DOT-LED®
Lighting Systems
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Whelen Engineering has been designing and manufacturing professional lighting system solutions for over forty years. Engineered to meet all demands of the heavy-duty truck market, Whelen is proud to provide lighting solutions that are designed for all operating conditions.

Providing safe, reliable systems to both operators and the motoring public is at the forefront of Whelen’s mission. As an industry leader, Whelen prides itself in providing flexible system programmability and introducing innovative, high quality products for further safety enhancement.

We appreciate your loyalty as we continue to drive innovation.
History of Whelen Engineering Company, Inc.

1952 George W. Whelen invents the first rotating aircraft “anti-collision” beacon in his garage in Deep River, Connecticut.

1953 Whelen becomes the first in the industry to utilize strobe light technology.

1963 Whelen moves from Deep River, Connecticut to its current Corporate Headquarters in Chester, Connecticut.

1974 Whelen releases the first fully enclosed lightbar.

1975 Whelen becomes the entitlement sponsor of the NASCAR Whelen Modified Tour and the NASCAR Whelen Southern Modified Tour. Whelen also begins sponsorship as the Official Warning Lights of NASCAR.

1984 Whelen moves from Deep River, Connecticut to its current Corporate Headquarters in Chester, Connecticut.

1985 Whelen becomes the first in the industry to utilize strobe light technology.

1991 The New Hampshire plant expands to house plastic injection molding equipment. The tool and die machine shop begins as a servicing shop for parts before they are run in molding. Today, 90% of all molding tools are made in-house from raw steel.

2000 Whelen introduces the first all LED lightbar.

2001 Hard coating technology develops. The production machine shop opens, housing 26 machines, 5 axis mills, lathes with live tooling, and screw machines. Parts made from raw housing or machined casting go into many finished products.

2004 Whelen develops an LED floodlight.

2005 Whelen becomes the entitlement sponsor of the NASCAR Whelen Modified Tour and the NASCAR Whelen Southern Modified Tour. Whelen also begins sponsorship as the Official Warning Lights of NASCAR.

2007 Sheet metal fabrication is implemented. Whelen becomes the entitlement sponsor of the NASCAR Whelen All American Series.

2008 Powder coating technology is implemented. Whelen becomes the entitlement sponsor of the NASCAR Whelen Euro Series.

2010 Vacuum metalizing technology is developed. Silicone molding is implemented.

2013 Whelen becomes the entitlement sponsor of the NASCAR Whelen Euro Series.

2014 Whelen opens the only environmentally friendly printed circuit board manufacturing facility in North America with zero hazardous emissions.

2015 George W. Whelen V becomes the President and CEO of Whelen Engineering.
All Whelen products are designed, manufactured, and assembled in our Connecticut and New Hampshire facilities.

Printed circuit boards are manufactured in-house. Whelen’s PCB shop is the only environmentally friendly printed circuit board manufacturing facility in North America with zero hazardous emissions.

Surface mount technology deposits electronic components onto PCB using robotic nozzles. All testing and programming of PCB is done in a continuous automated line.

Sheet metal fabrication utilizes lasers to create brackets and a wide variety of metal components used in almost every Whelen product. A five axis laser is used to cut complex metal parts that do not come in a flat sheet.

Silicone molding is a liquid injected molding process. Silicone allows for use of parts that need to be flexible and water resistant. This material is often utilized to make a watertight seal in an assembly.

Plastic injection molding equipment manufactures all plastic parts, from optical grade polycarbonate to thermally conductive composites.

Hard coating technology utilizes an automated line where UV, abrasion, and chemical resistant coating is applied to all plastic lensing.

Vacuum metalizing technology coats all reflectors with a thin layer of pure vaporized aluminum within a sealed chamber. Bringing this process in-house yields a 10% increase in light output due to improved surface quality and purity.

