

An ISO 9001:2008 Registered Company

Speed Sentinel II[®]

Programmable Road Speed Limiter

SS502-C, SS502-CX

2008-2012 Ford E250-450 Series

2008-2012 Ford F250-550 Series (2011-2012 F-series w/o cruise control)

Contact InterMotive for specific engine applications.

USER GUIDE



- ◆ Vehicle speed can be set from 10-80 mph.
- ◆ Maximum engine output up to set speed.
- ◆ Flexible – speed setting can be changed.
- ◆ "Plug & Play" installation – installs in a few minutes.
- ◆ Dynamic Load Response – adjusts for varying road terrains.
- ◆ Optional Engine Idle Function – forces engine to stay in idle mode as a theft deterrent.
- ◆ Available electronic override for Emergency Vehicles.

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SSII502C-05 ins

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1. System Overview

Speed Sentinel II[®] is a programmable road speed limiter for Ford vehicles. Speed Sentinel II[®] is a micro-processor controlled unit that limits maximum vehicle speed but does not limit maximum engine output. Speed Sentinel II[®] interfaces with the vehicle through the use of “Plug & Play” connectors that plug directly into the vehicle’s factory OEM connectors. This method of installation reduces the installation time and improves the connection reliability. Speed Sentinel II[®] has been designed with internal safeguards to insure the safe operation of the vehicle. If it senses any unsafe or unknown condition it automatically reverts back to full driver control.

2. Installation Instructions **Be sure the vehicle’s battery is disconnected before proceeding with the installation.**



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

2.1. Accelerator Pedal T– 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.



2.2. LED Display Panel (SS502-C only)

- 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 mounted. Plug the 10-pin connector of the LED harness in connector cavity labeled "Display" on the control module.
- 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 that the panel is level and secure using the supplied screws.



Note: The SS502-CX does not include the LED Display Panel.

2.3. Data Link Harness

- 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 Speed Sentinel II[®] Data Link T- Harness into the vehicle Data Link Connector. Ensure the connection is fully seated and secure with the supplied wire tie.
- Mount the black connector from the Speed Sentinel II[®] Data Link Harness in the former location of the OEM connector.
- Attach the black ground wire with eyelet to a chassis ground.
- Secure the Data Link Harness so that it does not hang below the lower dash panel.
- Plug the 6-pin connector from the Data Link Harness into the Control Module in the cavity labeled "Data Link".



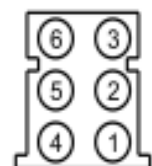
2.4. Without Cruise Control Inhibit (Vehicle not equipped with cruise control)

- If the vehicle does not have cruise control, continue to step 2.7.

2.5. Cruise Control Inhibit (Vehicle equipped with cruise control)

Ford E-Series (2008-2009)

- Locate the brown 6-pin Ford connector (C218B) on the lower right side of the steering column.
- Find the white wire in pin #6.
- Attach the brown wire from the 8-pin "Auxiliary" connector to this circuit as a parallel tap using solder and heat shrink tubing.
- Route and secure the brown wire.
- Insert the 8-pin Auxiliary connector into the Speed Sentinel II[®] module in the cavity labeled "Auxiliary".



Connector C218B

2.5. Cruise Control Inhibit (Cont.) (Vehicle equipped with cruise control)

Ford E-Series (2010-2012)

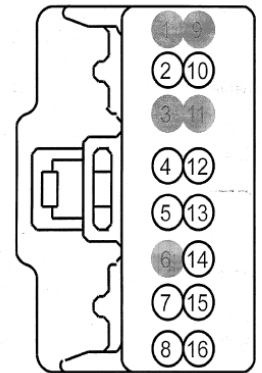
- Locate the gray 10-pin Ford connector (C218B) on the lower right side of the steering column.
- Find the white wire in pin #3.
- Attach the brown wire from the 8-pin "Auxiliary" connector to this circuit as a parallel tap using solder and heat shrink tubing.
- Route and secure the brown wire.
- Insert the 8-pin Auxiliary connector into the Speed Sentinel II[®] module in the cavity labeled "Auxiliary".



Connector C218B

Ford F-Series (2008-2010)

- 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.
- Attach the brown wire from the 8-pin "Auxiliary" connector to this circuit as a parallel tap using solder and heat shrink tubing.
- Route and secure the brown wire.
- Insert the 8-pin Auxiliary connector into the Speed Sentinel II[®] module in the cavity labeled "Auxiliary".



