

INSTALLATION & OPERATION MANUAL

MODEL NASLDBL



Dual Arrowstik Controller System (non-Synchronized)

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IMPORTANT: *Read all instruction and warnings before installing and using.*
INSTALLER: *This manual must be delivered to the end user of this equipment.*

Introduction

The NASLDBL Dual Arrowstik Controller assembly is comprised of an amplifier, controller, and control interface cable. The unit is capable of operating two Arrowstiks concurrently and independently using two sets of eight (8) independent outputs. It can operate a stand-alone LED Narrowstik™ or Large LED Narrowstik™ as well as LC-Stick versions. Each Arrowstik can have its own pattern. The hand-held controller is backlit.

Note: This system is designed to operate stand-alone LED Narrowstik products. This system is NOT designed to operate halogen or incandescent Arrowstik products. Attempting to operate the products with this controller could damage the controller outputs.



The use of this or any warning device does not insure that all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should insure daily that all features of the device operate correctly. In use, the vehicle operator should insure the projection of the warning signal is not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions.

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.

Public Safety Equipment, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of this warning device 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 warning device should be installed in such a manner as to: A) Not reduce the output performance of the system, B) 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.

Unpacking & Pre-Installation

After unpacking the items, carefully inspect the unit and associated parts for any damage that may have been caused in transit. Report any damage to the carrier immediately.

Parts included in the box:

- Amplifier
- Hand-Held Controller
- Extension Cable
- Parts Bag

Installation & Mounting

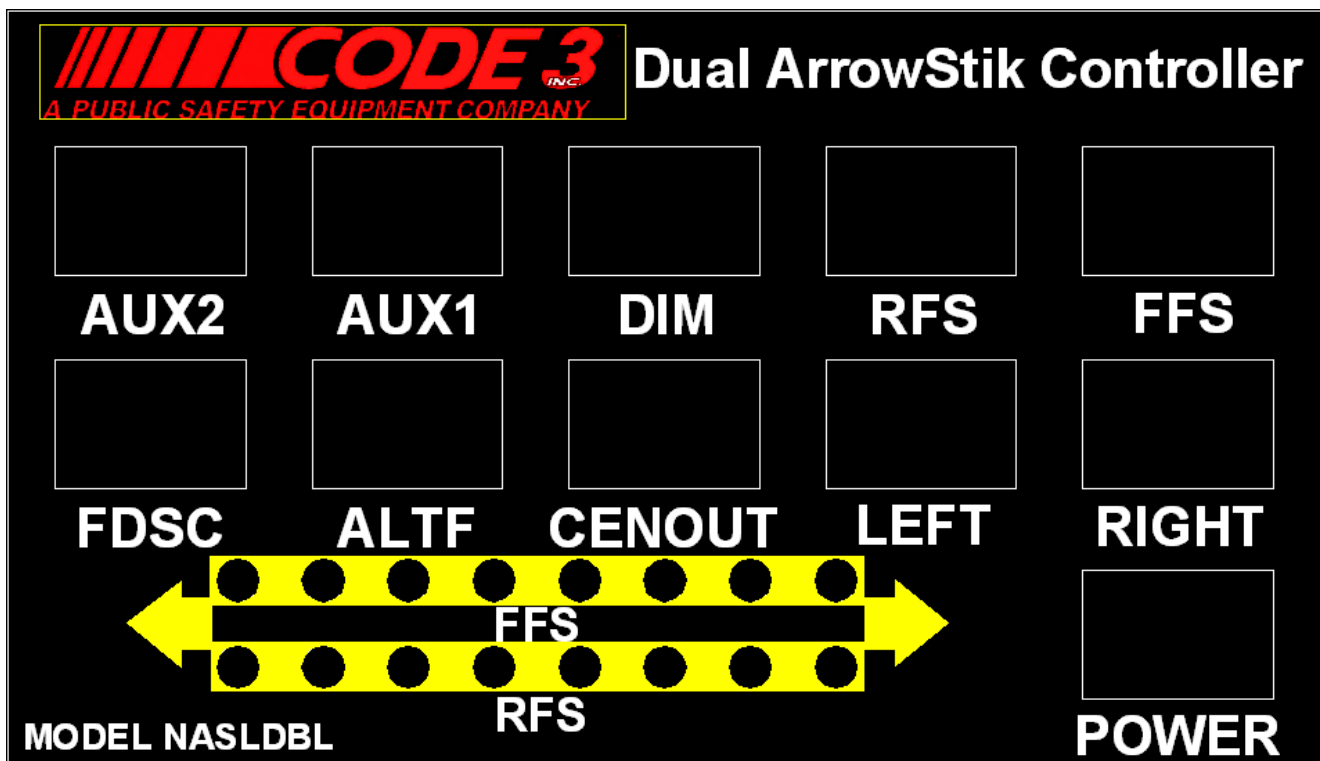
The product is shipped fully assembled and ready to be installed. Mounting fasteners and brackets have been included. If problems arise during installation, questions can be directed to the Technical Hotline number given on the last page of this manual.

