Speed Sentinel™ SSL502-D/DX
2011-2019 Ford E Series
2011-2016 Ford F250-F550 Series
2017-2021 Ford F250-F550 (B-SSL502-D*, B-SSL502-DX*)
2021 - 2022 Ford E Series (B-SSL502-D*, B-SSL502-DX*)
2008-2019 Ford F650-F750 Series (gas engine only)
2021 - 2022 Ford F600, F650, and F750 (B-SSL502-D*, B-SSL502-DX*)
Contact InterMotive for specific engine applications.
* Uses the Ford 24-Pin Data Link Harness

System Overview

Speed Sentinel is a programmable road speed limiter, and a micro-processor controlled unit that limits maximum vehicle speed but does not limit maximum engine output.

Speed Sentinel 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 has been designed with internal safeguards to insure the safe operation of the vehicle.

Optional Switch Controlled settings, preprogrammed by InterMotive, includes Optional Forced Engine Idle Functions—flip an operator installed switch and Speed Sentinel forces the engine to stay in idle mode as a theft deterrent.

For activation and installation instructions of the optional modes, contact InterMotive.

The SSL502-D/DX is a special variation of Speed Sentinel which is configured to a single low speed, and when engaged, will limit speed in both the forward and reverse directions.

IMPORTANT—READ BEFORE 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. Avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Avoid radio frequency energy from antennas or inverters next to the module. Avoid high voltage spikes in vehicle wiring by always using diode clamped relays when installing upfitter circuits.

Installation Instructions

Disconnect vehicle battery before proceeding with the installation.

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

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SSL502-062321-INS

Speed Sentinel Module

Remove the lower dash panel below the steering column area and find a suitable location to mount the SSL502 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 installation is to mount the module.

Accelerator Pedal Harness (Plug & Play)

1. Locate the accelerator pedal (APP)

2. Remove the OEM connector by sliding back the Red safety lock, push in the connector-locking tab and separate the connector from the pedal assembly.

3. Install the Speed Sentinel harness between the Accelerator Pedal Position sensor (APP) and the OEM APP connector.

4. Ensure the Red sliding lock is fully seated in the locked position on both connectors.

5. Route and secure the harness to prevent contact with the drivers foot.

6. Attached the 8-Pin connector from the Pedal Harness to the SSL502 module in the cavity label "Pedal".
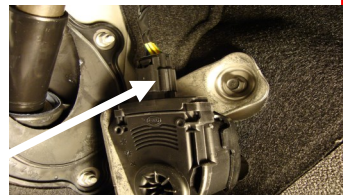
LED Display Panel

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.

1. Drill a ¾" hole in the dashboard where the center of the display will be located. Attach the 10-pin connector of the LED harness to the SSL502 Control Module in the cavity labeled "Display".

2. Run the other end of the harness under the dash and out through the ¾" hole. Plug the 6-pin connector of the display harness into the display panel. Ensure panel is level and secure using the supplied screws.

System Enable Input

Pin 7 of the J3 (Auxilliary) connector (Blue wire) is the System Enable input.

1. Connect this wire to a point which generates a +12VDC level when the SSL502 is to engage i.e. when speed limiting is required.

Setting Vehicle Speed Limit

The speed setting for the SSL502 module is set at the factory and cannot be modified in the field. Contact Intermotive if you need to make a change.

Reconnect vehicle battery

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Accelerator Pedal Calibration (required)

Prior to calibration, ensure the following:

- SSL502 pedal harness is installed
- Data Link connector is disconnected from module
- Key on, engine off

1. Hold down the Black calibration button on the module and plug in the 6 pin Data Link connector.

2. When Red fault light LED illuminates continuously, release calibration button.

3. When Red fault LED flashes off and then back on, press and hold accelerator pedal to the floor.

4. When Red fault LED goes off, calibration is complete and pedal can be released.

If the Red fault LED starts flashing, the calibration was unsuccessful. Repeat Steps 1-4.

Once calibration is complete, connect a scan tool and check for diagnostic trouble codes (DTC's). If codes are present, they must be cleared prior to delivery of vehicle.

Calibration Button   Fault LED

Module Mounting

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

Post Installation Instructions

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

1. Test drive the vehicle to verify proper SSL502 operation. With the proper input applied at J3/Pin7, the SSL502 must limit vehicle speed at the preset speed limit in both the forward and reverse direction and pass the following steps:

2. When the SSL502 engages (green display 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.

3. Ensure that the preset speed is set to the desired limit.

4. 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.

