



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
**DPS1011**

PAGE  
**1**

ADDRESS CORRESPONDENCE TO ATTENTION OF  
**JOHN ABBOTT**  
**304-558-2544**

**\*709040012**      **304-253-3351**  
**MALLIMAR INC**  
**PO BOX 1272**  
  
**BECKLEY WV 25802-1272**

**WEST VIRGINIA STATE POLICE**  
  
**4124 KANAWHA TURNPIKE**  
**SOUTH CHARLESTON, WV**  
**25309**      **304-746-2141**

DATE PRINTED <b>10/26/2009</b>	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: **11/12/2009**      BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		055-54		
				<p><b>LIGHTS: EMERGENCY AND TROUBLE (AUTOMOTIVE)</b></p> <p>OPEN-END CONTRACT TO PROVIDE EMERGENCY LIGHTING AND WARNING EQUIPMENT FOR THE WEST VIRGINIA STATE POLICE, AND ALL OTHER AUTHORIZED AGENCIES, PER THE SPECIFICATIONS.</p> <p>EXHIBIT 3</p> <p>LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON ..... AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p> <p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.</p>		

RECEIVED  
 2009 NOV 12 AM 11:02  
 WV PURCHASING DIVISION

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>David E. Mallema</i>	TELEPHONE <b>304-253-3351</b>	DATE <b>11-12-09</b>
TITLE <b>PRESIDENT</b>	FEIN <b>55-037-7455</b>	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



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<p><b>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</b></p> <p><b>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)</b></p> <p><b>QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.</b></p> <p><b>ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.</b></p> <p><b>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.</b></p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE *[Signature]*      TELEPHONE      DATE **11/12/09**  
 TITLE      FEIN      ADDRESS CHANGES TO BE NOTED ABOVE

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SHIP TO

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LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.</p> <p>REV. 05/26/2009</p> <p>EXHIBIT 4</p> <p>LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY MANNER.</p> <p>REV. 3/88</p> <p>PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.</p> <p>NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
<i>fem</i>		11/12/09
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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BID OPENING DATE: **11/12/2009**      BID OPENING TIME: **01:30PM**

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130						
THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:						
SEALED BID						
BUYER:				JOHN ABBOTT (32)-----		
RFQ. NO.:				DPS1011-----		
BID OPENING DATE:				11/12/2009-----		
BID OPENING TIME:				1:30 PM-----		
PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:						
				304 255 6144-----		
CONTACT PERSON (PLEASE PRINT CLEARLY):						
				PAUL MALLAMAS-----		

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
SIGNATURE <i>Paul E. Mallamas</i>	TELEPHONE 304-253-3351	DATE 11/12/09
TITLE PRESIDENT	FEIN 55-037-7455	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



November 11, 2009

Department of Administration  
Purchasing Division  
2019 Washington Street, East  
Charleston, WV 25305-0130

RE: WV State Police Bid  
Buyer: John Abbott (32)  
RFQ NO: DPS1011

Bid Addendum:

Alternate products as quoted will have minimal variations in manufacturing design, dimensional size and operational control. However, our products will satisfy or exceed all specifications as outlined in the bid package for each item as related to performance, light intensity/visibility, type of illumination and functional operation. All Mallimar Warning labeled products are designed and manufactured in the United States of America by Star Warning Systems/Signal Vehicle Products. Included are Signal Vehicle Products catalog and Mallimar Warning product sheets identifying model numbers and general specifications for each item bid.

Star Warning Systems/Signal Vehicle Products has extended its standard warranty terms to meet the requirements outlined for each item in the bid specifications. (See attached letter)

EXCEPTIONS:

- 1.0.1 PA640 fixed control head not remote mount, our model #LCS770WV
- 1.1.0 For remote mount siren our model #LCS800WV
- 1.1.2 We supply (2) different models
  - (a) for remote mount model #LCS800WV
  - (b) for single all in one unit model #LCS770WV
- 2.1.1 (14) Push buttons instead of (17)
- 2.2.4 No dimming low intensity feature
- 2.2.6 (7) Switches instead of (8)
- 2.3.7 Pre-programmed
- 3.2.1 Slide switch with (3) progressive positions same progressive function
- 3.3.4 Pre-programmed
- 3.3.5 Slide switch instead of (3) buttons
  - (a) Same exact function
  - (b) Buttons rows of (2)
- 6.1.1 Optional "LED" take downs available model #720-3WK
- 6.1.2 Alley lights – Do not alternately flash
  - (a) Optional "LED" alley lights available model #720-ALEDK

Paul Mallamas, President

Mallimar Warning PO Box 1272 Beckley, WV 25802-1272 Phone: (304) 253-3351 Fax: (304) 255-6144



# **STAR HEADLIGHT & LANTERN CO., INC.**

455 Rochester St , Avon, NY 14414 • Phone 585-226-9500 • Fax 585-226-2029

1989 Marked Our 100th Year of Serving the  
Railroad, Automotive and Industrial Markets.  
WE MANUFACTURE WHAT WE SELL!



November 11, 2009

Paul Mallamas  
Mallimar, Inc.  
P.O. Box 1272  
Beckley, WV 25802-1272

Re: Warranty Extension for State of West Virginia RFQ# DPS1011

Dear Paul

This letter is our certification that STAR Warning Systems/Signal Vehicle Products has extended its standard warranty period from one year to the referenced warranty periods in West Virginia State Police Bid RFQ# DPSD1011 for all STAR/Signal Vehicle manufactured lighting and/or sound equipment sold through Mallimar Inc to:

State of West Virginia  
Reference: 2009 Bid for Police Equipment

Sincerely,

Doug Richardson  
Sales Manager

# SPECIFICATIONS FOR EMERGENCY VEHICLE LIGHTING AND WARNING EQUIPMENT

The West Virginia State Police is requesting competitive bids for police emergency vehicle lighting and warning equipment as per the attached specifications. The contract shall be available for use by all other entities of state government, as well as counties and municipalities.

All vendors bidding on any equipment listed in these specifications are required to submit in writing, an indication as to if the product(s) they are bidding meets or exceeds ALL the specifications set forth in these specifications for those item(s) they are bidding on. If a vendor bids a product which does not meet ALL the specifications as outlined for that item, the vendor is required to submit their exceptions in writing being specific listing the item and line-specification(s) they are taking exception to. Vendors are also required to submit a product sheet for each item bid, which is to include at a minimum: picture, manufacturer, model number, and general specifications for the item. **Any bid received without this required written documentation will not be considered for bid award.**

The agency has listed multiple items in this bid specification and has numbered each as a separate item. The agency reserves the right to make multiple or split awards from this single solicitation.

YES      NO

## 1. SIREN AND LIGHT CONTROL SYSTEM (TIER-1)

1 0 1    The emergency vehicle siren and light control system shall be as specified below and shall be the Federal Signal PA640 Series or equivalent. All major components must be designed and manufactured in the United States of America. Bids that contain major components manufactured outside the United States of America are not acceptable.

✓  
LCS 770      \_\_\_\_\_

### 1.1.0    SIREN AMPLIFIER:

1.1.1    The remote siren system shall consist of a control head with a 4-position slide switch and a minimum of six (6) push button switches, and a combined electronic siren amplifier and relays in one (1) module capable of providing a minimum of a five (5) function siren, plus radio repeat and public address.

✓  
LCS 800      \_\_\_\_\_

*fem*

1.1.2 The system shall be capable of being utilized as a single unit or by separating the control head and the amplifier/relay module (ARM) and mounting the pieces separately to conserve space needed in the front of the vehicle.

           NO

1.1.3 The system shall have a small single connector to connect the control head to the AMP/Relay Module as described in the following specification.

           ✓  
LCS800

1.1.4 The system shall be constructed to be immune to radio frequency interference (RFI) and electromagnetic interference (EMI). The system shall be constructed in a manner to not create any radio frequency interference (RFI) and electromagnetic interference (EMI).

           ✓

1.2.0 CONTROL HEAD:

1.2.1 The control head shall be supplied with an adjustable universal style mounting bracket and a semi-flush trim ring. All necessary mounting hardware for these mounts shall also be supplied. The unit shall be no larger than 2-1/2 inches deep (including slide switch) x 3-3/8 inches high x 6.8 inches wide (excluding mounting hardware).

           ✓  
LCS800

1.2.2 The control head connector shall be built into the back of the unit. The connector shall be designed so it cannot be easily pulled apart from the connection. The location of this connector shall not be in a location that is visible or interferes with installation of the unit into a console.