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Whelen has supported NASCAR and its grassroots racing series for over 25 years. Whelen sponsors the Whelen All-American Series, the Whelen Euro Series, the Whelen Modified Tour, and the Whelen Southern Modified Tour. Additionally, Whelen is proud to provide the Official Warning Lights and the Official Vehicle Illumination Lights of NASCAR.
**DOT SYSTEM FEATURES**

**Optics**
- Certified by an AMECA-accredited testing laboratory to meet or exceed SAE warning lighting requirements in the appropriate specified safety colors
- Lighting profile easily defines the width and height of a highway vehicle
- Wide-angle Super-LED® lightheads ensure visibility when dump body is raised or lowered, including forward dump bodies
- All warning lighthead colors are Amber. For other colors, contact factory
- Multiple flash patterns and sequence options provide improved reference for motorists in determining the distance to and location of maintenance vehicles

**Design**
- Pure copper stranded conductors used in all TPE cables are tin coated, providing superior longevity
- A 12” protective section of flex-tubing and coupling to the housing prevents cable chafing
- All rear lightheads are furnished with Deutsch® waterproof connectors
- Each system includes a complete installation kit, including cable harnesses
- 400 and 700 Series lighthead housings are 7 gauge welded stainless steel
- Optional welded aluminum housings are also available

**DOT System Components**

**Front System Components**
Front system components are offered in four Super-LED® models with combined 360° warning visibility. Includes 60’ of heavy-duty TPE cable.

- **Micro Freedom™**
- **Micro 400**
- **Stainless Steel Micro 400**
- **Remote L31 Beacon**

**Rear Lightheads**
Rear lightheads are offered in three sizes. Super-LED lightheads have specially designed lenses for wide light output. All lightheads are supplied with Deutsch® waterproof connectors.

**Rear Housings**
Rear mounted lightheads include 30’ heavy-duty, oil resistant TPE jacketed cable with strain relief flex-tubing and couplings that provide added safeguard against the elements.

**DOT System Specifications**

- **400 Series**
  - Height: Single: 5-7/8” (149mm)
  - Double: 11-3/8” (290mm)
  - Triple: 17” (430mm)
  - Width: 3-1/2” (88mm)
  - Depth: 4-3/4” (120mm)

- **500 Series**
  - Height: Single: 7” (178mm)
  - Double: 13-3/4” (348mm)
  - Triple: 20-3/8” (518mm)
  - Width: 2-1/2” (65mm)
  - Depth: 5” (127mm)

- **700 Series**
  - Height: Single: 8-3/8” (213mm)
  - Double: 16-1/4” (412mm)
  - Triple: 24” (608mm)
  - Width: 3-1/2” (88mm)
  - Depth: 5” (127mm)

*Five year warranty.*
**Light Systems**

**DOT3401, DOT3501 & DOT3701**  
4 Light System  
Two Micro Freedoms with extended corner modules and two rear lighthead options  
**SYSTEM 401** with 400 Series Lightheads  
DOT3401A Warning  
DOT3401B Warning and brake/tail/turn  
DOT3401D Warning, brake/tail/turn, and back-up  
**SYSTEM 501** with 500 Series Lightheads  
DOT3501A Warning  
DOT3501B Warning and brake/tail/turn  
DOT3501D Warning, brake/tail/turn, and back-up  
**SYSTEM 701** with 700 Series Lightheads  
DOT3701A Warning  
DOT3701B Warning and brake/tail/turn  
DOT3701D Warning, brake/tail/turn, and back-up

**DOT3402, DOT3502 & DOT3702**  
3 Light System  
One L31 remote beacon and two rear lighthead options  
**SYSTEM 402** with 400 Series Lightheads  
DOT3402A Warning  
DOT3402B Warning and brake/tail/turn  
DOT3402D Warning, brake/tail/turn, and back-up  
**SYSTEM 502** with 500 Series Lightheads  
DOT3502A Warning  
DOT3502B Warning and brake/tail/turn  
DOT3502D Warning, brake/tail/turn, and back-up  
**SYSTEM 702** with 700 Series Lightheads  
DOT3702A Warning  
DOT3702B Warning and brake/tail/turn  
DOT3702D Warning, brake/tail/turn, and back-up

**DOT3403, DOT3503 & DOT3703**  
2 Light System  
Two Micro Freedoms with extended corner modules  
**SYSTEM 103**  
DOT3103 Two front Amber warning lights

