

Sinister Performance presents:

GM OBD1 OBD1.5 & OBD2



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- Every different car manufacturer had their own unique data communications protocols which made it impossible to offer a standard scan tool that could work with them all.
- Even very early Cadillacs (late 70's to early 80's) used a German-made Bosch ECU despite being an American car. Diagnosing problems with these early systems was difficult.

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- WinALDL, TunerPro & DATACAT are some Windows/PC software scanning applications that work with these early ECMs.



WinALDL - 1227170

160 Baud ALDL Reader Ver 1.09f
Written by Jonas Bylund joby.teknik@telia.com

Configuration Datalogger Dash EXIT

RAW Data | Flag Data | Sensor Data | Error codes | BLM | INT | O2

Sample	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13
MW2														
PROMIDA														
PROMIDB														
IAC														
CT														
MPH														
MAP														
RPM														
TPS														
INT														
O2														
MALFFLG1														
MALFFLG2														
MALFFLG3														
MWAF1														
MCU1I0														
MCU2I0														
VOLT														
BLM														
O2_CNT														
ADVANCE														

Configuration

ECM Type 1227170 EXIT

US Metric

TPS Voltage for 0% 0.54 0.54 0.00 - 2.00 (default = 0.54)

TPS Voltage for 100% 4.60 4.60 2.01 - 5.00 (default = 4.60)

RPM range for 'Narrow' 80 80 (default = 80)

MAP range for 'Narrow' 2.00 2.00 (default = 2.00)

COM Port COM1 (default = COM1) Ok

Baud 2400 2400, 4800 (default = 2400)

Dash display

EXIT

0	0	
speed	RPM	
0.0	0.0	0.000
kpa	tps	O2

LOG Data

RAW Data Flag Data EXIT

Sensor Data Error codes

START

8192 Baud GM EFI ECMs & PCMs





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- A few more hand-held scanners and PC scanning software programs support these ECMs vs. the older stuff.

Vehicle Setup

Vehicle Comm

COM1

Comm Status

CLOSED

Record Vehicle Data

Vehicle Selection

1988

C/K LD Truck

L05 5.7L

ECM Data

TCM Data

Data Recording File

Select Recording File...

Playback Vehicle Data

Select Playback File ...

View Playback Comments ...

Recent Files:

- 91 K5 with o2.dcf
- 402.dcf
- sept5.dcf
- jan14.dcf
- sinister.dcf
- jan6withheated02.dcf
- 91 K5 30sec idle.dcf

Get Vehicle Data

Data Analysis and Export

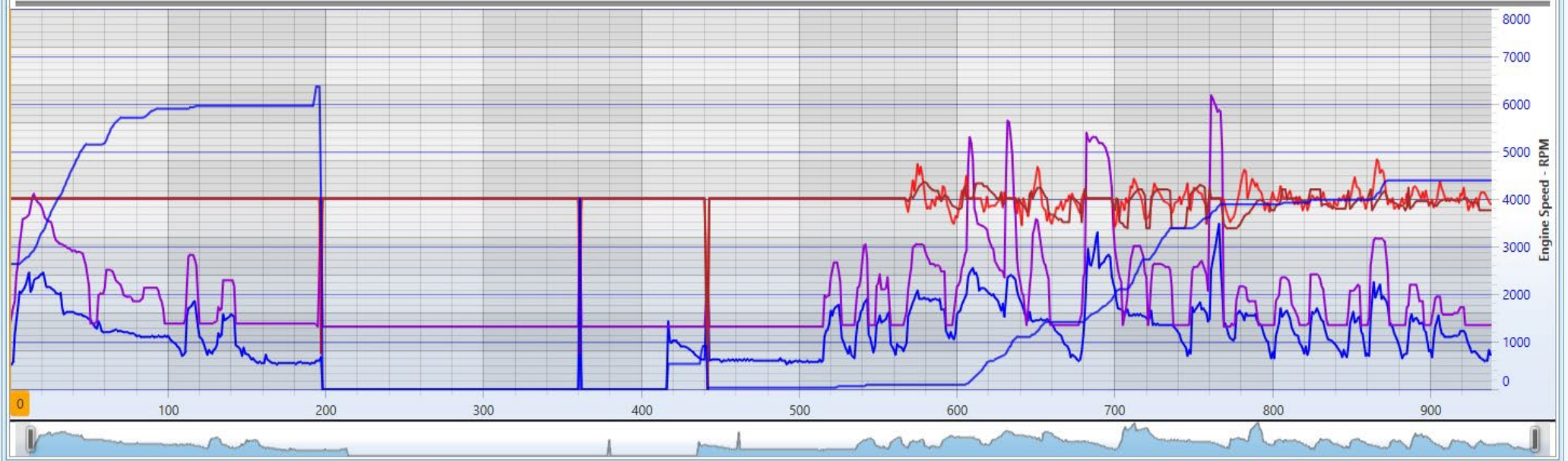
Help and Setup

Help ...