           ✓  
LCS800

1.2.3 The control head must incorporate a single circuit board design. Each push button switch must have both tactile and audible ("beep") feedback to the user. Control heads that do not have this feature are not acceptable since the driver would have to take his eyes off the road to determine if the switch is operating. Control heads with multi-board designs are unacceptable; since the internal interconnect cable can become disconnected unknowingly, with service not user friendly.

           ✓  
LCS800

*JEM*



1.2.4 Each tactile switch must be backlit and each switch must include a separate LED or lamp "On" indicator above or on the switch face that provides enough light to allow it to be seen even in bright day light without washing out, or the switch must change colors to indicate it is activated "On". Both the switch backlight and the LED "On" indicator must have a low intensity feature for ease of night time visibility. Units that are not backlit, or which do not have a separate LED "On" indicator visible in bright day light or do not change colors to indicate it is "On" are not acceptable. Each of the push button switches shall have its own back-lit legend tab. This will help in identifying the functions that are in use. There shall be a minimum of (36) legends to choose from

1.2.5 The control head shall be supplied completely assembled with a minimum of the following:

- 4-position positive detent slide switch (programmable)
- Six (6) (minimum) push button switches located in a row that directly interface with the control head electronics and operates external equipment such as lightbars, headlight flashers, etc.
- 5-position siren control knob
- PA/Volume control knob

Noise-canceling microphone with 3 ft. coiled cord

1.2.6 The control head shall have a rotary style switch with a minimum of five (5) positions to control the siren which shall include the following: *Wail*; *Yelp*; *Piercer (or Hi/Lo)*; *Manual*; and *Airhorn*. There shall also be a minimum of five (5) push button switches in a row which are programmable for On/Off; Momentary; or 8 Second Timer. There shall also be a slide switch containing a minimum of 4-positions (Off, 1, 2, & 3) which shall be located on the left-hand side of the device. The Horn Ring Transfer shall be transferred when the slide switch is in position-3 and will scroll through the siren tones, starting with the tone chosen on the selector switch.

1.3.0 AMPLIFIER/RELAY MODULE (ARM):

1.3.1 The aluminum/metal housing of the ARM shall have built-in ventilator ports to assist in keeping all internal components cool for long life and reliability. It shall be supplied with all necessary mounting hardware. The amplifier shall measure no more than approximately 7 inches wide x 7-3/4 inches deep x 3.0 inches high.

✓ \_\_\_\_\_

1.3.2 The ARM operates on a 12 volt negative ground automotive electrical system. The amplifier shall be designed to operate from a minimum of 11V to 15V and shall be reverse-polarity protected to ensure that the unit will not be damaged if polarity is reversed.

✓ \_\_\_\_\_

1.3.3 The ARM shall have all power and device control connectors on the rear of the module.

✓ \_\_\_\_\_

1.3.4 The siren shall be capable of operating a minimum of one (1) 100 watt speakers and must meet Class "A" requirements with most 100 watt speakers. If the siren speaker(s) or any speaker wires are shorted, the siren amplifier will shut down to avoid damage to the circuitry until the short circuit is removed.

✓ \_\_\_\_\_

1.3.5 The PTT ("Push To Talk") switch on the microphone will override all siren functions.

✓ \_\_\_\_\_

1.4.0 WARRANTY:

1.4.1 The system specified shall be warranted to the user to be free of defects of material or workmanship for a minimum period of two (2) years from date of purchase.

✓ \_\_\_\_\_

1.4.2 The amplifier shall be warranted for a minimum period of five (5) years.

✓ \_\_\_\_\_

1.4.3 Written proof of this warranty shall be provided with bid.

✓ \_\_\_\_\_

2. SIREN AND LIGHT CONTROL SYSTEM (TIER-2)

2 0 1 The emergency vehicle siren and light control system shall be as specified below and shall be either the Federal Signal SmartSiren or Whelen Model CCSRN2 Siren/Switch, and SA315P Speaker or equivalent. All major components must be designed and manufactured in the United States of America. Bids that contain major components manufactured outside the United States of America are not acceptable

✓  
LC5850mg

2 1 0 SIREN AMPLIFIER:

2.1.1 The remote siren system shall consist of a control head with a 4-position slide switch and a minimum of seventeen (17) push button switches, and a combined electronic siren amplifier and relays in one (1) module.

✓

2.1.2 The system shall utilize a small single connector to connect the control head to the AMP/Relay Module as described in the following specification.

✓

2.1.3 The system shall be constructed to be immune to radio frequency interference (RFI) and electromagnetic interference (EMI). The system shall be constructed in a manner to not create any radio frequency interference (RFI) and electromagnetic interference (EMI).

✓

2 2 0 CONTROL HEAD:

2.2.1 The control head shall be supplied with an adjustable universal style mounting bracket, a semi-flush trim ring, and a pivot or swing style bracket for mounting the control head in front of the am/fm radio which is designed so the control head can easily be rotated out of the way of the am/fm radio controls. All necessary mounting hardware for these mounts shall also be supplied. The unit shall be no larger than 2.15 inches deep (including slide switch) x 3-5/8 inches high x 6-13/16 inches wide (excluding mounting hardware).

✓

*fem*

2.2.2 The control head connector shall be built into the back or end of the unit. The connector shall be designed so it cannot be easily pulled apart from the connection. The location of this connector shall not be in a location that is visible or interferes with installation of the unit into a console.

✓  
\_\_\_\_\_

2.2.3 The control head must incorporate a single circuit board design. Each push button switch must have both tactile and audible ("beep") feedback to the user. Control heads that do not have this feature are not acceptable since the driver would have to take his eyes off the road to determine if the switch is operating. Control heads with multi-board designs are unacceptable; since the internal interconnect cable can become disconnected unknowingly, with service not user friendly.

✓  
\_\_\_\_\_

2.2.4 Each tactile switch must be backlit and each switch must include a separate LED "On" indicator above or on the switch face that provides enough light to allow it to be seen even in bright day light without washing out, or the switch must change colors to indicate it is activated "On". Both the switch backlight and the LED "On" indicator must have a low intensity feature for ease of night time visibility. Units that are not backlit, or which do not have a separate LED "On" indicator visible in bright day light or do not change colors to indicate it is "On" are not acceptable. Each of the push button switches shall have its own back-lit legend tab. This will help in identifying the functions that are in use. There shall be a minimum of (136) legends to choose from.

✓  
\_\_\_\_\_

2.2.5 The control head shall be supplied completely assembled with a 4-position (positive detent) slide switch that is programmable, and minimum of eighteen (17) push button switches that directly interface with the control head electronics and operates external equipment such as lightbars, headlight flashers, Traffic Advisors, etc.

✓  
\_\_\_\_\_

2.2.6 The control head shall have a minimum of eight (8) (7) switches On/Off siren switches located in a row or grouped together to include: *Stand-By; Radio Repeat; Hands-Free; Wail; Yelp; Piercer (or Hi/Lo); Manual; and Airhorn.* There shall also be a minimum of four (4) switches in a row or grouped together to include: *Traffic Advisor Direction Control (Left, Right, Split); Aux 1; Aux 2, and Low Power.* There shall also be a minimum of five (5) switches in a row or grouped together which will activate a minimum of (4) 10 amp circuits and a minimum of (1) switch which will operate an open, dry contact relay in the AMP/Relay Module. All five (5) switches are programmable for On/Off; Momentary; or 8 Second Timer. There shall also be a slide switch containing a minimum of 4-positions which shall be located on the left-hand side of the device. It shall be programmable as independent switches or progressive, and will have (2) 20 amp and (1) 40 amp positions. The slide switch must be programmable to include either *Wail with Yelp* override or *Hands Free* operation in any one of the three "On" positions. Each slide switch position will also be programmable to operate Traffic Advisor flasher mode, Aux1/Aux2, Low Power and all five (5) programmable switches

\_\_\_\_\_ ✓  
\_\_\_\_\_

2.3.0 AMPLIFIER/RELAY MODULE (ARM):

2.3.1 The aluminum/metal housing of the ARM shall have built-in ventilator ports to assist in keeping all internal components cool for long life and reliability. It shall be supplied with a minimum of two (2) mounting feet that must be built into the design of the assembly for superior strength, and includes all necessary mounting hardware. The amplifier shall measure no more than approximately 7 inches wide x 7 inches deep x 3.0 inches high.

