

*Rudy's **Plug-n-Play** Honda GL-1500 'gearhead' Series*

SmartLight v2.1

- **Gear Position Indicator** - Intelligent 1st & 2nd gear – reduces stalls and clutch wear
- **Low Voltage Indicator** – Cable Adjustable Options – immediate charge failure notification!
- **Vehicle Armed Indicator** – Ultra Low Current usage – 'encourages' hands-off while parked
- Automatic Night Dimming
- Won't drain your battery
- Works with other Smart Products
- 2 Year Materials and Workmanship Warranty!

Congratulations on the purchase of your new SmartLight. This multi-purpose electronic system will provide you with many years of enjoyable riding and improved safety and security. SmartLight provides you with three essential information services which many find important and useful. Moreover, it does this at a cost that is below what these features might cost if bought separately or similar combo products that provide some of these features, but cost over four times as much.



Overview:

SmartLight gives you 1st and 2nd gear feedback that can assist you in starting from a stop or when approaching lower gears. Additionally, it serves as an electrical system health monitor to alert you of early signs of charging problems, eliminating the most important need for add-on voltmeters, but SmartLight also makes a great enhancement for systems that already have voltmeters installed. Finally, SmartLight acts as a security deterrent when your motorcycle is parked by signaling to passers-by that *something* is active and the vehicle should not be touched. It does all of these things intelligently and fully automatically, without need for any added switches or for user activity of any kind.

SmartLight's LED brightens in the daylight and dims in intensity when it is dark. It is designed to work with other SmartLight devices using the proprietary SmartBus that is present on every Smart product. The control unit (SmartModule) is completely encased and is weather, water, fuel and dirt-proof. Smartlight comes ready to Plug & Play with everything needed, including all harnesses and connectors. It is made with top quality brand name components with industrial ratings and gold-plated connectors making it so reliable that we warranty it against any defects in materials and workmanship for two full years from date of purchase.

All Smart products are proudly made, engineered and tested in America by Americans and shipped world-wide for the benefit of our customers and fellow riders.

What is Included:

- **1 - SmartLight Module**
- **1 - Power Harness with Fuse**
- **1 - Gear Indicator Harness**
- **1 - Indicator L.E.D. with Harness**
- **1 - Photo-detector with Harness**
- **1 – Bike noise and spike suppression Clamping Diode**
- **1 - Instruction Manual (this document)**
- **2 - Year Materials and Workmanship Warranty**
- **Unlimited Lifetime eMail Technical Support**

INSTALLATION

With proper installation, you will enjoy many years of use with with your SmartLight as you find it a useful and trusted companion. Here, we cover:

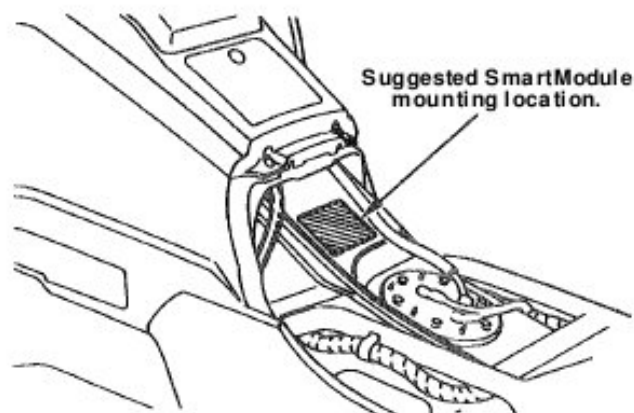
- **Power Requirements**
- **Where to Mount the SmartModule (mounting)**
- **L.E.D. Indicator Placement**
- **Installing the Gear Indicator Harness**
- **Mounting the Photo Detector**
- **Installation of the Power Harness**
- **Connecting Everything to the SmartModule**
- **Basic testing for Assurance of Operation**

