

AFIS422VSX-B
(Advanced Fast Idle System)
2009-2012 Ford E-Series and Chevrolet Express/Savanna
2009-2010 Ford F-Series
Transit Application
Contact InterMotive Inc. for available engines

System Operation

The Advanced Fast Idle System (AFIS) elevates engine idle speed in response to a number of triggers in order to assist electrical or mechanical systems on the vehicle.

Installation Instructions

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



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

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.

- Remove the lower dash panel below the steering column area and find a suitable location to mount the AFIS module. Locate the module in an area away from any heat sources. High temperatures can typically be caused by engine heat or hot air from heater ducts. Do not actually mount the module until all wire harnesses are routed and secure (last step of the installation is to mount the module).

Data Link Harness (4-Pin Connector)

- Locate the vehicle's OBDII Data Link Connector which is mounted below the lower left dash panel. Plug the Red connector from the AFIS Data Link Harness into the vehicle OBDII connector. Ensure the connection is fully seated and secured with the supplied wire tie.
- Secure the AFIS Data Link harness so that it does not hang below the lower dash and plug the (4-pin connector) from the Data Link Harness into the 4-Pin connector on the AFIS module.



AFIS Harness (8-Pin Connector)

Fast Idle Engage Input, *Green wire*

- Attach the AFIS Harness connector Pin #8 Green wire to any equipment that provides a ground signal when the fast idle needs to be engaged. (PTO, pump, etc....)

Note: The Green wire can also be connected to equipment providing a 12V signal, if programmed. See below for programming instructions.



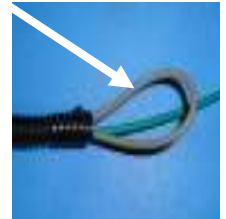
VBAT Low Fast Idle Trigger Disable, *Black wire loop*

- The system is configured from the factory for Fast Idle to be triggered when the battery voltage (VBAT) drops below 12.5V. If the VBAT Low Fast Idle Trigger is not desired, it may be disabled by cutting the Black wire (loop) on the 8-Pin connector between Pin #1 & Pin #3.



Configurable Idle Speed *Gray wire*

- The AFIS422VSX-B allows the user to change the fast idle RPM during installation. The default speed is 1500 RPM, but the user can select any speed between 900 RPM and 2000 RPM in 50 RPM increments.
- To change the idle speed, locate the Gray wire in the harness which connects to the 8 pin Molex connector. Pull this wire out of the loom to expose the bare copper end. Place the vehicle in Fast Idle by grounding the Manual Trigger Green wire. With the engine in Fast Idle, momentarily grounding the Gray wire (RPM Configuration input) increases the idle speed by 50 RPM. When the idle speed reaches the maximum allowable speed for the particular engine, it will roll back around to 900 RPM. Wherever the user stops, this RPM becomes the new default Fast Idle speed, even through key cycles.
- After the vehicle is set to the desired fast idle speed, insert the end of the Gray wire into the harness tubing and use tape to secure.



Park Brake Fast Idle Trigger Enable/Disable

The AFIS422VSX-B is configured from the factory for Fast Idle **not** to be triggered when the Park Brake is applied. If the Park Brake Fast Idle trigger is desired, it may be enabled (or disabled) by the following procedure: With key on, place the transmission in neutral, apply the Park Brake and press the Service Brake three times within 5 seconds. Upon successful reprogramming, the on-board LEDs will briefly flash as a confirmation. The user must cycle the key for the change to take affect.

A/C Fast Idle Trigger

The system is configured from the factory for Fast Idle to be triggered when the A/C clutch is engaged and will stay engaged until the next key cycle, or a precondition is violated.

Fast Idle Pin-8 Trigger, Active: Ground or 12V signal Enable/Disable

The module is configured from the factory for an active ground fast idle trigger. To change this to an active 12V trigger, turn the key on, place the transmission in neutral, apply the Service Brake, pull out on the Park Brake release and apply the Park Brake four times within 5 seconds. Upon successful reprogramming, the LEDs will flash as a confirmation. The user must cycle the key for the change to take affect. Repeat to reverse back to a ground trigger.

