Instructions

INTERMOTIVE VEHICLE CONTROLS
An ISO 9001:2015 Registered Company

Idle Timer Controller - H-ITC520-A-P11

2021-2024 Ford F150
2023 Ford F250 - F600
*Keyed Ignition Only

Overview

The ITC520-A system will shut off gas or diesel engines that are left idling for an extended period of time in Park or Neutral. The default timer works as follows: with the Park Brake disengaged, the engine will shut off after 15 minutes of idling. If the Park Brake is applied, the idle time is decreased to 5 minutes. This is similar to CARB diesel anti-idling requirements.

Installation Instructions

Disconnect vehicle battery before proceeding with installation.

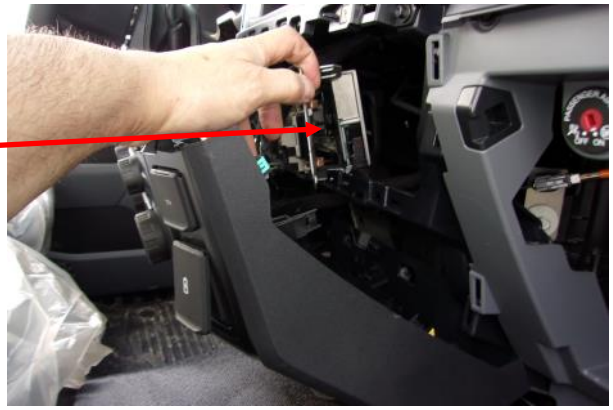
It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers.
It is important to avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Also avoid radio frequency energy from antenna's or inverters next to the module. Finally, avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

ITC520 Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the Idle Timer Controller module. Locate the module in an area away from any external heat sources (engine heat, heater ducts, etc.). Do not mount the module until all wire harnesses are routed and secure. The last step of the installation is to mount the module.

Data Link Harness Installation

The Ford Super Duty has an OEM Gateway module located on the other side of the SYNC 4 module, which is behind the center console. Follow the steps below to access it:



Instructions

Installation Instructions (Continued)

1. Remove the RH instrument panel trim using a trim removal tool. The trim starts at the ignition switch and ends at the silver clip. The glove compartment can be opened to better access the back side of the trim.

2. Using a trim removal tool, pop out the upper right corner of the lower steering column close out panel. Position it away from the center stack.

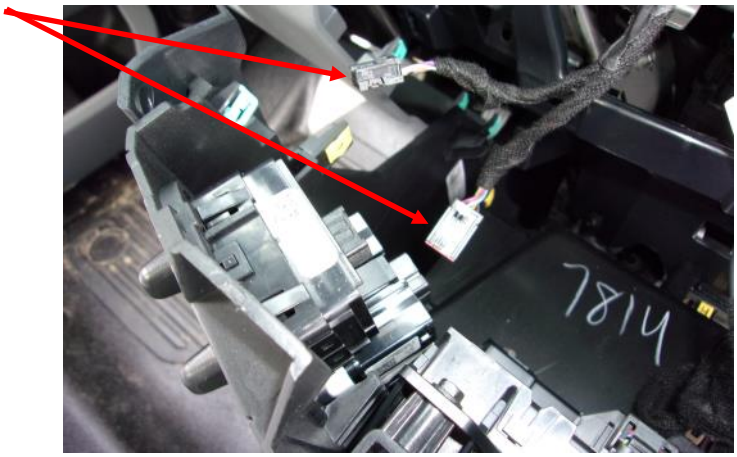
3. Remove the 4 bolts (Size: 7mm) located at the top of the center stack.

Instructions

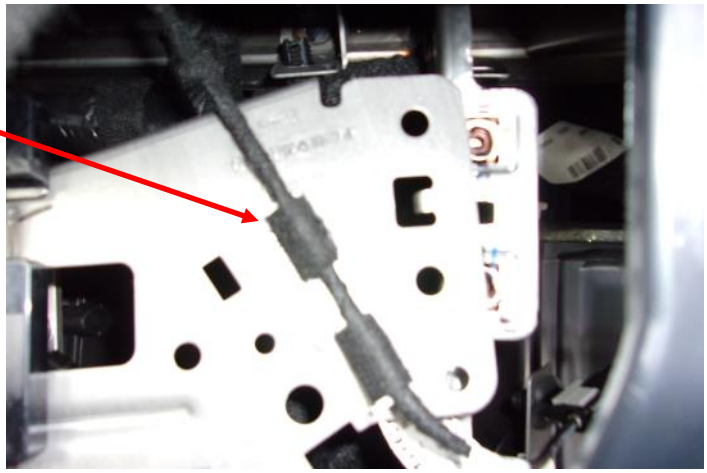
Installation Instructions (Continued)

4. Release the clips on both sides of the center stack using a trim removal tool. Position the center stack away from the mounting points.

