

# SV-LCD50

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## INSTALLATION AND USER GUIDE

**Thin-Film Transistor (TFT) Liquid Crystal Display (LCD)  
Color Rear Vision Monitor**

Version 1.00  
August 2004



*SV-LCD50 Installation and User Guide—TFT LCD Color Rear Vision Monitor*

August 2004

Version 1.00

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## 1. Components and Features

This section describes the components and features of the SV-LCD50 TFT LCD Color Rear Vision Monitor and the supplied accessories.

### 1.1. Overview

The SV-LCD50 monitor is a TFT (thin-film transistor) LCD (liquid crystal display) monitor designed for the heavy-duty commercial trucking industry.

The monitor features two external triggers with 2.5-second off-time delay and two-camera input capacity. It operates on 10 to 32 volts direct current (VDC) power and turns on automatically when the vehicle transmission is placed in reverse. When connected to a camera with an integrated microphone, the monitor's adjustable speaker allows the user to both see and hear activity behind the vehicle. In low-light conditions, monitor buttons are illuminated automatically.

Figure 1 shows the SV-LCD50 monitor.



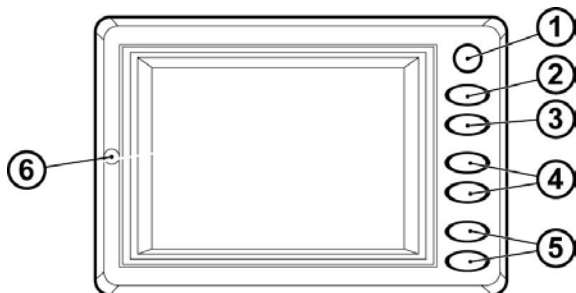
**FIGURE 1.** SV-LCD50 Monitor

## **1.2. Components**

This section describes the physical components of the SV-LCD50 monitor. It also describes the monitor's operational features and capabilities.

### **1.2.1. Front Panel Components**

Figure 2 shows the front panel of the SV-LCD50 monitor. Component descriptions follow.



**FIGURE 2.** SV-LCD50 Monitor Front Panel

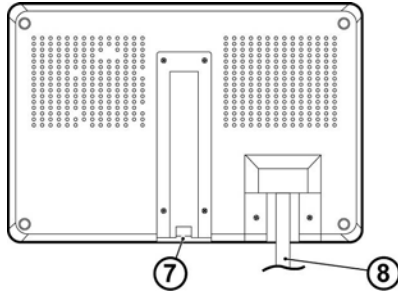
SV-LCD50 monitor front panel components are as follows:

1. **POWER BUTTON AND STANDBY LAMP**—A red lamp indicates that the monitor is on and in Standby mode. A green lamp indicates that the monitor is on and in Run mode. (Monitor power remains on until the vehicle ignition key is on the Off position.)
2. **CA. SEL (CAMERA SELECT) BUTTON**—This button selects input from Camera 1 (CA1) or Camera 2 (CA2). The on-screen display indicates which camera is currently selected.
3. **MENU BUTTON**—The Menu button initiates display of the main menu. If no input signal is detected within five seconds, the main menu is no longer displayed.
4. **VOL (VOLUME) BUTTONS**—These buttons control the volume of the integrated speaker.

5. **BRIGHT (BRIGHTNESS) BUTTONS**—These buttons manually adjust the brightness level of the display.
6. **LIGHT SENSOR**—This sensor detects the available light and automatically adjusts the display brightness level accordingly and illuminates the button backlights in low-light conditions.

### 1.2.2. Rear Panel Components

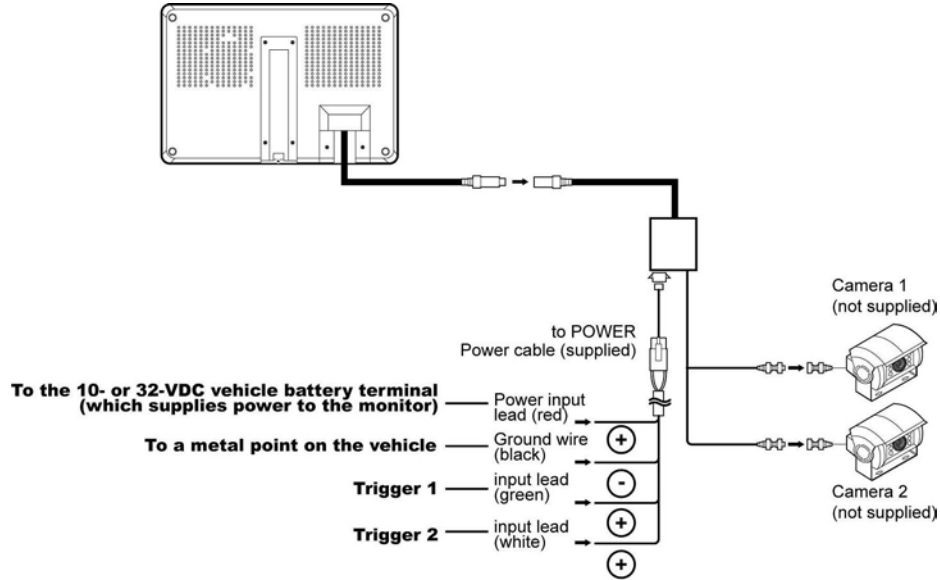
Figure 3 shows the rear panel of the SV-LCD50 monitor. Component descriptions follow.