\_\_\_\_\_ ✓  
\_\_\_\_\_

2.3.2 The ARM operates on a 12 volt negative ground automotive electrical system. The amplifier shall be designed to operate from a minimum of 11V to 15V and shall be reverse-polarity protected to ensure that the unit will not be damaged if polarity is reversed

\_\_\_\_\_ ✓  
\_\_\_\_\_

2.3.3 The ARM shall have all power and control connectors on one side of the module. There shall be a minimum of three (3) heavy duty Anderson style power connectors for main power to the amplifier and for power distribution to other warning accessories. Units that require that the module be opened to change fuses or make any power or control connections are not acceptable

✓ \_\_\_\_\_

2.3.4 The siren shall be capable of operating one (1) or two (2) 100 watt speakers and must meet Class "A" requirements with most 100 watt speakers. If the siren speaker(s) or any speaker wires are shorted, the siren amplifier will shut down to avoid damage to the circuitry until the short circuit is removed.

✓ \_\_\_\_\_

2.3.5 In the *Hands-Free* mode, the siren shall be in a "Stand By" state, awaiting electronic commands. The siren will progressively change from *Wail* to *Yelp* to *Piercer* (Tone 3) by simply tapping the horn ring only once, each time. This provides the driver with a means of changing siren selections while keeping both hands on the wheel, and eyes on the road at all times.

✓ \_\_\_\_\_

2.3.6 The ARM shall consist of two (2) parts: a Top and a Bottom aluminum housing which fits together in a clamshell design. The design shall be constructed so the amplifier and logic boards for the system are contained in either the top or the bottom of the housing and the relay outputs and optional Traffic Advisor modules (if required) are contained in the other portion of the housing. This design will assure ease of service to all internal components in a non-stacking PC board design; which is unacceptable since it is very difficult to easily service the unit.

✓ \_\_\_\_\_

2.3.7 System programming shall be accomplished either through the use of a computer using a USB or Ethernet interface to the system, or through the use of the control head by pushing a sequence of switches to enter the programming mode of the system. The program must be able to be extracted from one system and inserted into an unlimited number of systems. Systems that allow changes or through internal DIP switches are not acceptable.

\_\_\_\_\_ ✓

*fem*

2.3.8 The unit must be supplied complete with a noise-canceling microphone with at least a 3 ft. coiled cord. If the microphone connection is located on the ARM and not the Control Head, then a 20 ft (minimum) microphone extension cable shall be provided. The PTT ("Push To Talk") switch on the microphone will override all siren functions. The volume control for the microphone and radio rebroadcast shall have an adjustable volume control that is easily adjustable without the need to open the ARM

✓

2.4.0 WARRANTY:

2.4.1 The system specified shall be warranted to the user to be free of defects of material or workmanship for a minimum period of two (2) years from date of purchase.

✓

2.4.2 The amplifier shall be warranted for a minimum period of five (5) years.

✓

2.4.3 Written proof of this warranty shall be provided with bid.

✓

3. HANDHELD PROGRAMABLE SIREN AND LIGHT CONTROL SYSTEM (TIER 3)

3.1.0 The emergency vehicle siren and light control system shall be as specified below and shall be the Whelen HHS2200 Siren or equivalent. All major components must be designed and manufactured in the United States of America. Bids that contain major components manufactured outside the United States of America are not acceptable.

✓  
LCS 880

3.2.0 SIREN AMPLIFIER:

3.2.1 The Programmable remote siren system shall consist of a Handheld control with a three (3) progressive push button switch and nine (9) non-progressive push button switches, and a combined electronic siren amplifier and relays in (1) module. It utilizes a small single phone style connector that plugs into the amplifier/relay module as described as follows.

✓      ✓

3.3.0 CONTROL HEAD

3.3.1 The handheld control head shall be supplied with all necessary mounting hardware. The unit shall be no larger than 1.12 inches deep (including slide switch) x 5.3 inches high x 2.25 inches wide (excluding mounting hardware)

✓ \_\_\_\_\_

3.3.2 The control head must incorporate a single circuit board design equipped with a solid silicon rubber overlay for maximum moisture resistance from water or beverage spills. Each switch will also produce a "click" sound when pushed On/Off as positive feedback method that the switch has been changed. Control heads that do not have this feature are not acceptable since the driver would have to take his eyes off the road to determine if the switch is operating. The handheld control head must include a microphone with a push-to-talk switch located on the left side of the unit.

✓ \_\_\_\_\_

3.3.3 Each Tactile switch must be backlit in Green, must change color to Red when activated and must provide enough light to allow it to be seen in bright daylight without washing out. Units that are not backlit or which do not change color when activated are not acceptable. Each of the push button switches shall have its own backlit legend tab. This will help in identifying the functions that are in use.

✓ \_\_\_\_\_

3.3.4 There shall be more than (225) legends to choose from. A Windows based program shall allow full custom set-up configuration of each of the twelve (12) buttons to control all lights and siren functions, including the ability to enable and disable functions. Siren/Switch systems that are not completely programmable are not acceptable

\_\_\_\_\_ ✓

3.3.5 The default setting shall be as follows:

The control head shall have three(3) On/Off progressive switches across the *FIRST* row:

Function use slide switch INSTEAD of 3 SEPARATE buttons

Button 1 activates Outlet 1

✓ \_\_\_\_\_

Button 2 activates Outlets 1 and 2

✓ \_\_\_\_\_



Button 3 shall activate Outlets 1, 2 and 3, with the option of operating the siren via a dip switch located on the amplifier module.

✓ \_\_\_\_\_

The *SECOND* row shall contain three (3) siren switches:

\_\_\_\_\_ ✓ \_\_\_\_\_ Rows of (2)

Button 4 activates the siren's Hands-Free mode. In this mode, the "wail" tone is activated but the horn ring, or Push Button 5. This will also activate Outlet 9.

\_\_\_\_\_ ✓ \_\_\_\_\_

Button 5 with button 4 active, button 5 (or the horn ring) will cycle from "wail" to "yelp". If button 4 inactive button 5 will generate a tone that ramps up and sustains a specific pitch until the button is released.

\_\_\_\_\_ ✓ \_\_\_\_\_

Button 6 will activate an airhorn until released.

✓ \_\_\_\_\_

The siren contains a *THIRD* row of three (3) switches.

\_\_\_\_\_ ✓ \_\_\_\_\_ Rows of (2)

Button 7 shall produce a "wail" tone. Pressing button 5 will change the tone to "yelp".

✓ \_\_\_\_\_

Button 8 will activate radio rebroadcast.

✓ \_\_\_\_\_

Button 9 will cycle through Outlet 4,5, 4+5, and deactivates 4+5.

\_\_\_\_\_ ✓ \_\_\_\_\_

The *FOURTH* row of three (3) switches with pushes shall operate as follows:

\_\_\_\_\_ ✓ \_\_\_\_\_ Rows of (2)

Button 10 activates output 6

\_\_\_\_\_ ✓ \_\_\_\_\_

Button 11 activates output 7

\_\_\_\_\_ ✓ \_\_\_\_\_

Button 12 activates output 8.

\_\_\_\_\_ ✓ \_\_\_\_\_

To deactivate all functions, press and hold any button for more than two (2) seconds.

\_\_\_\_\_ ✓ \_\_\_\_\_ ON/OFF Rocker Switch.

*Fem*

3.4.0 AMPLIFIER/RELAY MODULE (ARM):

3.4.1 The aluminum housing of the ARM shall have built-in mounting feet that shall be built into the design of the assembly for superior strength, and includes all necessary mounting hardware. The amplifier shall measure approximately 8.082 inches wide x 7.275 inches deep x 2.56 inches high

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3.4.2 The ARM operates on a 12 volt negative ground automotive electrical system. The amplifier shall be designed to operate from 10V to 16V and shall be reverse polarity protected to ensure that the unit will not be damaged if polarity is reversed

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3.4.3 The siren shall be capable of operating one (1) or two (2) 100 watt speakers and must meet Class "A" requirements with most 100 watt speakers. If the siren speaker(s) or any speaker wires are shorted, the siren amplifier will shutdown (via fuse) to avoid damage to the circuitry until the short circuit is removed.

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3.4.4 In the Hands-Free mode, the siren shall be in a "Stand By" state (Button 4 activated), awaiting electronic commands. The siren will progressively change from Wail to Yelp by simply tapping the horn ring only once, each time. This eliminates the need for one-handed driving while fumbling for the siren controls (both hands stay on the wheel, and eyes are on the road at all times).

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3.4.5 The ARM shall consist of two (2) parts: a Top and a Bottom aluminum housing which fits together in a clamshell design. This design will assure ease of service to all internal components in a non-stacking PC board design. Designs that require stacking of PC boards are unacceptable, since it is very difficult to easily service the unit.