The hand-held controller may be mounted in various locations in the vehicle: on the dash, tunnel, visor area, etc. using the hardware supplied. Ease of operation and convenience to the operator should be the prime consideration when mounting the amplifier and controls. The amplifier may be mounted at an appropriate location within the vehicle, and the extension cord can be used to couple the hand-held controller to the amplifier.

Operation

The following sections explain the operation of the control buttons on the controller as well as the function of the input and output terminals on the 10-position plugs located on the front and rear of the amplifier.

Hand Held Controller Controls



POWER

The POWER button turns the control head On/Off and is a push-on / push-off switch. When the POWER button is activated the control head will perform the currently selected traffic directing, or warning pattern.

OUTPUT INDICATOR LEDs

The two rows of amber LEDs indicate the activity on the outputs of each Arrowstik being controlled. For example, when in LEFT mode the LEDs will cycle On/Off from right to left.

FFS, RFS

Identifies which Arrowstik a pattern will be set for (FFS: forward facing Arrowstik. RFS: rear facing Arrowstik).

LEFT, CENOUT, RIGHT, ALTF

With any of these buttons being depressed, the Arrowstik will provide a traffic directing signal with either a right-to-left (LEFT), center-out (CENOUT), left-to-right (RIGHT) or alternating flash (ALTF).

FDSC

With any of the directional modes selected (LEFT, CENOUT, RIGHT, ALTF), causes BOTH the selected directional modes to operate at a faster rate, with the same intensity.

AUX1, AUX2

Auxiliary device controls that can be used to control additional lights, etc. The “AUX” buttons are independent of the state(s) of the other control buttons.