Connector C218A

Note: 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.

2.6. Optional Switch Controlled Settings (Preprogrammed by InterMotive)

- Optional Forced Engine Idle Function – Flip an operator installed switch and Speed Sentinel II[®] forces the engine to stay in idle mode as a theft deterrent.
- System controlled electronic override of Speed Sentinel II[®] is available for Emergency Vehicles when in code 3 mode.

Contact InterMotive for the installation and activation of:

- Forced Idle Function (Forces engine to stay at idle during vehicle theft).
- Electronic Override (For emergency vehicles when operating in Code 3 mode).

2.7. 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.

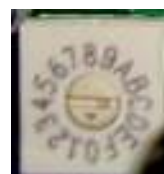
0* = 55mph (factory default setting)	8 = 45mph
1 = 10mph	9 = 50mph
2 = 15mph	A = 55mph
3 = 20mph	B = 60mph
4 = 25mph	C = 65mph
5 = 30mph	D = 70mph
6 = 35mph	E = 75mph
7 = 40mph	F = 80mph



WARNING



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



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

Reconnect the Battery

2.8. 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.

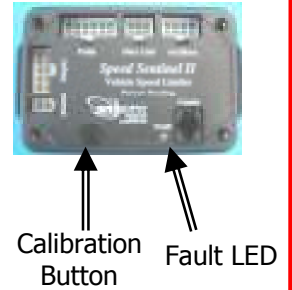
Prior to calibration, make sure:

- 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.



3. 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.

4. 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 Section 2.8 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 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 has cruise control, check the cruise control operation and inhibit. Verify that cruise control is operational when vehicle speed is below the limited speed and not operational during speed limiting.

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).

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[®] Operating Instructions

SS502-C, SS502-CX

2008-2012 Ford E250-450 Series

2008-2012 Ford F250-550 Series (2011-2012 F-series w/o cruise control)

Contact InterMotive for specific engine applications.

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 throttle pedal will not increase the speed of the vehicle. If the throttle is pushed beyond the maximum speed, the Speed Sentinel II[®] will maintain the preset speed. The Speed Sentinel II[®] will maintain vehicle speed 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 the 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.

The Speed Sentinel II[®] has an optional passing mode, which allows for a short-time override of the limited speed (use in passing at critical moments). Verify that the Speed Sentinel II[®] is or is not programmed with passing mode. To verify passing mode is programmed, an extra "blink" on the green LED during prove out indicates passing mode is programmed. Passing mode is entered by going from wide-open throttle to idle three times in a three second span. The override lasts for 10 seconds then resumes limited vehicle speed.

The Speed Sentinel II[®] also has a forced idle mode that will return the engine to base idle if the service brake is applied at the same time as the accelerator pedal. Forced idle mode will only activate while the Speed Sentinel II[®] is limiting vehicle speed. To remove Speed Sentinel II[®] from forced idle mode: Release and reapply the accelerator pedal to reactivate control of the accelerator pedal.

6. Checking Speed Sentinel II[®] for Diagnostic Trouble Codes

- If the Speed Sentinel II[®] has a stored fault code, the "fault" LED 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 Section 2.9 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.



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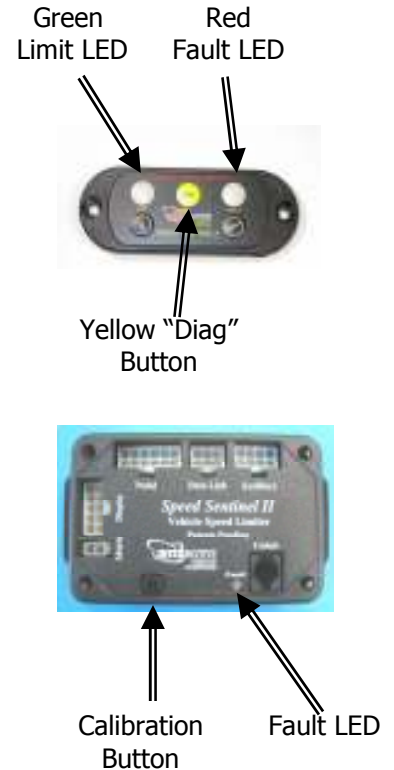
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SSII502C-05-OP

7. Entering Diagnostic Mode

- Diagnostic mode is entered by pressing and releasing the yellow "diag" button on the LED display. 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.

