

Speed Sentinel II

SS502-CND (for use with GTWY505)

2009-2012 Ford E250-450 Series

2009-2012 Ford F250-550 Series (2011-2012 F-Series w/o cruise control)

Contact InterMotive for specific engine applications.

Introduction

The Speed Sentinel II system (SSII) is a sophisticated microprocessor based programmable road speed limiter. It limits maximum vehicle speed but does not limit maximum engine output. Interfacing to the vehicle through the use of "Plug & Play" connectors wherever possible reduces installation time. The Speed Sentinel II system has been designed with internal safeguards to ensure the safe operation of the vehicle. If it senses any unsafe or irregular condition it automatically reverts back to full driver control.

Installation Instructions

Remove the lower dash panel below the steering column area and find a suitable location to mount the Speed Sentinel II module. Do not actually mount the module until all wire harnesses are routed and secure. (The last step of the installation is to mount the module).



WARNING
Disconnect the battery to
prevent setting a check engine
light.

**Be sure the vehicle's battery is disconnected
before proceeding with the 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.

Accelerator Pedal Harness (Plug & Play)

- Unplug the OEM harness from the accelerator pedal assembly.
- Plug the OEM harness into the SSII Accelerator Pedal T-harness.
- Plug the SSII Accelerator Pedal Harness into the OEM pedal assembly.
- Ensure all connectors are secure. If connectors are equipped with red locking tabs, ensure the tabs are in the locked position.
- Plug the 12-Pin SSII Pedal harness connector into the "Pedal" connector on the SSII module.



LED Display Panel

- Locate a suitable position on the dashboard, within view of the driver, for the mounting of the LED Display Panel. It must be within 36 inches of the module and allow room for the LED harness installation.
- Drill a 3/4" hole in the dashboard where the center of the display will be. Attach the 10-pin connector of the LED harness to the Control Module in the cavity labeled "Display".
- Run the other end of the harness under the dash and out through the 3/4" hole. Plug the 6-pin connector of the display harness into the display panel. Ensure panel is level and secure using the supplied screws.



GTWY Data Harness (Installing GTWY505 and SSII)

- Locate the vehicle OBD II Data Link Connector. It will be mounted below the lower dash panel.
- Remove the mounting screws for the OEM Data Link Connector.
- Plug the red connector from the GTWY Data T- Harness into the OEM Data Link Connector.
- Ensure the connection is fully seated and secure with the supplied wire tie.
- Mount the black connector from the GTWY Data Harness in the former location of the OEM connector.
- Secure the Harness so that it does not hang below the lower dash panel.



GTWY Data Harness

"Ford GTWY/SSII Data Harn"- Harness for GTWY505 and SSII

- Plug the 6-Pin GTWY Data connector into the 6-Pin Female connector on the "Ford GTWY/SSII Data Harn" Harness.
- Plug the 6-Pin Male connector (Short Lead, Red tape) of the "Ford GTWY/SSII Data Harn" into the GTWY 505 Module in the 6 pin connector labeled "DLC".
- Plug the 6-pin Male connector (Long Lead) from the "Ford GTWY/SSII Data Harn" into the Speed Sentinel II Control Module in the cavity labeled "Data Link".



"Ford GTWY/SSII Data Harn" Harness

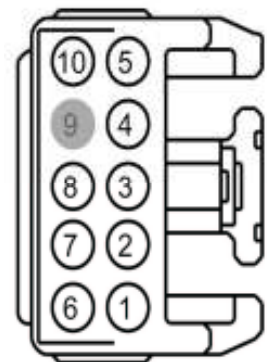
Without Cruise Control Inhibit (Vehicle not equipped with cruise control)

- If the vehicle does not have cruise control, continue to Optional Switch Controlled Settings.

Cruise Control Inhibit (Vehicle equipped with cruise control)

2009-2012 E250-450 Series

- Locate the Gray 10-pin Ford connector (C218B) on the lower right side of the steering column.
- Find the White wire in pin #3 (C218B).
- Attach the brown wire from the SSII 8-pin "Auxiliary" connector to this circuit as a parallel tap using solder and electrical tape.
- Route and secure the brown wire.
- Insert the 8-pin Auxiliary connector into the Speed Sentinel II module in the cavity labeled "Auxiliary".