5. Disconnect the 2 connectors behind the center stack.



6. Detach the push-mount cable tie from the bracket and position the cable out of the way.

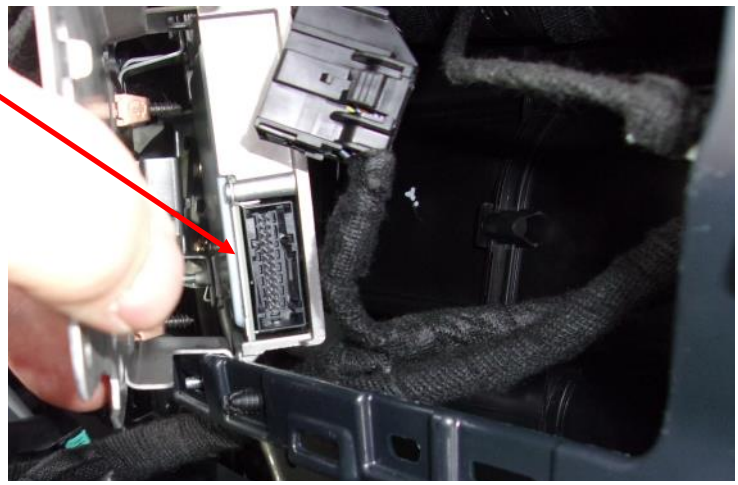


Instructions

Installation Instructions (Continued)

7. Remove the 4 bolts (Size: 7mm) and position the bracket away from the mounting points to access the Gateway Module. The Gateway Module is located behind the bracket.

8. Disconnect the Gateway Connector by pressing down on the tab and pulling the connector away from the module.



9. Install the Data Link Harness between the Gateway Module and the disconnected Gateway Connector.

10. Run the 6-pin connector of the Data Link Harness to the mounting location of the H-ITC520 module.

11. After the Datalink Harness is installed, continue on page 10 for Ignition Switch Harness installation

Instructions

Installation Instructions (Continued)

F150 Data Link Harness Installation

1. Remove the upper center stack bezel using a plastic trim tool. There are 8 clips securing it to the dash.

2. Remove the RH instrument panel trim using a trim removal tool. The trim starts at the ignition switch and ends at the silver clip. The glove compartment can be opened to better access the back side of the

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Installation Instructions (Continued)

3. Remove the left and right lower center stack trim panels. They each have 5 clips securing it to the dash.

4. Remove the (4) 7 mm screws from the lower center stack trim panel.

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Installation Instructions (Continued)

5. Grab the center stack trim panel and pull towards the rear to release the clips holding it to the dash. There is no reason to disconnect any of the connectors.

