

# Installation Instructions & Use Recommendations

## FMS Accessories – ELM Diode Installation

These instructions must be read carefully and thoroughly **before** beginning work. FMS Solutions, LLC accepts no liability for damage caused by failure to observe the installation instructions or use recommendations.

**Installation of this accessory does not change the factory specified load limits for the motorcycle.**

**Complaint:** on rare occasions, one of the auxiliary rear emergency lights from FMS Accessories have turned ON for no apparent reason. It was first thought that this unintended activation was due to RF interference.

**Solution:** FMS has determined that when sunlight shines directly into the stock BMW rear facing **RED emergency light**, a small reverse voltage current is generated that back-feeds into the line which can trigger the ELM box to activate the auxiliary emergency lights. Now that the cause has been identified, a simple and effective solution has been developed which takes only a few minutes to install. The solution is placing diodes in each of the power wires from the stock BMW red rear facing lights, which restricts the flow of current to one direction and prevents reverse voltage back-feeding the circuit. The next production of ELM modules will incorporate a higher threshold activation voltage so that the feedback is ignored. If your motors have four red rear-facing emergency lights, request another kit so that all red colored rear-facing lights are protected from feed-back.

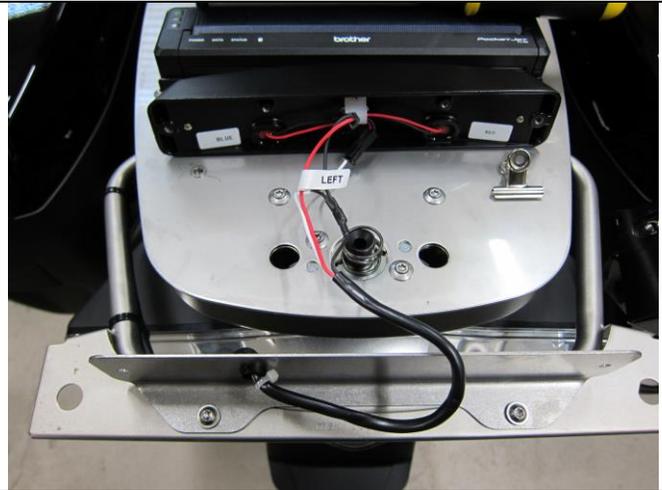
**Note:** The duplex and rear facing pod lights are on the same output node on the flasherboard, which is why both levels of lights need to be addressed as a red light in either of those outputs could cause a reverse voltage activation.



**Note:** ELM modules with a Red or Green color dot near the SN label do not require a diode kit – the voltage threshold has been modified on later production to overcome the reverse current issue caused by sunlight.

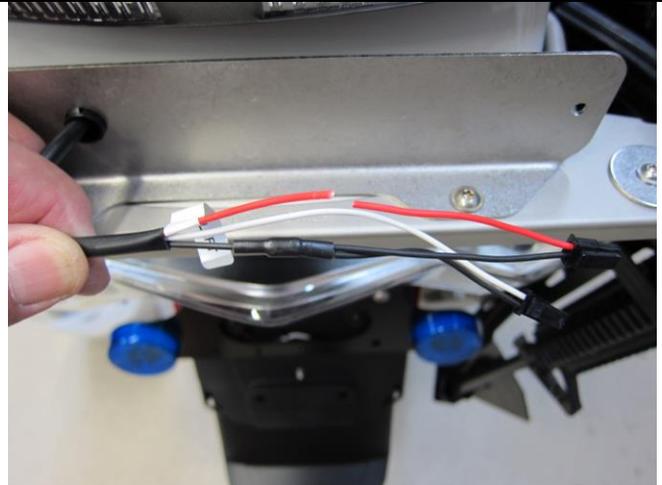


Open the radio box lid and remove the two M5 Phillips screws w/external locking washers securing the stock BMW duplex light.



