

ELECTROMOTIVE

ENGINE CONTROLS



*Superior Ignition and
Engine Management Systems*

**'Total Engine Control' Systems
and Components Catalog**

About Electromotive

Electromotive was formed in 1981 to advance the use of digital electronics for engine control systems. Pioneering work with advanced digital ignition circuitry led to the creation of the High Resolution Electronic Ignition Control system, which was patented in 1985*. In 1987, Electromotive combined a new fuel injection system with the highly successful ignition system, creating the most progressive engine management products available. Now the next generation of products including the TEC³ and HPX continue to break new ground with innovative design and ideas. Electromotive's technology offers unmatched performance and flexibility.

*patent number RE. 34, 183

High Performance Ignition

Major OEM's have used Electromotive's patented ignition technology for many years. Offering superior products through innovative technology, the Electromotive ignition can be used in extreme race situations or in a normal daily driver. This direct ignition is capable of delivering a full charge to the spark plug beyond 15,000 RPM and provides complete control over timing. Electromotive ignition systems have the ability to deliver 150mj of energy throughout the RPM range. Unmatched in performance, the Electromotive ignition is capable of spark durations up to ten times that of conventional ignition systems. Electromotive originally developed the advanced direct ignition system for high performance applications; today that same technology is in an integral part of most OEM engines.



From Mind to Manufacture

Always looking to the future, the Research and Development staff at Electromotive is always striving to develop innovative and creative new products. Our in house engineers, software professionals and manufacturing team maintain the highest standards in the development and testing of Electromotive products. Rigid quality assurance procedures are used throughout the production process to assure flawless operation and complete customer satisfaction.



Made in America, Winning Races Worldwide



ELECTROMOTIVE
ENGINE CONTROLS

Electromotive's Fundamental Advantage

What separates Electromotive's sophisticated Engine Control from those of other manufacturers is it's patented, industry leading Direct Fire Ignition system. With both the stand-alone HPX ignition systems and the Total Engine Control systems, Electromotive utilizes a 58-tooth crank trigger wheel. This "high resolution" signal feeds continuous information to custom ignition chips so that timing error is virtually eliminated. This "high resolution" circuitry is used to accurately determine both the coil charge time and the Ignition Event in actual angular values (degrees of crank rotation). This eliminates the dynamic error that is prevalent in our competitors products. Others may claim $\frac{1}{4}^{\circ}$ degree accuracy, but without this accurate crankshaft position information, they're just wishing.

Every Engine Control system from Electromotive uses multiple ignition coils and advanced, automatically adjusting dwell circuits to assure the coils are fully charged (but not over charged), every time. The powerful spark of this patented system delivers this full spark energy directly to the plugs without misfires. Unlike multi-spark CD systems that only give you a single very short duration spark when above 3000 rpm, Electromotive puts a full 150mJ of spark energy to the coils, which results in a spark with more than ten times the duration of a CD spark from idle to 15,000 rpm.

Look at the typical competitors box: the C.D.(Capacitive Discharge) Ignition. This Ignition does not CHARGE the Ignition Coil. Rather it uses the 1:100 Winding ratio of the coil as a TRANSFORMER. First, the 12 volts of your electrical system is converted to 200-500 volts and stored in a CAPACITOR. When the SPARK is needed the CAPACITOR is DISCHARGED into your Ignition Coil, Instantly producing a SPARK of 30,000 to 50,000 volts with a DURATION of only 0.1 to 0.3 milliseconds (0.0003 seconds)... this is NOT A LONG SPARK !

THE SUPERIOR SOLUTION: Multiple Coil Ignition Systems. By using an Ignition Coil for every pair of companion Cylinders, the TIME available to CHARGE an Ignition coil goes up by a factor of 4 on an 8cyl Engine. This allows the full benefit of an INDUCTIVE CHARGING method to be realized: the coil will apply enough voltage to the spark plug to jump the gap (regardless of cylinder pressure). The coil will then dissipate the rest of its available energy in spark plug DURATION. Depending on cylinder pressure, spark duration will typically be over 2 milliseconds, regardless of RPM. A 2 millisecond spark duration results in a spark plug arc that can last for over 90 degrees of crankshaft rotation! This will burn ANY air fuel mixture imaginable!

So, no matter which of our Products you choose, you will always know that the Ignition System is STATE OF THE ART and READY FOR ANYTHING !

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Call (703) 331-0100



NEW

HPX

**Super Accurate
Crank Triggered
Multiple Coil
Direct Fire
Tunable Ignition
that You Control!**

*Smooth Reliability
on the Street*

High Resolution Distributorless Ignition

*Power and Accuracy
for Competition*

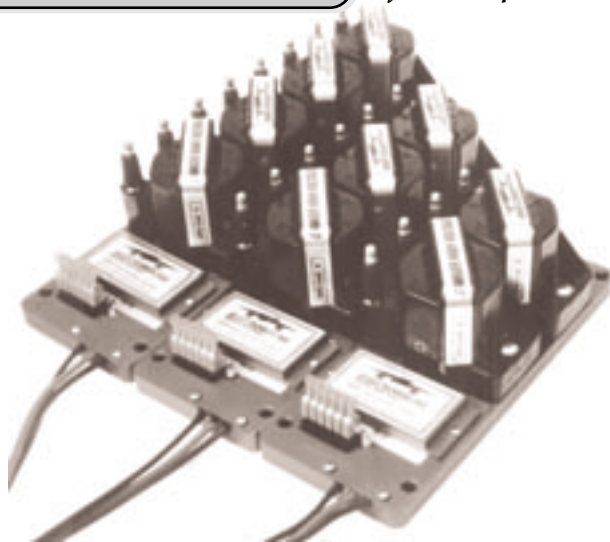
Electromotive's patented advanced digital ignition control resides inside the new HPX, the most powerful stand-alone ignition available. With an amazing 0.1° degree timing accuracy, the HPX assures optimum resolution. The advanced coil-charging scheme delivers the highest possible Spark Output regardless of RPM. The 60 tooth crank trigger wheel replaces that mechanical distributor plagued with timing slop (cap and rotor wear) and eliminates spark scatter due to gear lash, chain stretch etc.

Built-in Timing Computer that You control!

Forget recurring the old distributor, with the HPX's knobs (no P.C. required!), you can adjust the spark advance curves for different engine speeds and optimum performance. Plug in a MAP sensor for vacuum advance or boost retards. Use the built-in Nitrous retard or utilize the optional 4-Step Nitrous Retard unit that is easy to install. You may also read your ignition curves with a simple digital voltmeter. The robust billet chassis also features a diagnostic LED that will help you troubleshoot the system should you ever experience a 'no start' condition.

Use the knobs to adjust your rev limits as well. The integral rev-limiter may be set anywhere between 4,000 to 15,000 RPM. For drag racing an additional rev-limiter can be wired for staging rev-limiter! The new 'Triple Smooth' rev limiting technology first retards the timing to negative 12°. The 2nd step cuts the coil current in half. In the 3rd step the coil current is cut off. All of this happening in a millisecond results in very smooth rev limiting action.

- Timing Computer and Coils in One Unit
- No PC Required, Easy 3-wire Hook-up
- Accurate Full Coil Charging for More Power with Full Spark Energy to 15,000 Rpm!
- Crank Trigger Eliminates Spark Scatter Due to Gear Lash, Chain Stretch, and Distributor
- Built-in Knob Programmable Spark Advance Curves and Rev Limiter
- Enhanced RPM 'Triple Smooth' Limiter with support for external Rev Limiter
- Replaces CD Boxes and Chips
- Plug in MAP Sensor for Vacuum Advance and Boost Control
- Get Increased Firewall and Blower Clearance



Universal Units for most 1, 2, 3, 4, 6, 8 and 12 Cylinder Engines

The HPX has the ability to provide an ignition timing increase when the engine is operating in a light load condition such as cruising or idling. The so-called "vacuum advance" feature of the HPX works by installing a MAP (Manifold Absolute Pressure) sensor into the intake manifold and sending the sensor's output to the HPX. The HPX will then increase the ignition timing based on the MAP sensor reading. 1-, 2-, and 3-Bar MAP sensors can be used with this feature, thus benefiting boosted and non-boosted engines.

A 1-Bar sensor will advance the timing beyond the HPX's knob settings by 15° when the manifold vacuum is 30" Hg. It will then ramp down the added advance to 0° once the manifold vacuum goes to 0" Hg. 2-Bar and 3-Bar sensors also supply 15° of added advance when the engine is at 30" Hg, but the points at which the added advance ramps to 0° are different. The 2-Bar ramps down to 0° advance when the manifold boost is 15psi, while the 3-Bar sensor ramps down to 0° advance when the boost is 30psi.





Crank Triggered Multiple Coil Direct Fire Ignition!

By utilizing an ignition coil for every pair of companion cylinders, the *time* available to *charge* the coils goes up by a factor of 4 on an 8-cylinder engine. Producing full spark energy up to an incredible 15,000 RPM while delivering a spark duration up to 2.0 milliseconds. That's over 10 times the spark duration per spark event than CD boxes!

THE HPX MAKES MORE POWER!

HPX 8-cyl. #11810 Shown with Small Block Chevy Crank Trigger Kit #72707 for 6.25" Damper. Also 1/2" Mag Sensor #72218 with Connector.

•All HPX units come with Manual. Select Universal Trigger Wheel & Bracket (or Crank Trigger Kit) & Mag Sensor sold separately.