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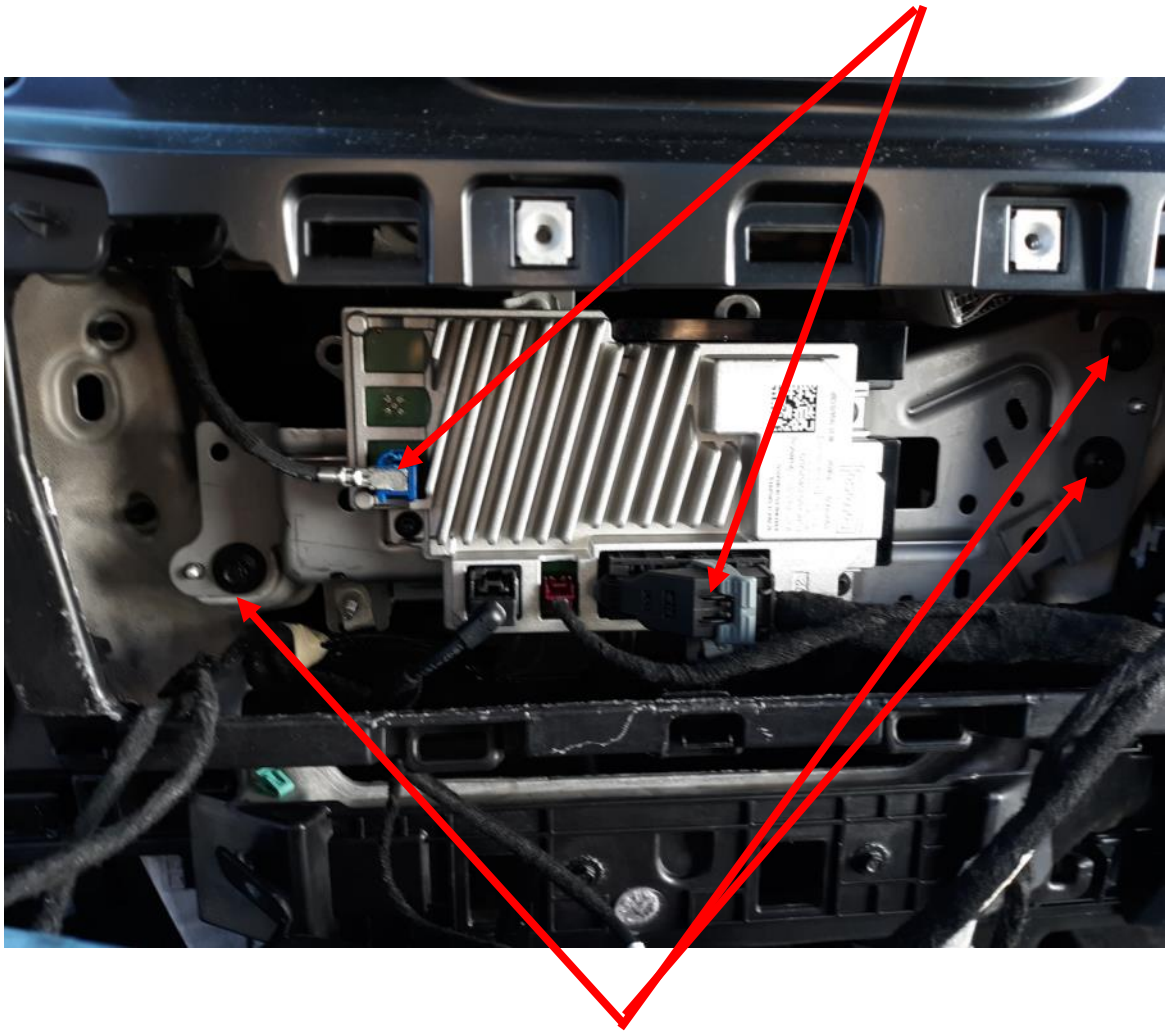
Installation Instructions (Continued)

6. Locate the module below the radio and remove the connectors from the module.



7. Remove the (3) 8 mm screws from the module located below the radio. Carefully move the bracket away from the dash and rotate it to access the Gateway module mounted on the backside of the bracket.

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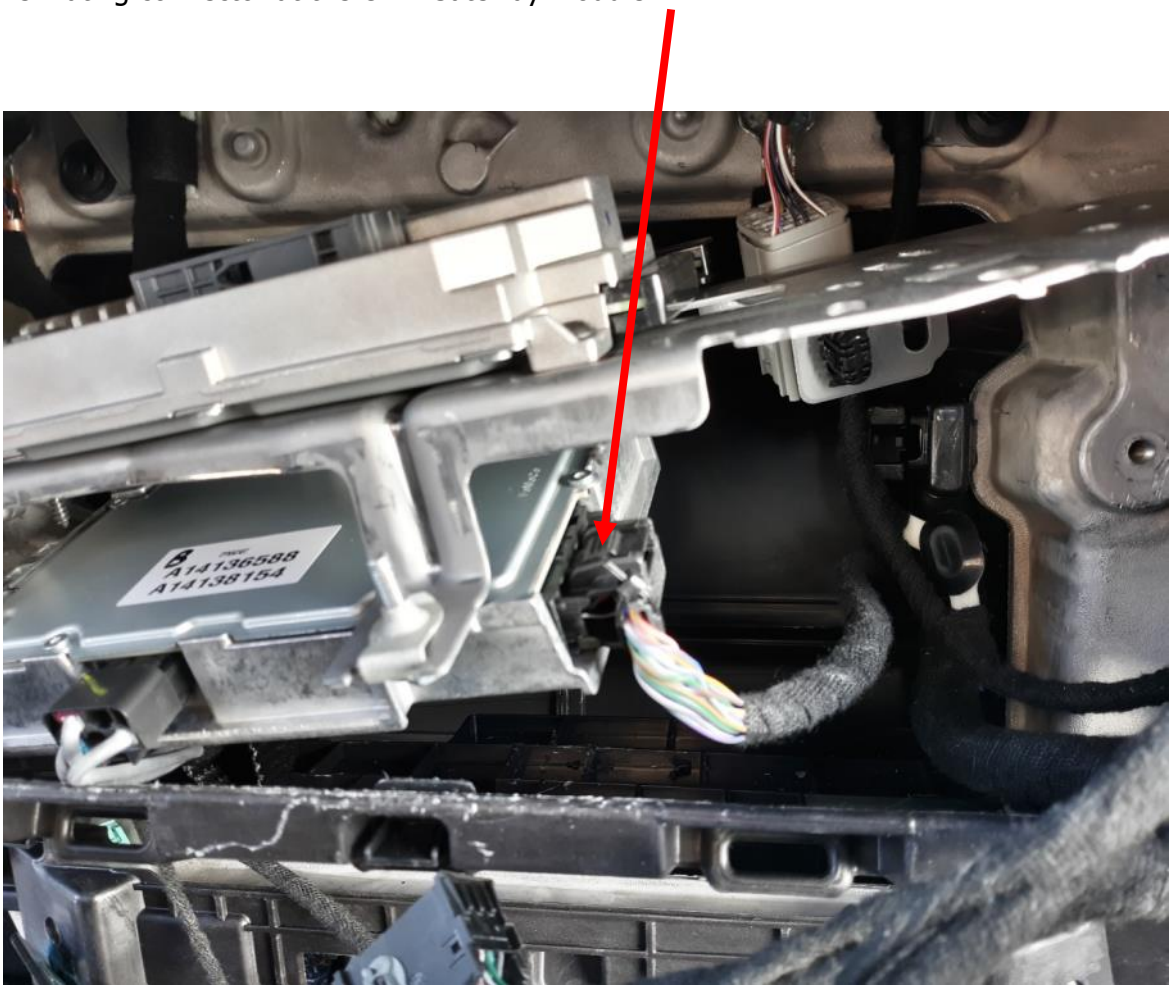
Installation Instructions (Continued)

