



## Do-It-Yourself Electronic Fuel Injection

- Integrated design has less wiring for easy installation
- Simple to setup and tune - no laptop required
- Easy to alter calibrations for cam swaps, power adders and upgrades
- Compatible with return or returnless fuel systems
- Improved overall driveability and superior performance

# ATOMIC<sup>TM</sup> EFI



**Driving Innovation**  
[msdperformance.com](http://msdperformance.com)  
[atomicEFI.com](http://atomicEFI.com)

# ***Do-It-Yourself Electronic Fuel Injection***

## **Atomic LS EFI System**

The GM LS-based engine has been embraced by hot rodders, muscle car fans and racers alike. The light-weight and compact engine produces plenty of power and fits easily in many engine compartments.

Since LS motors can be pulled from most salvage yards or purchased as new crate engines, it's a no brainer when choosing a power plant for your project vehicle.

Intimidating electronics and bulky wiring harnesses can quickly clutter the engine compartment and hurt the aesthetics of any hot rod. The massive factory ECU is not only a hassle to mount, but the sheer amount of wires that go along with it are simply overwhelming. MSD's Atomic LS systems are designed to eliminate the intimidation and clutter when installing EFI on an LS engine. By integrating the ECU onto the fuel rails we have eliminated the bulky ECU and wiring harness. The self tuning Atomic systems allow the average do-it-yourselfer to make short work on an LS engine transplant. Initial setup is a breeze with the supplied hand held programmer, and by simply answer a few car guy questions and the Atomic LS is ready to test drive.

## **Integrated Components and Wiring**

MSD is breaking new ground in electronic fuel injection with the next generation of Atomic EFI – the all new Atomic LS system. Where the Atomic TBI consolidated electronics and sensors into the throttle body itself, the LS platform incorporates the electronics into the fuel rails of the system! There's no bulky ECU to mount and therefore no wires to route to and from – it's all on the engine, hidden in plain sight.

There's no need for a PC, complicated software or tuning experience. Simply bolt it on, plug it in, answer a few car-guy questions using the supplied handheld controller and start the engine. The Atomic LS will begin learning and tuning your LS engine as soon as you fire it up. Advanced adjustments can be made to air/fuel targets, pump squirt, ignition timing and much more. The self tuning Atomic LS system will give you the performance and driveability you expect from your LS engine.

MSD has a variety of advanced programming features that are simple to navigate using the handheld programmer. These unique features allow you to get the most performance and benefits from your new Atomic EFI system.



# Atomic™ EFI LS

**Clean Installation  
Less Wiring  
No PC Required**



## No PC Required

The Atomic LS EFI isn't just about the ease of installation; it's about ease of use. There's no need for a PC, complicated software or tuning experience. Simply bolt it on, plug it in, answer a few car-guy questions using the supplied handheld controller and start the engine. The Atomic LS will begin learning and tuning your LS engine as soon as you fire it up. Advanced adjustments can be made to air/fuel targets, pump squirt, ignition timing and much more. The self tuning Atomic LS system will give you the performance and driveability you expect from your LS engine.

- **Integrated electronic/fuel rails significantly reduces the amount of wiring**
- **No PC and self-learning technology eases the setup and initial tuning**
- **Improves the aesthetics of the engine bay with less wires and NO ECU to mount**
- **Supports up to 1,000 horsepower**
- **Accepts Mechanical and Electronic Throttle Control\* Systems**  
*(ETC System, Available Early 2014)*
- **Single WBO2 included and a second sensor can be added**
- **Recognizes 24- or 58-tooth crank trigger wheels**

## Advanced Programming Features

MSD has a variety of advanced programming features that are simple to navigate using the handheld programmer. These unique features allow you to get the most performance and benefits from your new Atomic EFI system.

- **Boost/Nitrous compatible** (Supports Wet Nitrous systems only)
- **Adjustable temperature outputs to activate two cooling fans**
- **Advance or retard the ignition timing up to 10°**
- **Select a rev limit through fuel or ignition cut-off**
- **Compatible with OE Variable Cam Timing Control**

