CODE 3 Z3S Emergency Warning Device Instruction Manual

Contents

CODE 3 Z3S Emergency Warning Device

Product Usage Instructions

- **Unpacking and Pre-Installation:**
  - Carefully remove the product from the packaging and place it on a flat surface. Check for any transit damage and ensure all parts are present. In case of damage or missing parts, contact the transit company or Code 3. Do not use damaged or broken parts.
- **Installation:**
  - Follow the installation instructions provided in the manual. Ensure proper grounding to prevent high current arcing and potential hazards. Place the warning device in a strategic location for optimal performance.
- **Operation:**
  - After installation, familiarize yourself with the operation of the product. Test all features to ensure they are functioning correctly. Regularly check that the warning signal projection is unobstructed and visible.
- **Maintenance:**
  - Regular maintenance is crucial for the longevity and effectiveness of the product. Follow the maintenance schedule outlined in the manual to keep the device in optimal working condition.

IMPORTANT! Read all instructions before installing and using. Installer: This manual must be delivered to the end user.

WARNING!

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

Do not install and/or operate this safety product unless you have read and understood 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 emergency personnel and the public.
2. Emergency warning devices often require high electrical voltages and/or currents. 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 is vital to the performance of this warning device. Install this product so that output performance of the system is maximized and the controls are placed within convenient reach of the operator so that they can operate the system without losing eye contact with the roadway.
5. Do not install this product or route any wires in the deployment area of an air bag. Equipment mounted or located in an air bag deployment area may reduce the effectiveness of the air bag or become a projectile that could cause serious personal injury or death. Refer to the vehicle owner's manual for the air bag deployment area. It is the responsibility of the user/operator to determine a suitable mounting location ensuring the safety of all passengers inside the vehicle particularly avoiding areas of potential head impact.
6. It is the responsibility of the vehicle operator to ensure daily 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.
7. The use of this or any other warning device does not ensure all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection, drive against traffic, respond at a high rate of speed, or walk on or around traffic lanes.
8. This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding emergency warning 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.

Specifications

Size:	Control Head (HxLxD)	3.25” x 6.75” x 1.30”	
	Amp (HxLxD)	3.25” x 10.50” x 6.75”	
Weight:	Amplifier	7.6 lbs	
	Control Head	0.6 lbs	
Input Voltage:		12 VDC Nominal	
Input Current:	Amplifier	100W: 8.5A	
		200W: 17.0A	
		300W: 25.5A	
Auxiliary Outputs:	Aux A (High Current)	20A each	25A Total
	Aux B (Mid Current)	10A each	25A Total
	Aux C (Digital)	0.5A each	
Temp. Range:		-40°F to 149°F (-40°C to 65°C)	

WARNING!

Sirens produce loud sounds that may damage hearing.

- Wear hearing protection when testing
- Use siren only for emergency response
- Roll up windows when siren is operating
- Avoid exposure to the siren sound outside of vehicle

Additional Matrix Resources

- Product Information: **www.code3esg.com/us/en/products/matrix**
- Training Videos: **www.youtube.com/c/Code3Inc**
- Matrix Software: **http://software.code3esg.global/updater/matrix/downloads/Matrix.exe**

Unpacking and Pre-Installation

Carefully remove the product and place it on a flat surface. Examine the unit for transit damage and locate all parts. If damage is found or parts are missing, contact the transit company or Code 3. Do not use damaged or broken parts. Ensure the product voltage is compatible with the planned installation.

Sirens are an integral part of an effective audio/visual emergency warning system. However, sirens are only short range secondary warning devices. The use of a siren does not insure that all drivers can or will observe or react to an emergency warning signal, particularly at long distances or when either vehicle is traveling at a high rate of speed. Sirens should only be used in a combination with effective warning lights and never relied upon as a sole warning signal. Never take the right of way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection driving against traffic, or responding at a high rate of speed. The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing this device. The vehicle operator should check the equipment daily to insure that all features of the device operate correctly. To be effective, sirens must produce high sound levels that potentially can inflict hearing damage. Installers should be warned to wear hearing protection, clear bystanders from the area and not to operate the siren indoors during testing. Vehicle operators and occupants should assess their exposure to siren noise and determine what steps, such as consultation with professionals or use of hearing protection should be implemented to protect their hearing. This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations. Code 3, Inc., assumes no liability for any loss resulting from the use of this warning device. Proper installation is vital to the performance of the siren and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The siren system should be installed in such a manner as to: A) Not reduce the acoustical performance of the system, B) Limit as much as practical the noise level in the passenger compartment of the vehicle, C) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway. Emergency warning devices often require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire. PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

Installation and Mounting

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

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

The Z3S Siren Control Head, shown in Figure 1, is designed to mount directly into the console of most leading manufacturers. It may also be mounted above the dash, below the dash or on the transmission tunnel using the mounting hardware supplied (see Figure 2). Ease of operation and convenience to the operator should be the prime consideration when choosing a mounting location. However, the user must also consider the deployment area for the air bag of the vehicle and other factors which might impact the safety of the vehicle occupants. When connecting a CAT5 cable or Microphone to the back of the Z3S Siren Control Head, use tie wraps, as shown in Figure 3, to relieve strain on the wires.
The Z3S Amplifier is mounted with four screws (not supplied). Mount the Z3S Amplifier so that connectors and wiring are easy to access.
NOTE: All Z3S equipment should be mounted in locations that are safe from moisture. All wiring should be routed so that it cannot be damaged by sharp edges or moving parts.