8. Locate the 26-pin connector and disconnect it from the Gateway Module. Plug the 26-pin connector into the mating connector on the Intermotive harness. Plug the Male connector from the Intermotive harness into the mating connector at the OEM Gateway module.



9. Plug the free end of the Data Link harness into the mating 6-pin connector on the H-ITC520 module. Continue on page 12 for Ignition Switch Harness installation.

Instructions

Installation Instructions (Continued)

Ignition Switch Harness

F250-F600

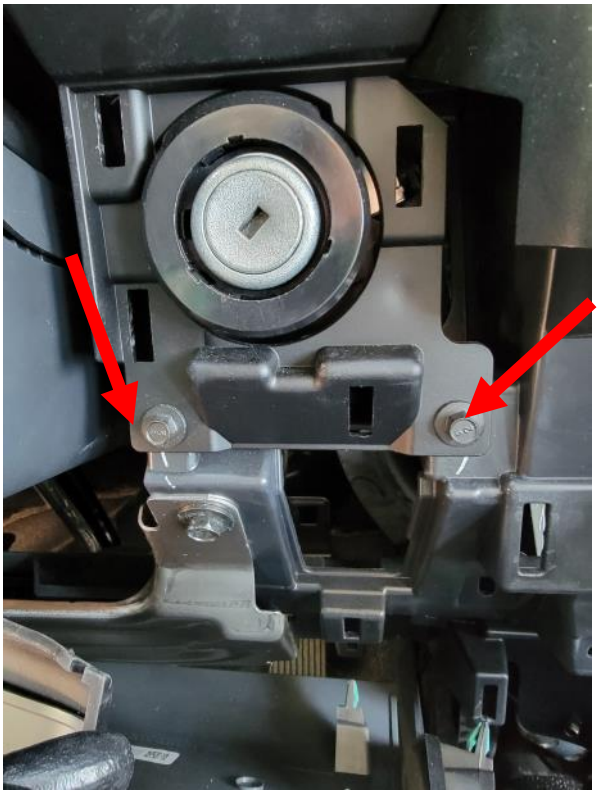
1. Remove the left side trim piece using a trim removal tool. There are several clips and a "tree" plug securing it to the dash.

2. Remove the dash upper trim using a trim removal tool. It is attached by multiple clips. (Trim piece already removed in picture)

