



Installation and Operation Instructions


Matrix® Mega Thin™ Stik

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:	MTS26 Series	27.0" L x 1.6" H x 1.5" D	Output Power: @ 12.8 / 25.6 VDC	
	MTS35 Series	35.6" L x 1.6" H x 1.5" D		MTS26XXX-CM
			MTS35XXX-CM	79.59 / 78.39 W

Weight:	MTS26 Series	4.0 lbs.	Temp. Range:	
	MTS35 Series	4.8 lbs.		-40°C to 65°C

Input Voltage:	12-24 VDC	Fusing Requirement:	10 A
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Input Current: @ 12.8 / 25.6 VDC		
	MTS26XXX-CM	4.69 / 2.34 A
	MTS35XXX-CM	6.22 / 3.06 A

Additional Resources:

Matrix Software: <http://software.code3esg.global/updater/matrix/downloads/Matrix.exe>

Matrix Configurator Software Quick Start Manual: 920-0731-00. PDF

Code 3 Tech Support - see contact on last page

Matrix How To Videos - <https://www.youtube.com/c/Code3Inc>

Unpacking:

Carefully remove the unit from its packaging and place it on a flat surface. Examine the unit for transit damage. If damage is found, return the product to your local dealer for warranty replacement. Do not use damaged or broken parts.

Installation and Mounting

The mounting location should be chosen such that there is maximum visibility to the oncoming traffic.

End Bracket Mounting:

Step 1. Loosely assemble a mounting bracket to each end of the unit as shown in FIGURE 1 using the included hardware.

Step 2. Position the lightbar in the desired mounting location on the rear of the vehicle with the cable exit to the driver's side. Mark and drill two holes for each bracket using 6.6 mm sized drill bit. The holes are spaced 1.83" apart center to center.

Step 3. Secure the brackets in place on the vehicle using the supplied M6 x 1.0 mm hardware. Tilt the face of the unit to an angle that optimizes visibility to oncoming traffic and tighten the two screws in each end.

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.

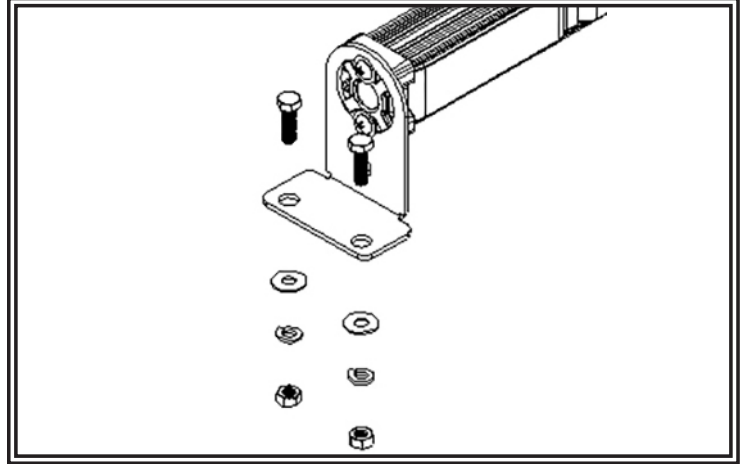


Figure 1

Rear Bracket Mounting:

Step 1. Loosely assemble the mounting brackets into the rear channel as shown in FIGURE 2 using the included hardware. Note: Carriage bolt is customer supplied, use of a stainless steel carriage bolt is advised to prevent corrosion.

Step 2. Position the lightbar in the desired mounting location on the rear of the vehicle with the cable exit to the driver's side. Mark and drill a hole to mount each bracket using 17/64" sized drill bit. The brackets should be spaced a minimum of 1/2 the total length apart, i.e., 24" apart on a 48" long product.

Step 3. Secure the brackets in place on the vehicle using customer supplied 1/4" thread size carriage bolts and associated hardware. Tighten the nuts holding the brackets to the product.

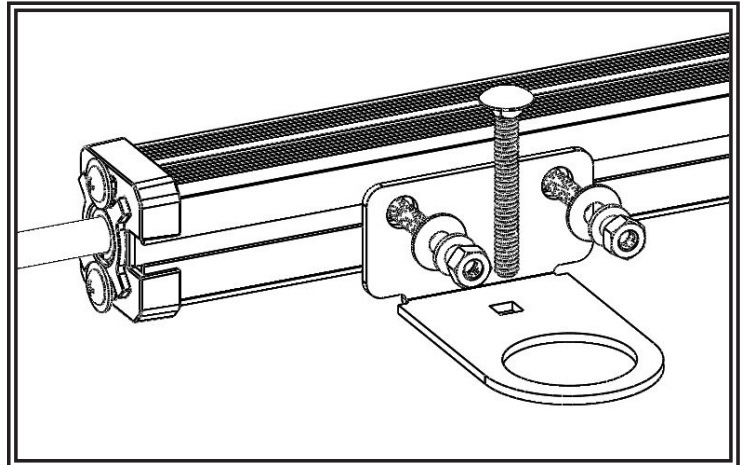


Figure 2

Wiring Instructions

Before attempting to connect the unit's wiring harness, refer to the wiring diagram in FIGURE 3. The wiring diagram describes the function for each wire.

