



CODE 3 Citadel Series MATRIX Enabled Instruction Manual

[Home](#) » [Code 3](#) » CODE 3 Citadel Series MATRIX Enabled Instruction Manual 

Contents

- [1 CODE 3 Citadel Series MATRIX Enabled](#)
- [2 Product Information](#)
- [3 Product Usage Instructions](#)
- [4 Specifications](#)
- [5 Unpacking and Pre-Installation](#)
- [6 Wiring Instructions](#)
- [7 Replacement Parts](#)
- [8 Troubleshooting](#)
- [9 Warranty](#)
- [10 Documents / Resources](#)
 - [10.1 References](#)
- [11 Related Posts](#)



CODE 3 Citadel Series MATRIX Enabled



Product Information

The product is an emergency warning device that requires proper installation and operator training for use, care, and maintenance. It produces high electrical voltages and/or currents, and it must be properly grounded to avoid high current arcing that can cause personal injury, severe vehicle damage, or fire. Proper placement and

installation are essential to maximize output performance and ensure the convenient reach of the operator. The user is responsible for understanding and obeying all laws regarding emergency warning devices.

The product specifications are as follows:

- Input Voltage: 12-24 VDC
- Input Current: 6.3 A max.
- Output Power: 80.6 W max.
- Fusing Requirement: 10A
- CAT5

Product Usage Instructions

- Before installing and using the product, read all instructions in the manual. Deliver the manual to the end user. Do not install or operate the product unless you have read and understood the safety information in the manual.
- Ensure the product voltage is compatible with the planned installation. Carefully remove the product and examine it for transit damage. If damage is found or parts are missing, contact the transit company or Code 3. Do not use damaged or broken parts.
- Refer to the vehicle-specific installation instructions for mounting instructions. 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. Use control box recommended mounting hardware: #8-#10. The maximum mounting torque is 35in-lbs using #10-32 with flange nut or washer on a flat surface. Different mounting hardware or surface will affect max torque limits.
- It is the responsibility of the vehicle operator to ensure daily that all features of this product work correctly. Ensure the projection of the warning signal is not blocked by vehicle components, people, vehicles, or other obstructions. 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.
- **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 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

- **Input Voltage:** 12-24 VDC
- **Input Current:** 6.3 A max.
- **Output Power:** 80.6 W max.
- **Fusing Requirement:** 10A
- **Matrix® Connectivity:** CAT5
- **Operating Temperature:** -40°C to 65°C (-40°F to 149°F)

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.

Installation and Mounting:

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.
- Refer to vehicle specific installation for mounting instructions. Control box recommended mounting hardware:

#8-#10.

- Max mounting torque 35in-lbs using #10-32 with flange nut or washer on flat surface. Different mounting hardware or surface will affect max torque limits

