



Model AV1LED Audio-Visual LED Light



Installation and Maintenance Manual

2561528A
REV. A 810
Printed in U.S.A.



Warranty – Seller warrants all goods for five years on parts and 2-1/2 years on labor, under the following conditions and exceptions: Seller warrants that all goods of Seller's manufacture will conform to any descriptions thereof for specifications which are expressly made a part of this sales contract and at the time of sale by Seller such goods shall be commercially free from defects in material or workmanship. Seller reserves the right at the Seller's discretion to "Repair and Return" or "Replace" any item deemed defective during the warranty period. This warranty does not cover travel expenses, the cost of specialized equipment for gaining access to the product, or labor charges for removal and reinstallation of the product. This warranty shall be ineffective and shall not apply to goods that have been subjected to misuse, neglect, accident, damage, improper maintenance, or to goods altered or repaired by anyone other than Seller or its authorized representative, or if five years have elapsed from the date of shipment of the goods by Seller with the following exceptions: lamps and strobe tubes are not covered under this warranty. Outdoor warning sirens and controllers manufactured by Federal Warning Systems are warranted for two years on parts and one year on labor. No agent, employee, representative or distributor of Seller has any authority to bind the Seller to any representation, affirmation, or warranty concerning the goods and any such representation, affirmation or warranty shall not be deemed to have become a part of the basics of the sales contract and shall be unenforceable. THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OR MERCHANTABILITY, FITNESS FOR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. These warranties shall not apply unless Seller shall be given reasonable opportunity to investigate all claims for allegedly defective goods. Upon Seller's instruction a sample only of allegedly defective goods shall be returned to Seller for its inspection and approval. The basis of all claims for alleged defects in the goods not discoverable upon reasonable inspection thereof pursuant to paragraph 8 hereof must be fully explained in writing and received by Seller within thirty days after Buyer learns of the defect or such claim shall be deemed waived.



Industrial Systems
2645 Federal Signal Drive • University Park, IL 60484-3167
Tel: 708-534-4756 • Fax: 708-534-4852
Email: elp@federalsignal.com • www.federalsignal-indust.com

Contents

Safety Messages to Installers and Users.....	5
Unpacking the Model AV1LED	6
Introduction to the Model AV1LED.....	6
Mounting the Model AV1LED	6
Pipe Mounting.....	7
Surface Mounting.....	7
Wiring the Model AV1LED.....	9
Single Power Supply for Light and Sounder	9
Separate Power Supplies for Light and Sounder	10
Selecting How the Model AV1LED Operates	12
Safety Message to Maintenance Personnel	13
Replacing the Sounder.....	15
Accessing the Sounder.....	15
Replacing the Sounder and Reassembling the Light	15
Replacing the AV1LED Stick PCBAs.....	16
Obtaining Service, Assistance, and Parts.....	17
Repair Service	17
Technical Assistance	17
Mounting Accessories and Replacement Parts	17
Returning a Product for Credit.....	19

Figures

Figure 1	Surface mount exploded view.....	8
Figure 2	Mounting hole dimensions	9
Figure 3	Wiring for single power supply	10
Figure 4	Wiring for separate power supplies	11
Figure 5	Jumpers controlling LED and buzzer	12
Figure 6	Exploded view with sounder	14

Tables

Table 1	Mounting accessories	18
Table 2	Replacement parts	18

Safety Messages to Installers and Users

It is important to follow all instructions shipped with this product. This device is to be installed by trained personnel who are thoroughly familiar with the country electric codes and will follow these guidelines as well as local codes.

