

Installation Guide for Model 700 Flasher

Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.



General Description

The Code 3 Model 700 Alternating Flasher uses an electronic timing circuit to control two specially designed flasher relays. The unit is totally weather resistant and may be mounted anywhere on the vehicle away from heat sources and direct water splashes, using either the mounting tabs at each end or the mounting hole through the device. Outputs 1 and 2 are capable of handling up to 100 watts (8 amps.) each. Model 700 flasher can be used as a Headlight Flasher, a non daytime running lights hot side switching flasher or as alightbar flasher.

Terminal Functions

Terminal A - Output 1: 100 watts (8 amps.) maximum load.

Terminal B - Output 2: 100 watts (8 amps.) maximum load.

Terminal C - Flasher On: Activated by + 12VDC.

Applying +12VDC to this terminal through a user supplied switch activates the alternating flash of loads 1 and 2.

Terminal D - Input: To Battery Positive.

Supplies +12VDC to outputs 1 and 2. A user supplied fuse should be installed to protect the outputs. Use at least 14AWG wire and 20 amp fuse.

Terminal E - To Battery Negative.

Provides ground for the unit. For best results connect directly to the negative terminal of the battery.

Terminal F - Steady burn: Activated by +12VDC

Applying +12VDC through a user supplied switch turns both outputs on simultaneously. When removed, the unit will function normally. This feature will override all other functions.

Terminal G - Pause: Activated by +12VDC.

Applying +12VDC through a user supplied switch turns both outputs off simultaneously. When removed, the unit will function normally.

Operation as a Headlight Flasher (12v Operation Only)

To operate the Model 700 as a headlight flasher, follow the wiring instructions of Diagram 1. Also, refer to the instruction chart on page 2 for wire colors and their location for a particular vehicle.

To operate, apply +12VDC to terminal C through a user supplied switch. This will start the alternating flash. Now, turn on the vehicle's low beam headlights. The low beam lights should burn steadily. Now, activate the highbeam switch. High beam lights should now be on. If you do not get these results, recheck all connections listed above.

If you wish the high beams to continue to flash while the low beams are on, do not connect Terminal G. See Diagram 1 for additional help.

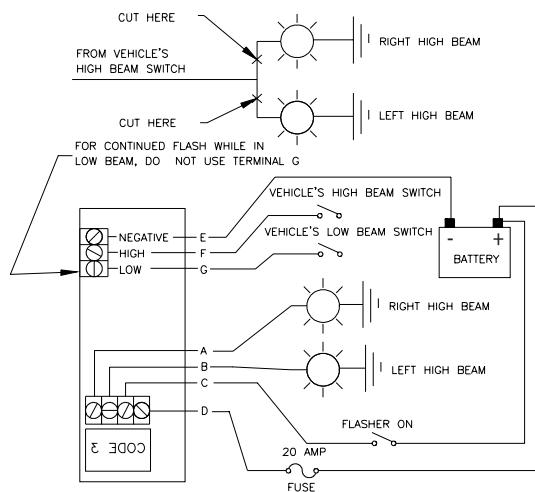


DIAGRAM 1: WIRING DIAGRAM FOR HEAD LIGHT
FLASHER INSTALLATION

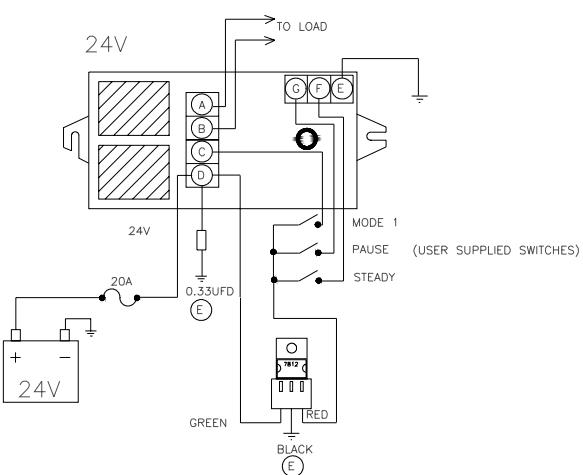


DIAGRAM 2: 24v OPERATION

Operation as a Light Bar Flasher

To operate the Model 700 as a light bar flasher, jumper Terminal C to Terminal D and connect these to +12VDC in the bar. Connect one bulb to be flashed to Terminal A and the other bulb to be flashed to Terminal B. Connect Terminal E to the frame of the light bar to provide ground.