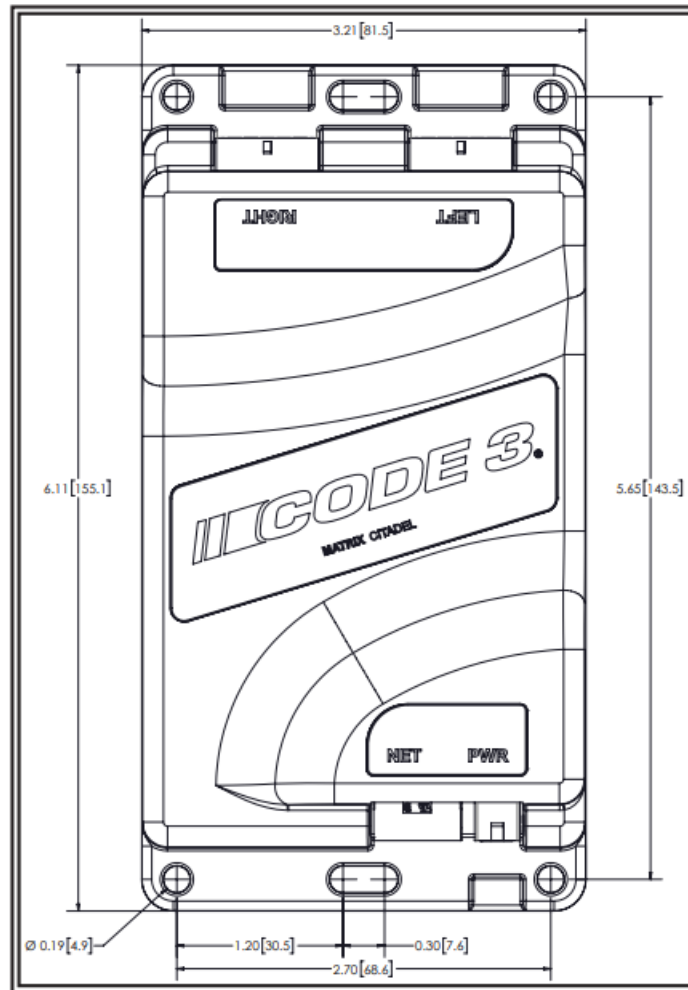


Figure 1

Wiring Instructions

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.

Notes:

1. Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g., 3M Scotchlock type connectors).
2. Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring.
3. Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices.
4. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity.
5. Ground termination should only be made to substantial chassis components, preferably directly to the vehicle

battery.

6. Circuit breakers are very sensitive to high temperatures and will “false trip” when mounted in hot environments or operated close to their capacity.

- **CAUTION!** Disconnect the battery before wiring up the product, to prevent accidental shorting, arcing and/or electrical shock.
- Connect the red (power) and black (ground) wires from the Matrix® enabled Citadel to a nominal 12-24 VDC supply, along with a customer supplied in-line, 10A slow blow ATC style fuse. Please note that the fuse holder selected by the customer must also be rated by its manufacturer to meet or exceed the corresponding fuse ampacity.

See Figure 2 for details.

- All Matrix® enabled Citadels must also connect back to a central node, such as the Serial Interface Box or Z3 Serial Siren, to establish serial communication with the larger network. Please note, for CAT5 connections the PRI-1 port must always be utilized first, before additional devices can be connected to the SEC-2 port. See Figure 2 for details.

