# Warranty Information

The FUSION central processing unit (CPU) and remote transmitter are backed by a limited one-year warranty against defective components and/or improper product assembly to the original purchaser for as long the system is owned by that same purchaser, contingent upon proper product installation. All product warranties become void if the FUSION L.E.D. system was not installed properly. (Transmitter batteries are not covered under this warranty.) Warranty does not cover water damage to CPU or remote.

The FUSION L.E.D.s are backed by a limited lifetime warranty against defective components and/or improper product assembly to the original purchaser for as long the system is owned by that same purchaser, contingent upon proper product installation.

During the warranty period, Fusion Systems will repair or replace, at its sole discretion, any system component that is found defective in material or assembly during the warranty period, provided that the product is returned to Fusion Systems with a clear and legible copy of the original purchaser's receipt. Any damage to your FUSION L.E.D. system that results from normal wear-and-tear, accidents, improper use, neglect, faulty wiring, charging the bike's battery without first disconnecting FUSION's main wiring harness, incorrect installation, modification, removal or defacement of the product, alteration or repair outside Fusion Systems or its certified dealers immediately voids this warranty.

This warranty is limited to defective parts only and does not provide any compensation whatsoever for damages associated with the FUSION L.E.D. system or its accessories. This warranty does not cover installation labor, product removal and/or reinstallation fees. This warranty is valid for the original purchaser only and may not be transferred to another party. Fusion Systems has made every reasonable effort to ensure the accuracy of the information provided. Proper installation is the sole responsibility of the installer. Through the use of installation materials, the installer assumes all responsibility related to the task of installation. In no event shall Fusion Systems be held responsible for damages whatsoever, including but not limited to consequential damages, incidental damages, or damages for the loss of use, loss of business profits, business interruption, loss of time, inconvenience, or any other losses arising from the use, misuse, or inability to use the FUSION L.E.D. product. The extent of Fusion Systems liability is limited to warranty terms. Liability shall not exceed the purchase price of the product(s).

SEND US YOUR LED PICTURES AND VIDEOS.
EMAIL TO: FUSIONLEDS@VERIZON.NET

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**United States of America**

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## ⚠ READ ME FIRST

**OVERLOAD CAUTION.** Each zone on the CPU can supply approximately 3000 milliamps (mA) or 3 Amps to the lights. On each LED package, you will find the milliamp rating for the LED strip. Never exceed 3000 mA per zone.

**WATER SUBMERSION WARNING.** The Fusion CPU is highly water-resistant and specifically designed for off-road environments, but it cannot be submerged in water for extended periods of time. Water damage to the Fusion CPU is **NOT COVERED UNDER WARRANTY.**

ZONE 3  ZONE 2  ZONE 1
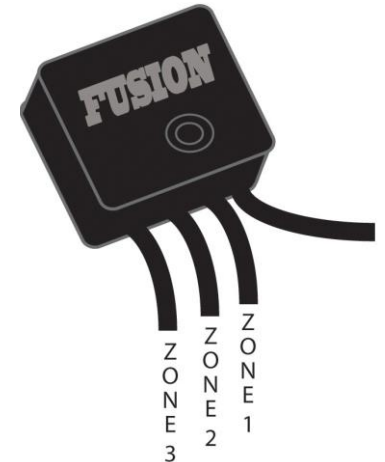
*NEVER EXCEED 3000mA PER ZONE*

**USE CAUTION WHEN FLEXING OR BENDING THE LED STRIPS.** The LED strip is very flexible: however, the internal LED board can be snapped or creased if bent too far or flexed repeatedly.

**EXTERNAL FUSE:** An external blade fuse and housing are provided and must be installed on the red power line wire. Failure to use this fuse may lead to a catastrophic failure of the system and will void the warranty. See page 3 for installation diagram.

**Black Plastics Dots**
Your kit contains four small plastic adhesive dots. These are only necessary to use if the face of the CPU is pressed against a surface.

