

“LightSaver”

Installation instructions, 2001-2002 “Classic” GMT-800 GM truck/SUV

By: BT DieselWorks, LLC.

12/2012

First of all, thank-you for purchasing the BT DieselWorks “LightSaver” smart headlight control module. This module performs several functions to add convenience and extra protection features to your headlights, while still retaining full factory automatic headlight control. The "LightSaver" module is microprocessor controlled and is fully programmable as well. This module was originally designed to protect the HID bulbs/ballasts that many people retrofit to their trucks, however it will work just the same with standard halogen bulbs as well.

As we all know, these trucks have automatic headlights. During engine cranking, the BCM (Body Control Module) shuts off the headlights (along with all of the other truck accessories) to give the most possible voltage to the starter motor. However what this means is that, at night time, when you start the truck, the headlights immediately turn on at key-on (and stay on for a second or two while you wait for the glow plugs to warm up), then turn off when you start the engine, then turn back on again once the engine is started. This turning "on-off-on" in rapid succession (before the HID's have a chance to warm up) is incredibly harsh on HID ballasts/bulbs, and can shorten the life of them dramatically. HID bulbs and ballasts need at least ~1 minute to reach full brightness and become fully warmed up/stabilized. During this ~1 minute startup phase, the HID bulbs and ballasts are vulnerable to damage and should NOT be interrupted, or shut off...which, unfortunately, is exactly what happens every time we start our trucks at night with the headlights on "AUTO". The LightSaver module is essential in order to get the longest possible ballast/bulb life out of your HID headlights.

What the "LightSaver" module does is temporarily disables the headlights (keep them OFF, even if its night-time in auto-headlight-mode at key-on) until the engine is already running. As soon as the engine is running, the headlights are turned on automatically. The truck's factory automatic headlight operation remains unaffected otherwise. Also, the truck's factory approach lights feature (IE, when you turn off the truck at night, and the headlights stay on for 30 seconds while you exit the truck etc) remains unaffected.

The LightSaver smart headlight control can be programmed TWO different ways.

1. Headlights remain off until engine has started/running, and then they automatically turn on as soon as the engine starts, as described above.

2. Headlights remain off (even after the engine has started) until you shift into drive/reverse and begin to drive away. **This feature is really nice if you are starting your truck early in the morning, hunting, etc and dont want the lights on disturbing the area around the truck while the truck is warming up.** For example, you start the truck cold early in the morning when it's still dark out...headlights

stay off. You let the truck sit and high idle for a little while to warm up...headlights stay off...then say after 10-15 minutes you go out to the truck, jump in, and step on the brake pedal to shift into reverse to drive off...when you step on the brake pedal, the headlights immediately automatically turn on and you are ready to drive away!

The second great (OPTIONAL) feature of the LightSaver module is automatic cold-weather heated-seat control. When the truck is started and the outside air temperature is below ~40*, the heated seats will automatically turn on.

The LightSaver module will work with aftermarket remote starters if wired properly, HOWEVER exact compatibility will depend on how your remote start is wired into the truck's ignition circuit.

DISCLAIMER: Ben Tyler or BT DieselWorks, LLC will not be held responsible for any personal, property, truck, vehicle, engine/powertrain, or transmission damage/injury that may result with the use of this module. This is an aftermarket part; just like any other aftermarket performance truck parts, install/use it at your own risk.

I fully test every module for proper operation before I send it out. This is why some of the wires on the harness might appear to have been 'used' before. This module has been used on many trucks during testing/prototyping, with great success. If yours does not work for some reason, email/PM me and I will correct the situation. This is, of course, provided you do not have an existing mechanical/electrical problem with your truck/transmission that is outside of my control or the module's abilities. IE, if you have a bad ground, bad turn signal flasher module, etc, this module obviously will not be able to function properly.

The LightSaver modules are covered by a 1-year warranty. If the module 'stops working' for some reason and you have diagnosed the problem and eliminated wiring problems/blown fuses/flasher module as a problem source, send the module back to me. I will test the module and if it is indeed found to be defective/failed, I will replace or repair the module free of charge. **I will not cover shipping charges though.**

If I receive the module back and see that it has been modified, tampered with, water-damaged, wired incorrectly, opened, or physically damaged, the warranty is VOID. If the module does incur damage that would normally not be covered by warranty, let me know and I can most likely repair it for substantially less than the cost of a whole new module. If you have any questions regarding the warranty or module repair, feel free to contact me.