Figure 1

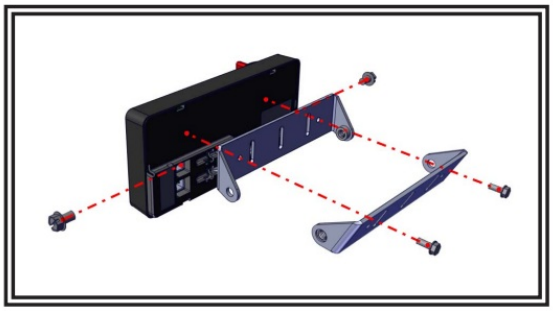


Figure 2

Software:

This unit is programmed using the Matrix software. Please reference the Matrix Software installation manual (920-0731-00) for more details. The latest version of the Matrix software can be downloaded from the Code 3 website.

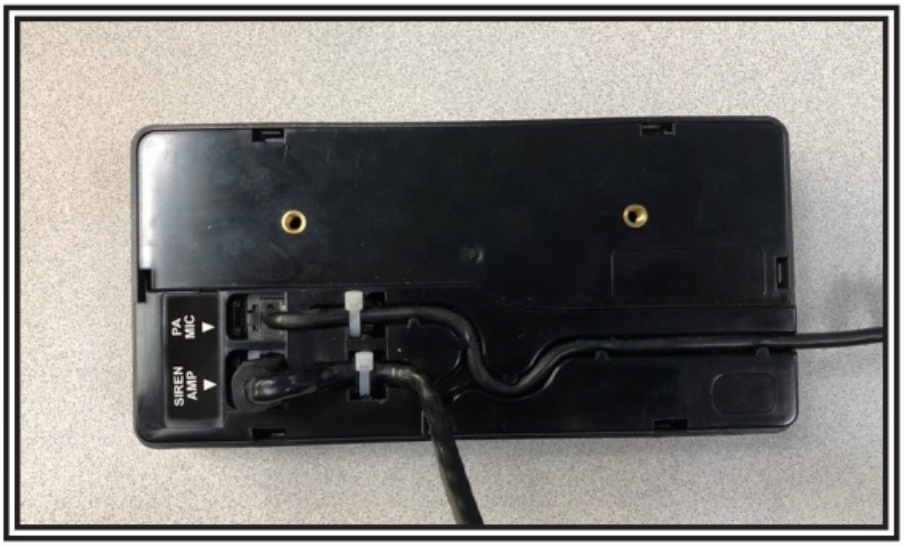


Figure 3

Wiring Instructions

The Z3S Siren acts as a central node on the Matrix network and provides a USB interface for system configurability via PC. All other Matrix-compatible products can connect to the Z3S Siren using one or more of the four provided connections, labeled AUX4, CANP_CANN, PRI-1, and SEC-2. For example, a Matrix-enabled lightbar can connect to the PRI-1 port with a CAT5 cable.
NOTE: The PRI-1 port must be utilized first, before additional products can be connected to the SEC-2 port.
See Wiring Diagram on fthe ollowing page for the details of each harness. Connect each harness from the siren to the equipment to be controlled using proper crimping techniques and adequate wire gauges. The USB port is used to connect the siren to a computer running the Matrix® Configurator software.
Caution!! Do not connect anything other than a 100-watt speaker to the siren speaker outputs. This will void the siren and/or speaker warranty!

Power Distribution:

Connect the red (power) and black (ground) wires from the Power Harness (690-0724-00) to a nominal 12 VDC supply, along with three (3) customer-supplied in-line, slow-blow ATC style fuses. Use one for each red (power) wire. Each fuse must be rated for 30A. Please note that the fuse holders selected by the customer must also be rated by the manufacturer to meet or exceed the corresponding fuse ampacity. See the wiring diagram for details.

NOTE: It is recommended that continuous power be supplied to the Z3S Siren. If power is interrupted by a timer relay, or other third-party switch, then unexpected results may occasionally occur. For example, the Matrix lightbar may briefly go into emergency flash mode. This is because the Z3S Siren is already designed to control the power draw of the entire Matrix network. When powered itself, and asleep, it will cut power to all other CAT5 connected MATRIX devices.
The Aux A Outputs are High Current; they can supply a maximum of 20A each or 25A combined. The Aux B Outputs are Mid-Current; they can supply a maximum of 10A each. The Aux C Outputs are Digital; they can supply a maximum of 0.5A each and be configured for either Positive or Ground output. The Aux B and Aux C Outputs can supply up to 25A combined. C Outputs are digital and not designed to power devices higher than 0.5A. Do not combine multiple C Outputs to power devices.
NOTE: Any electronic device may create or be affected by electromagnetic interference. After installation of any electronic device, operate all equipment simultaneously to ensure that operation is free of interference.
NOTE: If an AUX C Output detects 5 shorts during operation it will shut off until power is cycled. Functionality will return after power is cycled.