**FIGURE 3.** SV-LCD50 Monitor Rear Panel

SV-LCD50 monitor rear panel components are as follows:

7. **BRACKET SLOT**—This slot accepts the adjustable mounting bracket.
8. **INPUT CABLE**—Cameras and power and trigger wires are connected to this cable, as shown in Figure 4.



**FIGURE 4.** SV-LCD50 Monitor Rear Panel Cabling Connections

**NOTE:** Connect the camera(s) to the monitor before supplying power.



### 1.2.3. Menu Navigation

To navigate through the menu, press the **BRIGHT (BRIGHTNESS)** buttons to select a menu item, and press the **CA. SEL (CAMERA SELECT)** button to change the content of a selected menu item.

### 1.2.4. Main Menu Items

- **SCALE**—This menu item measures the distance behind the vehicle. The scale is available only during input of the trigger signal. Selectable options are as follows:
  - CA1 (Camera 1)
  - CA2 (Camera 2)
  - All
  - None
- **CA1 (CAMERA 1)**—This menu item selects the image type for Camera 1. Selectable options are as follows:
  - Mirror
  - Normal
- **CA2 (CAMERA 2)**—This menu item selects the image type for Camera 2. Selectable options are as follows:
  - Mirror
  - Normal

- **AUTO SCAN**—This menu item controls the auto scan function, which automatically switches between input from Camera 1 and input from Camera 2 at selected intervals. (Scan times can be set for each camera in the SUB MENU.) Selectable options are as follows:
  - On
  - Off
- **COLOR**—This menu item controls the color depth of displayed images.
- **CONTRAST**—This menu item controls the contrast level of displayed images.
- **TINT**—This menu item controls the color coordination of displayed images.
- **SUB MENU**—This menu item displays the following sub-menu items:
  - **TRIG. (TRIGGER) OFF TIME DELAY**—This menu item controls the connection to the vehicle's turn signal. (The delay time is 2.5 seconds.) Selectable options are as follows:
    - CA1 (Camera 1)
    - CA2 (Camera 2)
    - All
    - None

- **TRIG. (TRIGGER) PRIORITY**—This menu item controls camera priority when triggers are received simultaneously. (Images from the selected priority camera are displayed.) Selectable options are as follows:
  - CA1 (Camera 1)
  - CA2 (Camera 2)
- **SCAN TIME CA1**—This menu item controls the scan time for the auto scan function for Camera 1. The minimum scan time is zero seconds. The maximum time is 20 seconds. Use the **VOL (VOLUME)** buttons to change the time settings.
- **SCAN TIME CA2**—This menu item controls the scan time for the auto scan function for Camera 1. The minimum time is zero seconds. The maximum time is 20 seconds. Use the **VOL (VOLUME)** buttons to change the time settings.

### 1.3. Supplied Accessories

The following accessories are supplied with the SV-LCD50 monitor:

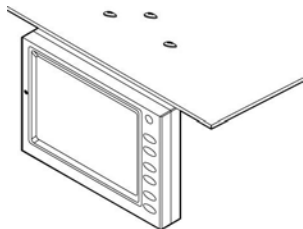
- Adjustable mounting bracket
- Screw kit
- Power cord
- Sun visor

## 2. Installation

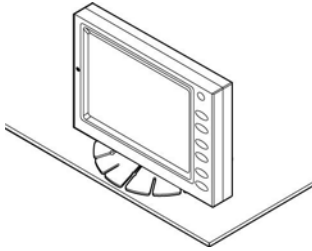
This section describes the installation of the SV-LCD50 monitor.

### 2.1. Installation Location

The SV-LCD50 monitor can be mounted on the ceiling (as shown in Figure 5) or on the dash or console (as shown in Figure 6).