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*fsm*

3.4.6 The unit shall be supplied complete with a handheld control with a noise-cancelling microphone. A three (3) ft. coiled cord and a twenty (20) ft. extension cable shall be provided. The PTT ("Push To Talk") switch on the microphone will override all siren functions. The microphone and radio rebroadcast circuits shall have an "adjustable Preset" volume control that is recessed in the side of the amplifier for ease of adjustment without the need to open the ARM.

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3.5.0 WARRANTY:

3.5.1 The siren system shall be warranted by the manufacturer to the user directly to be free from defects of material or workmanship for a period of 24 months from the date of purchase. The siren amplifier shall be warranted for a period of five (5) years from date of purchase. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid.

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3.5.2 The manufacturer shall provide a 24 month warranty on both parts and factory labor. This shall include 48 hour factory turnaround repair service. Out-of-warranty product shall receive the same quality service and be repaired at a flat service rate of \$75.00, which includes shipping/handling fee for each unit returned (excluding new or necessary hardware such as lenses, flash tubes, etc ).

✓  
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3.5.3 The successful bidder must be the manufacturer or an authorized stocking distributor for Whelen Engineering Company or equivalent, and stock sufficient quantities of service parts to maintain the needs of the department within forty-eight (48) hours after call.

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4. SWITCHED CONTROL CENTER

4.0.1 The switched control center shall be as specified below.

4.1.0 DESIGN:

*fem*

4.1.1 The housing of the control center shall be constructed of steel/metal and shall have a black-epoxy finish, measuring no larger than 2-1/4 inches high x 6 inches wide x 4-3/4 inches deep. Control centers that are larger than these dimensions are not acceptable.

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4.1.2 The switched control center shall consist of a pre-wired control box with a minimum of six (6) rocker style or push button switches, which illuminate when function controlled is in use.

✓  
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4.1.3 The control center shall have a legend window with backlight directly below or above each switch for easy visibility in any light. There shall be a minimum of fifty (50) legend tabs supplied with the control center.

✓  
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4.1.4 The control center shall have a backlight circuit which can be connected to the vehicle's dimmer switch to control the backlight intensity of the unit.

\_\_\_\_ ✓

4.1.5 The control center shall be fully wired, with one (1) single pole – single throw 40 amp and five (5) single pole – single throw 20 amp rocker style or push button switches. Switches shall be fused independently with spade-type fuses which are to be located on a fuse strip on the rear of the unit.

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4.1.6 The control center shall utilize a "captive" style terminal block located on the rear of the unit for securing the wiring of devices controlled by the control center.

✓  
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4.1.7 The control center shall be constructed to be immune to radio frequency interference (RFI) and electromagnetic interference (EMI). The system shall be constructed in a manner to not create any radio frequency interference (RFI) and electromagnetic interference (EMI)

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4.2.0 MOUNTING:

4.2.1 There shall be a universal bail bracket mount (black in color) supplied with the control center for mounting.

✓  
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4.3.0 WARRANTY:



4.3.1 The system shall be warranted by the manufacturer to the user directly to be free from defects of material or workmanship for a minimum period of two (2) years from date of purchase. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid.

✓  
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**5. SIREN SPEAKER**

5.0.1 The Siren Speaker with mounting bracket shall be as specified below. The speaker must be designed and manufactured in the United States of America, including the housing and mounting bracket.

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5.1.0 DESIGN:

5.1.1 The electronic speaker must utilize a multi-port reentrant design, which produces higher sound levels as well as clear sound. Single or dual reentrant speakers are unacceptable.

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5.1.2 The siren speaker must meet or exceed SAE requirements for a "Class A" speaker when used with a standard siren amplifier. The speaker must produce a minimum sound level of 120 to 122 dB at 10 feet. Siren speakers that do not produce a minimum of 120 dB are not acceptable.

✓  
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5.1.3 The speaker shall be made of a polycarbonate or solid aluminum in a black non-corrosive finish and be of compact size, measuring no larger than 6-1/4 inches H x 6-1/2 inches W x 3-1/4 inches D. Speakers that are larger than these dimensions are not acceptable.

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5.1.4 The siren speaker shall have only two main parts: the housing that contains the Projector, resonant chamber and reentrant parts; and the speaker driver.

✓  
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5.1.5 The speaker shall utilize a high efficiency 100 watt driver. This will allow for a maximum sound output and clarity. Driver must be easily replaceable by the end user. Units that require that the speaker be sent to a service center for repair are unacceptable.

✓  
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*Jem*

5.1.6 The 100 watt driver shall be compressed style and shall bolt on to the Projector. The driver shall not be of threaded throat style, since this type may either untwist over the course of time and cause speaker failure, or seize together due to oxidation, thereby becoming impossible to repair or replace.

✓  
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5.2.0 MOUNTING:

5.2.1 A variety of speaker mounting brackets (minimum 15) must be available for most late model vehicles. A complete list of these mounting brackets must be provided with the bid. Speakers with only a few vehicle-specific mounting brackets are unacceptable because of the wide range of vehicles the department utilizes.

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5.2.2 There shall be one (1) speaker bracket supplied with each speaker, which shall be designated at the time of order.

✓  
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5.3.0 WARRANTY:

5.3.1 The speaker driver must have a minimum of a two (2) year warranty. A copy of the manufacturer's official warranty statement must be supplied with the bid

✓  
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6. LED LIGHTBAR

6.0.1 The emergency lightbar as requested herein shall be as specified below and shall be the Whelen LFL Liberty Super-LED Lightbar or equivalent. All electronics shall be contained inside the lightbar. There shall be no mechanical drive motors, chains, belts, or gears. The lightbar shall be based on a standard production model of the manufacturer. Official printed product literature clearly explaining all necessary features of the lightbar as contained in this bid, as well as an official printed "Warranty Policy" stating both warranty/non-warranty terms and conditions, is required for this bid. All major components must be designed and manufactured in the United States of America, including LED panels, I/O cards, etc. Bids that contain major components manufactured outside of the United States are not acceptable.

✓  
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*Jem*

- 6.0.2 The main structure of the lightbar shall be of heavy gauge extruded aluminum top and bottom, and must be designed for superior structural strength. Lightbars with plastic polycarbonate tops are not acceptable. The lightbar shall house all electronic components. The lightbar shall measure approximately 49.75 inches in length with a maximum height of 2.55 inches and a maximum width of 12 inches, excluding mounting brackets. The lightbar must have Hi/Low power control of all LED modules. Lightbars that do not offer this feature are not acceptable. ✓ \_\_\_\_\_
  
- 6.0.3 The lightbar shall contain one (1) control module I/O board which shall contain all the electronics required to operate all internal lightheads. This single module is required for ease of servicing the lightbar. Lightbars with multiple boards are unacceptable. ✓ \_\_\_\_\_
  
- 6.0.4 Each I/O card shall produce a high energy envelope of four (4) pulses to each LED head at a rate of 75 envelopes per minute per head. There shall be a minimum of twelve (12) flash patterns to choose from. Each pair of linear LED lamps must be capable of activating independently of each other ✓ \_\_\_\_\_
  
- 6.0.5 The I/O Card shall drive the LED light heads offering Hi/Low capabilities. The Halogen Lightheads shall operate from the I/O board allowing the takedowns and alleys to both steady burn and flash, and permitting the alleys to be controlled individually. The Traffic Advisor will only require two (2) wire control (no control head) when operated from the I/O board. The linear LED corners will be capable of a cruise light application. The lights will remain activated at a low power level, producing a cruise light mode. Lightbars without these features are not acceptable. ✓ \_\_\_\_\_



6 0 6 The lightbar's primary warning shall have a maximum of four (4) linear LED modules [1 in each corner] that meets SAE Class 1 requirements. Lightbars that utilize more than four modules to meet SAE Class I requirements are not acceptable. *A copy of the Testing Lab or AMECA Certificate confirming that the lightbar conforms to SAE Class I requirements is required with this bid. Failure to submit this document will disqualify the bidder.* Lightbars that do not use Linear LED's as primary warning are not acceptable. The lightbar shall have linear LED modules in the four corners. Each Linear LED corner module shall consist of a minimum of twelve (12) LED's permanently mounted within a single "removable" highly mirrored parabolic reflector for maximum light output. Corner light modules that utilize multiple reflectors or mirrors are not acceptable since they do not provide a true even light spread. The twelve (12) LED's shall be mounted in a straight line and have a single diffuser panel mounted in front of them for maximum light output

✓ \_\_\_\_\_

6.07 The I/O module shall be 100% solid state with built-in reverse-polarity protection and output-short protection. They shall operate from 10-16 VDC with no degradation in flash rate, and shall operate through a temperature range of -22 degrees Fahrenheit to 140 degrees Fahrenheit. The lightbar shall be designed to have up to eight (8) lamps to the front, eight (8) lamps to the rear, and one (1) on each end. Each lamp module position shall have a choice of five (5) single-layer colored lens sections, independent of the others. The lenses shall be constructed of polycarbonate with built-in spreader optics and a horizontal non-fluted strip across the center of each lens for maximum light output at the "zero" H-V point. The LED panel must be mounted within the lightbar. Systems in which the LED panel/lens assembly makes up the outside configuration of the lightbar (clear outer lenses and colored inner filters) are not acceptable.