Output Loads		
	Per Output	**Combined**
A*	20 amps	25 amps (A1+A2)
B*	10 amps	25 amps (B+C)
C	0.5 amps	

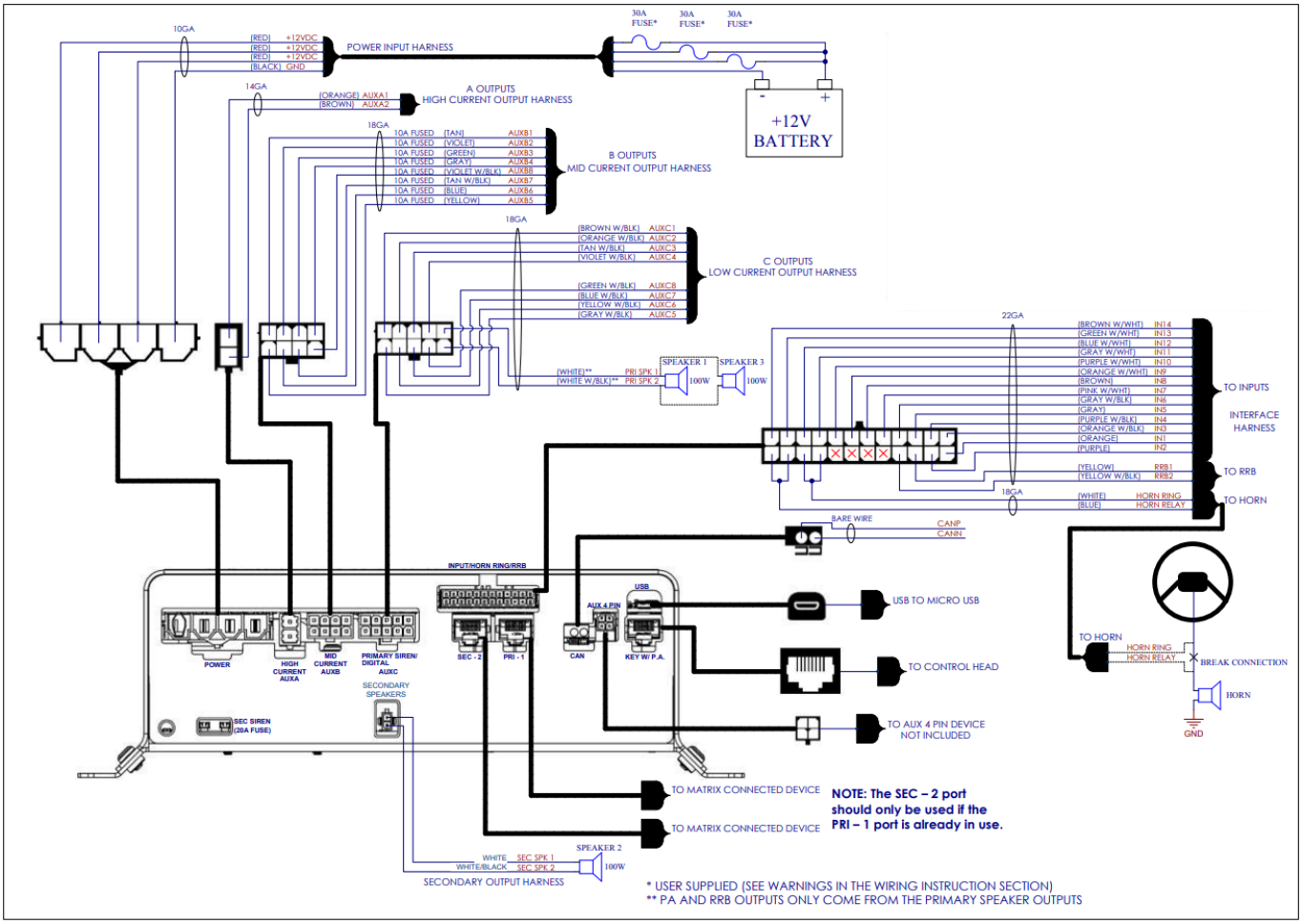
***Flashable configurable outputs**

Z3 DUAL-POWER OUTPUTS	
A1 & A2	B5 & B6
B1 & B2	B7 & B8
B3 & B4	

WARNING!