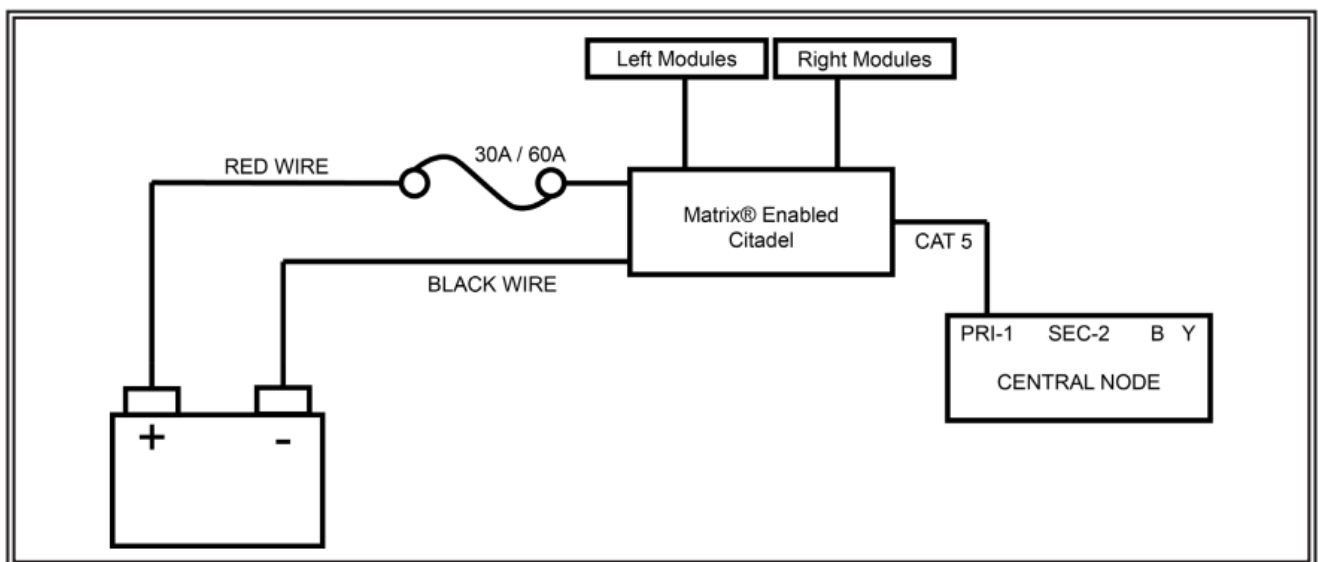


Figure 2

- The Matrix® network is designed to accommodate a large number of accessory devices. However, Matrix® enabled Citadel utilizing CAT5 will always be the last device in either the PRI-1 or SEC-2 chain. Further instructions, features, and control options are detailed in the installation manual of the customer selected “Central Node”.
- The following table indicates the default flash patterns of the Matrix® enabled Citadel. These patterns are activated by other Matrix® compatible products, connected to the Matrix® enabled Citadel. These can easily be reconfigured as desired, in the Matrix® Configurator. See Matrix® Configuration Quick Start Manual for details.

Default Flash Patterns	
Default	Description
Dim	30%
Cruise	Dim, Primary Steady
Level 3	Primary w/ Secondary Pops Triple Flash 150
Level 2	Primary Double Flash 115
Level 1	Primary Smooth Sweep
Brake	Steady Red
Left Arrow	Tertiary Left Building Fast
Right Arrow	Tertiary Right Building Fast
Center Out	Tertiary Center Out Building Fast
Arrow Flash	Tertiary Simultaneous Fast Flash
OBD – Rear Hatch	Cut
OBD – Brake Pedal	Red Rear Steady
OBD – Hazard Lights	Arrow Stik Secondary Flash Fast

Flash Pattern Compliance Chart									
No.	Description	FPM	SAE J595				CA TITLE 13		
			Red	Blue	Amber	White	Red	Blue	Amber
1	Single	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
2	Single 90-300	–	–	–	–	–	–	–	–
3	Single (ECE R65)	120	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
4	Single	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
5	Single	250	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
6	Single	375	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
7	Double	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B

8	Double	85	CLASS 1	CLASS 2	CLASS 1	CLASS 2	–	–	–
9	Double (CA T13)	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
10	Double 90-300	–	–	–	–	–	–	–	–
11	Double	115	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
12	Double (CA T13)	115	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
13	Double (ECE R6 5)	120	CLASS 1	CLASS 2	CLASS 1	CLASS 1	–	–	–
14	Double	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
15	Triple 90-300	–	–	–	–	–	–	–	–
16	Triple	60	CLASS 1	CLASS 2	CLASS 1	CLASS 1	–	–	–
17	Triple	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
18	Triple Pop	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
19	Triple	55	–	–	–	–	–	–	–
20	Triple	115	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
21	Triple (ECE R65)	120	CLASS 1	CLASS 2	CLASS 1	CLASS 1	–	–	–
22	Triple	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
23	Triple Pop	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–
24	Quad	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	–	–	–

25	Quad Pop	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—
26	Quad	40	—	—	—	—	—	—	—
27	NFPA Quad	77	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
28	Quad	115	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—
29	Quad	150	CLASS 1	CLASS 2	CLASS 1	CLASS 1	—	—	—
30	Quad Pop	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—
31	Quint	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—
32	Quint	150	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—
33	Six	60	CLASS 1	CLASS 1	CLASS 1	CLASS 1	—	—	—

