

# Universal Shift Light User Manual

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## Introduction

Every split second matters, with the KE Shift Light's vibrant LED display always be aware of your vehicle's RPM without ever taking your eyes off the road. Keeping you ahead of the competition and more immersed in the driving experience!

## Supported Vehicles

Any vehicle 2008 or newer will be supported out of the box. Vehicles older than 2008 may be supported if they utilize the CAN bus standard. Refer to <https://www.kaiserengineering.io/> to see if your vehicle is supported.

### Visual verification

If you are unsure if your vehicle supports CAN bus an easy way to check is to verify if there are pins in the following locations (highlighted red) of your OBD-II port. This is the port that is mounted in your vehicle and located within two feet of your steering wheel.

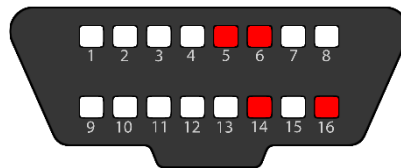


Figure 1. OBD-II port CAN Bus pin locations

## What's In the Box

- Shift Light
- Double Sided tape
- User Manual

## Installation

### Mounting the Shift Light

The Shift Light includes double sided tape for a universal installation. Simply place the double sided tape on the bottom of the Shift Light and then attach it to a clean surface in your vehicle.

Take the following into consideration when choosing your mounting location:

- Sunlight glare
- Temperature (*See warning below*)
- Visibility while turning (steering wheel obstruction)
- Available route to run the OBD-II cable
- The cable length is 5ft
- Access to the buttons on top of the Shift Light

#### **WARNING!**

If you live in an area with extreme temperatures avoid placing the device in direct sunlight. Failure to do so may cause damage. *Refer to Environmental Information for more details.*

## Routing the Cable

When routing the OBD-II cable take precaution to place it in an area that will not get pinched from moving parts and/or obstruct the driver.

## Plugging in the OBD-II Cable

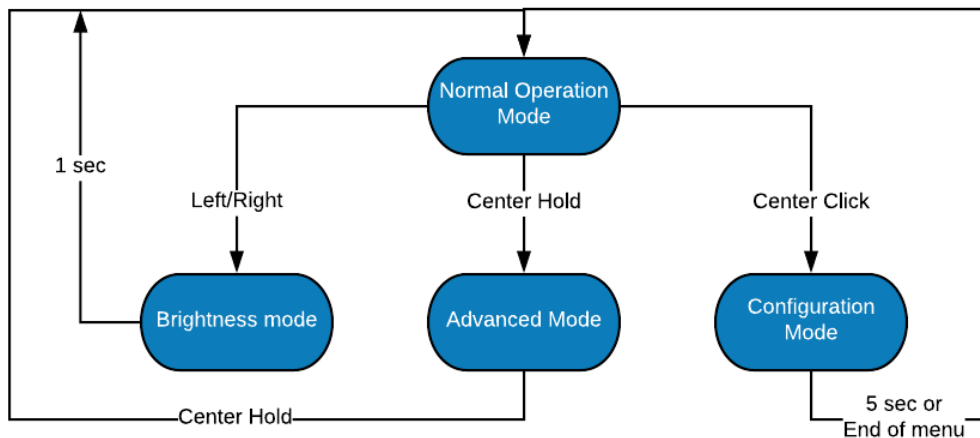
Once the Shift Light is mounted and the cable is properly routed you can plug the OBD-II cable into the OBD-II port. If you do not know where the OBD-II port is in your vehicle, refer to your vehicle's user manual. The OBD-II port of your vehicle should be within 2 feet of your steering column.

### WARNING!

When using the Shift Light always follow the laws in the area in which the vehicle is being operated. The user accepts all risks and responsibilities when using the Shift Light. KaiserEngineering, LLC and its affiliates accept no responsibility for damages or injury caused by misuse of the Shift Light.

## Normal Operation Mode

Normal operation mode is the default mode. In this mode the Shift Light will display the vehicle's engine speed. There are three actions that can be performed in this mode.



### Actions available

- Adjust brightness (Click Left/Right)
- Enter Configuration Mode (Click Center)
- Enter Advanced Mode (Hold Center)

## Brightness Mode

Brightness can be adjusted by using the left and right buttons while in normal operation.