Engine Data | Trans Data | Bus Monitor | Debug Messages

Rate: 4 | Frame: 0 | **Start** | Monitor | Record | Playback | Show Chart Navigator | Link ECM + TCM Frames | Data Collection Enabled | Data FPS: ---- | Bus Sync: CLOSED

Engine Speed - RPM 500	Vehicle Speed - MPH 0.0	BLM Long Term - Cnt 128	IAC Position - Cnt 15	Idling (Low TPS and Low Veh) Yes
TPS VPCT - Volts 0.863	BLM Short Term - Cnt 128	Knock Count 8 - Cnt 84	Ignition Volts - Volts 13.8	TCC Locked - Bit No
MAP Sensor - kPa 50.2	Engine Cool Temp - Deg C 91	O2 Volts - mV 453	BLM Learn Enabled - Bit No	



ECM DTCS & BITS
TCM DTCS & BITS

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- Introduced in 1994 model years for some GM vehicles like the Corvette and a few others, it gave birth to catalyst monitoring and the “P” code.
- Still communicated with a scanner using the 8192 baud speed “UART” GM standard, like previous generation OBD1 computers.

TunerPro RT

File XDF View Compare Acquisition Tools Window Help

ash

Default View Imported Dash

1.06 Throttle Position	192.20 Coolant Temp F	42.89 Spark Adv Rel. to TDC
89.00 Coolant Temp c		
192.20 Coolant Temp F		
2275 Engine Speed		
48.61 MAP 2 Bar		
13.20 Battery Voltage		
41.54 Manifold Air Temperature C		
106.77 Manifold Air Temperature F		
12.90 Voltage At Fuel Pump		
101.75 Startup Coolant Temp C		
215.15 Startup Coolant Temp F		
49 NV Ratio		
53 Engine Air Flow		
45 Vehicle Speed		
2.34 Baro. Pressure A/D		
216 Engine Running Time		
14.70 Target AFR		
517.69 Oxygen Sensor		
76 O2 Cross Counts		
119 Integrator (INT)		
120 Block Learn (BLM)		
01 Block Learn Cell		
2.15 Injector Final Pulse Width		
762 Desired Idle Speed		
71 IAC Motor Position		
00 Turbo Waste Gate DC		
42.89 Spark Adv Rel. to TDC		
16.88 Spark Advance		
8789.76 Time Between Ref Pulses		
10 Knock Count		
0.00 Knock Retard		
1.02 MAP Load Variable		
0.00 Charcoal Canister Duty Cycle		
-270.00 Cat. Conv. Temp		
0 Engine Running		

Throttle Position: 1.06 Volts

Coolant Temp F: 192.20 Deg F

Spark Adv Rel. to TDC: 42.89 Degrees

Engine Speed: 2275 RPM

MAP 2 Bar: 48.61 kpa

Vehicle Speed: 45 MPH

Not Emulating Hardware Not Found DA: Not Connected

OBD2 (On-Board Diagnostics Generation 2)





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- GM introduced the Class 2 communications system (single wire, like the older OBD1 “UART”, but faster: 10.4 Kbps with a different signal structure). UART was still used as a secondary communications line in some vehicles for a few years before eventually being deleted entirely.



OBD2 (On-Board Diagnostics Generation 2)