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.

General Wiring Instructions:

Step 1. After the lightbar has been mounted, route the power cable's red wire to a fused, nominal 12 VDC power supply as shown in FIGURE 3. Use an in-line 10 amp slow blow fuse on the positive line. Connect the black wire directly to the negative battery terminal. A minimum size of 18 AWG wire should be used on the power and ground lines.

Step 3. Route CAT5 cable to a Matrix central node (Z3 or SIB). Insert into PRI-1 port. If PRI-1 port is already in use, use PRI-2 port.

Step 4. Use cable ties and grommets to secure and protect all cables and wires.

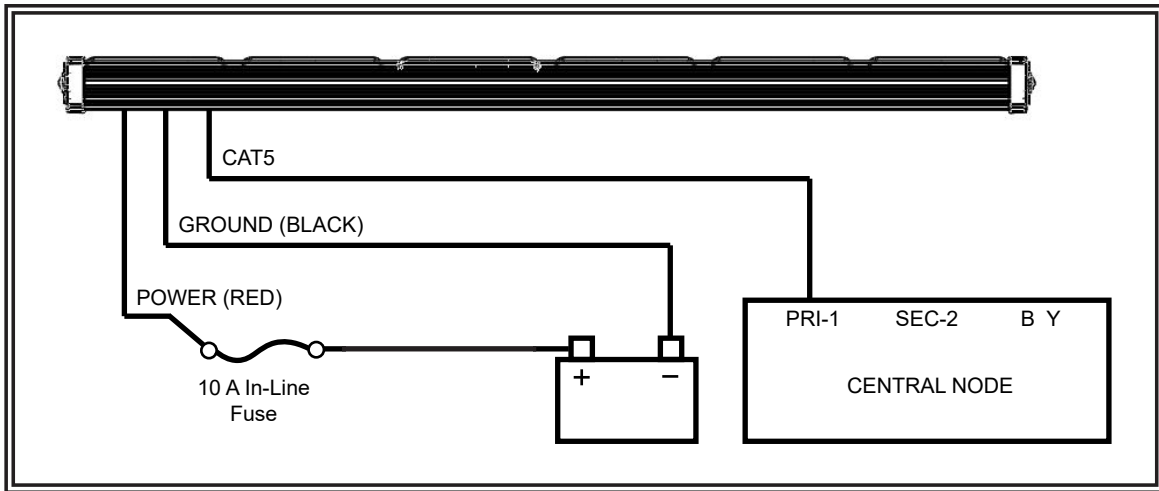


Figure 3

Programming:

Note: Before programming can occur, ensure the Matrix Mega Thin Stik is connected to a Central Node (Z3 or SIB), powered up, and the Matrix Configurator software is installed.

1. Using a micro-USB cable, connect computer to the Central Node (Z3 or SIB).
2. Open Matrix Configurator software.
3. Select "Online Mode" to indicate the hardware is connected to the computer. The software will automatically recognize and load all hardware into the following screen.
4. Programming the Mega Thin Stik can commence. Reference the Matrix Quick Start Manual for general directions. If there are additional questions, reach out to our Tech Support team for assistance.
5. Once the settings are complete, use the "Export" button to push the program to the hardware.
6. Test the hardware to ensure it functions as desired. If additional changes are needed, continue steps 4 and 5 as needed. If no more changes are needed, disconnect the micro-USB from the hardware.

Flash Patterns

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	-	-	-	-	-	-	-
6	Single	375	-	-	-	-	-	-	-
7	Double	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
8	Double	85	CLASS 2	CLASS 2	CLASS 1	CLASS 1	-	-	-
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 R65)	120	CLASS 2	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 2	CLASS 2	CLASS 1	CLASS 1	-	-	-
17	Triple	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
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 2	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	CLASS B	CLASS B	CLASS B
25	Quad Pop	75	CLASS 1	CLASS 1	CLASS 1	CLASS 1	CLASS B	CLASS B	CLASS B
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 1	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	-	-	-
34	Six	80	CLASS 1	CLASS 1	CLASS 1	CLASS 1	-	-	-

Troubleshooting

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 Matrix Mega Thin Stik. 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 Matrix Mega Thin Stik will display a solid red I_FAULT LED.

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.



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