The selection of a mounting location for the Model AVILED, its controls, and wiring routing must be done under the direction of the facilities engineer and the safety engineer. In addition, listed below are some other important safety instructions and precautions you should follow:

- Read and understand all instructions before installing or operating this product.
- To avoid electrical shock, disconnect the light from the power supply before installing the light.
- After installation, test the system to ensure that it is operating properly.
- The product nameplate, which may contain cautionary or other information of importance to maintenance personnel, should not be obscured in any way.
- To be an effective warning device, this product produces bright light that can be hazardous to your eyesight when viewed at close range. Do not stare directly into this lighting product at close range or permanent damage to your eyesight may occur.
- Establish a procedure to routinely check the system for proper activation and operation.
- After testing is complete, provide a copy of these instructions to all operating personnel.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

Unpacking the Model AV1LED

After unpacking the Model AV1LED, examine it for damage that may have occurred in transit. If the product has been damaged, do not attempt to install or operate it. File a claim immediately with the carrier stating the extent of the damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them. If any parts are missing, please call Federal Signal Customer Support at 708-534-4756.

Introduction to the Model AV1LED

The Model AV1LED combination audible/visual signal features a 100-percent polycarbonate housing that is rated for Type 3R rain-tight applications. The Fresnel lens provides superior visibility in all directions. Available lens colors include amber, blue, clear, green, and red. Jumper settings enable you to select a fast or slow flash rate and whether the buzzer and/or LED operate intermittently or continuously. The AV1LED design provides three mounting configurations. The black base will accommodate mounting to a 1/2-inch NPT pipe, a 4-inch octagonal electrical box, or any flat surface. The surface-mount gasket serves as a template for preparing a flat surface with appropriate mounting holes.

All Model AV1LED units feature a unique twist-and-lock lens to enable tool-free access to the LED light. The integrated buzzer provides 85 dB output at 10 ft (95 dB at 1 m). Two voltage variations are available: 24 Vdc and 120 Vac. Each Model AV1LED is factory-assembled with two color-coded leads for wiring to a junction box. If necessary, installers can remove the leads and connect the power supply to the Model AV1LED directly to the terminal block located in the base of the unit.

Mounting the Model AV1LED

This section describes how to pipe-mount and surface-mount the light. To mount the light on a vertical surface, use a separately purchased Model LWMB2 (wall mounting bracket) or LCMB2 (corner mounting bracket) mounting kit (Table 1 on page 18). For weatherproof installation, the light must be mounted vertically with the lens facing upwards.

Pipe Mounting

To mount the Model AV1LED on a 1/2-inch NPT pipe:

1. Attach the light to the pipe by turning the light clockwise.
2. To make the electrical connections, refer to “Wiring the Model AV1LED” on page 9.

Surface Mounting

To mount the Model AV1LED on a flat mounting surface:

1. Remove and retain the three #8 screws securing the upper housing to the lower housing. Remove the upper housing. (Figure 1 on page 8).
2. Using the gasket as a template or the dimensions shown in Figure 2 on page 9, scribe three drill-position marks on the mounting surface.
3. Drill a 3/16-inch (4.8 mm) diameter hole at the two outside drill-position marks for mounting.
4. Drill or punch a 3/4-inch (19.1 mm) diameter hole at the center drill-position mark for wire entry.
5. Use a small punch to remove the appropriate knockouts in the lower housing.
6. Center the mounting holes in the rubber gasket over the mounting holes in the mounting surface.
7. Center the mounting holes in the lower housing over the mounting holes in the gasket.
8. Secure the light to the mounting surface using the two mounting screws.
9. Refer to “Wiring the Model AV1LED” on page 9 to complete the installation.

