2809 Business Park Dr • Buda • Texas •78610
Phone 800.757.2581 • ***Fax*** 844.894.2652 • ***Email*** customerservice@speedtechlights.com

STL Dart® TIR LED Traffic Advisor
Operation Manual and Instructions

Congratulations, you are the owner of a STL Dart® Series LED Light Bar! Your bar is equipped with the latest technology and features at the best value found industry wide, GUARANTEED. In addition to that, your purchase comes with the STL 2 Year Warranty against any manufacture defects that may occur with your bar. So please read this document carefully and call Customer Service at 800-757-2581 Monday - Friday 8:30 AM - 4:30 PM central time if you need assistance. We are available and happy to help!

Warnings and Notices for Users and Installers

This document must be delivered to and read by the end user and installer as it serves to provide you with the required information for proper and safe use of your STL product. Before operating this or any STL products the user and installer must read this manual all the way through. You will find important information in this manual that could prevent property damage and/or serious injury to the user and installer.

STL products are intended to alert pedestrians and other operators of the presence of personnel, the operation of emergency vehicles, an emergency site, and any warning needs. This does not ensure that pedestrians or drivers will react, heed, or observe emergency warning signals. Nor does the use of emergency signals grant or ensure you the right of way. It is your responsibility to make sure you can proceed safely before driving against traffic, entering an intersection, responding at a high rate of speed, or walking on or around traffic lanes.

Your STL emergency vehicle devices should be tested daily to insure the device and all its functions are operating correctly. If you experience a malfunction contact STL's Customer Service immediately for troubleshooting options, or a warranty or service claim. You must ensure sure that the projection of the visual and audible signal is not blocked by vehicle components (i.e.: open trunks, visors, compartment doors), vehicles, other obstructions, or people.

This is professional grade equipment and is intended for strict use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. You must know and be familiar with all applicable city, state, and federal laws and regulations prior to the use of emergency vehicle warning devices.

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SpeedTech Lights, Inc. assumes no liability for any loss resulting from the use of this warning device. Proper installation is vital to the performance of the warning devices and safe operation of the emergency vehicle. Since the operator is under stressful environments the equipment must be properly wired and mounted to ensure effectiveness and safety. Therefore controllers must be properly installed and placed within convenient reach of the operator so eye contact with the roadway is never lost.

The effectiveness of your STL equipment is highly dependent upon correct mounting and wiring. Improper wiring and mounting of the warning device will reduce the output and performance of the equipment. Emergency warning devices frequently 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 severe personal injury and/or serious vehicle damage, including fire.

Electromagnetic interference can be caused by many electronic devices used in emergency vehicles. To ensure that this doesn't happen to you, lightbars should be mounted a minimum of 12" - 34" from the radio antenna and do not power your equipment from the same circuit or share the same grounding circuit with radio communication equipment. After installation, test all the vehicle's equipment together to ensure everything operates free of interference.

Driver and/or passenger airbags bags (SRS) will impact the way you mount your equipment. Any equipment installed in the deployment area of the airbags will damage or dislodge the airbags and sensors. This will also reduce the effectiveness of the airbags to protect the passengers and therefore these areas must be avoided. Installers must make sure that this equipment along with any parts, hardware, wiring, power supplies, and switch boxes do not interfere with the airbags, SRS wiring, or sensors.

All STL equipment needs to be mounted and installed according to the vehicle manufacture's instructions and securely attached to a part of the vehicle of sufficient strength to withstand the forces applied by the equipment. This device should be permanently mounted within the zones specified by the vehicle manufacturer. This especially applies to equipment mounted on the exterior of the vehicle to avoid dislodging. Mounting units on the interior of the vehicle by a method other than permanent mount is discouraged as it may become detached under aggressive driving conditions such as sudden braking, collision, or swerving.

PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO ENSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

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Important Points for Your Safety and Longevity of Your Light Bar

- Installers are required to have a good understanding of automotive electronic systems and procedures for proper installation.

- Never stare directly into the LEDs as momentary blindness and/or eye damage may occur.

- Never take any lights through a car wash. Use only water to clean the outer body/lens of your equipment.

- Never use a pressure washer to clean any STL products. Inspect and test your product daily to insure it operates properly and is mounted correctly.

