

The Hazard Systems CS202 emergency vehicle siren is available in both 12-Volt and 24-Volt versions and can provide up to 200-Watts of siren output power. Two amplifiers can be linked together for up to 400-Watts of output. A tough aluminium casing with specially designed cooling fins maximises thermal performance.

The control head features a 'soft-touch' rubberised housing with an integrated PA microphone and easy 9-button operation. Control head installation is simplified by use of a swivel-mounting cradle.

SPECIFICATIONS

Voltage		12V		24V	
Input Voltage Range (VDC)		10-15		20-30	
Output ¹ (nominal 33Vrms)		1 Speaker (100W)	2 Speakers (200W)	1 Speaker (100W)	2 Speakers (200W)
Current Draw	Max ¹	9A	16A	5A	9A
	Standby (Typ.)	10mA			
Amplifier Dimensions (H x W x D mm)		59 x 159 x 192			
Amplifier Weight		1780 g			
Controller Dimensions (H x W x D mm)		115 x 55 x 25			
Controller Weight		220 g			
Ambient Operating Temperature		-10 to +40 °C			

¹ Using 11 Ohm speaker(s) at 13.6Vdc or 27.2Vdc



WARNING!

Failure to install or use this product according to manufacturer's recommendations may result in property damage, serious bodily/personal injury, and/or death to you and those you are seeking to protect!



Do not install and/or operate this safety product unless you have read and understand the safety information contained in this manual.

1. Proper installation combined with operator training in the use, care, and maintenance of emergency warning devices are essential to ensure the safety of you and those you are seeking to protect.
2. Exercise caution when working with live electrical connections.
3. This product must be properly grounded. Inadequate grounding and/or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.
4. Proper placement and installation are vital to the performance of this warning device. Install this product so that output performance of the system is maximised and the controls are placed within convenient reach of the operator so that s/he can operate the system without losing eye contact with the roadway.
5. It is the responsibility of the vehicle operator to ensure during use that all features of this product work correctly. In use, the vehicle operator should ensure the projection of the warning signal is not blocked by vehicle components (i.e., open trunks or compartment doors), people, vehicles or other obstructions.
6. The use of this or any other warning device does not ensure all drivers can or will observe or react to a warning signal. Never take the right-of-way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes.
7. This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding warning signal devices. Therefore, the user should check all applicable city, state, and federal laws and regulations. The manufacturer assumes no liability for any loss resulting from the use of this warning device.
8. This device produces high sound pressure levels which can cause damage to hearing. Appropriate safety precautions should be taken to minimise exposure.

CS202 FEATURES

Siren Amplifier Unit

- Rugged Extruded Amplifier Housing
- Specially Designed Convective Cooling Fins
- Protected against
 - Under-Voltage
 - Over-Voltage
 - Reverse-Polarity
 - Supply Transients
 - Output Short-Circuits
 - Thermal Overload
- Available for 12V or 24V vehicles
- Designed to drive one or two 11-ohm 100-Watt siren speakers
- Up to 200W siren output power, or 400W with optional slave amplifier unit
- SOFTSTART™ siren tones available
- Vehicle Horn interface (HRT)
- Radio Rebroadcast Capability
- Momentary siren function
- 6 channels of relay-switched lighting control with status LEDs

Control Head / Microphone

- Integrated Microphone Control Head
- Adjustable Public Address Volume
- High Quality Construction
- Rubberised 'Soft-Touch' Handpiece
- Swivel mounting cradle
- Backlit, illuminated buttons
- Easy to use, low-clutter button layout
- "Hands-Free" control mode
- Dedicated Automatic Gain Control (AGC) circuit optimises Public Address clarity

INSTALLATION & MOUNTING

Before installation, examine the siren and controller for transit damage. Do not use damaged or broken parts.

Important! This unit is a safety device and it must be connected to its own separate, fused power source to assure its continued operation should any other electrical accessory fail.

