“SmarTurn”

Installation instructions, 2003-2007 “classic” GMT-800 GM truck/SUV

By: BT DieselWorks, LLC.

12/2012

First of all, thank-you for purchasing the BT DieselWorks “SmarTurn” one-touch turn signal control module. This module was designed to add the convenience of the “one-touch lane-change” turn signal feature to the 2003-2007 “classic” body style GM trucks and SUV’s. When you want to perform a lane change, previously you had to either hold the turn signal stalk in the “momentary” position, or ‘click’ it on, and then remember to ‘click’ it back off after the lane change is complete.

This module makes lane-changing safer, and easier, especially when towing trailers. You no longer have to “hold” the turn signal stalk, or remember to turn it off. A simple tap of the signal stalk in the desired lane-change direction, and the appropriate turn signal will then blink 3 times, and then automatically self-cancel. The module is also fully programmable, if you wish to increase the number of turn signal flashes (default number of flashes is 3).

It is important to note that the microprocessor in the SmarTurn module is continuously monitoring the turn signal stalk/lever input, and is designed to work as seamlessly and predictably as possible, always giving priority to what the driver does with the turn signal stalk. What this means is that the automatic lane-change signaling can be canceled/overridden by the driver at any time. For example, if, during an automatic 3-blink lane-change event, the turn signal stalk is tapped in the opposite direction, the 3-blink lane-change will immediately be canceled and the opposite-side turn-signal will then be flashed normally.

General operation guidelines/conditions:

1. If the turn signal stalk is momentarily tapped for less than half of a second and then released, the SmarTurn will enter auto lane-change mode. (blink 3 times and then cancel)

2. If the turn signal stalk is momentarily tapped for longer than half of a second (or is “clicked” in the hold position), then blinker will stay on normally as long as the turn signal stalk is pressed, and then the blinker will immediately cancel upon releasing or moving the turn signal stalk back to “neutral”. For example, if you are waiting at an intersection to turn with the turn signal “on”, once you make the turn and click the turn signal “off”, the blinker will immediately turn off. (IE, you will not have to wait for an extra 3-blinks to occur before the turn signal actually turns off)

3. If the turn signal stalk is immediately moved from one position to the other (IE, left to right, or right to left), the blinker will give priority to the drivers command and override any automatic lane-change blinking.

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 SmarTurn 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 SmarTurn module also has LightSaver, auto high-idle, 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.

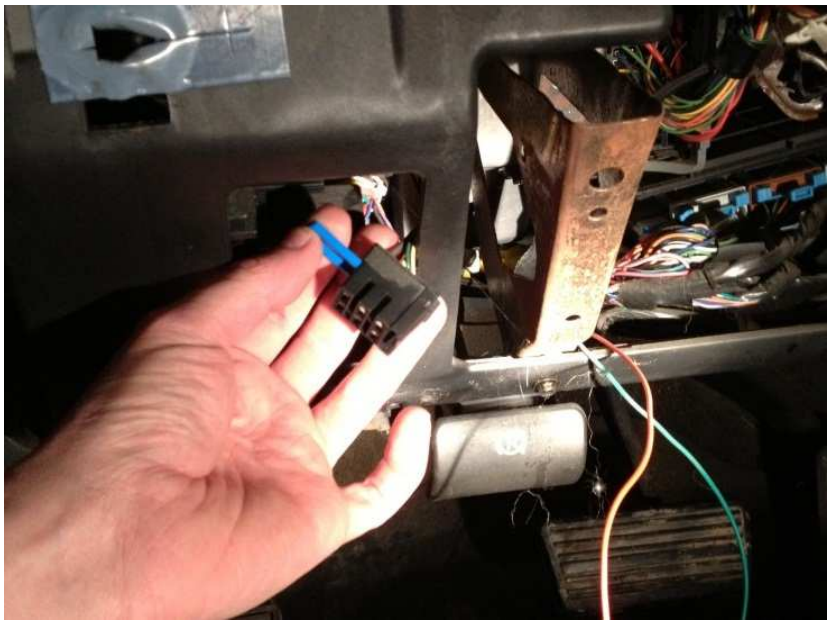
3. Remove the driver-side knee panel by loosening the two screws on the bottom, and then pull on the top to release the clips. Remove the metal shield that covers the steering column harness (it is secured with four 10mm nuts)

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. Locate the large 6-pin black connector on the back of the driver side fuse block, as shown, and disconnect it.