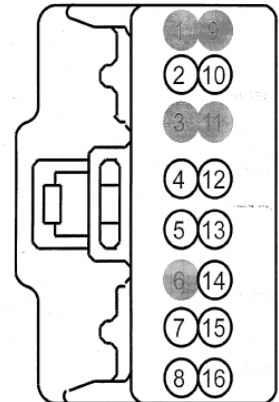


E Series
Connector C218B

Cruise Control Inhibit (cont)

2009-2010 F250-550 Series

- Remove both upper and lower steering column finish covers.
- Locate the black 16-pin Ford connector (C218A) on the upper left side of the steering column.
- Find the White wire in pin #15. (C218A)
- Attach the brown wire from the 8-pin "Auxiliary" connector to this circuit as a parallel tap using solder and electrical tape.
- Route and secure the brown wire.
- Insert the 8-pin Auxiliary connector into the Speed Sentinel II module in the cavity labeled "Auxiliary".



F Series
Connector C218A

2011-2012 F250-550 Series

SSII does not currently support 2011-2012 F-Series trucks with cruise control. SSII must have the ability to "cancel" cruise control to prevent the driver from speeding using the cruise control system. This capability is not yet available on SSII for 2011-2012 F-Series vehicles.

Set Vehicle Speed Limit

- Remove the lid of the Speed Sentinel II module. With power disconnected from the module, locate the rotary switch and adjust the speed limit according to the chart shown below.



The Speed Sentinel II control module must be disconnected from the vehicle battery power during rotary switch adjustment.



0* = 55mph (factory default setting)	8 = 45mph
1 = 10mph	9 = 50mph
2 = 15mph	A = 55mph
3 = 20mph	B = 60mph
4 = 25mph	C = 65mph
5 = 30mph	D = 70mph
6 = 35mph	E = 75mph
7 = 40mph	F = 80mph

* Speed Limit can be adjusted in 1 mph increments. Please contact InterMotive for programming information.

Reconnect the Battery

Accelerator Pedal Calibration (Must be performed!)

Attention!

Accelerator pedal calibration has changed. Please use the following calibration technique for all Speed Sentinel modules with f/w versions 1.2.0.0 and above.



Calibration Button Fault LED

Prior to calibration, make sure:

- pedal harness is installed
- Data Link connector is NOT installed at module
- Key on, engine off

Calibrate:

1. Hold down the black calibration button and plug in the 6 pin Data Link connector. (Button may be released after red fault light LED illuminates continuously).
2. When red LED flashes off and back on, press and hold accelerator pedal to the floor.
3. When red LED goes off, calibration is complete.

If the red fault LED starts flashing, the calibration was unsuccessful and must be redone.

Final Steps

- Connect a scan tool and check for diagnostic trouble codes (DTC's). If codes are present, document the codes and clear all DTC's prior to delivery of vehicle.
- Mount and secure the Speed Sentinel II module, reinstall all removed panels, and perform post installation test.

Optional Switch Controlled Settings (Preprogrammed by InterMotive)

- Optional Forced Engine Idle Function – Turn on an operator installed switch and Speed Sentinel II forces the engine to stay in idle mode as a theft deterrent.
- System controlled electronic override (allows exceeding speed limit) of Speed Sentinel II is available for Emergency Vehicles when in code 3 mode.

Post Installation Instructions

The following checks must be performed prior to releasing the vehicle to the driver.

Test drive the vehicle to verify proper Speed Sentinel II operation. The Speed Sentinel II must limit vehicle speed at the preset speed limit and pass the following steps:

- When the Speed Sentinel II engages (green LED will illuminate) and the vehicle speed is limited, press the accelerator pedal to wide-open throttle and verify that vehicle speed has been limited.
- Ensure that the preset speed is set to the desired limit (See the Accelerator Pedal Calibration Section of the installation instructions for the adjustment procedure).
- Check passing mode operation by going from wide-open throttle to closed throttle three times in a three-second span. The Speed Sentinel II passing mode will allow a temporary override of speed limiting. The override lasts for 10 seconds then resumes limiting vehicle speed. If passing mode is enabled, the green LED will flash once after prove out. Passing mode is optional and may be removed by contacting InterMotive Technical Support.
- If the vehicle is equipped with cruise control, verify that cruise control is operational when vehicle speed is below the limited speed and not operational during speed limiting. That is, you should not be able to use cruise control to exceed SSII's speed limit.
- Verify that the check engine light has not been set. (Turning the ignition switch to the "on" position with the accelerator pedal unplugged during installation will set a check engine light).