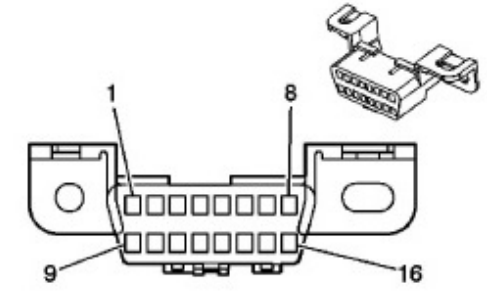
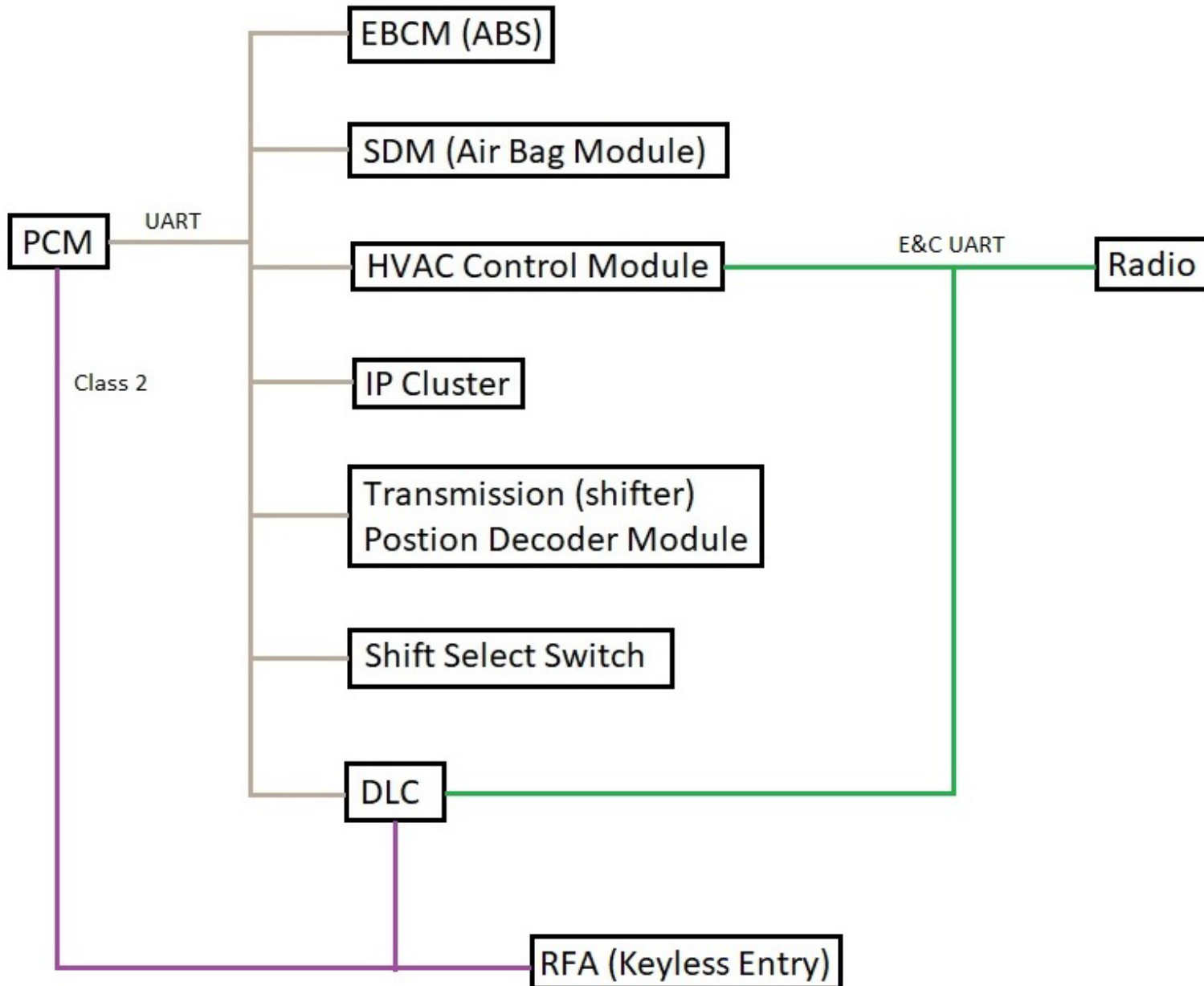
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- Misfire detection becomes universal so the driver can be alerted to operating conditions that could damage the catalyst.

OBD2 (On-Board Diagnostics Generation 2)

- An OBD2 compliant vehicle can use any of the five communication protocols: SAE J1850 PWM, SAE J1850 VPW, ISO9141-2, ISO14230-4 (KWP2000) and **ISO 15765-4/SAE J2480** (CAN-BUS, since 2003).
- GM uses SAE J1850 VPW (Class 2)
- FORD uses SAE J1850 PWM
- European manufacturers use ISO9141-2 (2000-2004)
- ISO14230-4 (KWP2000) 2003+ vehicles using ISO9141 K-Line
- **ISO15765-4 (CAN-BUS)** mandatory for all 2008+ vehicles sold in the US
- Many variants of **ISO15765** exist. They differ only in identifier length and bus speed:
 - ISO 15765-4 CAN (11 bit ID,500 Kbaud)
 - ISO 15765-4 CAN (29 bit ID,500 Kbaud)
 - ISO 15765-4 CAN (11 bit ID,250 Kbaud)
 - ISO 15765-4 CAN (29 bit ID,250 Kbaud)
 - GM uses ISO 15765-2? Global-A & Global-B? I found conflicting info online.