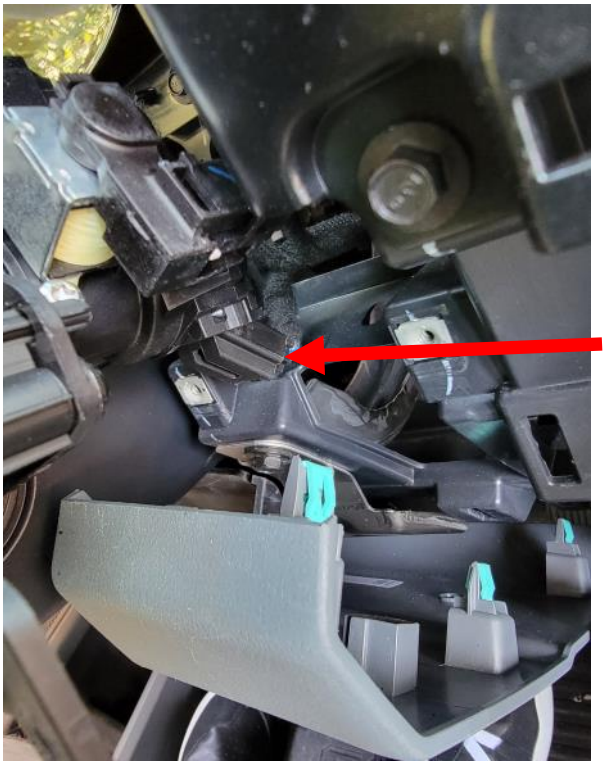
Instructions

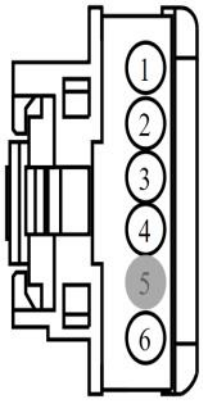
Ignition Switch Harness (Continued)

3. Remove (3) 7mm screws securing the Instrument Panel Surround to the dash.



4. Lower the steering column and pull the Instrument Panel Surround away from the dash. There are a couple clips securing it to the dash. Connector C250 is on the bottom side of the ignition switch. Plug the mating ends of the InterMotive ignition harness into the ignition switch and OEM harness.
5. Route the harness to the mounting location of the ITC module.





C250
Front of
Connector

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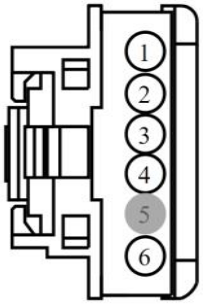
Installation Instructions (Continued)

Ignition Switch Connections — Ford F150

1. With the long trim piece that goes across the center of the dash removed the ignition switch is easily accessed. Locate the locking tabs, push them in and push the ignition switch towards you to remove it.
2. Locate the ignition switch connector (C250) and disconnect it from the ignition switch.
3. Install the ignition harness between the ignition switch and the OEM connector.
4. Plug the 16-Pin J7 connector into the mating 16-Pin connector on the module.
5. Plug the 8-Pin J4 connector into the mating 8-Pin connector on the module.
6. Plug the 4-Pin J8 connector into the mating 4-Pin connector on the module.
7. Plug the 4-Pin J5 connector into the mating 4-Pin connector on the module.
8. Plug the 4-Pin J2 connector into the mating 4-Pin connector on the module.



C250
Front of
Connector

Reverse any previous steps taken to reassemble vehicle

ITC520-A Harness (12-Pin Connector and 4-Pin Connector)

Most Ignition Switches are no longer designed to supply power directly to vehicle systems that require key position dependent power. For this reason, many vehicles have electronically controlled Ignition Power outputs that are electrically isolated from the actual Ignition Switch signals. If the desired isolated Ignition Output is not available on a vehicle, a relay must be installed to separate the ignition switch signal from the switched power the load requires. The relay that is used must include a voltage suppression diode to prevent damaging sensitive electronics.

Performing one step at a time, attach the correct color wire to the white 2-pin connector pigtails. These connections must be made by using solder and the supplied heat shrink tubing. Cut the tubing to 1" lengths for this purpose.

Optional Shutdown indicators and override inputs

There are 3 optional signals with "flying lead" wires provided for connecting to external equipment or devices as described below. These three signal are located on the ITC520-A modules 12 pin connector.

Warning beeper, lamp or LED output - Orange wire, Pin #2. This signal provides 12V when active. The maximum allowed draw on this circuit is 1/2 amp. If an LED is used it must also have an integral resistor wired in series. Attach this Orange wire to the positive input for the LED or beeper. Attach a ground wire to the negative input. This output pulses repeatedly during the final 30 seconds of Shutdown.

Override High input - Green wire, Pin #4. Applying 12V to this input will prevent engine shut down, and can be connected to equipment such as a PTO, pumps, compressors, etc.

Override Low input - Blue wire, Pin #5. Applying ground to this input will prevent engine shut down, and can be connected to equipment such as a PTO, pumps, compressors, etc.

Ensure that unused flying leads will never make electrical contact with anything by taping, cutting, or extracting the wires (pin extraction requires Molex tool).

