

SCION-SPRAYS

FUEL INJECTION FOR SMALL ENGINES



Environmental • Economic • Effective



Introduction

Scion-Sprays develops and manufactures engine management systems for small engines.

Benefits to engine manufacturers - current and future emissions compliance, low cost, simplicity in application, good performance.

Benefits to end users - low fuel consumption, ease of starting, and good driveability.

Typical applications - motorcycles <250cc, scooters, utility engines.





Transformation

Scion-Sprays Small Engine Management transforms customers' business

Emissions down

CO -50%
HC+NOx -35%

**Fuel savings
of 12 - 20%**



Easy start

Environmental

Current and future emissions compliant
Bio-fuel compatible
Fuel consumption reduction

Economic

Lowest cost engine management solution
Fuel cost savings
Low cost maintenance

Effective

Product differentiator with added value
Hardware, software and application support
User benefits like easy start, simple to maintain

Typical Applications



**Small Motorcycles
and Scooters**

Emissions performance, cost,
driveability, fuel consumption



**Professional & Premium
Consumer Power Equipment**

Cost, features,
fuel consumption



**Lawn & Garden machines,
Generators, Snow blowers,**

Cost, features, longer term
emissions compliance

Technology – Pulse Count Injection

The PCI (Pulse Count Injection) injector combines the functions of fuel pumping, metering and injecting.

When the injector is pulsed a small fixed volume of fuel is injected. The quantity of fuel to be delivered per engine cycle is controlled by the number of pulses.



The pulses are at high frequency (700 to 1,000 times a second).

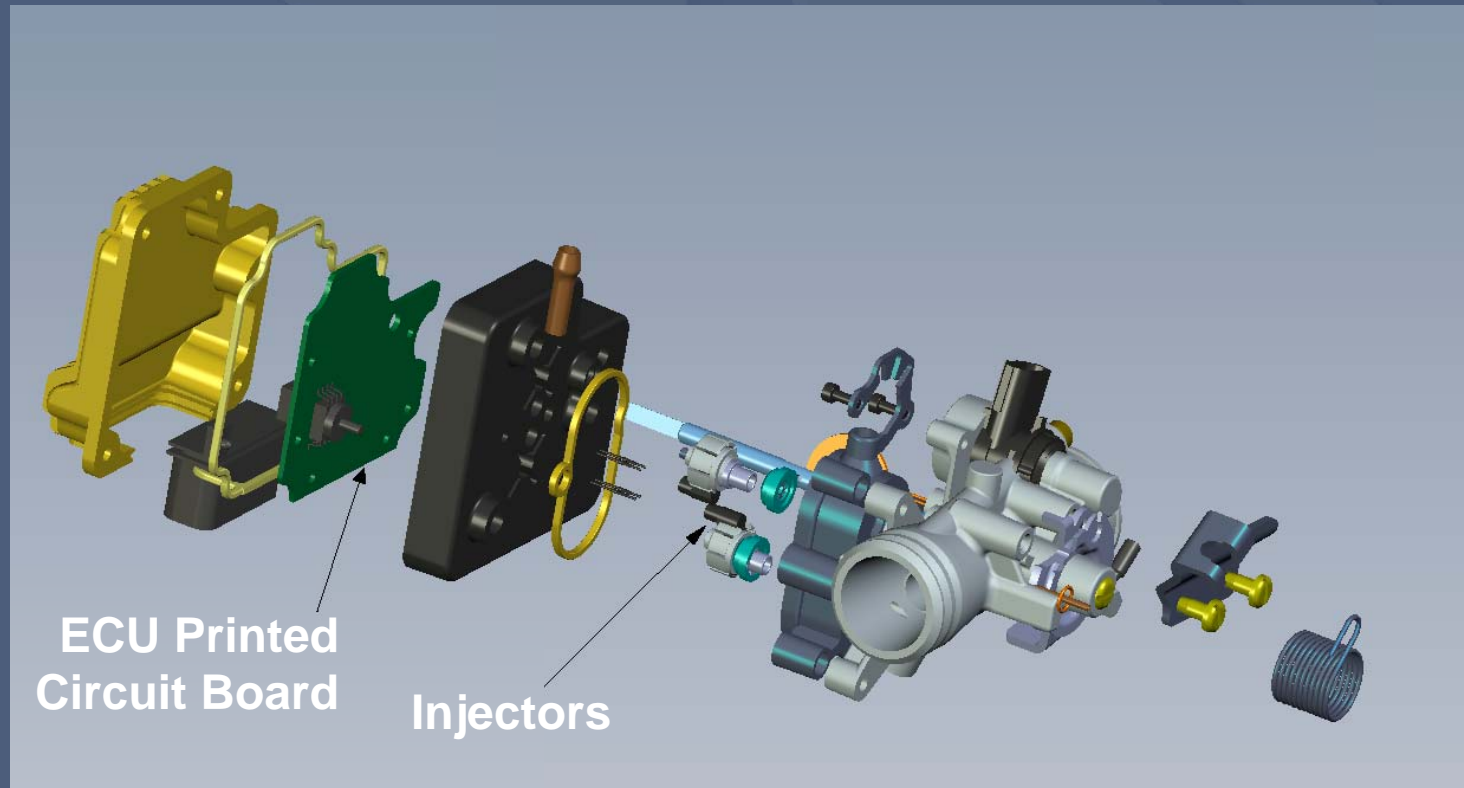
Technology - Integration

Throttle body, injector(s), sensors and electronics are all integrated into a modular product, with the same footprint as the original carburettor.