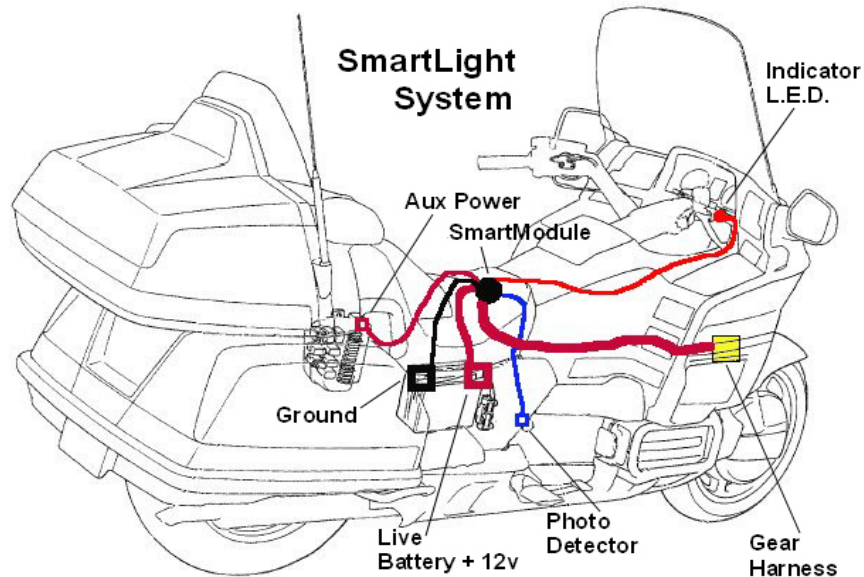
Power Requirements:

- +12v battery @180 micro-amps (plus LED current when actually lit) 5 amp fuse.
- +12vdc aux power @ 1.5 milliamps (while key is on)
- Ground connection anywhere.

Mounting:

The SmartLight module may be placed anywhere you wish in any position using the supplied industrial adhesive Velcro attached to the module.. The harnesses are fitted to assume the SmartModule will be placed on top of the gas tank near the front of the seat near the front seat bracket. You may cut and splice the harnesses to suit your own needs and desires for other mounting locations. This system draws very little electrical current so virtually any wire spliced in should work. Splicing is not needed for the normal Plug & Play installation. Splicing into the harnesses to add or reduce length will not affect the warranty as long as it does not electrically damage the SmartModule or harnesses.





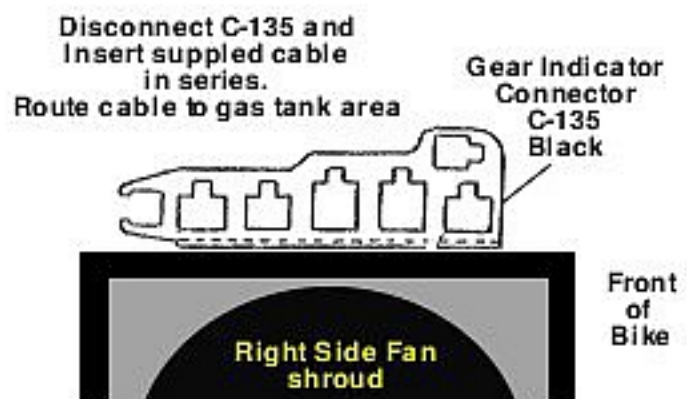
Everything plugs into the SmartModule and connects to your vehicle. A 1/4" diameter mounting hole (or just under) for the indicator L.E.D. Location is required. You may choose to use a different L.E.D. or location for the mount. If you do, it MUST be 12v DC ready. Contact us for assistance and advice for any deviation from the standard use of this kit.