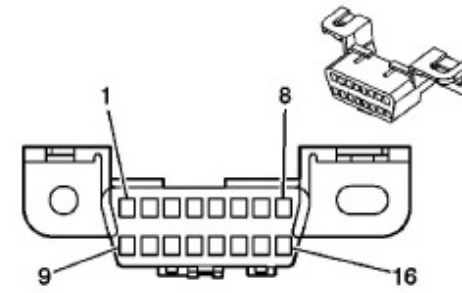
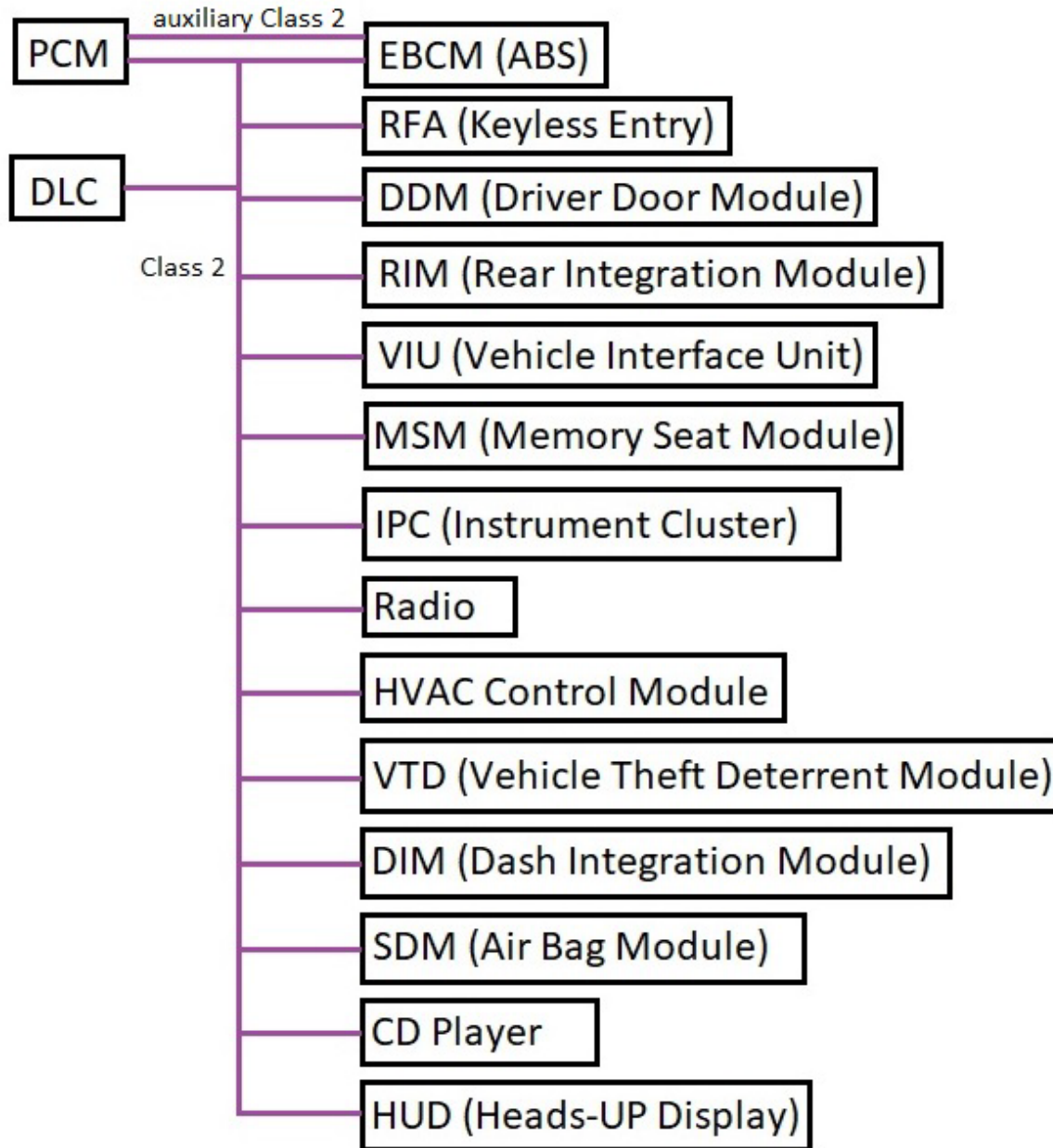
Almost every car uses also vendor-specific diagnostic protocols such as KWP2000, KW1281, VWTP, KW72, KW82, which are used for "native" diagnostics.

1998 Pontiac / Oldsmobile H-Body



- Pin 2 - Class 2 Data
- Pin 4 - Ground
- Pin 5 - PCM Ground
- Pin 9 - UART Serial Data
- Pin 14 - Entertainment & Comfort Serial Data
- Pin 16 - B+ 12v

