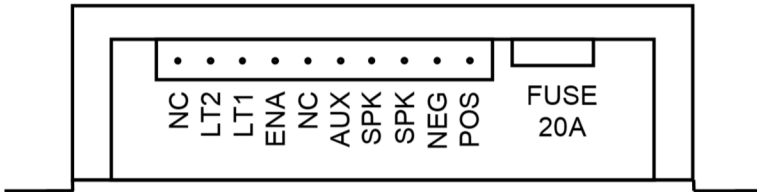
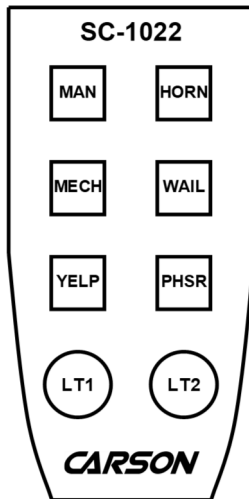


CARSON

Carson Manufacturing Co., Inc.
5451 North Rural Street
Indianapolis, IN 46220
Phone: (888) 577-6877 Fax: (317) 254-2667
www.carsonsirens.com

SC-1022-20 SIREN AMPLIFIER W/ LIGHT CONTROL



INSTALLATION AND OPERATING INSTRUCTIONS

Carson is a trademark of Carson Manufacturing Company, Inc.

WARNING Sound Hazard - Sound level from siren speaker (>120dBA @ 10 feet) may cause hearing damage. Do not operate siren without adequate hearing protection for you and anyone in immediate vicinity. (Ref. OSHA 1910.95 for occupational noise exposure guidelines)



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GENERAL DESCRIPTION

The SC-1022 Siren Amplifier with Light Control is designed for single 100W speaker use having a remote hand held unit with pushbutton controls.

The primary operating modes are Mechanical, Wail, Yelp, Phaser, and Standby selected by four pushbutton switches. Momentary Horn Override pushbutton and Manual siren pushbutton for control of Mechanical, Wail, Yelp, Phaser and Power C. Lights are controlled with two pushbuttons as well.

A DIP switch provides options to change tones, disable tones, HRC2 operation, and auxiliary input polarity. The units utilize short circuit, high voltage, and reverse polarity protection systems for maximum service life.

WARNING   **Sound Hazard** - Sound level from siren speaker (>120dBA @ 10 feet) may cause hearing damage. Do not operate siren without adequate hearing protection for you and anyone in immediate vicinity. (Ref. OSHA 1910.95 for occupational noise exposure guidelines)

NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice.

Carson Manufacturing Co., Inc. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Carson Manufacturing Co., Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

See www.carsonsirens.com for latest information.

SPECIFICATIONS

Siren Section															
Input Voltage	10 - 16 VDC (negative ground)														
Input Current	8 AMPS (@14 VDC - single 100W speaker)														
Standby Current	Less than 50mA @ 14 VDC enabled, less than 5mA standby														
Output Power	105 WATTS RMS MAX. (15 VDC - single 100W speaker)														
Siren Frequency	700Hz - 1500Hz (Mechanical 700Hz - 1600Hz; Two-Tone and Horn = 435 & 585Hz)														
Tones / Cycle Rates	<table style="width: 100%; border: none;"> <tr> <td style="border: none;">Horn</td> <td style="border: none;">Mechanical</td> <td style="border: none;">Wail</td> <td style="border: none;">Power C</td> <td style="border: none;">Yelp</td> <td style="border: none;">Phaser</td> <td style="border: none;">Two-Tone</td> </tr> <tr> <td style="border: none;">109 CPS</td> <td style="border: none;">5 CPM</td> <td style="border: none;">13 CPM</td> <td style="border: none;">100 CPM</td> <td style="border: none;">190 CPM</td> <td style="border: none;">15 CPS</td> <td style="border: none;">60 CPM</td> </tr> </table>	Horn	Mechanical	Wail	Power C	Yelp	Phaser	Two-Tone	109 CPS	5 CPM	13 CPM	100 CPM	190 CPM	15 CPS	60 CPM
Horn	Mechanical	Wail	Power C	Yelp	Phaser	Two-Tone									
109 CPS	5 CPM	13 CPM	100 CPM	190 CPM	15 CPS	60 CPM									
High Voltage Protection	16 - 18 VDC will cause siren output to cease, resumes at normal voltage														
Short Circuit Current	50 AMPS (supply circuit must be capable of supplying this for 1 second)														
Operating Temp.	-15° F to +140°F														
Controls	Six Pushbutton switches for Mechanical, Wail, Yelp, Phaser, Manual, and Horn. Auxiliary input programmable for positive or negative activation. 8-position DIP switch option selector.														
Connections	Removable 10-Pos Terminal Block: (2) Power, (2) Speaker, Auxiliary and Enable inputs, (2) light control outputs. RJ-12 jack for hand control with built-in cable.														
Light Control Section															
Controls	Two pushbuttons.														
Current	5 AMPS per switch, 5 AMPS total														
Connections	Two light control outputs														
General															
Size	Control Head 1-7/8" Wide, 1" Deep, 4" High Amplifier 6" Wide, 4-1/4" Deep, 1-7/8" High														
Weight	2 LBS.														