FOUR PLASTIC DOTS
USE IF FACE OF CPU IS PRESSED AGAINST SURFACE
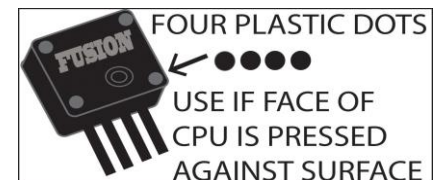
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*VER. 5.0 2021*

*PATENT PENDING*

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# FREQUENTLY ASKED QUESTIONS

**QUESTION: HOW DO I KEEP THE SYSTEM FROM DRAWING ON THE BATTERY WHEN THE SYSTEM IS NOT BEING USED?**
**SOLUTION:**
    **As** with all wireless devices, in order to keep the communication lines open between the CPU and remote, electrical current must be consumed. It is recommended that you purchase a push button on/off switch. Place the push button on/off switch on the red power wire in a location that is easily accessible. When you will not be riding your bike for extended periods of time, turn the switch off to eliminate all power consumption. You will need to turn the switch back on to resume remote control function.

**QUESTION: HOW DO I REPROGRAM THE REMOTE TO THE CPU?**
**SOLUTION:**
    With the LED lights turned off, press and hold the circular design etched on the front of the CPU, just below the Fusion logo. At the same time, press and hold the green button on the remote until you hear three rapid chirps. Release both buttons as soon you hear the CPU begin to chirp. Remote reprogramming is complete. If you hold the buttons after the 3 chirps have ended, you will need to restart the remote programming sequence.

**QUESTION: HOW DO I CONNECT THE SECONDARY POWER TO MY BRAKE LIGHT?**
**SOLUTION:**
    Remove your taillight to expose the wiring. Use a voltage meter to test the wires that run to your brake/tail light bulb. The power wire for your brake light will show 12 DC volts ONLY when the brakes are applied and 0 volts at all other times. Connect the yellow wire from the CPU to the identified power wire going to your brake light.

# TROUBLESHOOTING

**PROBLEM:  WHY WON'T THE SYSTEM TURN ON?**
    **SOLUTION:** If the system is receiving power but none of the lights work, check to make sure you are not in a music mode. If you tap on the CPU and the lights flicker as you tap the module, you are in a music mode. If none of the LED lights are powering on, check the fuse. Replace with 10 AMP slow burn fuse if bad. If fuse is good, check your power and ground connection. If connection is bad, repair the connection. If connection is good, use a voltage meter to check the amount of voltage flowing through the red power line after the fuse and before it enters the CPU. Voltage should be approximately 12 DC volts. If voltage is low, disconnect CPU and recharge vehicle battery

**PROBLEM: WHY IS A SINGLE LED OR A SECTION OF STRIP OUT?**
    **SOLUTION:** This is usually an indication that you have a burnt out LED or the LED board has a break in it. The LEDs are warranted for life, as long as there is no visible damage to the LED strip. Please contact your dealer or Fusion Systems LLC for replacement service if you believe you have a defective strip.

**PROBLEM: A SINGLE LED STRIP IS DEAD OR WILL NOT DISPLAY CERTAIN COLOR(S).**
    **SOLUTION** 1: If an entire pod does not light up correctly it is usually an indication that the plug connector has become loose or the cable has become cut, pinched, or melted. But before you do anything else, try plugging the strip into a different line on the CPU. If the LED strip still does not light properly, inspect the entire length of the cable and LED strip for damage. If damage exists, you will need to repair or replace the LED strip. If no damage exists check the connector plug for that LED pod. Gently pull on each individual wire to ensure that it is securely seated in the plug. If the entire strip is free of damage, please return to your dealer or Fusion Systems for warranty service.
    **SOLUTION** 2: If using a Y-splitter cable prior to the LED strip, you may have a faulty Y-splitter cable. Try replacing this splitter cable with another. If the problem persists, it is most likely a problem with the LED strip.

**PROBLEM: A CERTAIN COLOR(S) WILL NOT SHOW UP IN UNDERLINE ANY OF THE LED STRIPS**
**OR**
**PROBLEM: NONE OF THE LED STRIPS LIGHT UP WITHIN A ZONE. (Can also be a certain color(s) does not light within a zone)**

**SOLUTION 1:** If a zone or the entire system is dead or without certain colors, this indicates a current overload occurred, and tripped the internal fuses for this zone or color. First, check that the total amount of LEDs per zone is not more than the 3000 mA rating. You do this by adding the mA rating for each LED strip you have on the zone. The sum should not be greater than 3000 mA. If you are near (within 5%) or over 3000 mA on any zone, you will need to add an amplifier to that zone. Contact Fusion Systems for support.

