

INSTRUCTION SHEET  
FOR  
4-CHANNEL PROGRAMMABLE FLASHER  
MODELS 650204  
HIGH SIDE FLASHER

**SAFETY MESSAGE TO INSTALLERS**

**⚠ WARNING**

**The lives of people depend on your proper installation and servicing of Federal products. It is important to read and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:**

- **To properly install this kit: you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.**
- **When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged. Remove all burrs from drilled holes. To prevent electrical shorts, grommet all drilled holes through which wiring passes.**
- **This flasher is a high current device. In order for this flasher to function properly, the ground connection must be attached to the negative (-) battery terminal. The positive (+) lead should be attached to a positive source and should be fused at the source.**
- **Never attempt to install aftermarket equipment, which connects to the vehicle wiring, without reviewing a vehicle-wiring diagram - available from the vehicle manufacturer. Insure that your installation will not effect vehicle operation or mandated safety functions or circuits. Always check vehicle for proper operation after installation.**
- **Locate control so the VEHICLE and CONTROLS can be operated safely under all driving conditions.**
- **File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product.**

**Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.**

**I. GENERAL.**

The 650204 electronic flasher is capable of flashing four (4) +12VDC light circuits with a current capacity of up to 10-amperes (maximum) per side, 40-amperes total. The output loads can be either LED lights or conventional Incandescent bulbs. All outputs have short circuit, over current and over voltage protection. If a "fault" condition is experienced at any of the outputs, the RED "System Fault" diagnostic LED will turn on. The output that experienced the fault will remain off through the next on time of that output. If the fault persists, the output will attempt to turn on for 100 times, after this the output will remain off until the Primary or Secondary Inputs are toggled on and off. The unit is designed to operate on 12VDC (negative ground). The flasher operates as a high side switch, switching one side of the load to +12VDC. The unit is housed in a splash proof, high temperature housing. User-supplied switches are required to activate the flasher.

**II. SPECIFICATIONS.**

- Operating Voltage: 9-18 VDC
- Operating Temperature: -40°C to +70°C
- Off-State Current Draw: 0.005 Amps
- Output Current Rating: 10 Amps per channel
- Maximum Unit Current: 40 Amps
- Conducted Emissions: The Equipment Under Test's (EUT's) power leads passed Class 3 Limits of Surface Vehicle Standard SAE J1113/41 - Limits and Methods of Measurement of Radio Disturbance Characteristics of Components and Modules for the Protection of Receivers Used on Board Vehicles. (Issued May 2000)
- Radiated Emissions: The Equipment Under Test (EUT) passed Class 4 Limits of Surface Vehicle Standard SAE J1113/41 - Limits and Methods of Measurement of Radio Disturbance Characteristics of Components and Modules for the Protection of Receivers Used on Board Vehicles. (Issued May 2000)
- Immunity to Electromagnetic Fields: The Equipment Under Test (EUT) passed a Region 1 Level of performance (The unit shall operate as designed during and after exposure to a disturbance), with a test severity level of L6 (100 Volts/Meter) of Surface Vehicle Standard SAE J1113/21 - Immunity to Electromagnetic Fields: Limited to 26 MHz - 1000 MHz.

### III. INSTALLATION.

#### **⚠ WARNING**

**DO NOT connect flasher to brake light circuit of ANY vehicle.**

**DO NOT connect flasher to the headlight circuit of any vehicle.**

**Connection of aftermarket electrical equipment to this circuit may interfere with the brake shift interlock.**

**This could cause the vehicle to unexpectedly move forward causing possible property damage, injury or death to the vehicle operator or others.**

#### A. Mounting.

#### **CAUTION**

Never mount the flasher in the vehicle's engine compartment. It is recommended that the flasher is installed either under the dash, in a console, in a compartment, or in the trunk of the vehicle.

1. Locate a suitable mounting location for the flasher.
2. Using the flasher as a template, scribe drill position marks on the mounting surface.

#### **CAUTION**

Before drilling holes in ANY part of a vehicle, be sure that both sides of the mounting surface are clear of parts that could be damaged; such as brake lines, electrical wiring or other vital parts.

3. Drill mounting holes at the previously scribed drill position marks.
4. Use user supplied hardware to secure the flasher to the vehicle.

#### B. Wiring.

#### **CAUTION**

The lamps WILL NOT flash if improperly grounded. Be sure that the lamp ground is isolated by attaching the lamp ground directly to the flasher ground stud. The ground connection must be attached to the negative (-) battery terminal. The positive (+) stud should be attached to a positive source and should be fused at the source.

See figures 1, 2, and 3 while performing the following procedure.