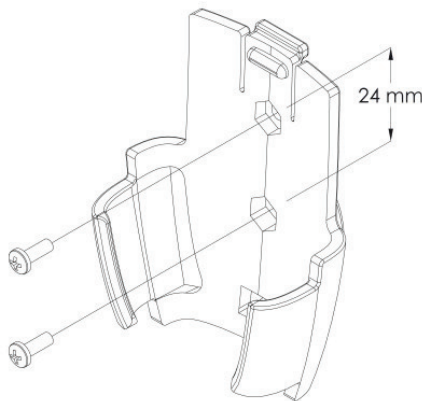
Caution: When drilling into any vehicle surface, make sure the area is free from any electrical wires, fuel lines, vehicle upholstery, etc. that could be damaged.

SIREN CONTROLLER

Determine the best mounting position for the controller in the vehicle. Mount the cradle on any suitable flat surface via either of the 2 methods detailed below. If the vehicle is fitted with air-bags, ensure that the chosen mounting position will not effect their deployment.

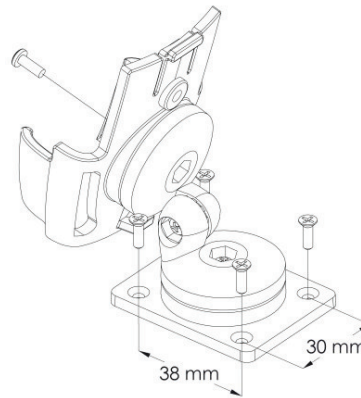
Option 1: Cradle Mount

The control head cradle can be screwed directly onto the dash using 2 x suitable screws to mount the cradle and control head vertically.



Option 2: Swivel Mount

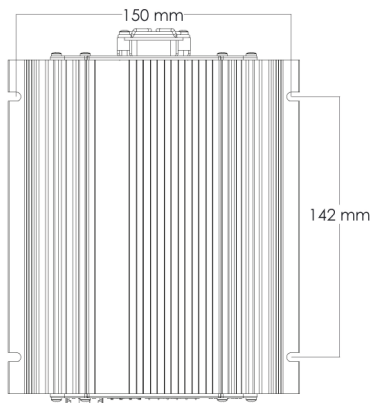
Alternatively the cradle can be attached to the swivel to mount to any suitable surface in the vehicle. The cradle can be angled to suit the user. Screws are supplied with swivel mount.



MOUNTING THE SIREN AMPLIFIER

Before any installation work is carried out, plan where the various components will be mounted and what route the wiring will take. The CS200 series siren is not waterproof, so it must be mounted within the vehicle cabin. The siren can be mounted by screwing it into any flat surface using the 4 x supplied screws, preferably with the connector pointing down so water can not run down the cables into the siren.

Suggested mounting locations include the boot, under passenger seat or passenger foot well area.



MOUNTING THE SIREN SPEAKER(S)

The CS200 series siren requires one or two 11 ohm 100 watt siren speaker(s). Speakers are weatherproof and may be mounted on a bull bar or under the bonnet. Roof mounting is not recommended due to occupational health and safety regulations regarding excessive cabin noise levels.

Install the siren speaker in the desired location, drilling any extra holes in the mounting bracket if necessary. Due to the varying types of mounting methods that may be encountered, and to keep waste to a minimum, mounting hardware is not supplied. Ensure that the speaker is securely fixed into position. Ensure the position is such that water can not accumulate inside the speaker flare and that the drain hole in the speaker driver is at the bottom.

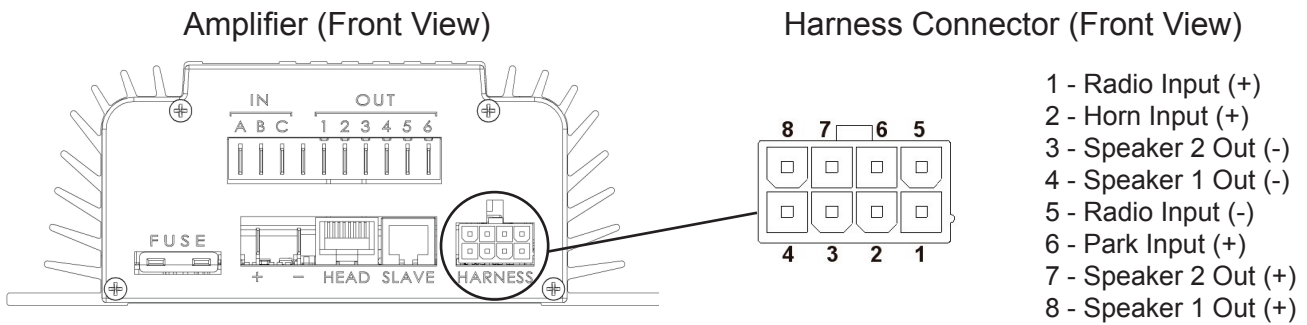
For most efficient operation, ensure that the position of the speaker flare is such that the sound path to the open air is as unobstructed as possible.