**SOLUTION 2:** If you are not near or over 3000 mA current draw on any zone, it is likely that a ground fault is occurring on one of the LED strips. This occurs when one of the power wires in an LED cable is being grounded. To determine the source of the ground fault, unplug each LED strip, one at a time. TIP: If you noticed at any time an LED strip that shows a different color than the other LED strips, start by unplugging that strip(s) first. The moment you unplug the problematic LED strip, power will be restored to that zone and normal functioning will resume. If you unplugged all LED strips from the zone or system and still have missing colors, leave the LED strips unplugged and reset the system by removing the external main fuse for one minute. Replace fuse and test LED strips by plugging them in one at a time. If all colors are available on the first strip, continue to plug in strips, testing each one for full color spectrum. As soon as you plug in the bad strip, you will notice a change in colors. Once you have identified the problematic strip, inspect the LED strip and cable for damage. Repair or replace the damaged strip. If no damage is apparent, please return strip to your dealer or Fusion Systems for warranty service.

**1) Mounting & Wiring CPU cont.** The yellow wire is optional and can be connected to a secondary power source such as the brake lights, emergency four-way flasher, or 12-volt output wire less than 10 amps. For example, you may choose to attach the secondary power to your brake light power wire, so that every time you apply the brakes your LEDs will turn on (displaying the red color, flash, speed selection) even though the system is turned off. As soon as you release the brakes, the LEDs will turn off. You can connect the secondary power to any 12 volt DC power source. **More info, see FAQs.**

**2) Mounting the LEDs:** Installation of the LEDs may require removal of the fenders, body panels, and or the fuel tank. Please refer to your owner's manual for proper removal.

It is important that you mount the LEDs according to the lighting sequence shown on page 5. If this sequence is not followed, some of the flash patterns will not display properly. To follow the proper sequence: mount one set of LEDs toward the rear, one set in the middle, and one set toward the front of the intended lighting area. Please note, there are two cables of each length, one for the left side of the bike and one for the right side. **NOTE: Cables of the same length will light simultaneously while in a lighting sequence mode. The mounting sequence can work in reverse.**

The location and positioning of the LEDs are completely up you, so long as you adhere to the lighting sequence. The proper location and position of the LEDs ultimately depends upon what effect you are looking for. Perhaps you may want to concentrate light around the engine to accent chrome or perhaps you are looking for ground effect lighting. **Here are some tips when searching out the proper location and positioning.** First, visually inspect the area you are thinking of mounting the LED. Once you have found what you think is a good location, test it by powering up the LED. You will want your light to disperse and reflect as much as possible. Move the LED around until you find a position that allows the light to disperse, unobstructed. Make sure the LED is not near any moving parts. **Generally speaking, the LEDs can withstand a lot of heat.** If you are mounting the LEDs near other plastic objects you will not have a problem with overheating the LEDs. The most intense heat is where the exhaust pipes exit the engine; you will want to utilize caution when mounting the LEDs near the exhaust pipes. Once you have found a suitable location, mount the LED using the double-sided adhesive or mounting hardware if provided. Repeat the above step until all LEDs have been mounted. Once you have mounted all six LEDs, route the LED cables back to the CPU. For the most professional look, integrate the LED cables into the motorcycle's existing wiring harnesses. Once routing is complete, plug the LEDs into the corresponding CPU cables. The rear-most LEDs plug into the shortest two CPU cables. The LEDs mounted in the middle of the bike plug into the medium length cables. The forward-most mounted LEDs plug into the longest CPU cables.

**3) Test & Finishing Touches:** Once all of the LEDs are plugged into the CPU, turn the system ON put lights in white for testing, press button A until you come to the scan mode (immediately following breath mode) If the LEDs flash from the back to the front of the motorcycle, the lighting sequence is correct. If done correctly, you should wrap the plug connectors in electrical tape or insert with electrical grease to prevent corrosion and ensure a lasting connection. Next, mount the CPU using the adhesive pad and or cable ties. Lastly, return all of the fenders, panels, and/or fuel tank to their proper locations. **Refer to page 7 for troubleshooting.**

