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INSTALLATION MANUAL

AEROFLOW PERFORMANCE

SMART COIL

WARNING!

BEFORE PROCEEDING WITH INSTALLATION PLEASE READ INSTRUCTIONS CAREFULLY. THIS PRODUCT REQUIRES DETAILED KNOWLEDGE OF AUTOMOTIVE SYSTEMS. WE RECOMMEND THAT THIS INSTALLATION BE CARRIED OUT BY A QUALIFIED AUTOMOTIVE TECHNICIAN.

These instructions must be read and fully understood before beginning the installation. Failure to follow these instructions may result in poor performance, vehicle damage, personal injury or death. If these instructions are not fully understood, installation should not be attempted.

INTRODUCTION

Congratulations on your purchase of Aeroflow Performance smart IGN-1A coil. Aeroflow Performance products cannot and will not be responsible for any damage, or other conditions resulting from misapplication of the parts described herein. However, it is our intention to provide the best possible products for our customer, products that perform properly and satisfy your expectations. Should you have any questions? Please call technical support at +61 2 8825 1900 and have the product part number on hand when calling.

Do you need require precision control over your ignition system? Or just want to upgrade your stock coil packs? Here at Aeroflow we have the answer with our high output IGN-1A smart coil. This coil delivers similar performance to a CDI system without the need for the bulky and costly CDI control box, as the igniter is built right into each individual coil. They produce more spark energy while consuming less power without sacrificing voltage output. These IGN-1A coils deliver a powerful, long duration spark and are ideal for use in high-boost or high-compression engines. Capable of working with both 12- and 16-volt electrical systems and many aftermarkets ECU's makes it the coil pack of choice.

These coils feature mounting holes that will bolt in place of factory GM LS 1/2/3/6/7 coils with 72mm bolt spacings. This is great for direct fitment for GM LS brackets to provide a host of mounting options. Custom brackets can also be manufactured. We recommend these coils be mounted securely in a bracket.

Heat can be the enemy of these coils. Therefore, installation should be away from any extreme heat sources. Custom heat shields are recommended to prolong the life of the coils.

For more information or technical enquires

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SPECIFICATIONS:

Peak Voltage - 50,000 Volts @ 7.0 ms

Peak Secondary Current - 102 mA +/- 10%

Peak Output - 190 mJ @ 7.0 ms

Arc Duration - 2.9mS +/- 10%

Turns Ratio - 71:1

Maximum Current - 19 Amps

Maximum Battery Voltage - 17 Volts

Base Dwell - 3.0 mS

Max Continuous Dwell - 9 mS but don't exceed 40% duty cycle

Max Intermittent Dwell - 80% duty cycle, 5 seconds maximum

Mating Connector - AF49-8289 plug and pins or Delphi 12162825

High Tension Wire Terminal - HEI "spark plug top" Style

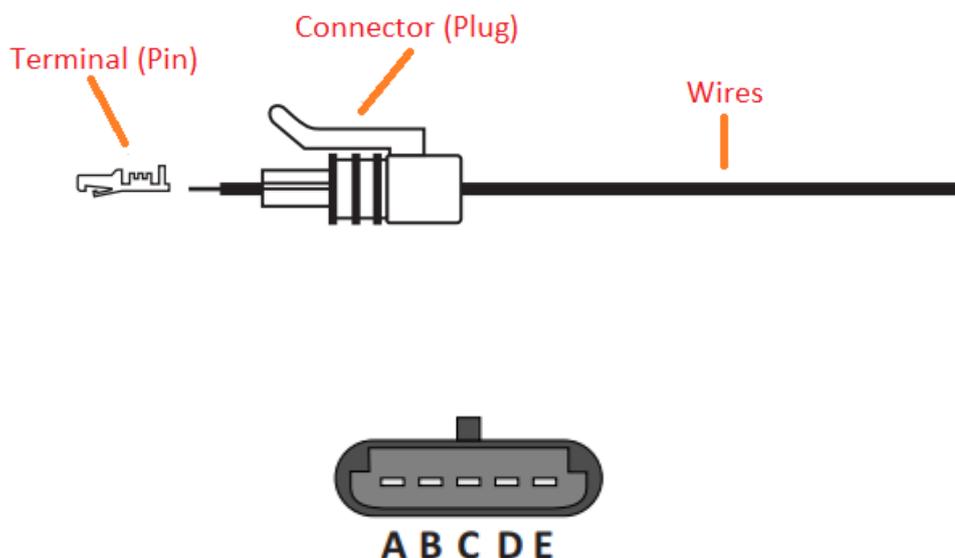
WIRING

Plug and pins are sold separately (AF49-8289) or alternatively we have a complete plug and plug harness available for GM LS series engines (AF49-1532).

