



A Division of Star Headlight & Lantern Co., Inc.

LCS600

HANDHELD MULTI-FUNCTION PA MICROPHONE



INSTALLATION AND OPERATING INSTRUCTIONS



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INSTALLATION INFORMATION

SERIAL NO: _____ MODEL: _____ **LCS600**
PURCHASE DATE: _____ OPTIONS
DEALER: _____ POS **Aux Switching** NEG _____
INSTALLATION DATE: _____ Radio Repeat or Relay Control _____
INSTALLER: _____ Standard **Air Horn Sound** ALT _____

Model and serial number located on bottom of unit

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NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Signal Vehicle Products, Inc. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Signal Vehicle Products, Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

GENERAL DESCRIPTION

The LCS600 microphone control head features Public Address function, Air Horn tone, and either Radio Repeat function or a 20 Amp Light Control relay. Also included are LED indicators for Power and Auxiliary function (Light Control or Radio Repeat function). The remote mount amplifier powers one 100 Watt siren speaker and includes the Light Control relay wiring and a remote Air Horn tone input with positive and negative switching options.

Proper installation of the unit is essential for years of safe, reliable operation. Please read all instruction **before** installing the unit. Failure to follow these instructions can cause serious damage to the unit or vehicle and may void warranties.

Qualifications - The installer must have a firm knowledge of basic electricity, vehicle electrical systems and emergency equipment.

Keep These Instructions - Keep these instructions in the vehicle or other safe place for future reference. Advise the vehicle operator of the location.

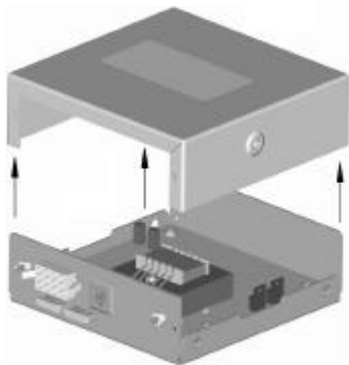
Unpacking - Inspect contents for shipping damage. If found, alert carrier immediately. Contents should include unit with microphone, mounting bracket w/ 2 bolts, microphone bracket with 2 screws, wiring harness with connector and these instructions. Contact supplier immediately if any components are missing.

Installer Selectable Options

The LCS600 has several options that can be selected during installation. These options include Positive or Negative auxiliary input activation of the Air Horn, Standard or Alternate Air Horn Tone, and Light Control or Radio Repeat. Jumpers on the printed circuit board, inside the case, allow the installer to select these various options. These options should be set before installation of the unit.

Cover Removal –

Remove the two Philips head screws from the front and the two from the rear of the unit.

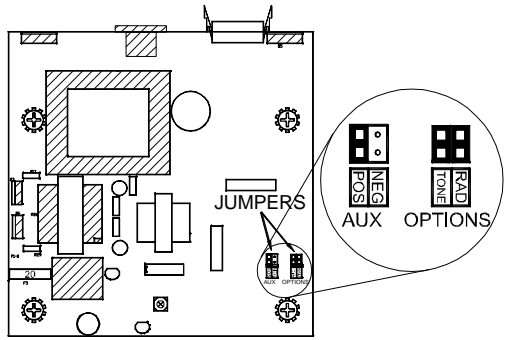


Slide the top cover up off of the top of the unit. This cover can be removed completely from the siren unit.

After the cover has been removed, find the location of the option jumpers (see the diagram to the right).



Positive or Negative Air Horn Activation – The green wire allows activation of the Air Horn by an external source. This input is usually wired into the vehicle horn ring switch. The wiring diagram on **page 7** shows two connection examples. **NOTE:** *Permanent disconnection of the vehicle horn is NOT recommended.*



The unit is factory shipped with the horn option (AUX) defaulted to activation by applying a positive voltage to the wire (your vehicle horn switches +12VDC). To activate the Air Horn by connecting to ground or negative (your horn is Ground-side switched), move the "AUX" option jumper from the "POS" pins to the "NEG" pins. (See diagram above).