* HPX units are also available for 24 volt applications

Description

HPX 1 cylinder (also works with even fire 2-cyl. 4-stroke)
HPX 2 cylinder (180° Crank and two stroke applications)
HPX 3 cylinder
HPX 4 cylinder
HPX 4 cylinder Dual Plug, Single sensor HPX
HPX 6 cylinder
HPX 8 cylinder
HPX 12 cyl./ Oddfire 6 cyl. (require 2 HPX 6 cyl. w/ 2 crank sensors)
HPX Modification to 24 volts (Must be specified w/original order)
HPX installation and calibration manual

Part

015-11210
Special
Special
015-11410
015-11420
015-11610
015-11810
015-11624
015-11024
001-15100

Special Applications: Call for consultation on your project. The powerful HPX can do the Job!

1 cyl. 2 & 4-stroke engines use the 1 cyl. HPX
2 cyl. even-fire 4-strokes use the 1 cyl. HPX
2 cyl. 2-strokes use the 4cyl HPX
3 cyl. 2 & 4-strokes use 6 cyl HPX
4 cyl. 2-strokes use 8 cyl. HPX
4 cyl. Dual plug 4-strokes use 4 cyl. dual plug HPX

6 cyl. Dual plug 4-stroke uses 2 HPX 6-cyls. w/Y cable
6 cyl. Odd-fire uses 2 HPX 6-cyls. w/2 crank sensors
12 cyl. uses 2 HPX 6 cyls. with 2 crank sensors
2 Rotor uses either: 2 HPX 4 cyls. w/2 crank sensors or
1 HPX Dual Plug 4 cylinder.
3 Rotor uses 2 HPX 6 cyls w/2 crank sensors.

HPX Accessories and Optional Upgrades

Utilize a MAP Sensor for even more control over your ignition

Automatic Timing Advance as Load Decreases

Just like a Distributor vacuum advance

Great for Boosted Applications

1 Bar Map Sensor
#71110



Description

Manifold Absolute Pressure (MAP) Sensor, 1 Bar Normally Aspirated
Manifold Absolute Pressure (MAP) Sensor, 2 Bar Up to 15 lbs. Boost
Manifold Absolute Pressure (MAP) Sensor, 3 Bar Up to 30 lbs. Boost
Cable and Connector for 1 Bar MAP Sensor
Cable and Connector for 2 & 3 Bar MAP Sensor
Oil Pump Drive for Small and Big Block Chevy
4-Stage Nitrous Timing Retard Module
Crank Trigger Simulator
Remote Timing Advance Control Unit

Part

300-71110
300-71120
300-71130
301-71111
301-71121
261-72601
150-10000
150-10001
012-15200



Remote Timing Advance Unit #15200

Remote Advance Control

When squeezing the last HP out of your racing engine on the dyno, this will help you find the exact amount of timing for maximum performance!



2 & 3 Bar Map Cable and Connector #71121



Small & Big Block Chevy Oil Pump Drive #72601



4-Stage Nitrous Timing Retard Module

For Details on the Nitrous Module & Trigger Simulator, see TEC® Options



Crank Trigger Simulator #10001

TEC³ Total Engine Control

**3D PROGRAMMABLE FUEL INJECTION CONTROL
SUPER ACCURATE DISTRIBUTORLESS IGNITION
INTEGRATED INTO ONE SYSTEM
INCLUDING DATA LOGGING!**

- **Crank Triggered Multiple Coil Direct Fire Is the Most Accurate and Delivers the Longest Spark Duration**
- **Powerful WinTEC Software Includes 'Tuning Wizard' for fast Start-ups**
- **On-Board Data Acquisition records vital Engine and Chassis information**
- **Activate Nitrous, Turbo Boost, VTEC, Shift Light, Cooling Fans and more**
- **Built-in additional Configurable Injector Outputs**
- **New Dual RPM Limiters with 'Triple Smooth' Technology for the Softest Rev Limit**
- **One Control Unit for 99% of Applications**



The Newest Generation TEC, Now with Separate DFU's (Direct Fire Unit), is the Most Powerful Ignition and Engine Control System Available

The new TEC³ (Total Engine Control) represents the latest advances in state-of-the-art fuel injection control integrated with the most powerful and accurate direct fire ignition system ever put into one performance package. The TEC³ is a PC programmable engine control system featuring an intuitive Windows-based platform with easy pull-down menus and a new "Tuning Wizard" that will have you up and running in no time. Whether you choose to run throttle body injection, tuned port, multi-port, individual throttle bodies, whatever, just make your choice within the WinTEC software and the TEC³ unit will program your engine for more power. Street enthusiasts will enjoy the benefits of a 'distributorless' ignition system that is not only adjustable, accurate and powerful, but also gives some improved firewall clearance and freedom from all of those "add-on" boxes. For competition and ultra high output engines, the sophistication and power of the TEC³ system simply out-performs other production and aftermarket systems.

The New TEC³ incorporates the winning features of our previous TEC-II system while adding an abundance of new features and a powerful new processing platform which melds the Electronic Fuel Injection (EFI) control with its patented digital Direct Ignition System (DIS). The laser etched ECU with its waterproof OEM style connectors and harness may be mounted under the hood or in the engine compartment and will activate separate multi-coil DFU's (Direct-Fire Units). This Incredible ignition is capable of delivering a full charge to the plug up to 15,000 RPM and is capable of spark durations up to ten times that of conventional ignition systems!



Features:

- **PC programmable and configurable for 1, 2, 3, 4, 6, 8 cyl engines and Rotaries with a 12 cyl. and 6 cyl. Dual Plug option**
- **Operate in Open or Closed loop**
- **Run True Sequential, Phased Sequential or Simultaneous Injection**
- **Configurable for TBI, MPI, TPI and individual Throttle Bodies**
- **Additional Injector Output Drivers built-in**
- **Full 150mJ of Spark Energy utilized per each ignition event**
- **New Dual Rev Limiters with 'Triple-Smooth' Technology. 1st step retards timing to negative -12° degrees. 2nd step cuts coil current in half. 3rd step coil current and fuel are cut-off, all in a millisecond.**
- **Four Programmable GPO's (General Purpose Outputs) to control or activate Waste Gate, Nitrous, VTEC, Shift Lights, Water Pumps and Fans, AC Compressor, Torque Converter etc.**
- **New Programmable Electronic Tachometer Output**
- **Uses primarily GM type sensors**
- **Diagnostic monitoring with codes issued through Check Engine light or within the WinTEC software**
- **Easy to install bolt-on Trigger Wheel and Mag Sensor Kits available for many applications.**

**TEC means 'Total Engine Control'
For Street or Competition**

'Total Engine Control' is yours with the New WinTEC 3.0 Software

The new WinTEC 3.0 Software is even more powerful than previous versions with newly added features and tools. Tuning experts will appreciate the sophistication and in-depth control, while first time tuners will find the program easier than ever to master utilizing the user friendly windows interface with pull down menus. Electromotive's unique 'Tuning Wizard' will have you answering a few simple questions and firing your engine up faster than any other system in the business. With point and click abilities, Hot Keys and generous Help Screens available throughout the program, it won't be long before you are known as the 'Tuning Wizard'!

New WinTEC Windows based Software is Powerful for Pro Tuners yet first time user friendly with the 'Tuning Wizard' for fast start-ups!

Real Time Data Display with 'Tune on the Fly', change tuning parameters with the engine running while viewing results.

First time Start-ups have never been easier utilizing the 'Tuning Wizard'. Simply answer the questions regarding your engine combination and the 'Tuning Wizard' will create a starting base line program for you. You are now running!

Interactive Graphical Interface Screens featuring fully adjustable 3D tables with up to 256 points (values) available. This allows the user to easily tune right from these screens by altering values for Fuel (Volumetric Efficiency), Ignition Curves, Air/Fuel Ratio and more. Unlike other systems that require repetitious entry of points into their maps, WinTEC3.0 utilizes Advanced Thermodynamic Algorithms (linear curves not steps) which produces smooth data curves with a lot less effort.

Cold Start and Warm up Enrichments make for excellent driveability. Knock Control will suppress low octane engine ping. The best idle control in the business is the WinTEC 'Blend' feature. A special screen allowing idle adjustment by the *blending* of different sensor signals to provide a smoother and more stable idle even in engines using aggressive profile cams!

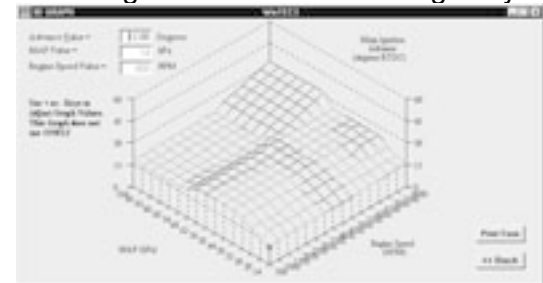
Proportional Air Fuel Ratio programmability allows the tuner to target different ratios for varied driving conditions. Operate Multi-Stage Nitrous and Boost Control and adjust fuel enrichment and timing curves accordingly.



