

Pectel SQ6 ECU

Introduction

The Pectel SQ6 sets the benchmark for high-performance engine management systems. Its Freescale MPC565 microprocessor and dedicated timer co-processor bring class leading performance in a cost-effective package. No other ECU offers the same combination of price, power, performance and flexibility.

Twelve configurable injector drivers combined with eight IGBT ignition outputs AND eight logic level coil driving outputs make this ECU capable of fully sequential fuelling on normally aspirated, turbo and supercharged engines from one to twelve cylinders. Fly-by-wire capability is included, with Stepper and DC motors catered for.

Put all of this functionality in one small light box and you have an ECU capable of working with almost any combination of coil, injector, OEM sensor and actuator.

An all new crank and camshaft pattern recognition system allows the SQ6 to be used with virtually any OEM timing wheel. This sophisticated pattern recognition algorithm also facilitates synchronisation during slow and uneven cranking conditions.

Hugely flexible, the SQ6 has two, and sometimes three functions on many of its pins:

- Unused injector and IGBT ignition outputs can be used as digital outputs,

- Unused digital inputs can be used as 10 bit analogue inputs,

- H-bridge outputs can be used in either full or half bridge mode, H-bridge outputs can be combined to drive a stepper motor or used to provide additional high or low-side drive capability.

All of these features are enabled by software.

Designed to be robust, the SQ6 has reverse-battery, over-voltage and load dump protection built in as standard. Sensor supply and signal ground pins are also protected against shorts to battery positive and negative.

Advanced software features include traction control, launch control, gearshift strategies, variable valve timing of up to 4 camshafts (including BMW VANOS), high speed data logging and scrutineering modes for single make championship.

The ECU has optional highly advanced control strategies for semi-automatic/paddle-shift gearboxes which include FBW throttle blip and over rev protection. Customers who have used this have extended gearbox life by 100%.

OE Calibrated with calibration support available on quotation.

Dimensions

Dimensions in millimetres (and inches)

Specifications

Description	Value	Description	Value
Processor	Freescale MPC565 @ 56MHz, 5MB flash memory and 4MB non-volatile RAM	Analogue Inputs	10 dedicated (12 bit) 2 x Wide band lambda (12 bit) 2 x Knock sensor (12 bit) 2 x K-type thermocouple (12 bit) 8 alternate function (10 bit)
Supply Voltage	8V to 18V reverse battery, over-voltage and load dump protection	Internal Sensors	ECU Internal Temperature x 4 Battery Voltage
Engine Configuration	1 to 12 cylinders 2/4 stroke or rotary Natural/Forced induction	Ignition Drivers	8 IGBT Internal Clamp (400V, 20A peak) 8 Logic Level driven (5 or 12 V)
Digital Outputs	6 PWM dedicated. (10A peak) 8 PWM alternate. (5A peak) 16 Relay alternate function	Auxiliary Outputs	1 Full Bridge (10A peak) 2 Full Bridge (5A peak) OR 1 Stepper Motor alternate function
Data Logging	1MB standard (Upgrade to 2MB available) 2000 samples/second	Communication	1 RS232 2 CAN 2.0B 1 Ethernet (10MBit)
Digital Inputs 8 dedicated			
8 dedicated			
Crank & Cam Sensor	3 Hall Effect/Inductive	Case Operating Temp.	-40°C to +70°C
Injector Drivers	12 peak and hold (0-5A)	Environmental	IP40
Note: Quoted currents are peak rating		Weight	500g