Figure 1 Surface mount exploded view

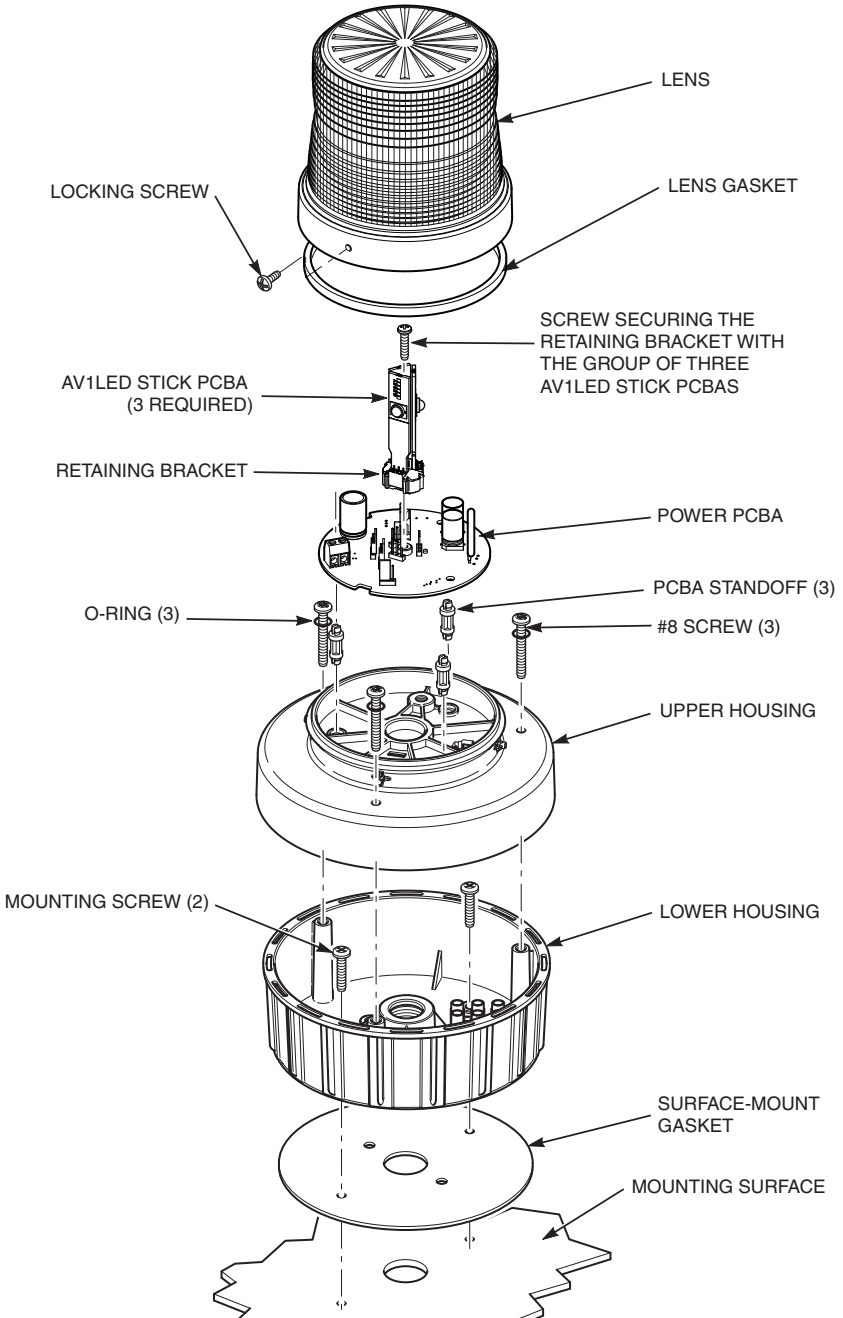
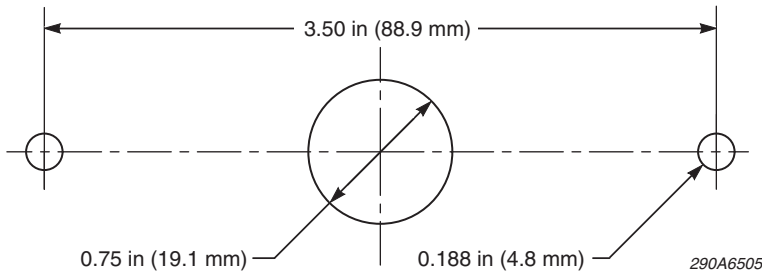


Figure 2 Mounting hole dimensions

Wiring the Model AV1LED

The Model AV1LED comes assembled from the factory with two color-coded leads for wiring to a junction box. To connect the Model AV1LED directly to a power supply, simply remove the factory leads and make the power connections to the terminal block located in the lower housing.