Installation Procedure

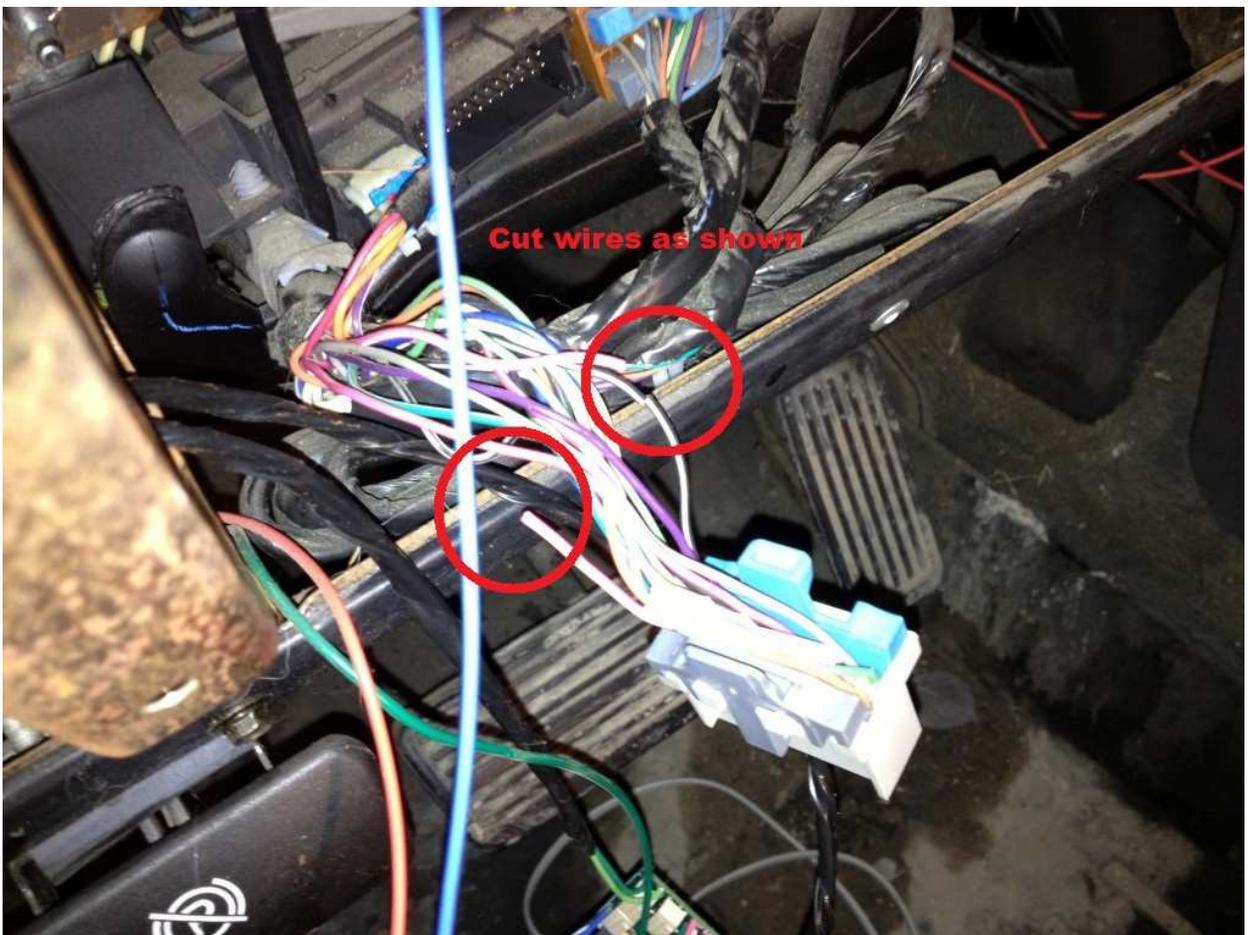
1. Disconnect both batteries. **NOTE: If your LightSaver module also has auto-high-idle, be sure to read those additional instruction documents before proceeding**