The remaining terminals may be used for special functions when switched to +12VDC. Terminal G will "pause" or turn off the lamps until power is removed. Terminal F will steady burn the bulbs for use as take down or work lights until power is removed. See the wiring diagram on the bottom of the unit for further assistance.

WARRANTY

This product was tested and found to be operational at the time of manufacture. Provided this product is installed and operated in accordance with the manufacturer's recommendations, Public Safety Equipment guarantees all parts and components except the lamps for a period of 1 year 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 a 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.

PSE 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.

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

PRODUCT RETURNS

In order to provide you with faster service, if you are going to return a product for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to PSE. 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.

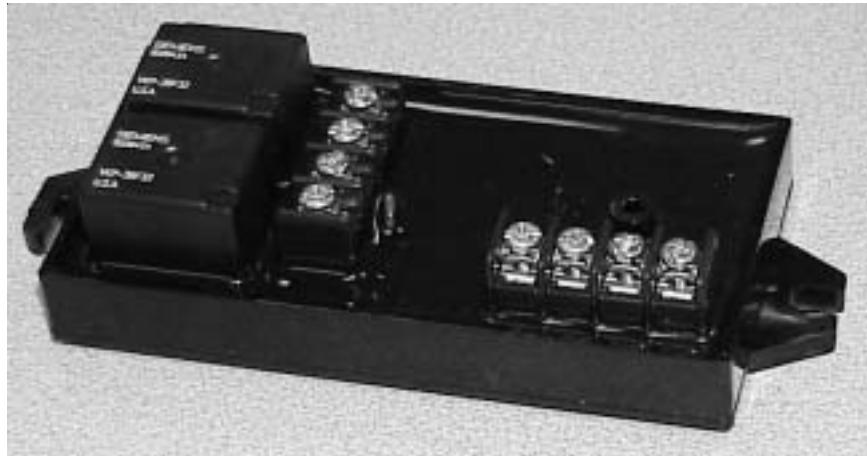
*PSE reserves the right to repair or replace product at its discretion. PSE assumes no responsibility or liability for expenses incurred for the removal and/or reinstallation of products requiring service and/or repair.

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Revision 8, 7/01- Instruction Book Part No. T01935
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INSTALLATION & OPERATION MANUAL

MODELS 710 & 711
MULTI MODE
FLASHERS



Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.

||||| **CODE 3**[®]
PUBLIC SAFETY EQUIPMENT, INC.

MODELS 710 & 711 MULTIPLE MODE FLASHERS

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IMPORTANT:

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

Introduction

The Code 3® Model 710 and 711 multiple mode flashers use an electronic timing circuit to control two specially designed flasher relays. Both models can be used as a headlight flasher, non daytime running lights hot side switching flasher or as a light bar flasher with steady burn override capability. The units allow the user one of two different headlight flasher patterns. You may use either or both patterns depending on installation.



WARNING!

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. Incandescent lamps are extremely hot, allow to cool completely before attempting to remove.

Any electronic device may create or be affected by electromagnetic interference. After installation of any electronic device operate all equipment simultaneously to insure that operation is free of interference. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment.

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 your 710 or 711 Multiple Mode Flasher, carefully inspect the unit and associated parts for any damage that may have been caused in transit. Report any damage to the carrier immediately.

Installation & Mounting

Mounting Methods

The units can be mounted using either the mounting tabs located at each end of the unit or the mounting hole through the unit.

CAUTION: The units must be mounted away from heat sources and water splashes.



WARNING!