### Actions available

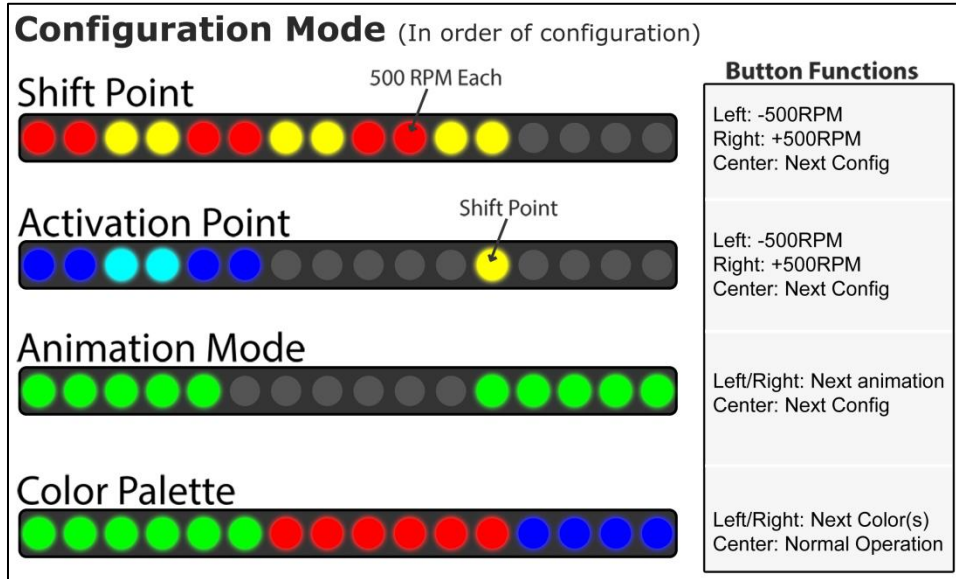
- Adjust brightness (Click Left/Right)

### WARNING!

The Shift Light uses high brightness LEDs for race purposes. Always set a brightness that is suitable for driving conditions that will not distract or impair the driver.

# Configuration Mode

To get to the configuration menu, click the center button. You will be prompted by 2 red flashes, this is the first item of the configuration menu. To save changes no input is needed, normal operation will continue after 10 seconds of inactivity. To move to the next setting click the center button again and you will be prompted by the next configuration item.



Once you have reached the end of the configuration menu you will return to normal operation mode. Note that at any point normal operation will continue after 10 seconds on inactivity.

### Actions available

- Adjust current setting (Click Left/Right)
- Next setting/exit (Click Center)

### Configuration menu

- Shift Point (Red/Yellow)
- Activation Point (Blue/Teal)
- Mode (Green)
- Color (Multiple colors)

### Shift Point

Shift point is the point at which the Shift Light is fully illuminated and will flash to indicate it is time to shift. Each red/yellow LED represents 500 RPM and the left/right buttons can be used to decrease or increase this setting respectively.

**Example:** shift point of 12 illuminated LEDs will mean that the Shift Light will begin flashing at 6,000 RPM (500 RPM × 12).



Once you exceed 8,000 RPM you will see light blue LEDs illuminated to indicate the shift point is in the 8,000-16,000 RPM range. Each LED still represents 500 RPM.

**Example:** shift point of 3 illuminated LEDs with the BLUE background will mean that the Shift Light will begin flashing at 9,500 RPM ( $500 \text{ RPM} \times 3 + 8000\text{RPM}$ ).



### Activation Point

Activation point is the point at which the Shift Light First turns on. Each blue/teal LED represents 500 RPM and the left/right buttons can be used to decrease or increase this setting respectively. Using this same scale the configured shift point is also shown in yellow. Note that the activation point can never exceed or equal the shift point.

**Example:** activation point of 6 illuminated LEDs will mean that the Shift Light will turn on at 3,000 RPM ( $500 \text{ RPM} \times 6$ ).



Once you exceed 8,000 RPM you will see light red LEDs illuminated to indicate the activation point is in the 8,000-16,000 RPM range. Each LED still represents 500 RPM.

**Example** activation point of 4 illuminated LEDs with the RED background will mean that the Shift Light will turn on at 10,000 RPM ( $500 \text{ RPM} \times 4 + 8000\text{RPM}$ ).



### Animation Mode

Animation mode will configure how the engine speed is represented. There are four modes that can be set by using either the right or left buttons. The four options are left to right, right to left, out to in and in to out.



### Color Mode

Color mode will configure the colors used for representing the varying engine speed. There are three modes that can be set by using the left and right buttons. The first mode is a standard blue to green to red theme, the second is a formula one style color scheme that is green to red to blue. The last mode is a single color that varies based engine speed, this means that as the engine speed increases the entire display will change color from blue to green to red.




