



## LOTUS ENGINEERING SUPPLIES A RANGE OF CONTROLLERS FOR A WIDE RANGE OF CLIENT APPLICATIONS

Control systems are an integral aspect of today's vehicles, from safety, stability and security systems, through all aspects of powertrain and propulsion to the total human machine interface. Increasingly, with the adoption of these control technologies, vehicle attributes and product differentiation is often defined by electronic systems and settings.

We can define and implement the complete control system requirements for production, developing software and integrating hardware elements across the whole vehicle for improved efficiency and functionality, promoting brand character.

Our own Lotus control systems offer production solutions for lower investment, faster to market options that are flexible and adaptable for a wide range of client applications. We understand design of control systems for safety and durability and they have proven operation in a range of Lotus vehicles (including Elise, Exige and the Evora).

Lotus is partnered with Efi Technology which has a history of providing state-of-the-art engine controllers, together we can deliver bespoke hardware and software solutions to a customers specification, from design and development, through to calibration and certification including On Board Diagnostics (OBD) strategy.

### BENEFITS OF USING LOTUS CONTROLLERS

We have expertise in complex electronics across all vehicle systems and can use our own technology to work with, or substitute for, individual systems' controllers within engineering programmes for cost-effective results. Our skills and experience also allow fast and effective integration of many separate vehicle systems, even if they have not previously been used together for an application.

- Lotus controllers are fully compatible with latest emissions diagnostics, EMC and safety requirements
- Lotus controllers can be used in a range of applications including cars, motorbikes, marine and automatic transmissions
- Lotus controllers can be used in electric and hybrid vehicles
- Lotus controllers can be provided at shorter lead times for prototype applications
- Lotus controllers can be integrated with whole vehicle systems, sensors and actuators from any source

### TRANSMISSION CONTROLLER UNIT (TCU)

The Lotus TCU has been developed to meet the requirements of complex and advanced modern automatic transmissions such as the new Lotus Intelligent Precision Shift (IPS) gearbox fitted to the Lotus Evora. The TCU supports a range of automatic transmissions including:

- Conventional torque converter automatics
- Automated manual transmissions
- Dual clutch transmissions

### LOTUS T6 ENGINE CONTROL UNIT (ECU)

The T6 controller is the latest in a line of Lotus ECU controllers that have proven operation in Lotus vehicles as well as EV and HEV applications

- Lotus T6 Controller is OBD2 Compliant
- Can be used in electric and hybrid vehicle applications
- Supports engines up to six cylinders
- Can be used in prototype and research and development applications



	TCU	T6 ECU
Main CPU	MPC5534 80MHz	MPC5534 80MHz
ETB safety CPU		4/8 Mhz, 8Kb Flash, 256 Byte Ram
RAM	64Kb	64Kb
FLASH	1MB	1MB
Mating connectors	80 way (52+28) PCB connector 52 way connector (4 hi current and 48 low current) 28 way connector (low current)	Two 48 way Molex CMC connector One 32 way Molex CMC connector
Environmental	Minus 40 to 105 °c (operating and storage)	Minus 40 to 70 °c (operating) Minus 40 to 90 °c (storage)
Vibration	Body mounted device	Body mounted device
Electrical specification	12 Volts nominal, 6 Volts min, 15 Volts max	12 Volts nominal, 6 Volts min, 15 Volts max
Digital outputs	High current, independent high side x1 High current, common high side x5 Low side x4 High side x1 Main relay x1	Low current x4 High current x12 Injectors x8 Relay x4 Main relay x1 Ignition x8 Heater x4
Analogue inputs	Pull-up/down, general purpose, NTC sensor input x7 Battery x2	Pull up/down x14 NTC x5 Lambda x4 Battery x2 Knock x2
Digital inputs	VR/Hall (EM) x1 Hall Effect (HE) x10 Variable resistance (SP) x2 Digital output LED(HL) x6	VR/Hall x4 Hall x7 Logic x7
Voltage references and ground		
Voltage reference	4x analogue 2x digital	4x analogue 1x digital
GND - Analogue (AGND)	6 analogue ground	8 analogue ground
GND - Digital (GND)	5 digital ground	11 digital ground
GND - Power (GNDPOW)	4 power ground	GND-KNK x2
CAN lines	2	2
DC motor driver	3 H-Bridge	ETB driver x2
Additional features		Baro pressure sensor (on board)

LIGHTWEIGHT ARCHITECTURES - EFFICIENT PERFORMANCE - ELECTRICAL AND ELECTRONIC INTEGRATION - DRIVING DYNAMICS



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