All devices should be mounted in accordance with the manufacturer's instructions and securely fasten to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Front or rear grille/bumper placement must avoid interference with SRS sensors. Mounting the unit inside the vehicle by a method other than the permanent installation is not recommended as unit may become dislodged during swerving, sudden braking, or collision. Failure to follow instructions can result in personal injury.



WARNING!

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. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

Terminal A - Input: Battery Positive.

Supplies Outputs 1 and 2 with +12VDC. The Unit should be fused with a user supplied 20 amp. fuse and wired with #14 AWG wire minimum.

Terminal B - Mode #1: Activated by +12VDC.

Begins flashing of Outputs 1 and 2 in Mode #1 when supplied with +12VDC through a user supplied switch.

Terminal C - Output 1: 100 Watt (8 amps) Maximum.

Terminal D - Output 2: 100 Watt (8 amps) Maximum.

Terminal E - Steady Burn: Both Outputs ON.

When activated by +12VDC through a user supplied switch, both outputs will turn on simultaneously. This steady burn feature will override all other features of this unit.

Terminal F - Pause: Both Outputs OFF.

When activated by +12VDC through a user supplied switch, both outputs will turn off simultaneously, as long as terminal F remains powered. Connect to vehicle low beam circuit to defeat flasher at night. This is an OPTIONAL connection.

Terminal G - Flash Mode #2.

When activated by +12VDC through a user supplied switch, the unit flashes in pattern #2. This is an OPTIONAL connection.

Terminal H - To Battery Negative (-).

Provides the unit with ground (earth) to complete the circuit. For best results, connect directly to the negative (-) terminal of the battery, or in light bar applications, connect to the light bar frame ground (earth).

Operation as a Headlight Flasher (12v Operation only)

FlashMode1 Installation

To operate the Model 710 or 711 as a high beam headlight flasher, refer to Figure 1 while following the steps below:

NOTE: Use #14 AWG wire (minimum) for all connections.

- 1) Mount the Flasher Unit in a convenient location away from direct heat sources or water splashes. A common location is the drivers side fenderwell. Use either mounting method mentioned under "Mounting Methods," above.
- 2) Connect a 20 amp. fuse and holder in-line between the positive (+) post of the battery and Terminal A of the Flasher Unit.

CAUTION: Leave the fuse out of the fuse holder until ready to test the circuit.

- 3) Install a user supplied switch in a convenient location on the instrument panel near the driver.
- 4) Connect the user supplied switch between the positive post of the battery and Terminal B of the Flasher Unit.

NOTE: Refer also to Figure 1A for Steps 5 and 6.

- 5) Connect the left headlight high beam to Terminal C of the Flasher Unit.
- 6) Connect the right headlight high beam to Terminal D of the Flasher Unit.
- 7) Connect the vehicle's high beam switch to Terminal E of the Flasher Unit.
- 8) (OPTIONAL) Connect the vehicle's low beam switch to Terminal F of the Flasher Unit.

NOTE: For continued high beam flash while in low beam, do not connect Terminal F.

- 9) Connect the negative (-) post of the battery, or other good ground(earth), to Terminal H of the Flasher Unit.

Double check all of your connections then refer to the section on testing the circuit.

FlashMode2 Installation(OPTIONAL)

To operate the Model 710 or 711 in a high beam alternating flash pattern, perform the following steps:

- 1) Install a user supplied switch in a convenient location on the instrument panel near the driver.
- 2) Connect the user supplied switch between the positive (+) post of the battery and Terminal G of the Flasher Unit.