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Understanding Fast Idle Operation:

Fast Idle may be initiated by either a manual trigger (Green wire being grounded), a low battery voltage (low VBAT) condition, the A/C clutch engaging, or if enabled, by setting the Park Brake.

Fast Idle will only occur when the required preconditions are met, as listed below. Fast Idle operation will be terminated by a loss of **any** of the preconditions, or removal of the trigger(s).

Fast Idle Triggers		
Trigger Name	Trigger Conditions	Disable Conditions
Manual Engage	Fast Idle Engage Green wire grounded Or 12V input enabled (based on setting)	Fast Idle Engage Green wire not grounded Or not 12V (based on setting)
VBAT Low	VBAT < 12.5V	Precondition Violation
Parking Brake	Parking Brake applied	Parking Brake Released
A/C Boost	A/C Clutch (engaged)	Precondition Violation

Fast Idle Preconditions

All of the following preconditions must be met prior to initiating Fast Idle operation.

- Vehicle speed zero
- Transmission in Park
- Accelerator pedal must not be applied
- Engine Coolant temperature must be less than 230°F
- Engine RPM must be greater than 200 and less than 2800.
- Service Brake not applied

Factory Options - The following are configurable at the factory for OEM customers. The default values are shown.

AFIS422VSX-B

Idle RPM: 1500

VBAT Low: 12.5V

A/C Trigger: Enabled

Parking Brake Trigger: Disabled

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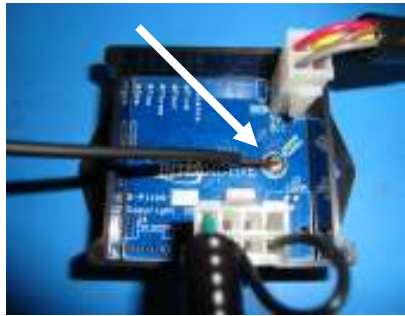
Post Installation System Operation Test

Perform the following tests before actually mounting the module, to allow easy viewing of the diagnostic LED's, if needed.

- Place transmission in Park and start the engine.
- Vehicle may enter Fast Idle if VBAT is low. You can wait to see if the battery charges and Fast Idle stops, or place a charger on the vehicle to disable the VBAT low trigger to allow testing of other triggers.
- Manually engage Fast Idle by having aftermarket vehicle equipment ground the Green wire. Engine speed should increase to the set RPM level. If this does not occur, check harness connections. Also see diagnostics below.
- Assuming Fast Idle engaged, keep the Green wire grounded, and depress the Service Brake for 1 second. Fast idle will temporarily disengage anytime the Service Brake is depressed, but will automatically reengage after approximately 2 seconds once the Brake pedal is released.
- Place transmission shift lever in the "Neutral" position. (Green wire still grounded). The system must not activate Fast Idle.
- The AFIS422VSX-B is properly installed only if it passes all of the above steps.

Diagnostics

Diagnostic mode is entered by momentarily grounding the mounting pad labeled "Test" on the module. This can be done with a simple jumper wire by holding one end to chassis ground, while touching the other end to the "Test" pad. The module provides diagnostic LEDs which illuminate according to the following table. To exit this mode simply cycle the key or momentarily ground the "Test" pad again.