⚠ WARNING

SHOCK HAZARD—Do not connect the light to the system while the power is on. Failure to heed this warning may cause serious injury or death

Single Power Supply for Light and Sounder

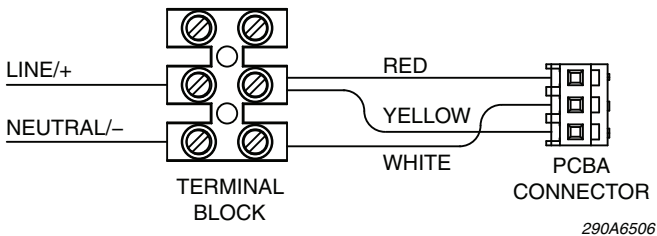
Required for the installation are supply wires of the appropriate size (12 AWG [3.0 mm²] maximum thickness).

To wire the light to a single power supply for the unit:

1. Turn off power to the system.
2. Remove and retain the three #8 screws securing the upper housing to the lower housing. Remove the upper housing.
3. Remove the factory field-wiring leads from the terminal block.
4. Route supply wires of the appropriate gauge into the housing through the conduit entry.

5. Strip a maximum of 0.25 in (6.4 mm) of wire insulation from the ends of the power leads.
6. See Figure 3. To connect the wires to the terminal block, insert the stripped ends of the wires into the connector as far as they can go, then tighten the clamping screw. The maximum tightening torque is 4.5 in-lb (0.5 N•m).
7. Reassemble the Model AVILED, restore power, and test the unit for proper operation.

Figure 3 Wiring for single power supply



Separate Power Supplies for Light and Sounder

In some applications it may be beneficial to control the light independent of the sounder. If this is the case, separate power supply wiring for each of the devices can be connected to the terminal block. Required for the installation are supply wires of the appropriate size (14 AWG [2.0 mm²] maximum thickness).

⚠ WARNING

SHOCK HAZARD—Do not connect the light to the system while the power is on. Failure to heed this warning may cause serious injury or death.

To wire the light and sounder to separate power supplies:

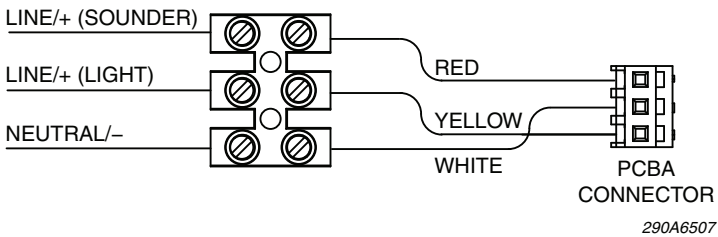
1. Turn off power to the system.
2. Remove and retain the three #8 screws securing the upper housing to the lower housing. Remove the upper housing.
3. Remove the factory field-wiring leads from the terminal block.

4. Route separate supply wires of the appropriate gauge for the light and sounder into the housing through the conduit entry.
5. Strip a maximum of 0.25 in (6.4 mm) of wire insulation from the ends of the power leads.
6. See Figure 4. To connect the wires to the terminal block, insert the stripped ends of the wires into the connector as far as they can go, then tighten the clamping screw. The maximum tightening torque is 4.5 in-lb (0.5 N•m).

NOTE: If it is necessary to combine two NEUTRAL/- wires, connect them to the same terminal on the terminal block.

