MLE-240

Professional engine control unit
Internal data logger

Description

MLE-240 Engine and Vehicle Control Unit is a powerful and complete concentrated system capable of controlling high performance engines up to 4 cylinders. Suitable for motorbike applications.

It incorporates a powerful data acquisition unit tailored to racing applications which require high resolution data, high bandwidth and a large number of channels.

The unit can drive ON-OFF injectors, inductive ignition coils and a large number of additional loads.

The communications capability is assured by 2 CAN lines, 1 100Mb/s Ethernet line for fast data download and data transfer to other units.

The logic architecture consists of a powerful dual-core processor for data logging, telemetry and communications, while calculation, control and actuation are managed by a high performance microcontroller for a total computation power of over 2500 Dhrystone MIPS.

MLE-240 is equipped with a variety of analogue inputs including single-ended, temperatures and differential together with digital inputs for lap trigger, VRS/Hall and Hall/Rate inputs.

Main Features

- *25 single-ended @ 12-bit resolution*
- *1 differential @ 12-bit resolution*
- *4 PT1000/NTC temperature @ 12-bit resolution*
- *4 lambda UEGO sensor with heater*
- *2 pick-ups, VRS or Hall effect, VRS input*
- *4 Hall or rate input*
- *1 lap trigger*
- *2 ON/OFF digital inputs*
- *8 GB internal storage for data logger*
- *up to 1024 logged channels*
- *up to 1MByte/s logging rate*
- *sampling rates up to 1000 Hz*
- *2 CAN communication buses*
- *1 Ethernet line (100Mb/s)*
- *4 ON-OFF injectors drivers*
- *4 Inductive coils driver*
- *2 Low Side driver with PWM capability*
- *Up to 4 H-Bridge*

Benefits

- *Complete engine (4 cylinder) and vehicle management*
- *Data download via Ethernet link*
- *SW-selectable VRS, Hall input*
- *SW-selectable NTC/PT1000 temperature sensor*
- *Floating-point data management*
- *Direct management of Marelli dashboard displays*
- *Pick-up inputs for wheel speed and distance measurement*
- *WinTAX4 data analysis tool and SYSMA setup tool*
- *Robust design, easy to install*

Typical Applications

Motorbike applications

Technical Characteristics

Inputs

Analogue single-ended (12-bit resolution)	25
Differential (12-bit resolution)	1
NTC/PT1000 temperature sensor (*)	4
NTC internal temperature sensor	4
Lambda UEGO (12-bit resolution)	4
Injector rail supply (12-bit resolution)	1
VRS, Hall effect inputs (*)	2
Hall or Rate inputs (*)	4
Lap trigger (*)	1
ON/OFF Digital input	2
“Code Load” enable pin	1

(*) Configurable by software

Outputs

Inductive coil drivers (up to 30A)	4
On-Off injector drivers (up to 3A)	4
Lambda heater (up to 3A)	4
H-Bridge driver (up to 5A – 7A peak)	3
Half-Bridge driver (up to 7A – 14A peak) (*)	2
PWM low side drivers (up to 3A)	2
Voltage references (5V, 70mA)	4

(*) Can be used together as an H-Bridge or separately

Communications

CAN line (1 Mbit/s or lower, configurable)	2
Ethernet line (100Mb/s)	1

Logic Core

Strategy, Data Logging & Comm. Processor (1920DMIPS)	1
DDR2 RAM memory (x32)	512 MB
NOR flash Memory (x16)	12 MB
MRAM memory (x16)	512 KB
Synchronous dual port SRAM (x16)	128 KB
Flash disk (SDIO)	8 GB
Actuation microcontroller @264MHz (623DMIPS)	1
Flash EEprom (x32 internal))	4 MB
RAM memory (x32 internal)	256 KB
Synchronous SRAM (x32) (external)	2 MB
MRAM memory (x16)	512 KB
Time keeper	1

Logging

Flash disk memory	8 GB
Logged channels	up to 1024
512 channels ACT and 512 channels STR/TLM	
Logging rate	up to 1 MB/s
512 kB/s ACT and 512 kB/s STR/TLM	
Sampling rate	up to 1 kHz

Other Characteristics

Power supply	8 to 16 V
Operating temperature range (internal)	- 20 to 85 °C
Temperature range during data download	0 to 70 °C
Protection class	IP 64
Dimensions without connectors	152* x 124.6 x 41.4 mm
(* Connector face)	
Weight	900 g

ENGINE CONTROL UNITS

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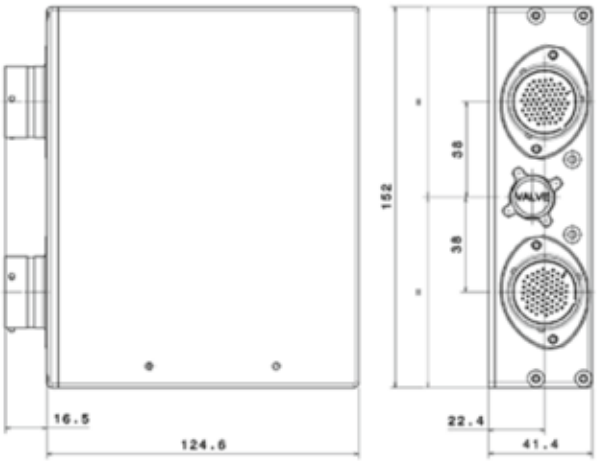
Dimensions



Dimensions in millimetres

Application Schematics