✓ \_\_\_\_\_

6.08 The lightbar shall have:

Six (6) Linear LED's to the front (Blue)

Eight (8) inboard Linear LED's to the rear  
(1 Red/1 Amber/6 Blue)

✓ \_\_\_\_\_

*ferm*



6 0 9 All inboard linear LED panels shall be of the same design. All inboard lighthead's must be of the same series LED's whether LED or halogen to allow for placement of these lighthead's in any inboard position. All LED modules must produce a minimum 180 degree light pattern. LED panels that do not produce significant light output at 45 degrees are not acceptable. The lightbar shall also contain Lightbar Options listed below. No substitute options will be accepted. ✓

6 0.10 The lightbar must utilize lenses that may be replaced without removing the lightbar from the roof of the vehicle. It is preferred that the lenses slide into a track and be held in place by two end caps that secure to the lightbar via four screws each. Lightbars that utilize domes held in place by clips are unacceptable as the domes will allow sunlight to wash out the warning light, and clips can fail over time. The outer lens color shall be clear. The use of clear outer domes with colored filter is not acceptable. ✓

6 0.11 The lightbar shall contain a mounting kit to adapt the lightbar to most late model vehicles, and there shall be a "high-rise" mount available to raise the lightbar approximately five (5) inches to improve the rear view of the lightbar on vehicles with varying roof contours. ✓

6 1 0 LIGHTBAR OPTIONS

6.1.1 Option #2 (Takedowns):  
The lightbar shall contain two (2) 27 watt (minimum) halogen lamps that must allow for steady burn, as well as flashing takedowns. The halogen lamps shall be snap-in style and must be mounted inside the lightbar in a deep-dish, highly mirrored reflector for maximum light output. The two (2) halogens shall come "ON" together as take-downs or alternately flash, and must be controlled by the lightbar's I/O board. ✓

6.1.2 Option #3 (Alley Lights):  
The lightbar shall contain two (2) MR11 halogen lamps that must allow for independent control of each lamp in a steady burn mode, and shall alternately flash. The halogen lamps shall be mounted inside the lightbar by snap-in style and must be mounted in a deep-dish, highly mirrored reflector for maximum light output. The two (2) MR11 halogens must be controlled by the lightbar's I/O board. ✓



6.2.0 WARRANTY

6.2.1 The system shall be warranted by the manufacturer to the user directly to be free from defects of material or workmanship for a minimum period of two (2) years from date of purchase, with the exception of optical plastic parts and halogen bulbs. LED's shall be warranted for a minimum period of five (5) years. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid

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6.2.2 The manufacturer shall provide a minimum two (2) years warranty on both parts and factory labor. This shall include forty-eight (48) hour factory turnaround repair service. Out-of-warranty product shall receive the same quality service and be repaired at a flat service rate, which includes a shipping/handling fee for each unit returned (excluding new or necessary hardware such as lenses, flash tubes, etc.).

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6.2.3 The successful bidder must be the manufacturer or an authorized stocking distributor of the product, and shall stock sufficient quantities of service parts to maintain the needs of the department within forty-eight (48) hours after call.

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7. LED LOW PROFILE INTERIOR LIGHTBAR

7.0.1 The low profile LED Interior Warning Light shall be as specified below and shall be the Galls LED Interior Warning Light or Mallimar Warning Phantom Model ULB42-BB-WV-2, manufactured by Star Headlight & Lantern Co., Inc. or equivalent. The unit must be completely designed and manufactured in the United States of America. No major subassemblies manufactured offshore shall be utilized. This includes, but is not limited to, housings, LED PC boards, lenses, etc.

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7.1.0 BASIC STRUCTURAL DESIGN:

7.1.1 The device shall be housed in a heavy duty polycarbonate housing. The unit shall appear to be void of color until the LED's are turned on. The unit must be supplied with universal mounting brackets for ease of mounting to most vehicles.

✓  
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7.1.2 The device shall be no shorter than 42 inches and no longer than 45.50 inches in length, no more than 1-1/8 inches in height, and no more than 7.00 inches in width; and be designed to fit snugly to the windshield to prevent flash back into the passenger compartment.

✓  
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7.2.0 WARNING LAMP MODULES:

7.2.1 The device shall contain a minimum of ten (10) Blue LED panels. Each panel shall utilize high intensity LED's (Light Emitting Diodes). The unit must have a minimum of eight (8) wide angle Linear-LED modules facing straight out of the housing and two (2) Linear-LED modules at 45 degrees. These LED's shall have a life expectancy of at least 100,000 hours. Each LED panel shall utilize a minimum of twenty four (24) LED's

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7.2.2 Each light head shall contain a minimum of twenty four (24) individual LED's in two rows of twelve (12) that have a life expectancy of at least 100,000 hours.

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7.2.3 The maximum amperage draw in any mode shall be no more than 1 amp at 12.8 volts DC. The amp draw is critical because the unit is designed to be used in a parked vehicle with its ignition off for long periods of time.

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7.2.4 The LED Interior Warning light shall include a minimum eight (8) foot power cable with a cigarette style plug.

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7.2.5 The LED Interior Warning light shall be equipped with two (2) buttons (one to turn on/off the unit, and one to control the 27 warning patterns) installed in the housing in a location readily accessible to the operator of the vehicle.

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7.3.0 WARRANTY:

7.3.1 The system specified shall be warranted to the user to be free of defects of material or workmanship for a minimum period of seven (7) years from date of purchase.

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7.3.2 LED panels shall be warranted for a minimum period of seven (7) years. Written proof of this warranty shall be provided with bid.

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**8. LED INTERIOR REAR DECK LIGHT**

8.0.1 The interior lighthouse shall contain one (1) LED lighthouse as specified below and shall be the Whelen Talon Model: TLNVCV5BB or equivalent, and must be supplied with all standard mounting hardware. All major components such as LED panels, housings, and lenses must be designed and manufactured in the United States of America or the bid will be considered non-responsive.

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**8.1.0 REAR DECK LED LIGHTHEAD:**

8.1.1 The system shall contain two (2) LED modules (BLUE), each of which contain a minimum of six (6) individual LEDs (Minimum Generation 3.5) that are mounted in a single highly polished reflector in a straight line and having a design to provide considerable light at a 90 degree angle. Units that do not utilize this linear design in a single reflector are unacceptable. The two (2) Blue panels shall each contain its own clear outer lens for a stealth look, and shall be mounted in a black polycarbonate housing for long life and durability. The units will be mounted inside the passenger compartment; therefore, for passenger safety, units that are housed in metal housings are unacceptable. The unit shall come complete with a glamour cap and mounting bracket to allow the unit to be mounted around the vehicle's third brake light and eliminate flash back.

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8.1.2 There shall be a minimum of fourteen (14) flash patterns to choose from, along with Hi/Low power; both of which must be controlled by an external wire. The unit will have a non-volatile memory and stay in the pattern selected until changed by the operator.

✓  
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8.1.3 The assembly shall be no larger than 19.5 inches long x 2.6 inches high with the mounting bracket, and 5.8 inches deep with the shroud. The lighthouse shall be molded polycarbonate with rounded over corners. Units made of a metal substance or with non-rounded corners are unacceptable.

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8.2.0 WARRANTY:

8.2.1 The system shall be warranted by the manufacturer to the user directly to be free from defects of material or workmanship for a minimum period of two (2) years from date of purchase (It shall be understood that no warranty is offered on optical plastic parts). LED modules shall be warranted for a minimum period of five (5) years. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid.

✓

8.2.2 The manufacturer shall provide a minimum two (2) years warranty on both parts and labor. This shall include forty-eight (48) hour factory turnaround repair service. Out-of-warranty product shall receive the same quality service and be repaired at a flat service rate, which includes a shipping/handling fee for each unit returned (excluding new or necessary hardware such as lenses, flash tubes, etc ).