# Atomic™ EFI LS

The Next  
Generation  
of Atomic™ EFI

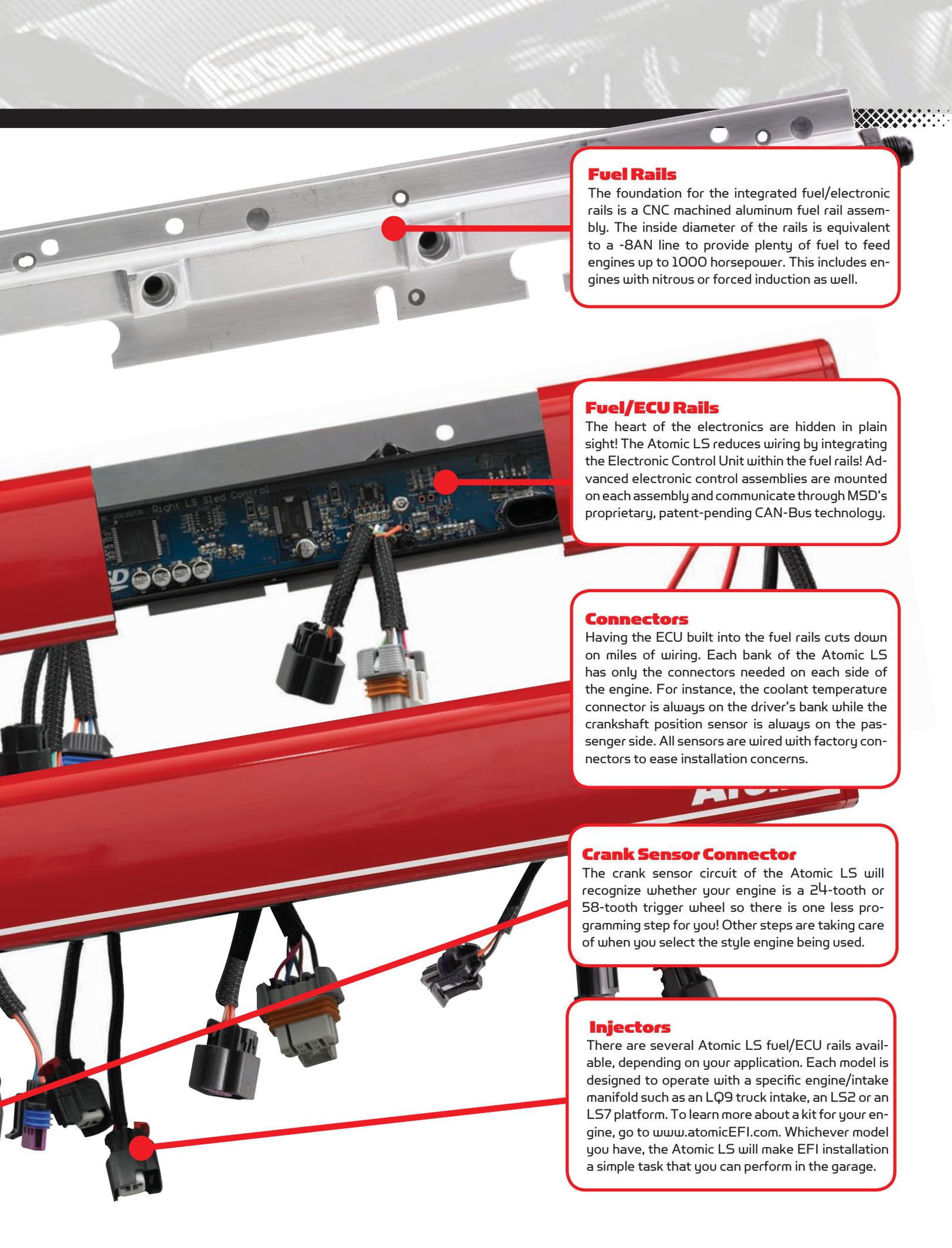
## Power Module and Handheld Monitor

The LS platform incorporates a compact housing that is responsible for communication from the fuel rails to the fuel pump, fans, WBO2 as well as other inputs for nitrous, AC Kick-up or the 2-step launch control rev limit. There is a main connector, a power connector as well as the Handheld Monitor connection.

To program the Atomic LS, simply plug in the Handheld Monitor into the Power Module and toggle through the menu screens with the joystick. Scroll up and down through a few easy parameters and your engine will be running in no time. The Handheld can be unplugged and stowed away, or leave it connected to view a list of items in real time as the engine runs! No PC, no software and no experience necessary. It's just that easy.

*Don't fret about programming your Atomic EFI system as everything can be set right from the supplied Handheld Monitor. From the main menu you simply select from a few target settings, values and what engine you're working with.*





### **Fuel Rails**

The foundation for the integrated fuel/electronic rails is a CNC machined aluminum fuel rail assembly. The inside diameter of the rails is equivalent to a -8AN line to provide plenty of fuel to feed engines up to 1000 horsepower. This includes engines with nitrous or forced induction as well.