Air Horn Tone – This unit comes with the option to change the Air Horn Tone to an alternate “flatter” tone. If you wish to change the tone, remove the “TONE” jumper from the OPTIONS jumper pins. (See diagram above).

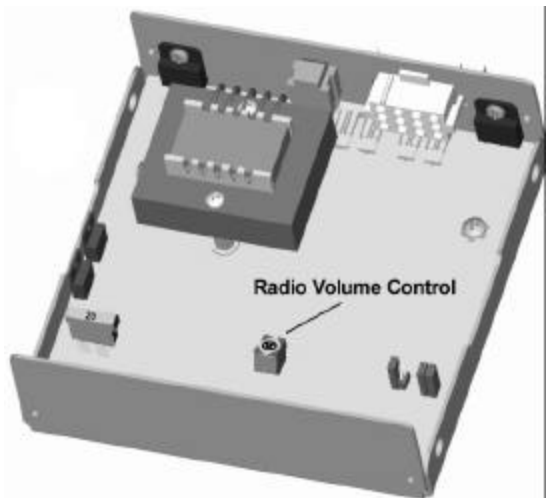
Light Control or Radio Repeat –

This unit has a button on the microphone that can be used to activate your warning lights (up to 20 amps) or it can be used to broadcast the two-way radio over your P.A. speaker. The unit is shipped with the defaulted option being Light Control. If you wish to use the button on your microphone to instead activate the Radio Repeat Function, remove the “RAD” jumper from the OPTIONS jumper pins and connect your radio’s speaker wires to the two blue wires from this unit.



Radio Repeat Volume Control –

If you are using the Radio Repeat Function, please note the location of the volume control potentiometer inside the case (pictured to the right). The volume level is pre-set at the factory, but it may need to be initially adjusted with a small screwdriver after the siren has been installed. The Radio Repeat level will vary based upon the input levels of the signal from your radio. Once this is set upon installation, in most cases it will not need further adjustments.



Mounting

SAFETY PRECAUTIONS

For the safety of the installer, vehicle operator, passengers and the community please observe the following safety precautions. **Failure to follow all safety precautions and instructions may result in property damage, injury or death.**

!!! WARNING !!!

DO NOT mount in air bag deployment area.

Devices should be mounted only in locations listed in SAE standard J1849.

Controls should be placed within convenient reach of the driver.

Assure clearances before drilling in vehicle.

To prevent internal damage, mounting bolts must not enter case more than 1/4

Sound levels produced by attached speakers can cause permanent hearing loss.

Never operate this unit without adequate hearing protection for you and others in the area. (OSHA 1910.95)

The LCS600 may be mounted above the dash, below the dash, on a tunnel, or in a rack with the mounting u-bracket provided. Choose a mounting location convenient to the operator and away from any air bag deployment areas. Inspect behind mounting area for clearance. Assure adequate ventilation to prevent overheating. Consider wire routing and access to connections, as well as microphone bracket placement. Install mounting bracket to vehicle using 1/4" hardware (not supplied). Drill two 1/8" size holes, and install microphone clip using the two screws provided with the clip.

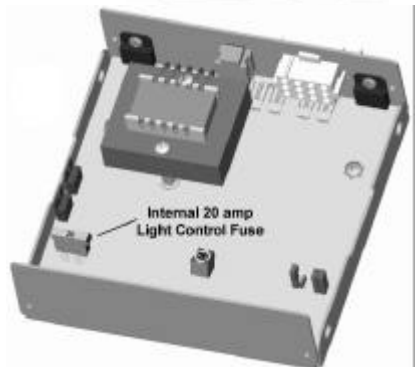
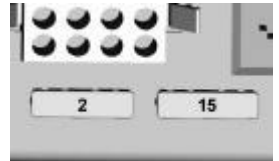
If mounting in a rack or console, make sure that mounting bolts do not enter case more than 1/4".

Electrical Connections

Electrical connections to the unit are made using a removable connector located on the back. If the unit needs service the connector can be easily removed without unwiring the connector.