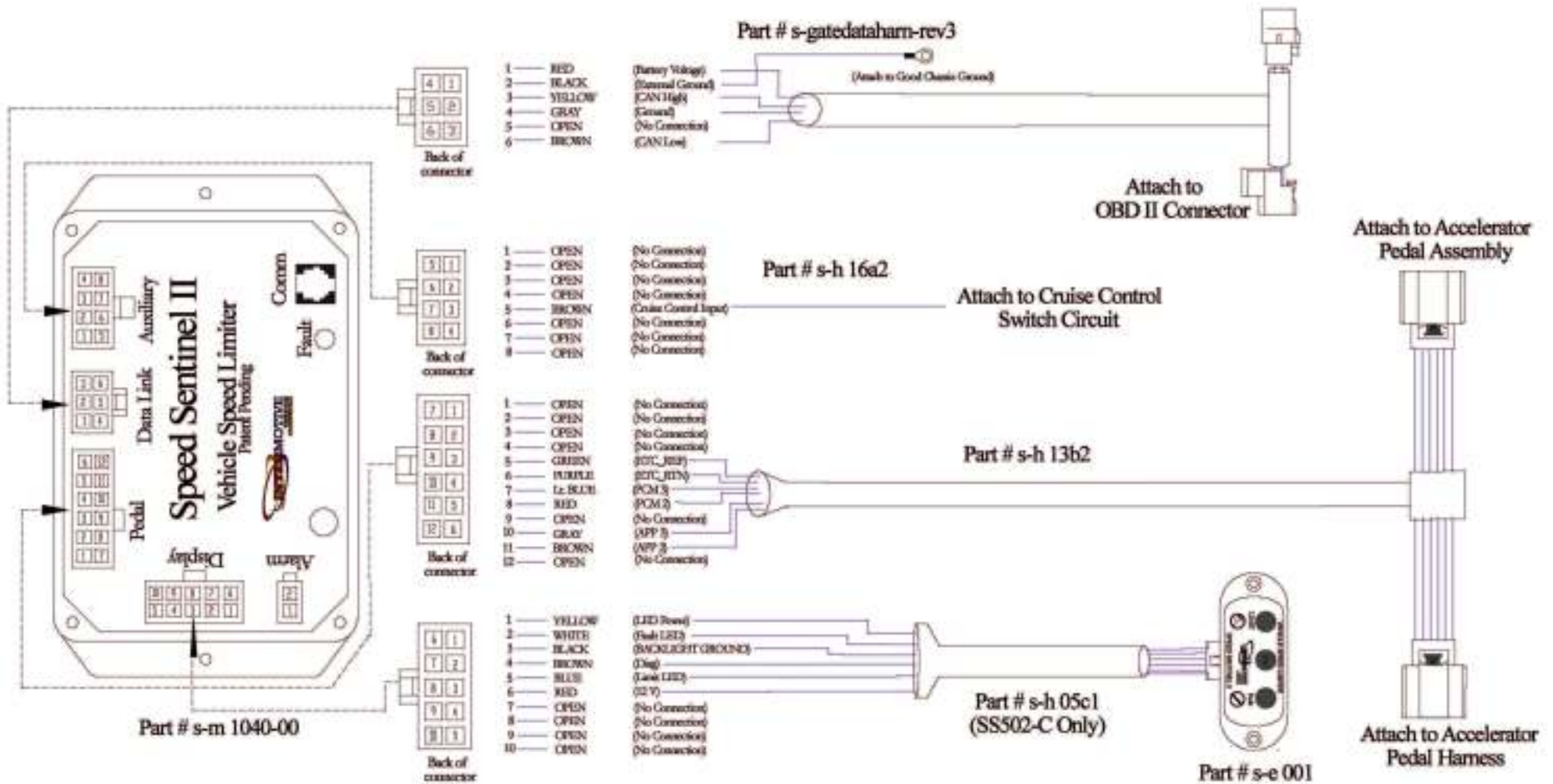


Note: The SS502-CX Does not include the LED Display Panel.

Fault Codes can be read at the module by pressing and releasing the calibration button and reading the Fault LED.

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

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



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