The L.E.D. may be placed in your choice of locations but it is intended to be placed looking upward (not directly at your eyes) and forward, near the instrument panel to avoid any problems with windscreen reflections appearing in the normal viewing area. [CHECK THE WINDSCREEN REFLECTION WHILE SITTING ON THE BIKE IN RIDING POSITION BEFORE DRILLING THE MOUNTING HOLE.](#) Often the preferred location is the small triangle of plastic that connects the two sides of the speaker grill part of the dash, as shown in the picture on page 1. Mounted this way, the key bridge is removable without wires attached to it. Alternatively it can be inserted in a spare cell in the instrument panel, which eliminates the need for a visible, drilled hole, but loses visibility. Some blanking paint may need to be removed if this method is chosen.

WARNING: DO NOT LOOK INTO, OR POSITION THE HIGH INTENSITY L.E.D. DIRECTLY AT YOUR EYES. THIS CAN CAUSE POTENTIAL EYE DAMAGE!

The insertion of the Gear Switch Indicator Cable is often the most time consuming part of the installation. The connector for the gear switch is located on the right side of the vehicle, just above the right cooling fan shroud. See diagram for connector position.

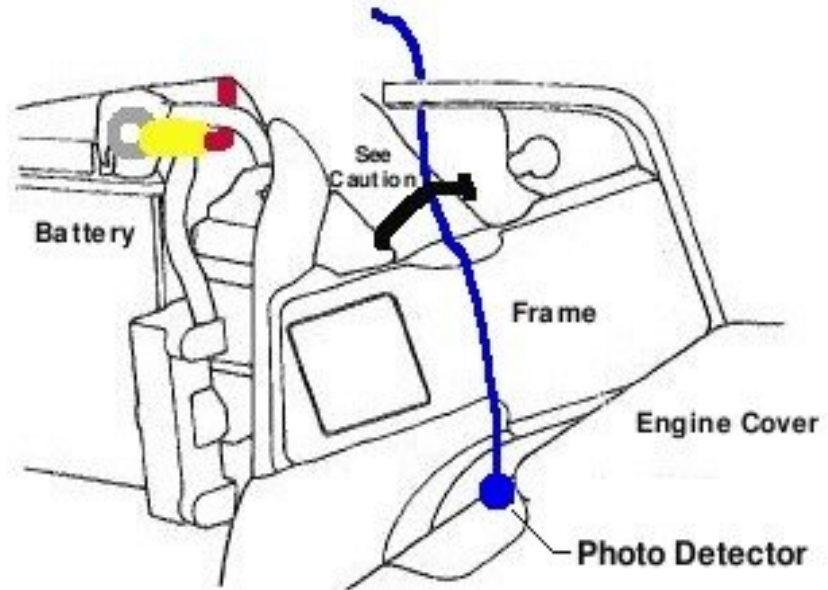
While some time is required to remove and reassemble the parts, installation of the Gear Switch Cable can be typically completed in 30 minutes or less as it may be accessed in several ways.



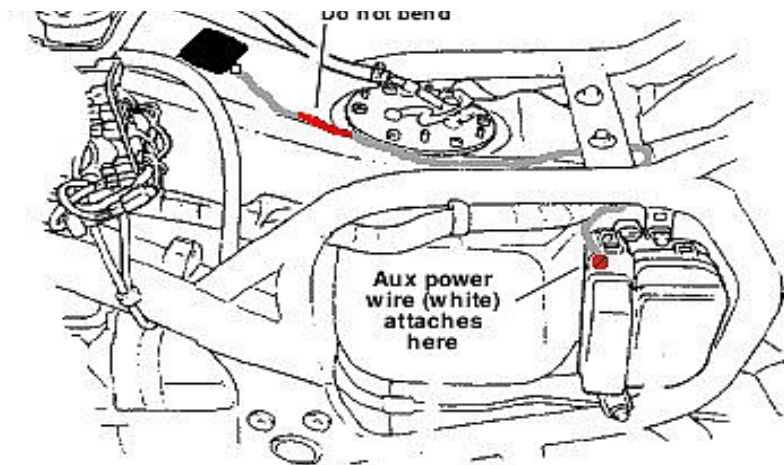
The web link at the end of this document contains details about different ways to install this harness.