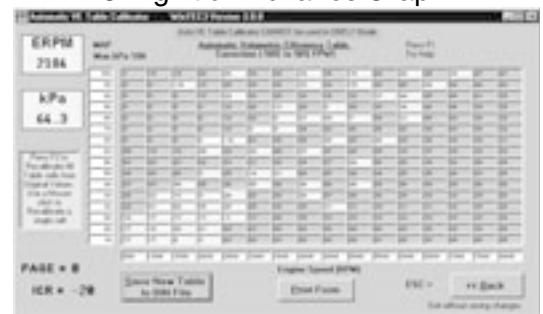
Real Time Display with 'Tune on the Fly'



'Tuning Wizard' makes starting easy



3D Ignition Advance Graph



Automatic VE Table Calibrator



WinTEC 3.0 software allows viewing of all sensor readings, output settings, status readings, compensations and diagnostic monitoring

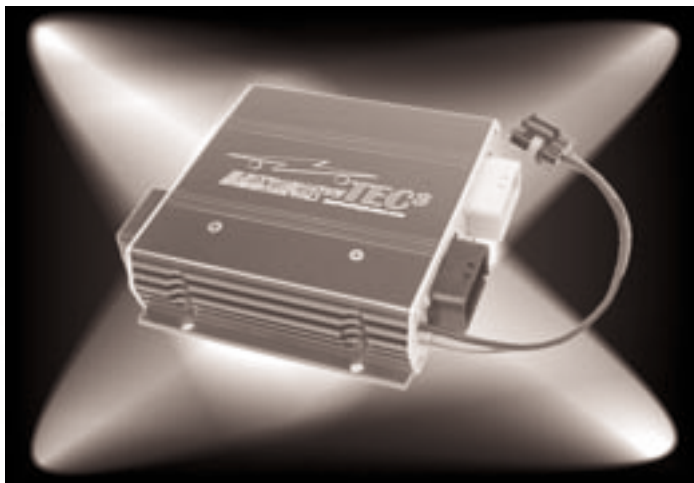
New On-Board Data Acquisition

- Adjustable Sample Rates
- View Multiple Data Graphs side by side or Graphs may be overlayed for comparison
- Graphic Screen Displays may be Printed and Data may also be exported to a Spreadsheet program for further analysis
- Data Logging can be started and stopped manually using a switch, or the system can be configured to automatically start and stop via values pre-set by the user

Simultaneously record data from up to 25 different values including:

- Air/Fuel Ratios
- Injector Duty Cycle
- Injector Pulse Width
- RPM
- Throttle Position
- Gear Position
- Boost Monitoring
- Boost Regulation
- Manifold Air Temp
- Coolant Temp
- Timing Advance
- Knock
- Nitrous Activation
- Nitrous Monitoring
- Various Chassis Input Monitoring

Configure the TEC³ Engine Management System for that Winning Combination



• All **TEC³** ECU's come with Manual, WinTEC-3 Software and Communications Cable. Select Universal Trigger Wheel and Bracket (or Crank Trigger Kit) and Mag Sensor sold separately.

Description

TEC³ ECU '4x8'*1 for 1, 2, 3, 4, 6, & 8 cylinder applications
 TEC³ ECU '6x6'*2 for 6 cyl. Dual Plug, Odd-Fire, 12 cyl, and 3 Rotor
 TEC³ Main Harness (23 pin connectors only) for 33000
 TEC³ Main Harness (23 pin connectors only) for 33001
 TEC³ Custom Harness w/connectors (built to customer specs)
 TEC³ Power Harness (w. 4 fuses & 2 relays) for all TEC³'s
 DFU (coil pack) for 4 cyl.applications
 DFU for 6 cylinder applications
 DFU's for 8 cylinder applications
 TEC³ Installation and Calibration Manual (Printed Version)
 TEC³ WinTEC CD (Software w/ electronic version of manual)
 TEC³ to Computer Communications Cable
 *1 features 4 coil drivers and 8 injector drivers
 *2 features 6 coil drivers and 6 injector drivers

Part

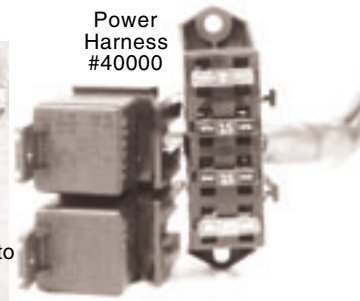
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070-33800
001-10000
001-10001
001-10002



Main Harness
'Unterminated'
#33200



Custom
Harnesses
available built to
your specs
#33101



Power
Harness
#40000

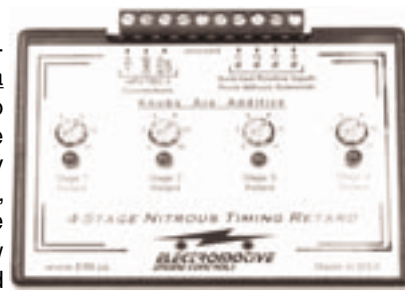
TEC³ Accessories and Optional Upgrades

4-Stage Nitrous Timing Retard Module

The Electromotive 4-Stage Nitrous Timing Retard is designed to work with our High-Resolution HPX Ignitions and TEC³ Engine Management computers. This unit is not a nitrous activator but is designed to work with your existing nitrous activation module to retard the spark timing for each stage of nitrous. Mounted on the interior of the vehicle, the unit is equipped with knobs and LED's that are labeled for the amount of timing retard they will supply. Each stage is adjustable from zero to 15° degrees of retard and are 'additive', meaning that a total of 28° degrees of retard may be achieved by combining stages. The HPX ignitions used in carbureted applications are easily wired to the retard unit. The new TEC³ laptop controlled Engine Management System utilizes one of its input channels and allows the user to monitor timing retards with its built-in Data Logging feature.

4-Stage Nitrous Timing Retard Module

150-10000



Crank Trigger Simulator

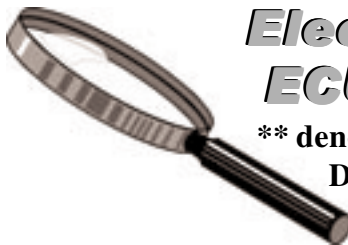
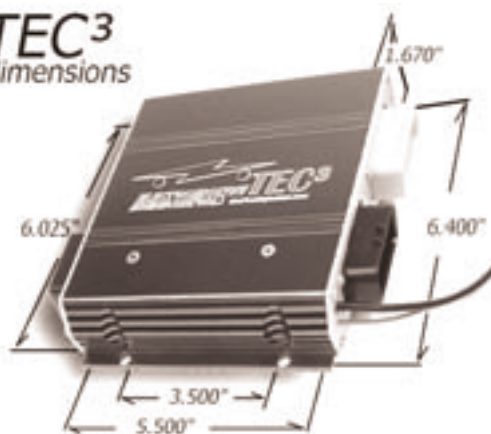
The Electromotive Crank Trigger Simulator is a useful tool for diagnosing problems with your Electromotive Ignition or Engine Management System. It duplicates the waveform output of a perfect 58 tooth crank trigger Sensor, and is adjustable from 0-16,000 rpm. Also included is a cam sync pulse, which can be used to simulate a sequential engine management setup. This pulse occurs every other revolution, just as a cam-signal would.

Crank Trigger Simulator

150-10001



TEC³ dimensions



Electromotive TEC³ ECU Specifications

**** denotes TEC3 6 cylinder Odd-Fire & Dual Plug, 12 cylinder and 3-Rotor Rotaries ECU Specifications**

Outputs

Fuel Injector Drivers

- 8 x 4.4/1.1amp peak-and-hold injector drivers
- ** 6 drivers with TEC3 6/12
- Up to 16 low or high impedance injectors can be driven
- ** Up to 12 injectors with TEC3 6/12
- Low impedance injectors: 2 per driver (2 to 3 ohms per injector)
- High impedance injectors: 1 or 2 per driver (12 to 16 ohms per injector)
- TBI injectors: 1 per driver (1 - 1.6 ohms per injector)

Coil Outputs

- 4 x 9amp direct-fire coil drivers
- ** 6 drivers with TEC3 6/12
- Feedback charging loop for ideal cylinder-to-cylinder consistency
- No "ignition modules" or "CD" boxes needed

Idle Air Control (IAC) Motor

- Provides control of 4-wire stepper motor IAC's
- Adjustable idle speed increase for cold starts
- Adjusts idle speed in response to engine load (i.e. A/C activation)

General Purpose Outputs (GPO's)

- 4 channel low-amp pull-to-ground outputs
- Channels 1 & 2 have pulse-width capability
- Channels 1-4: on/off activation for fan relays, torque converters, waste gates, etc.
- 4 amps max total current draw for GPO1-4 (1 amp per channel if all four are used)

Spare Output

- On/off capability
- 1 amp max current draw

Fuel Pump Control

- Low current pull-to-ground output for activation of fuel pump relay
- Configurable for fuel system priming

Tachometer Output

- Programmable Signal output for (i.e.: allows use of 8 cylinder Tach on 6 cylinder engine)
- Drives modern 0-12 volt tachometers
- Amplifier available for high voltage triggered tachometers

Check Engine Light Output

- Multi-code diagnostic tool for sensor failures
- Pull-to-ground output for small instrument panel light (1 amp max current draw)

ECU Diagnostic LED

- Warns of crank trigger problems
- Multi-code diagnostics

ECU Cooling Fan

- Turns on with unit
- Allows for sustained ultra-high rpm operation w/ low impedance injectors

Inputs

General Purpose Inputs (GPI's)

- Channels 1-4 are 0-5 Volt analog inputs
- Channels 3 & 4 may also be used for speed inputs (magnetic, optical, and hall effect sensors are supported)
- Provides fuel and ignition trims, datalog enable, valet switch, NOS retard, and more