The power supply of the unit must be capable of delivering peak currents up to 35 amps for adequate short circuit protection and reliable operation.

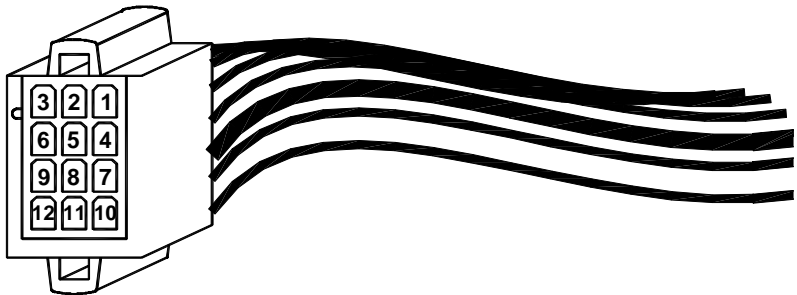
The preferred source is directly at the vehicle battery. The unit has two external fuses located beneath the wiring harness connector. The PA/Air Horn is protected by a 15-Amp fuse and the Control Head is protected by a 2 amp fuse. The Light Control feature is internally fused with a 20 amp fuse that is accessible by removing the cover. A wiring diagram on the next page shows detail of how to wire the unit to the vehicle.



Wire Size and Termination - The wiring diagram shows the minimum wire size used for each connection, along with recommended lead color. If the wire is longer than 10 ft. then use the next larger wire size. It is recommended that you use the following guidelines when installing this unit:

- Use only high quality crimp connectors and make sure all connections are tight.
- Route wiring to prevent wear, overheating and interference with air bag deployment.
- Do not route the Control Head cable near the police radio, the antenna wire, or any strobe components.
- Use grommets and sealant when passing through compartment walls.
- Minimize the number of splices to reduce voltage drop.
- Ground connections should only be made to substantial chassis components, preferably directly to the negative of the vehicle battery.
- Install and check all wiring before connection to vehicle battery.

Wiring Connections:



BLACK LEAD: (*Terminal 2*) – **Ground:** Connect to the negative of the battery, or to a good chassis ground. Be sure to use minimum size #14 AWG wire.

RED LEAD: (*Terminal 1*) – **Power:** Connect to the positive of the battery, or to a high current power buss. A power relay may also be used. Be sure to use minimum size #14 AWG wire.

YELLOW LEAD: (*Terminal 4*) – **Ignition Switched Power:** Connect the Yellow wire to your ignition switched power source. This will automatically turn the unit off when the vehicle is not running, thus preventing unnecessary battery drain. If you need to operate this unit with the vehicle off, you need to connect this wire to +12 VDC (although this not recommended).

BROWN LEADS: (*Terminals 7 & 12*) – **Speakers:** Connect one lead to each terminal or lead of the speaker. Be sure to use minimum size #14 AWG wire.

Optional Wiring Connections:

ORANGE LEAD: (*Terminal 9*) – **Light Control Power Input:** If you will be using the Light Control feature (instead off the Radio Repeat) connect the Orange lead to the positive of the battery, or to a high current power buss capable of supplying up to 20 amps of power. Be sure to use minimum size #14 AWG wire.
Please Note: If you wish to use this feature you must leave the “RAD” option jumper in place. (Refer to ***Installer Selectable Options*** section for jumper details.)

WHITE w/ORANGE STRIPE: (*Terminal 8*) – **Light Control Power Output:** If you will be using the Light Control feature (instead off the Radio Repeat) connect the White w/Orange stripe wire to the light(s) you wish to control (up to 20 amps). Be sure to use minimum size #14 AWG wire.
Please Note: If you wish to use this feature you must leave the “RAD” option jumper in place. (Refer to ***Installer Selectable Options*** section for jumper details.)

BLUE LEADS: (*Terminals 3 & 6*) – **Radio:** Used for radio repeat. Connect one blue lead to each terminal of the radio speaker or output connector of the radio. Most radio outputs are isolated, in which case polarity would not be important. Radios with polarity sensitive outputs should be connected w/ the blue wire from pin 6 to the positive radio output, and the blue wire from pin 3 to the negative radio output. Use #18 AWG wire.
Please Note: If you wish to use this feature you must remove the “RAD” option jumper. (Refer to ***Installer Selectable Options*** section for jumper details.)