The light sensing, Photo-detector Harness is simply a matter of plugging it in and mounting it where natural light can get to it.

Mount this in a location where the lighting of other vehicles and your own lighting won't cause it to react unexpectedly. Use the supplied cable tie to secure it or other means of your choosing. The recommended location is shown. You may mount it elsewhere to achieve a different light/dark sensing point you prefer.



The fused Power Cable Harness black wire goes to Ground on the battery. The fused red wire goes to the + terminal on the battery. The white/red wire goes to the aux power terminal on the fuse block (as shown in the diagram). Make certain that the aux fuse in the bike's fuse holder is 5 amps as specified by Honda. Smart Modules are protected from incorrect polarity and incorrect attachment points. The power connector should be the last thing plugged into the SmartModule. It is supplied with a weatherproof fuse (5 A) and terminals to attach to the positive and negative side of the battery terminal.



Be careful not to flex or bend the red portion of the white wire. It contains some components necessary for normal voltage sensing levels and break easily if bent repeatedly or crushed. Be sure to pay attention to the routing of and protection from ground for any red wires or wires with red heat shrink sections as most are at +12 volts. We recommend plastic duct tubing to protect all +12v wiring, where practical.

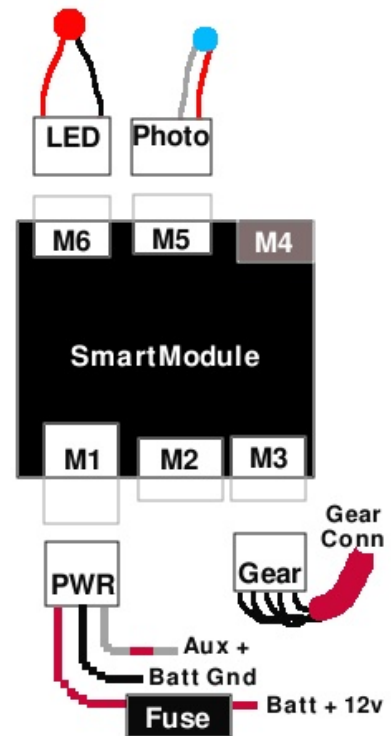
Be sure to add the supplied noise clamping diode across the aux terminals with the silver band end going to the + side terminal (forward most) and the black, un-banded side going to the ground terminal. This protects SmartLight from electrical glitches the bike produces as the key is turned on and off. Carefully, tuck it away in the slot underneath. You may need to cut a little plastic away inside the fuse cover to allow space for it.

SmartModule hookup should be the **last** thing done. MAKE SURE all connections at the far ends of

the cables have been properly made. Plug in the LED (M6) and the Power (M1) connectors and the L.E.D. should begin flashing if everything has been connected properly. With the key off, the L.E.D. should blink as referenced in Security Warning Indicator mode, described below, and with the key on, it should blink as First Gear mode, also as described below.

Note for 1988 and 1989 Goldwings: Honda left one wire out of your gear indicator harness and as a result, 2nd gear will act like 1st gear when up-shifting. However 2nd gear will act like 2nd gear when down-shifting because SmartLight has enough information available to be able to determine 2nd gear during the down-shift sequence.

Partial Installation option: You may be anxious to begin using your SmartLight, right away and you choose to save installing the gear indicator harness for a more convenient time. See web link at the end of this document for more details about this option.



OPERATION

To verify the functionality of your SmartLight, simply unplug everything except the power connector and the LED. This will cause the LED to blink. You may be asked to perform this test if you contact us with a problem with your SmartLight.

Modes of operation (all completely automatic):

First and Second Gear Indicators: Whenever you are in First Gear and the ignition key is turned on, the L.E.D. will blink once every 0.8 seconds for about 200 milliseconds and then repeat continuously.