7. Reassemble the Model AV1LED, restore power, and test the unit for proper operation.

Figure 4 Wiring for separate power supplies



Selecting How the Model AV1LED Operates

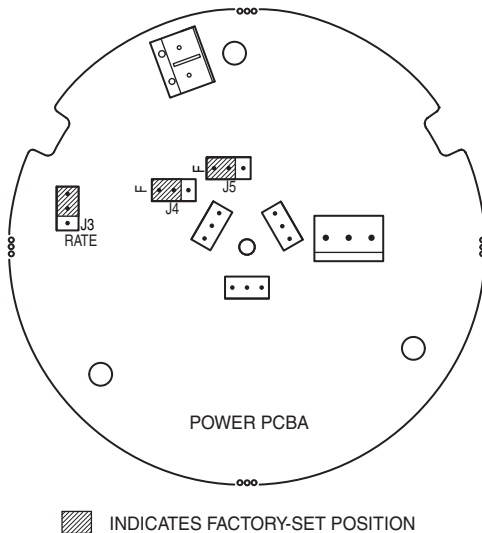
Jumpers at J3, J4, and J5 on the power PCBA enable you to select how the Model AV1LED operates. The options are (factory settings in brackets):

- ◆ J3 Flash Rate: [fast] or slow
- ◆ J4 Sounder: [intermittent] or continuous
- ◆ J5 LED: [intermittent] or continuous

Figure 5 shows the locations and factory-set positions of the three jumpers.

NOTE: The continuous illumination and sound features allow the AV1LED to be operated with variations in the external flash patterns and duty cycle. However, the AV1LED is not intended to be powered on continuously for long periods of time. Doing so will significantly shorten the life of the sounder; and therefore continuous operation of the AV1LED is not recommended.

