

“LB7 Automatic high-idle module”

Installation instructions, 2003-2004 LB7 Duramax

By: BT DieselWorks, LLC.

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First of all, thank-you for purchasing the BT DieselWorks “Auto high idle” module. Starting in 2004.5 with the LLY Duramax, GM added an automatic high-idle mode that would automatically increase idle speed based on outside air temperature. Whenever the truck is in park, the ECM automatically raises idle speed to aid engine warm up, and then automatically returns to base idle speed when the brake pedal is applied, or the transmission is shifted into gear.. Starting in 2004.5 with the LLY Duramax, GM added an automatic high-idle mode that would automatically increase idle speed based on outside air temperature. Whenever the truck is in park, the ECM automatically raises idle speed to aid engine warm up, and then automatically returns to base idle speed when the brake pedal is applied, or the transmission is shifted into gear.

Unfortunately, the LB7’s were not equipped with this feature. The BT DieselWorks high-idle module is designed to add this automatic high-idle feature to 2001-2004 LB7 Duramax’s High-idle allows for faster engine warm up in cold outside temperatures, faster cabin heat, and ensures that your engine is warmed up a bit before you begin driving. The "Auto-high-idle" module is microprocessor controlled and has “smart” logic built in to ensure proper operation under all conditions.

The module monitors outside air temperature, and when the temperature is below 40* Fahrenheit (roughly), it will automatically engage high idle. When the brake pedal is applied, or transmission is shifted into gear, the engine will return to base idle speed. The following features are also incorporated:

1. During cold startup (below 40°F), the module will wait 10 seconds before engaging high idle. This is to allow the engine to build up oil pressure and get running smoothly before the RPM is increased.
2. During extremely cold startup (below 0° F), the module will wait an additional 20 seconds (for a total of 30 seconds) before engaging high-idle to prevent damage when the fluids are extremely cold.
3. The module has “smart” logic in it to account for inaccurate outside air temperature readings due to winter grille covers, snow plows, and if the truck is parked stationary for a while. For example, if you start the truck in the morning at 20*, it will automatically engage high idle. If you have a winter cover on the grille, when the engine starts to warm up, the outside air temperature reading may become skewed due to the extra heat coming off of the radiator. The auto-high-idle module’s logic takes this into consideration and will not disengage high idle under these conditions.
4. When the temperature is cold, auto high-idle will always be active whenever the truck is in park and the driver’s foot is off the brake pedal. For example if you like to leave your truck running while you run into a store, as soon as you pull into your parking spot and put the

truck in park (and take your foot off the brake pedal), auto high-idle will automatically re-engage within ~10 seconds.

NOTE: There are several requirements that your truck must have in order for the high-idle module to operate properly:

1. You must have factory outside air temperature display (in the mirror). If your truck does not have outside air temp display, contact me and I can provide you with the additional required parts.
2. You must have manual PTO/high-idle (via the cruise control buttons) enabled. If you do not already have manual high-idle installed, follow the additional instructions at the end of this guide to add it.
3. On some 2001-2002 trucks, you **MAY** need to have the "PTO feature" enabled with a Tech 2. Your local dealer (or anyone with a Tech 2) can perform this procedure. Again, this is most likely not required if your 2001-2002 truck has been to the dealer for an ECM update within the last couple years. Late 2002+ trucks should not have any issues.
4. You **MUST** leave the cruise control switch on the turn signal stalk in the "on" (middle) position all the time

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 wiring, incorrect ECM programming, bad brake pedal switch, etc, this module obviously will not be able to function properly.

The auto high-idle 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.