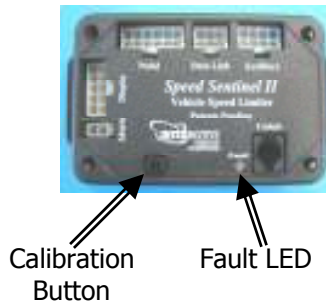
Post Installation Instructions (continued)

If the Speed Sentinel II fails any step in the post installation test, review the installation instructions and check all connections. If necessary, call

InterMotive technical support @ (530) 823-1048.

Checking Speed Sentinel II for Diagnostic Trouble Codes

- If the Speed Sentinel II has a stored fault code, the "fault" LED on the dash panel and module will blink twice a second and codes can be retrieved by entering diagnostic mode.
- If the Speed Sentinel II requires calibration with the vehicle, the "fault" LED will blink on for two seconds and off for a half second. See the Accelerator Pedal Calibration section of the Installation Instructions for the accelerator pedal calibration.
- If the Speed Sentinel II has an internal programming fault, the "fault" LED will blink on/off rapidly. Call InterMotive for assistance.



Entering Diagnostic Mode

- Diagnostic mode is entered by pressing and releasing the yellow "diag" button on the LED display panel. Once in diagnostic mode, all codes will be displayed by the blinking "fault" LED.
- The codes will be displayed as blink codes. For example, if there is 1 blink, a short pause, and then 2 blinks, the code is 1 2. These two sets of blinks are combined to form the code.
- A zero will have no blink, so when the vehicle is safe (ready to be active) it will blink once every three seconds. Diagnostic codes will change depending on the safe status of the vehicle.

Clearing codes:

- Place the vehicle in Park.
- Press the yellow "Diag" button and at the same time pump the service brake three times.

Contact InterMotive for assistance with codes and diagnostics of the Speed Sentinel II.

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SS502CND-04 OP

Speed Sentinel II non-fault Diagnostic Codes

LED Code	Terminal Code	VSS state	Drive Train state	Service Brake state
1 - 0	10	> 0	In Drive	Not applied
1 - 1	11	> 0	In Drive	Applied
1 - 2	12	> 0	Not In Drive	Not applied
1 - 3	13	> 0	Not In Drive	Applied
1 - 4	14	= 0	In Drive	Not applied
1 - 5	15	= 0	In Drive	Applied
1 - 6	16	= 0	Not In Drive	Not applied
1 - 7	17	= 0	Not In Drive	Applied
1 - 8	18	> 0	In Drive	Not applied
1 - 9	19	> 0	In Drive	Applied
1 - 10	1A	> 0	Not In Drive	Not applied
1 - 11	1B	> 0	Not In Drive	Applied
1 - 12	1C	= 0	In Drive	Not applied
1 - 13	1D	= 0	In Drive	Applied
1 - 14	1E	= 0	Not In Drive	Not applied
1 - 15	1F	= 0	Not In Drive	Applied