Replacement Parts

Description	Part No.
Gaskets	
Replacement control box	CZ42001
Replacement housings, PIU20	CZ42002
Replacement LHS & RHS harnesses, PIU20	CZ42003
Replacement housings, Tahoe 2015+	CZ42004
Replacement LHS & RHS harnesses, Tahoe 2015+	CZ42005
Replacement housings, 2015-2019 PIU	CZ42006
Replacement LHS & RHS harnesses, 2015-2019 PIU	CZ42007
Replacement Mega Thin light head, RBA	CZ42008RBA
Replacement Mega Thin light head, RBW	CZ42008RBW
Replacement Mega Thin light head, RAW	CZ4200RAW
Replacement Mega Thin light head, BAW	CZ4200BAW
5' Extension Cable	CZ42008

Troubleshooting

- All lightbars 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(s)	Comments / Response
No power	Faulty wiring	Ensure power and ground connections to the product are secured. Remove and reconnect the red power wire to the vehicle battery.
	Input voltage	The product is equipped with an over voltage lockout circuit. During a sustained overvoltage event, the controller inside will maintain communication with the rest of the Matrix® network, but disable power out to the light modules. Look for the solid red V_FAULT LED. Ensure that input voltage does not exceed the specified range for your particular model. When overvoltage occurs, the input must temporarily drop ~1V below the maximum limit in order to resume normal operation.
	Blown fuse	The product may have blown an upstream fuse. Check and replace fuse if necessary.
No communication	Ignition input	An ignition wire input is first required to bring the central node out of a sleep state. From that point, the central node controls the status of all other Matrix® compatible devices, including the Citadel. If the device is active, you should see a flashing green STATUS LED on the controller inside. See the installation manual of the customer selected central node for further troubleshooting of the ignition input.

	Connectivity	Ensure that the CAT5 cable is securely connected back to a central node. Ensure that any other cables connecting Matrix® compatible accessory devices in a CAT5 daisy chain are fully seated with positive lock. Remember that the PRI-1 jack at the central node must first be used, before the SEC-2 jack can be used.
Bad light module	No response	Verify that the left and right harness connections are secure at the Citadel control box.
	Short circuit	If any one light module is shorted out, and the user attempts to activate a flash pattern, the pattern will not operate. Instead, the controller inside the Citadel will display a solid red I_FAULT LED.
Lighthoods not turning on	Programming default	Close the lift gate and see if the Citadel flash patterns turn on. The Citadels are programmed by default to turn off if the lift gate is open.

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.

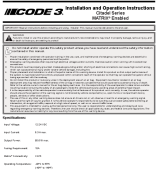
Remedies and Limitation of Liability:

- MANUFACTURER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR UNDER ANY OTHER THEORY AGAINST THE MANUFACTURER REGARDING THE PRODUCT AND ITS USE SHALL BE, AT THE 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 THE 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 THE BUYER AT THE TIME OF THE ORIGINAL PURCHASE. IN NO EVENT SHALL THE 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. THE MANUFACTURER SHALL HAVE NO FURTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE PRODUCT OR ITS SALE, OPERATION, AND USE, AND THE 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.
- **10986 North Warson Road, St. Louis, MO 63114 USA**
Technical Service USA (314) 996-2800
- **c3_tech_ support@code3esg.com**
- **CODE3ESG.com**
- **An ECCO SAFETY GROUP™ Brand**
- **ECCOSAFETYGROUP.com**
- © 2020 Code 3, Inc. all rights reserved. 920-0837-00 Rev. D

Documents / Resources



[CODE 3 Citadel Series MATRIX Enabled](#) [pdf] Instruction Manual
Citadel Series MATRIX Enabled, Citadel Series, MATRIX Enabled, Enabled

References

- [Home - ECCO](#)
- [Home - ECCO Safety Group](#)

Manuals+.