Connect the speaker(s) to the speaker wires using 6.3mm (0.25") female spade semi-insulated terminals.

WIRING INSTRUCTIONS - SIREN



Caution! This device produces high sound pressure levels which can cause damage to hearing. Appropriate safety precautions should be taken to minimise exposure.



Before proceeding with installation, plan all cable routing and wiring carefully.

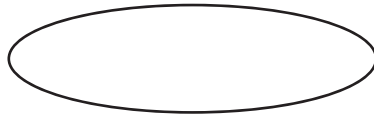
The table below should be used in conjunction with the wiring diagram on page 8 to make all connections to the siren.

PORT	DESCRIPTION
FUSE	The amplifier comes equipped with an ATO blade fuse in the FUSE location as shown above. A 20 Amp fuse is used for 12 Volt or a 15 Amp fuse is used for 24 Volt systems.
+	Amplifier Positive Terminal - connect to 3mm ² (9 AWG) automotive wire using a 6.3mm (0.25") female spade fully insulated terminal. Do not connect this red power wire to the vehicle battery terminal until all other connections have been made to the unit.
-	Amplifier Negative Terminal - connect to a good chassis ground point or the battery negative terminal, using the shortest possible wire length with a 3mm ² (9 AWG) automotive wire and a 6.3mm (0.25") female spade fully insulated terminal.
HEAD	Connect the CS202 control head (via extension cable if used) to this port.
SLAVE	Optional slave siren port - connect to a slave siren unit to provide additional siren output. Ensure all speakers are wired with same polarity. Do not connect the SLAVE port to the HEAD port. Important! Do not connect the SLAVE ports together until all other connections are made, failure to do so may result in damage to the siren and harness.
HARNESS	A wire harness with an 8-way connector is provided to plug into this position – the wires in this harness are detailed below. Make these connections as required then plug into the HARNESS port. Unused wires must be left unconnected and insulated.

COLOUR	FUNCTION	CONNECTION DETAILS
WHITE FIG-8	#1 SPEAKER CABLE	Connect directly to the siren speaker #1 terminals
WHITE FIG-8	#2 SPEAKER CABLE	If a second speaker is used (for 200W output), connect this speaker cable directly to speaker #2 terminals. Speakers must be wired with the same polarity.
GREY FIG-8	RADIO REBROADCAST	Connect the grey figure-8 wire to the auxiliary or speaker output of a two-way radio. The radio input is designed for a 5Vpp signal level.
BLUE	PARK INPUT	Connect the blue park wire to the vehicle park light circuit as shown on the wiring diagram. This input activates the controller keypad backlighting. The backlight will not function unless this wire is connected.
YELLOW	HORN INPUT	This wire must be connected into the vehicle horn circuit as shown in the wiring diagram such that it connects to positive when the vehicle horn is activated. Normally this is done at the horn relay.

WIRING INSTRUCTIONS - RELAY BOARD

Amplifier (Front View)