The diode will be installed in the Code 3 wiring harness prior to the plug connections to the stock BMW duplex light. This way, if a light were to fail in the future, the diodes would still be in place with the replacement light. Install on the **RED** light lead only.

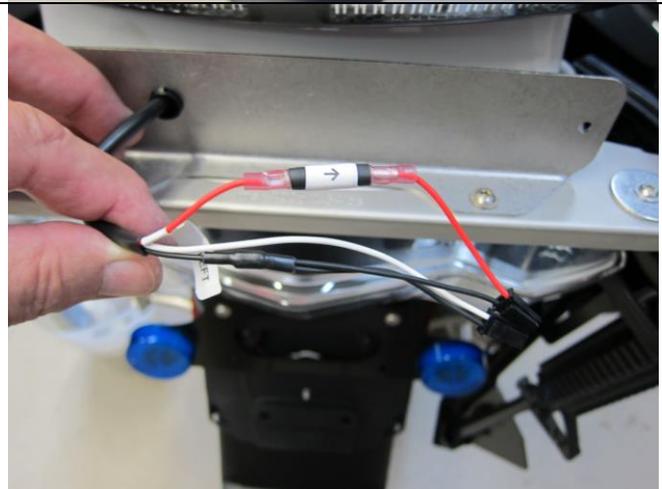
Prior to the plug connection to the stock BMW duplex light, cut / remove a 1" section of the **red wire** (left power feed wire).



Strip back approximately 1/4" of the 20 AWG wire and twist the strands to ensure that all strands will be inserted into the diode.

Crimp the diode to the red power wire, with the arrow on the diode facing the stock BMW duplex light.

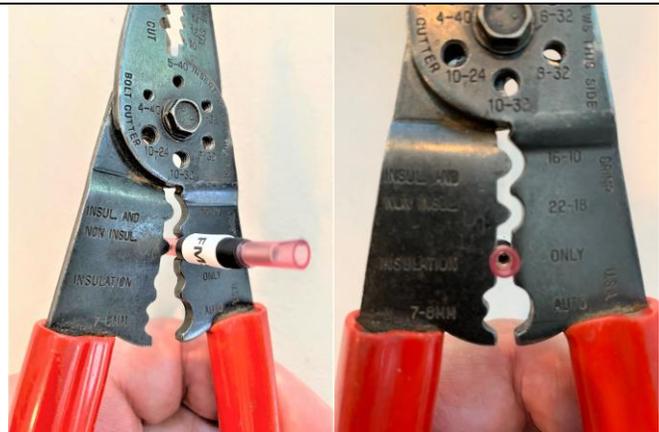
See below for preferred crimp method / tool.



### Crimp Recommendations:

Note that when crimping insulated terminals, the conductor crimp should be with a plunging tool as in the first photo at right. The conductor wire needs a solid crimp connection to the conductor tube.

The insulation cover should be crimped on the insulator pinch portion of the tool. The insulator crimp serves to stabilize the wire on the insulation cover to stop vibration from cracking the strands of the wire based on any harmonic vibrations.



Conductor

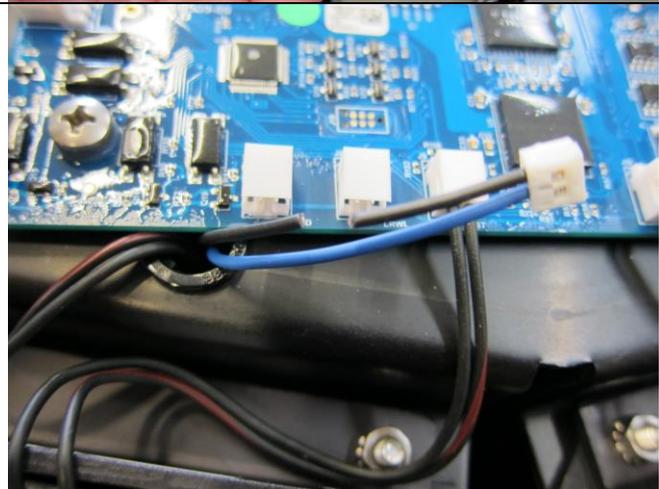
Insulator

Position the stock BMW duplex light in the color orientation for installation. You will need to “nest” the diode and wires to ensure they install without pinching or damaging wires. A small cable tie is provided to secure the wires to avoid any stray pinched wires. Position a loop where the cable entry can occupy the middle of the loop.