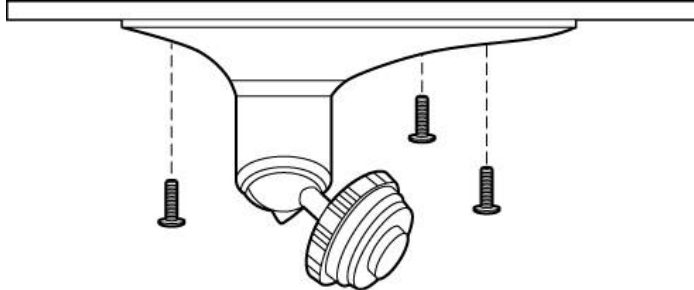
**FIGURE 5.** Ceiling-Mount Installation



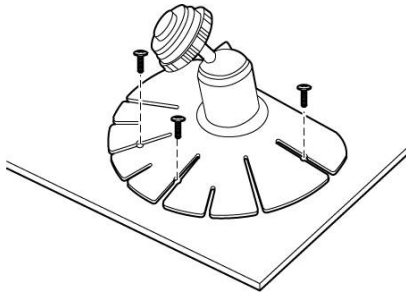
**FIGURE 6.** Dash- or Console-Mount Installation

## 2.2. Installation Procedure

1. Select a suitable installation surface in a protected location that is within easy line-of-sight and easy reach of the user. (For example, select a location that does not obstruct the operator's view through the windshield or of side- or rear-view mirrors.)
2. Clean the installation surface thoroughly.
3. Remove the protective paper from the bottom of the mounting bracket.
4. Attach the mounting bracket on the installation surface with the screws provided, as shown in Figure 7 (for ceiling-mount) or Figure 8 (for dash- or console-mount).

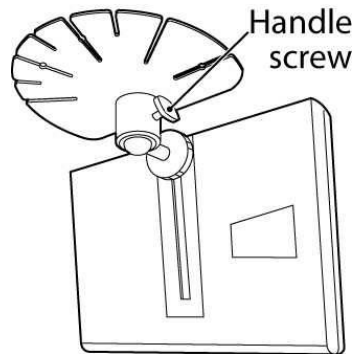


**FIGURE 7.** Screw Locations for Ceiling-Mount Installation

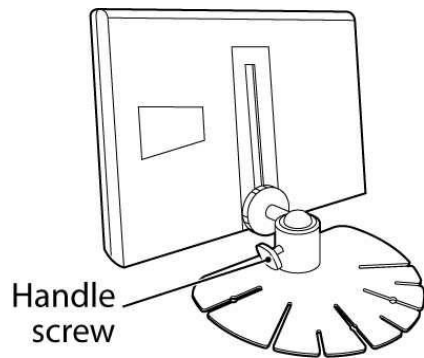


**FIGURE 8.** Screw Locations for Dash- or Console-Mount Installation

5. Adjust the angle of the monitor and tighten the handle screw, as shown in Figure 9 (for ceiling-mount) or Figure 10 (for dash- or console-mount).



**FIGURE 9.** Handle Screw Location for Ceiling-Mount Installation



**FIGURE 10.** Handle Screw Location for Dash- or Console-Mount Installation

### 2.3. Cleaning

Clean the unit with a slightly damp soft cloth. Use a mild household detergent. To prevent damage to the finish, do not use strong solvents (such as thinner or benzene).



## Appendix A

### *Abbreviations, Acronyms, and Symbols*

| <b>Abbreviation, Acronym, or Symbol</b> | <b>Definition</b>                       |
|---|---|
| ABS                                     | acrylonitrile-butadiene-styrene         |
| BRIGHT                                  | brightness                              |
| C                                       | Celsius                                 |
| CA. SEL                                 | camera select                           |
| CA1                                     | Camera 1                                |
| CA2                                     | Camera 2                                |
| F                                       | Fahrenheit                              |
| kg                                      | kilogram                                |
| LCD                                     | liquid crystal display                  |
| mm                                      | millimeter                              |
| NTSC                                    | National Television Standards Committee |
| RGB                                     | red, green, blue                        |
| RMA                                     | return material authorization           |
| SV                                      | Safety Vision L.P.                      |
| TFT                                     | thin-film transistor                    |

| <b>Abbreviation,<br/>Acronym, or Symbol</b> | <b>Definition</b>    |
|---|----------------------|
| TRIG.                                       | trigger              |
| V   | volt                 |
| VDC   | volts direct current |
| VOL   | volume               |