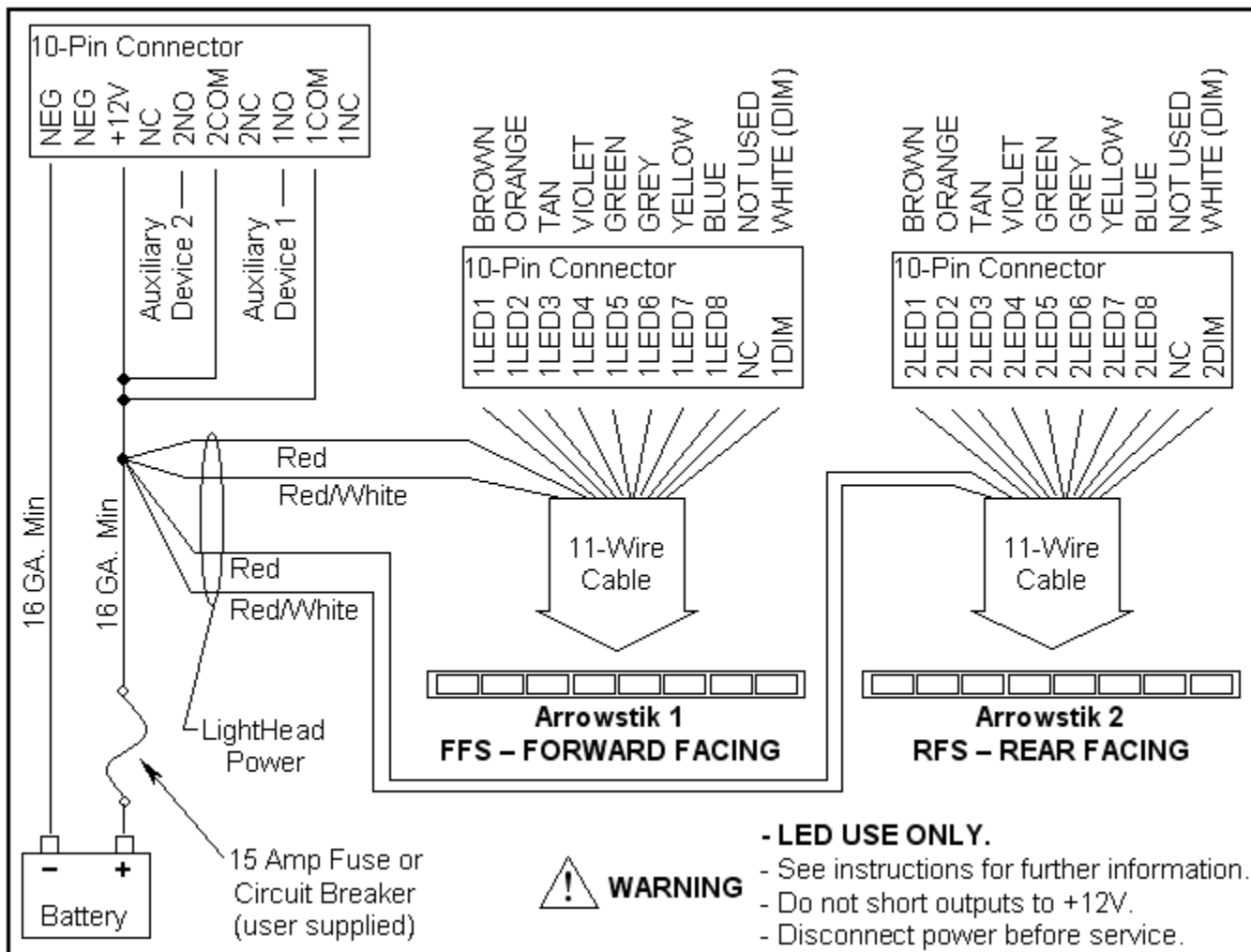
DIM

When depressed, causes BOTH Arrowstiks to DIM. This is for use when 100% intensity is not desired, or when reduced current draw is desired.

Note: Dimming capabilities are not available with the LC-Stick versions.



The Dim setting reduces the light output of emergency warning lights reducing the effectiveness of them especially in brightly lit areas. Failure to use adequate light for the circumstances can cause motorists to fail to see the emergency vehicle and lead to serious personal injury or death. Never use the DIM setting in a brightly lit area. Use of the DIM setting may cause emergency lights to not comply with applicable emergency warning light standards. Use caution when using the DIM setting to assure that motorists can clearly see the emergency vehicle.



NEG

Ground inputs.

+ 12V

This input provides +12V power to the amplifier.

NC

Not used.

1NO, 1COM, 1NC (AUX 1)

This input was designed to provide a high-side (+12V) signal to an external load up to 10 amps. To drive higher current loads, this input can be used to control a relay if desired. Pushing in the "AUX1" button on the controller will activate this auxiliary input.

2NO, 2COM, 2NC (AUX2)

This input was designed to provide a high-side (+12V) signal to an external load up to 10 amps. To drive higher current loads, this input can be used to control a relay if desired. Pushing in the "AUX2" button on the controller will activate this auxiliary input.