✓

8.2.3 All successful bidders must be an authorized stocking distributor for the manufacturer of the product line, and stock sufficient quantities of service parts to maintain the needs of the department within 72 hours after call.

✓

9. SURFACE MOUNT DIRECTIONAL LED ASSEMBLY (TIER-1)

9.0.1 The LED assembly shall be the Whelen TIR3 Super-LED, Model RSB03ZCR or equivalent. The assembly shall be a self-contained directional LED lighthouse assembly containing a minimum of three (3) LED's and shall come complete with a built-in flasher and with all standard mounting hardware and brackets to mount the unit to any flat surface. The unit must be completely designed and manufactured within the United States of America. No major subassemblies manufactured offshore shall be utilized.

✓

9.1.0 DESIGN:

9.1.1 The directional head assembly shall be supplied with an aluminum mounting plate and a black flange as standard and will be completely sealed for long life and durability. The unit must be designed to mount to any flat surface.

✓

9.1.2 The lighthouse assembly shall measure a maximum 3.6 inches long x 1.3 inch protrusion, x 1.3 inches high, larger units will not be accepted. Size is a major issue due to specific mounting location needs of the agency.

✓ \_\_\_\_\_

9.1.3 The directional head assembly shall have an LED panel which contains a minimum of three (3) individual Blue LED's (Minimum Generation 3.5) in a straight row that have a life expectancy of at least 100,000 hours. The panel shall contain ballast and TIR lens, and shall be mounted to an aluminum base, and must be completely encapsulated for long life and durability. The unit shall draw no more than .25 amps.

✓ \_\_\_\_\_

9.1.4 There must be four (4) wires exiting the unit, one for each of the following: Power, Ground, Flash Pattern and Synchronize. The Flash Pattern wire will allow a choice of five flash patterns and steady burn options to choose from. Each of the five patterns shall have a Phase 1 and Phase 2. When using multiple lighthouses, the synchronized wires are attached to simultaneously or alternately flash Phase 1 and Phase 2 of each of the five patterns. The unit will have a non-volatile memory and stay in the pattern selected. Units that do not have a synchronization feature are not acceptable.

✓ \_\_\_\_\_

9.1.5 The lens must be made of clear polycarbonate and must have a smooth outer lens (for self cleaning) with built-in optics for horizontal mounting to insure maximum light output. The lens must be permanently imprinted with the appropriate SAE number.

✓ \_\_\_\_\_

9.2.0 MOUNTING OPTIONS:

9.2.1 The specified LED panels shall come with all standard mounting hardware and brackets to mount the unit to any flat surface.

✓ \_\_\_\_\_

9.2.2 At a minimum the following additional mounting assemblies shall be available:

✓ \_\_\_\_\_

Aluminum bracket to measure a maximum of 4.0 inches long x 1.37 inch protrusion x 1.6 inches high.

✓ \_\_\_\_\_

Black polycarbonate with a chrome finish and shall measure a maximum of 3 6 inches long x .625 protrusion x 1 3 inches high.

Black polycarbonate designed to hold two (2) LED panels (as specified) for surface mount application and shall measure a maximum of 3 6 inches long x .625 protrusion x 2 5 inches high

✓ \_\_\_\_\_

Aluminum grille mounting bracket that fits one (1) LED panels (as specified) for the Ford *Crown Victoria*. The bracket must be easily installed in the grille area of the vehicle, with dimensions of 3-3/4 inches Length x 2-1/8 Height x 1 inch Depth. The bracket will be supplied with all hardware to insure proper installation.

✓ \_\_\_\_\_

9.3.0 WARRANTY:

9.3.1 LED modules shall be warranted for a period of five (5) years. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid.

✓ \_\_\_\_\_

9.3.2 All successful bidders must be an authorized distributor for the product bid and stock sufficient quantities of service parts to maintain the needs of the department within twenty-four (24) hours after called

✓ \_\_\_\_\_

10. SURFACE MOUNT DIRECTIONAL LED ASSEMBLY  
(TIER-2)

10.0.1 The LED assembly shall be the Whelen TIR6 Super-LED, Model 50B03ZBR or equivalent. The LED assembly shall be a self-contained directional LED lighthouse assembly containing a minimum of six (6) LED's and shall come complete with a built-in flasher and with all standard mounting hardware and brackets to mount the unit to any flat surface. The unit must be completely designed and manufactured within the United States of America.

✓ \_\_\_\_\_



10 1 0 DESIGN:

10.1.1 The directional head assembly shall be built with an aluminum backing plate and will be completely sealed for long life and durability. The unit must be designed to mount to any flat surface and shall come with all necessary mounting hardware and brackets to mount the unit to any flat surface.

✓  
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10.1.2 The lighthouse assembly shall measure a maximum 5 inches long x 1 5/8 inch high. Size is a major issue due to mounting locations.

✓  
\_\_\_\_\_

10.1.3 The directional head assembly shall have an LED panel which contains a minimum of six (6) individual Blue LED's (Minimum Generation 3.5) in a staggered row that have a life expectancy of at least 100,000 hours. The panel shall contain ballast and LED lens, and shall be mounted to an aluminum base. The unit shall draw no more than .50 amps.

✓  
\_\_\_\_\_

10.1.4 There must be four (4) wires exiting the unit, one for each of the following: Power, Ground, Flash Pattern and Synchronize. The Flash Pattern wire will allow a choice of five flash patterns and steady burn options to choose from. Each of the five patterns shall have a Phase 1 and Phase 2. When using multiple lighthouses, the synchronized wires are attached to simultaneously or alternately flash Phase 1 and Phase 2 of each of the five patterns. The unit will have a non-volatile memory and stay in the pattern selected. Units that do not have a synchronization feature are not acceptable.

✓  
\_\_\_\_\_

10.1.5 The lens must be removable, made of clear or blue polycarbonate and must have a smooth outer lens (for self cleaning) with built-in optics for horizontal mounting to insure maximum light output. The lens must be permanently imprinted with the appropriate SAE number.

✓  
\_\_\_\_\_





10.2.0 MOUNTING OPTIONS:

10.2.1 The LED assembly shall come with all standard mounting hardware and brackets to mount the unit to any flat surface.

✓  
\_\_\_\_\_

10.2.2 There must also be available an aluminum grille mounting bracket that fits one LED assembly as specified for easy installation of the assembly into the grille area of a Ford Crown Victoria.

✓  
\_\_\_\_\_

10.3.0 WARRANTY:

10.3.1 LED modules shall be warranted for a period of five (5) years. Written proof of this warranty by the manufacturer must be furnished by the bidder and attached to the bid.

✓  
\_\_\_\_\_

10.3.2 All successful bidders must be an authorized distributor for the product bid and stock sufficient quantities of service parts to maintain the needs of the department within twenty-four (24) hours after called.

✓  
\_\_\_\_\_



DPS 1011 Emergency Vehicle Lighting Equipment					
Item #	Description	Quantity	Model #	Unit Price	Extended Price
* 1	Siren and Light Control System (Tier-1)	100	LCS800WV	\$ 248.00	\$ 24,800.00
2	Siren and Light Control System (Tier-2)	100	LCS850MG	\$ 448.00	\$ 44,800.00
3	Handheld Programmable Siren and Light Control System (Tier-3)	100	LCS880WV	\$ 265.00	\$ 26,500.00
4	Switched Control Center	100	SB4020WV	\$ 62.00	\$ 6,200.00
5	Siren Speaker	100	D-44WV	\$ 96.00	\$ 9,600.00
6	LED Lightbar	100	7440WVSP	\$ 1,285.00	\$ 128,500.00
* Option #1 - Takedown Lights		100	720-2K	\$ 66.00	\$ 6,600.00
* Option #2 - Alley Lights		100	720-ALK	\$ 45.00	\$ 4,500.00
7	LED Low Profile Interior Lightbar	100	ULB42BB	\$ 325.00	\$ 32,500.00
8	LED Interior Rear Deck Light	100	DL3512BB	\$ 150.00	\$ 15,000.00
9	LED surface Mount Assembly (Tier-1)	100	DLX3BWV	\$ 42.00	\$ 4,200.00
10	LED surface Mount Assembly (Tier-2)	100	DLXTBWV	\$ 38.00	\$ 3,800.00
				<b>Total</b>	\$ 307,000.00
Failure to use this form may result in disqualification					
<b>Bidder / Vendor Information:</b>					
Name: <u>Mallimar Inc</u>					
Address: <u>P O Box 1272</u>					
<u>Beckley, WV 25802-1272</u>					
Phone#: <u>304-253-3351</u>					
Email Address: <u>inform@mallimar.com</u>					
<b>Contract Coordinator Information:</b>					
Name: <u>Paul Mallamas</u>					
Address: <u>P O Box 1272</u>					
<u>Beckley, WV 25802-1272</u>					
Phone#: <u>304-253-3351</u>					
Email Address: <u>paul@mallimar.com</u>					
* Quantities are estimated annual usage for bidding purposes and bidder's information					

(\* ) SEE ATTACHED SHEET FOR ADDITIONAL OPTIONS.