The terminals in the plug are a "Pull to Seat" meaning you must feed the wire through the connector housing BEFORE you crimp on the terminals. The wire is then pulled back into the housing and the terminal locks in place. The contact cannot be inserted or removed from the rear (wire side entry) of the housing.

The connectors for the coils must be assembled and wired. Connector assembly procedure is stated below, and wiring for connector is mentioned on the following page along with recommended wire gauges.

1. Feed wire through the back of the housing and out the front side.
2. Crimp pins onto the wire.
3. Pull back on the wires to seat in the connector cavities.



Wiring Plug Pinouts

Pin A: *Coil Trigger (ECU Ignition Output)*. Connects to individual ECU outputs. This uses a 5 Volt signal to trigger the coil. Spark event occurs on falling edge.

Pin B: *Coil Trigger Ground (ECU Ignition Ground)*. All coil grounds can be tied together to the ECU.

Pin C: *Power Ground. (Ground to cylinder head)*. This ground must go to the cylinder head that the coil is discharging to. It is recommended to tie each cylinder bank together. Do not connect any other grounds to this point. Recommended gauge to use is an 16-18 gauge for each coil then tie them to a single 10–12-gauge wire.

Pin D: *High Current (Battery) Ground*. This is a high current ground that should go to the battery or a ground stud that is directly connected to the battery. Recommended gauge wire is 16–18 then tie to a single 10–12-gauge wire.

Pin E: *High Current Power (Battery Positive)*. High current switched +12 Volt Power. Do not connect directly to the battery. It is recommended to install to a 40 Amp relay and fuse source. Again use 16–18-gauge wire for each coil, then tie to single 10–12-gauge wire.

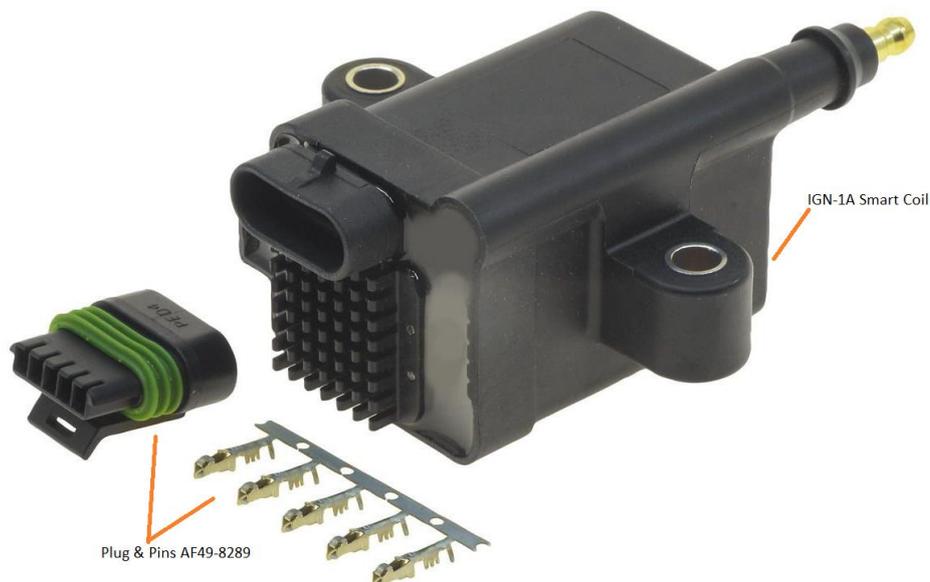
DWELL SETTING

It is recommended to target a base dwell time of 3mS and only increase it when needed due to high cylinder pressures.

The maximum individual coil dwell “ON” time must not exceed 9mS at any time, regardless of engine RPM. For continuous duty the maximum “ON” time must remain below 40% duty (on 40% of the time, off 60% of the time). Exceeding either of these will cause the coil to overheat and fail.

In order to determine the correct dwell setting, first determine your engines HP per cubic inch. To do this divide the engines horsepower by engine displacement in cubic inches. Once determined, follow the dwell setting recommendations below.