2000 Pontiac H-Body



- 2 - Class 2 Data
- 4 - Ground
- 5 - PCM Ground
- 16 - B+ 12v

OBD2 and Emissions Diagnostics





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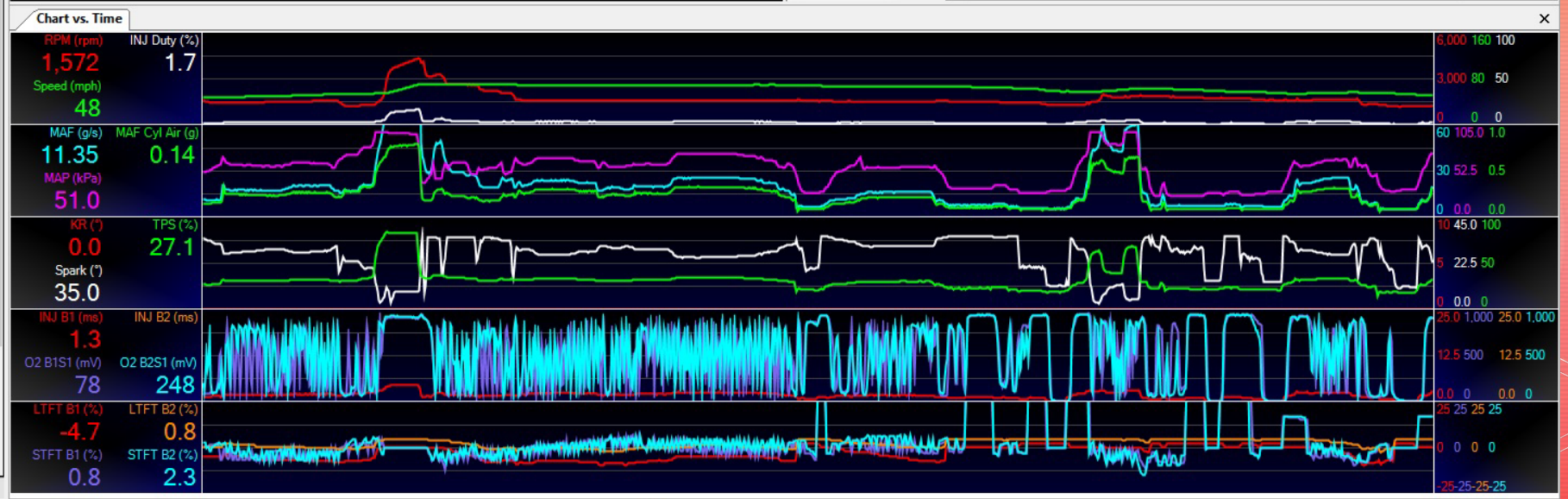
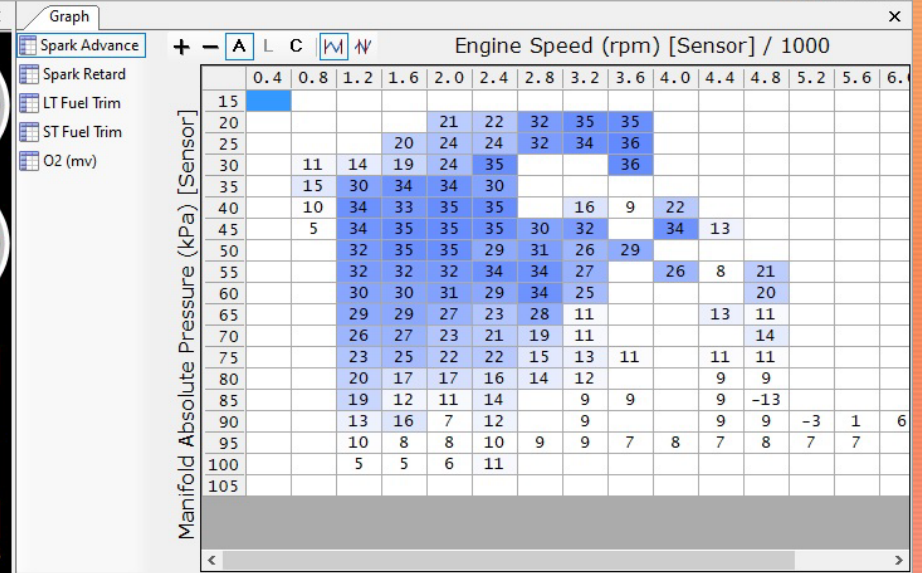
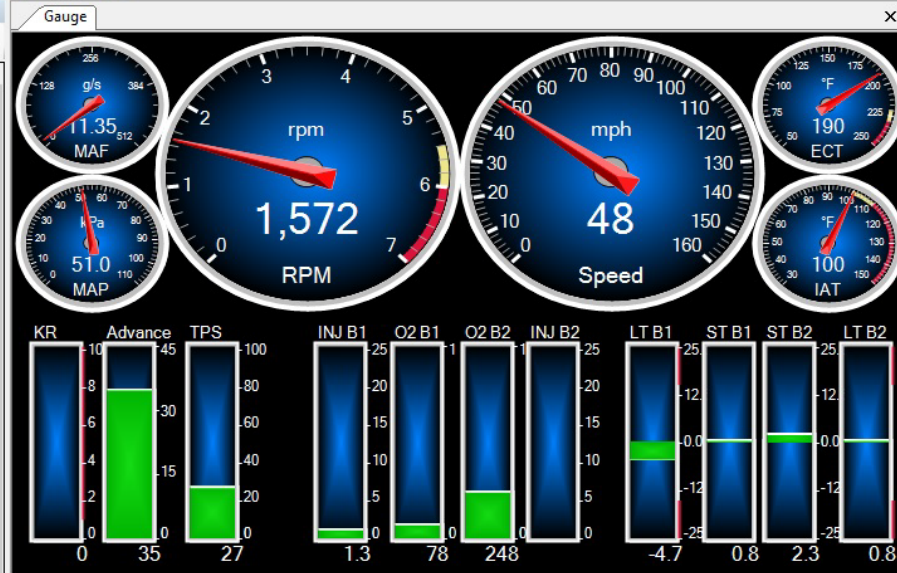
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- Each few years sees new development and introduction of more diagnostic tests run by the PCM.
- The OBD2 communications standard opens the door for aftermarket options to the end user (car owner).

