



Installation and Operation Instructions

V2V Sync Module

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

Size: 1.875" X 1.875" X 0.75"

Input Voltage: 12-24 VDC

Temp. Range: -40°C to 65°C [-40°F to 149°F]

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>

*V2V is compatible with Matrix v3.5.0 or newer.

System Requirements

Firmware Requirements:

Z3 Siren Firmware:

Siren Node: v2.0 or newer (June 2021 or newer)

Network Node: v2.0 or newer (June 2021 or newer)

*Older sirens are not compatible and will need to be manually flashed.

Lightbar Firmware:

LBC: v1.50

Light Engines: v1.37

Software Requirements:

Matrix v3.5.0 or newer



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

Before proceeding with installation, plan all wiring and cable routing. Select the mounting location for the product on a flat, smooth surface.



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.

Mount unit with a clear view of the sky on the inside of the vehicle. Possible locations are on top of the dashboard or attached to the vehicle's windshield. The unit should not come in direct contact with water. Mount such that the operation of the vehicle is not impeded. Ensure that no part of this installation interferes with airbag operation.

The V2V unit can be installed using VHB or mounting with screws. VHB tape has been included to mount the system to a dashboard or interior windshield. Ensure the surface is cleaned first by using the supplied alcohol and primer. For screw-mounting, use the supplied screws and mount the V2V unit on a flat surface using the two flanges on each side of the housing.

Wiring Instructions

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.

The V2V Sync Module, when installed, allows for multiple vehicles to synchronize Matrix flash patterns, regardless of distance. This unit is not designed to work with competitor products.

The V2V Sync Module will need to be connected to the central node of the Matrix system, such as be a SIB or Matrix Z3 siren. Connect the supplied cable to the AUX 4-pin connector on the central node.

If using multiple auxiliary devices, such as an OBDII unit, please use the V2V-SPLIT accessory.

If a longer cable is required to reach the desired mounting location, please use V2V-EXT - 2.5M extension accessory. Multiple V2V-EXT can be used in series if needed.

Configuring the System

After fully installing all Matrix devices intended to be used in the configuration, connect the Central Node (Z3 or SIB) to a computer and open the Matrix software. Ensure that all devices are detected. Use the software to build a configuration for the system and export to the devices. The synching feature will be handled by the software if the V2V module is present when the configuration is exported.

Note: The V2V sync module will sync the same Matrix flash patterns across multiple vehicles if they have the same active flash pattern. By design, if different flash patterns are active across different vehicles, the vehicles will not sync together.



Figure 1

Troubleshooting

All products 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 connector to the central node is secure. Ensure input voltage does not exceed the range of 10-32 VDC.
No communication	Connectivity	It may take a few minutes for the V2V Sync Module to establish GPS communication. Communication with the GPS satellites can have interference with buildings. Ensure the unit has an unobstructed view of the sky. During this time, the Matrix system will be able to synchronize Matrix-controlled devices on the vehicle, but vehicle-to-vehicle synching will not operate. Once GPS communication is established, vehicle-to-vehicle synching will operate automatically without any input from the end user.
Not synching flash patterns between vehicles	User setup	Ensure both vehicles have Matrix systems installed with V2V sync units. Ensure both Matrix systems have been configured with V2V device installed. If chosen flash patterns have different timings or number of steps, synching may not be possible.



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 Thirty-six (36) 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.

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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.

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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.



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