- Never cut wires or work on a unit while the unit is still connected to a power source.

- Never install this product or route any wires through or in the deployment area of the airbag. Doing so may cause serious personal injury as it will damage or reduce the effectiveness of the airbag by causing the unit to become a projectile. Reference the owner's manual for your vehicle to find the airbag deployment area. The User/Installer assumes all responsibility to determine proper mounting location, based on providing ultimate safety to all passengers in the vehicle.

- If the product requires you to drill holes, the installer must ensure that the drilling process does not damage any vehicle components or other vital parts. Check all sides of the mounting surface before beginning to drill. Make sure to deburr all drilled holes and remove any metal remnants or shards to avoid injury and wires from becoming spliced. Grommets are to be installed in all wire passage holes.

- In order for STL products to operate at optimum efficiency, a secure and good electrical connection to the battery's Ground Post must be made. The recommended procedure requires the unit's ground wire be connected directly to the NEGATIVE (-) battery post.

- Instruction manuals should be stored in a safe place for reference if you need to reinstall the unit or perform maintenance. They can also be found at the main site under the product listing at www.SpeedTechLights.com. If your product is no longer available on the website contact STL's Customer Service at 800-757-2581 for assistance.

- If your product requires the use of a control box or remote device to turn on and control your equipment make sure it is installed in a location that allows both the user and the vehicle to operate safely in any driving condition.

- Never activate or control your equipment in hazardous driving conditions.

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- FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS, WARNINGS, NOTICES, AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE THAT WILL VOID YOUR WARRANTY AND/OR CAUSE SERIOUS INJURY TO YOU AND YOUR PASSENGER.

SUMMARY OF THE DART® TIR LED TRAFFIC ADVISOR:

- 3 Year Warranty (optional 5 Year Warranty upgrade available)*
- Powered by 12V
- Patented LED Eclipse® Optic Technology - TIR Optics
- 48 MaxGen® TIR 3-Watt LEDs
- 19 available flash patterns in flash mode
- 8 avaialble directional flash patterns (left/right)
- 2 center out flash patterns
- Non-volatile memory recalls last flash pattern
- Lifespan of up to 100,000 hours
- Includes cigarette plug
- Optional Direct II Control Switch Box available for purchase
- Includes 13 feet of cable to switch box, 1.5 feet of power cable, and 8 feet of auxiliary cable
- Includes brackets for mounting
- Weather-proof housing
- Dimensions: 33" L x 16" H x 3" D*
- 7 day money back guarantee*

*See Terms and Conditions

Wiring Diagram for power harness with nine (9) colored leads: ALL CABLES SHOULD CONTACT TO +VDC

Green	← (Traffic Advisor)
Blue	→ (Traffic Advisor)
Orange	← → (Traffic Advisor)
Yellow	Flash Pattern Selector
Grey	Slow/Fast
Brown	Power
Purple	Flash Mode
*Red (Big)	Positive
*Black (Big)	Negative

* Indicates a main power cable

How the STL Direct II Control® Box Operates Your STL Light Bar

Power Switch

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Push this button to turn On/Off the unit.

Flash Mode Button
Switches back from Traffic Advising mode to Warning mode.

Flash Pattern Button
Button cycles to the next flash pattern with each press. Non-Volatile memory recalls the last flash pattern selected.

Left Button
Toggles Left traffic advisor pattern

Center Out Button
Toggles Center Out traffic advisor pattern

Right Button
Toggles Right traffic advisor pattern

Slow/Fast Slide Switch
Toggles between Slow and Fast flashing speed

***Aux**
(Red ((+) Positive) and Blue ((-) Negative) wires)
Rated for 10 AMPs
1st press: Power ON unit attached to aux cables
2nd press: Power OFF unit attached to aux cables

Unpacking your STL Product

Unpack your unit to identify all parts including but not limited to: light bar, switch box, brackets, screws, bolts, wiring harness, fuses, etc.
Some parts may be in small bags.
Some products may be packaged inside boxes of other products.
Some parts such as Gutter Brackets, may be in the foam protection. Double check that no parts are left within the foam protection or left in the box.