Figure 5 Jumpers controlling LED and buzzer



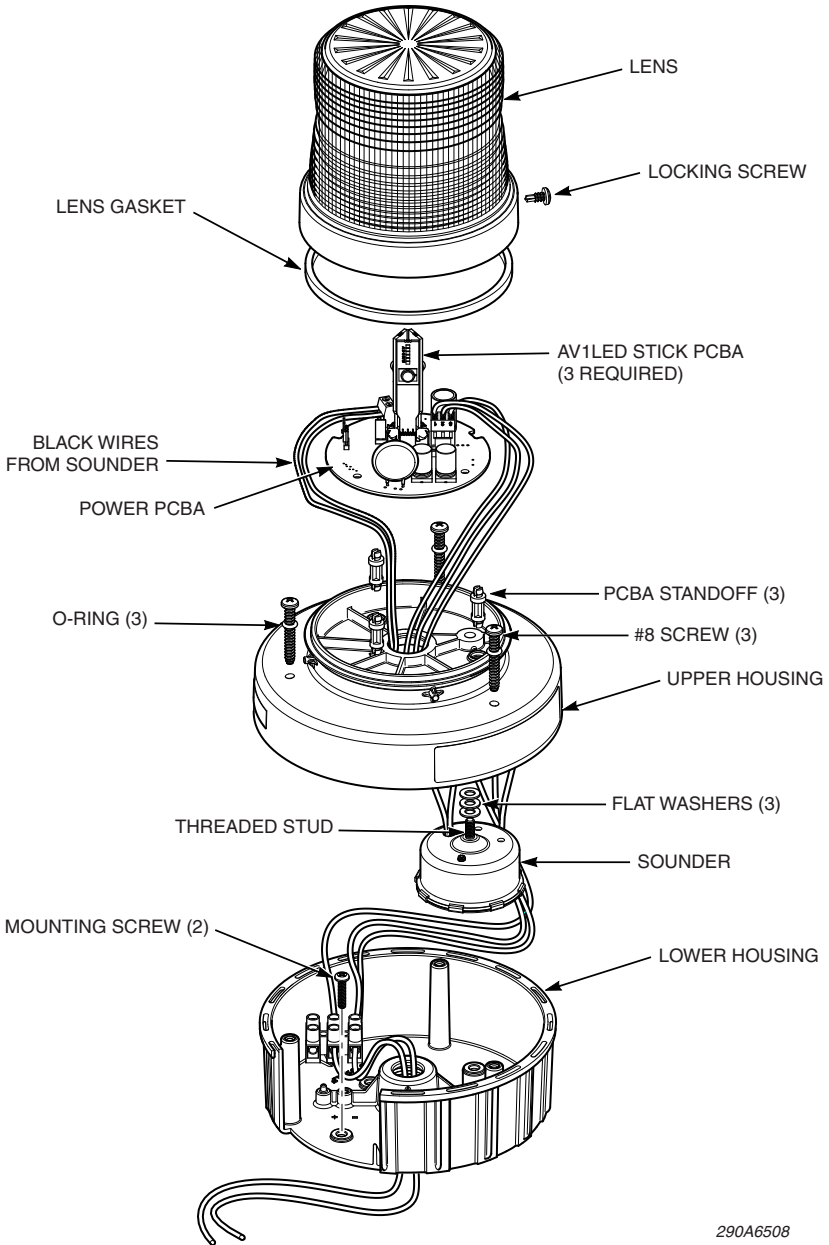
Safety Message to Maintenance Personnel

Listed below are some important safety instructions and precautions you should follow:

- Any maintenance to the system must be performed by a trained electrician in accordance with NEC/CEC guidelines and local codes.
- Read and understand all instructions before operating this system.
- To avoid electrical shock, turn off power to the system before performing any maintenance.
- The circuitry of the Model AV1LED can be damaged by electrostatic discharge. Follow anti-static procedures when servicing this product.
- Never alter the unit in any manner. Safety may be endangered if additional openings or other alterations are made to the unit.
- The nameplate, which contains cautionary or other information of importance to maintenance personnel, should not be obscured in any way.
- To be an effective warning device, this product produces bright light that can be hazardous to your eyesight when viewed at close range. Do not stare directly into this lighting product at close range or permanent damage to your eyesight may occur.
- After performing any maintenance, test the system to ensure that it is operating properly.
- Establish a procedure to routinely check the system for proper activation and operation.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death.

Figure 6 Exploded view with sounder



290A6508

Replacing the Sounder

Occasionally check for a reduction in the output of the sounder. If the sound pressure is reduced to an ineffective level, replace the sounder.

⚠ WARNING

SHOCK HAZARD—Do not connect the light to the system while the power is on. Failure to heed this warning may cause serious injury or death.

Accessing the Sounder

The sounder is located on the bottom of the upper housing (Figure 6 on page 14).

To access the sounder:

1. Turn off power to the system.
2. Loosen the lens locking screw and twist the lens counter-clockwise one-quarter turn. Remove the lens from the upper housing.
3. Loosen the screws on terminal block J9 on the PCBA and remove the black leads of the sounder.
4. The mounting holes permit only one orientation of the PCBA. Note or mark the orientation.
5. Use a flat-head screwdriver to carefully pry the PCBA from the three nylon standoffs and set the PCBA aside.
6. Remove the three #8 screws securing the upper housing to the lower housing and remove the upper housing.

Replacing the Sounder and Reassembling the Light

1. Unscrew the sounder from the upper housing (Figure 5 on page 12). Be careful to not lose the three washers that space the sounder from the upper housing.
2. Place the washers on the threaded lug of the new sounder and hand-tighten the sounder.

3. To reconnect the wires to the terminal block, insert the ends of the wires into the J9 connector as far as they can go, then tighten the clamping screw. The maximum tightening torque is 4.5 in-lb (0.5 N•m).
4. Gently press the PCBA onto the standoff's until it locks in place.
5. Align the pins on the housing with the detents on the lens. Apply downward pressure on the lens while turning it clockwise one-quarter turn.
6. Tighten the lens locking screw.
7. Restore power and test the Model AV1LED for proper operation.