6. Using a small screwdriver or dentists pick, remove the blue pin-retention clip



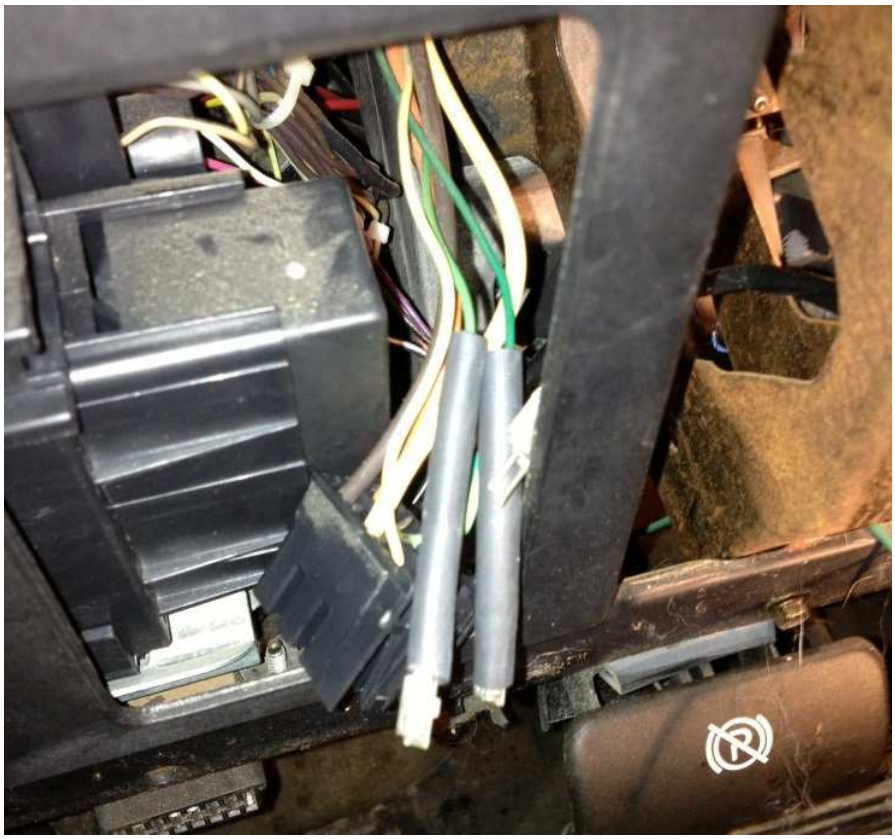
7. Looking at the front of the connector into the pin cavities, you will see a little tiny locking tab. You will be removing both the LIGHT GREEN and DARK GREEN wires/pins. To remove the pins, push the wire/pin into the connector a bit to release pressure on the locking tab. Pry the locking tab away from the pin, and pull the wire/pin out from the back of the connector. This can be a little tricky; if you are doing it correctly, the pin will slide easily out. Do NOT force it or pull hard on the pin. Sometimes a sharp pin works better for prying the locking tab away.

8. Make note of which wire went in which pin location. I recommend doing one wire at a time so you do not mix up the dark green and light green wires.

9. Route the wires coming from the SmarTurn module carefully around the dash wiring to the back of the connector. Be EXTRA SURE that the wires are not rubbing on any of the dash brackets/bracing. The metal dash structure is very sharp and will quickly rub-through insulation on any wires that are touching it. Use electrical tape and/or zip-ties if necessary to keep the wires safe from the sharp dash frame.

10. Insert the appropriate color wire coming from the SmarTurn module into the like-colored pin position on the fuse block wiring connector. The dark green female wire/pin from the SmarTurn module goes into the pin position that the dark green wire on the truck harness used to go to etc...

11. The male pins on the end of the other dark green/light green wires coming from the SmarTurn module will then be inserted into the female pins that you just removed from the dash connector in step 7. The dark green male pin goes into the dark green female pin, etc.



12. Be sure to slip a piece of the included heat-shrink tubing over the connection as shown

13. Once the wires are all connected and the heat-shrink tubing has been shrunk around the appropriate connections, replace the blue pin locking clip in the connector.

14. Reconnect the connector into the back of the fuse block.

15. 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 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.

16. Locate a solid ground location, and attach the black/white-stripe wire coming from the SmarTurn 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.

17. **NOTE: If your SmarTurn module also has the LightSaver feature, high-idle module, 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.**

18. 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.**

19. Reconnect the batteries.

20. Before replacing the driver side dash knee panel and dash bezel, check for proper operation. Turn the key ON, engine off. Momentarily tap and release the left turn signal. The left turn signal should then automatically blink 3 times and then shut off. Momentarily tap/release the turn signal switch to the "right", and the right turn signal should blink 3 times and then shut off.

21. After proper operation has been verified, replace the driver side knee panel and two screws.

22. Replace the dash bezel.

Programming instructions to set custom number of flashes

1. Start with the ignition off. With the ignition off, move the turn signal lever to the "left turn" position.

2. With the turn signal lever in the Left Turn position, turn the key to ON.

3. Within 2 seconds of turning the ignition ON, move the turn signal lever to the RIGHT position. When the turn signal indicator begins to flash the LEFT turn signal, that means programming mode has been entered.

4. Once the LEFT turn signal begins to flash, programming mode has been successfully entered. Move the turn signal lever back to the "neutral" (off) position

5. To increase the number of flashes, momentarily move the turn signal lever to the RIGHT position, and then allow it to return back to “neutral”. You don’t have to hold the turn signal lever in the RIGHT position, just “bump” it.

6. The turn signal indicator will then flash the amount of times that the module is currently programmed for. For example, the module’s default mode is 3 flashes. When you enter programming mode and bump the turn signal lever RIGHT, the turn signal will flash 4 times, indicating that the module has been now reprogrammed to flash 4 times.

7. If you want to further increase the number of flashes, simply wait for the turn signals to stop blinking, and then just bump the turn signal lever RIGHT again. The turn signal will then flash 5 times, indicating its been programmed for 5 blinks. If you want 6 blinks, wait for it to stop flashing, then bump the turn signal lever again.

8. The maximum amount of flashes in “lane-change mode” is 10. If you reach 10 flashes, and then bump the turn signal lever again, the programming will “loop” back around to 3 flashes (default)

9. To return to 3 flashes (default), simply bump the turn signal lever LEFT instead of RIGHT when in programming mode.

10. Once the desired amount of flashes is reached, simply turn the ignition OFF, wait 15 seconds, make sure the turn signal lever is back in the “neutral” (off) position, and then turn the ignition on again. Check to make sure your settings were saved properly by bumping the turn signal lever left or right. The blinker should now flash the amount of times that you programmed.

11. The blinker setting will be saved permanently and the setting will not be lost if the battery is disconnected. If you want to change the number of flashes, simply start the programming procedure over again at Step 1. You can change the programming as many times as you want.

Any further questions or if you ever have problems with the SmarTurn module, feel free to PM me, email me at BTDieselWorks@gmail.com, or call me. (email preferred)

Thanks again, Ben Tyler, BT DieselWorks, LLC.