Disconnecting the vehicle brake lamp circuit using any sirens with relay outputs or switch controllers could cause vehicle or property damage, serious injury, or even death. Disabling this circuit is a violation of the Federal Motor Vehicle Safety Standard for the brake lights. Disconnecting the brake lights in any way is at your own risk and is not recommended.

Wiring Diagram



Default Product Settings

Button	Type	Lightbar	Supervisor	Citadel	Wingman	Z3	Switch Node
Slider Position 1	Toggle	Standard Patterns: **Sweep** (Intensity 100%)	Sweep Left/Right: **Primary/Secondary Smooth Sweep** (Intensity 100%)	Sweep Left/Right: **Primary/Secondary Smooth Sweep** (Intensity 100%)	Sweep Left/Right: **Primary/Secondary Smooth Sweep** (Intensity 100%)	Aux C5 (Positive) Aux C6 (Positive)	
Slider Position 2	Toggle	Standard Patterns: **Triple Flash 115 (SAE)** (Intensity 100%)	Left / Right: **Primary Only** (Intensity 100%) Flash Rate: Title 13 Double Flash 115	Left / Right: **Primary Only** (Intensity 100%) Flash Rate: Title 13 Double Flash 115	Left / Right: **Primary Only** (Intensity 100%) Flash Rate: Title 13 Double Flash 115	Aux A1 Pattern: Steady Phase 0 Horn Ring: Enable Horn Ring Relay Latched Input: SLIDER POSITION 1	
						Aux A2 Pattern: Steady Phase 0	

Slider Position 3	Toggle	Standard Patterns: **Pursuit** (Intensity 100%)	Left / Right: **Primary/Secondary Pops** (Intensity 100%) Flash Rate: Double Flash 150	Left / Right: **Primary/Secondary Pops** (Intensity 100%) Flash Rate: Double Flash 150	Left / Right: **Primary/Secondary Pops** (Intensity 100%) Flash Rate: Double Flash 150	Horn Ring: Enable Horn Ring Relay Latched Input: SLIDER POSITION 2	
A1	Toggle					Primary Tones: **Wail 1** Hit And Go Alternate: **Yelp 1** Secondary Tones: **Yelp 1** Hit And Go Alternate: **Low Yelp** Horn Ring: Enable Horn Ring Relay	
A2	Toggle					Primary Tones: **Yelp 1** Hit And Go Alternate: **Hyper Yelp 1** Secondary Tones: **Hyper Yelp 1** Hit And Go Alternate: **Low Yelp** Horn Ring: Enable Horn Ring Relay	
						Primary Tones: **HiLo 1** Hit And Go Alternate: **Command Alert**	

A3	Toggle					Secondary Tones: **Hyper Lo 1** Hit And Go Alternate: **Low Yelp** Horn Ring: Enable Horn Ring Relay	
A4	Momentary					Special Tones: **Manual Wail**	
A5	Momentary					Special Tones: **Air Horn**	
B1	Toggle	**Left Alley** (Intensity 100%)				Aux B1 Pattern: Steady Phase 0	
B2	Toggle	**Right Alley** (Intensity 100%)				Aux B2 Pattern: Steady Phase 0	
B3	Toggle	**Takedowns** (Intensity 100%)	Steady Patterns: **All Tertiary** (Intensity 100%)			Aux B3 Pattern: Steady Phase 0	
B4	Toggle	**Front Scene** (Intensity 100%)	Steady Patterns: **All Tertiary** (Intensity 100%)			Aux B4 Pattern: Steady Phase 0	
B5	Toggle	**Left Scene** (Intensity 100%)				Aux B5 Pattern: Steady Phase 0	
B6	Toggle	**Right Scene** (Intensity 100%)				Aux B6 Pattern: Steady Phase 0	
B7	Timed					Aux B7 Pattern: Steady Phase 0	
B8	Toggle					Aux B8 Pattern: Steady Phase 0	
C1	Toggle	Left Arrow Stik Patterns: **Build Fast** (Intensity 100%)		Left Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Left Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Aux C1 (Positive)	

C2	Toggle	Center Arrow Stik Patterns: **Build Fast** (Intensity 100%)		Center Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Center Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Aux C1 (Positive) Aux C2 (Positive)	
C3	Toggle	Right Arrow Stik Patterns: **Build Fast** (Intensity 100%)		Right Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Right Arrow Stik Patterns: **Tertiary Build Fast** (Intensity 100%)	Aux C2 (Positive)	
C4	Toggle	Simultaneous Arrow Stik Patterns: **Flash Fast** (Intensity 100%)		Simultaneous Arrow Stik Patterns: **Tertiary Flash Fast** (Intensity 100%)	Simultaneous Arrow Stik Patterns: **Tertiary Flash Fast** (Intensity 100%)	Aux C3 (Positive)	
C5	Toggle	Serial Lightbar Dimming (Intensity 30%)		Citadel Dimming (30%)	Wingman Dimming (30%)	Aux C4 (Positive)	

