ENFORCER®

Retro-Reflective Photoelectric Beam Sensor

E-936-S45RRGQ

Installation Manual
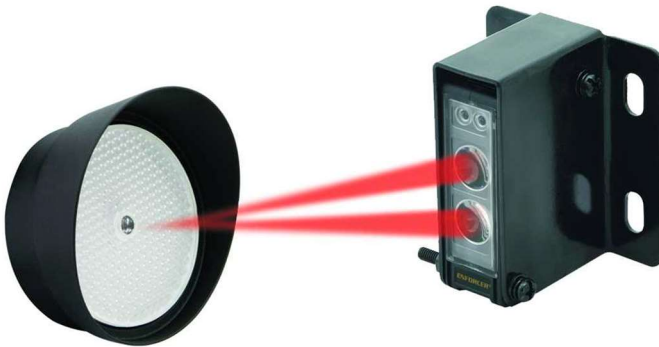
The ENFORCER E-936-S45RRGQ Retro-Reflective Photoelectric Beam Sensor provides reliable sensing of objects that enter the space between the sensor and reflector, thus breaking the infrared beam. It is suitable for various types of detection such as sensing approaching vehicles to open a garage door or outdoor gate, as an entry notification for stores, to assist in measuring parking distances, or an alarm notification, as well as many other uses.

- Range 45ft (14m)
- Weatherproof (IP66) construction for indoor/outdoor usage
- Pre-wired 6.5ft (2m) cord
- Bracket and mounting hardware included for both sensor and reflector
- Adjustable sensing range
- Compact size

Typical Applications

- Sensor for garage doors or outdoor gates
- Entry detection for store fronts
- Assist in measuring parking distance

IMPORTANT: The E-936-S45RRGQ conforms to UL Std. 325 for gate operators that use the N.C. or 10kΩ resistor for monitoring.

CAUTION

- This sensor was not designed to prevent bodily injury or loss of life.
- This sensor was not designed for use in environments where explosive gases may be present.
- Use of this sensor in certain security applications may be regulated by local laws or codes. SECO-LARM is not responsible for compliance with such laws or codes.
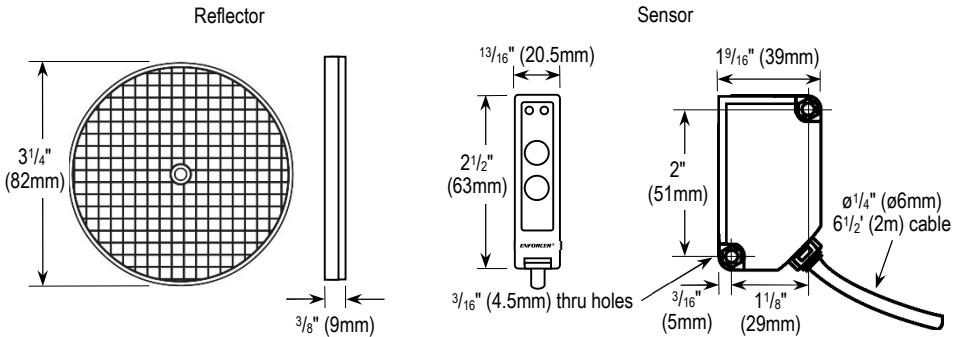
SECO-LARM®

Parts List

1x **Sensor**	1x **Adjustment screwdriver**	4x **$^{13}/_{16}$" Phillips wood screws**
1x **Round reflector**	1x **$^{13}/_{16}$" Phillips/slotted wood screw**	2x **$1^3/_4$" Phillips machine screws**
1x **Plastic wall anchor**	1x **$^5/_8$" Phillips/slotted machine screw**	1x **Reflector hood**
2x **Hex nuts**	2x **$^1/_4$" Phillips/slotted machine screws**	1x **Manual**
1x **E-931ACC-BLS5Q Sensor mounting bracket**	1x **E-931ACC-BLS1Q Sensor mounting bracket**	

Specifications

Type		Retro-reflective
Operating voltage		12-30V DC/AC 60Hz, 100mA
Sensing range		0.5~45 ft (0.2~14 m)
Current draw	Standby	70mA@12VDC
	Active	55mA@12VDC
Response time		10ms
Light source		IR LED
LED indicators		Yellow LED (Alignment), Red LED (Power on)
Trigger output		SPDT Relay output (NO/NC/COM with built-in 10kΩ resistor on N.O. output)
Switching capacity		2A@30VAC/VDC
IP Rating		IP66 Weatherproof
Operating temperature		-4~131° F (-20~55° C)
Sensor dimensions		$^{13}/_{16}$"x$2^1/_2$"x$1^9/_{16}$" (20.5x63x39 mm)

Dimensions

Reflector

$3^1/_4$" (82mm)

$3/_8$" (9mm)

Sensor

$^{13}/_{16}$" (20.5mm)

$2^1/_2$" (63mm)

$^3/_{16}$" (4.5mm) thru holes

$1^9/_{16}$" (39mm)

2" (51mm)

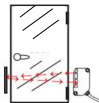ø$^1/_4$" (ø6mm) $6^1/_2$' (2m) cable

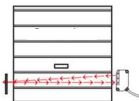$^3/_{16}$" (5mm)

$1^1/_8$" (29mm)

Sample Installations
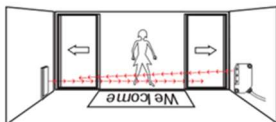
Parking Distance Monitor
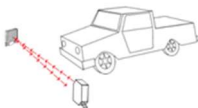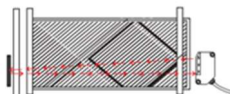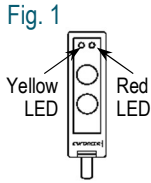

Main Entrance Door

Garage Door

Store Entrance

Entry Gate

Installation and Adjustment

LED Functions

- Red LED – When ON, indicates the sensor is powered.
- Yellow LED – When ON, indicates the sensor is properly aligned with the reflector, and not triggered.