UNPACKING

Inspect contents for shipping damage. If found **alert carrier immediately**. Contact supplier immediately if any items are missing.

Qty	Item
1	CP4688-10 10-Pin Terminal Block Plug
1	SC-1022-10CH Hand Control Assembly
1	VELCRO Strip Fastener
1	CP5208 Instruction Manual
1	CP5003 Hand Control Holster

INSTALLATION

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

SAFETY PRECAUTIONS

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

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

Hand Control Location - Locate the hand control for easy access by the vehicle operator. DO NOT locate in air bag deployment area.

Amplifier Mounting - Flanges are provided for mounting (hardware not supplied). Assure clearances before drilling in vehicle.

Wiring - Use wiring capable of handling the current required. Make sure all connections are tight. Route wiring to prevent wear, overheating and interference with air bag deployment. Install and check all wiring before connection to vehicle battery.

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

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

Hand Control: Choose a mounting location convenient to the operator and away from any air bag deployment areas. Consider cable routing to amplifier. Mount the hand control with supplied Hook and Loop tape (VELCRO). If the tape method is not preferred, the hand control may be mounted several ways. A Holster (CP5003) to hold the Hand Control or a Hanger and Holder to hold the Hand Control like a microphone (ED1865) are available accessories. See PARTS and ACCESSORIES Section.

OPTION SWITCHES

An 8-position DIP switch on one side of the amplifier may be changed to select various options.

Adjusting Option Switches - use a small screwdriver to change switch settings.



The default setting is shown here. All switches are on.

SW-1 Auxiliary Input Polarity - The auxiliary input is normally activated with positive. Turn switch OFF for negative activation.

SW-2	SW-3	Auxiliary Tone in Standby
ON	ON	(Default) Produces Horn tone while activated.
OFF	ON	Manual control of Mechanical tone.
ON	OFF	Manual control of Wail tone.
OFF	OFF	Activates Horn Ring Cyclor 2 (HRC2) function.

SW-4 Two-Tone - Turn this switch OFF to replace Phaser with Two-Tone.

SW-5 Horn Enable - Turn this switch OFF to disable Horn tone. Horn replaced with Yelp.

SW-4 & 5 Tone Disable - All siren tones may be disabled except Manual, Wail and Yelp by turning OFF both switches. Mechanical will be replaced with Wail. Phaser and Horn will be replaced with Yelp.

SW-6 Short Manual - The Manual siren tone will normally fall and die out when released. Turn this switch OFF to have Manual stop immediately.

SW-7 Manual Wail - Turn this switch OFF for Manual Wail instead of Manual Mechanical when pressing the MAN pushbutton.

SW-8 Mechanical Fall - Turn this switch OFF for a quicker mechanical tone fall time.

HORN RING CYCLER 2 (HRC2) - Turn OFF DIP SW-2 and SW-3 to enable this feature. Also connect the auxiliary input to the horn ring or other switch. While the siren is in standby, tap the horn ring to bring the unit out of standby into Mechanical tone. Repeatedly tapping the horn ring will cycle through Mechanical, Wail, Yelp, and Phaser tones. Tapping the horn ring twice quickly will stop the siren tones and return the unit to standby. Pressing and holding the horn ring will produce Horn tone until released. Then the siren will return to its previous siren tone or standby.

ELECTRICAL CONNECTIONS

Electrical connections to the unit are made using terminal block plugs and screw terminals located on the amplifier. Labels on the unit identify each terminal function. Install the plug on the unit before wiring. If the unit needs service the plug can be easily removed without unwiring. The power supply of the unit must be capable of delivering peak currents up to 50 amps for adequate short circuit protection and reliable operation. The preferred source is directly at the vehicle battery. The amplifier is fused.

Attach leads by stripping 3/8", inserting into plug and clamp by tightening screw. Make sure the screw is tight and the wire can't be pulled out.

Failure to adequately tighten the screw can result in improper operation or burning the connector and wire.

Wire Size and Termination - The diagram shows the minimum wire size used for each connection, along with recommended lead color. If the wire is longer than 10 ft. use the next larger wire size. Use only high quality crimp connectors for installation on the vehicle.