## Advanced Mode

The Shift Light is designed to be extremely versatile and custom to your exact needs, features such as optimized data flow, shift point flashing, CAN bus speeds to support older vehicles and power saving configurations.

### Advanced mode

Cursor position



A B C D E F F G H I J

A	Flash Color Red	on/off	F	Battery Voltage	
B	Flash Color Green	on/off	G	Auto restart mode	on/off
C	Flash Color Blue	on/off	H	Ford Focus Optimization	on/off
D	Shift Point Solid/Flash		I	Baud Rate	500kbps/250kbps
E	Power Saver	on/off	J	CAN Bus Mode	11bit/29bit

### Shift Color

The Shift Light illumination color can be any combination of red, green and blue. To enable a color LED A, B or C should be turned on (red). The Shift Light's default is to flash white (Red = enabled, Green = enabled, Blue = enabled)

### Shift Point Flash

This Setting will change if the Shift Light flashes or is a solid color when the shift point is reached.

### Power Saver

The Shift Light is set to save power by shutting down when the vehicle is off. In some rare cases the Shift Light may not properly turn back on in a vehicle that has an old or worn out battery. Therefore a setting to lower the threshold voltage can be configured. Please contact for [Support@KaiserEngineering.io](mailto:Support@KaiserEngineering.io) assistance if necessary.

Threshold settings	
● ●	12.0V
● ●	12.5V
● ●	13.0V
● ●	13.5V

### Ford Focus Optimization

This setting should ONLY be changed if the vehicle you are using is a 2013+ Ford Focus ST/RS. Note that changing this will not harm your vehicle. However the Shift Light will NOT work correctly.

Due to the structure of the **Ford Focus ST/RS** ECU the Shift Light has an optimization feature to allow for multiple device support and speed optimization. Therefore if you are seeing issues such as an Accessport resetting continually you can change this setting and both devices will work as expected.

## CAN Bus Baud Rate

Please contact [Support@KaiserEngineering.io](mailto:Support@KaiserEngineering.io) if you are unsure about your CAN bus speed. Most vehicles are designed to operate at 500Kbps and in some older vehicles will operate at 250kbps. Note that this setting should never be changed while the vehicle is running.

### WARNING!

Improper CAN Bus speed can cause unexpected results in your vehicle. If your vehicle appears to be operating incorrectly immediately unplug the device and contact Kaiser Engineering for further support.

## CAN Bus Mode

This setting will adjust if the vehicle operates using 11 bit or 29 bit CAN bus messages. You should always confirm that the Shift Light is correctly configured to operate with the correct protocol. Failure to do so can cause the Shift Light not to operate correctly. **Honda** owners should always verify this, since majority of Hondas use the uncommon 29 bit mode. Majority of vehicles are 11 bit and the Shift Light comes preconfigured to operate in this mode.

### WARNING!

Improper CAN Bus mode can cause unexpected results in your vehicle. If your vehicle appears to be operating incorrectly immediately unplug the device and contact Kaiser Engineering for further support.

# Environmental Information

## Operating and Storage Temperatures

The Shift Light is designed to be operated at temperatures between -4° and 158° F (-20° and 70° C) and with a relative humidity below 90%. Using the Shift Light outside of these recommendations may result in damage.

When storing the Shift Light, do so in a place where temperature is always between 0° and 185° F (-20° and 85° C) and a relative humidity below 90%.

Never store your Shift Light in an area that receives direct sunlight.

## Do Not Get Wet

Take care to prevent any liquids from coming in contact with the Shift Light or any associated equipment.

If your Shift Light or any associated equipment gets wet, professional repair may be required. In such cases, please contact Technical Support **BEFORE** attempting to use the Shift Light.

## Handling and Storage

Your Shift Light may be damaged by improper storage or handling. Be careful not to drop your Shift Light or any associated parts.

Never store your Shift Light in an area that experiences any noticeable levels of vibration, static electricity, heat shock, or excessive swings in relative humidity.

## Do Not Attempt Repairs Yourself

Never attempt to open your Shift Light or any associated equipment. Doing so puts the components at risk of damage from, but not limited to, static shock. No user-serviceable parts are inside. At no time will **ANY** authorized representative of KaiserEngineering, LLC. ask you to open or mechanically/electronically alter the Shift Light.