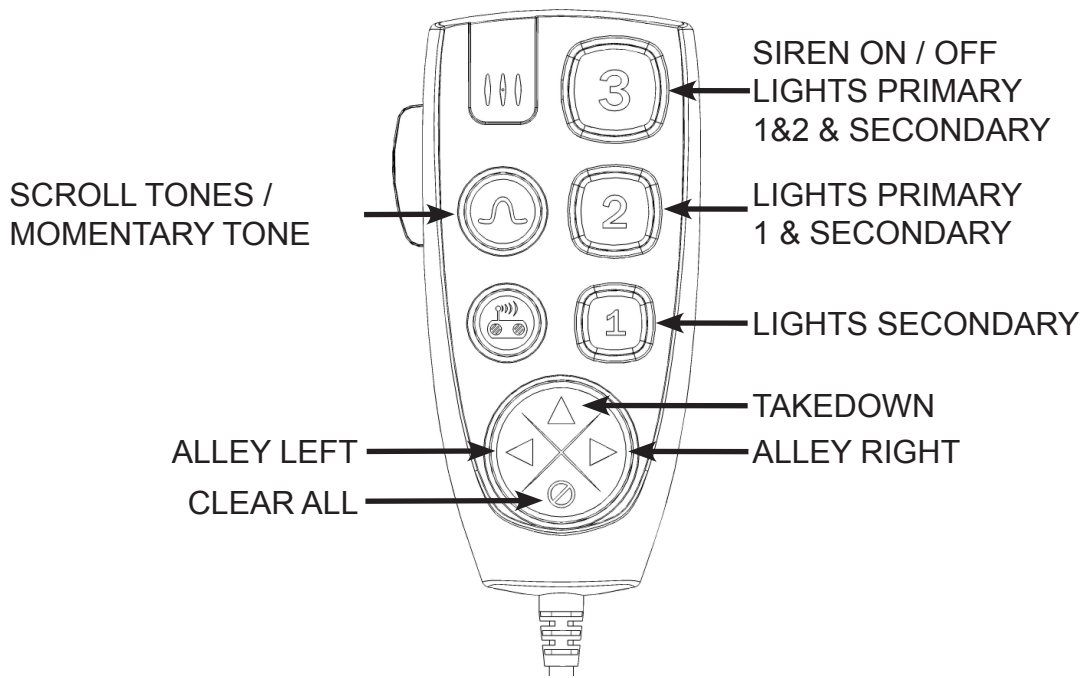
The CS202 Series Siren is equipped with 6 relays for switching lighting loads. LEDs located about each output terminal indicate the relay status. If an output fails check the fuse on the power feed and wiring connections.

It is necessary to provide positive supply to the 3 input terminals (pins A-C). Each pin provides power to two relays, which enables the installer to share the lighting loads over different vehicle circuit breakers if required. Refer to the wiring diagram and table below for relay connection details.

Connect to the pins using 6.3mm (0.25") female spade fully-insulated terminals.

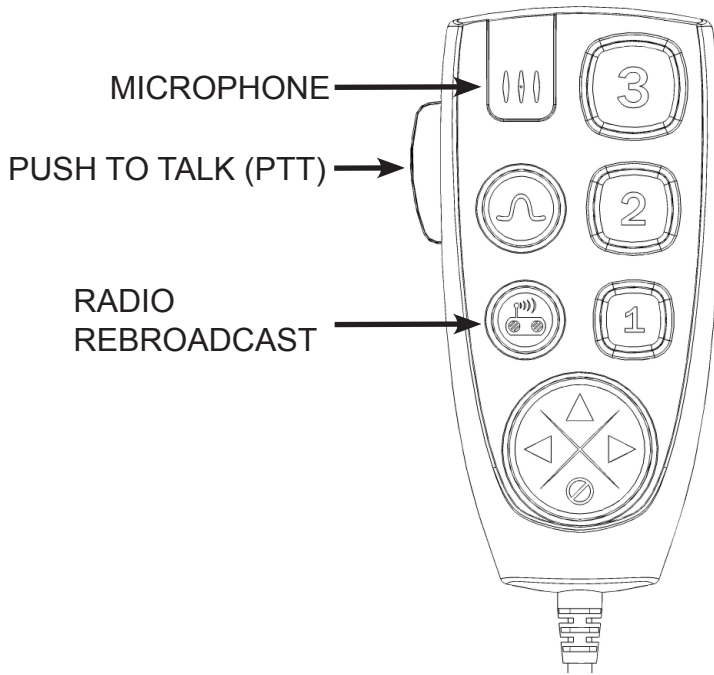
PIN	FUNCTION	MAX CURRENT	MAX COMBINED CURRENT	FUSING REQUIREMENTS
A	Power feed for pin 1 + 2	20A	-	External 25A fuse required on each individual feed at battery
B	Power feed for pin 3 + 4	20A	-	
C	Power feed for pin 5 + 6	20A	-	
1	Primary warning lights 1	20A	20A	No additional fusing required
2	Left alley light	20A		
3	Primary warning lights 2	20A	20A	No additional fusing required
4	Right alley light	20A		
5	Secondary warning lights	20A	20A	No additional fusing required
6	Takedown lights	20A		


