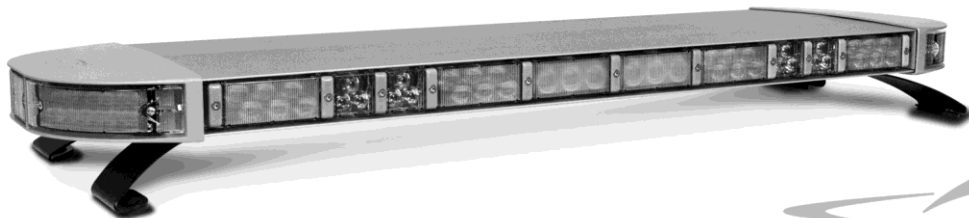


Tomar Scorpion™ 970X NFPA Lightbar Programming Instructions



Programming Warning & Directional Modes Using the Lightbar Control Cable or The 94X- DCP Digital Control Panels

NOTE: This document only applies to certain models of 970X NFPA Scorpion Lightbars.
See Appendix A for the complete list of applicable models.

The 970X Lightbar flash patterns may be custom programmed by using the Lightbar Control Cable, or by using either of the TOMAR 94X-DCP Digital Control Panels or either of the TOMAR 94X-SIREN Siren Amp & Digital Control Panels.

The 970X Lightbars have a wide variety of Flash Patterns built into the 970X-CONTROLLER. Using EEPROM flash memory, the 970X-CONTROLLER can be reprogrammed many times. The 970X CONTROLLER allows for independent programming of the Front, Rear, and Side Lamps. Factory set patterns and a complete list of programmable patterns are detailed in Appendix A for the length of 970X Lightbar you have ordered.

There are two ways to activate the control wires for the 970X lightbar. The first method is to control the lightbar by using a progressive slide switch. The second method is to control the lightbar using independent rocker or on/off switches. Program the lightbar for all of the individual and/or wire combinations which will be used in this installation.

Programming Warning Modes Using The Lightbar Control Cable

To activate the lightbar programming mode:

GROUND the 10 AWG BLACK power wire.

Apply +12vdc to the 12 AWG RED power wire & the GRN control wire.

Selecting the Warning Mode to Program

Apply +12vdc to program the desired Mode wire combinations, see the switching examples below.

NOTE: All 7 possible combinations of the 3 warning mode wires (ORG, BLU, WHT/BLK) can be programmed uniquely. If two or more wires are to be activated simultaneously, the wire combination must be programmed as well. The last flash pattern programmed before exiting the programming mode becomes the operational setting.

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Example - Program Progressive Slide Switch

Mode 1 – ORG

Mode 2 – ORG + BLU

Mode 3 – ORG + BLU + WHT/BLK

Apply +12vdc to:

ORG

ORG + BLU

ORG + BLU + WHT/BLK

Example - Program Independent Switch

Mode A – ORG

Mode B – BLU

Mode C – WHT/BLK

Apply +12vdc to:

ORG

BLU

WHT/BLK

Advancing Selectable Warning Mode Patterns and Flash Rates

Once Warning Mode Programming has been entered and the Mode to be programmed activated, tap (apply and remove) the appropriate wire to advance through the available flash patterns and flash rates. Unless otherwise indicated, tap the wire to +12Vdc. Continue until the desired WARNING MODE AND FLASH RATE HAVE BEEN is selected.

Advancing Warning Pattern Selection:

Tapping the **RED/WHT** wire advances the **REAR** Warning Lamp patterns.

Tapping the **BRN/WHT** wire advances the **FRONT** Warning Lamp patterns.

Tapping the **GRAY** wire advances the **SIDE** Warning Lamp patterns.

Tapping the **VIO** wire to GROUND toggles the **CA Steady Light** between **OFF** and **On**.

Advancing Warning Flash Rate Selection:

Tapping the **RED/WHT + WHT** wire advances the **REAR** Flash Rate.

Tapping the **BRN/WHT + WHT** wire advances the **FRONT** Flash Rate.

Tapping the **GRAY + WHT** wire advances the **SIDE** Flash Rate.

Advancing Optional Features (if ordered):

These optional Steadyburn Light features can be programmed to be OFF or FLASHING in warning modes. In normal operation, activation of a Steadyburn light overrides the warning mode.

Tapping the **BRN** wire toggles the **Takedown Light** between **OFF** and **Flashing**.

Tapping the **VIO** wire to toggles the **Rearwork Light** between **OFF** and **Flashing**.

Tapping the **YEL** wire toggles the **Alley Lights** between **OFF** and **Flashing**.

Repeat for each Warning Mode wire and or combinations of Warning Mode wires.

To Exit Warning Mode Programming, remove power from all 970X power and control wires.

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Programming Directional Modes Using The Lightbar Control Cable

To activate the lightbar traffic direction programming mode:

GROUND the 10 AWG BLACK power wire.

Apply +12vdc to the 12 AWG RED power wire & the GRN control wire,
then apply +12vdc to the RED/WHT (Right Arrow) control wire.

NOTE: The Traffic Direction modes are (RED/WHT) Right Arrow, (BRN/WHT) Left Arrow and (RED/WHT + BRN/WHT) Center Out. Only one Traffic Direction Mode, either Right Arrow or Left Arrow need be programmed to program the Traffic Direction Modes. Traffic Direction modes are only available when at least six 970 LED modules are configured to the Rear of the 970X Lightbar.

