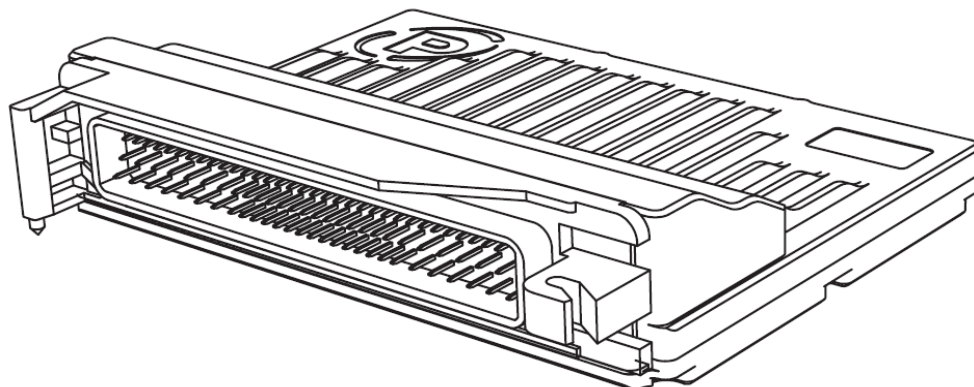




Pectel Gearshift Controller – GCU-L

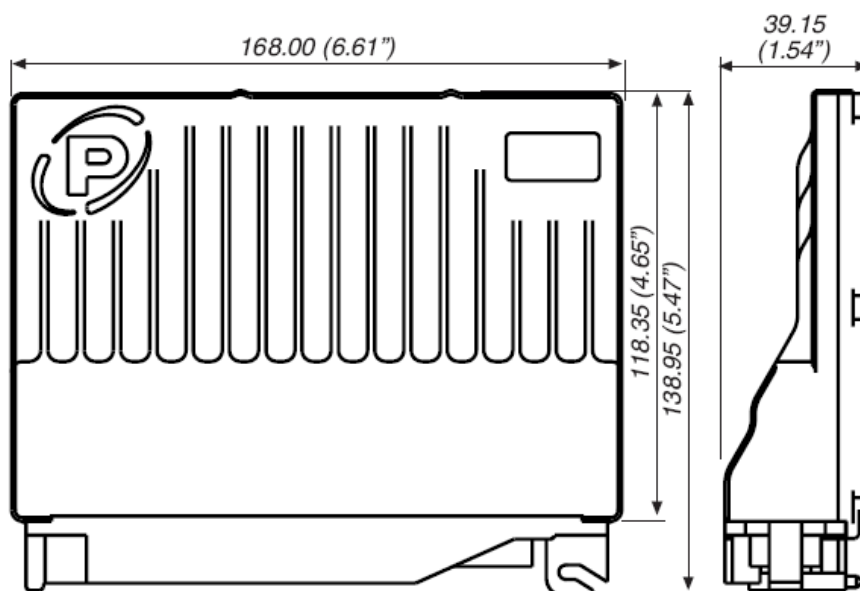


Introduction

The Pectel GCU-L sets the benchmark for high-performance semi-automatic gearbox control systems. Developed in partnership with Shiftec for the pneumatic system, and capable of controlling many different hardware solutions from Hydraulic to Solenoid. Its Freescale MPC565 microprocessor and dedicated timer co-processor bring class leading performance in a cost-effective package.

Designed to be robust, the GCU 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.

Dimensions



Dimensions in millimetres (and inches)

Specifications

Description	Value
Processor	Freescale MPC565 5 MB Flash Memory 4 MB non-volatile RAM
Supply Voltage	+8V to +18V with reverse battery, over-voltage and load dump protection
Comms	1 RS232 2 CAN 2.0B (with 120 ohm termination) 1 Ethernet (10MBit)
Analogue Inputs	10 dedicated (12bit)
Digital Inputs	8 dedicated
Internal Sensors	4x GCU internal temperature 1x Battery voltage
Digital Outputs	3 PWM dedicated (10A peak)
Data Logging	2MB standard (Upgrade to 4MB available) 2000 samples/second
Case Operating Temp.	-40°C to +70°C
Environmental	IP40

Description	Value
Vibration	DV-V(a) DV-V(b) DV-V(c) DV-V(c+)
Weight	500g

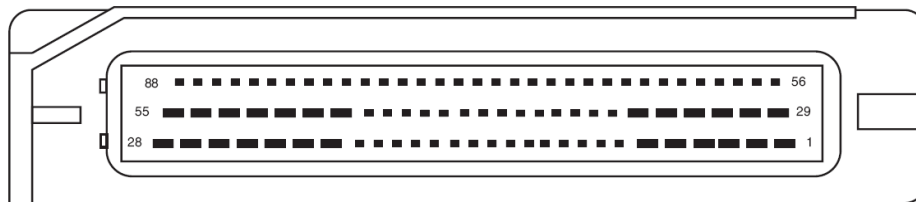
Ordering Information

Product	Part Number
Pectel GCU-L	01E-500912

Connector Details

ECU Connector	Mating Connectors
88 way	88 way (13E-500751)