Figure 4 - Rotary Control Head Key

Figure 5 - Push Button Control Head Key

Control Head – Menus		
Menu	**Access**	**Functionality**
Backlight Level	Push and hold buttons 17 or 19 while in Alert Level 0. Button 18 will illuminate while menu is active. Release 17 or 19.	Press and hold 17 to decrease backlight level. Press and hold 19 to increase backlight level. Press button 21 to exit the menu.
RRB Volume	Drive INPUT 5 (Gray wire) or input for RRB function to the ON state (high by default). Button 18 will illuminate while menu is active. Release 17 or 19.	Press and hold 17 to decrease RRB volume. Press and hold 19 to increase RRB volume. Press button 21 to exit the menu.
PA Volume	Hold the PTT button on the microphone. Then push and hold button 17 or 19 while in Alert Level 0. Button 18 will illuminate while menu is active. Release 17 or 19.	Press and hold 17 to decrease PA volume. Press and hold 19 to increase PA volume. Press button 21 to exit the menu.

Discrete Input – Default Functions			
Input	**Color**	**Function**	**Active**
IN 1	ORANGE	HANDS-FREE	POSITIVE
IN 2	PURPLE	CONFIGURABLE	GROUND
IN 3	ORANGE/BLACK	PARK KILL	GROUND
IN 4	PURPLE/BLACK	ALARM	POSITIVE
IN 5	GRAY	RRB	POSITIVE
IN 6	GRAY/BLACK	IGNITION – REQUIRED EVEN WITH OBD DEVICE	POSITIVE
IN 7	PINK/WHITE	AUX C7 = GROUND	POSITIVE
IN 8	BROWN	CONFIGURABLE	POSITIVE
IN 9	ORANGE/WHITE	CONFIGURABLE	POSITIVE
IN 10	PURPLE/WHITE	CONFIGURABLE	POSITIVE
IN 11	GRAY/WHITE	CONFIGURABLE	POSITIVE
IN 12	BLUE/WHITE	CONFIGURABLE	POSITIVE
IN 13	GREEN/WHITE	CONFIGURABLE	POSITIVE
IN 14	BROWN/WHITE	CONFIGURABLE	POSITIVE
RRB IN 1	YELLOW	RRB INPUTS	N/A
RRB IN 2	YELLOW/BLACK		N/A
HORN RING	WHITE	HORN RING INPUT	GROUND
HORN RELAY	BLUE	HORN RING TRANSFER RELAY	N/A

Figure 6

Feature Descriptions

The information below describes the features of the Z3S(X) Siren system. Many of these features are configurable using the Matrix Configurator. See software manual 920-0731-00 for further information.

Siren Priority – Audible siren outputs conform to the following priority order from highest to lowest; PTT/PA, RRB, Airhorn tones, Alarm function, Manual tones, remaining tones (e.g. Wail, Yelp, Hi-Lo).
Hands-Free – This mode enables the Scroll functionality, as well as Alert Level 3 lighting, in response to the vehicle's horn input. To enable this mode, apply Positive voltage to the discrete wire input IN 1 (Orange).
Horn Ring – This input allows the Z3S siren to respond to the vehicle horn press. See the Wiring Diagram for details. This input is only enabled in Alert Level 2 or above, and when tones are active, by default. When enabled the vehicle's horn input is replaced by siren tones.
Hit-N-Go – This mode overrides an active siren tone for eight (8) seconds. It can be enabled by the Horn Ring input.
Note: The Horn Ring input cannot enable Hit-N-Go mode if the Hands Free mode is active. The specific override tones are outlined in the Control Head – Default Functions table.
Scroll – This function loops through a list of push-button inputs and must be configured via software. When active, a defined input will advance to the next available push button, e.g. A1 -> A2 -> A3 -> A1. By default, this input is the short press Horn Ring. If no tone is active, A1 will be selected. A long press Horn Ring will turn on an Airhorn tone. To stop the function loop, press the currently active push button.
Note: in Hands Free mode a long press will instead disable the current push button input.
Scroll On/Off – This mode is similar to the Scroll mode except that is inserts an OFF state at the end of the push button input list. This mode must also be configured via software.
Overvoltage Lockout – This function monitors system supply voltages to prevent speaker damage. Supply voltages greater than 15V will shutoff siren tones per the table below. The siren tones can be turned on again after shutoff by reactivating the input. This will reset the overvoltage timer. See software manual 920-0731-00 for further information.

Supply Voltage	Duration
15 – 16 VDC	15 min.
16 – 17 VDC	10 min.
17 – 18 VDC	5 min.
18+ VDC	0 min.