Pre-Installation and Testing

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BENCH TEST all units prior to installation by connecting the Positive Cable (Red) and Negative Cable (Black) to a power source to ensure all the features and parts of the light bar are functional.

Test Check List:

- All LEDs and LED Modules fully functional
- Flash patterns
- Non-volatile memory
- No physical damage

If you have trouble call Customer Service at 800-757-2581 before proceeding.

Instructions for Mounting, Wiring and Programming

IMPORTANT! To ensure proper installation installers are required to have a good understanding of automotive electronic, systems and procedures for proper installation. When you are drilling into the vehicle's surfaces, ensure that the area is free of any electrical wires, vehicle upholstery, fuel lines, etc. that could be damaged. All wiring passing through drilled holes should use grommets and silicone sealant to prevent wire or moisture damage when passing through compartment walls.
WARNING! Larger wires and secure or tight connections will ensure longer service life for your product. It is highly recommended that soldered connections have heat shrink used to protect the connection. Special attention should be given to the location and method of splicing wires to make electrical connections to protect these splices from lost power or connection and corrosion. Insulation displacement connectors are not to be used. To reduce voltage drop, minimize the number of splices in the wires. The current carrying capacity of wires and fuses will be significantly reduced under high ambient temperature (e.g. under the hood). Use SXL type wire in the engine compartment where higher heat resistance is required according to SAE J-1128. All wires should be in accordance with the minimum wire size and other recommendations made by the manufacturer and be protected from hot surfaces and moving parts. Grommets, cable ties, looms, and other installation hardware should be used to anchor and protect all wiring. Fuses should be properly sized and located as close to the power take off points as possible to protect the wiring and device. To protect against short circuits, a fuse is included by STL for all products. Do NOT use a fuse with a higher amp rating than the initial fuse included. Do NOT use Circuit Breaks with STL Products. Ground terminations should only be made directly to the battery.

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Wiring: Connecting Wires to the Battery

- WARNING! If you are supplying your own wiring that connects to the positive or negative terminal of the battery, fuse sizes must be sized according to STL's provided fuse to be considered fused properly to the battery in order to carry the load.

- Route the power cables by opening the wiring shield and running the cables through it towards your vehicle's firewall.
- Follow the factory wiring harness through the firewall.
- If it is necessary to drill a hole in the firewall for the power cables, be sure no components will be damaged from drilling. As with all holes that are drilled, file the edges down smooth and insert a grommet to protect the cables.
- Route the cable along the factory wiring harness towards the battery.
- Wire your power cables (Red with In Line Fuse (STL Supplied) and Black cable) to your battery to power up your light bar.
- You will want to ensure your grounding cable is taken directly to the negative terminal of your battery to avoid any electrical feedback which may disrupt your light bar system.
- DO NOT allow the positive (Red wire) and negative (Black wire) to touch one another. This may cause injury to you and damage your equipment by causing a short in the unit that is not covered under the STL warranty.

Wiring: Cigarette Lighter Plug

- If you are using the Cigarette Lighter Plug follow the guidelines for Wiring to get the cables into the vehicle and plug the Cigarette Lighter Plug into your Cigarette outlet.

Wiring: Connecting Wires to Control Box

- This unit will feature a power harness with nine (9) colored leads with a connector that plugs into the Direct II Control.
    - When not utilizing the Direct II Control box reference the Wiring Diagram for power harness with nine (9) colored leads
- Now that you have pulled the cable into the vehicle attach the connector back to your light bar's wire harness in the CORRECT positions using a pin pusher and plug it into your Cigarette Lighter Plug. If you do not know the correct position of each wire in the connector call customer service at 800-757-2581 before proceeding.
- If you are using your own switch box or the STL IntelliSiren, wire the cables accordingly into your control panel by referencing the wiring diagram and instruction manual of your control panel.

Programming Flash Patterns

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- All STL LED products are equipped with a non-volatile memory which will recall the last flash pattern when the light bar is turned on.
- Set your flash pattern by pushing the Flash Pattern button on your Direct II Control box to cycle through the various patterns until you find the appropriate pattern.
- If you are not using the Cigarette Lighter Plug you will follow the wiring diagram to identify the Flash Pattern wire to manually run through and select the desired flash pattern.