2. Remove the dash bezel by lowering the steering wheel to the lowest position, **set the parking brake**, moving the shifter down to "1" (**keep your foot on the brake, otherwise the truck may start to roll**), and pull gently on the dash bezel.
3. Remove the driver-side knee panel by loosening the two screws on the bottom, and then pull on the top to release the clips. Remove the metal shield that covers the steering column harness (it is secured with four 10mm nuts)



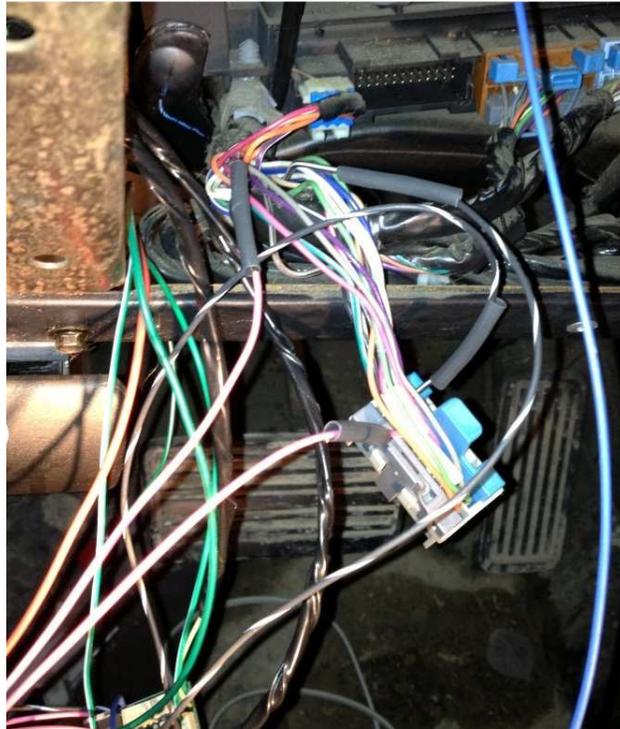
4. Mount the main control box securely under the dash so the wires have enough slack to properly reach the driver side fuse block. It can be zip-tied in place, or secured with double sided tape. **NOTE: BE SURE TO DOUBLE CHECK THAT MOUNTING OF MAIN CONTROL BOX AND ASSOCIATED WIRING DOES NOT INTERFERE WITH ACCELERATOR/BRAKE PEDAL MOVEMENT OR STEERING COLUMN MOVEMENT. ALSO USE EXTREME CAUTION AROUND ANY YELLOW/ORANGE COLORED CONNECTORS, AS THESE ARE AIRBAG SYSTEM RELATED CONNECTORS AND WIRING.**
5. **NOTE: For most connections, the LightSaver module wiring colors should match up to factory wiring colors for ease of installation.**
6. Locate a FUSED +12v hot ignition source in the under dash wiring. I highly recommend adding an additional inline fuse going to the SmarTurn module for extra protection. A 2-amp fuse is sufficient. **NOTE: YOU MUST USE A POWER SOURCE THAT IS "HOT" DURING "RUN" AND "CRANK"**. (ie, a power source that does NOT momentarily shut off when the key is turned to start) A known-good location to tap into an ignition-hot source that is hot in RUN and CRANK, is at the BCM. Locate the 24-pin BROWN connector on the BCM. The PINK wire going to pin position B2 is a good ignition-hot source. Use a multimeter or test-light to confirm that you have the correct wire. **NOTE: This power source applies only to 2001-2002 trucks.**

7. Locate a solid ground location, and attach the black/white-stripe wire coming from the LightSaver module to that. A known-good ground location is any of the ground wires going to the BCM connectors. The BCM BROWN 24-pin connector, pin position A1 (BLACK) is a good ground.
NOTE: This ground source applies only to 2001-2002 trucks.
8. Locate the CRANK fuse in the driver side fuse block. Plug the provided add-a-fuse tap into the CRANK fuse location.
9. Locate the LIGHT BLUE 24-pin connector going to the BCM. Remove the connector. Locate the WHITE wire that goes to pin position A11
10. Cut the white wire, leaving about 1-2" of slack on either side (so you have room to re-splice the wires). **NOTE: The picture shown below is from a 2003-2007 truck. 2001-2002 trucks will be slightly different, as there is only one wire to cut on the 2001-2002 trucks, and the wire colors are different.**