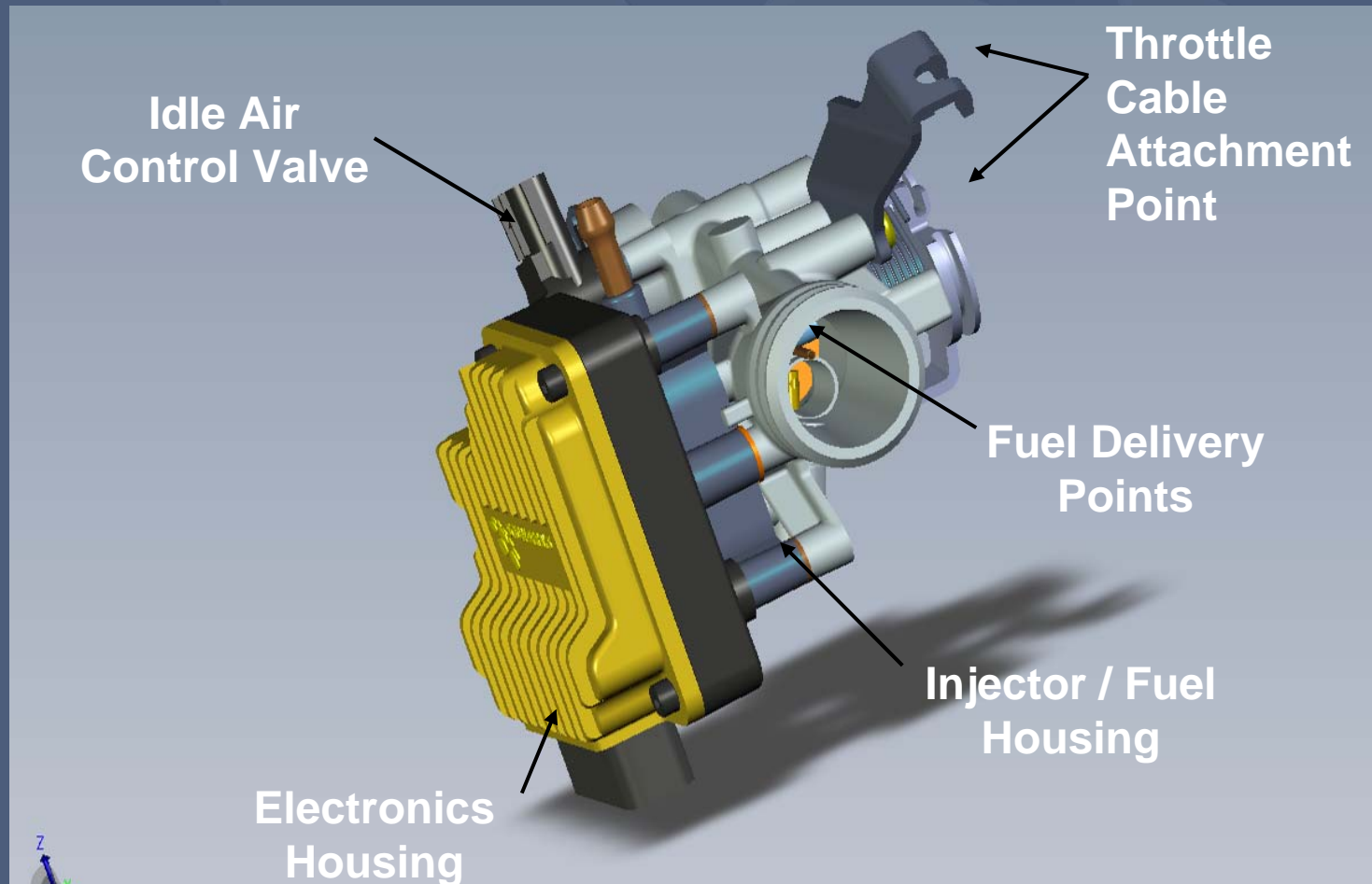


There is no requirement for a high pressure fuel pump. In most applications gravity feed is used.