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ITC520 Module Mounting

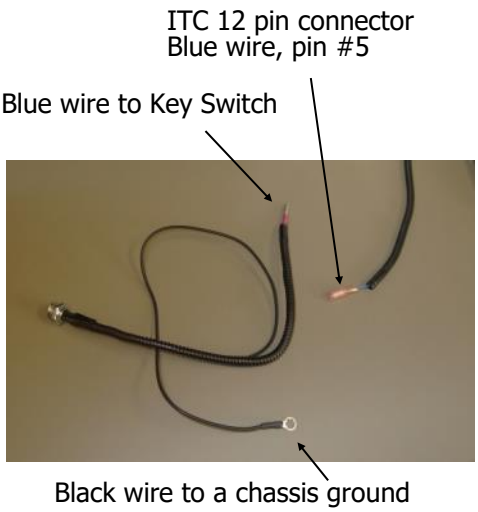
Ensure all harnesses are properly connected and routed, and are not hanging below the dash area. Mount the module using screws or double sided tape and reinstall all removed panels.

Reconnect vehicle battery

If the module's factory default settings do not need to be changed (below), proceed to the Post Installation Check List section.

Optional shutdown disable key switch

1. Locate a suitable place on the dash to mount the Key Switch, within 30" from the ITC module.
2. Drill a 1/2 inch hole to mount the Key Switch, being careful not to damage OEM harnessing behind the dash.
3. Mount the Key Switch onto the dash.
4. Locate the ITC 12 pin connector Blue wire, Pin #5.
5. Connect the male key switch bullet connector to the ITC 12 Pin connector Blue wire, Pin #5 female bullet connector.
6. Connect the eyelet connected to the Black wire to a chassis ground.

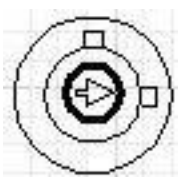


This keyed switch will enable or disable the idle timer function

- To turn the idle timer on, insert the key into the switch and position the arrow in the up position.
- To turn the idle timer off, insert the key in the switch and position the arrow pointing to the right.

Idle Timer On

Idle Timer Off



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Reconfiguring the Idle Timer Controller (Optional)

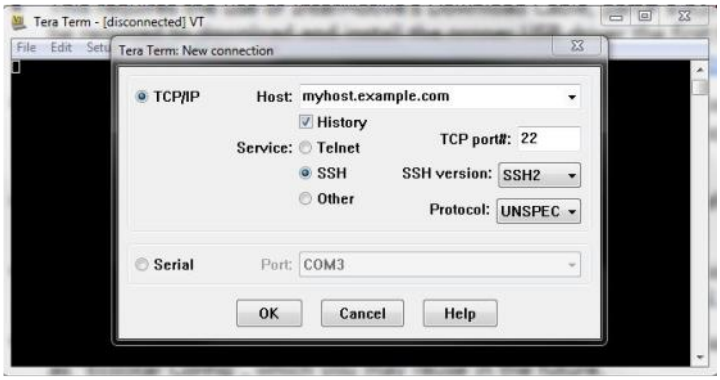
Requirements

- USB to Serial Communication Cable (part number A-IPU) which is a one time purchase. This kit is required for all programming and is recommended to be kept in a central location.
- Laptop computer (programming is done while the module is on the vehicle).

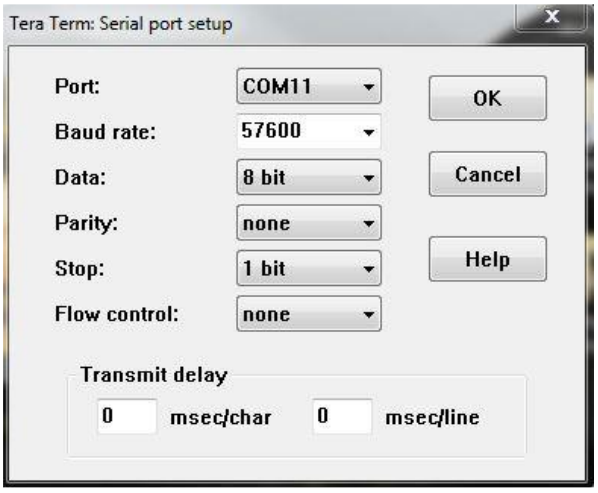
Reconfiguration

A special Serial Communication Cable is available from Intermotive to use this method. You will be required to download and install the proper USB driver the first time you use this cable. All driver files are located online at: http://www.intermotive.net

- Find the correct drivers for your system and follow the steps to download the latest version (located under the "Driver Version" heading). If unsure about the installation process, contact InterMotive for assistance.
- Download and install the latest release of the Tera Term application from: http://www.intermotive.net
- Plug one end of the cable into your PC's USB port, and with the vehicle's key in the off position, plug the other end into the module's COM port.
- Open the Tera Term application. The Tera Term 'New Connection' window will open (see picture).