Channels:

Name	Value
Engine RPM (SAE)	1,572 rpm
Trans shift Mode	Normal
Trans current Gear	7
Monitor Status: Oxygen Sensor (SAE)	Incomplete
O2 voltage B1S1 (SAE)	0.078 V
O2 voltage B2S1 (SAE)	0.248 V
Catalyst Temp B1S1 (SAE)	1,539 °F
Monitor Status: Oxygen Sensor (SAE)	Not Enabled
Number of Emission Related DTC (SAE)	0
Vehicle Speed (SAE)	48 mph
Engine Coolant Temp (SAE)	88 °C
Intake Air Temp (SAE)	38 °C
Timing Advance (SAE)	35.0 °
Knock Retard	0.0 °
Intake Manifold Absolute Pressure (SAE)	51 kPa
Throttle Position (SAE)	27.1 %
Commanded Throttle Actuator (SAE)	22.4 %
Equivalence Ratio Commanded (SAE)	1.000 λ
Ethanol Fuel % (SAE)	9.8 %
Cylinder Airmass	0.14 g
Mass Airflow Sensor	3,370 Hz
Fuel System #1 Status (SAE)	CL - Normal
Short Term Fuel Trim Bank 1 (SAE)	0.8 %
Long Term Fuel Trim Bank 1 (SAE)	-4.7 %
Short Term Fuel Trim Bank 2 (SAE)	2.3 %
Long Term Fuel Trim Bank 2 (SAE)	0.8 %
Maximum Engine Torque	177 lb·ft
Engine Torque	32 lb·ft
Predicted Axle Torque Cmd	58 lb·ft
Actual Axle Torque	54 lb·ft
Predicted Engine Torque Cmd	30 lb·ft
Mass Airflow (SAE)	11.4 g/s
Predicted Engine Torque Source	Axle
Driver Pedal Axle Torque Req	106 lb·ft
Driver Final Axle Torque Req	59 lb·ft
Fuel Pressure (SAE)	56.1 psi
Fuel Rail Pressure (SAE)	598 psi
Injector Pulse Width Avg. Bank 1	1.3 ms
Injector Flow Rate	50.34 lb/h
Throttle control Source	Torque





AeroForce Technology, Inc.

Interceptor OBD2 Single Gauge Pontiac Grand Prix 3.8L 2008

\$249.00

DISPLAY COLOR (REVERSIBLE)

White

FACE COLOR

White

BEZEL COLOR

Black with Polished Silver Center Ring

QUANTITY

- 1 +

Monitor your critical vehicle sensors and data on a compact 2 - 1/16" gauge for countless mounting options using our selection of pods or 3rd party pods.

Includes 6' cable and many hardware configurations to customize the appearance. Simply plugs in the OBD2 port for most application and installs in minutes.

Provides real time data from the factory sensors and vehicle systems by simply plugging the included 6' cable into the OBD2 port on your 1996 or newer OBD2 compliant vehicle.