If any of these checks do not pass, recheck all connections per installation instructions.
If necessary, call InterMotive Technical Support at (530) 823-1048

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Checking Diagnostic Trouble Codes

- If the SSL502 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 SSL502 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 SSL502 has an internal programming fault, the "fault" LED will blink on/off rapidly. Call InterMotive for assistance.

Green Limit LED   Red Fault LED

Yellow "Diag" Button

Entering Diagnostic Mode

Diagnostic mode is entered by pressing and releasing the yellow "diag" button on the LED display panel or the black button on the module itself. 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:

1. Place the vehicle in Park.

2. Press the yellow "Diag" button and, at the same time, pump the service brake three times.

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

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Speed Sentinel™ SSL502-D/DX
Leave in vehicle
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2011-2016 Ford F250-F550 Series
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2021 - 2022 Ford F600, F650, and F750 (B-SSL502-D, B-SSL502-DX)

Operating Instructions

The SSL502 is a road speed limiter, which limits maximum vehicle speed to a preset limit in both the forward and reverse direction. For the speed limiting function to engage, a +12VDC voltage must be applied to PIN7 of the Auxilliary connector. If the voltage is removed, the vehicle can travel at any speed.

When SSL502 is engaged and 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 SSL502 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 SSL502 does not apply the vehicle brakes.
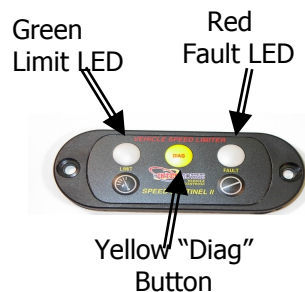
When SSL502 reaches the limited speed, the green LED (limit) on the LED Display will illuminate to show that maximum speed has been achieved. If the red LED is illuminated, a fault code is present and should be reported to the fleet manager.

Because the SSL502 limits vehicle speed at such a low value, there will potentially be some "jerkiness" when going up an incline. This is normal and cannot be totally eliminated.

When the module is limiting speed, and either a fault is detected or the service brake is pressed, the module goes into a "Forced Idle" mode where the vehicle accelerator pedal will have no effect until it is returned to its closed throttle (CT) position. This is to prevent the vehicle from lurching if the pedal happens to be pressed.

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Checking Diagnostic Trouble Codes

- If the SSL502 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 SSL502 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.

Green Limit LED   Red Fault LED

Yellow "Diag" Button

Entering Diagnostic Mode

Diagnostic mode is entered by pressing and releasing the yellow "diag" button on the LED display panel or the black button on the module itself. Once in diagnostic mode, all codes will be displayed by the blinking "fault" LED.

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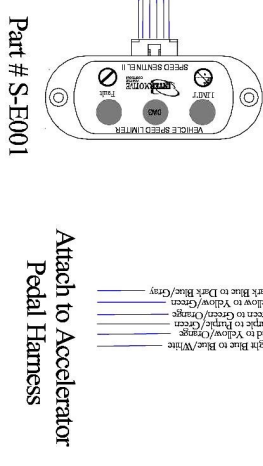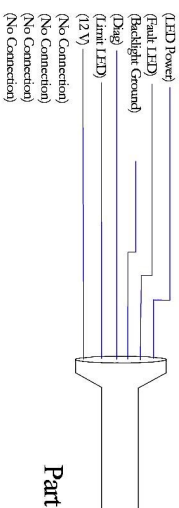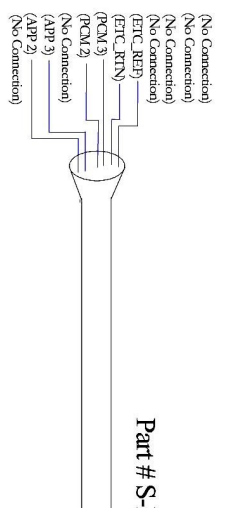
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1 - 12	1C	= 0	In Drive	Not applied
1 - 13	1D	= 0	In Drive	Applied
1 - 14	1E	= 0	Not In Drive	Not applied
1 - 15	1F	= 0	Not In Drive	Applied

