

# WHELEN<sup>®</sup>

ENGINEERING COMPANY INC.

51 Winthrop Road  
Chester, Connecticut 06412-0684  
Phone: (860) 526-9504  
Fax: (860) 526-4078  
Internet: [www.whelen.com](http://www.whelen.com)  
Sales e-mail: [autosale@whelen.com](mailto:autosale@whelen.com)  
Canadian Sales e-mail: [autocan@whelen.com](mailto:autocan@whelen.com)  
Customer Service e-mail: [custserv@whelen.com](mailto:custserv@whelen.com)

## Installation Guide: Models CS650 & CS650D Strobe Power Supplies

### Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr any holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro<sup>®</sup>, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post.**
- **If this product uses a remote device to activate or control this product, make sure that this control is located in an area that allows both the vehicle and the control to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

**For warranty information regarding this product, visit [www.whelen.com/warranty](http://www.whelen.com/warranty)**

## Selecting a Mounting Location:

The most common choice for a mounting area would be a trunk or similar compartment. However, due to the wide variety of vehicles onto which the power supply could be installed, this is not always possible. The following guidelines will help the installer select an acceptable alternative:

- **The power supply should be mounted on a metal surface to aid heat dissipation. Be sure that this surface is not one that either generates or is exposed to excessive heat during normal operation of the vehicle.**
- **Do not select a location where the unit will be exposed to potential damage from any unsecured or loose equipment in the vehicle.**
- **Be sure the area selected will not allow the unit to be exposed to water!**
- **When routing the power supply's wires, it is important to choose a path that will keep these wires away from excessive heat and from any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.).**

## Mounting Procedure:

**WARNING! Permanent mounting of this product will require drilling. It is absolutely necessary to make sure that no other vehicle components could be damaged by this process. Check both sides of the mounting surface before starting. If damage is likely, select a different mounting location.**

1. Position the unit in its proposed mounting location. With the unit in place, insert an awl or other suitable tool into the mounting screw area of the power supply and scribe the areas that are to be drilled.
2. Remove the unit from its mounting area and, using an appropriately sized drill, drill a hole in each of the areas scribed in the previous step.
3. Return the power supply to its mounting location and using sheet metal screws, secure the unit to its mounting surface.

## Wiring:

**WARNING! The Strobe Light Power Supply is a high voltage device. Do not touch or remove tube assembly in strobe light head assemblies while in operation. Wait 10 minutes after disconnecting the unit from its power source before starting work or troubleshooting on power supply or system.**

**WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and FUSED at the battery to carry that load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!**

1. Locate the 2 power wires, RED (+) and BLACK (-) exiting the front of the unit (*see Wiring Diagram*).
2. Connect the RED wire to a fuse block (customer supplied) and then to the POSITIVE terminal on the battery. Although a 10 Amp fuse (customer supplied) is required to be used in the fuse block, do not install the fuse until ALL of the wire connections are completed.
3. Connect the BLACK wire to the factory chassis ground adjacent to the battery.

**Note: The strobe light power supply is not field serviceable. Return to manufacturer for service. Do not tamper with unit.**

When inserting the pinned wires into the AMP housing, the correct wire must be inserted into its designated socket position. The table below indicates the positions, based on the color codes for Whelen strobe lights.

Outlets will have either a WHITE or a GREEN trigger wire. WHITE flashes simultaneously with WHITE, and GREEN flashes simultaneously with GREEN. WHITE flashes alternately with GREEN.

**Low Power Control / VIOLET** The type of switch used is dependant on how the operator wishes the Hi/Low feature to function:

**Latching Mode:** By applying +voltage to the Violet wire for less than 1 sec., the power supply is "latched" into low power operation. The unit must be turned off and then back on to restore normal, Hi power operation. A momentary switch is preferred here.

**Level Mode -** Applying +voltage to the Violet wire for more than 1 sec. holds the power supply in low power mode until that voltage is removed. A toggle switch is preferred here.

**Pattern Selection -** This is a positive activation input. A momentary activation (Less than 1 second) will cause the power to change the default flash pattern to the next available pattern. If the new pattern is active for more than 1 second, it will become the new default pattern. A momentary activation (more than 1 second) will cause the power supply to change the default flash pattern to the previous pattern. If the input is tied to positive while the unit is powered up, the default pattern will change to CometFlash®.

# Specifications:

**Input Voltage:** 12.8 VDC (25.6 VDC) +/- 20%

**Input Current:** 5.2 / (2.6) Amps

**Input Power:** 67 Watts

**Output Capacitance:** 67 uF

**Energy (Total)** 20 joules

**Energy: (High Power)** 7.3 / 4.3 / 4.3 / 4.3

**Energy: (Low Power)** 3.2 / 3.2 / 3.2 / 3.2

**Output Power:** 50 Watts

**Flash Pattern: (Default)** CometFlash®

**Flash Rate: (Default)** 150 CFPM +/- 5%

**Pattern Selection:**

- 1 - CometFlash® . . . 150 CFPM @ 85 mS.
- 2 - TripleFlash™ . . . 185 FPM @ 85 mS.
- 3 - DoubleFlash . . . 220 FPM @ 100 mS
- 4 - Single Flash . . . 480 FPM @ 125 mS
- 5 - ActionFlash™ . . . 3 CometFlash 4 RapidFire
- 6 - ModuFlash™ . . . 175 FPM to 350 FPM
- 7 - MicroBurst II™ . . 200 FPM @ 85 mS
- 8 - MicroBurst III™ . . 190 FPM @ 85 mS
- 9 - LongBurst™ . . . . 140 FPM @ 85 mS
- 10 - Actionscan™ . . . All patterns