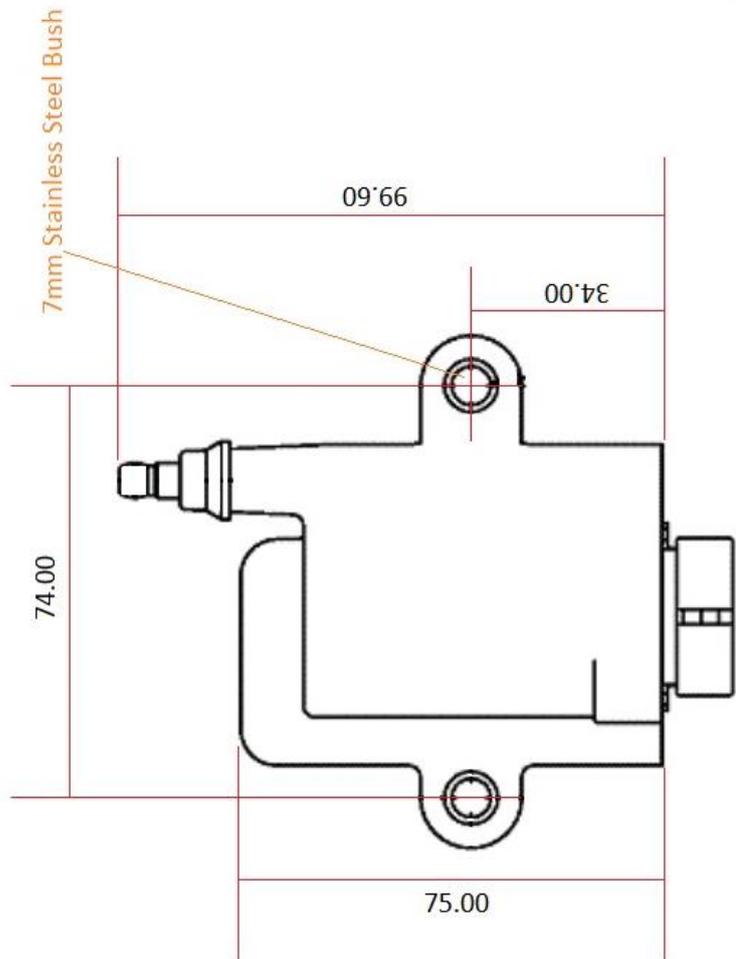
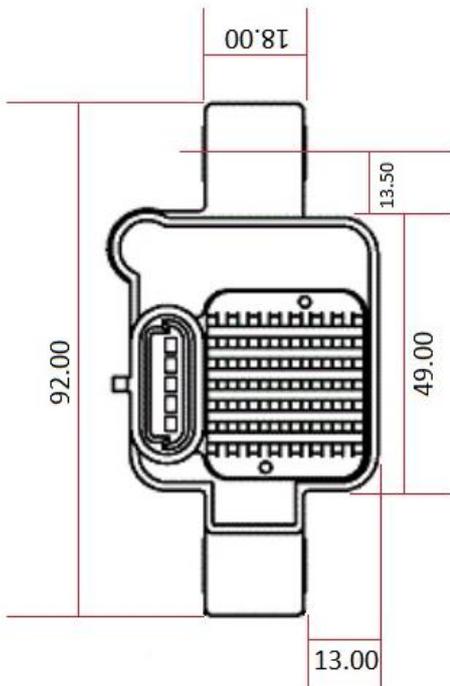
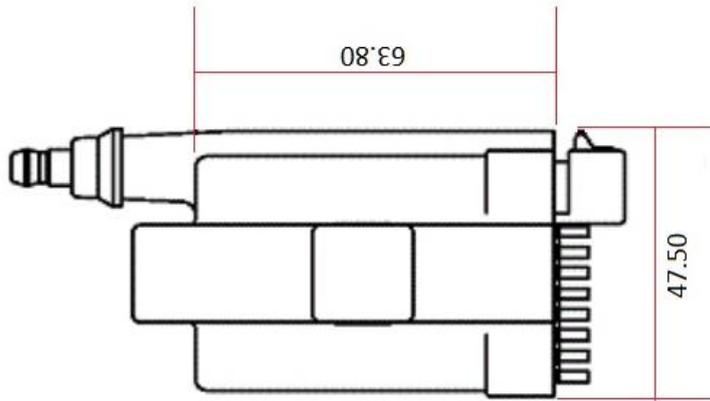
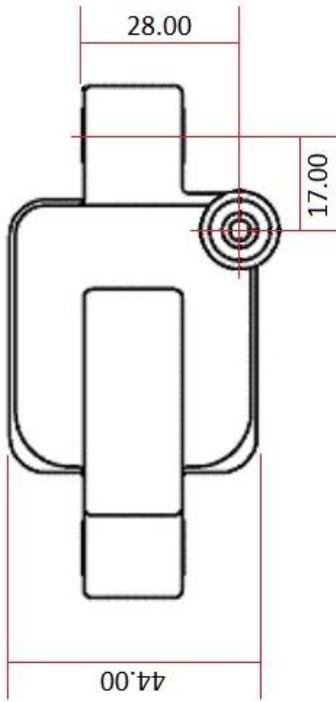
- For street cars below 1.5 HP per cubic inch, dwell should be set to 4.0 milliseconds.
- For cars that exceed 1.5 HP per cubic inch, dwell should be set to 4.5 milliseconds.
- For long duration racing, such as road racing or off-road, dwell can be set to 5.0 milliseconds.
- For short duration racing, such as drag racing, dwell can be set to 7.0 milliseconds.



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