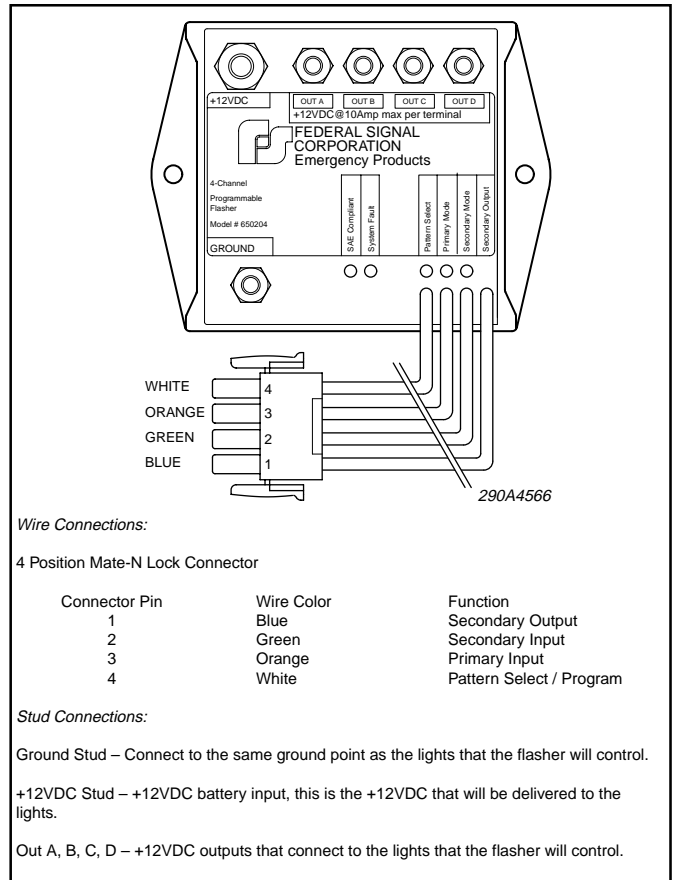


Figure 1.

There are three Inputs to the flasher via the four-position AMP connector.

When +12VDC is applied to the Primary Mode Input (Orange Wire), the flasher will flash the selected pattern on all outputs A, B, C, and D.

When +12VDC is applied to the Secondary Mode Input (Green Wire), the flasher will flash the same pattern but only on outputs A, B, and C. The Secondary output (Blue Wire) provides +12VDC when the Secondary Input is active.

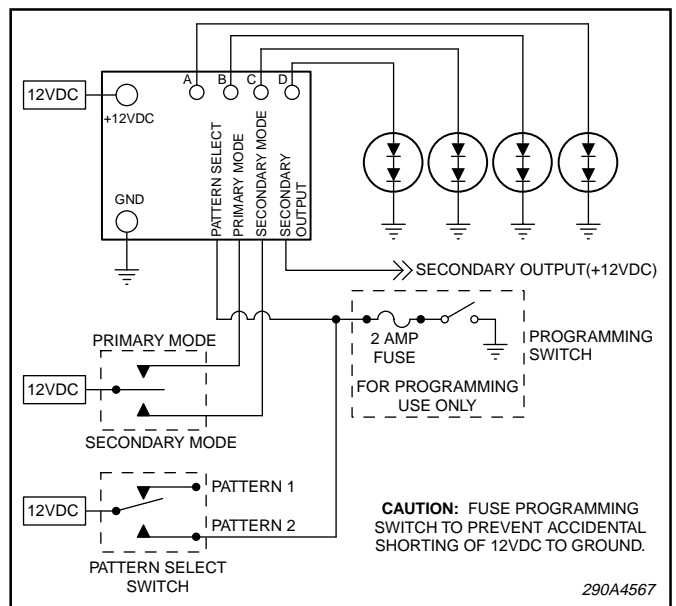


Figure 2.