Technology – 125cc Engine Management Example

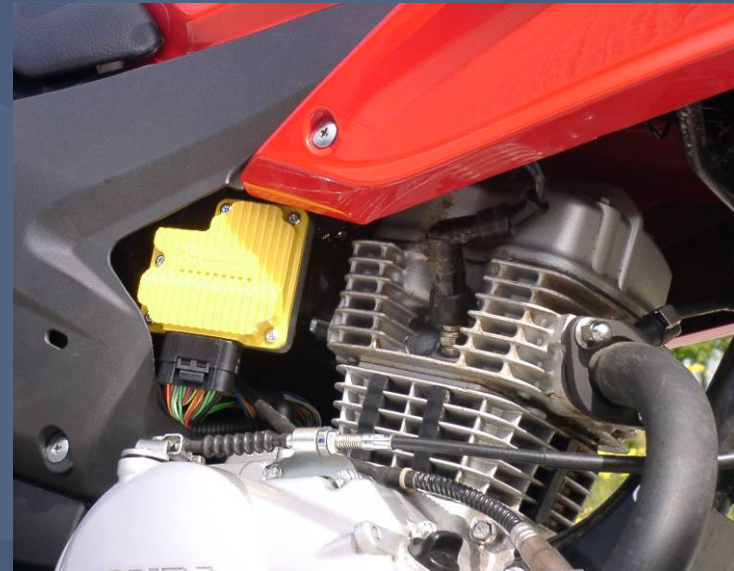
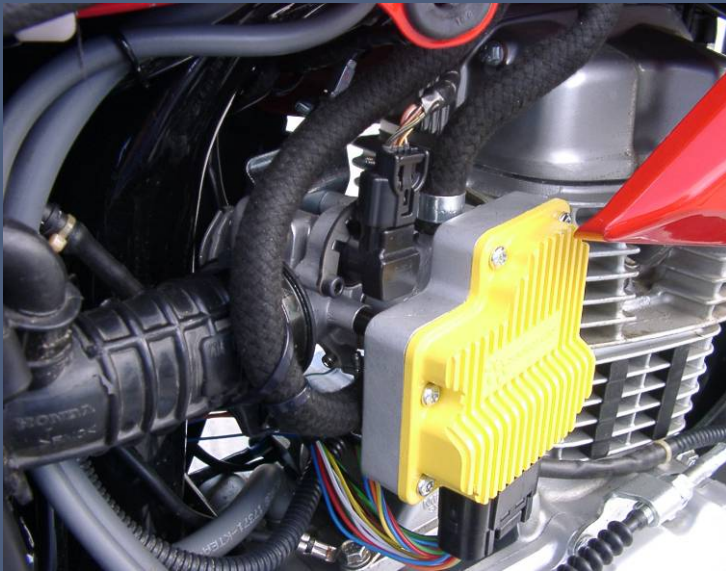


Technology – 125cc Engine Management Example



Technology - Application

It is simpler to engineer onto an engine than a conventional fuel injection system.

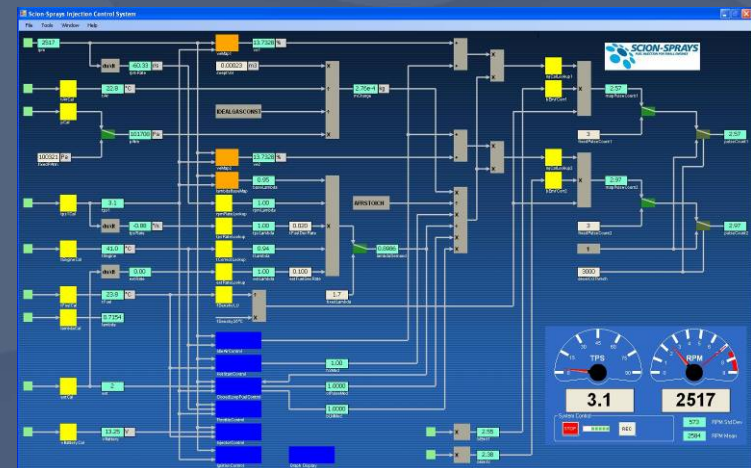


Engine, wiring and fuel supply modifications are minimised.

Technology – Mapping & Diagnostics

The engine management system controls fuel delivery and ignition according to the requirements of the engine based on speed, load, temperatures etc.

Additional functions such as idle speed control or electronic throttle control are included depending on the application.



Diagnostics can be operated by standard protocols or using Scion-Sprays' own PC based system.

Technology – Good Emissions *and* Performance

Accurate control of the fuelling and ignition, together with excellent fuel atomisation (50-80 microns SMD) ensure good engine emissions without compromising performance. Motorcycle and utility engines are being made to be compliant with current emissions regulations as well as being prepared to meet future demands.



Reductions in HC, CO and NO emissions have been proven alongside fuel consumption improvements, typically of 12-20% compared to carburettors.

Applications – Motorcycles / Transport



Engine management systems for motorcycles up to 250cc, emissions comply to Euro 3, China Stage 3 etc.

Low cost, with excellent starting, driveability and fuel consumption.



Applications – Utility Engines

Engine management systems for utility engines – professional & premium lawnmowers / ride-on mowers, generators, other lawn & garden applications.



Creates an added value product at a competitive price.

Improved emissions, fuel consumption, starting and running.

Future emissions legislation expected to force engines in this direction.

Applications Summary