**DOT3404, DOT3504 & DOT3704**  
2 Light System  
Two rear lighthead options  
**SYSTEM 404** with 400 Series Lightheads  
DOT3404A Warning  
DOT3404B Warning and brake/tail/turn  
DOT3404D Warning, brake/tail/turn, and back-up  
**SYSTEM 504** with 500 Series Lightheads  
DOT3504A Warning  
DOT3504B Warning and brake/tail/turn  
DOT3504D Warning, brake/tail/turn, and back-up  
**SYSTEM 704** with 700 Series Lightheads  
DOT3704A Warning  
DOT3704B Warning and brake/tail/turn  
DOT3704D Warning, brake/tail/turn, and back-up

**DOT3405, DOT3505 & DOT3705**  
4 Light System  
Two Micro 400s and two rear lighthead options  
**SYSTEM 405** with 400 Series Lightheads  
DOT3405A Warning  
DOT3405B Warning and brake/tail/turn  
DOT3405D Warning, brake/tail/turn, and back-up  
**SYSTEM 505** with 500 Series Lightheads  
DOT3505A Warning  
DOT3505B Warning and brake/tail/turn  
DOT3505D Warning, brake/tail/turn, and back-up  
**SYSTEM 705** with 700 Series Lightheads  
DOT3705A Warning  
DOT3705B Warning and brake/tail/turn  
DOT3705D Warning, brake/tail/turn, and back-up

**DOT3406, DOT3506 & DOT3706**  
4 Light System  
Two L31 remote beacons and two rear lighthead options  
**SYSTEM 406** with 400 Series Lightheads  
DOT3406A Warning  
DOT3406B Warning and brake/tail/turn  
DOT3406D Warning, brake/tail/turn, and back-up  
**SYSTEM 506** with 500 Series Lightheads  
DOT3506A Warning  
DOT3506B Warning and brake/tail/turn  
DOT3506D Warning, brake/tail/turn, and back-up  
**SYSTEM 706** with 700 Series Lightheads  
DOT3706A Warning  
DOT3706B Warning and brake/tail/turn  
DOT3706D Warning, brake/tail/turn, and back-up

*Five year warranty.
Engineered to maintain situational awareness of the operator, the SmartLogic Programmable Flasher houses numerous innovative technologies that deliver highly effective visual warning.

- Housed in a junction box for ease of mounting, along with wiring and connection protection
- Software is configurable via USB port
- All 8 outputs are internally protected and fused
- Each solid-state output is rated for 5 amps
- 8 inputs
  - 5 activating inputs
  - 3 non-activating inputs for low power, photocell, and brake/tail/turn cutoff
- Default flash pattern
- LED onboard diagnostic indicators signify active outputs and blown fuses
- Day and night mode truck setups
Heated Lens System

Introducing industry-first technology for preventing snow build up on rear corner post lights in most conditions.

- Tempered glass heats uniformly and keeps lenses at 45° F in most conditions
- Switches on automatically when the temperature drops below 40° F, providing zero operator involvement
- LED indicator light in the cab automatically notifies operator that the system is on or off
- On/off switch located in the cab allows operator to manually control the system if needed
- Tempered glass uses between 1-4 amps (colder temperature increases amp draw)
- Housing and lens design accommodates three lightheads
- 14 gauge wire included

H400SD  400 Series Heated Lens System
H400VD  400 V-Series™ Heated Lens System

*DOT lighting system sold separately. Option includes heated lens system only. Works with following system models: DOT3401D, DOT3402D, DOT3404D, DOT3405D, DOT3406D and DOT3410D
NEW 400 Series
Super-LED® Back-Up Light

The 400 Series Super-LED Back-Up Light provides high intensity work zone illumination to increase operator and workforce safety.

- Downward ground illumination optics
- Available in horizontal or vertical mount
- Mounts into 400 Series housings
- Hard-coated lenses minimize environmental damage from sand, sun, salt, and road chemicals

NEW 400 V-Series™

Dual purpose optics provide maximum rear corner post warning for all dump body positions.

