Dynetics
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Wireless Vehicle **Communications** Interface (W-VCI)

Small, ruggedized platform for interfacing with the latest generation of vehicles

Product features

Vehicle communications

- High-speed CAN (500 kbps)
- Medium-speed CAN (125 to 500 kbps)
- Fault-tolerant CAN
- ISO-9141
- ISO 14229/GGDS-compliant (auto detecting)

Embedded applications

- TPM programming
- Key-fob TIC programming
- Fuel priming
- Pass-through support for diagnostics and flash programming
- Code check / code clear
- Steering column lock
- Electronic anti-theft system configuration
- Fuel-fired heater prime
- Module programming
- Data logger

Electrical

- Input Power: 7 to 18 Vdc @ < 500 mA
- Operational temperature: -40 to +85 °C
- IEEE 802.11 a/b/g/n DSSS, WiFi-compliant
- IEEE 802.11 i encryption: AES-LLMP and TKIP encryption
- WPA2-Enterprise (EAP, PEAP, LEAP), WPA2-PSK, WPA-PSK 64/128-bit WEP

Mechanical

- Weight: <6 ounces
- Field replaceable test head

The Dynetics Wireless Vehicle Communications Interface (W-VCI) is a rugged, lightweight, portable tool providing a WiFi interface to a variety of automotive communication protocols via the SAE J1962 connector. The W-VCI is utilized as an engineering, manufacturing, or service-level test and programming tool both as a component in a test system, or autonomously. In autonomous mode, a simple "red-yellow-green" LED interface conveys application status and results to the operator. The tool is easily configured via the USB or WiFi interfaces.

Support for embedded software applications, coupled with the size and weight of this device, makes it an excellent choice for standalone use, and its robust feature set facilitates easy integration with other system components.

ECU calibration programming

Problem: High amount of spark plug fouling due to cold engine start.

Solution: DIVIT invokes an alternate PCM calibration that maintains a higher idle RPM to ensure a higher cylinder temperature, alleviating spark plug fouling.

Fuel prime

Problem: Large amounts of air in fuel lines between engine and fuel tank prevent the engine from starting and running smoothly when starting the first time.

Solution: DIVIT turns on fuel pump prior to the first start to drive fuel from the fuel tanks as far forward in the fuel line as possible to significantly reduce engine crank time; DIVIT can be configured to detect the type of engine it is priming and perform a different priming strategy based on that engine type.

Fuel-fired heater prime

Problem: To test the heater, fuel must be in the fuel line at the heater location, which may be on the return side of the fuel line.

Solution: DIVIT turns on the fuel pump to bring fuel from the fuel tank, through the engine fuel rail, and along the return line to the fuel-fired heater.

Steering column lock

Problem: Electronic steering column lock feature needs to be engaged before vehicle reaches end of final line where assembly plant configuration tools are normally located.

Solution: DIVIT enables steering column lock feature, allowing assembly plant to move that operation to its applicable process location without a capital investment in fixed tooling.

Multiple message table

Problem: Heated windshield feature on some new vehicles requires that the engine be running before the feature can be tested; there are few places in the assembly process where this feature can be tested with the engine running.

Solution: DIVIT mimics the engine RPM message being broadcast by the onboard computer to temporarily fool the computer controlling the heated windshield feature, allowing it to be tested and verified without starting the vehicle; feature allows for the same message to be sent out on a programmable periodic basis to turn on other features (rear defrost, electric fan, heated windshield) that are blocked by the lack of an engine RPM message.

Electronic anti-theft system configuration

Problem: Electronic anti-theft systems require that the instrument cluster be correctly configured before the vehicle can be started with both keys.

Solution: DIVIT can turn the electronic anti-theft system feature on or off before the vehicle is started for the first time; function can be performed while the DIVIT is used to prime fuel.

Code check

Problem: Diagnostic trouble codes (DTCs) generated after a vehicle leaves the plant may be due to partially connected connectors becoming fully disconnected after the vehicles are driven across the "rough road" course or "rumble strips."

Solution: DIVIT gives a simple PASS/FAIL indication of whether the modules the DIVIT queries have any DTCs; DIVIT is used prior to the vehicle being loaded on carriers to identify vehicles that slip through the in-plant code-check station.

Code clear

Problem: Vehicle modules generate DTCs as the vehicle is powered on and off during the assembly process or after repair, causing the vehicles to fail EOL or code-check applications.

Solution: DIVIT checks and clears codes from a number of modules prior to entering the in-process check stations to prevent false failures.

Fuel evac

Problem: Fuel lines and tanks need to be drained at service centers.

Solution: DIVIT runs the fuel pump continuously with the evac valve open; the tool is programmed to restart the pump at each timeout until disconnected.

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