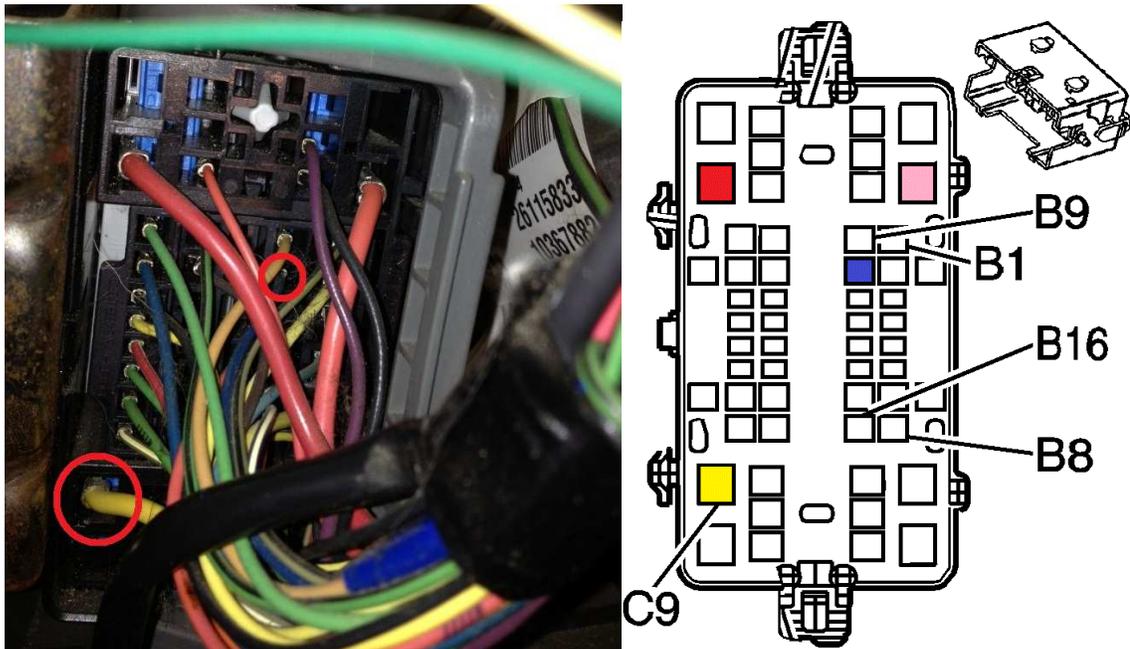
Installation Procedure

1. Disconnect both batteries. **NOTE: If your high-idle module also has LightSaver, SmarTurn, or auto heated-seat features, 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 high-idle module wiring colors should match up to factory wiring colors for ease of installation.**

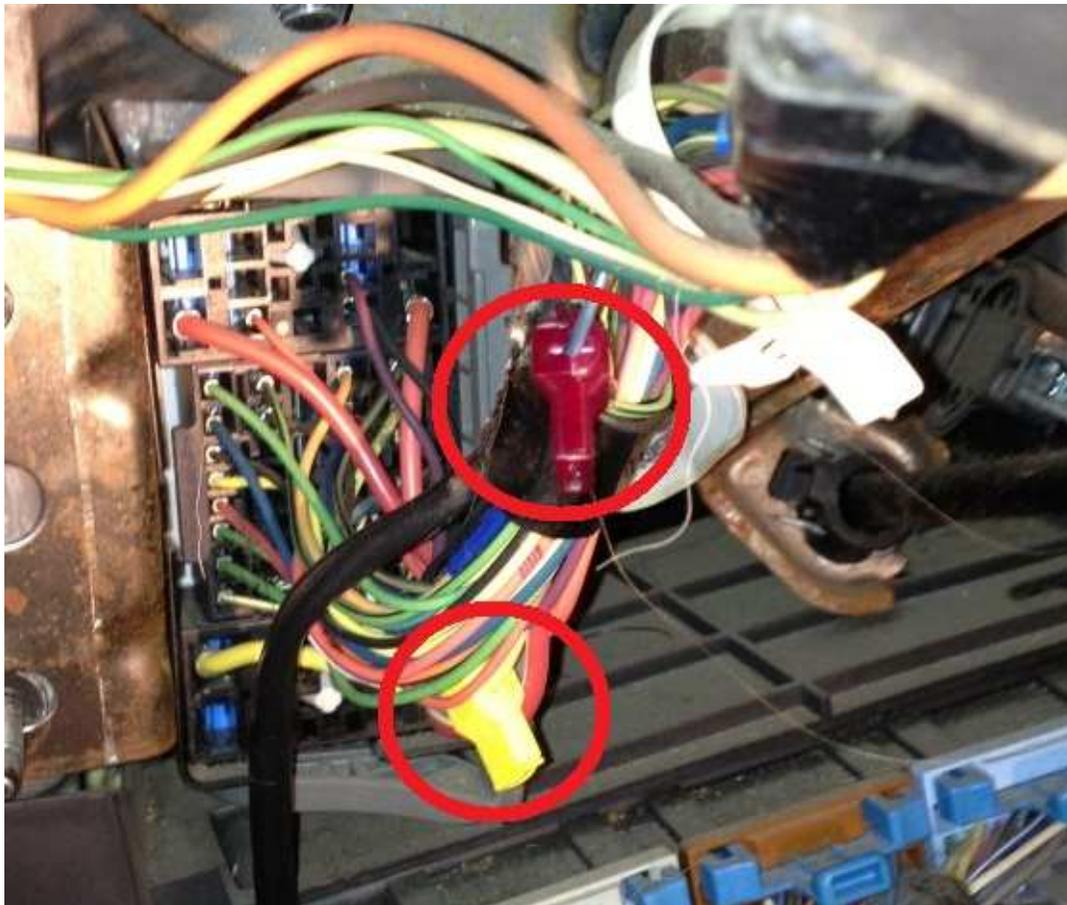
6. Locate a FUSED +12v hot ignition source in the under dash wiring. I highly recommend adding an additional inline fuse going to the high-idle module for extra protection. A 2-amp fuse is sufficient. **NOTE: YOU MUST USE A POWER SOURCE THAT IS “HOT” DURING “RUN” AND “CRANK”.** (ie, a power source that 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 LIGHT BLUE connector on the BCM. The PINK wire going to pin position A4 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 2003-2007 “Classic” trucks..**
7. Locate a solid ground location, and attach the black/white-stripe wire coming from the high-idle 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 B6 (BLACK/WHITE-STRIPE) is a good ground. **NOTE: This ground source applies only to 2003-2007 “Classic” trucks.**
8. Locate the thick YELLOW wire going to pin position C9 and small DARK BLUE wire going to pin position B10 on the large bale connector below the steering wheel as shown. **NOTE: There are two different dark blue wires in the bale connector, be sure that you choose the correct dark blue wire as shown.**