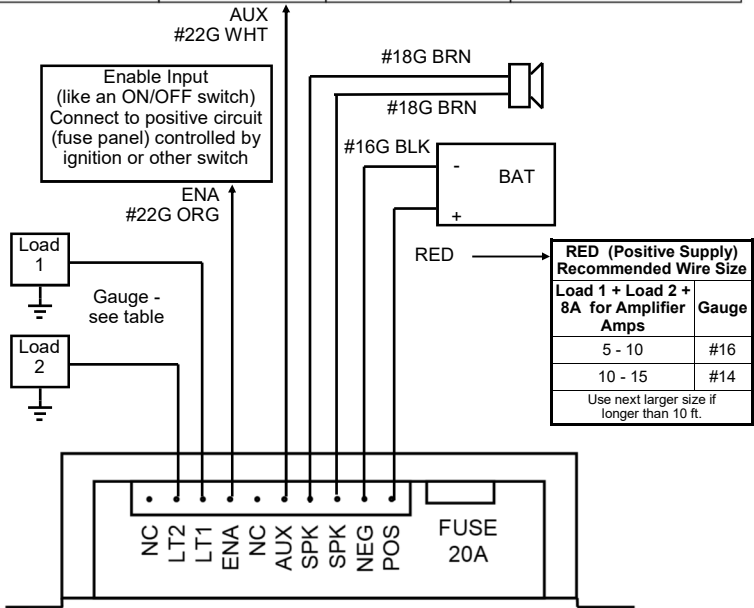
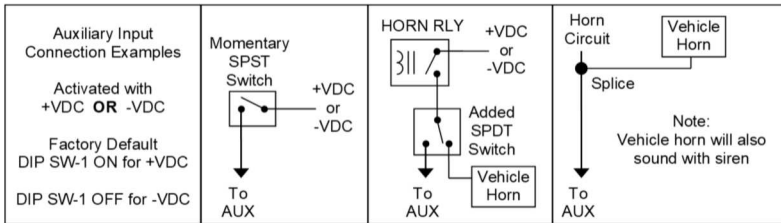
Enable Input Connection (ORG lead on wiring diagram) - This is **NOT** the same as the main power connection. The enable input is like a power switch for the unit. When there is positive power at this connection, the unit is powered up and ready to function. When power is removed, the unit is **not** powered up and will not drain current from the battery. Connect to a positive circuit controlled by the vehicle ignition switch, usually a terminal at the vehicle fuse panel. The required current is low (15mA typ.).

Auxiliary Input Connection (Optional) - A momentary input typically connected to the horn ring of the vehicle or other switch. See OPERATION section for auxiliary input functions.

NOTE: Permanent disconnection of the vehicle horn is NOT recommended.

The auxiliary input may be activated with positive or negative voltage. See **Auxiliary Polarity** under OPTION SWITCHES section for proper activation polarity. Input current is 1 to 20 mA.

Hand Control Connection - Route cable and plug into RJ12 jack on amplifier.



OPERATION

POWER ON/OFF

The unit is normally turned on with ignition switch on the vehicle. See INSTALLATION section. The hand control will also be backlit.

SIREN CONTROLS

MECH, WAIL, YELP, AND PHSR PUSHBUTTON SWITCHES

Four pushbutton switches control the primary operating mode of the siren.

The primary operating modes are:

Standby - A silent mode that may be overridden at any time.

Mech - A simulated mechanical siren tone. Tone may be changed or disabled. See OPTION SWITCHES section.

Wail - A slower changing tone used on highways.

Yelp - A rapidly changing tone used in congested areas.

Phaser - A very rapid changing tone used at intersections and very highly congested areas. May be optionally replaced with **Two-Tone** or disabled. Two-Tone is two alternating frequencies like a European HI-LO. See OPTION SWITCHES section.

Momentarily press button to activate (lit red). Momentarily press button again to de-activate. Also while a particular mode is activated, switch to a different mode by pressing one of the other three buttons. The unit is in Standby when NONE of the four buttons are activated (NOT lit red). For example starting with all four buttons off, press the **Wail** button to turn on Wail. Now press the **Yelp** button to change to Yelp. Press the **Yelp** button again to turn off sound (return to Standby).

When Mechanical or Wail is turned off the tone will die out. Turn on Short Manual option to stop tone immediately. See OPTION SWITCHES section.

MAN PUSHBUTTON SWITCH

Provides manual control of siren tone depending on the primary operating mode selected.

While in Standby, the **Manual** button controls the Mechanical tone. Rising to peak while pressed then falling until die out when released. May be optionally replaced with manual Wail tone.

See OPTION SWITCHES section.

While in Mech, Yelp, or Phaser mode, pressing the **Manual** button causes tone to rise and peak then resume when released. While in Wail mode pressing this button toggles between Wail and Power C tone.