Replacing the AV1LED Stick PCBAs

Although the AV1LED stick PCBAs are designed to give years of service, replacement parts are available. LED colors and replacement part numbers are shown in Table 2 on page 18. Because the stick PCBAs are connected in series, you must replace all three.

The stick PCBAs are held by a retaining bracket at 60 degrees to each other. When joined with the bracket, the PCBAs connect to pins at J5, J7, and J8 on the power PCBA. The stick PCBAs are secured to the power PCBA with a Phillips-head screw (Figure 1 on page 8).

⚠ WARNING

SHOCK HAZARD—Do not connect the light to the system while the power is on. Failure to heed this warning may cause serious injury or death.

To remove the AV1LED stick PCBAs:

1. Turn off power to the system.
2. Loosen the lens locking screw and twist the lens counter-clockwise one-quarter turn. Remove the lens from the upper housing.
3. Remove the Phillips-head screw retaining the bracket holding the AV1LED stick PCBAs.

4. Grasp the group of three AVILED stick PCBAs and pull them straight up from the power PCBA.
5. Remove and replace the AVILED stick PCBAs on the retaining bracket.
6. Insert the bracket with the stick PCBAs onto the pins on the power PCBA. Secure the assembly with the Phillips-head screw.
7. Align the pins on the housing with the detents on the lens. Apply downward pressure on the lens while turning it clockwise one-quarter turn.
8. Tighten the lens locking screw.
9. Restore power and test the Model AVILED for proper operation.

Obtaining Service, Assistance, and Parts

Federal Signal will service your product and provide technical assistance and support. Please call the phone numbers listed below. For instruction manuals and information about related products, please go to <http://www.federal-signal.com>

Repair Service

Products returned for repair require a Return Authorization form. To obtain service for the product, please contact the Federal Signal Service Department at 708-534-4858.

Technical Assistance

For technical assistance, please call Technical Support at 708-534-3424, extension 5823.

Mounting Accessories and Replacement Parts

To order replacement parts, please call Federal Signal Customer Support at 708-534-4756.

For mounting accessories and replacement parts, see Table 1 and Table 2 on page 18.

Table 1 Mounting accessories

Description	Model Number
Mounting bracket, wall	LWMB2
Mounting bracket, corner	LCMB2

Table 2 Replacement parts

Description	Part Number
Lens, clear	K8550292
Lens, blue	K8550292-01
Lens, amber	K8550292-02
Lens, red	K8550292-03
Lens, green	K8550292-04
Lens gasket	K8550306
Surface-mount gasket	K8591003
Printed circuit board assy., 120 Vac	K2005642
Printed circuit board assy., 24 Vdc	K2005695
PCBA, AV1LED stick, amber (3 required)	K2005633-A
PCBA, AV1LED stick, blue (3 required)	K2005633-B
PCBA, AV1LED stick, green (3 required)	K2005633-G
PCBA, AV1LED stick, red (3 required)	K2005633-R
PCBA, AV1LED stick, white (3 required)	K2005633-W
Sounder, 120 Vac	K8591002
Sounder, 24 Vdc	K8591002-03

Returning a Product for Credit

Product returns for credit require a Return Authorization from your local distributor prior to returning the product to Federal Signal. Please contact your distributor for assistance.

A product is qualified to be returned for credit when the following conditions are met:

- Product is resalable and in the original cartons
- Product has not been previously installed
- Product is the current revision
- Product has not been previously repaired
- Product is a standard product
- Product is not a service part

All returns are subject to a re-stock fee.

Defective products that are returned within the warranty period will be repaired or replaced at Federal Signal's sole discretion. Defective products do not include those products with lamp failure.

Circumstances other than those listed above will be addressed on a case-by-case basis.



Industrial Systems

2645 Federal Signal Drive • University Park, IL 60484-3167

Tel: 708-534-4756 • Fax: 708-534-4852

Email: elp@federalsignal.com • www.federalsignal-indust.com