# TECHNICAL SPECIFICATIONS

**CPU (8 Bit Processor)**

| | |
|---|---|
| **Operating Voltage**: | 12 Volt DC |
| **Current Consumption:** | OFF = ~ 18 mA / ON = Variable |
| **Fuse type:** | **7.5 TO 10** Amp Mini-blade fuse NO BIGGER |
| **Housing:** | Waterproof (semi-submergible) |
| **LED Cable Wire Gauge:** | 24 GA |
| **Power Cable Gauge:** | 20 GA |
| **Cable Lengths (mc-x3)** | **(**3 Lines) 1 at 6",,1 at 12" 1 at18 inches . |
| **MAX output:** 3000 mA per zone = 3 AMPS | |

**L.E.D.**

| | |
|---|---|
| **L.E.D. Type:** | SMD – 5050 multi-circuit |
| **Standard Housing:** | Water resistant Non-submergible. |
| **Heavy Duty Housing:** | Water Submergible (Black housing strips) |
| **Light Color:** | Multi or single color circuit |
| **LED Wire Gauge:** | 24 GA |
| **Cable Length** | 32 - 40 Inches |

**Transmitter**

| | |
|---|---|
| **RF Output:** | 433 MHZ |
| **Digital Code:** | 48 Bit |
| **Battery:** | One 27A 12 Volt battery |
| **Transmit Range:** | 30 Feet |
| **Housing:** | Water resistant. |

Note: To change the remote battery, remove the screws on back side of cover. Gently pull apart at the seam and replace battery. It is not necessary to reprogram the remote. See FAQ (PAGE 2) for remote reprogramming.
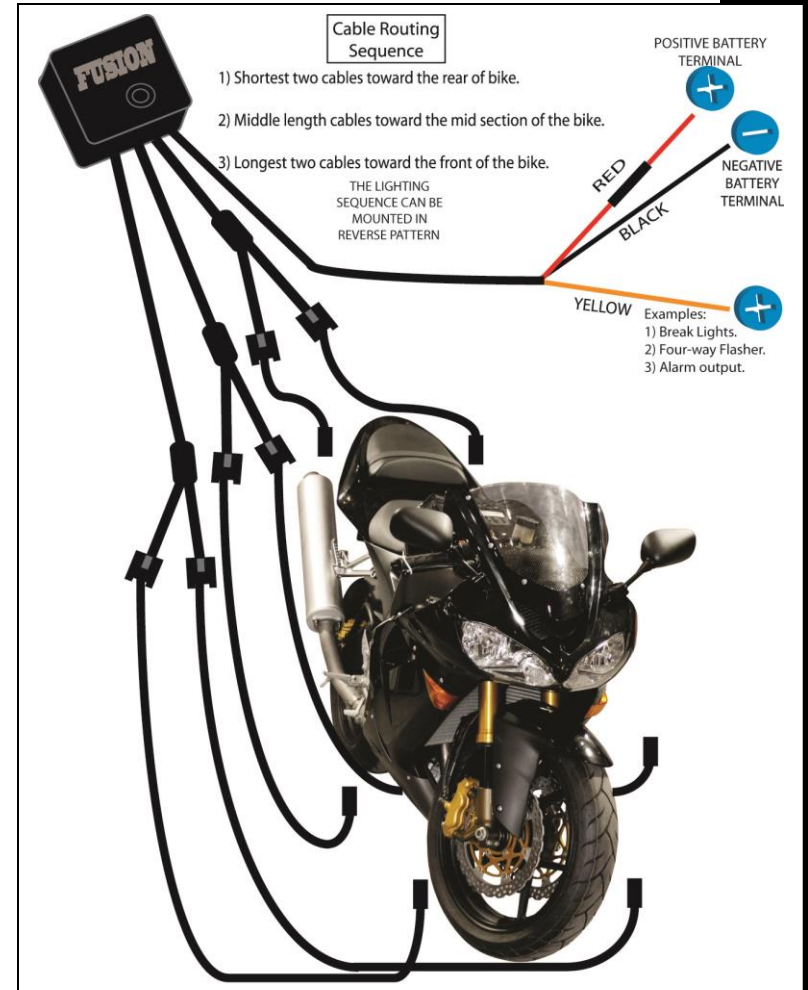
# IMPORTANT FUSE INFORMATION IF CUT OUT FROM ORIGINAL WIRE HARNESS WILL VOID YOUR WARRANTY

## MUST INSTALL ON RED POWER WIRE

TO CPU ←     → TO BATTERY

# MAIN FEATURES EXPLAINED

A) **Function Button**: When the system is turned ON, pressing button A will change the flash pattern. A single beep will occur to indicate flash pattern has changed. Below is a list of the flash patterns in their order of program sequence.