Engine Sensor Inputs

- Crank Sensor
 - ... 2-wire magnetic sensor (compatible w/ some OEM's)
 - ... Uses Electromotive-spec 60(-2) tooth crank trigger
 - ... Ultra-high resolution engine position input
- Cam Sensor
 - ... Necessary for full-sequential applications
 - ... Once-per-cam-revolution pulse
- Manifold Air Pressure (MAP) Sensor
 - ... 1 Bar: 0-104 kPa for Naturally Aspirated Engines

- ... 2 Bar: 0-206 kPa for turbo/super charged engines up to 1 Bar boost (~15 psi)
- ... 3 Bar: 0-313 kPa for forced induction engines up to 2 Bar Boost (~30 psi)
- Throttle Position Sensor (TPS)
- ... Compatible with most OEM 3-wire setups
- Coolant Temperature Sensor (CLT)
- ... Uses NTC thermistor coolant sensor (2-wire)
- Manifold Air Temperature Sensor (MAT)
- ... Uses NTC thermistor manifold temperature sensor (2-wire)
- Knock Sensor (KNK)
- ... Provides ability to detect pre-ignition
- ... Compatible with piezo-style knock sensors (1-wire)
- Oxygen Sensor (EGO)
- ... Compatible with 1-, 3-, and 4-wire oxygen sensors

Patented Coil Control

Angle Based Timing Control

- Ultra-high resolution triggering
- Engine position known to within 1/8 degree
- Patented under US Patent RE 34,183

Feedback Charging Control

- Monitors each coil firing event
- Coil current monitoring
- ... Consistent dwell adjustment
- ... Full coil charging without overcharging

Tuning Features

Ignition Timing Map

- From 8 x 8 to 16 x 16 user definable tables of RPM vs. MAP for ignition advance angle
- 256-point interpolation between data points
- 1 degree adjustment increments
- +/-1/4 degree spark timing accuracy, worst case

Fuel Map

- Two numbers define slope of fuel curve
- From 8 x 8 to 16 x 16 tables of RPM vs. MAP for volumetric efficiency corrections
- 256-point interpolation between data points
- 1% adjustment increments (up to 0.001millisecond resolution)

Load Sensing

- MAP sensor based
- TPS & MAP based (using 'TPS/MAP Blend' feature)

Rev Limiters

- Progressive "soft" rev limiter (3 stages)
- Fuel injector cutoff
- 1000-20000rpm capability for primary rev limiter
- 1000-20000rpm capability for auxiliary rev limiter

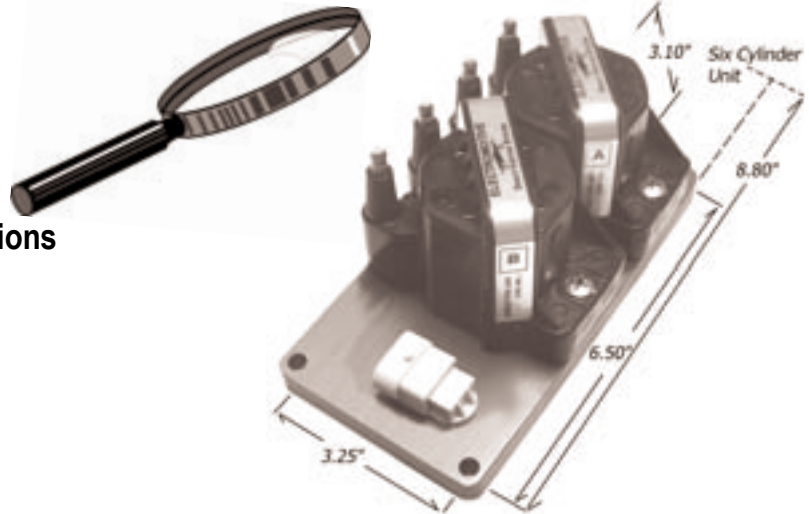
On-Fly Tuning

- Glitch-free, real-time tuning while engine is running
- Full control of all fuel, ignition, and input/output parameters

Compensation Features

- Fuel
 - ...Individual cylinder fuel trims
 - ...Oxygen sensor closed loop corrections
- Starting (cranking) enrichments
- Cold start / cold weather enrichments
- Accelerator pump enrichments
- Deceleration fuel cutoff
- Battery voltage correction for injector pulsewidths
- Ignition
 - ...Coolant temperature-based advance adjustments
 - ...Manifold air temperature-based advance adjustments
 - ...Smooth idle advance control (integrated w/ IAC settings)
 - ...Paired-cylinder timing trims (each coil has timing trim)
 - ...Individual-cylinder timing trims for full-sequential setups
- Ignition timing offsets for odd-fire applications
- RPM-based timing split for rotary application

More

Electromotive
TEC³ Specifications

Supported Engine Management Configurations

20,000rpm capability for all engines

4-Stroke

- 1-, 2-, 3-, 4-, 6-, and 8-cylinder even-fire engines
- ** 12-cylinder even-fire engines with TEC3 6/12
- 2 and 4-cylinder odd-fire engines
- ** 6-cylinder odd-fire engines with TEC3 6/12
- 2- and 4-cylinder dual-plug engines
- ** 6-cylinder dual-plug engines with TEC3 6/12
- Full sequential fuel injection on all even-fire applications
- Phase-sequential and TBI injection on all applications
- Staged injection available for most setups
- Waste-spark ignition control for all applications

2-Stroke

- 1-, 2-, 3-, and 4-cylinder engines
- ** 6-cylinder engines with TEC3 6/12
- Full sequential fuel injection or TBI
- Staged injection available for all setups
- Coil-per-plug for all applications

Rotary

- 1- and 2-rotor engines
- ** 3-rotor engines with TEC3 6/12
- Full sequential fuel injection w/ staged injection or TBI
- Coil-per-plug for all applications

Datalogging Features

On-Board Datalogging (No Laptop Required)

- 1 Mb of available memory
- Activated by switch to +5 Volts on GPI channel
- Can be activated by engine speed.
- Sampling rate is adjustable from 5-100 samples-per-second
- Total datalogging time is dependent on sampling rate
- ... 100 samples-per-second: 44 seconds of data
- ... 5 samples-per-second: 15 minutes of data

Laptop Datalogging

- Records to hard drive on laptop
- Sampling rate is approximately 25 samples-per-second
- Total datalogging time is dependent only on hard drive space

Environmental Considerations

Two Sealed 23-Pin AMP Connectors for Inputs & Outputs

Sealed High-Amperage Delphi Main Power Connector

Sealed Printed Circuit Board

PC Requirements

Computer

- IBM-Compatible PC
- Pentium-1 233 or better
- 800 x 600 monitor
- 64 Mb of ram
- 10 MB of free hard drive space

Data Drives

- CD-ROM for software installation
- 3.5" floppy by request

Communications

- RS-232 9- or 25-pin D connector
- COM 1-4 (software selectable)

Physical Dimensions

Length: 5.65" plus 0.65" for connectors (14.35 cm + 1.65 cm)

Width: 6.40" (16.26 cm)

Height: 1.67" (4.24 cm)

Weight: 1.8 lbs (.82 kg)

Bolt Hole Pattern: 3.50" x 6.03" (use 1/4" or 6mm fasteners)

TEC³ Connector Pin Outs

Black Connector

| Wire Name | Pin# | Color | Output/Input Style |
|------------|------|----------------|---------------------|
| Coil A | B1 | white | 9 amp coil ground |
| Coil B | B2 | red | 9 amp coil ground |
| Coil C | B3 | black | 9 amp coil ground |
| Coil D | B4 | red | 9 amp coil ground |
| Injector 1 | B5 | yellow/black | 4/1 injector driver |
| Injector 2 | B6 | yellow/red | 4/1 injector driver |
| Injector 3 | B7 | yellow/green | 4/1 injector driver |
| Injector 4 | B8 | yellow/bue | 4/1 injector driver |
| Injector 5 | B9 | lt.blue/black | 4/1 injector driver |
| DFU Shield | B10 | bare | disipated to ground |
| ISM-D | B11 | dk.blue/white | IAC 'A' Hi |
| ISM-C | B12 | dk.blue/black | IAC 'A' Lo |
| ISM-B | B13 | dk.green/white | IAC 'B' Hi |
| ISM-A | B14 | dk.green/black | IAC 'B' Lo |
| Injector 6 | B15 | lt.blue/red | 4/1 injector driver |
| Unused | B16 | | |
| Unused | B17 | | |
| GPO-1 | B18 | white/black | 1 amp ground |
| GPO-2 | B19 | white/red | 1 amp ground |
| GPO-3 | B20 | white/green | 1 amp ground |
| GPO-4 | B21 | white/blue | 1 amp ground |
| Injector 7 | B22 | lt.blue/green | 4/1 injector driver |
| Injector 8 | B23 | lt.blue/blue | 4/1 injector driver |