Maintenance

While STL's light bars are very durable, there are some things you need to keep in mind and practice to preserve the longevity and function of your bar.

- Never take any STL Light bars through a car wash, such as a pressure washer, automatic car wash, brushes that will scratch your equipment or similar car washes or equipment where chemicals, high pressure water, and materials may scratch or damage your equipment.

- Use Water (H_20) with a soft cloth to clean your light bar and lenses.

- Yellowing of clear lenses may occur overtime. Lenses can be purchased by calling STL Customer Service at 800-757-2581.

Parts List

Mounting Brackets
Warning LED Modules
Printed Circuit Board
Cable Harness
Optional Direct II Control Box

Trouble Shooting

All Manufacture Defects are covered under the STL Warranty accordingly. Warranty is void with disassembly or rewiring of STL Products or Improper Wiring or Installation. If you are unsure how to trouble shoot your light bar for any reason or if the trouble shooting does not fix your issue, call Customer Service immediately for assistance at 800-757-2581.

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Problem	Scenarios	Possible Cause	Trouble Shooting
Warning LED module has one or all diodes out	Are all the LED Diodes out? No	If at least one LED diode is out, the LED Module needs to be replaced.	Call Customer Service to make a warranty claim for a new LED
	Yes	Defective PCB or LED module or cables disconnected from Connector or LED.	1. Make sure the product is disconnected from power. 2. Unscrew the two screws that secure the LED module for the light bar. 3. Pull the LED out gently and slowly. 4. You will see red and black wires that lead to a connector. 5. Confirm that the wires with pins are in the connectors (Both male and female connectors) have not come out of the connectors. 6. If so: use a pin pusher to place the wires back into the connector. a. Ensure the wings of the pin are opened to ensure a proper connection. b. If closed use tweezers to pull away from the base. c. A click will be heard when placing the pin back into the connector. d. Make sure the pin is seated in the center of its pin position to ensure proper connection 7. If not: continue reading: 1. Follow steps 1 - 4 to unplug a working module in the same manner. 2. Plug in the defective module into the working modules position. a. If the LED module comes on. You need a new PCB b. If the LED module does not come on. You need a new LED module
No recall of flash pattern	Is the units power cables run to the correct locations: Positive (red) and Negative (black), directly to the		

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	battery? No Yes	Improper Grounding.	If grounded incorrectly, an electrical feedback could be the culprit. Electrical feedback can cause the PCB not to recognize the command that it is being told to do. Move the ground to proper location and see if this fixes the issue. A New PCB may be required.
Pressing buttons on the Switch Box but light bar doesn't respond at all or for specific function	Does the STL Logo on the Grand Control Box light up when on? No	Improper Grounding.	If grounded incorrectly, an electrical feedback could be the culprit. Electrical feedback can cause the PCB not to recognize the command that it is being told to do. Move the ground to proper location and see if this fixes the issue.
		Broken Cigarette Plug	Inspect to cigarette plug to make sure there is no damage or pulled wires from the plug. If so you will need to replace the Cigarette Plug
		Broken Fuse	If the cigarette plug is not damaged unscrew the cap of the cigarette plug to gain access to the fuse. Check to see if the fuse is broken. If do you will need to replace the Fuse.
		Disconnected Connector	Check that the connector is fully recessed in the switch box. If you have an extension cable with connectors check that the connection has not disconnected.
		Damaged Cable	Check the full length of your wiring to make sure there are no spliced wired in the cable harness.
	Yes	TEST THE **POSSIBLE CAUSES** FOR "No"	TEST THE **POSSIBLE CAUSES** FOR "No"
		Wires in the wrong	You may have a wire that is not in the correct position. If

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		location	you are using an extension cable with connectors or no connector, make sure that the wires are corresponding correctly. In other words, simply make sure the colors are matching one another and that you do not have a Green connected to a Yellow. Green should be connected to Green.

Stay Safe and Continue Lighting the Way® with SpeedTech Lights®

We know that Trust is Earned®! Thank you for giving STL the opportunity to earn your business and trust. Visit www.SpeedTechLights.com for any additional information and services regarding STL Warranty, Return Policy, Videos, or any other Customer Service needs you deem necessary. Shop with Confidence® with SpeedTech Lights!

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