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

U.S. Patent #9,469,261

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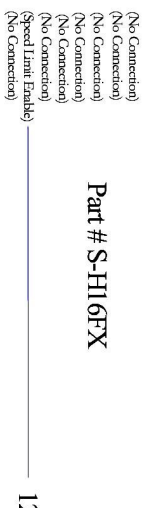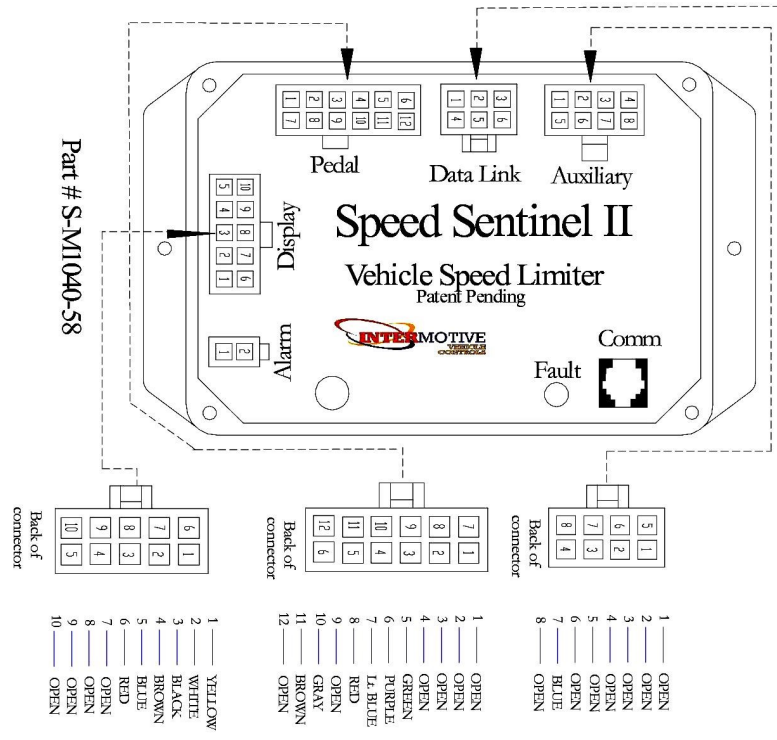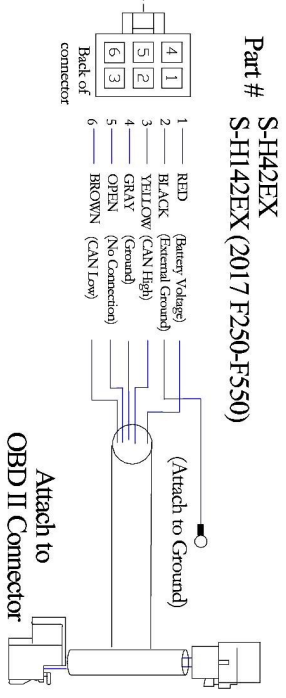
If the SSL502 fails any step in the post installation test, review the installation instructions and check all connections. If necessary, call InterMotive Technical Support at (530) 823-1048.

Speed Sentinel II

Vehicle Speed Limiter
Patent Pending

INTERMOTIVE VEHICLE CONTROLS

Pedal
Data Link
Auxiliary
Display
Alarm
Comm
Fault

Part # S-M1040-58

Part # S-H16FX

Back of connector

Pin		
1	OPEN	(No Connection)
2	OPEN	(No Connection)
3	OPEN	(No Connection)
4	OPEN	(No Connection)
5	OPEN	(No Connection)
6	OPEN	(No Connection)
7	BLUE	(Speed Limit Enable)
8	OPEN	(No Connection)

Back of connector

Pin		
1	OPEN	(No Connection)
2	OPEN	(No Connection)
3	OPEN	(No Connection)
4	OPEN	(No Connection)
5	GREEN	(ETC_REF)
6	PURPLE	(ETC_RTN)
7	L. BLUE	(PCM 3)
8	RED	(PCM 2)
9	GRAY	(APP 3)
10	BROWN	(APP 2)
11	OPEN	(No Connection)
12	OPEN	(No Connection)

Back of connector

Pin		
1	YELLOW	(LED Power)
2	WHITE	(Fault LED)
3	BLACK	(Backlight Ground)
4	BROWN	(Diag)
5	BLUE	(Limit LED)
6	RED	(12V)
7	OPEN	(No Connection)
8	OPEN	(No Connection)
9	OPEN	(No Connection)
10	OPEN	(No Connection)

12V Input

Part # S-H13BX

Part # S-H05C1

Part # S-E001

SPEED SENTINEL II
VEHICLE SPEED LIMITER
Fault Diag Limit

Part #
S-H42EX
S-H142EX (2017 F250-F550)

Back of connector

Pin		
1	RED	(Battery Voltage)
2	BLACK	(External Ground)
3	YELLOW	(CAN High)
4	GRAY	(Ground)
5	OPEN	(No Connection)
6	BROWN	(CAN Low)

(Attach to Ground)

Attach to OBD II Connector

Attach to Accelerator Pedal Assembly

Attach to Accelerator Pedal Harness

Light Blue to Blue/White
Red to Yellow/Orange
Purple to Green/Orange
Yellow to Purple/Green
Dark Blue to Dark Blue/Gray