LightAlert – This function produces an audible noise from the Control Head on a periodic basis if any lighting or auxiliary outputs are enabled.
Sleep – This mode allows the siren to enter a low power state when the vehicle is turned off. Removing Positive from the Ignition input starts a timer which lasts one (1) hour by default. The Z3S siren enters Sleep mode whenever the timer runs out. Reapplying Positively to the Ignition input will prevent the siren from going to sleep.
Overcurrent Lockout – This function monitors tone output currents to prevent siren damage. If a short circuit is detected, the corners of the ArrowStik Indicator on the control head will flash RED momentarily to warn the operator. The tone output will be disabled for 10 seconds before retry.
Radio Rebroadcast (RRB) – This mode allows a user to rebroadcast an audio signal over the siren speakers. Siren tones do not operate when this mode is enabled. RRB Audio will only be broadcast from the Primary Speaker output if a dual amp Z3SX system is used. Connect the audio signal to the RRB 1 and RRB 2 discrete inputs (Yellow and Yellow/Black). Polarity is not an issue. By default, the mode can be enabled by applying Positive to discrete input IN 5 (Gray). The volume of the output can be adjusted using the RRB volume menu. See the Control Head – Menus table for more details. Note: the RRB input is designed to receive input voltages from standard Radio amplifier outputs. That said, it is still possible to over-drive these inputs and cause damage. It is recommended that the output level of any system that is attached to the RRB circuit be reduced when first connected. The level should be increased to usable levels after install to prevent overdriving/damaging the RRB audio inputs.
Push-To-Talk (PTT) – Select the momentary button on the side of the microphone to switch the siren outputs to the Public Address (PA) mode. This will override all other active tone outputs until the button is released.
Public Address (PA) – This mode allows a user to broadcast their voice over the siren speakers. This takes priority over all other siren tone functions. The mode can be enabled by pushing the PTT button. PA Audio will only be broadcast from the Primary Speaker output if a dual amp Z3SX system is used. The volume of the output can be adjusted using the PA volume menu. See the Control Head – Menus table for more details.
Microphone Lockout – This function disables the PA mode if the PTT input is held for 30 seconds. This will avoid the situation where the PTT is stuck in the on position for an extended period. To continue using PA mode, release the PTT button and press it again.
Fuse Indicators – All fuses are accessible from outside the siren housing. An open fuse is indicated with a RED LED located next to the fuse. In the event of an open fuse, the corners of the ArrowStik Indicator will momentarily flash RED to warn the operator.
Note: The fuse LED for the Secondary Siren output on a Z3SX system will illuminate GREEN under normal operation.
Park Kill – This function enables the Standby mode. To enable this function, apply Ground to the discrete wire input IN 3 (Orange/Black). When Park Kill is disabled, active tones will remain in Standby. Airhorn tones and the Alarm function are not affected by Standby mode.
Alarm – This function will output an Alarm Chirp tone. To enable this function, apply Positive to the discrete wire input IN 4 (Purple/Black). For example, this can be used to alarm the police officer when a temperature sensor on a K-9 unit has reached dangerous levels. The Alarm input will operate even in Sleep Mode.
Ignition – This function controls the Sleep Mode of the siren. Apply Positive to the discrete input IN 6 (Gray/Black) to exit Sleep Mode. A USB cable between the siren and a PC running the Matrix Configurator will also exit Sleep Mode.
Note: One (1) minute after communication with the software is terminated the system will reset.
ArrowStik Indicator – The LEDs located in the upper right corner of the control head indicate the current status of any traffic director on the Matrix network. They are also used to indicate system faults: the far left and right arrows will momentarily flash RED in the presence of a fault. They are also used to display menu information.
Standby – This mode disables siren tones and prevents the Matrix network from being in Alert 3. A Control Head tone button that is affected will begin to blink at a steady rate when this mode is enabled. All functions, except siren tones, will resume immediately on exiting Standby mode. A short press will re-enable the tone button once Standby is removed, or a long press will turn the tone off permanently.

Manual Tones – This function produces a manual style tone when enabled. A manual tone will ramp up to its maximum frequency and hold until the input is released. When the input is released the tone will ramp down and return to the previous function. If the button is pressed again before the ramp-down is completed, the tone will start ramping up again from the current frequency. If another tone is active the
Manual Tones will take priority per the Siren Priority.
Positive – A voltage applied to an input wire that is 10V or greater.
Ground – A voltage applied to an input wire that is 1V or less.
Alert 0/1/2/3 (Level 0/1/2/3) – These modes group default functions together for one-touch access, e.g. slide switch position. By default, there are three (3) available groups. These groups can be modified. See software manual 920-0731-00 for further information.
Brownout Condition – This function allows the Matrix network to recover from an extended low voltage condition. Recovery time is five (5) seconds or less once the Brownout Condition is relieved. The control head will beep three times. Functions operating prior to the Brownout Condition will not automatically resume.