## Appendix B

### Specifications

Specifications for the SV-LCD50 monitor are as follows:

| Item   | Specification   |
|--|---|
| Power Input                                    | 10 VDC to 32 VDC  |
| Maximum Power Consumption                      | 10 watts  |
| Monitor Dimensions<br>(Height x Width x Depth) | 4.5 inches x 6.75 inches x 1.25 inches<br>(114.3 mm x 171.45 mm x 31.75 mm)   |
| Weight   | 2.2 pounds (1.0 kg)   |
| Display Dimensions<br>(Height x Width)         | 3.1 inches x 4.2 inches<br>78 mm x 106 mm   |
| Resolution                                     | 960 x 234 pixels  |
| Viewing Angle                                  | Top: 35 degrees<br>Bottom: 15 degrees<br>Left: 55 degrees<br>Right: 55 degrees  |
| Color Configuration                            | RGB stripe  |
| On-Screen Display Controls                     | Volume, Brightness, Scale On/Off, Image select (Mirror/Normal), Auto scan On/Off, 2 Auto Trigger, Color, Contrast, Tint |

| Item                  | Specification  |
|-----------------------|--|
| Temperature           | Operating range:<br>+14°F to +122°F (-10°C to +50°C)<br><br>Storage range:<br>-13°F to +176°F (-25°C to +80°C)   |
| Supplied Accessories  | One of each of the following: <ul style="list-style-type: none"> <li>▪ Mounting bracket</li> <li>▪ Screw kits</li> <li>▪ Power cord</li> <li>▪ Sun visor</li> <li>▪ Installation and user guide</li> </ul> |
| Dimmer                | Automatic  |
| Video System          | NTSC signal  |
| Sync System           | Internal   |
| LCD Screen Size       | 5-inch diagonal  |
| Power Connector       | 4-pin wire   |
| Camera Connector      | 2 mini-DIN   |
| Speaker Impedance     | 8 ohm, 0.2 watt maximum  |
| Finish                | Light black (ABS)  |
| Operating Temperature | -10°C to +50°C (+14°F to +122°F)   |
| Storage Temperature   | -25°C to +80°C (-13°F to +176°F)   |
| Ambient Condition     | Indoor use only  |
| Impact Rating         | 4 G  |

## Appendix C

### *Safety Vision Limited Warranty*

Safety Vision, L.P. ("SV") makes the following limited warranty. This limited warranty extends to the original end-user purchase.

#### **Limited One-Year Warranty of Parts and Labor**

SV warrants this product against defects in materials or workmanship for a period of one year after the original date of purchase. During this period, SV will repair or replace a defective product or part without charge to the customer. Customer must send the entire product to an authorized SV dealer. Customer is to pay for all transportation and insurance charges for the unit to the dealer. SV's total liability is limited to the original product cost.

#### **Installation and User Guide**

The customer should thoroughly read this Installation and User Guide before operating this product.

#### **Customer's Responsibility**

The above warranty is subject to the following conditions:

- Customer must notify SV within ten days of discovering the defective product or part and provide a description of the defect and complete information about the manner of its discovery.
- All warranty servicing of this product must be made by SV.
- Warranty extends only to defects in material and workmanship as limited above. Warranty does not extend to any product or part that has been lost or discarded by the customer; to damage to products or parts caused by misuse, accident,

improper installation, improper maintenance, or use in violation of instructions furnished with the product; to units that have been altered or modified without authorization of SV; to damage to products or parts thereof that have had the serial number removed, altered, defaced, or rendered illegible; or to any failure of the product to function caused by burglary, fire, flood, war, riot, civil commotion, Acts of God, or any other condition beyond the control of SV.

### **To Obtain Warranty Service**

Contact the Safety Vision Service and Warranty Manager at (713) 896-6600 or (800) 880-8855 to report the defective product.

### **IMPORTANT: PACKING AND SHIPPING INSTRUCTIONS**

When a product requires service, only the affected component must be returned. Proper packing material must be used to ensure full warranty coverage. Any shipping damage caused by improper packing is not covered under this warranty. A return material authorization (RMA) number and a letter explaining the defect must be enclosed with the product.

## Appendix D

### *Troubleshooting*

This section provides troubleshooting guidelines for certain operational problems you might encounter using the SV-LCD50 monitor. Before requesting service, check the following.

- Ensure that the power supply and ground wires are connected properly.
- Ensure that the video extension cable and video input cable are connected properly to the inline control box.
- If only one camera is connected, press the **CA. SEL (CAMERA SELECT)** button to switch between input from Camera 1 input from and Camera 2 (to determine whether the single camera is connected as Camera 2).
- Confirm that the **POWER** light is green. (A red **POWER** light indicates that the monitor is on but is in Standby mode.)

For additional troubleshooting guidelines, contact Safety Vision Technical Support at (713) 896-6600 or (800) 880-8855.