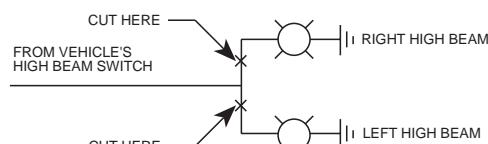
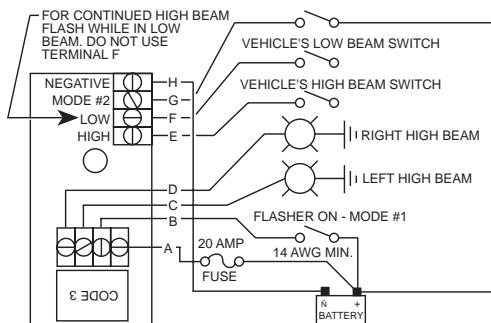


FIGURE 1A: SUPPLEMENTAL DIAGRAM FOR HEADLIGHT FLASHER INSTALLATION

FIGURE 1: WIRING DIAGRAM FOR HEADLIGHT FLASHER INSTALLATION

Testing the Circuits for Headlight Flasher Modes 1 and 2.

Mode 1 Test

- 1) Install the 20 amp. fuse in the in-line fuse holder.
- 2) Turn ON the switch for Mode 1 operation. The high beam headlights should flash, the pattern is dependent on flasher model.

Double check all of your connections then refer to the section on testing the circuit.

- 3) Turn ON the vehicle's low beam headlights. The low beams should burn steady.

NOTE: If you connected Terminal F, the headlight flasher will go off when you turn on the low beams. If you want the high beams to continue to flash, DO NOT connect Terminal F.

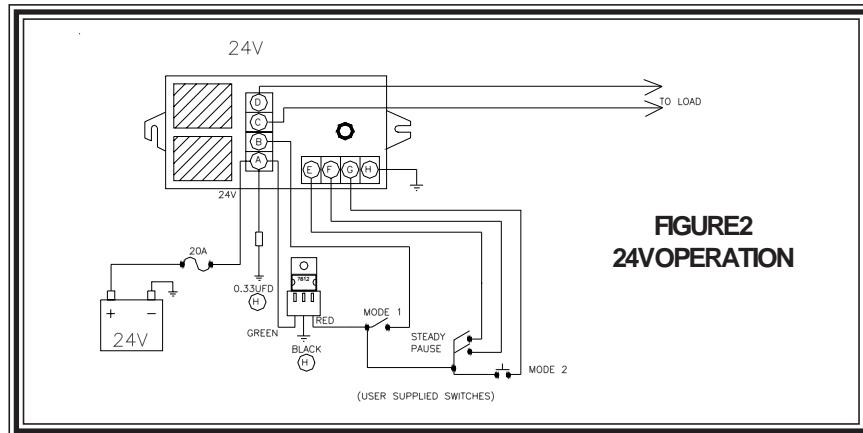
- 4) Turn ON the vehicle's high beams. The high beams should now be on.

If the circuits do not work according to the above description, recheck all of your connections.

Mode 2 Test

- 1) Install the 20 amp. fuse in the in-line fuse holder.
- 2) Turn ON the switch for Mode 2 operation. The headlights should flash simultaneously.

If the circuits do not work according to the above description, recheck all of your connections.



Operation as a Light Bar Flasher.

To operate the Model 710 or 711 as a light bar flasher, perform the following steps:

- 1) Jumper Terminal A to Terminal B and connect these to +12VDC in the light bar.
- 2) Connect one bulb to be flashed to Terminal C and the other bulb to be flashed to Terminal D.
- 3) Connect Terminal H to the frame of the light bar to provide ground (earth).

NOTE: The remaining Terminals may be used for special functions when switched to +12VDC.

- Terminal E will "pause" or turn OFF the lamp until power is removed.
- Terminal F will steady burn the bulbs for use as takedown or work lights until power is removed. To operate as takedowns, power must be applied to +12VDC, A and B input terminals.
- Terminal G flashes the bulbs in a different flash pattern until power is removed.

Refer to the wiring diagram on the bottom of the unit for further assistance.

NOTES

WARRANTY

This product was tested and found to be operational at the time of manufacture. Provided this product is installed and operated in accordance with the manufacturer's recommendations, Public Safety Equipment guarantees all parts and components except the lamps for a period of 1 year 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 a 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.

PSE 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.

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

PRODUCT RETURNS

In order to provide you with faster service, if you are going to return a product for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to PSE. 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.

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Revision 9, 7/0 - Instruction Book Part No. T01973
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