Connector Pin-out Details



View looking into the 88 way connector

Pin	Function	Signal Description	Notes
12	AIN1	SYS PRESS	0 to +5V Analogue Inputs, which have software enabled 3k and 33Ω pull up resistors to +5V
13	AIN2	GEAR POSITION SENSOR	
72	AIN3	GCU AIR TEMP	
73	AIN4	SPARE ANALOGUE 4	
40	AIN5	SPARE ANALOGUE 5	
42	AIN6	THROTTLE BLIP PRESS	
43	AIN7	SHIFT ACTUATOR LOAD	
14	AIN8	GEARBOX TEMP	



Pin	Function	Signal Description	Notes
15	AIN9	GERABOX PRESS	0 to +5V Analogue Inputs, which have software enabled 3k and 240Ω pull up resistors to +5V
16	AIN10	BLIPPER TRAVEL	
35	ANGND	ANALOGUE GND	Analogue GND
49	BATT+	BATTERY POSITIVE	Battery Positive (+12V)
23-24	BATT-	BATTERY GND	Battery Negative
67	CAN1H	CAN 1	CAN Port 1 (Reserved for DB1 card logger, 8000 samples/sec, 2GB)
37	CAN1L		
9	CAN2H	CAN 2	CAN Port 2 (ECU comms)
8	CAN2L		
78	DIN1	UP SHIFT SWITCH	Digital Inputs, which have a software enabled 3k pull up resistor to +5V.
77	DIN2	DOWN SHIFT SWITCH	
48	DIN3	DETENT SWITCH	
21	DIN4	CLUTCH SWITCH	
20	DIN5	MODE SWITCH	
47	DIN6	BEACON	
19	DIN7	MAP SWITCH	
76	DIN8	SPARE DIGITAL 8	
74	ETHER-RX+	GCU ENET RX +VE	10 Base-T Ethernet Port (GCU comms)
44	ETHER-RX-	GCU ENET RX -VE	
75	ETHER-TX+	GCU ENET TX +VE	
45	ETHER-TX-	GCU ENET TX -VE	
79	GND3A	DIGITAL GND	Digital GND
65	PSU1A	GCU 12V+ SENSORS (1A)	Sensor Power supply (+12V sensors, 1A)
64	PSU2A	GCU 5V+ SENSORS (50mA)	Sensor Power supply (+5V sensors, 50mA)
34	PWM1	UP SHIFT VALVE	PWM outputs, which have a 10k pull-up to BATT+
6	PWM2	DOWN SHIFT VALVE	
33	PWM3	THROTTLE BLIP VALVE	
2	PWM4	AIR PUMP RELAY VALVE	
66	RS232RX	SERIAL PORT	RS232 Serial Port (GCU comms)
36	RS232TX		



Recycling and Environmental Protection

Cosworth Electronics is committed to conducting its business in an environmentally responsible manner and to strive for high environmental standards.

Manufacture

Cosworth products comply with the appropriate requirements of the Restriction of Hazardous Substances (RoHS) directive (where applicable).

Disposal

Electronic equipment should be disposed of in accordance with regulations in force and in particular in accordance with the Waste in Electrical and Electronic Equipment directive. (WEEE).

Battery

This equipment contains a battery. (Lithium Thionylchloride)

The equipment may be returned to Cosworth Electronics for a replacement battery. (A charge may be made for this service)

Removal of the battery by the user may void any warranty on the equipment.

To remove the battery for recycling:

Remove the case cover(s).

Remove the printed circuit boards from the case.

Remove the battery from the printed circuit board.

Dispose of the battery in accordance with regulations in force.

Declaration of Conformity

We, the undersigned,

Cosworth Electronics Limited
Brookfield Technology Centre,
Cottenham,
Cambridgeshire, CB24 8PS
United Kingdom

Certify and declare under our sole responsibility that the following equipment:

Pectel GCU-L – 01E-500912

A GCU for use only in motorsport applications

Conforms to the following EC directives including applicable amendments:

EMC Directive 89/336/EEC, 72/245/EEC (last amended 2004/104/EC)

The following standards have been applied:

2004/104/EC

Cottenham, 07 Sep. 10

Martin Tolliday : General Manager - Sports