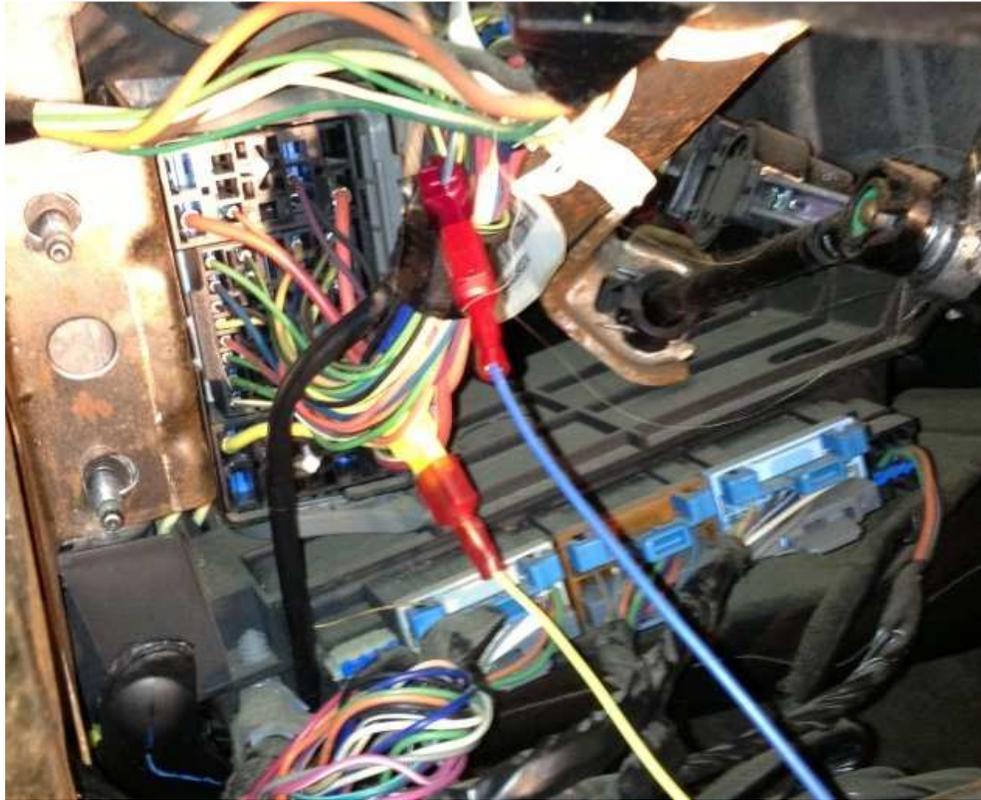
9. Crimp the yellow wire-tap onto the thick yellow wire as shown.