### **Fuel/ECU Rails**

The heart of the electronics are hidden in plain sight! The Atomic LS reduces wiring by integrating the Electronic Control Unit within the fuel rails! Advanced electronic control assemblies are mounted on each assembly and communicate through MSD's proprietary, patent-pending CAN-Bus technology.

### **Connectors**

Having the ECU built into the fuel rails cuts down on miles of wiring. Each bank of the Atomic LS has only the connectors needed on each side of the engine. For instance, the coolant temperature connector is always on the driver's bank while the crankshaft position sensor is always on the passenger side. All sensors are wired with factory connectors to ease installation concerns.

### **Crank Sensor Connector**

The crank sensor circuit of the Atomic LS will recognize whether your engine is a 24-tooth or 58-tooth trigger wheel so there is one less programming step for you! Other steps are taking care of when you select the style engine being used.

### **Injectors**

There are several Atomic LS fuel/ECU rails available, depending on your application. Each model is designed to operate with a specific engine/intake manifold such as an LQ9 truck intake, an LS2 or an LS7 platform. To learn more about a kit for your engine, go to [www.atomicEFI.com](http://www.atomicEFI.com). Whichever model you have, the Atomic LS will make EFI installation a simple task that you can perform in the garage.

# ATOMIC™ EFI LS Kits

MSD's goal is make our Atomic EFI the simple and cleanest solution for your LS EFI needs. Each Atomic Master Kit is supplied with the Integrated Fuel Rails, brackets and hardware, Power Module, Handheld Monitor, WBO2 Sensor Kit, Crossover fuel line, injector retainer clips, and harnesses. Four different Master Kits are available for your crate or donor engine:

**LS2/LS3 Kit, PN 2950\***

**LS7 Kit, PN 2960\***

**LS Truck Kit, Early Model**

with 3-bolt throttle body, **PN 2957\***

**LS Truck Kit, Later Model**

with 4-bolt throttle body, **PN 2958\***

**NOTE:** Fuel pump, hoses and injectors are NOT supplied.

## Install Kit

If you're working with an LS1/LS6 engine and intake combination, different fuel rail brackets and injector connectors will be required to install the PN 2950 Master Kit. This install kit will provide the proper brackets and injector connectors.

**Installation Kit for LS1/LS6 Intake Systems, PN 2955\***

*\*Must be used with Master Kit, PN 2950.*



**PATENT  
PENDING**

## Atomic LS Throttle Body, PN 2940\*

When you run an LS engine, performance begins with the introduction of air into the intake manifold. MSD's new 90mm LS Throttle Body answers the need for a high quality throttle body with a mechanical throttle mechanism that bolts to most factory and aftermarket intakes.

MSD went through the time and expense to develop a cast throttle body assembly in order to achieve a unique parabolic bore form. This design helps deliver excellent drivability characteristics during part throttle that typical billet straight bore throttles just can't deliver. We incorporated factory style bearings and seals on the throttle blade to achieve a very robust design that can withstand temperature swings seen by street.

**Parabolic bore  
delivers precise  
drivability during  
part throttle**

The Atomic Throttle Body is supplied with a factory style TPS and Idle Air Control motor and fits most OE style intake manifolds.



\* Not legal for sale or use in pollution controlled vehicles

# ATOMIC™ EFI TBI



The Atomic TBI raised the bar in EFI systems to replace a carburetor and has proven itself to be the best system on the market. When MSD developed the Atomic TBI, our goals were similar to the LS system; simplify the installation process with less wiring, combined with easy programming (no laptop required). It was designed, and has proven to be, a completely do-it-yourself EFI upgrade.

The Atomic EFI provides the performance and driveability benefits that you expect from fuel injection. Quick starts, smooth idle and great throttle response just to name a few. All of this is packaged in a clean, sleek package that provides a great looks and even better performance.