GREEN LEAD: (*Terminal 10*) - Used for remote Air Horn control. Connect to the horn ring circuit or a remote switch. Circuit may be positive or negative with proper jumper selection. (Refer to ***Installer Selectable Options*** section for jumper details.)
NOTE: *Cut lead short if not used & insulate w/ electrical tape.*

Testing - Test all of the functions after installation to assure proper operation. Test vehicle operation to assure no damage to vehicle.

Operation

GENERAL

This unit is designed for easy operation under the stress associated with operating a motor vehicle. All of the functions are located right on the hand-held controller and are easily accessible.

POWER

In order for the unit to function, the Rotary Thumbwheel On/Off/Volume switch must be in turned ON by rotating it counter-clockwise. When turned on, the Rotary Thumbwheel can also be used to set the volume level of the PA.

HORN (Air Horn)

This momentary push-button switch provides a simulated air-horn tone while pressed. This can be used to either replace, or to supplement the normal vehicle horn and is useful at intersections or in high noise areas. This tone can be changed to an alternate “flatter” tone during installation. (Refer to *Installer Selectable Options* section for jumper details). The activation of the Air Horn may also be triggered by your Horn Ring switch through the Green wire. (Refer to the *Installer Selectable Options* section for jumper settings and the *Wiring Connections* sections for details on hooking up the Green wire.)

PA

The attached noise-canceling microphone is used for public address operation when its push-to-talk button on the side is pressed. You can set the PA volume to a level appropriate to the situation using the Rotary Thumbwheel.

LIGHT CONTROL

The red button on the side of the microphone can be used to activate a warning light. Simply press the button to activate your light, and press it again to deactivate the light.

RADIO REPEAT

This optional function amplifies a radio input for re-broadcast outside the vehicle. Press the button to activate the radio Repeat, and press it again to deactivate it. To use this feature, you must de-activate the Light Control feature. (Refer to *Installer Selectable Options* section for jumper details).

LED INDICATORS

There-are two LED indicators on the front of the control head (microphone). The **POWER** indicator will light whenever the Rotary Thumbwheel is turned on. The **AUX** indicator will light whenever you activate your external warning light or the Radio Repeat feature.



SERVICE

This unit is designed to provide years of reliable service under even the worst conditions. Many times there may appear to be a problem with the unit when the true problem is in the speaker(s) or improper installation. The following chart shows typical symptoms and possible causes.

TROUBLESHOOTING

| Symptom | Possible Cause | Check |
|------------------------|--|--|
| No power | Power switch not turned on Connector loose Siren 15A fuse blown Do not have +12VDC on Red & Yellow wires Loose connection at power source | Turn Thumb Wheel Do you hear a "pop" when turned on? Is power hooked up backwards? Positive ground vehicle? Do mounting bolts protrude too far into siren housing? Is an external fuse or circuit breaker used? Are the negative leads connected to a good ground? |
| No tone - PA works | High voltage protection Low voltage protection Microphone button stuck | The input voltage must be less than 16 volts. The input must be greater than 10V with the siren turned on. Does microphone button release properly? |
| No sound | Bad speaker or speaker wiring | Check speaker |
| No PA | PA volume not set properly | Have you tried turning the PA volume control? |
| Distorted sound | Speaker assembly loose Intermittent Aux. Input connection Low or high vehicle voltage | Is the speaker bell or tip loose? Is the Aux. Input used and wired properly? Input voltage must be between 10 & 16 volts while siren is on. |
| Intermittent sound | High voltage protection Low voltage protection Microphone button activation Circuit breaker in supply connection Shorted speaker or speaker wire | Is the vehicle voltage regulator working properly? Is the connector tight on the back of the unit? Is there a loose connection on a power lead? The input must be greater than 10V with the siren turned on. Is something lying on the microphone? Is a circuit breaker used with at least a 30A rating? Does the speaker have water damage, or is a wire pinched? |
| Horn function stuck on | Horn switch stuck Aux. Input improperly connected Aux. Input Polarity Option set wrong | Does the horn switch return fully when released? Is the Aux. Input used and wired properly? Is the AUX jumper option properly configured? |
| No Radio | Unit not connected to radio Radio volume too low | Is the radio connected properly to the unit? Can you hear the radio in the vehicle? Have you tried turning the Radio volume control? |
| No or Low Radio | Radio outputs not isolated and polarity hooked up backwards | Are the radio wires connected to the correct polarity from the radio output? |