Reattach with the two M5 Phillips head screws with external locking washers.

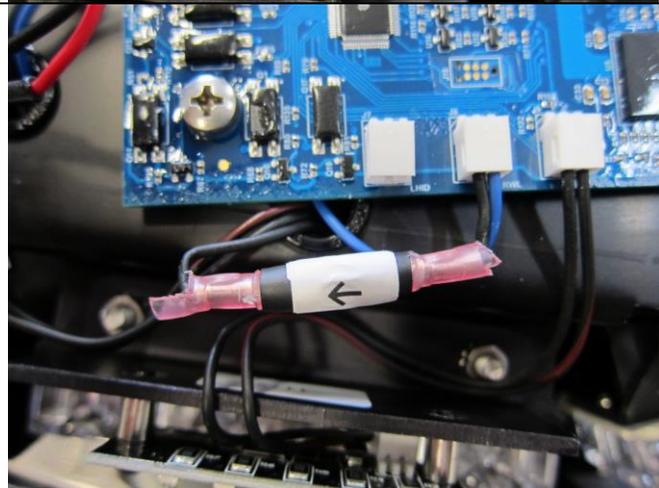


Because the two rear-facing emergency lights in the rear pod share the same output node as the duplex auxiliary light, a diode must be placed on any red emergency light wire before it plugs into the flasher board. Identify the red emergency light and the wire powering it – it connects to the center of the three plugs on each side. There is little room here, so cut the black wire as shown at right and strip back 1/2". Yes, on this light, the black wire is the + wire.



We have found it easiest to remove the insulator sleeve extension to shorten the length of the diode to provide sufficient room to install it and connect it.

**It is recommended to trim-back the insulator sleeve prior to crimping.**



**Feedback:** Thank you for your purchase and we welcome your feedback as we too want to make every accessory exceed your expectations. Report any comments, suggestions, problems or concerns to FMS Solutions, LLC at [info@fmsaccessories.com](mailto:info@fmsaccessories.com) .

**FMS Solutions, LLC Limited Warranty**

FMS Solutions, LLC warrants to the first retail purchaser of new FMS Accessory products, to be free from defects in materials or workmanship, for a period of three (3) years from the original date of purchase as noted on the FMS Solutions, LLC invoice or original dealer invoice, except for paint and powder-coated finishes, which are warranted for the first 12 months only. LED lights from Fenix, Inc., Code 3, Inc. and Littlite are covered for 5 years by their manufacturer's respective warranties – processed through FMS Solutions, LLC.

**This warranty extends only to the FMS accessory and does not include:** damage caused by accidents or abuse; incorrect installation; labor to diagnose, remove, repair or replace; any consequential damage or loss of use. Any FMS Accessory suspected of being defective should be returned to FMS Solutions, LLC along with a copy of proof of purchase and warranty request form available on the FMS website. FMS Solutions, LLC will determine if the FMS accessory has a warrantable defect, and if so, will repair or replace the item and return it to the sender without charge. The decision to repair or replace said item is solely the prerogative of FMS Solutions, LLC.

**Note:** Police motors can operate in a very rough environment since police motors are a "tool". They can be dropped, knocked-over, etc. without concern as the officer has a job to do and determines what is necessary at any given moment. Warranty is for defects in materials or workmanship. Therefore, the ability of an item to become broken or damaged does not mean it is warranty ... it just means it is broken or damaged and in need of repair or replacement. No manufacturer warrants their products to be indestructible. Any questions should be directed to [info@fmsaccessories.com](mailto:info@fmsaccessories.com) .