Grey Connector

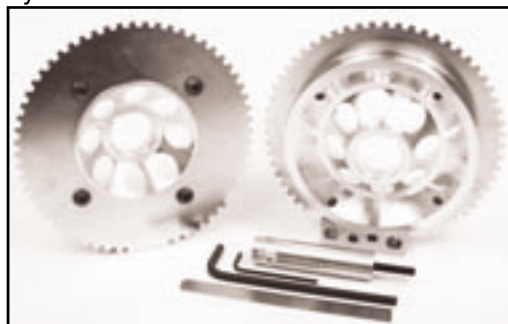
| Wire Name | Pin# | Color | Output/Input Style |
|-------------------|------|---------------|------------------------------|
| Tachometer | A1 | brown | 12 Volt Square wave |
| Check Engine | A2 | pink | 0.5amp pull to ground |
| +5 Volt | A3 | grey/red | Sensor Reference |
| Crank/Cam Ground | A4 | black | Signal ground |
| Sw. Batt. | A5 | yellow | 12 Volt switched |
| EGO - | A6 | tan | EGO ref. Ground |
| EGO + | A7 | violet | EGO Signal |
| Knock | A8 | orange | GM knock sensor signal |
| Crank Trigger | A9 | red | 58 tooth Signal SineWave |
| Cam Trigger | A10 | red | Cam Signal low current pulse |
| Trigger Schield | A11 | bare | disipated to ground |
| CLT | A12 | grey | Coolant Signal |
| MAT | A13 | white | MAT Signal |
| TPS | A14 | dk. blue | TPS signal |
| MAP | A15 | dk. green | MAP signal |
| GPI 1 | A16 | orange/black | 0-5 volt input |
| GPI 2 | A17 | orange/red | 0-5 volt input |
| GPI 3 | A18 | orange/green | 0-5 volt input |
| GPI 4 | A19 | orange/blue | Digital input |
| Fuel Pump Relay - | A20 | light green | 1 amp ground |
| Spare Output | A21 | white/black | 1 amp ground |
| Sensor Ground | A22 | black w/white | Ground Reference |
| Unused | A23 | - | - |

7.25" Wheel
fits 6.75" OEM style
& some After-
market dampers



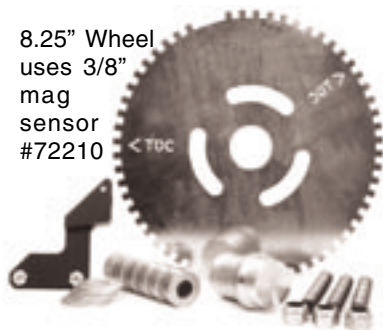
Small Chevy Kit #72707
with Mag Sensor #72218

Electromotive's patented Direct Fire Ignition Systems are engineered to utilize these high resolution 60 tooth crank trigger wheels designed to interface with our custom circuitry, unequaled only by OEM manufactures licensed by Electromotive.



Honda Kit #72410 shown front and rear
featuring the Unorthodox Pulley

8.25" Wheel
uses 3/8" mag
sensor
#72210



Chevy LT1 Crank Trigger Kit



VW 'Type 1' Trigger Kit
#72401 with Bracket and
Scat Crank Pulley

Crank Trigger Kits

Bolt-on Ease Makes Installation a Breeze

Electromotive's Super High Resolution Crank Trigger Wheels and Application Specific Mag Sensor Brackets make going Distributorless Easy!

- Precision laser cut, zinc plated, steel wheels are built to bolt-on to your engine and will provide unmatched accuracy
- Brackets and hubs are machined from 6061-T6 aluminium for strength and precision. Unless specified, all kits utilize a 1/2" mag sensor (sold separately)
- Extremely durable. Electromotive Trigger Kits continue to perform even in hot, dirty, wet or even muddy conditions and are impervious to vibration
- High quality fasteners and hardware used in kits



Dodge Neon Trigger Kit
#73001 utilizes Unorthodox
Racing Underdrive Pulley
#0201101



Small Block Ford Kit #72819
4-bolt pulley style, shown with
Mag Sensor #72218

Eclipse/Talon/Galant DOHC
2.0 Liter '91-94 Turbo &
Non-Turbo w/stock dampers
Crank Trigger Kit #73002



| Description | ~ Crank Trigger Kits ~ | Part # |
|---|------------------------|-----------|
| VW "Type 1" complete trigger wheel and bracket kit (w/Scat Alum. Pulley) | | 200-72401 |
| Honda DOHC 1.6, 1.7, 1.8, 2.0 (VTEC only) crank trigger kit (alternator only) | | 200-72410 |
| Small Block Chevy complete trigger kit for 7.25" wheel (6.25" damper) | | 200-72707 |
| Jeep 4.2 litre complete crank trigger wheel and bracket kit | | 200-72780 |
| Small Block Chevy complete trigger kit for 8.25" wheel (8.25" damper) | | 200-72808 |
| Small Block Ford 289-302, 351W through '93 with 4-bolt pulleys | | 200-72819 |
| Big Block Chevy complete trigger kit for 8.25" wheel | | 200-72820 |
| Chevy LT-1 complete trigger kit wheel and bracket kit | | 200-72828 |
| Dodge Neon crank trigger kit (requires underdrive pulley) | | 200-73001 |
| Eclipse, Talon, Galant DOHC '91-94 Turbo & Non-Turbo w/stock dampers | | 220-73002 |

• Porsche, Mazda Rotaries & Miata, Subaru, Ford FE & Flathead and other kits available through our Dealer Network



Custom Trigger Wheels

60 Tooth Accuracy

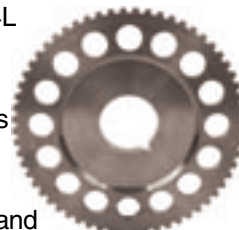
For Special Applications

Small Block Ford #72510
For Late Model or Crate Motors
using 3-Bolt Damper. Wheel
only 6.5" OD. Customer to build
Mag Sensor Bracket or use
universal bracket #72003

4.6/5.4L

Ford
Wheel
Mounts
Inside
Timing
Cover and

uses factory Mag Sensor



These Wheels Are



**No Brackets or
Sensors Required!**

Toyota Supra '93-'98 3.0 Liter
Remove OEM Wheel from lower Crank
Pulley, line-up index mark and re-weld
Uses Factory Mag Sensor



| Description | ~ Custom Trigger Wheels ~ | Part # |
|--|---------------------------|------------------|
| Supra '93-'98 3.0 Liter Trigger Wheel 3.01", 60 tooth (OEM style, weld-on) | | 220-72301 |
| Ford 4.6/5.4 SOHC & DOHC trigger wheel only (replaces OEM w/ 60 tooth) | | 220-72500 |
| Small Block Ford Wheel for 3-Bolt Damper applications, 60 tooth 6.5" OD | | 220-72510 |

Universal Trigger Wheels

Magnetic Sensor Brackets



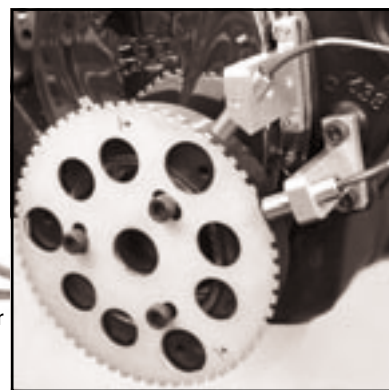
Universal
Bracket #72003
Uniquely adjustable for multiple angles

Drill and
Shape to
Your
Application



Small Chevy Brackets
#72701 (left) & #72801

RX-7 dual mag sensor
bracket #72007



Small Chevy Bracket #72701 on timing
cover & #72802 New 30° Bracket on front
motor mount which works well on late
models (Vortec etc.), or as back-up
sensor. Also use both with GM Odd-Fire
4.3 Liter based V-6's.

Big Block Chevy Bracket #72830 Single Bolt
design works well for custom applications

New Sm. Chevy 30° Bracket
#72802. Great for clearing accessories

Description ~ Universal Trigger Wheels ~ Part

| | |
|--|------------------|
| 2.75"/70mm dia. 120 tooth (camshaft speed) | 230-72128 |
| 3.25"/85mm dia. 120 tooth (camshaft speed) | 230-72133 |
| 2.375" dia. trigger wheel, 60 tooth (60mm) | 230-72624 |
| 2.50" dia. trigger wheel, 60 tooth (65mm) | 230-72625 |
| 3.50" dia. trigger wheel, 60 tooth (90mm) | 230-72635 |
| 5.00" dia. trigger wheel, 60 tooth (125mm) | 230-72650 |
| 6.0" dia. trigger wheel, 60 tooth (155mm) | 230-72660 |
| 7.25" dia. trigger wheel, 60 tooth (185mm) | 230-72672 |
| 8.25" dia. trigger wheel, 60 tooth (210mm) | 230-72682 |

Description ~ Mag Sensor Brackets ~ Part

| | |
|---|------------------|
| Universal Sensor Bracket for 1/2" Sensor | 210-72003 |
| Sm. Blk. Chevy 1/2" bracket (7.25" wheel) | 210-72701 |
| Sm. Blk. Chevy 1/2" bracket (8.25" wheel) | 210-72801 |
| Sm. Blk. Chevy 30° bracket (7.25" wheel) | 210-72802 |
| Sm. Blk. Chevy 30° bracket (8.25" wheel) | 210-72803 |
| Big Blk. Chevy 1/2", single bolt style, round | 210-72830 |
| RX-7 dual sensor (2nd generation RX-7) | 210-72007 |
| Chevy LT1 3/8" sensor (water pump mount) | 210-72703 |

Electromotive Ignition and EFI Accessories

**Highest Quality Direct Fire Ignition
and Fuel Injection Components for
your Electromotive System and
EFI conversion needs**

Magnetic Sensors



3/8" Mag Sensor with
connector #72210

**Most New
TEC³ and
HPX
systems
utilize the
1/2" Mag
Sensor**



1/2" Mag Sensor with
connector #72218



3/8" Mag Sensor with 'Y' cable
& connectors #250-72213 for
Old Style dual plug HPV