10. Crimp the burgundy/red wire-tap onto the dark blue wire as shown.



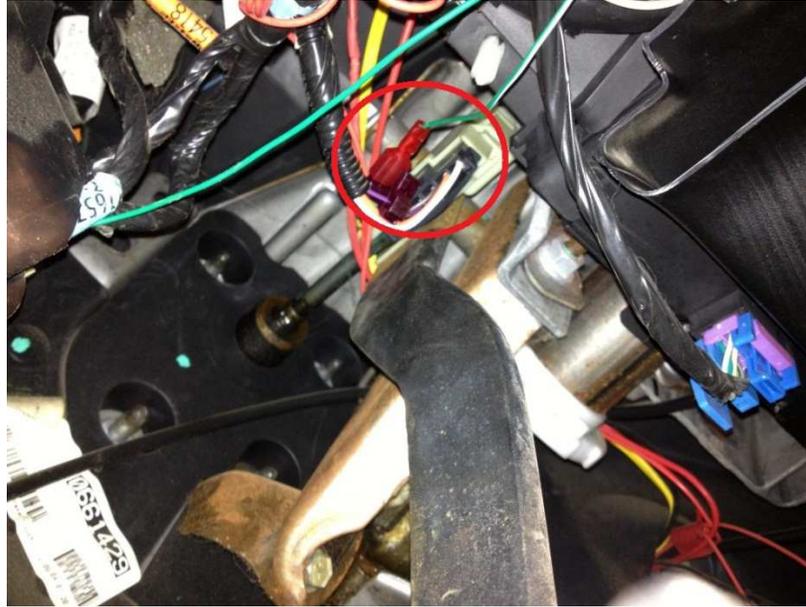
11. Connect the YELLOW wire coming from the high-idle module to the YELLOW wire that you just crimped the wire-tap onto, and connect the DARK BLUE wire coming from the high-idle module to the DARK BLUE wire that you just crimped the wire-tap onto, as shown.



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.



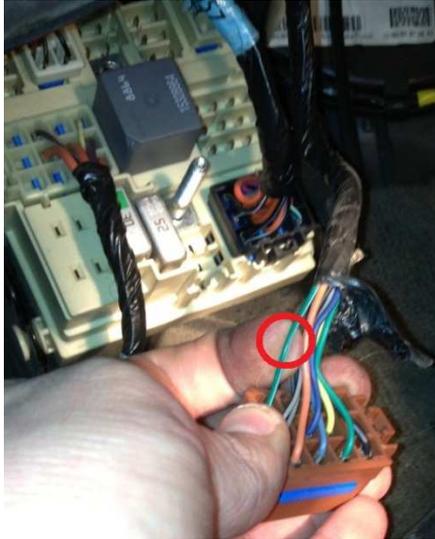
13. Crimp the included burgundy/red wire-tap onto the DARK-GREEN/WHITE-STRIPE wire.
14. Connect the DARK-GREEN/WHITE-STRIPE wire coming from the LightSaver module to the wire-tap connector. (If your LightSaver module has the heated-seat-control option, be sure to read steps 15-17 **before** connecting this dark-green/white-stripe wire)



15. Locate the driver side footwell junction block. Remove the cover, and locate the large brown square connector as shown.



16. Crimp the included burgundy/red wire-tap onto the DARK-GREEN/WHITE-STRIPE wire going to the brown connector, as shown.



17. Connect the DARK-GREEN/WHITE-STRIPE wire coming from the LightSaver Module to the wire-tap connector. **VERY IMPORTANT NOTE: There are TWO different DARK-GREEN/WHITE-STRIPE wires coming from the LightSaver module. The SHORTER of the two wires goes to the brake pedal switch wire, as described in steps 17-19. The LONGER of the two wires goes to the brown connector in the driver side footwell junction block. DO NOT MIX THESE TWO WIRES UP OR YOU WILL PERMANENTLY DAMAGE THE LIGHTSAVER MODULE AND VOID THE WARRANTY.**



18. **NOTE: If your high-idle module also has the LightSaver feature and/or heated-seat feature integrated, be sure to read those instructions and follow them, as some steps between the high-idle module, LightSaver module, and heated-seat module overlap.**
19. 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.**
20. Reconnect batteries.

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