11. Splice the "truck end" of WHITE wire (the one that you just cut) to one of the WHITE wires going to the LightSaver module, and then splice the "BCM end" of the WHITE wire to the other WHITE wire going to the LightSaver module. It does not matter which white LightSaver module wire goes to which end. Basically, you are just going to be splicing the LightSaver module's wiring "in-line" with that WHITE wire in the truck harness that goes to pin position A11 on the Light-blue BCM connector. You can use butt-splice crimp connectors, or solder the wires. I recommend soldering

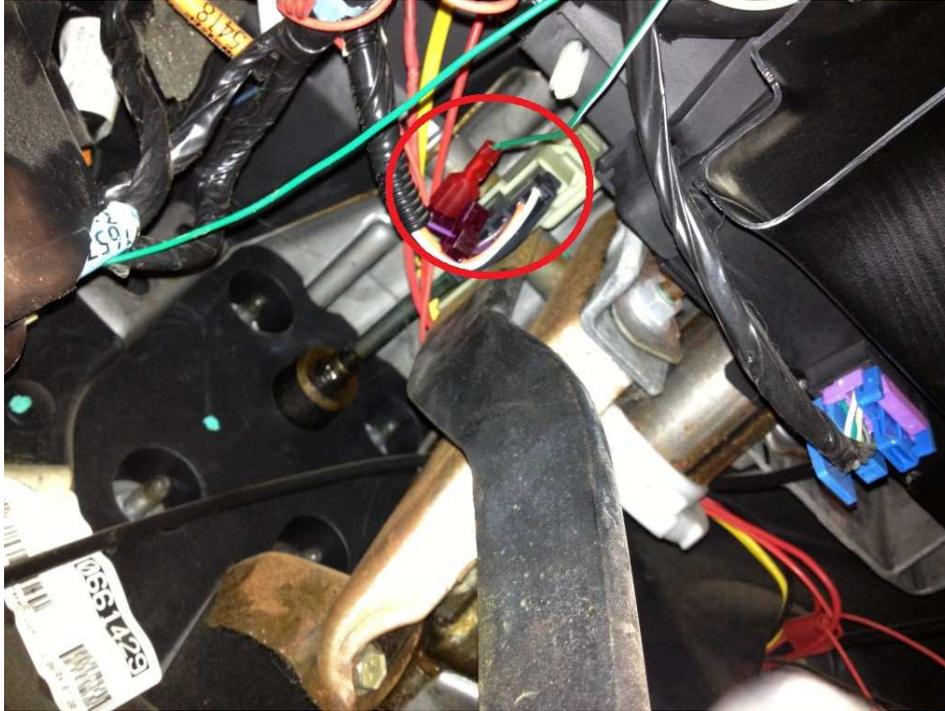
the wires. If you solder the wires, be sure to use heat-shrink tubing too, as shown. **NOTE: The picture shown below is from a 2003-2007 truck. 2001-2002 trucks will be slightly different, as there is only one wire to cut on the 2001-2002 trucks**



12. Locate the DARK-GREEN/WHITE-STRIPE wire on the brake pedal switch connector. You may have to unplug the connector to get a better view of it.



13. Crimp the included burgundy/red wire-tap onto the DARK-GREEN/WHITE-STRIFE wire.
14. Connect the DARK-GREEN/WHITE-STRIFE wire coming from the LightSaver module to the wire-tap connector. **NOTE: If your LightSaver also has the high-idle module integrated, be sure to read those instructions and follow them, as some steps between the high-idle module and LightSaver overlap.**



15. After securing all wires, double-check for loose connections. **Double check that the module is mounted securely under the dash where the module and wiring will not interfere with brake pedal movement, accelerator pedal movement, or steering column movement.**
16. Reconnect batteries.
17. Cover the ambient light sensor (the little bubble/globe in the center of the dash near the windshield) with something to make the truck think that it is dark out.
18. Turn the key to ON (don't start the truck). Verify that the parking/running lights come on, but the headlights are still off.
19. Start the engine. ~1/2 second after the engine starts and you release the key from "start", the headlights should automatically turn on.
20. Once proper operation has been verified, replace the steering wheel harness cover, replace the driver side knee panel and replace the instrument panel bezel.

**Any further questions or if you ever have problems with the LightSaver module, feel free to PM me, email me at BTDieselWorks@gmail.com, or call me. (email preferred)
Thanks again, Ben Tyler, BT DieselWorks, LLC.**