Button Input Types:

- **Timed –** Active on press; inactive after defined duration or next press
- **Toggle –** Active on press; inactive after next press
- **Momentary –** Active while held; inactive on release

Troubleshooting

Problem	Possible Cause(s)	Comments / Response
No Power	Power Wiring	Ensure power and ground connections to the Siren are secured. Ensure input voltage does not exceed the rang e of 10-16 VDC. Remove and reconnect the power wire harness.
	Blown Fuse / Reverse Polari ty	Check and replace the fuse(s) feeding the power wire h arness if necessary. Verify the correct power wire polarit y.
	Ignition Input	The Ignition wire input is required to bring the Siren out of a Sleep mode. Ensure that the Ignition wire is connec ted properly. Note that the Siren will revert to a Sleep m ode after a default 1 hour time period if Ignition is remov ed. Driving the Ignition wire high again will resume activ e operation. Connecting the Siren to the Matrix Configur ator via USB will keep the network active while the softw are is active.
No Communication	Connectivity	Ensure that all other Matrix devices are securely connec ted to the Siren. For example, ensure that the CAT5 cabl e(s) are fully seated into the RJ45 jacks with positive loc k.
	Park Kill	Shift the vehicle out of park to exit Park Kill. Press the d esired tone input to exit Standby.
	Overcurrent Lockout	The corners of the ArrowStik Indicator will flash RED mo mentarily to warn the operator of a short circuit condition. Check the speaker wiring and condition. Repl ace as needed.
	Overvoltage Lockout	See Feature Descriptions section for more detail. Monit or the vehicle supply during operation.

No Siren Tones	PA/RRB	The PA and RRB function both override normal siren operation. Release the PTT button or remove the signal from the RRB input.
	Defective Speaker(s)	Verify resistance across the speaker(s) in the range of 4 Ω – 6Ω. Replace speaker(s) as necessary.
	Siren Temperature	Siren tone outputs shut off at an over temperature threshold. This allows the system to cool, and avoid damage to the components. Once temperatures decrease, the siren tones will resume operation.
	Speaker Wiring	Check speaker harness wiring. Ensure positive lock, proper connections, and continuity. Ensure that tones are heard from within the siren enclosure when active.
Open Siren Fuse	Defective Speaker(s)	Verify resistance across the speaker(s) in the range of 4 Ω – 6Ω. Replace speaker(s) as necessary.
	Auxiliary A/B/C Output Overcurrent	See Specifications / Auxiliary Outputs for output type current limits. Ensure that each output type does not exceed its rating.
Siren Tone Quality	Low Supply Voltage	Ensure power and ground connections to the Siren are secured. If an aftermarket power distribution system is installed, ensure that its rated current capacity is sufficient for all downstream loads.
	Speaker Wiring	Check speaker harness wiring. Ensure positive lock, proper connections, and continuity. Ensure that tones are heard from within the siren enclosure when active.
	Speaker Arrangement	Multiple speakers on the same output harness must be installed in parallel. Refer to Wiring Diagram for details.
	Defective Speaker(s)	Verify resistance across the speaker(s) in the range of 4 Ω – 6Ω. Replace speaker(s) as necessary.
Premature Speaker Failure	High Supply Voltage	Verify proper operation of the vehicle charging system. Supply voltage in excess of 15V will induce the Overvoltage Lockout.
	Speaker Type	Only 100W speakers are permitted. Contact customer support for a list of approved speakers/speaker ratings.

Problem	**Possible Cause(s)**	**Comments / Response**
	Output Wiring	Check output harness wiring. Ensure positive lock, proper connections, and continuity.

Auxiliary Output Failure	Output Load	Verify that the load is not shorted. All outputs are designed to self current limit in case of short circuit. In some cases, this may prevent an open fuse. See Specifications / Auxiliary Outputs for output type current limits. Ensure that each output type does not exceed its rating. AUX C Outputs may require full power cycle if shorted repeatedly.
PA Quality	PA Volume	See the Control Head – Menus table for more details.
	Microphone Connection	Check microphone wiring. Ensure positive lock, proper connections, and continuity.
	Defective Microphone	Test the siren with another microphone.
	Microphone Lockout	This function disables the PA mode if the PTT input is held for 30 seconds. This will avoid the situation where the PTT is stuck in the on position for an extended period. To continue using PA mode, release the PTT button and press it again.
	Microphone Type	Contact customer support for a list of approved microphones.
RRB Quality	RRB Volume	See the Control Head – Menus table for more details.
	Audio Signal Connection	Check microphone wiring. Ensure positive lock, proper connections, and continuity.
	Audio Signal Amplitude	Ensure that the audio source volume is high enough. Turn up the source volume as necessary. However, over driving the inputs can cause damage to the inputs. Please follow the procedure outlined in the feature description section of this manual.
Control Head	Connectivity	Ensure that the CAT5 cable from the control head is fully seated into the RJ45 jack on both ends. Note that the control head jack is labeled ‘KEY w/ PA’. Replace the cable if necessary.
	Sleep mode	Ensure that the Ignition wire is connected properly, and Positive is applied.
	Fault LEDs	The LEDs located in the upper right corner of the control head are used to indicate system faults: the far left and right arrows will momentarily flash RED in the presence of a fault.
	Park Kill	Buttons will flash slowly if the associated functions are on Standby. Shift the vehicle out of park to exit Park Kill. Then press the desired tone input to exit Standby.
	Configuration Error	Connect the siren to the Matrix Configurator and reload the desired system configuration.
Unexpected Operation (Misc)	Scroll	Verify that the Horn Ring input is not inadvertently triggered. This could cause the system to enter Scroll mode.
	Configuration Error	Connect the siren to the Matrix Configurator and reload the desired system configuration.

