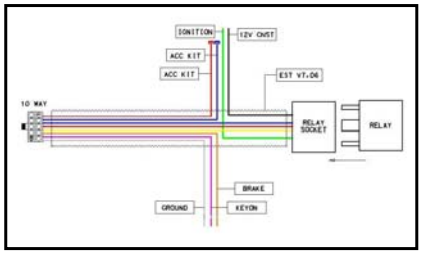




*Engine Shutdown Timer*

# Installation and Operation Manual

***Compact Engine Shutdown Timer w/optional accessory Power Kit(s)***



You must read entire document before beginning installation and use

**Engine Shutdown Timer (EST) Kit Contents**

- Controller.
- Harness with labeled connections for a hassle-free install. Every possible convenience was included in the harnessing to ensure an easy installation experience.
- Small Parts Bag. A baggie containing fuse taps, taps, connectors, and zip-ties and such has been included to aid your installation.
- Optional Power-Up Accessory Harnesses (if purchased) allow for additional circuits to be powered up during EST operation.

**Tools Required:**

- A good DMM or DVOM (Multimeter) for probing circuits. A test light will do in a pinch, but remember that test lights can be misleading if not understood or used properly.
- A good quality wire stripping/cutting/crimping tool. Your installation will only be as good as the tools used!
- A wire fish (coat hanger) for running wires in tough to reach locations or through the firewall if necessary.
- Any additional items you wish to use to tidy up your installation. It is up to the installers 'creativity' to ensure the unit is properly secured. We have supplied most if not all of what you need in this department but everyone's install will likely vary and therefore it is your responsibility to heed the warnings and specifications.

**Vehicle Compatibility:**

In general this unit will reliably perform time-out functionality on any late model vehicle. We have designed the EST to be universal in function and therefore will work on the below list of vehicles in addition to many others not mentioned in this installation document.

- Ford Diesel
- Dodge Diesel
- Chevy Diesel
- Jeep Diesel
- Medium Duty Diesel Trucks

**Why Cool Down?**

**Common Misconceptions:** It is often circulated that modern diesel engines and specifically turbocharged engines do not need a cool down period after running. This is untrue and in most cases your owner's manual will instruct you to let the engine idle for up to 5 minutes after a run at full operating temperature.

**Time vs. Exhaust Gas Temperature:** Some manufacturers of aftermarket timers base shutdown on Exhaust Gas Temperature. This can be misleading. The true reason for extended idling after a run is to allow the turbocharger's oil galleries to cool and drain down to prevent coking. This has nothing to do with EGTs and therefore one method is no more 'effective' than the other. Time based units can offer convenience features that a strictly temperature based solution do not offer.



**Precautions/Disclaimers**

- **!** Check your Local Laws about unattended running vehicles. This may be expressly prohibited by your local motor vehicle laws. SP Performance, LLC requires you to check local ordinances before using your EST.
- **!** Never leave young children or pets unattended in an EST equipped vehicle. All laws aside, this is unsafe and we do not recommend this at all.
- **!** Do not, unless instructed by support to open the case of the EST Controller. You may void any warranty on the unit by doing so without our instructions to do so.

**EST Features**

**Pushbutton timer increment.**
One push of the button yields a 1 minute increase in run time up to 5 minutes, then it goes to 0 or off. More on that later…

**Convenience Mode.**
Hold the pushbutton down for a couple of seconds to activate convenience mode. The yellow LED 'B' will blink rapidly or become solid. Convenience mode offers up to 1 hour of runtime before automatically shutting off. Convenience Mode is automatically defeated at the next key on event. We affectionately call this "Slurpee Mode" since it's especially useful for a short trip into the convenience store to grab your favorite iced beverage.

**Anti-Theft Brake Kill.** When the engine is running under control of the timer, the EST will shut off the engine if the brake pedal is depressed, if you have choosen to hook up to the brake wire.

**EST LED Light Indicators (left to right)**

1. Power LED (Green)
2. Timer State LED (Red) – LED 'A'
3. Brake Kill LED & Minute Indicator LED (Yellow) – LED 'B'
4. Switch/Acc Relay Status (Red)

**Push Button Operation**

- Push Per Minute. One short push for 1 minute increment up to 5 minutes (0,1,2,3,4,5,0,1…) The right-most red LED will light at each press of the button and the timer state yellow LED 'B' will 'read-back' the number of minutes selected. (ie no blinks for 0 minutes and 5 blinks for 5 minutes).
  The time selection must be made when the engine is running with the key on and in the ignition. The EST will remember your time setting on subsequent shutdowns so pushing the button is only required when changing time settings.
- Convenience (Slurpee) Mode: (Hold button for 2-3 seconds) The Timer State LED 'B' will blink rapidly or remain constantly on and the engine will continuously run until the next key-on event or 1 hour…whichever happens first.



**General Vehicle Install -** Harness Wires are labeled for your convenience

**Switched 12V Power (Key On) Wire:** This should be connected to a good fused Key-On source. You may use a supplied fuse tap to ease your installation at the fuse panel. Ensure that you are tapping into the 'fused side' of the fuse though. With the key-on, remove the fuse from the prospective location and check for 12v. The side without voltage is the 'fused side'. If there is any question we recommend purchasing and installing a fusible link from your local electronics supply store.

**Ground Wire:** Use a good clean grounding location under the dash. It should be free and clear of other accessories. Use supplied grounding ring and attach using your wire crimpers.