1LED1, 1LED2.....1LED8 - FORWARD FACING ARROWSTIK (FFS)

These eight outputs provide independent control of each LED module for Arrowstik #1. They provide a low side (GND) signal to each LED module. Connect the designated color from the 11-wire cable to these terminals.

NC

Not used.

1DIM

This output terminal provides +12V when the DIM button is depressed. With the white wire from the 11-wire Arrowstik cable connected to this terminal the Arrowstik will run in a reduced intensity (DIM) mode until the DIM switch is turned off.

2LED1, 2LED2.....2LED8 - REAR FACING ARROWSTIK (RFS)

These eight outputs provide independent control of each LED module for Arrowstik #2. They provide a low side (GND) signal to each LED module. Connect the designated color from the 11-wire cable to these terminals.

NC

Not used.

2DIM

This output terminal provides +12V when the DIM button is depressed. With the white wire from the 11-wire Arrowstik cable connected to this terminal the Arrowstik will run in a reduced intensity (DIM) mode until the DIM switch is turned off.

NOTE: These outputs are designed for LED modules only. DO NOT connect a halogen or incandescent Arrowstik to these outputs. Damage may occur to the control outputs.

NOTE: The wires DO NOT need to be reversed for the Arrowstik chosen to be the front facing. The assembly accounts for this ASSUMING the Arrowstiks are wired and installed as shown in the Amplifier Connections and Wiring Section.



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). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use “SXL” type wire in engine compartment. 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. 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. 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. Ground terminations should only be made to substantial chassis components, preferably directly to the vehicle battery. The user should install a fuse sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp fuse should carry a maximum of 24 Amps.

DO NOT USE 1/4” DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS.

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

Control Head Operation

1. Depress/release POWER button to turn power on/off.
2. To set the pattern for the Forward Facing Arrowstick, depress/release the FFS button (the LED on the button will flash), and then depress/release the desired pattern button. The upper row of LED's will energize and display the pattern chosen. The pattern can be changed at any time as long as the FFS button is flashing.
3. To set the pattern for the Rear Facing Arrowstick, depress/release the RFS button (the LED on the button will flash), and follow the same steps as the Forward Facing Arrowstick.

NOTE: The LEFT, RIGHT, CENOUT, ALTF, DIM, and FDSC buttons will not operate unless one of the FFS or RFS buttons are energized.

4. At any time the pattern can be changed on either Arrowstick. To change the pattern for the "active" Arrowstick (the Arrowstick which has the flashing FFS or RFS button), simply depress/release the desired pattern button. To change the pattern for the "non-active" Arrowstick (the Arrowstick which does not have the flashing FFS or RFS button, and which may either be OFF or ON), depress/release the FFS or RFS button once to turn the unit on (if OFF), or twice turn the unit off, then on (if ON), and then depress/release the desired pattern.
5. To dim both Arrowsticks, depress/release the DIM button.
6. To increase the display rate of both Arrowsticks, depress/release of the FDSC button.
7. To turn off a specific Arrowstick, depress/release the appropriate button (FFS or RFS) and it will turn off.
8. Additional outputs can be connected to either of the two Auxiliary Outputs, which operate independently.

EXAMPLE:

With user sitting in cab of vehicle, pressing "LEFT" for both the forward and rear facing Arrowsticks will cause both the lights on the controller and Arrowsticks to illuminate from the users right to left. This ASSUMES that BOTH Arrowsticks have their control cables exiting on the drivers side. If the installer has to install one of the Arrowsticks such that the cable exits the other end, the wiring of the 10 pin connector will have to be reversed.



WARNING!

It is **EXTREMELY IMPORTANT** that the installer/user verify the Arrowsticks are illuminating in the pattern shown on the Controller.

Failure to verify that the Arrowsticks are illuminating in the direction shown on the controller can cause a motorist to move in the opposite or wrong direction and could lead to serious personal injury or death.