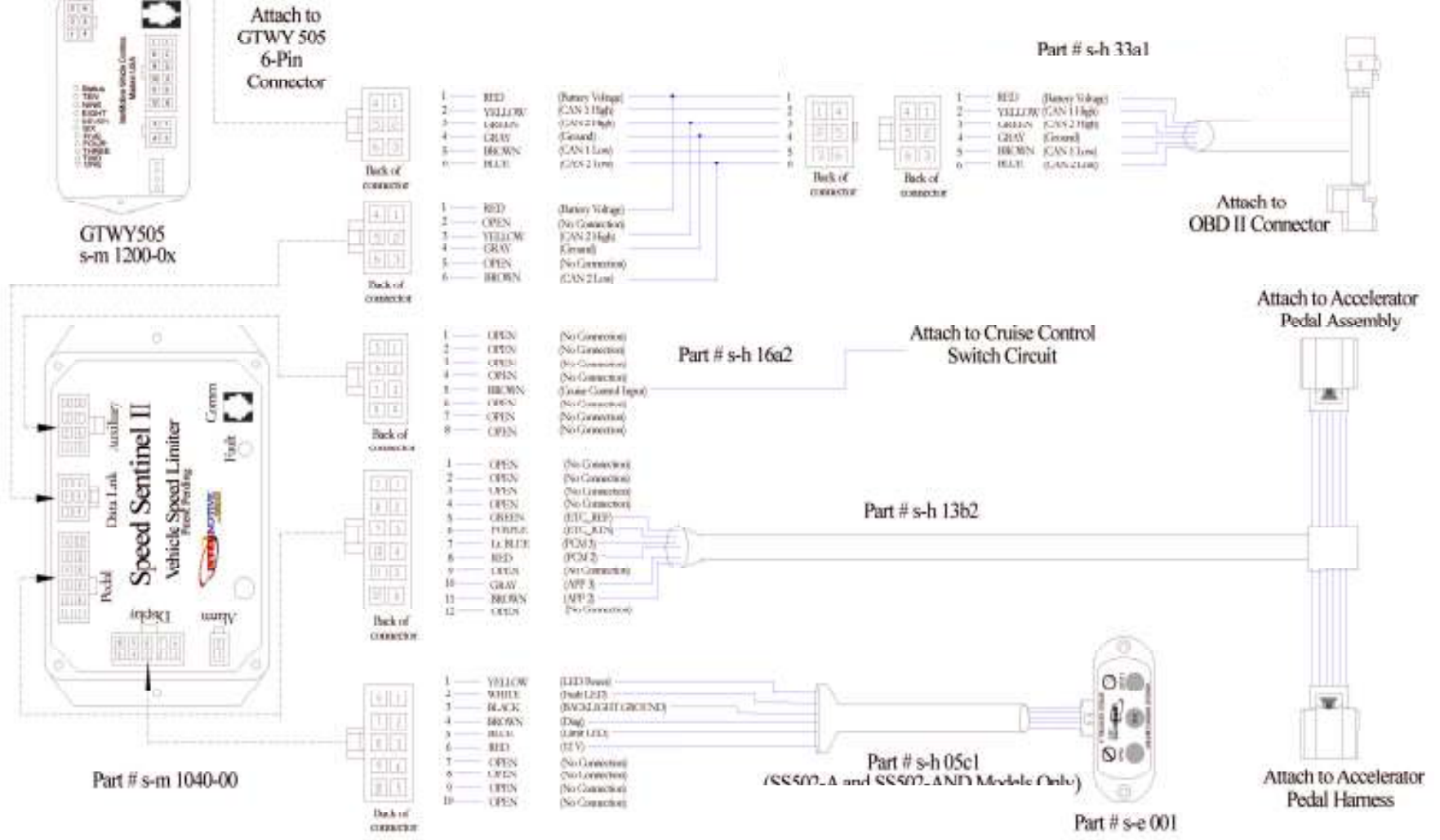
Submit product registration at www.intermotive.net

If Speed Sentinel II fails any step in the operational test, review the installation instructions and check all connections. If necessary, call

InterMotive technical support @ (530) 823-1048.

Contact InterMotive for assistance with codes and diagnostics of the Speed Sentinel II.

SS502 system with a GTWY 505 system installed.



Submit product registration at www.intermotive.net

If the Speed Sentinel II fails any step in the post installation test, review the installation instructions and check all connections.

If necessary, call

InterMotive technical support @ (530) 823-1048.

Speed Sentinel II SS502-CND

**2009-2012 Ford E250-450 Series
2009-2012 Ford F250-550 Series
System Operating Instructions**

Operating Instructions

The Speed Sentinel II is a road speed limiter, which limits maximum vehicle speed to a preset limit. Once the driver attains the limited speed, any additional input on the accelerator pedal will not increase the speed of the vehicle. Holding the pedal down will cause Speed Sentinel II to maintain vehicle speed at the preset limit, even on varying terrain, much like a cruise control. However, while coasting down hills, the vehicle can exceed the limit since Speed Sentinel II does not apply the vehicle brakes.

When Speed Sentinel II reaches the limited speed, the green LED (limit) on the LED Display will illuminate to show that maximum speed has been achieved. If the red LED is illuminated, a fault code is present and should be reported to the fleet manager.

Speed Sentinel II also has an optional passing mode, which allows for a short-time override of the limited speed (can be used in passing at critical moments). Verify that the Speed Sentinel II is or is not programmed with passing mode. To verify passing mode is enabled, an extra "blink" on the green LED during key-on prove out indicates passing mode is programmed. Passing mode is entered by pushing the accelerator pedal all the way to the floor three times in a three second span. The override allows the driver to control vehicle speed in excess of the preset limit for 10 seconds, after which Speed Sentinel II resumes control.

Speed Sentinel II also has a mode that will return the engine to base idle if the service brake is applied at the same time as the accelerator pedal, but this will only activate while the Speed Sentinel II is limiting vehicle speed. To resume normal operation, simply release and reapply the accelerator pedal.

System Faults

If Speed Sentinel II has encountered a problem, the red "fault" LED will blink on the dashboard panel. Report this to the fleet manager.

