

How to Choose a Flasher?

What is a flasher?

Flashers are mechanisms that enable corresponding pilot lamp as well direction lights to flash as the driver pulls the flasher lever or turns on the hazard flashers. They give an audible warning as the signals are in operation. When one or more of the direction indicators are defective, audio and pilot lamp speed change.

How do I choose a flasher?

The critical criterion that determines the choice of flasher is the nominal voltage (12V / 24V). Besides nominal voltage other features such as; rated load, number of terminals, terminal configurations, terminal markings and mounting type may be important factors.

How many different types of flashers are there?

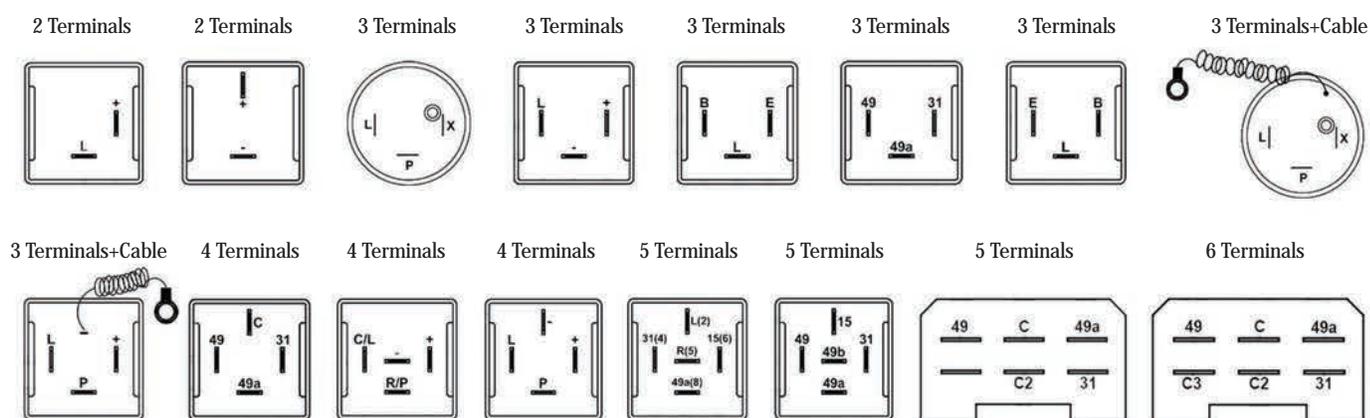
Flashers are grouped by various technical specifications.

- **Voltage:** 12V / 24V
- **Number of Terminals:** 2, 3, 4, 5, 6 or more
- **Terminals Positions & Markings:** Vehicles manufactured in Europe (except Germany), Germany, USA or Japanese
- **Working Principal:** Bimetal, Electromechanical or Electronic
- **Lamp Outage Indication:** w/ Indication or w/o Indication
- **Mounting Type:** w/ Bracket or w/o Bracket
- **Maximum Load:** 4, 6, 8 or more 21W bulbs
- **Independent Output for Tell-Tale Light:** w/ Output or w/o Output
- **LED Compatibility:** Compatible or Noncompatible
- **Indepent Output for One or More Trailers:** w/ Output for First Trailer or w/ Output for Second Trailer or w/o Output

Cross Table for Terminal Markings

Connection	Europe	Germany	USA	Japan
+ ABattery	+	49	X	B
Chassis	-	31		E
Flasher Lever	C	49a	L	L
Pilot / Indicator Lamp	R		P	
Trailer	R2	C2		

Cross Table for Terminal Markings



Flasher Terminology and Frequently Asked Questions

Nominal Voltage: Nominal voltage is 12V for passenger cars, tractors and light commercial vehicles and 24V for trucks, buses and T.I.R.

Rated Load: Rated load should be 4 x 21 W for passenger cars. For larger vehicles or vehicles with trailer 6, 8 or 10 21W bulbs make up the rated load.

Flashes per Minute: International standards are between 60 - 120 flashes per minute. 80 to 90 flashes per minute is common practice.

On/Off Time: The ratio of duration which the signals actually flash compared to a total cycle. For 21W incandescent lamps 40-45% on, 55-60% off time should be preferred. 50% to 50% ratio is better detected for LED signals.

Lamp Outage Indication and Indication Method: Most electronic flashers control the current drawn by the bulbs. The flasher detects a faulty bulb through such current change and often warns the driver by starting to operate much faster than normal. Similarly, the vehicle may warn the driver by an indicator light or error code information on the screen.

When a faulty 21W incandescent bulb is replaced with LED, the flasher will give out a faulty lamp indication. In such instances, the flasher must also be replaced by a LED compatible model.

Number of Terminals and Markings: In order for a flasher to function properly, the corresponding terminals must be correctly connected or wired. The most practical way to change a flasher is to change it with a new flasher with same number of terminals and markings. However, if you are familiar with cross-codes for markings (also given on previous page), you can easily install a flasher with different terminal markings. For example, a 3-terminal flasher with markings of 49, 49a, 31 (found in vehicles made in Germany) is exactly the same as a 3-terminal flasher with markings of B, L, E. Please see the table on the previous page to determine the exact matches for terminal markings before application.

Independent Pilot Lamp: Older model vehicles have a single pilot lamp. This means there is no independent right arrow flashing for the right signal and no independent left arrow flashing for the left signal. The single pilot lamp flashes regardless of direction. In such vehicles, a flasher with independent pilot output must be used.

Second and Third Pilot Lamp: One or two trailers may be attached to vehicles such as tractors, trucks, T.I.R. The second and third pilot lamps are used as additional indicator to remind the driver that there are trailers attached and that signaling systems of the trailers are working properly.

Bracket: Usually flashers are mounted using a bracket. Brackets have built-in mounting holes for ease of installation. If the flasher does not come with a bracket, a simple screw may be used for installation.

IP Rating: Ingress Protection (IP) indicates the degree of protection for solid particles as well as liquids that is provided by the enclosure of the relay. All ELO flashers are manufactured IP53 and above.

Which flasher is right for my application?

First rule to keep in mind is that a flasher should always be replaced with one that has the same nominal voltage. When making replacements, we suggest you to use a flasher with the same terminal layout and markings. If a flasher with the same terminal layout and markings is not available, you can always use the table on the previous page to determine the exact matches for terminal markings.

I had LED lights installed to my vehicle. Now my direction lights flash differently. What can I do?

Flashers that are designed for incandescent bulbs will not be suitable for your application. The flasher must also be replaced by a LED compatible model.

The pilot lamp speed has changed. What may be the cause?

The speed increase of the pilot lamp indicates a faulty lamp or a existence of a lamp lower than 21W. You need to change faulty bulb(s) with 21W bulb(s).

What is the life cycle of a flasher?

ELO flashers are designed, manufactured and tested for 3 million on/off cycles. Under normal circumstances, such as in vehicles of personal use, this translates into 20 years of usage. For specific applications in which the flashers are used 24 hours, such as construction vehicles, vehicles of road traffic and safety, Solid State Flasher (SSF) should be preferred.

What is a solid state flasher (SSF)?

SSFs are flashers without moving parts. The on/off cycle is achieved through semiconductors, transistors and integrated circuits. Solid State Flashers' lives are practically endless since there is no movement, thus no corrosion of parts. SSFs usually work quietly.