PARTS

The following parts are available from Signal Vehicle Products:

| Part | Description |
|------------|---|
| S30235-17P | Siren Top Cover |
| P30234-17P | Siren Bottom Mounting Plate |
| SWH-75 | Wiring Harness |
| P30069-38 | Microphone Bracket with Screws |
| P30056-16 | 1/4-20 x 3/8" Hex Locking Bolt |
| P30028-6 | 15 Amp Automotive Fuse |
| P30028-16 | 2 Amp Automotive Fuse |
| P30028-1 | 20 Amp Automotive Fuse |
| LCS600-CH | Noise Canceling Microphone and Hand Held Control Head |
| P30147-44P | Mounting Bracket |
| P30052-30 | Case Screws |

If you have any questions concerning this or any other SVP product, please contact our **Customer Service Department** at (585) 226-9025.

If a product must be returned for any reason, please contact our Customer Service Department to obtain a Returned Goods Authorization number (RGA#) before you ship the product to SVP. Please write the RGA# clearly on the package near the mailing label.

SPECIFICATIONS

| | |
|-----------------------------------|--|
| Input Voltage | 10 - 16 VDC (negative ground) |
| Input Current | 8.0 Amps @ 13.6 VDC (100W speaker) |
| Standby Current | Less than 150 mA |
| Audio Frequency | 200Hz - 10 kHz \pm 3db |
| Audio Output | 40 watts @13.6 VDC (100W speaker) |
| Output Power | 105 WATTS RMS MAX. @ 15.0 VDC (100W speaker) |
| Air Horn Frequency | 675Hz - 1633Hz (variable) |
| High Voltage Protection | 16 - 18 VDC will cause siren output to cease, resumes at normal voltage |
| Short Circuit Current | 30 AMPS (supply circuit must be capable of supplying this) |
| Operating Temperature | -15° F to +140°F |
| Controls | Rotary Thumb Wheel - On/Off/Volume Momentary push-button Horn switch Momentary push-button PA Auxiliary input (jumper programmable) for positive or negative horn Pushbutton Light Control or Radio Repeat |
| Connections (12-Pin Connector) | Detachable, 12-pin, positive locking connector with pigtail leads. Positive, Ignition Switched Positive, Negative, (2) Speaker, (2) Radio, Auxiliary, Light Control Input and Output |
| Size | 6" Wide, 6-1/2" Deep, 2" High |
| Shipping Weight | 2.2 lbs. |

LIMITED WARRANTY

Signal Vehicle Products warrants this new product to be free from defects in material and workmanship, under normal use and service, for a period of one (1) year from the date of delivery to the first user-purchaser.

During this warranty period the obligation of Signal Vehicle Products is limited to repairing or replacing, as Signal Vehicle Products may elect, any part or parts of such product which after examination by Signal Vehicle Products is determined to be defective in material and/or workmanship.

This warranty does not cover labor charges for removal or re-installation of the product. Fuses and lamps are not covered under this warranty.

This warranty does not extend to any unit that has been subjected to abuse, misuse, improper installation or which has not been adequately maintained, nor to units which have problems related to service or modification at any facility other than the manufacturer.

THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SIGNAL VEHICLE PRODUCTS BE LIABLE FOR ANY LOSS OF PROFITS OR ANY INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY SUCH DEFECT IN MATERIALS OR WORKMANSHIP.



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