technical information is required, please contact us at info@edpcompany.com.

System Wiring:

1-RED   Power supply: requires 10-30 VDC or 12-24 VAC with 1 ampere minimum current capacity.

2-BLACK   Return for AC power supply.

3-WHITE   *Output relay 1: normally open (closes during detection).

4-YELLOW   *Output relay 1: relay common.

5-ORANGE   *Output relay 1: normally closed (opens during detection).

6-BLUE   External Trigger [Clock input: requires TTL compatible logic level clock signals (0-5 VDC)].

7-BROWN   ECHO Output. (PWM) 0-5 volt TTL

8-GREEN   GND (Return for DC power supply and clock signals).

9-VIOLET   *Output relay 2: normally open (closes during detection).

10-GRAY   *Output relay 2: relay common.

11-PINK   *Output relay 1: normally closed (opens during detection).

12-BRN/WHT   Not Used.

13-BLK/WHT   EXT. Trigger Enable (Active Lo).

14-RED/WHT   REC Output (Actual returned echo's from target. TTL level).

15-Light GRN   LASER ENABLE (Connect to supply ground).

*Relay contacts are dry, rated at 3.0 amperes, 28 VDC, non-inductive loads. Exceeding these limits will cause permanent damage and void warranty.

General Installation Procedures:

1. Always mount SonaSwitch™ 1650S in a suitable, dry location. The SonaSwitch™ 1650S has been designed for indoor or protected environments only. Excessive moisture in the circuit board/transducer area will result in damage and improper operation of unit and will void all manufacturer's warranties.
2. Mount SonaSwitch™ 1650S as far off the ground as possible (minimum of 24 inches).
3. Adjust gain to minimum setting required to insure reliable target detection. Excessive gain may result in false detection.
4. Mount the unit in a location where environmental interference sources are minimized (example: EMI sources, air nozzles, excessive air turbulence, etc.).

Calibration Procedure:
See figure 1.

1. Apply power to sensor.
2. Allow several minutes times to warm-up before calibration.
3. Set GAIN pot to 50%.
4. To set Range 1, place the target at the desired distance in front of the sensor. Push and hold the Range 1 button for 3 seconds, when you hear a "Chirp" release the button.
5. To set Range 2, place the target at the desired distance in front of the sensor. Push and hold the Range 2 button for 3 seconds, when you hear a "Chirp" release the button.
6. To calibrate the GAIN, place the target at the maximum desired detection distance in front of the sensor. Now decrease the GAIN adjust by rotating the potentiometer CCW until the target is no longer detected. Next, increase the GAIN by turning the GAIN adjust CW just until the target is detected, give the potentiometer an additional 1/16 of a turn CW.

NOTE: _ALWAYS SET THE 'GAIN FOR MINIMUM AMOUNT NEEDED FOR DETECTION. EXCESSIVE 'GAIN' MAY RESULT IN FALSE DETECTIONS._

7. Test the Range settings by slowly moving the target towards and away from the sensor. Note that the corresponding LED will be ON when the target is within the set Range and the relays will active. Re-set Range setting as required.

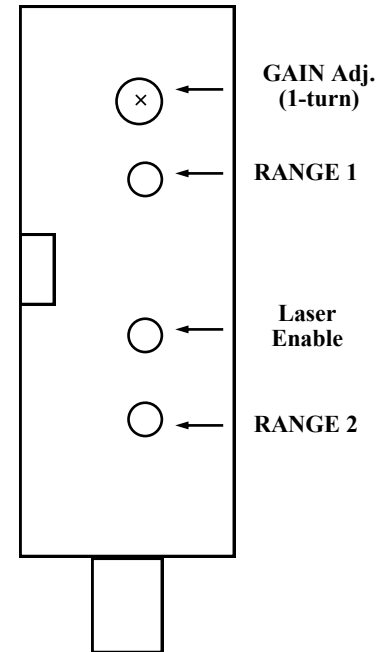_Note: Range settings are independent of air temperatures._

Figure 1

Laser Pointer:

Use the Laser point as an aide to aiming the sensor at the desired target.
Note: Laser pointer is accurate to within +/- 3 Inches of the center point of the sensor.

To activate the Laser pointer push and hold the Laser Enable button on the side of the sensor (fig.1) or by tying pin 15 of the DB-15 connector on the sensor to ground.