1/2" Mag Sensor with 'Y' cable
& connectors #255-72213 for
dual plug HPV/HPX

Ready for Competition

- Compatible with Electromotive Crank Trigger Wheels
- Quality Magnetic Reluctor delivers highest triggering accuracy and performance
- High strength stainless steel sealed case insures moisture-free connection and is corrosion resistant
- Proven off-road, can handle excessive vibration and performs even in wet and muddy conditions

Description ~ Mag Sensors ~ Part

*** New Style 1/2" diameter used with HPX and TEC³**

Mag Sensor, round point, 1/2" with connector **255-72218**

Mag Sensor, round point, 1/2" with 'Y' cable and
connectors for dual plug HPX units **255-72213**

*** Old Style 3.8" diameter used with early units &
special applications**

Mag Sensor, round point, 3/8" with connector **250-72210**

Mag Sensor, round point, 3/8" with 'Y' cable and
connectors for dual plug HPV/HPX units **250-72213**

Mag Sensor, chisel point, 3/8 (120 tooth wheel) **250-72212**

Oil Pump Drives

Small and
Big Block Chevy Oil
Pump Drive
#72601



Small Block Ford
Oil Pump Drive
with Cam Sync
Pulse Output
#72602

Description ~ Oil Pump Drives ~ Part

Small and Big Block Chevy Oil Pump Drive **261-72601**

Small Block Ford oil pump drive (w/Cam Sync Pulse) **261-72602**

MAP Sensors



Manifold Absolute Pressure Sensors

- Highest Quality OEM Style
- Use in conjunction with the HPX unit to simulate vacuum advance like a distributor or in boosted applications to automatically advance timing as load decreases

Description ~ MAP Sensors ~ Part

MAP Sensor, 1 Bar (Normally Aspirated) **300-71110**

MAP Sensor, 2 Bar (Up to 15 lbs Boost) **300-71120**

MAP Sensor, 3 Bar (Up to 30 lbs Boost) **300-71130**

**Note: all above sensors come with connectors, pins & seals*

Throttle Position Sensor



GM early style
#71310



Ford Style
2 notch #71330



GM late style
#71320

'D' type (Bosch style)
#71340

Description ~ TPS Sensors ~ Part

TPS Sensor, GM early model arm style **310-71310**

TPS Sensor, GM late model shaft style **310-71320**

TPS Sensor, Ford style 2 notch **300-71330**

TPS Sensor, 'D' type (Bosch style) **310-71340**

**Note: all above sensors come with connectors, pins & seals*

Coolant/MAT/Knock Sensors



Coolant Sensor
#71210



MAT Sensor
#71220



Knock Sensor #71410

Description ~ CLT/MAT/KNK Sensors ~ Part

Coolant (CLT) Sensor **305-71210**

Manifold Air Temperature (MAT) Sensor **305-71220**

Knock Sensor **305-71410**

**Note: all above sensors come with connectors, pins & seals*

More Electromotive Components

**We Are Your
One Stop
Ignition and
EFI Shop!**

Electromotive
accessories

Oxygen Sensors



4-wire Heated Exhaust Gas
Oxygen Sensor #72120



Weld-in Boss for Exhaust
EGO/HEGO sensors #72111

| Description | ~ O2 Sensors ~ | Part # |
|--|----------------|-----------|
| Exhaust Gas Oxygen (EGO) sensor, 1 wire | | 315-72110 |
| EGO/HEGO boss, weld in for exhaust | | 315-72111 |
| Heated Exhaust Gas Oxygen (HEGO) sensor 4-wire | | 315-72120 |
| Wide-band O2 sensor (7-wire) | | 315-72130 |

**Note: all above sensors come with connectors*

TEC-II Cables & Connectors



Coolant Sensor cable & connector #70211 TPS Sensor cable & connector #71321 HEGO Sensor cable & connector #72121

| Description | ~ TEC-II Cable and Connectors ~ | Part # |
|---|---------------------------------|-----------|
| MAP Sensor cable and connector for 1 bar | | 301-71111 |
| MAP Sensor cable and connector for 2 & 3 bar | | 301-71121 |
| Coolant Sensor cable and connector | | 306-71211 |
| MAT Sensor cable and connector | | 306-71221 |
| Knock Sensor cable and connector | | 306-71411 |
| TPS Sensor cable and connector for #71310,71330 | | 311-71311 |
| TPS Sensor cable and connector for #71320 | | 311-71321 |
| TPS Sensor cable and connector for #71340 | | 311-71331 |
| EGO Sensor cable and connector for 1-wire | | 316-72112 |
| HEGO Sensor cable and connector for 4-wire | | 316-72121 |
| IAC cable & inline 4 connector for motor #81110 | | 326-81111 |
| IAC cable & square 4 connector for motor #81100 | | 326-81101 |

IAC Motors & GPO Solenoids



| Description | ~ IAC's & GPO Solenoids ~ | Part # |
|---|---------------------------|-----------|
| GPO Solenoid, 1/32" Orifice | | 320-86031 |
| GPO Solenoid, 3/64" Orifice | | 320-86047 |
| GPO Solenoid, 1/16" Orifice | | 320-86063 |
| GPO Solenoid, 1/8" Orifice | | 320-86125 |
| IAC Motor, old-style threaded, use square 4 conn. | | 325-81100 |
| IAC Motor, O-ring style, use inline connector | | 325-81110 |
| IAC Body, O-ring style, 2 port universal, w/barbs | | 325-81112 |
| IAC Body, O-ring style, Ford adapter, w/o barbs | | 325-81114 |

**Note: above IAC motors come with connectors &*

WeatherPack Connectors, Wire Harnesses & Misc. Wiring



WeatherPack Style
Connectors



5 position Relay #91200 shown
with connector #91201

TEC³ DFU
connector #72120

Fuel Injector Connector
Bosch-style #72120

| Description | ~ Electrical Components ~ | Part # |
|--|---------------------------|-----------|
| TEC ³ AMP main connectors (23 position ea. w/50 terminals) | | 340-90000 |
| TEC ³ DFU conn.(4 pos'n Metri-pack w/5 terminals) | | 340-90002 |
| Relay, 5 position 20/30 amp 12v | | 340-91200 |
| Relay connector for #91200 | | 340-91201 |
| *Note: WeatherPack Kits include male and female connectors, terminals and seals | | |
| WeatherPack Connector Kit, 1 position | | 340-92110 |
| WeatherPack Conn. Kit, 2 pos. (power on TEC-II) | | 340-92120 |
| WeatherPack Conn.Kit, 3 pos. inline (crank/cam on TEC ³) | | 340-92130 |
| WeatherPack Conn.Kit, 4 pos. inline (4-wire O2 sensors) | | 340-92140 |
| WeatherPack Connector Kit, 4 position, square | | 340-92141 |
| WeatherPack Connector Kit, 5 position, circular | | 340-92150 |
| WeatherPack Connector Kit, 6 position, inline | | 340-92160 |
| WeatherPack Connector Kit, 25 pair | | 340-92190 |
| Fuel Injector Connector,(Bosch-style, sealed w/3 terminals) | | 340-92220 |
| Faston Spade Conn. Set of 8, (for HPX spade terminals) | | 340-92301 |

Crimping and Pin Tools



Pin Removal Tool Universal Terminal Weather-Pack Terminal
#91150 (top) & #92100 Crimper Tool #91152 Crimper Tool #92101

| Description | ~ Connector Tools ~ | Part # |
|---|---------------------|-----------|
| Weather-Pack Pin Removal Tool | | 340-92100 |
| Weather-Pack Terminal Crimper (MAP,KNK,O2,TPS,more) | | 340-92101 |
| Metri-Pack Pin Removal Tool | | 340-91150 |
| Universal Terminal Crimper (IAC, CLT, MAT, good all around) | | 340-91152 |

www.GetFuelInjected.com

Further helpful information on Electromotive Products can be obtained by visiting our website. You will find the following items.

- New product introductions
- Dealer listing and location
- Wiring harness color codes
- Calibration Software info
- Manuals in PDF format
- Technical sheets
- Frequently asked questions
- Customer pictures

More Electromotive Components

Electromotive Performance Injectors

Precision Manufactured to our exacting specifications by Siemens™.

Electromotive Performance Injectors are a Bosch Pintle style, low resistance, 'Peak & Hold' design that will deliver high flow rates with precision spray patterns for Maximum Power. Flow matched to very tight tolerances, these are Super High Quality injectors capable of handling the most rigorous racing applications.