- Click the 'Serial' button and choose the COM Port that the InterMotive Download Cable is connected to (typically the highest numbered COM Port). Click 'OK'.
- Under the 'Setup' tab, choose 'Serial Port'.
- In the next window, you will need to change several of the default parameters for the Port Settings as follows:
  - Baud rate: 57600
  - Data: 8 bits
  - Parity: None
  - Flow Control: None
  - Transmit delay: 0 msec/char, 0 msec/line
  - Click 'OK'.
- Tera Term setup is now complete.



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Reconfiguring the Shut Down Timer and Minimum Engine Shut Down Temperature (continued)

1. Turn the vehicle key to the ON position. The ITC520-A module will wakeup and text will display on the open Tera Term window.
2. If text does not appear, unplug the 6 pin connector from the ITC520-A module, wait several seconds and plug the connector back in.
3. If text still does not appear, go to Setup > Serial Port and try re-configuring Tera Term as described on the previous page. If unsuccessful, contact InterMotive for further assistance.
4. With communication established, type in the word "config" (followed by the enter key) and the screen will look like Screen-shot 1.
5. Enter the number (1, 2, or 3) of the parameter to be changed:
6. If 1 is selected, the screen will look like config Screenshot 2. Key in a new Idle Shutdown Time, in seconds, followed by the Enter key. Changing this value from the default setting will cause Park Brake to have no effect on the Idle Timer duration. To restore the default setting, enter the number 10,000 followed by the Enter key.
7. If 2 is selected, the screen will look like Screenshot 3. Key in a new minimum warm up temperature in degrees F, followed by the Enter key.
8. If 3 is selected, the screen will look like Screenshot 4. Changing this value will disable the idle timer reset based on the Service Brake, Parking Brake, and accelerator pedal.
9. Press ESC key when parameters are set correctly.
10. When finished, key off ignition and disconnect the Communication cable.

```
ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
3 = Driver Input ITC Override
Press Escape to Exit Configuration Mode

Change Parameter:
```

Screenshot 1

```
ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
3 = Driver Input ITC Override
Press Escape to Exit Configuration Mode

Change Parameter: 1
The Idle Shutoff Timer is currently set to: DEFAULT OPERATION
The maximum allowed timer length is 3000 seconds (50 minutes)
Enter new value in Seconds:
```

Screenshot 2

```
ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
3 = Driver Input ITC Override
Press Escape to Exit Configuration Mode

Change Parameter: 2
The Minimum Engine Temperature for Idle Shutoff is: 100 degrees F
Enter new value up to 200 degrees F:
```

Screenshot 3

```
ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
3 = Driver Input ITC Override
Press Escape to Exit Configuration Mode

Change Parameter: 3
Driver Input ITC Override: Disabled
1 = Enable
2 = Disable
Change to Parameter:
```

Screenshot 4

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Post Installation Check List

Putting the module into Test Mode

Start the engine. Test mode can be entered by holding down the Service Brake then setting and releasing the Park Brake 4 times within a 10 second period. When successful, LED10 on the ITC520-A module will be lit. Release the Service Brake. When this Test Mode is active, the shut off timer is reduced to 15 seconds. LED 9 will come on for 1 second at the start of the shut off timer.

A Park Brake, Service Brake, or Accelerator Pedal input will reset the timer. LED 9 will light to verify each input has reset the timer. Also verify function of any light or buzzer connected to the optional indicator output. During the final 5 seconds the indicator should flash or sound multiple times until the engine is shut off. Confirm LED10 goes off when engine is shut off. Turn off the ignition. Status LED will light briefly.

If the ITC520-A fails any step in the Post Installation Check List, review the installation instructions and check all connections. If necessary, call InterMotive technical support at (530) 823-1048.

Reinstall the column trim cover and under dash panel.

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Leave in vehicle

Operating Instructions Idle Timer Controller - ITC520-A
2021-2024 Ford F150
2023 Ford F250 - F600
*Keyed Ignition Only

Operating Instructions

The ITC520-A system is an idle timer engine shut off system. It automatically stops the engine if the vehicle is left idling for an extended period of time, in Park or Neutral, without operator input.

Default operation: with the Park Brake disengaged the engine will shut off after 15 minutes of idling. If the Park Brake is applied, the idle time is decreased to 5 minutes.

A custom timer length and minimum engine warm-up temperature may be set by the vehicle manufacturer. When that time expires and the engine is above warm up temp (default 100° F) the engine will shutoff regardless of Park Brake state.

Ignition Power Restore and Restart

ITC520 switches off Ignition power to stop the engine and minimize battery draw. Ignition power is restored once the key is moved from the Run position to either the Start or Off positions.