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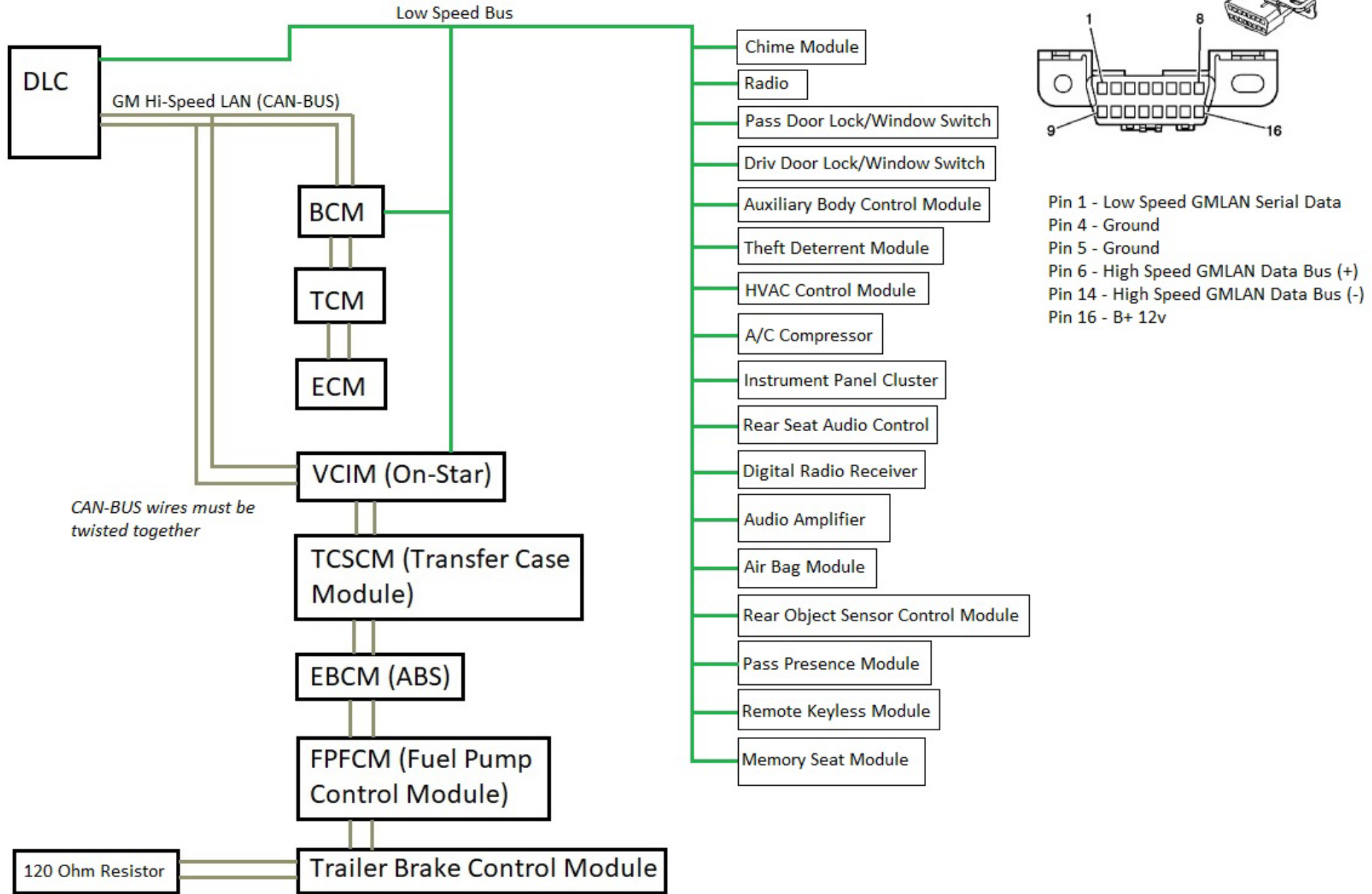
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- Modules that need real-time communications are attached to the high speed network.
- Lower speed networks (such as Class 2) are still present and used in many vehicles.
- In vehicles that are equipped with multiple different speed networks, a module is designated as the “gateway” module to bridge communications across all networks. The ECM or BCM is generally designated as the gateway module, depending on the application.

2009 Silverado



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- But the aftermarket has a solution: CAN-BUS Adapters!
- CAN-BUS adapter modules make it possible to link the data communications between incompatible modules or even aftermarket equipment!



Not Yet Rated | Write the First Review

Lingenfelter GMLAN CAN to Analog Gauge & Relay Output Module

CAN2-002

Part Number: L460260704

\$289.95

Product Availability: [Call Sales @260-724-2552](tel:260-724-2552)

PRODUCT DETAILS

With Frequency Based Outputs for Tachometer & Speedometer Control

Most 2006 and newer GM vehicles that are equipped with GMLAN

- 2010-2019 Camaro
- 2005-2013 C6 Corvette
- 2014-2019 C7 Corvette
- 2009-2019 CTS-V
- 2007-2019 Silverado, Sierra, Suburban, Yukon and Tahoe
- GMPP crate engines
- Heavy trucks, buses and marine engines equipped with SAE J1939
- Other CAN equipped vehicles if the user is familiar with the application's CAN messages

The CAN2-002 module converts vehicle CAN data, including GMLAN and J1939 data, to analog outputs and is capable of providing up to 4 outputs per module and multiple modules can be used on the same vehicle. The module allows you to control gauges and other devices without having to duplicate sensors already installed on the vehicle. These outputs can be used to control analog gauges or - via relays - fans, warning lights, reverse lights, or other devices looking for an analog activation signals.

Features:

- Four outputs
- Can control most analog OEM and aftermarket electronic gauges including temperature, pressure, tachometer & speedometer
- Provides programmable relay activation output
- Relay outputs can control a low oil pressure warning light, fan, or other device based on a combination of multiple engine/vehicle parameters. One example is you could turn fans on when coolant temperature is above 190 degrees and speed is below 50 mph.
- Send most ECM sensor data to your engine dynamometer data acquisition system
- Multiple units can be used at once for additional outputs
- Software includes a database of common GMLAN and J1939 messages
- Software also allows users with knowledge of CAN information to configure almost any CAN message as an output



CAN Conversion Module for Stock Mazda Gauges

\$550.00



Engine

Model

1

Add to cart

PayPal CREDIT No Interest if paid in full in 6 months.
[Learn more](#)