P32-A

*Paul Mallamas*  
*Mallimar Inc.*

## DPS 1011 Emergency Vehicle Lighting Equipment

Mallimar Inc.

## ADDITIONAL OPTIONS:

Item #1	Option #2 LCS770WV Single unit (all in one), same as Federal Signal PA640 <b>NO</b> remote mount option.	100	LCS770WV	\$215 00	\$21,500.00
Item #6	LED Lightbar Option #1 – Takedown Lights Bid request Halogen *Alternative* LED Takedowns 720-3WK (Set of Two)	100	720-3WK	\$142.00	\$14,200.00
	Option #2 – Alley Lights Bid request Halogen *Alternative* LED Alley Lights 720-ALEDK (Set of Two)	100	720-ALEDK	\$100 00	\$10,000.00



# VENDOR PREFERENCE CERTIFICATE

Certification and application\* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37 (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

- 1. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,  
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,  
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
- 2. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 3. **Application is made for 2.5% resident vendor preference for the reason checked:**  
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 4. **Application is made for 5% resident vendor preference for the reason checked:**  
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
- 5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**  
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
- 6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**  
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: MAHIMAR INC

Signed: Law E. Mallamas

Date: 11/12/09

Title: PRESIDENT

\*Check any combination of preference consideration(s) indicated above, which you are entitled to receive

STATE OF WEST VIRGINIA  
Purchasing Division**PURCHASING AFFIDAVIT****VENDOR OWING A DEBT TO THE STATE:**

*West Virginia Code* §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

**PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:**

If this is a solicitation for a public improvement construction contract, the vendor, by its signature below, affirms that it has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code*. The vendor **must** make said affirmation with its bid submission. Further, public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code* and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the *West Virginia Code* may take place before their work on the public improvement is begun.

**ANTITRUST:**

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

**LICENSING:**

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

Vendor's Name: MALLIMAR INC  
Authorized Signature: Paul E. Mallinas Pres Date: 11/12/09

ITEM ①



PO Box 1272  
Beckley, WV 25802-1272  
Phone: 304-253-3351  
Fax: 304-255-6144  
inform@mallimar.com



## ***LCS800/LCS850***

*Meets Class A and GSA Specifications*

## ***SVP SIRENS***

*"CENTRALIZED CONTROL AT YOUR FINGERTIPS"*

# UNISTAR™ COMMAND CENTER

## Full Feature 200 Watt Sirens with Lighting Controls

The Unistar™ Command Center combines a full feature 200 Watt siren, an 8 function light control switch panel, and a traffic director controller (LCS850 only) all into one dual color keypad driven unit. The control head features a dual color (Red & Green) lighted keypad, a 4-position progressive slide switch with LED indicators, LED speaker diagnostics, an attached noise canceling PA microphone, and are available with or without a flush mounting flange. Selectable operating modes are Wail, Yelp, Hands Free, Phaser, Manual, Alert, and Radio. Operating tones are Wail, Yelp, Air Horn, Phaser, Manual, and Two-Tone. Positive and negative switching for AUX and Park Kill inputs. The Unistar™ Command Center is protected against speaker shorts with a self-resetting circuit and a high & low voltage shutdown feature. These units also feature, integrated horn ring transfer output, jumpers for option selections, public address override and separate volume controls for the radio repeat and public address functions. The amplifier and switch box mounts conveniently and connects to the control head through a telephone style cable. Ships complete with wire harness w/positive locking connector, mic clip, mounting bracket, hardware, 30 standard function labels, and instructions.

### Features:

- LED speaker diagnostics
- Wail, Yelp, Air Horn, Phaser, Manual, and Two Tone
- Self-resetting circuit protection against speaker shorts
- Integrated public address microphone
- Eight light functions
- Dual color backlighting on keypad (Amber & Red)
- Four position progressive slide switch with LED indicators
- Park Kill input
- Auxiliary input
- Positive locking wiring harness included
- Universal mounting bracket or Flange mount available
- Replaceable jumpers for option selection
- Positive and negative switching for AUX and PKILL inputs
- High and Low voltage shutdown protection
- Trunk mount amplifier
- 30 Standard function replaceable labels
- Drives one or two 100 Watt speakers

### Specifications:

<b>Size:</b>	<b>Control Head:</b>	3-3/8"H x 6-3/4"W x 3/4"D
	<b>Amplifier:</b>	2-1/2"H x 7"W x 7-3/8"D (plus 3/4" flange)
<b>Weight:</b>	<b>LCS800 &amp; LCS800-F:</b>	8.5 lbs.
	<b>LCS850 &amp; LCS850-F:</b>	9.5 lbs.
<b>Output:</b>	100 or 200 Watts (1 or 2 speakers)	
<b>Voltage:</b>	10V - 16V DC	
<b>Frequency:</b>	675-1633Hz	
<b>Amp Draw:</b>	8 Amps (per speaker)	



PROUDLY MADE IN THE U.S.A.

ITEM #2



PO Box 1272  
Beckley, WV 25802-1272  
Phone: 304-253-3351  
Fax: 304-255-6144  
inform@mallimar.com

**NEW!**



# LCS850MG

Exceeds acoustical requirements of SAE J1849 & California Title 13 Class A  
(approved when used with a SVP driver)

## SVP SIRENS

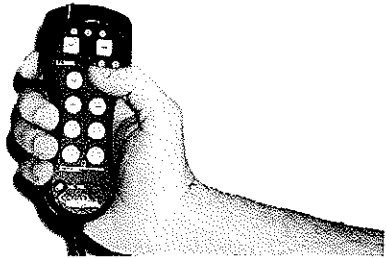
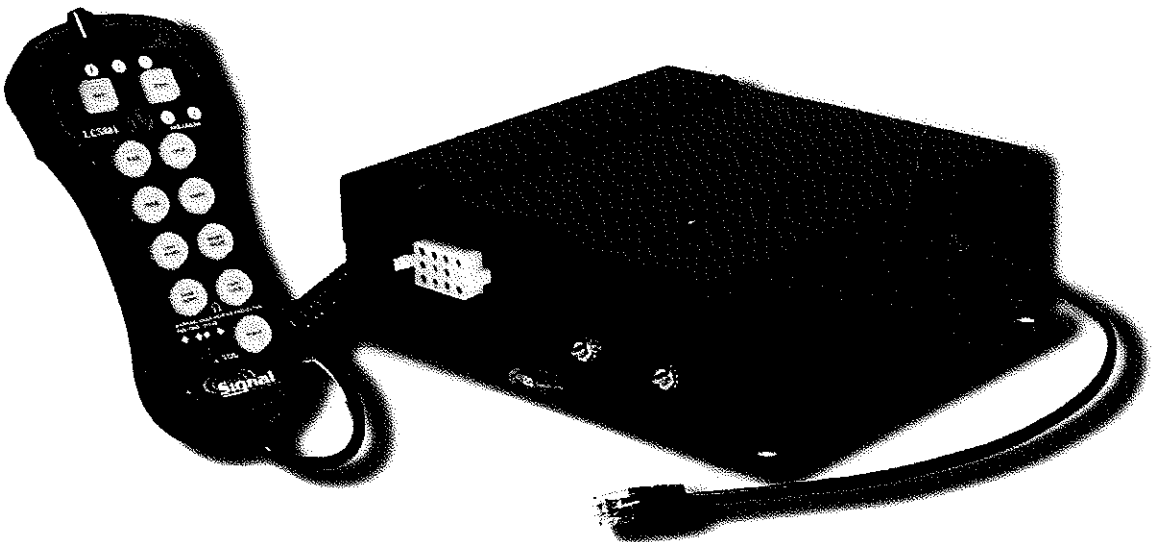
*"CENTRALIZED CONTROL AT YOUR FINGERTIPS"*



ITEM #3



PO Box 1272  
Beckley, WV 25802-1272  
Phone: 304-253-3351  
Fax: 304-255-6144  
inform@mallimar.com



# **LCS880/LCS881**

*Meets Class A and GSA Specifications*

# **SVP SIRENS**

*"CENTRALIZED CONTROL AT YOUR FINGERTIPS"*

# UNISTAR™ COMMAND CENTER

## Hand Held Full Feature 200 Watt Sirens with Lighting Controls

The LCS880 & LCS881 Series are a new ergonomically designed, hand held versions of the LCS800 & LCS850 Unistar™ Command Centers. They feature a 7 function light control switch panel, and a traffic director controller (LCS881 only) all into one hand held, dual color keypad driven unit. The control head features a dual color (Red & Green) lighted keypad, a 4-position progressive slide switch with LED indicators, LED speaker diagnostics and a built-in noise canceling PA microphone. Selectable operating modes are Wail, Yelp, Phaser, Manual, Alert, and Radio. Operating tones are Wail, Yelp, Air Horn, Phaser, Manual, and Two-Tone. Positive and negative switching for AUX and Park Kill inputs. The Unistar™ Command Center is protected against speaker shorts with a self-resetting circuit and a high & low voltage shutdown feature. These units also feature integrated horn ring transfer output, jumpers for option selections, public address override and separate volume controls for the radio repeat and public address functions. The amplifier and switch box mounts conveniently and connects to the control head through a telephone style cable. Ships complete with wire harness w/positive locking connector, Hand piece cradle, hardware, 30 standard function labels, and instructions.