**Ignition Wire:** This is the Ignition wire which the EST will power up during timeout. Connect to the correct wire using the supplied charts or your own documentation with the supplied wire tap.

**Constant Always On 12V High-Current Source:** This should be a high current source as indicated in the wiring charts (10 amp or better depending on the model of vehicle). Probe this wire at key on and key off to make sure it is always powered. Connect using a supplied wire tap.

**Brake-Kill/Anti-Theft lead:** This a wire coming off the brake pedal switch assembly and typically remains open circuit until the brake is pressed, at which time it goes to 12v or 5v depending on the vehicle. Connect using a supplied wire tap.

**Accessory Power Harness(s) [Purchased Separately].** These are used for powering up additional 12v circuits (park Lights, air conditioner, etc…) DO NOT remove the insulated wire caps unless you are installing accessory leads as they do conduct voltage and may short. Verify proper operation of EST **before** installing the Accessory Power Harness.

| Wire Connections | Auxiliary Relay Harness |
|---|---|
| EST Main Harness Red Wire | Red Wire |
| EST Main Harness Blue Wire | Blue Wire |
| Fused 12V Constant Power | Black Wire |
| Accessory 1 | Yellow Wire |
| Accessory 2 | Green Wire |

The Accessory's connected should be limited to a total of 30 amps. Ensure the accessories connected do not inadvertently power the Key-On source wire during shutdown.

**Where to install**

Controller: Controller is designed to be installed in the cab. Installation under the hood is **never** recommended and will void any warranty or support on the EST.

EST Harness: install and secure safely under the dash.

> **!** Make sure that the harness and wire connections do not interfere with the accelerator, clutch, or brake pedal operation.

Vehicle Specific Information (see end of instruction sheet for additional information)

Ford F250, F350 and excursion

- GEMM Jumper. This will allow the vehicle to power the air conditioner and radio and such during EST operation. This may also be needed on some 2001-2003 models to ensure keyless operation on return to the vehicle.

Dodge Ram 2500/3500

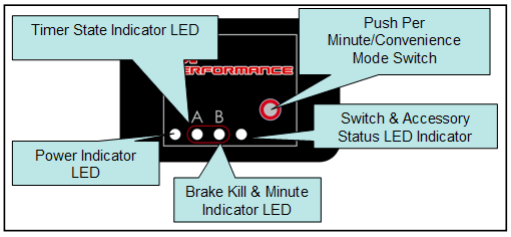
- Cooling Fan Wire (this is recommended on 04.5 and up to prevent a cooling fan code from being set in the vehicle's computer)
- Fuel Pump Wire (2006 and up) is required to properly fuel the truck during timeout and the subsequent restart.

Chevy (no known additional circuits)

Jeep (no known additional circuits)

VW (it is recommended that the radio circuit be powered)

Operational Graphic






**Troubleshooting…**

Common Installation Issues

- Improper Key-On Power Source (if the key-on source is part of the ignition power circuit in the truck, the EST may not see the key off event and the truck will not time out appropriately)

  If the engine is not turning off after the specified time period and there is only 1 red LED illuminated on the EST you most likely have an incorrect Key-On source. To find a correct KEY-On wire perform the following:

  1) Start Engine
  2) Remove Key (Engine should remain running)
  3) Probe the fuses in the vehicle's fuse block with a volt meter or test light until you find one that does not have 12V power
  4) Unplug the 10way harness from the EST module (The engine will shutoff
  5) Start Engine
  6) Verify the fuse identified now has 12V power
  7) Remove Key (Engine should shutdown)
  8) Reconnect the 10way harness to the EST module
  9) Re-Test for proper operation

- Identifying Ignition Circuits (use supplied charts)
- Additional Circuits in Truck needing Power. On some vehicles it may be necessary to power up additional circuits to prevent codes from being set in the vehicles computer. As a rule this is NOT necessary, but where we are aware of these we will include them in the directions.
- ABS and Seatbelt Warnings Lights: It is normal for these dash indicators to illuminate during EST operation. No codes are set in the vehicle's computer and the lights will go out when the vehicle is powered normally.
- Email customer support. spdiesel@spdiesel.com should be your first line of support for installation issues.



## Vehicle Specific Wiring

| Vehicle | Model Year | Ignition Wire* | Key-On Wire* | Constant 12V* | Brake Pedal Wire** |
|---|---|---|---|---|---|
| Ford Powerstroke Diesel | 1994-1997 | Red/Lt Green | Black/Lt Green | Large Yellow | Green |
| | 1999-2001 | Large Red/Black | Small Red/Black | Large Yellow | Green |
| | 2002-2003 | Red/Lt Green | Small Red/Black | Large Yellow | Green |
| | 2003.5-2004 | White/Yellow | Small Red/Black | Large Yellow | Red/Green |
| | 2005-2006 | Red/Lt Green | Small Red/Black | Large Yellow | Red/Green |
| Chevy/GMC Duramax Diesel | 2001-2006 | Pink | Brown | Red | White |
| Dodge Cummins Diesel | 1994-2002 | Dark Blue | Black/Orange | Red | White/Tan |
| | 2003 | Dark Blue | Black/White | Red | White/Tan |
| | 2004-2005 | Pink/Lt Green | Pink/Yellow | Red | White/Tan |
| | 2006 | Pink/Grey | Pink/White | ***Battery Pos + | White/Tan |

***Wires can be found under the steering column**
****Wires can be found at the brake pedal electrical connector**
*****Use 10amp fusible link next as close to battery as possible**



## Harness Line Drawing to assist installation