- **Less wiring, fewer connections for the easiest installation**
- **Self learning technology eliminates the need for PC programming**
- **Easily calibrate for engine upgrades at any time**
- **Supports nitrous and boosted applications**
- **Compatible with returnless fuel systems**
- **Control the ignition timing through the ECU**

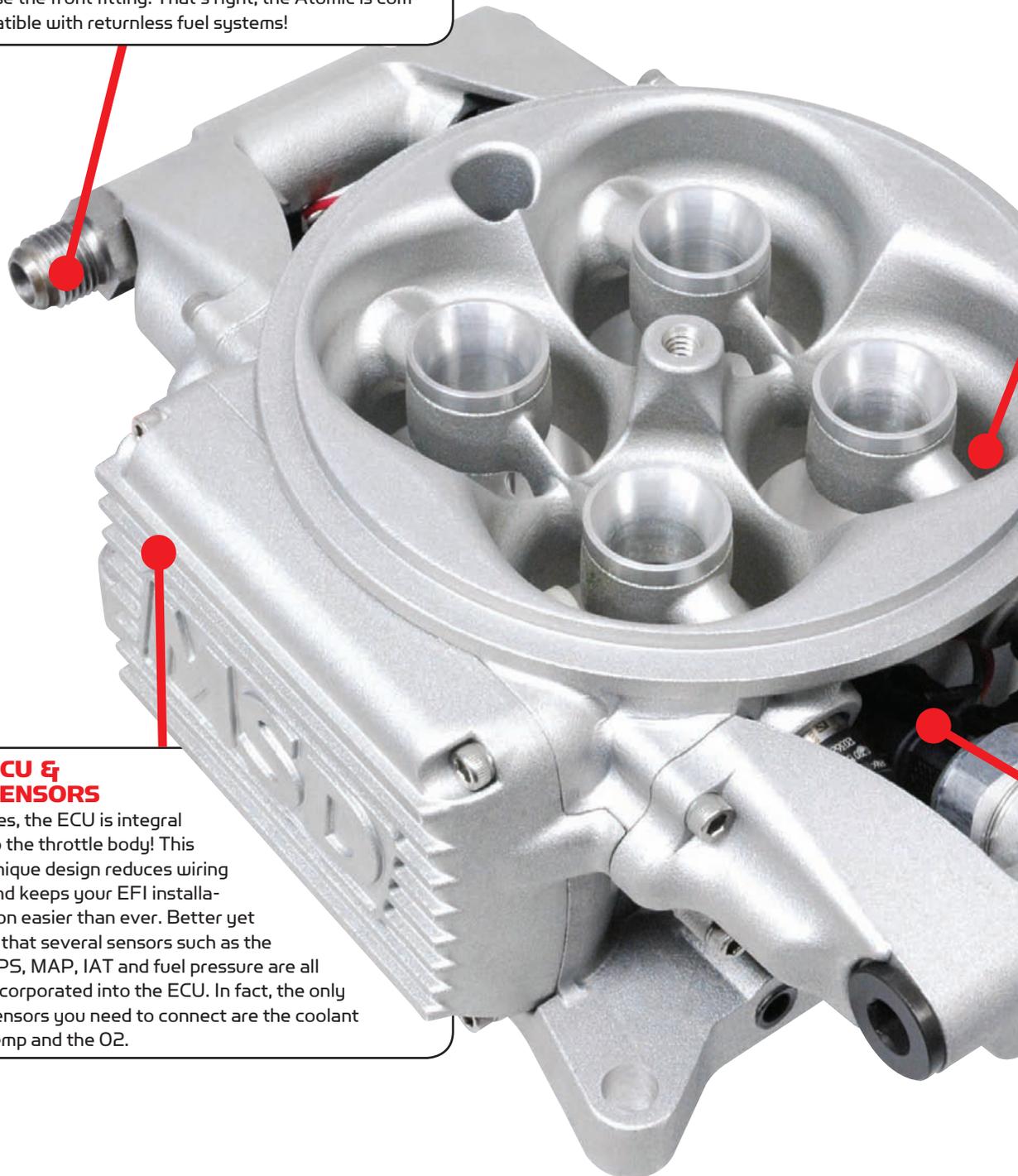
# Atomic™ EFI - the easiest way to quit smoother idling and immediate thro

## INTERNAL FUEL RAIL

Not only does the internal fuel rail present a sleek appearance, it removes fitting connections where leaks could develop. Also note that with a returnless fuel system, you can bring the fuel line up from the back or use the front fitting. That's right, the Atomic is compatible with returnless fuel systems!

## ECU & SENSORS

Yes, the ECU is integral to the throttle body! This unique design reduces wiring and keeps your EFI installation easier than ever. Better yet is that several sensors such as the TPS, MAP, IAT and fuel pressure are all incorporated into the ECU. In fact, the only sensors you need to connect are the coolant temp and the O2.



# icker starts, ottle response

## MOUNT & BLADES

The Atomic throttle body bolts right in place of a standard square bore carburetor and accepts the same linkage as most carbs. The throttle inlets are 1.75" diameter and ride in precision roller bearings for smooth pedal transition.