Once Traffic Programming Mode has been entered, tap (apply and remove) the appropriate wire to advance through the available traffic flash patterns and rates. Continue until the desired activation is selected.

Advancing Traffic Pattern Selection:

Tapping the **WHT/BLK** wire advances the **DIRECTION** patterns.

Advancing Traffic Flash Rate Selection:

Tapping the **WHT/BLK + WHT** wire advances the **DIRECTION** Flash Rate.

To Exit Traffic Direction Mode Programming, remove power from all 970X power and control wires.

Programming Preemption Parking Brake Disable Function (Violet Wire)

To activate the lightbar preemption parking break disable programming mode

GROUND the 10 AWG BLK power wire.

Apply +12 VDC to the 12 AWG RED power wire & the GRN control wire.

Advancing the function of the VIOLET disable wire

Tap the 18 AWG RED wire to scroll through the available settings. The strobe lamp will pulse 1, 2, 3, or 4 times to indicate the function selected.

1 pulse of strobe = Ground

2 pulses of strobe = +12v

3 pulses of strobe = Ground Latch

4 pulses of strobe = +12v Latch

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Using one of the 94X-DCP Digital Control Panels or the 94X-Siren Amp & Control Panels

Connecting to the 970X LED Controller: REMOVE POWER. Unscrew the lamp at the rear passenger side of the Lightbar. Locate the 970X LED Controller and connect the DB9 receptacle of the Tomar DB9-RJ45-Cable. Then connect the RJ-45 modular plug directly to the 94X-DCP, or the 94X-Siren Amp & Control Panel via the Slave RJ-45 port on the rear panel. If any Lightbar control wires are connected by any other method than the 94X-Siren Amp & Control Panel -- DO NOT activate any while in programming mode. Apply and maintain main power to the Lightbar.

A. Activate Lightbar Programming Mode

940L - Activate the Lightbar Program Mode by simultaneously pressing the TONE + SIREN OFF + OFF switches and hold for two seconds



948L - Activate the Lightbar Program Mode by simultaneously pressing the MANUAL+ DIM switches and hold for two seconds



2. Programming switches 1-6 will blink three times to indicate successful activation of programming mode.

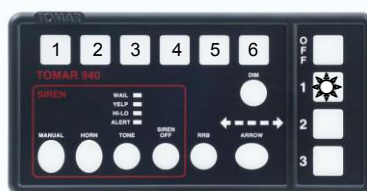


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B. Programming Progressive Mode Switches

1. Program a Mode:

Example: Begin programming the Mode 1 warning pattern by pressing mode Switch 1, or moving the slide switch to position 1.



- (a) Selecting Flash Pattern: Select the Mode 1 warning pattern by pressing the appropriate switch as listed below. Each press advances the pattern one step. Continue until the desired pattern is selected.

Pressing Programming switch 1 advances the Front Warning Lamps
Pressing Programming switch 3 advances the Rear Warning Lamps
Pressing Programming switch 5 advances the Side Warning Lamps

Tapping the BRN wire to GROUND toggles the CA Steady Light between OFF and ON.

- (b) Selecting Flash Rate: Select the Mode 1 flash rate by pressing the appropriate switch as listed below. Each press advances the flash rate one step. Continue until the desired flash rate is selected.

Pressing Programming switch 2 switch advances the Front Flash Rate
Pressing Programming switch 4 switch advances the Rear Flash Rate
Pressing Programming switch 6 switch advances the Side Flash Rate

- (c) Selecting Flashing warning mode for Optional TD/RW/A Lights (if ordered):
To program, toggle the optional TD/RW/A Lights to be OFF or FLASHING in Warning Modes. In normal operation, activation of a TD/RW/A light overrides this Flashing warning mode.

Press & hold DIM then press Programming switch 1 to toggle the Takedown Light (TD)
Press & hold DIM then press Programming switch 3 to toggle the Rearwork Light (RW)
Press & hold DIM then press Programming switch 5 to toggle the Alley Lights (A)

Repeat the above steps for each Warning mode; Mode 1, 2 & 3.

- (d) Warning patterns and flash rates are now set for Modes 1, 2 & 3 when selected.

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C. Programming Traffic Direction Modes:

1. Program Rear Warning In Traffic Direction Modes: Select an arrow pattern by pressing the Arrow switch



- (a) Select Traffic Direction Pattern by pressing Programming switch 1. Each press advances the pattern one step. Continue until the desired pattern is selected.
- (b) Selecting Traffic Direction Flash Rate by pressing Programming switch 2. Each press advances the flash rate one step. Continue until the desired flash rate is selected.
- (c) Flash pattern and rate are now set for Traffic Direction Mode when selected.

D. Programming Preemption Parking Brake Disable Function (Brown Wire)

1. Advancing the function of the BROWN disable wire

- For 940L: Press & hold DIM then press Programming switch 2 to scroll through the available settings.
- For 948L (and optionally for 940L): Tap the ORANGE wire to scroll through the available settings.
- The strobe lamp will pulse 1, 2, 3 or 4 times to indicate the function selected.
 - 1 pulse of strobe = Ground
 - 2 pulses of strobe = +12V
 - 3 pulses of strobe = Ground Latch
 - 4 pulses of strobe = +12V Latch

- E. **EXIT 940L Programming Mode:** Press the OFF switch TWICE, once to disable the Lightbar, once to exit the 940L program mode.

EXIT 948L Programming Mode: Press the MANUAL and DIM switches to exit the 948L program mode.

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Appendix A

This document only applies to the following models:

970X-72DTP-XX