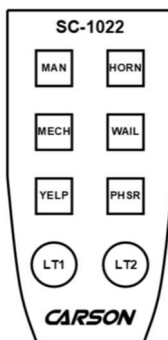
HORN PUSHBUTTON SWITCH

Produces a simulated Air-Horn tone while pressed. Overrides all siren modes. Horn tone may be disabled. See OPTION SWITCHES section.

AUXILIARY INPUT FUNCTIONS

The switch or horn ring attached is intended to be momentary. While in Mech, Wail, Yelp, or Phaser mode, activating auxiliary will produce Horn tone. While in Standby, activating auxiliary will normally produce Horn tone. Different tones are available. See OPTION SWITCHES section.

Horn Ring Cycler 2 (HRC2) - this feature may also be added. See description on Page 4.



Primary Mode and Tone	MAN Button	HORN Button	Auxiliary Input (Horn Ring)
Standby (Silent)	M. Mech or M. Wail	Horn	Horn, M. Mech., M. Wail, or HRC2
Mechanical	Man. Mech. Rise	Horn	Horn
Wail, Yelp, or Phaser	Man. Wail Rise	Horn	Horn

LIGHT CONTROLS

LT1 and LT2 PUSHBUTTON SWITCHES

Momentarily push button to activate (will light red) corresponding light output.

Momentarily push button again to de-activate corresponding light output.

SERVICE

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

A blown siren fuse doesn't necessarily mean that the unit is bad. If a speaker or speaker lead is shorted the fuse will blow before the unit is damaged. Disconnect the SPKR leads and replace the fuse. If the **amplifier makes noise** with Wail mode selected and Enable Input powered the amplifier is OK. Check the speaker or leads for possible shorting.

PROBLEMS

Symptom	Possible Cause	Check
No power or siren output	No power to enable input (org wire) Bad speaker Connector(s) loose Rear panel fuse blown Loose connection at power source	Does backlighting come on? Is the amplifier making noise in Wail? Do you hear a "pop" when turned on? Is an external fuse or circuit breaker used? Are the negative leads connected to a good ground?
No siren tones	Bad Speaker High Voltage Protection	Is the amplifier making noise in Wail? Input voltage must be less than highest rated voltage.
Distorted siren sound	Speaker assembly loose Intermittent Aux Input connection Low vehicle voltage	Is the speaker bell or tip loose? Is the Aux Input used and wired properly? Input voltage must be greater than lowest rated voltage.
Intermittent siren tone	High Voltage Protection Connector loose Bad power connection Circuit breaker in supply connection	Is the vehicle voltage regulator working properly? Is the connector tight on the back of the unit? Is there a loose connection on a power lead? Is a circuit breaker used with at least a 50A rating?
Horn function stuck on or Manual stuck on	Horn or Manual switch stuck Aux Input improperly connected Aux Input Polarity Option set wrong	Does the horn or manual switch return when released? Is the Aux Input used and wired properly? Is the AUX_P option properly configured?
Wrong siren tone	Two-Tone option installed Tones disabled.	Is the T-T option selected? Check option switch settings.
Some siren tones not working	Tone disabled	Check option switch settings.
Light switches not working	Loose output connections Rear panel fuse blown	Do the Light Control switch indicators light? Is the corresponding fuse blown?

PARTS and ACCESSORIES

The following parts and accessories are available from Carson Manufacturing Company, Inc.:

Accessory	Description	* - standard accessory supplied with unit
CP4688-10 *	Connector, 10-pin Terminal Block Plug (SC-1012)	
SC-1022-10CH *	SC-1022 Hand Control Assembly	
CP5003	SC-1022 Hand Control Holster	
ED1865	SC-1022 Hanger and Holder Kit	
ED1753	Cable, Hand Control Extension 15FT Kit (includes CP4652 shielded cable & CP4141 modular coupler)	
VELCRO *	Velcro Strip Fastener	
CP5208 *	Instruction Manual	
CP5003 *	Hand Control Holster	

See www.carsonsirens.com for additional information
or contact our Service Department at:
E-mail service@carsonsirens.com or Phone (888) 577-6877

RETURN

If you have any questions concerning this or any other Carson product, please contact our **Technical Service Department** at (888) 577-6877. Many issues can be handled over the phone. We can also be reached via e-mail at **service@carsonsirens.com**

If a product must be returned for any reason, please contact our Technical Service Department to obtain a Returned Merchandise Authorization number (RMA#) before you ship the product to Carson. Please write the RMA# clearly on the package near the mailing label. Be sure to provide a return address, contact and phone number, along with a brief description of the problem.

LIMITED WARRANTY

Carson Manufacturing Company, Inc. warrants this new product to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date of delivery to the first user-purchaser.

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

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

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

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