Fig. 1

Yellow LED   Red LED

Understanding Sensing Range Adjustment

The *Sensing Range* adjustment determines the strength of the infrared signal emitted by the sensor.

- Min. Setting – Weakest infrared signal – sensor easily be triggered by small objects but more susceptible to false alarms
- Max. Setting (default) – Strongest infrared signal – sensor less likely to be susceptible to false alarms

This allows adjusting the infrared signal strength in relation to the distance between sensor and reflector.

NOTE: If the infrared signal is too strong, the sensor may not trigger. If the infrared signal is too weak, the sensor may be susceptible to false alarms.

Installation

1. Mount the reflector and the sensor so they face each other (see *Mounting the Sensor*, pg. 4).
2. Connect power to the sensor (see *Wiring Diagram*, pg. 4). The red LED will turn ON, indicating that the sensor is powered on. If the yellow LED is ON, it indicates that the sensor and reflector are aligned (though it may still be necessary to further adjust the alignment).
3. Turn the sensing range adjustment to *Max*.
4. To find the best alignment, slowly adjust the angle of the sensor (and/or reflector) up, down, left or right.

NOTES:

- Correct alignment is reached when the red LED is OFF and the yellow LED is ON.
- If adjusting the sensor will not turn the yellow LED on, the sensor is at the edge of its signal range and may not work properly.

Adjusting Sensing Range

After the sensor and the reflector have been properly installed, the next step is to adjust the appropriate setting for the sensing range.

1. Open the top cover of the sensor as shown in Fig. 2.
2. Peel back the tape covering the sensitivity adjustment access hole, taking care not to soil the tape so it can be easily reapplied.

Fig. 2

Sensing range

Min   Max

3. Starting from the *Max*. position, slowly turn the knob counterclockwise until the yellow LED turns OFF, indicating the weakest acceptable signal for this situation. Then turn it clockwise somewhat above that point. The ideal is usually midway between the weakest point and *Max*.
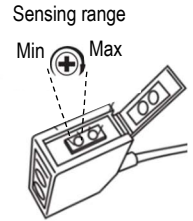
   NOTE: When adjusting, if the weak point is near the *Max*. position, the knob should be set at *Max*.

4. Place the tape back over the sensing range access hole and snap the cover back into place, ensuring that the cover is firmly sealed

   NOTE: Ensure that the tape is properly reapplied over the sensitivity adjustment access holes, so that water will not enter and cause damage.
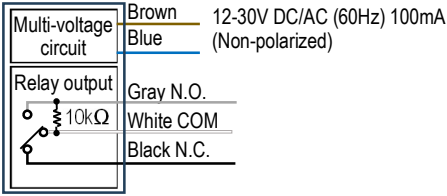
Testing

1. Power up the sensor. Both LEDs should be ON.
2. Pass a typical object to be detected between the sensor and reflector. The yellow LED should turn OFF indicating successful detection.

NOTES:

- If a shiny object, such as a chrome-plated item or one with reflective tape, comes in close proximity to the IR beam, the sensor may not be able to detect accurately. If so, you may need to adjust the sensing range counterclockwise until the desired results are obtained.
- Depending on the monitoring system used by the gate motor, it may be necessary to use either the N.C. output or the built-in 10kΩ resistor on the N.O. output. Please refer to the gate operator manual or the gate operator manufacturer for the preferred monitoring method.
- The E-936-S45RRGQ will not work with gate operators that monitor using the "heartbeat" method.
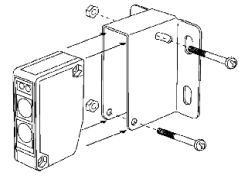
Wiring Diagram

| Multi-voltage circuit | Brown | 12-30V DC/AC (60Hz) 100mA |
| | Blue | (Non-polarized) |

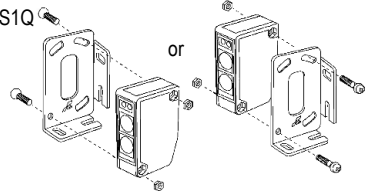| Relay output | Gray N.O. |
| 10kΩ | White COM |
| | Black N.C. |

NOTES

- Can be connected to AC or DC voltage
- Maximum cable extension length is 325ft (100m)

Mounting the Sensor

E-931ACC-BLS5Q Bracket

E-931ACC-BLS1Q Bracket   or

Troubleshooting

Sensor does not detect the object	• Change the angle of the sensor or readjust the sensitivity setting
Yellow LED does not turn on	• Clean the sensor and reflector with a damp (not wet) cloth
	• Adjust the reflector and/or sensor for proper alignment

Accessories

Square Reflector	Round Reflector	Reflector Hood	Reflector Bracket
E-931ACC-R2Q	E-931ACC-RC1Q	E-931ACC-HR1Q	E-931ACC-BLR2Q

Wall Bracket	Door Frame Bracket	Single-Gang Bracket
E-931ACC-BLS7Q	E-931ACC-BLS8Q	E-931ACC-BLS6Q