1. **Solid State**: No Flashing. Available in all colors including full color spectrum and seven color changing patterns with adjustable color change speed

2. **Basic Flash**: LEDs flash on & off simultaneously. Available in all colors with adjustable flash speed

3. **Breath Mode**: LEDs gradually flash on and off; giving the impression your motorcycle is breathing. Available in the seven basic colors & seven color change pattern, with adjustable breath speed.

4. **Scanning Mode 1**: LED's flash from back of bike toward the front repeatedly. Available in all colors with speed adjust.

5. **Scanning Mode 2**: LED's flash from back of bike toward the front staying on till flash pattern done, repeatedly. Available in all colors with speed adjust.

6. **Running Mode:** LEDs flash on and then staying on while moving from back to front – front to back of bike. Available in all colors with speed adjust

7. **Center-out Mode**: LEDs flash from center of bike outward. Available in basic seven colors & seven color change pattern, with speed adjust.

8. **Chase Mode 1**: LEDs flash on from back to front – and flash off from front to back repeatedly. Available in all colors with speed adjust.

9. **Chase Mode 2**: LEDs flash on from back to front staying on – and flash off from front to back repeatedly. Available in all colors with speed adjust.

10. **Scanning Mode 1**: LED's flash from front of bike toward the back staying on till flash pattern done, repeatedly. Available in all colors with speed adjust.

11. **Scanning Mode 2**: LED's flash from front of bike toward the back fading out, repeatedly. Available in the seven basic colors & seven color change pattern, with adjustable breath speed.

12. **Music Mode I:** Flashes to bass of stereo or engine in front to back pattern. Available in all colors.

13. **Music Mode II:** Flashes to bass of stereo or engine in center-out pattern.. Available in all colors with sound sensitivity adjust.

14. **Music Mode III:** Flashes to bass of stereo or engine in mode 2. Available in all colors with sound sensitivity.

15. **Patriotic Mode I:** Displays Red, White and blue solid only.

16. **Patriotic Chase Mode II:** Red, White and Blue flash from front to back.

17. **Patriotic Flash Mode III:** Basic Flash in Red, White and Blue.

18. **Patriotic Breath Mode IIII:** Breath in Red, White and Blue.

B) **Color Button:** When the system is turned on, pressing button **B** will change the color. There are 19 single colors plus a full color spectrum changing pattern and a seven color changing pattern. A single beep will confirm successful color change.

C) **Speed/Sensitivity Button:** Pressing button **C** will change the speed of the flash pattern in modes 1 through 8 and the sensitivity to noise in modes 9 through 13. Five speeds/sensitivities available, one chirp indicates the slowest or least sensitive, 5 chirps indicates the fastest or most sensitive.

D) **System Power:** Press button **D** once to turn the system ON, a single chirp will confirm the system is ON. Press again to turn OFF; a double chirp indicates the system is turned OFF.

Cable Routing Sequence
1) Shortest two cables toward the rear of bike.
2) Middle length cables toward the mid section of the bike.
3) Longest two cables toward the front of the bike.

THE LIGHTING SEQUENCE CAN BE MOUNTED IN REVERSE PATTERN

POSITIVE BATTERY TERMINAL
RED
BLACK
NEGATIVE BATTERY TERMINAL
YELLOW Examples:
1) Break Lights.
2) Four-way Flasher.
3) Alarm output.

**1) Mounting & Wiring the CPU:** We recommend mounting the CPU near the middle or rear of the motorcycle. The first reason is the length of the LED cables are varying lengths so you will have less excess wire for the rear mounted LEDs and more wire for the LED's in the front. Generally the rear of the bike provides the best locations for mounting the CPU. Ideal locations include beneath the seat, auxiliary tool box, or additional storage compartments. DO NOT permanently mount the CPU until the final step. There are three wires which supply power & ground to the CPU. The red and black wires are required and attach to the motorcycle's battery terminals. **Red** wire attaches to the positive battery terminal. <u>**You must keep the mini blade fuse holder on the red power line, between the battery and CPU.**</u> The black wire attaches to battery ground terminal.