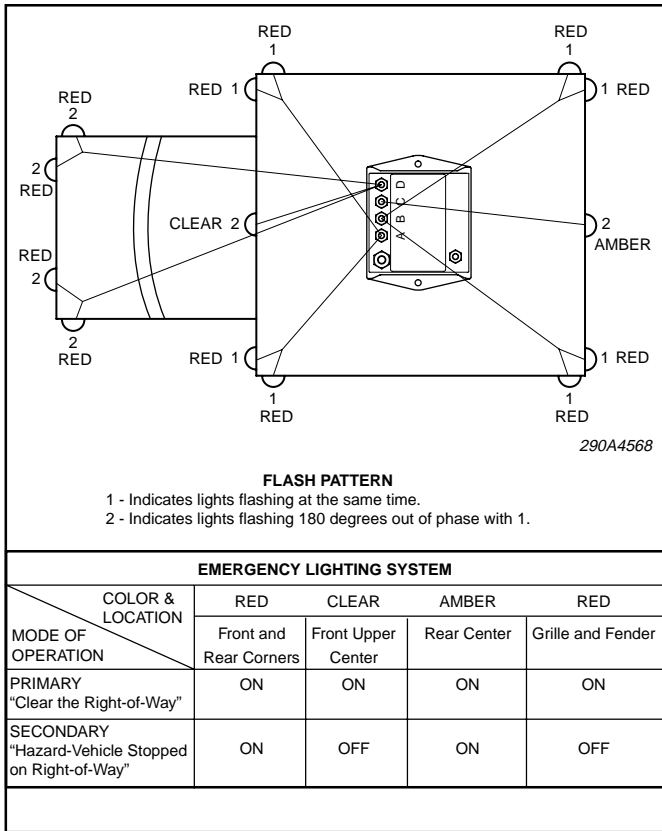


Figure 3.

The Pattern Select (White Wire) is the third Input and is used for three operations as follows:

1. Ground on the input – The flasher will enter the program mode.
2. Open on the input (Not Terminated) – The flasher will flash the first user-selected pattern.
3. +12VDC on the input – The flasher will flash the second user-selected pattern.

As an example, if the Primary input is at +12VDC and the Pattern Select input is open, the flasher will be flashing the first user-selected pattern. If the Pattern Select input is changed to +12VDC the flasher will now flash the second user-selected pattern. Refer to figure 2 and study how the Pattern Select wire is hooked up to a Programming switch and Pattern Select Switch.

**CAUTION**

Fuse Programming Switch to prevent accidental shorting of +12VDC to Ground.

**⚠ WARNING**

To provide safe operation, the ON/OFF-Primary/Secondary Mode control switch must be capable of handling a minimum of 15-amperes DC, and fused with a user-supplied 15-ampere fuse at the source.

C. Programming (see table 1).

The flasher will provide the end user with two preselected flash patterns. The preselected flash patterns are to be chosen from the 18 factory programmed patterns provided with each flasher. It is recommended that the preselected flash patterns be determined and programmed during installation. The default pattern for pattern number one is 1. The default pattern for pattern number two is 2.

The green LED will be illuminated when an SAE COMPLIANT flash pattern is selected. When a non-SAE compliant flash pattern is selected, the LED will be off.

With the Primary and Secondary inputs off or inactive, a Ground signal applied to the Pattern Select line will put the flasher unit into program mode. The Pattern Select diagnostic LED will blink at 1/2 second intervals to indicate program mode. After 1 second the flasher will start to cycle through the available flash patterns. Each pattern will be demonstrated for 10 seconds with a 1 second pause between each available pattern. When the desired pattern is flashing, remove Ground from the Pattern Select input, this flash pattern is now programmed as the first pattern used by the flasher when the Pattern Select line is left open.

To program the second flash pattern reconnect Ground to the Pattern Select input within 5 seconds after programming the first pattern. The flasher will restart the patterns as before, when the desired pattern is flashing remove Ground from the Pattern Select line and now this pattern is programmed as the second pattern when the Pattern Select line is at +12VDC.

Table 1.

Pattern	Channels A & B	Channels C & D	Comments
1 - SAE	95 fpm	95 fpm	A/B alternates with C/D
2 - SAE	120 fpm	120 fpm	A/B alternates with C/D
3	180 fpm	180 fpm	A/B alternates with C/D
4	120 triple-flashes /min	75 fpm	A/B alternates with C/D
5	120 triple-flashes /min	120 fpm	A/B alternates with C/D
6 - SAE	4 flashes of A/B alternating with C/D @ 120fpm, then 4 flashes of A/B/C/D simultaneous @ 120fpm		
7	Walking strobe, 1200fpm, at the 4th flash of A, B begins to flash, at the 4th flash of B, C begins to flash, etc.		
8	120 double-flashes /min	120 double flashes /min	A/B alternates with C/D
9	120 triple-flashes /min	120 triple-flashes /min	A/B alternates with C/D
10	120 quad-flashes /min	120 quad-flashes /min	A/B alternates with C/D
11	2 @ 60fpm 4-pulse alternating, then 1 @ 60fpm 2-pulse simultaneous		
12	1 @ 60fpm 3-pulse alternating, then 1 @ 60fpm 2-pulse simultaneous		
13	60fpm 5-pulse, A/B alternating with C/D		
14	60fpm 4-pulse, A/B alternating with C/D		
15	75fpm 3-pulse, A/B alternating with C/D		
16	85fpm 2-pulse, A/B alternating with C/D		
17	Three-channel walking strobe, same as pattern #7 above except skip channel D		
18	120 triple-flashes /min	120 double-flashes /min	A/B alternates with C/D

Note: SAE indicates that pattern is compliant with SAE requirements