### Siren Features:

- New ergonomic design
- LED speaker diagnostics
- Wail, Yelp, Air Horn, Phaser, Manual, and Two Tone
- Self-resetting circuit protection against speaker shorts
- Integrated public address microphone
- Seven light functions
- Dual color backlighting on keypad (Red & Green)
- Four position progressive slide switch with LED indicators
- Park Kill input
- Auxiliary input
- Positive locking wiring harness included
- Hand piece cradle for mounting or Velcro™ for concealed mounting
- Replaceable jumpers for option selection
- Positive and negative switching for AUX and PKILL inputs
- High and Low voltage shutdown protection
- Trunk mount amplifier
- 30 Standard function replaceable labels
- Drives one or two 100 Watt speakers

### Specifications:

<b>Size:</b>	<b>Control Head:</b> 6"H x 2-1/2"W x 1-1/2"D
	<b>Amplifier:</b> 2-1/2"H x 7"W x 7-3/8"D (plus 3/4" flange on each side)
<b>Weight:</b>	<b>LCS880:</b> 8.5 lbs
	<b>LCS881:</b> 9.5 lbs.
<b>Ouput:</b>	100 or 200 Watts (1 or 2 speakers)
<b>Voltage:</b>	10V - 16V DC
<b>Frequency:</b>	675-1633Hz
<b>Amp Draw:</b>	8 Amps (per speaker)



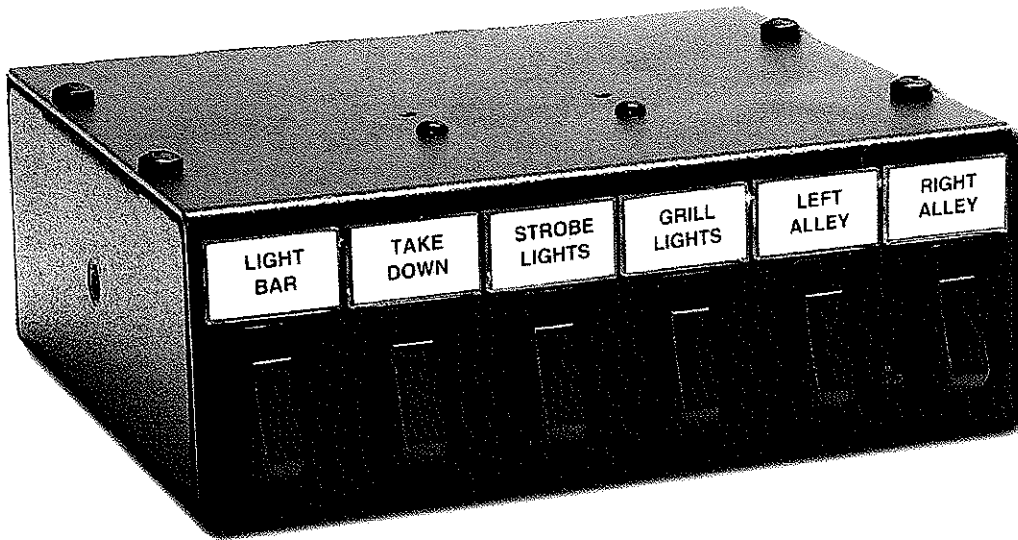
PROUDLY MADE IN THE U.S.A.

ITEM # 4



PO Box 1272  
Beckley, WV 25802-1272  
Phone: 304-253-3351  
Fax: 304-255-6144  
inform@mallimar.com

## *SB4020 Switchbox*



### **SB4020**

#### ***Specs & Features:***

- Use to control STAR BAR®, AEROSTAR™, STAR INTERCEPTOR®, STAR SABRE®, STAR RAZOR® Lightbars or any other 6 functions of your choice
- Five 20 amp individually fused, illuminated rocker switches
- One 40 amp illuminated rocker switch protected by an internal relay and a self-resetting circuit breaker
- Legends are easily changed and backlit for nighttime readability
- Dimensions: 2" H x 6" W x 4-3/4" D
- SB4020 is shipped complete with mounting bracket, 30 interchangeable legends and complete wiring instructions

YES THE  
**U.S.**



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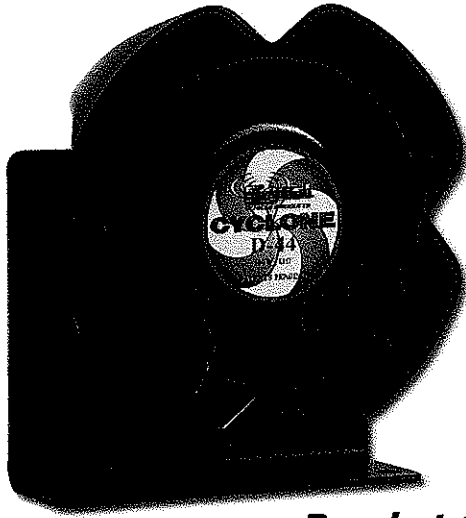
ITEM #5



PO Box 1272  
Beckley, WV 25802-1272  
Phone: 304-253-3351  
Fax: 304-255-6144  
inform@mallimar.com

# D-44 Cyclone™ 100 Watt Speaker

**NEW  
Speaker  
Technology!**



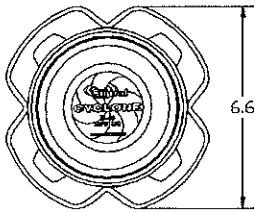
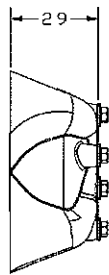
D-44-16 Cyclone™ Speaker  
kit includes D-44 Speaker and  
SPBRK-16 Universal "L" Bracket

### Specs & Features:

- Patent Pending Cyclonic Expansion chambers
- Ultra Compact Design - *Only 3" deep*
- Rugged glass filled nylon housing - *will not rust!*
- User Replaceable rear facing driver
- 6 Custom fit brackets available
- Input Voltage: 32v RMS
- Output: 100 Watts
- Impedance: 11 ohm
- Dimensions: 6.6" x 6.6" x 2.9"
- Weight: 8 lbs. (with bracket)
- Exceeds Acoustical Requirements:  
SAEJ1859\*  
Title 13 Class A\*  
*\*Approved with SVP sirens*

### Bracket Options:

- D-44: *Speaker only:*
- D-44-16: *Universal "L" Bracket:*
  - '04-'05 Dodge Durango
  - '01 Ford Taurus
  - '02-'09 Ford Explorer
  - '04-'09 GMC Envoy
  - '02-'09 Chevrolet Avalanch
  - '04-'06 Chevrolet Suburban
  - '04-'06 Chevrolet Tahoe
- D-44-17: *Center Mount Bracket:*
  - '03-'09 Ford Crown Victoria
- D-44-18:
  - '07-'09 Chevrolet Suburban
  - '07-'09 Chevrolet Tahoe
- D-44-19:
  - '06-'09 Chevrolet Impala
- D-44-20:
  - '06-'09 Dodge Charger
- D-44-21: Universal Two Piece Adjustable Bracket
- D-44-22L: '08-'09 Ford F-Series Super Duty, Driver Side
- D-44-22R: '08-'09 Ford F-Series Super Duty, Pass. Side
- D-44-23: '08-'09 Ford E-350/450



**YES THE  
U.S.**



PROUDLY MADE IN THE U.S.A.