- SAE Class 1 Certified
- Single color warning utilizing linear technology placed in both directions
- Hard-coated lenses minimize environmental damage from sand, sun, salt, and road chemicals
- Vibration, moisture, and corrosion resistant
- Mounts vertically into DOT stainless steel housing
- Works in conjunction with current DOT flasher models
- Conformal coated PC boards
- 12" pigtail with Deutsch® waterproof connector and strain relief

*Standard Option

Substitute (2) 400 Horiz Backups for Vert

Substitute (2) Amber 400VV for 400 Linear Warning

*Five year warranty.
**DOT Options**

**Switch Control Panels**
- Compact rocker style single pole/single throw switches
- Black epoxy-finished steel housing
- Individual spade-type fuses conveniently located on rear mounted fuse strip
- Active LED indicators light up to indicate function in use
- Ignition controlled backlit legend windows for easy visibility in any light
- Backlight circuit can be connected to vehicle dimmer switch to control backlight intensity
- 72 commonly used press-on switch function label legend tabs
- 25 amps peak

**Aluminum Housings**
Replace stainless steel housings with aluminum housings on 400, 500, and 700 Series lightheads or the Micro 400. Offered in pairs.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCC4W</td>
<td>Four 25 amp switches. 2-1/4&quot; (57mm) H x 2&quot; (51mm) W x 4&quot; (102mm) D.</td>
</tr>
<tr>
<td>PCC5W</td>
<td>Six 25 amp switches. 2-1/4&quot; (57mm) H x 3&quot; (76mm) W x 3-9/16&quot; (91mm) D.</td>
</tr>
</tbody>
</table>

**L31 Branch Guard**
Cast aluminum brush guard for one beacon.

**TIR3® Super-LED® Lighthead**
Add addi Cility with a TIR3 lighthead mounted to the side of a 400 or 700 Series housing, providing 90° of warning light coverage. Offered in pairs.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ADD4TIR3</td>
<td>400 Series</td>
</tr>
<tr>
<td>ADD7TIR3</td>
<td>700 Series</td>
</tr>
</tbody>
</table>

**Pioneer Micro™**
- Die-cast aluminum Black powder coated housing
- Powder coated stainless steel bail bracket with 3/8" stud carriage bolt mount
- Optic lens changes easily via four screws in picture frame fixture
- Includes three additional lenses:
  - Flood lens with 50° x 20° wide optics
  - Flood lens with 40° x 20° optics
  - Flood lens with 40° x 8° horizontal optics
- 12 VDC

**Wing Plow™ Lighting Systems**
- Two styles of Amber lightheads provide complete coverage whether snowplow wing is in the operation position or in the stowed travel position
- Pairs can be synchronized for alternating or simultaneous flashing
- Fully encapsulated for vibration, moisture, and corrosion resistance

<table>
<thead>
<tr>
<th>Model</th>
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<tbody>
<tr>
<td>WPLOW3AA</td>
<td>TIR3 light modules</td>
</tr>
<tr>
<td>WPLOW91A</td>
<td>Wing Plow Operating Amber TIR</td>
</tr>
<tr>
<td>WPLOW21A</td>
<td>Wing Plow Operating Amber LINZ</td>
</tr>
<tr>
<td>WPLOW24A</td>
<td>Wing Plow Stowed Amber TIR</td>
</tr>
<tr>
<td>WPLOW22A</td>
<td>Wing Plow Stowed Amber LINZ</td>
</tr>
<tr>
<td>WPLOW23A</td>
<td>LINZ light modules</td>
</tr>
</tbody>
</table>

**Cable Lengths**
Substitute 45' or 30' cables for standard 60' cables. Offered in single or pairs.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBF4C45</td>
<td>Pair, 45'</td>
</tr>
<tr>
<td>SUBF4C30</td>
<td>Pair, 30'</td>
</tr>
<tr>
<td>SUBF2C45</td>
<td>Single, 45'</td>
</tr>
<tr>
<td>SUBF2C30</td>
<td>Single, 30'</td>
</tr>
<tr>
<td>SUBR2C45</td>
<td>Substitute 45&quot; 2/C Rear Cable</td>
</tr>
<tr>
<td>SUBR5C45</td>
<td>Substitute 45&quot; 5/C Rear Cable</td>
</tr>
</tbody>
</table>