## TPS

The Atomic's TPS is unlike any you have used before. It is an automatic, self-calibrating, non-contact sensor. That means you don't have to worry about configuring it during set up. Also, with no contact, there is nothing to wear out or replace.

## INJECTORS

Fuel delivery is provided by four precision 80-pound injectors. These injectors feature a stainless steel ball and seat metering method for maximum internal sealing. For a secure mount the injectors are sealed between the housing and the cast fuel rails.

## POWER MODULE AND HANDHELD PROGRAMMER

This compact device handles the high power systems such as the electric fans and the fuel pump control. It simply plugs into the throttle body via MSD's CAN-Bus network with a single connection. The power runs to the electric fuel pump and there are two fan control wires allowing you to program what temperatures to activate the fans. Eliminating the need for an external fan controller.

Atomic's handheld programmer gets the system set for your particular engine in just a few easy clicks! This controller, combined with the Self-Learning technology from the internal ECU, eliminate the need for a laptop or user tuning. Simply push the joystick left, right, up, and down to move through the options. Within minutes the setup will be complete! Plus, the handheld will act as a dash to display all that is happening in your new Atomic FI system!



## TIMING CONTROL

The Atomic system does more than just fuel! When paired with an ignition control, like the MSD 6A, the Atomic unit can take over your vehicle's timing advance. The handheld gives three simple options to set the timing including the total, initial and rate of advance. It's like the springs and bushings on a distributor, but with digital control.

## Atomic Supports Nitrous and Boost!

That's right, you can run nitrous with your Atomic Throttle Body! Setting up the Atomic for use with your favorite power adder is designed to be as simple as the initial programming. For nitrous fans, a wet system (one that supplies its own fuel to compensate for nitrous) must be incorporated. From the Atomic handheld monitor you'll be able to program a target air/fuel ratio that will be used when the nitrous is activated. There is also a timing setting that will retard the timing during nitrous activation as well.

For boosted applications, whether it be a blow through or draw through, the menu settings are similar. The throttle body incorporates a 2-bar MAP sensor and can manage up to 14-psi of boost. There is a value for a target air/fuel ratio during boost on the Handheld Monitor as well as a timing retard that is based off timing per pound of boost.

An important aspect of using power adders with the Atomic TBI is to consider the fuel system as well as overall power levels. The injectors of the throttle body can support up to about 625 horsepower on naturally aspirated applications when used with the high horsepower fuel pump.

# TBI KITS and ACCESSORIES

## Atomic TBI Master Kit, PN 2900\*

The Master Kit includes every component you need to complete an EFI conversion, including: Throttle Body, Power Module, Wide Band O2 Sensor, Handheld Monitor and the Fuel Pump Kit which includes the pump (good to 525hp), filters, brackets, high pressure hose and clamps.



PN 2900

PN 2910



## Atomic TBI Kit, PN 2910\*

If you have a vehicle that already uses an electric fuel pump (with a return line), the Basic Kit provides the parts you'll need to convert to Atomic power. These include; Throttle Body, Power Module, Wide-Band O2 Sensor and the Handheld Programmer.

*Now Accepts Boost and Nitrous!*

## Fuel Pump Kit, PN 2920\*

For engines up to 525hp, the standard Fuel Package includes all of the parts needed to upgrade a vehicle's fuel system to Atomic standards. Parts included: Fuel Pump, Filters, 15 ft. 3/8" Fuel Line, Mounting Hardware.



PN 2920



PN 2922

## Fuel Pump Return Kit, PN 2922

If you plan to run a return line with your Atomic EFI system, this kit provides a regulator, 15 ft. of 3/8" line and the fittings to assemble.

## High Horsepower Fuel Kit, PN 2921\*

The Fuel Upgrade is a replacement fuel pump for vehicles making between 525-625hp. Parts included: Fuel Pump, Post-Filter, 15 ft. 3/8" Fuel Line, Mounting Hardware.



PN 2921

## MSD Logo

**Air Cleaner Kit - PN 2890**

## MSD and Atomic Logo

**Air Cleaner Kit - PN 2895**

## Replacement Parts:

**Paper Element - PN 2893**

**Washable Element - PN 2894**



## Atomic Fuel Pump, PN 2925

This is the same pump supplied with the Atomic Master Kits. The pump features a 3/8" inlet/outlet to ensure to feed the demands of your engine. Isolating mounts are supplied. This pump is good through 525 horsepower and is approved for in-tank use.