Replacement Parts and Accesories

All replacement parts and accessories pertaining to the product will be placed in a chart with their description and part numbers. Below is an example of a Replacement/Accessories chart

Description	Part No.
Z3S MATRIX HANDHELD	CZMHH
Z3S PUSH BUTTON CONTROL HEAD	CZPCH
Z3S ROTARY CONTROL HEAD	CZRCH
Z3S HANDHELD LEGENDS	CZZ3HL
Z3S HARNESS	CZZ3SH
Z3S LEGEND SET	CZZ3SL
Z3S SIREN MICROPHONE	CZZ3SMIC
CAT5 Splitter	MATRIX SPLITTER

Warranty

Manufacturer Limited Warranty Policy:

Manufacturer warrants that on the date of purchase this product will conform to Manufacturer's specifications for this product (which are available from the Manufacturer upon request). This Limited Warranty extends for Sixty (60) months from the date of purchase.
DAMAGE TO PARTS OR PRODUCTS RESULTING FROM TAMPERING, ACCIDENT, ABUSE, MISUSE, NEGLIGENCE, UNAPPROVED MODIFICATIONS, FIRE OR OTHER HAZARD; IMPROPER INSTALLATION OR OPERATION; OR NOT BEING MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE PROCEDURES SET FORTH IN MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS VOIDS THIS LIMITED WARRANTY.

Exclusion of Other Warranties:

MANUFACTURER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE IMPLIED WARRANTIES FOR MERCHANTABILITY, QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE ARE HEREBY EXCLUDED AND SHALL NOT APPLY TO THE PRODUCT AND ARE HEREBY DISCLAIMED, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ORAL STATEMENTS OR REPRESENTATIONS ABOUT THE PRODUCT DO NOT CONSTITUTE WARRANTIES.

Remedies and Limitation of Liability:

MANUFACTURER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR UNDER ANY OTHER THEORY AGAINST MANUFACTURER REGARDING THE PRODUCT AND ITS USE SHALL BE, AT MANUFACTURER'S DISCRETION, THE REPLACEMENT OR REPAIR OF THE PRODUCT, OR THE REFUND OF THE PURCHASE PRICE PAID BY BUYER FOR NON-CONFORMING PRODUCT. IN NO EVENT SHALL MANUFACTURER'S LIABILITY ARISING OUT OF THIS LIMITED WARRANTY OR ANY OTHER CLAIM RELATED TO THE MANUFACTURER'S PRODUCTS EXCEED THE AMOUNT PAID FOR THE PRODUCT BY BUYER AT THE TIME OF THE ORIGINAL PURCHASE. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LOST PROFITS, THE COST OF SUBSTITUTE EQUIPMENT OR LABOR, PROPERTY DAMAGE, OR OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES BASED UPON

ANY CLAIM FOR BREACH OF CONTRACT, IMPROPER INSTALLATION, NEGLIGENCE, OR OTHER CLAIM, EVEN IF MANUFACTURER OR A MANUFACTURER'S REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. MANUFACTURER SHALL HAVE NO FURTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE PRODUCT OR ITS SALE, OPERATION AND USE, AND MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES THE ASSUMPTION OF ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH PRODUCT.
This Limited Warranty defines specific legal rights. You may have other legal rights which vary from jurisdiction to jurisdiction. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages.

Product Returns:

If a product must be returned for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3®, Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.
*Code 3®, Inc. reserves the right to repair or replace at its discretion. Code 3®, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping: nor for the handling of products returned to sender after the service has been rendered.

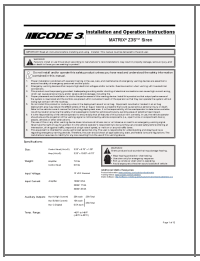
Contact

- 10986 North Warson Road, St. Louis, MO 63114 USA
- Technical Service USA **314-996-2800**
- **c3_tech_support@code3esg.com**
- **CODE3ESG.com**

Frequently Asked Questions

- **Q: Can this product be used in all weather conditions?**
  - A: The manual does not specify weather conditions, but it is recommended to protect the product from extreme weather to ensure durability.
- **Q: How can I troubleshoot if the warning signal is not working?**
  - A: Check the electrical connections, power source, and ensure noobstructions are blocking the signal projection. Refer to the troubleshooting section in the manual for detailed steps.

Documents / Resources

	**CODE 3 Z3S Emergency Warning Device** [pdf] Instruction Manual Z3S Emergency Warning Device, Z3S, Emergency Warning Device, Warning Device, Device

References

- **software.code3esg.global/updater/matrix/downloads/Matrix.exe**
- **User Manual**