Specifications

Amplifier Section

Operating Voltage Range:	10-16VDC
Operating Current Requirements:	220mA max
Control Output Current Requirements:	6 Amps max per output
Auxiliary Output Current Requirements:	10 Amps max per output
Operating Temperature Range:	-30°C to +65°C
Dimensions (HWD):	
Handheld controller	1.0"X2.9"X4.8"
Amplifier	1.8"X7.5"X6.9"
Weight – Amplifier (approx):	1.5 lbs
Weight – Controller (approx):	0.5 lbs
Base:	Black anodized
Mounting – Amplifier:	4-hole flange mounting on base & mounting hardware
Mounting – Controller:	Brackets & mounting hardware

Maintenance

Your Code 3 siren has been designed to provide trouble free service. In case of difficulty, consult the Troubleshooting Guide of this manual. Also check for shorted or open wires. The primary cause of short circuits has been found to be wires passing through firewalls, roofs, etc. If further difficulty persists, contact the factory for troubleshooting advice or return instructions.

Public Safety Equipment, Inc. maintains a complete parts inventory and service facility at the factory and will repair or replace (at the factory's option) any unit found to be defective under normal use and in warranty. Any attempt to service a unit in warranty, by anyone other than a factory-authorized technician, without the express written consent of the factory, will void the warranty.

Units out of warranty can be repaired at the factory for a nominal charge on either a flat rate or parts and labor basis. Contact the factory for details and return instructions. Public Safety Equipment, Inc. is not liable for any incidental charges related to the repair or replacement of a unit unless otherwise expressly agreed to in writing by the factory.

Parts List

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
T15180	Amplifier	1
T15182	Hand Held Controller	1
T15183	Extension Cable	1
T15187	Parts Bag	1
T15069	Installation Manual	1

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
Arrowstik(s) do not function when turned on.	A. Plug(s) in amplifier are loose or disconnected. B. Faulty ground (earth) connection. C. Faulty power connection. D. Amplifier is damaged. E. Extension cable not securely connected to controller.	A. Reconnect plug. B. Verify ground (earth) connection. C. Verify +12Vdc connection. D. Check connections. If problem still exists, call Technical Hotline. E. Secure cable to Controller
One or more lighthead(s) do not light and LED's on controller function correctly.	A. Failed lighthead(s). B. Faulty wiring connection.	A. Replace lighthead(s). B. Verify connections.
One or more lighthead(s) do not light and LED's on controller do not function.	A. Controller or amplifier is damaged. B. Extension cable not securely connected to controller or amplifier. C. Faulty power connection.	A. Return controller or amplifier. B. Secure cable to controller or amplifier. C. Verify +12Vdc connection.
LED's on controller illuminate continuously.	A. Controller or amplifier is damaged.	A. Return controller or amplifier.
Fuse blows	A. Amplifier power wires reversed polarity.	A. Check polarity.
Arrowstik(s) illuminate in wrong (reverse) direction	A. Arrowstik wiring reversed. B. Arrowstik wiring exiting the passenger, vs. driver side.	A. Verify/correct wiring per manual. B. Rotate Arrowstik so wire exits the driver's side, or reverse the wiring on the 10-pin connector (see wiring diagram).
"FFS" button controls/illuminates the rear facing Arrowstik, or vice versa	A. 10-pin connectors for Arrowstiks reversed.	A. Swap 10-pin connectors for Arrowstiks.

NOTES

WARRANTY

Code 3®, Inc.'s emergency devices are tested and found to be operational at the time of manufacture. Provided they are installed and operated in accordance with manufacturer's recommendations, Code 3®, Inc. guarantees all parts and components except the lamps to a period of 1 year, LED Lighthouse modules to a period of 5 years (unless otherwise expressed) from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty. Code 3®, Inc. shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

CODE 3®, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

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.

Problems or Questions? Call The Technical Assistance HOTLINE - (314) 996-2800



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