\* Not legal for sale or use in pollution controlled vehicles

# Atomic™ EFI Delivers on the Street and Off-Road Too!

In the summer of 2012, street rod enthusiast, Jim Shelton, set out on an amazing journey. The kind that most hot rodders crave to do yet borders on the edge of "you're going to do what?" kind of road trip.

Jim left his Las Vegas home in his '32 Ford Roadster on Tuesday, May 22, and didn't return until Saturday, July 7th. In that time he traveled through 20 states in 47 days, completed the Power Tour, took in the NHRA Reunion, two Street Rodder Road Tours, MSRA Back to the 50s and the Goodguys Heartland Park Nationals. By the time he pulled back into his garage, the 327 had logged over 8,900 miles. In fact, his '32 roadster now has over 90,000 miles on it!

For the trip, Jim relied on the Atomic EFI system.

*"The engine starts and idles regardless of temperature. It doesn't pop or sneeze if I drive it cold. I can pull into traffic without praying the engine won't stumble or lurch. It runs beautifully at the beach or on the Eisenhower Pass (11,150 feet) whether near freezing or on a 100-plus-degree day. Wide-open performance feels the same but the part-throttle response improved so much that you'd swear the engine got bigger. And if I can keep my foot out of it, it returns a consistent 15 to 20 percent improvement in fuel economy which was at a pretty respectable level beforehand. The even bigger reward was the excellent drivability that it provides. The roadster drives even more like a modern car now."*

- Jim Shelton



*"I researched all of the throttle body EFI units and went with the Atomic. I have MSD on my '69 Barracuda and like the ability to control the ignition timing. The Atomic works great! Easy cold starts, no stumbles or hesitation and awesome throttle response."*

- Gary Harris,

The Car Shop, Moline, Illinois



*"Our goal was to improve start up and drive-ability of our Sunbeam Tiger's hi-po 289 and once again MSD's 2900 Atomic EFI System exceeded our expectations. The returnless fuel system, and compact electronics were key to a clean and simple installation and the flawless driveability has really made this car fun to drive again. Of the many aftermarket EFI systems that we have installed over the years, none have performed or offered the clean installation that the MSD Atomic EFI System does."*

- Paul Faessler

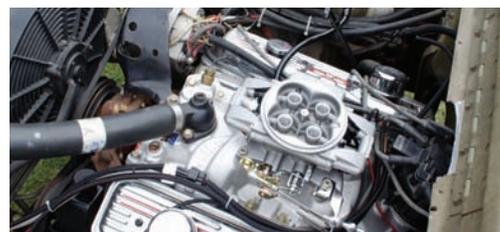
Paul's Automotive Engineering



*"The Atomic throttle body looks great and it is nice how many sensors are integrated into the design. And with a little preparation, you can go from a carb to EFI in one day. Consistent air/fuel delivery is very important in off-roading and the Atomic is consistent at any angle and doesn't care how much you bounce your 4x4 around."*

- Cole Quinnell

Owner, ColeQ Comm



*"We were helping a shop that was working on a mint Nova with a 396 that was .040" over. It was the customer's baby but issues with fuel smell, bucking in high gear at lower rpm and hard starting had him hating the car. The car had a pretty stout solid roller cam which wasn't helping with the issues so we spec'd a hydraulic roller for it.*

*First, they dyno'd the car as it came in and it made 510-hp at 6,000 rpm with 446 ft-lbs of torque at 5,000 rpm. He left the timing, carb and everything else the same but swapped in a Clay Smith 160-3101 with a set of Morel Street lifters. The engine made 521-hp at 6,200 and 30 ft-lbs of torque!*

*Next, they installed an Atomic system and started tuning from the handheld monitor. The end result was 550-hp at 6,500 rpm and 510 ft-lbs at 5,900 rpm! Not only a huge difference in power but it starts, idles and runs like a totally different car now."*

- Chris Straub

Mfg Performance Parts

Clay Smith Cams

MSD's Atomic EFI systems were designed with two goals; to simplify EFI and overall performance. Simplicity was achieved through component integration resulting in easier installation and programming. Performance is served through advanced self-learning properties for the best driveability results from idle to full throttle blasts. Atomic EFI delivers.

**LS**



*LS Systems with less wiring  
for a clean installation*

**TBI**



*Throttle Body System  
to replace carburetors*

**ATOMICEFI.com**



[msdperformance.com](http://msdperformance.com)

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