When ITC520 has switched off Ignition power, there is still a small power draw from the battery. This draw could potentially drain the battery if the key is left in the vehicle for an extended period of days. For this reason, as well as to prevent theft, the key should always be removed from the ignition once the operator has finished with the vehicle.

Optional shutdown indicators

An installer supplied optional indicator light or buzzer may be wired to the Shut off Indicator Output.

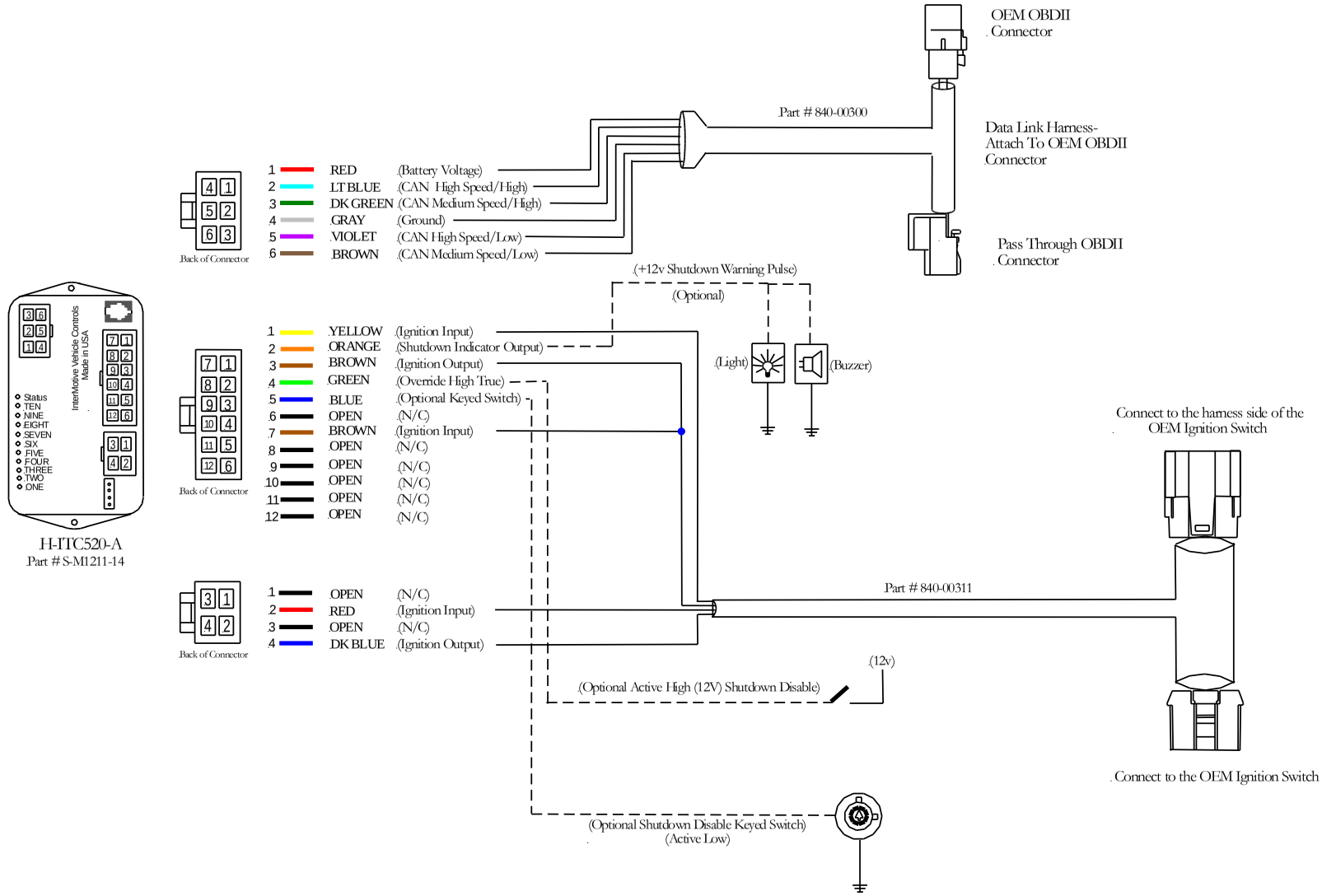
If a light or buzzer is connected to the optional indicator output, it will flash or sound repeatedly during the final 30 seconds prior to Shut off.

Timer override inputs

If the driver applies the Parking Brake, Service Brake, or presses the Accelerator Pedal, the shut off timer will be reset.

Timer Override inputs are provided to allow vehicle equipment (PTO, compressor, etc….) to disable the shut off timer when equipment is in use.

Once the optional equipment is switched off the ITC520-A will resume Idle Timer sequence.



Submit product registration at www.intermotive.net

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