72 lbs/hr
#83172



160 lbs/hr
#84160



31 lbs/hr
#83131

**No Need to go
elsewhere for injectors,
Electromotive
Performance Injectors
are second to none!**

| Description | ~ Fuel Injectors ~ | Part # |
|---|--------------------|------------------|
| Fuel Injector, low resistance, 26 lbs/hr @ 3 bar (43.5psi) | | 370-83126 |
| Fuel Injector, low resistance, 31 lbs/hr @ 3 bar (43.5psi) | | 370-83131 |
| Fuel Injector, low resistance, 37 lbs/hr @ 3 bar (43.5psi) | | 370-83137 |
| Fuel Injector, low resistance, 45 lbs/hr @ 3 bar (43.5psi) | | 370-83145 |
| Fuel Injector, low resistance, 55 lbs/hr @ 3 bar (43.5psi) | | 370-83155 |
| Fuel Injector, low resistance, 72 lbs/hr @ 3 bar (43.5psi) | | 370-83172 |
| Fuel Injector, low resistance, 82 lbs/hr @ 3 bar (43.5psi) | | 370-83182 |
| Fuel Injector, low resistance, 160 lbs/hr @ 3 bar (43.5psi) | | 370-83160 |

Injector Bosses

**Convert
your
Manifold
to EFI!**

Weld-in Boss
#85101 (left)
Threaded Boss
#85102



Injector Boss
& Cap
assembly
#85101
(injector not
included)

| Description | ~ Injector Bosses ~ | Part # |
|------------------------------|---------------------|------------------|
| Injector Boss, weld-in | | 390-85101 |
| Injector Boss, threaded | | 390-85102 |
| Injector Boss & Cap assembly | | 390-85100 |

Fuel Rail



High Flow Fuel
Rail #82300

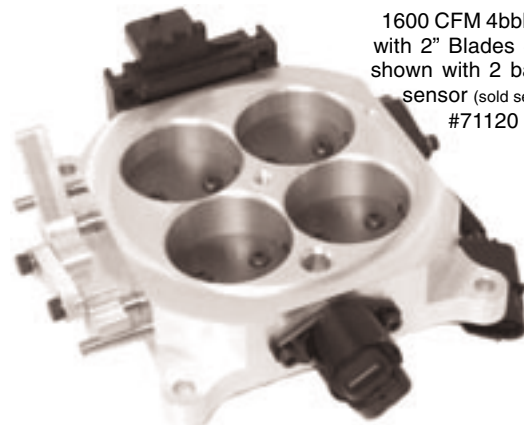


| Description | ~ Fuel Rail ~ | Part # |
|--------------------------------------|---------------|------------------|
| Fuel Rail extrusion, priced per foot | | 390-82300 |

When Your Engine Says "Feed me!" Electromotive Products Can Deliver!

Electromotive Billet Air Doors

- Integral Idle Air Control, TPS and MAP
- Progressive and non-progressive linkage
- Holley 4150 series footprint
- Fully CNC'd 6061-T6 aluminium



1600 CFM 4bbl. Door
with 2" Blades #89160
shown with 2 bar MAP
SENSOR (sold separately)
#71120

Electromotive 4-barrel throttle bodies are perfectly suited to top off your multiport fuel injection whether it is a street or competition engine. Utilizing a standard Holley 4150 bolt pattern, these billet aluminum bodies provide extremely low turbulence at full throttle and are available in both 1000 CFM (1 3/4" blade) and 1600 CFM (2" blade) versions. For street cars, cruise around on the primary throttles enjoying the low-speed crispness while saving the secondaries for full throttle action. However, if your racing environment requires a 'non-progressive' linkage, the uniquely designed throttle linkage allows you to easily switch from 'progressive' to 'non-progressive' in just a minute. Plus it includes mounts for automatic transmission kick-down cables, cruise control cables, and of course throttle cables. If a high lift cam has given your engine an annoying surge at idle, our throttle bodies feature an integral GM idle air control motor that will rid your engine of that unstable idle and provide an idle 'step-up' when your air conditioning compressor turns on. Also included is a throttle position sensor for a quick hook-up to your engine control computer. MAP sensor mount and 3/8" and 1/4" vacuum ports are built-in as well. An Air Cleaner Riser #59175, is included with each unit.

| Description | ~ Air Doors ~ | Part # |
|---|---------------|------------------|
| 4bbl 1.75", 1000cfm air door with IAC & TPS | | 400-89110 |
| 4bbl 2.00", 1600cfm air door with IAC & TPS | | 400-89160 |
| Air Cleaner Riser 1.75" I.D. X 6.25" long | | 500-59175 |

Fuel Pressure Regulators



Fuel Rail
Mount style

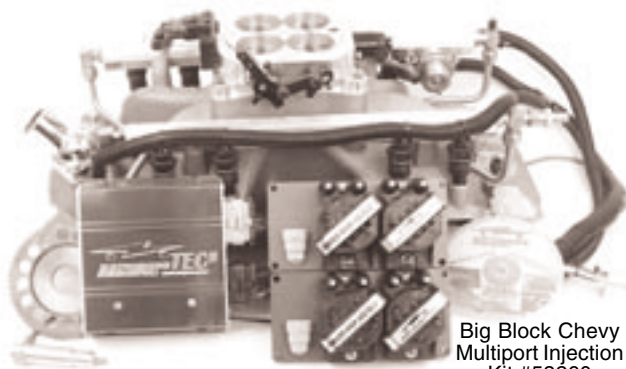


Hose Barb Mount
style #84244

| Description | ~ Fuel Rail ~ | Part # |
|--|---------------|------------------|
| Regulator, fuel rail mount, 2.5 bar (36 psi) | | 380-84139 |
| Regulator, fuel rail mount, 3 bar (43.5 psi) | | 380-84144 |
| Regulator, fuel rail mount, 3.5 bar (54 psi) | | 380-84153 |
| Regulator, hose barb mount, 3 bar (43.5 psi) | | 380-84244 |

Electromotive EFI Systems

Complete Multiport Electronic Fuel Injection Including Our Powerful TEC³ Ignition and Engine Management System



Big Block Chevy
Multiport Injection
Kit #53260

Electromotive's Digital Multiport Electronic Fuel Injection integrated with the TEC³ Engine Management System allows you to 'bolt-on' the world's newest technology. Converting to *state of the art* has never been easier. Available for small and big block Chevys, this single plane completely assembled multiport intake is ideal for street performance as well as racing applications. With the TEC³ (Total Engine Control) management system controlling all aspects of engine functions (including data logging), this is the ultimate complete EFI system. Smooth engine operations with adjustable cold start and warm up enrichments, along with the WinTEC 3.0 Software's special 'Idle Blend' screen which can produce a lower and smoother idle than any other engine management system. Tune for 87 octane gas and still realize great performance on the street. For competition, no other system will out perform Electromotive. For starters, the distributorless crank triggered, multiple coil, direct fire ignition is the best there is (that's why the OEM's license this technology from us!). This super high resolution ignition integrated with the high flowing manifold, Electromotive's own custom air door (capable of 1600 cfm!), and Electromotive Performance Fuel Injectors (low impedance), gives the racer a package capable of high horsepower and monster torque that is completely adjustable with the click of the keyboard. Add nitrous, add boost, no problem. You select your Air Door, Map sensor and Injector sizes. Save as many custom 'Tunes' as you like and don't forget, the WinTEC-3.0 Software features Electromotive's 'Tuning Wizard' that makes first time start-ups easy. So whether your car is destined for the street, the track or a combination of both, the Electromotive Bolt-On EFI System is the perfect choice.

The Electromotive EFI System comes with *throttle body, intake manifold with multiport fuel injection system, fuel regulator, *Electromotive Performance Injectors, *MAP, TPS, IAC, EGO, Coolant, MAT, Knock and MAG Sensors, TEC³ ECU, 2) DFU Coil Packs, custom terminated plug-in harness, *Crank Trigger Kit, WinTEC 3.0 Software, manual and communications cable.

*These items are customer specified for size and application

For Small and Big Block Chevrolet the Electromotive Multiport EFI Systems Deliver...

- Excellent Throttle Response and Outstanding Performance Throughout the RPM Range
- The Best Idle Control in the Business even with aggressive cams. Smooth Streetability with Cold Start and Warm-up Enrichments
- Improved Firewall Clearance Another Benefit with Electromotive's Super High Resolution, Crank Triggered, Multiple Coil Direct Fire Ignition
- Will Make Incredible Horsepower for competition.. Throttle Body Linkage Easily Changed from 'Progressive' for Street to 'Non-Progressive' whenever needed.
- Systems come Complete with Super High Quality Electromotive Low Impedance Performance Injectors
- Total Engine Control via your Laptop. Save numerous Street and Strip 'Tunes'



Small Block Chevy
Multiport Injection Kit
#51240

WinTEC
Software with
Tuning Wizard



Now You Can Have

Total Engine Control

with
TEC³

from

Electromotive
Engine Controls

"your new toolbox!"

Description ~ Complete Bolt-On EFI Kits ~ Part

MPI Kit, S/B Chevy (up to 600 HP Nat. Aspirated) **500-51240**
MPI Kit, B/B Chevy (up to 800 HP Nat. Aspirated) **500-53260**

MOST FREQUENTLY ASKED QUESTIONS ABOUT

ELECTROMOTIVE PRODUCTS

How much horsepower will I gain from your system?

7% and higher, depending on the application.

Do you have a unit for my vehicle/engine?

We have systems for all vehicles with spark ignited engines.

How hard is it to install and how long will it take?

The units that use our Bolt-On trigger wheel are easy to install by yourself. Otherwise a machine shop may be needed to bore the trigger wheel holes for installation. Installation, for the first time, may take one weekend.

Is it Multi-Port or Throttle Body fuel injection?

Either fueling types are available, including Individual Throttle Bodies.

Will I get better fuel economy?

Yes, if the vehicle is calibrated correctly.

How much spark voltage/energy does it have?

Up to 70,000 volts and energy of 150mJ (milliJoules).

How does it eliminate the distributor?

It has multi coils which allow each spark plug to be fired directly from the coil towers instead of through a mechanical distributor.

Will the waste spark damage my engine?

No, the coil fires a plug on the compression stroke and a plug on the exhaust stroke. This fired on the exhaust is called waste spark and has no effect at all on the engine.

Is this system reliable and is help available?

Yes, with a decade of experience, it is guaranteed to run without failure, period. All cars made world wide are going to this.

Yes, technicians are available M-F 8:30-5:00 est.

How does it compare to a CD Ignition (Capacitor Discharge)?