('88 and '89 models which will continue to act like first gear. See "Special note" above). When you down-shift from Third Gear to Second Gear, the L.E.D. will blink twice every 0.8 seconds. One long and two short blinks. This allows the rider to easily notice the difference between second and first gear indications and performs this function for all year models.

Visual Deterrent Indicator: This is the normal function whenever the vehicle is turned off. The L.E.D. will flash briefly once every 5 seconds and then repeat. It draws only 180 microamps in this state, which is less than the natural discharge rate of a disconnected battery and much lower than Honda's own backup power system current draw. The L.E.D. will draw more current while lit but because it is lit only about 100 milliseconds for each 5 seconds, the current usage is very minimal.

Note:

If, for some reason you would prefer not to use this mode and wish to disable this feature completely, over the winter for example, simply connect both +12 power wires to the aux power terminal and not connect the live power wire to the battery. In this arrangement, the SmartLight will have no current draw and will not function when the key is turned off. The other features will work normally in this configuration.

Low System Charge Warning Indicator: This feature is active whenever the key is on and the

L.E.D. is not busy indicating First or Second Gear. When low charging voltage is detected, it will blink in a constant barrage of fast flashes, designed specifically to attract the rider's peripheral vision and be as bright and noticeable as possible.

The detection sensing voltage is determined by the reference sensor in the SmartModule and sensors in the power cable. It is designed this way to allow the greatest flexibility in voltages and at the same time ensure that no adjustment will cause an incorrect sensing indication. In this design, voltage sensing is fixed and cannot get out of adjustment or drift with time.

The factory default senses low voltage as anything below 12.7 volts, +/- 0.25 volts. Users who wish a lower or higher sense voltage may do so by ordering a custom power cable. The change of detection voltage from the factory setting is not commonly required.

The lowest sense voltage that can be achieved with the SmartModule is 10.5 volts measured at the aux power terminals.

This feature is intended to provide early warning of system charging failures while traveling and overloaded electrical systems at lower RPM. It will normally blink after startup and low RPM on some systems. It is intended to give you the time needed to get someplace where the electrical system can be tested and corrected safely and early. Most systems exhibit low voltage at times. You will quickly learn the normal voltage fluctuations for your particular system. It is the abnormal alerts you need to be aware of. Lower sensing harnesses are available if you wish to lower the detection voltage for the indicator. Most prefer it at a high setting to have the earliest possible notification while the battery is still fully charged.

Voltage monitoring occurs only in Neutral, 3rd, 4th and OD plus 2nd when not displaying gear information ('90 and up 1500's only). The reason for this is to reduce false indications at times when the engine might not be turning fast enough to provide reliable voltage data and to avoid sending confusing messages when the LED is providing gear information in 1st and 2nd gear. Neutral is enabled to aid in diagnosis when there is a problem with the charging system and the rider needs to have the system running while off of the vehicle.

The low charging monitor is not active when the ignition switch is turned off to prevent unnecessary battery drainage when in storage or left unattended.

Safety Notice: This SmartLight system is supplied with a 5 amp fuse for power from the battery. The aux power wire is intended to be protected by the vehicle's internal aux power 5 amp fuse. It is not recommended practice to change the vehicle's fuse above 5 amps as specified by the manufacturer. If you need more current than 5 amps from the bike aux terminals for accessories, we recommend that you visit our web page where we offer wiring kits and information to assist you with this:
<http://goldwingtech.info/auxwiring/auxpwrwiring.html>

Please contact us about any questions or problems you may have with your SmartLight installation or operation at support@thefarend.com Any comments or suggestions are always welcome.

We have done our best to make this kit as complete, reliable and easy to install as possible for you. For additional installation, user updates, and more details on SmartLight, or to download this document in color, please go to the following web page: <http://smartlight.rudysproducts.com/ownerinfo.html>

Thanks for purchasing SmartLight.

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