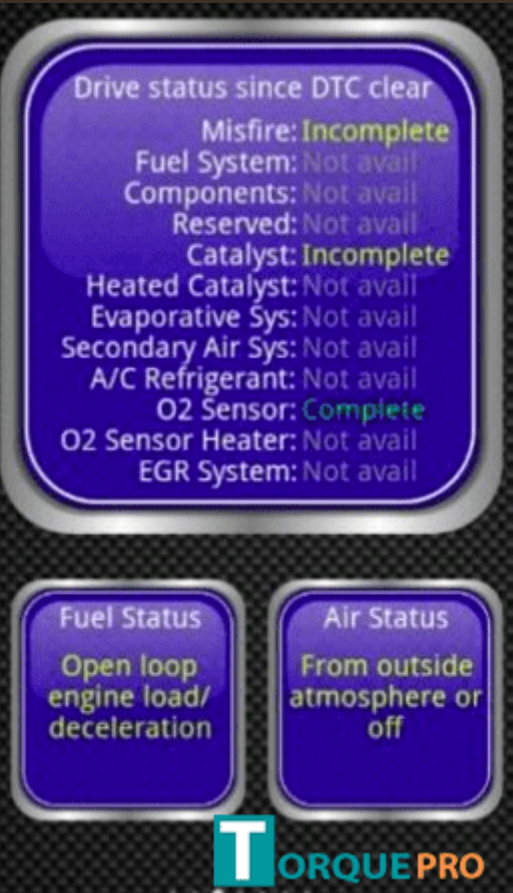
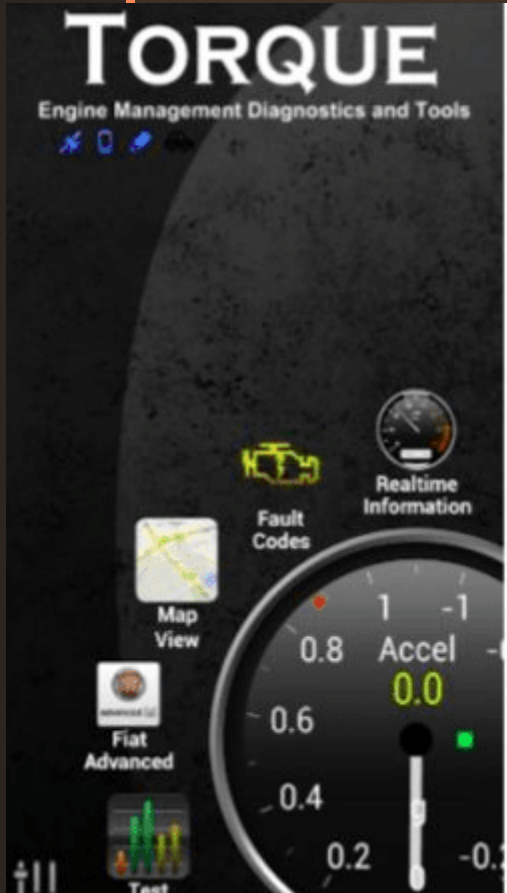
SKU: V8R-231 Categories: [Engine Conversions](#), [LFX Miata Swap Kits](#), [Miata LSx Swap Kits](#), [MX5 Race Parts](#), [NA/B](#), [NA/B](#), [NC](#), [NC](#), [Performance](#), [RX8](#), [RX8](#)

Description

Additional information

Description

A magic little box that controls the CAN gateway between the GM ECU and the Mazda dash for Mazda MX-5 NB, NC, ND and RX8 models. Simple to install and simple to program, the system can be updated at any time with the latest firmware, custom tables tuned per-car, and lights disabled if required. The module is currently available for both LSx and LFX conversions using the later model 58x reluctor ring. While many of the systems can be controlled some are still a work in progress such as the ABS, traction control, and cruise. Cruise can be installed via various aftermarket options that install on the column or at the pedal.



Torque & Torque Pro Android Apps

ELM327 OBD2 Bluetooth Interface



- DATACAT – www.tunercat.com
- TunerPro / TunerPro RT – www.tunerpro.net
- WinALDL – www.winaldl.joby.se
- Interceptor Scan Gauge – www.aeroforcetech.com
- Lingenfelter CAN-BUS Module – www.lingenfelter.com
- OTC Monitor 4000e (OBD1) ~\$200 used
- OTC Monitor 4000 Enhanced (OBD1 & OBD2 Class 2) ~\$250-350 used ebay
- OTC Enhanced Monitor (OBD1 & OBD2 Class 2) ~\$250-350 used ebay
- OTC Genisys EVO (OBD2 Class 2 & CAN-BUS) ~\$300+ used ebay
- OTC manufactured scan tools for MAC, MATCO and Cornwell
- Modern CAN-BUS compatible scan tools typically have the software pre-loaded into the hand-held unit (no interchangeable cartridges). Updates to this software typically require expensive subscriptions; check before buying.