According to the BOSCH® automotive handbook 3rd edition...

Page 460... "The major advantage of the CDI is that it generally remains impervious to electrical shunts in the high voltage ignition circuit, especially those due to spark-plug contamination. For many applications the spark duration of 0.1 ... 0.3 ms is too brief to ensure that the air-fuel mixture will ignite reliably. Thus CDI is only designed for specific types of engine, and today its use is restricted to a few applications only, as transistorized ignition systems have virtually the same performance. CDI is not suited for aftermarket installations."

Why is it better than brand X?

Simply said, Electromotive's patented ignition is the best (see page 1 Electromotive's Fundamental Advantage). This 'State of the Art' Ignition System and patented technology is available ONLY in Electromotive's Aftermarket Engine Management - our competitors cannot offer it. So far only OEMs are licensed to use this. Electromotive's ignition puts out more energy at the right advance angle and continues to perform at higher RPM's; thereby, giving increased overall performance at all times. Other systems rely on time-based technology for calculating crankshaft location. Electromotive utilizes it's patented and much more accurate angular based technology in conjunction with a 60 tooth trigger wheel which optimizes coil charging time and the release of spark energy of extremely long duration at just the right time.

When it comes to EFI control and engine management, the new TEC³ certainly does not disappoint. The new 3D programmable WinTEC 3.0 software is simple enough for Street Enthusiasts and first time tuners, yet sophisticated enough for the most demanding ultra high output competition engines. Selectable within the software, the user may run throttle body, tuned port, multi-port, individual throttle body, true sequential, phase sequential or batch fired injection in closed or open loop. It can control ancillary devices such as nitrous (up to 4 stages), boost, torque converters and more. With its unique 'Tuning Wizard' it may be the easiest engine management system to get up and running. The *Tuning Wizard*, after a few simple user inputs, will establish a baseline program for you. Now that you are running, the TEC³ will auto calibrate the fuel curve based on your desired air/fuel ratio. Also the innovative WinTEC 3.0 software offers the 'Best Idle Control in the business'. Featuring a special 'Blend' screen, it enables engines that are aggressively cammed to achieve a smoother and more manageable idle. The unique WinTEC software features 'Tune on the Fly', cold-start and warm-up enrichments, knock control, new 'Triple-Smooth' rev limiters and linear advance tables that eliminates the need to enter point after point. The ability to run multiple injectors per cylinder is also built in. On-board Data Acquisition is now standard and can simultaneously record data from up to 25 different values. Viewable via multiple screens and even graph overlays with adjustable resolution times.

With the all-inclusive fuel injection and engine management systems, integrated with the powerful and accurate Direct Fire Ignition, with the TEC you truly get Total Engine Control!



- Select your parts
- Add them to the list below
- Call Electromotive or check our website for a dealer near you

Custom Order Form

(703) 331-0100

www.GetFuelInjected.com

HPX Order Form

***All HPX Units come with Manual (Select a Wheel & Mag Sensor)**

| Page# | Qty. | Part # | Description |
|-------|------|-----------|--|
| 3 | | | HPX Ignition (specify) |
| 9 | | | Crank Trigger Kit |
| 10 | | | Universal Trigger Wheel |
| 11 | | | Magnetic Sensor |
| 10 | | 210-72003 | Universal Sensor Bracket for 1/2" Mag Sensor |
| 11 | | | MAP Sensor (specify 1, 2, or 3 bar) |
| 12 | | 301-71111 | Cable & Connector for 1 bar MAP sensor |
| 12 | | 301-71121 | Cable & Connector for 2 & 3 bar Map sensor |
| 11 | | 261-72601 | Oil Pump Drive for S/Band B/B Chevy |
| 6 | | 150-10000 | 4-Stage Nitrous Timing Retard |
| 6 | | 150-10001 | 60 (-2) Tooth Crank Trigger Simulator |
| | | | |

TEC+ Order Form

***TEC+ ECU's come with Software, Manual & Comm. Cable**

| Page# | Qty. | Part # | Description |
|-------|------|-----------|--|
| 6 | | 070-33000 | TEC+ ECU '4x8' for 1, 2, 3, 4, & 8 cylinders |
| 6 | | 070-33001 | TEC+ ECU '6x6', 6 cyl.dual plug, Odd-fire, 12 cyl, 3-Rotor |
| 6 | | | TEC+ Harness (unterminated, terminated or custom) |
| 6 | | 070-40000 | Power Harness |
| 9 | | | Crank Trigger Kit |
| 10 | | | Universal Trigger Wheel |
| 11 | | | Magnetic Sensor |
| 10 | | 210-72003 | Universal Sensor Bracket for 1/2" Mag Sensor |
| 11 | | 300-71110 | MAP Sensor, 1 bar (Normally Aspirated) |
| 11 | | 300-71120 | MAP Sensor, 2 bar (Up to 15 lbs. Boost) |
| 11 | | 300-71130 | MAP Sensor, 3 bar (Up to 30 lbs Boost) |
| 11 | | 305-71210 | Coolant (CLT) Sensor |
| 11 | | 305-71220 | Manifold Air Temperature (MAT) sensor |
| 11 | | | Throttle Position Sensor (TPS) ..specify |
| 12 | | 315-72120 | Heated Exhaust Gas Oxygen (HEGO) sensor, 4-wire |
| 12 | | 340-92220 | Fuel Injector Connectors, 1 per package (includes connector & terminals) |
| 6 | | 150-10000 | 4-Stage Nitrous Timing Retard |
| 6 | | 150-10001 | 60 (-2) Tooth Crank Trigger Simulator |
| 11 | | 261-72601 | Oil Pump Drive for S/Band B/B Chevy |
| 13 | | | Electromotive Performance Injectors(specify) |
| | | | |

Customer Service and Support

Direct Sales and Our Value Added Dealers

Electromotive products are sold either direct or through our Value Added Dealers (VADs). Electromotive works closely with a network of independent dealers throughout the world. These dealers supplement our products with their experienced installation and calibration skills for specific applications. Combined with their discounts and expert knowledge, it can often be more effective to purchase a system from a VAD instead of directly from Electromotive.

1year limited warranty covers material and workmanship

All warranty claims must be pre-approved by Electromotive. Please call for return authorization and instructions. Customer is responsible for the return of defective units to Electromotive. All units in need of warranty repair should be sent "Attention: Service Department" along with a copy of the original invoice to the address shown below. The service department will repair or replace units at their discretion. A service charge will be assessed on units with no trouble found or units found to be damaged due to customer misuse.

Repairs & Returns

An RMA number is required for all units returned to Electromotive in need of repair.

The shipping address is:

Electromotive, Inc.

Attention: Service Department

9131 Centreville Road

Manassas VA 20110-5208

On overseas returns, it is very important to label the outside of the box "MADE IN USA" and "DAMAGED GOODS TO BE REPAIRED". If you do not label it this way, you will be responsible for US import duties if so charged. Customer is responsible for all shipping charges. Include a detailed note outlining the problems encountered and how you can be contacted. Please be aware that a minimum service charge will be assessed for testing, even if no trouble is found. All returns require pre-approval by Electromotive and are subject to a 20% restocking charge.

Pricing Policies

All prices subject to change. Wholesale pricing will be extended to automotive businesses only. A copy of the business license and a commercial phone listing are required. Discounts are based on quantity purchases or repeated purchases over 12 months. Discounts do not apply to individual orders under \$250 - nor to Software Licenses.

Software & Firmware Policy

Electromotive engine management computers are fully upgradeable with respect to both user software and ECU firmware. Software updates are made frequently on the Electromotive website, and can be downloaded free of charge. Firmware updates are also available through our website, but typically require a nominal fee for access. All firmware updates must be linked to the ECU's serial number. Consequently, firmware that was purchased with the serial number from one ECU will not work with another ECU. Theft, copying, and/or distribution of the firmware code are prohibited, and is punishable by law.

NOTE: Unless Identified with a C.A.R.B. E.O.#, Electromotive products are not intended for use on emissions controlled vehicles, and are not intended to be operated on public roads.

Technical Assistance

Electromotive Techs are available from 8:30-5:30 EST Monday through Friday at (703) 331-0100 or you may email your questions to: tecinfo@electromotive-inc.com and we will reply promptly. When you purchase an Electromotive product, you receive the finest in engine controls and also superior technical support.



For an Electromotive Dealer near you,
Check our Website:

GetFuelInjected.com

***For Further Information,
Contact:***

Electromotive Inc.

9131 Centreville Road, Manassas, VA 20110

TEL. (703)331-0100 FAX (703)-331-0161



ELECTROMOTIVE ENGINE CONTROLS

*Superior Ignition and
Engine Management Systems*



WinTEC 3

**ELECTROMOTIVE
ENGINE CONTROLS**

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Tel: (703) 331-0100 Fax: (703) 331-0161

GetFuelInjected.com
TECinfo@electromotive-inc.com

- Crank Triggered, Multiple Coil, Direct Fire, Tunable Ignitions
- Laptop Controlled, Super Powerful Engine Management for Electronic Fuel Injection featuring our Patented Ignition with Data Logging
- Bolt-On Multiport EFI Manifold System featuring our Billet Air Door and TEC³ Engine Management all in one package!
- Electromotive Performance Fuel Injectors

- EFI Sensors and Connectors
- Hardware and Accessories for your EFI Conversion Project
- The Finest Technical Support in the Business
- Patented Ignition Famous Worldwide for Winning Races

DirectIgnition.com

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