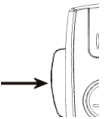




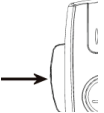
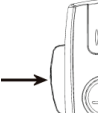
SIREN AND LIGHTING OPERATION

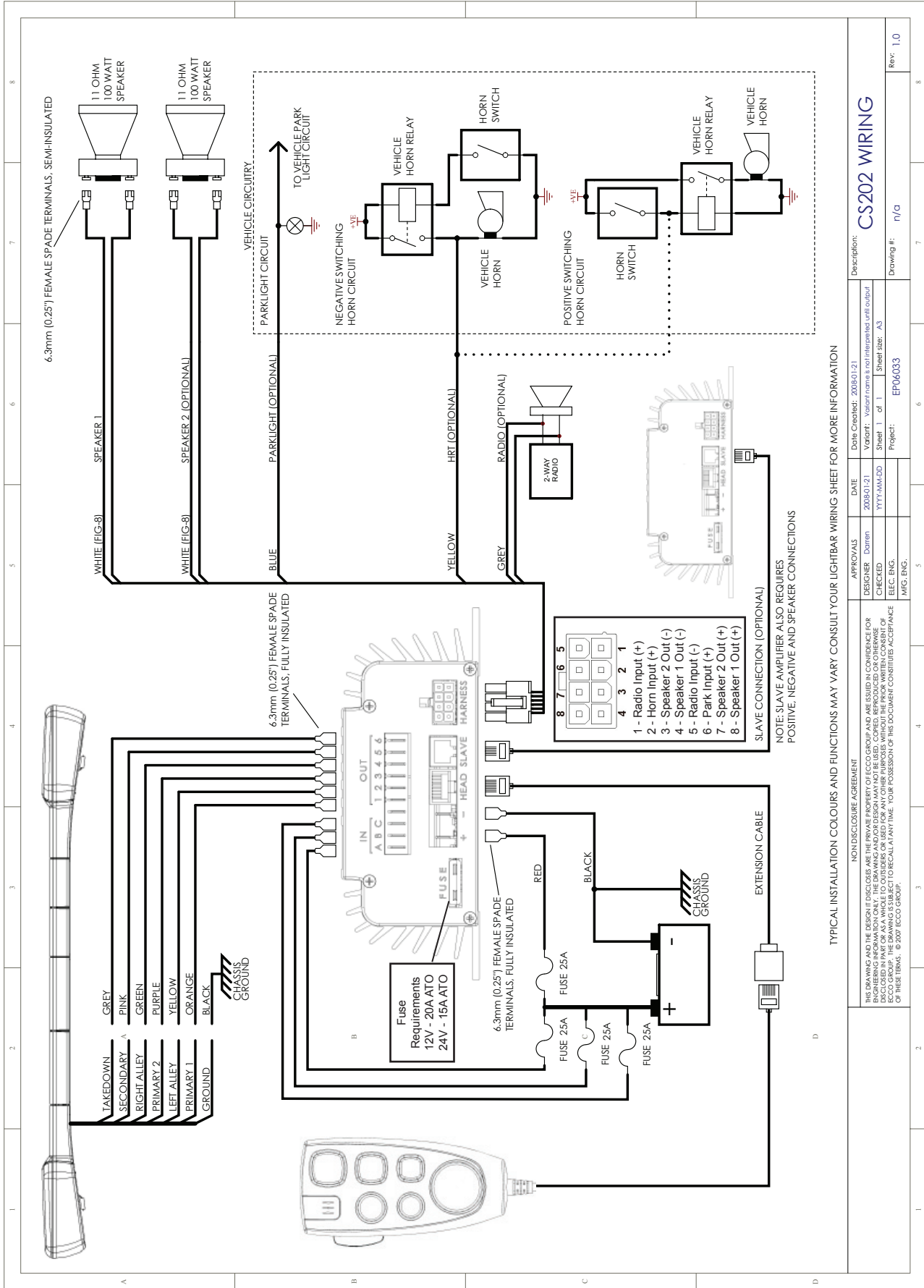


BUTTON	FUNCTION
3	Activates the siren and the Primary 1 & 2 and Secondary lighting outputs. Subsequent presses will turn the siren off and on.
2	Activates the Primary 1 and Secondary lighting outputs.
1	Activates the Secondary lighting output.
WAVEFORM	Scrolls the siren tones when the siren is on. Activates the momentary siren when the siren is off.
ALLEY LEFT	Activates the alley left lighting output.
ALLEY RIGHT	Activates the alley right lighting output.
TAKEDOWN	Activates the takedown lighting output.
CLEAR ALL	Switches off the siren tones and lighting outputs.
VEHICLE HORN	When the HORN wire is connected as shown in the wiring diagram, the vehicle horn can be used to scroll through the siren tones. Holding the HORN on for over 0.2 of a second will activate the HRT tone.

PUBLIC ADDRESS OPERATION



BUTTON	FUNCTION
	Activates the radio rebroadcast.
	Press the PTT button to activate the public address function. PA Volume is displayed any time the PTT button is depressed, as shown below: <div style="display: flex; justify-content: space-around; align-items: center; text-align: center;"> <div data-bbox="464 1236 587 1491">  <p>Level 1 (Min)</p> </div> <div data-bbox="671 1236 794 1491">  <p>Level 2</p> </div> <div data-bbox="879 1236 1002 1491">  <p>Level 3</p> </div> <div data-bbox="1086 1236 1209 1491">  <p>Level 4 (Max)</p> </div> </div>
 + 3	Increase PA volume.
 + 1	Decrease PA volume.



TYPICAL INSTALLATION COLOURS AND FUNCTIONS MAY VARY CONSULT YOUR LIGHTBAR WIRING SHEET FOR MORE INFORMATION

<p>DESIGNER: Darrin CHECKED: [Blank] ELEC. ENG. [Blank] MISC. ENG. [Blank]</p>		<p>DATE: 2008-01-21 YYY-AAA-DD</p>		<p>DATE CREATED: 2008-01-21</p>		<p>DESCRIPTION: CS202 WIRING</p>	
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TROUBLESHOOTING:

All sirens are thoroughly tested prior to shipment. However, should you encounter a problem during installation or during the life of the product, follow the guide below for troubleshooting and repair information. If the problem cannot be rectified using the solutions given below, additional information may be obtained from the manufacturer – contact details are at the end of this document.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Fuse Blows ¹	Speaker wires short circuit	Check speaker wire outputs for short circuits
	Speaker internally shorted	Replace speaker(s)
	Faulty siren	If fuse continues to blow after checking the first two points replace the siren
No siren output (audible clicking heard from siren)	Siren short circuit protection activating	Check speaker wiring
		Replace speaker(s)
No siren output (siren tones may be heard in amp)	Speaker or speaker wires open circuit	Check speaker wiring
		Replace speaker(s)
Low PA Volume	Volume turned down Faulty controller	Adjust volume using controller
		Replace controller
No backlighting on controller	Park light wire not connected Faulty controller	Connect park light wire to vehicle as shown in wiring diagram
		Replace controller
Siren on button flashing	High voltage to siren	Check siren is correct voltage for the vehicle
		Check vehicle voltage
Momentary button flashing	Siren is over temperature	Let siren cool, possibly change siren location to improve airflow/heat sinking, keep away from other heat sources
Siren off button flashing	Low voltage to siren	Check siren is correct voltage for the vehicle
		Check siren wiring for bad connections
		Check vehicle voltage
No lighting output	Fuse blown	Check fusing on related input (A-C)
	Wires open circuit	Check lighting wire for open circuits
	Faulty relay board	Replace relay board

¹ Note: Always replace the fuse with the same value that was originally in the siren

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