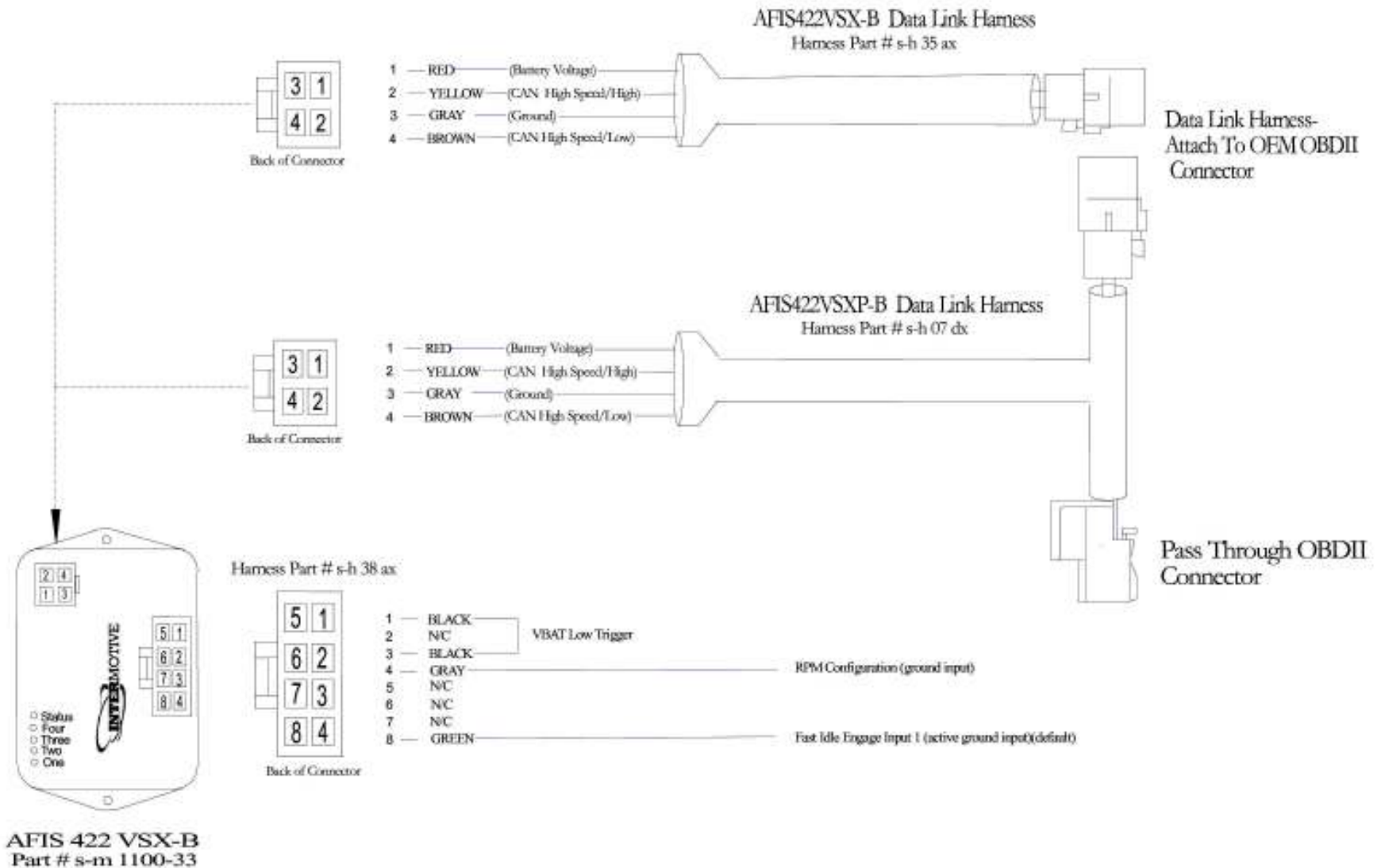
LED #	Diagnostic Mode LED Descriptions
1	On when fast idle is engaged
2	On when Green trigger wire is active
3	On when Gray RPM set wire is grounded
4	On when the Parking Brake is applied with the parking brake trigger enabled
STATUS	Continuously flashes two digit status codes. See Status Code table

Fast Idle Status Codes

Status Codes provide the current status of the Fast Idle system. The on-board "Status" LED will flash a 2-digit code as shown in the table. The first digit will flash, wait half a second, flash the second digit, then wait one second before the next code. The Status Codes continue to flash until the module is reset (cycle key), or the test input is momentarily grounded again.

AFIS Status Codes	
Status Code	Description
1-1	Ready for fast idle
2-3	Triggered: Parking Brake
2-4	Triggered: VBAT Low
2-5	Triggered: A/C Boost
2-8	Triggered: Manual Input
3-1	RPM > 2800
3-2	RPM < 200
3-3	TR not = to PARK
3-4	VSS not = to 0 MPH
3-5	Service Brake applied
3-7	Unsafe; Need to cycle TR
3-8	ECT > 230°F

Mount the module - With the harnessing and operational testing complete, you can now mount the module permanently. For this you can use two-sided tape or screws. Reinstall the lower dash panel.



Submit product registration at www.intermotive.net

If the AFIS422VSX-B 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.

AFIS422VSX-B-01 CAD