PRODUCT SUMMARY

# TAG-510

The TAG-510 is an integrated vehicle control unit and data logger for motorsport and automotive development, as well as generic control applications. With its vast array of inputs, outputs and communication interfaces, it provides a powerful platform for simultaneously running multiple customer applications on a latest generation 64-bit quad-core microprocessor. It is designed to operate with a separate Powerbox unit which provides the necessary drive stages for engine ignition, injection, fuel pump and turbocharger control. The demands are calculated by the TAG-510 and communicated via trigger signals to the Powerbox. Diagnostic communications with the Powerbox may be via CAN2.0B or CAN FD.
Application code is automatically generated from MATLAB/Simulink models for rapid development. Advanced high-speed data logging, telemetry and rich communications are all provided. TAG-510 integrates with the McLaren Applied suite of software tools including System Monitor, ATLAS and MCT.

## APPLICATION

- Control and monitoring of an Internal Combustion Engine when used with a separate Powerbox unit.
- Control and monitoring of Hybrid and Fully electric powertrains.
- Automotive prototyping and testing.
- Powerful onboard data logging and telemetry.
- Communicates seamlessly with other on-vehicle control units.
- Reduced Data Access support for application IP protection.
- Ethernet connection to application and data analysis tools (System Monitor and ATLAS).

## KEY FEATURES

- Application processing power Coremark ~16,000.
- Extremely low latency, 100ksps high frequency input sampling.
- Digital filtering and anti-aliasing on all analogue inputs.
- Data logging memory 8GB Flash.
- 64-bit Real Time Operating System.

## COMMUNICATIONS

- One Wired Ethernet interface (10/100/1000Mbps)
- Eight CAN interfaces configurable as CAN-FD (5Mbps maximum) or CAN2.0 (1Mbps) with optional software termination
- One RS232 interface (1Mbps maximum)

## CONNECTION DEFINITION

- Integral, sealed, Deutsch AS motorsport connectors
- Connector A, B and C are 66-way each

## INPUTS

- Up to twenty-two general-purpose 0 to 5V analogue inputs (12-bit, 1ksps)
- Up to fourteen general-purpose configurable 0 to 5V, Pt1000, NTC or Switch to ground analogue inputs (12-bit, 1ksps)
- Six high-speed 0 to 5V analogue inputs or knock sensor inputs (12-bit, 100ksps)
- "Pits pedal" and "Ethernet IP address" analogue inputs (12-bit, 1ksps)
- Four inductive speed inputs
- Eight DHE speed inputs
- Lap trigger input
- Ignition switch input

## OUTPUTS

- Six 0.5A low-side drive stages
- Two 5A high-side drive stages
- Two 5A low-side drive stages
- Four 2A high-side drive stages
- Two 3A H-Bridge drive stages
- Twenty-six general-purpose open-drain outputs that can be configured to be activated engine synchronously or on a time base duty and period
- One RS485 differential output for 1ms time synchronisation signal
- Two oscilloscope outputs
- Three 200mA 12V sensor supplies
- One 200mA 5V supply for lap trigger receiver
- Eight 300mA 5V precision sensor supplies

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## ELECTRICAL

- Supply voltage 9 to 16V DC
- Supply voltage not to exceed 17V continuous
- Transient voltage and reverse polarity
- Supply current quiescent (ignition off) 5mA
- Supply current operating (no load on outputs) 0.63A typical at 13.8V
- Supply current operating (max load on supplies) 2.35A typical at 13.8V

## MECHANICAL

- Aluminium Case (hard black anodised)
- Weight 720g

## ENVIRONMENTAL AND COOLING

- IP65 rated
- Lids sealed with O-rings
- Maximum humidity 100%
- Minimum operating temperature 0°C
- Internal temperature not to exceed 70°C as measured by internal diagnostic sensors
- Storage temperature -10°C to +85°C
- Vibration 100 to 1000Hz, all axes, 24 hours
- Vibration isolation is recommended,
- Mounting bracket kit can be optionally supplied separately.

## ELECTRO MAGNETIC COMPATIBILITY

- Complies with the essential protection requirements of 2014/30/EU

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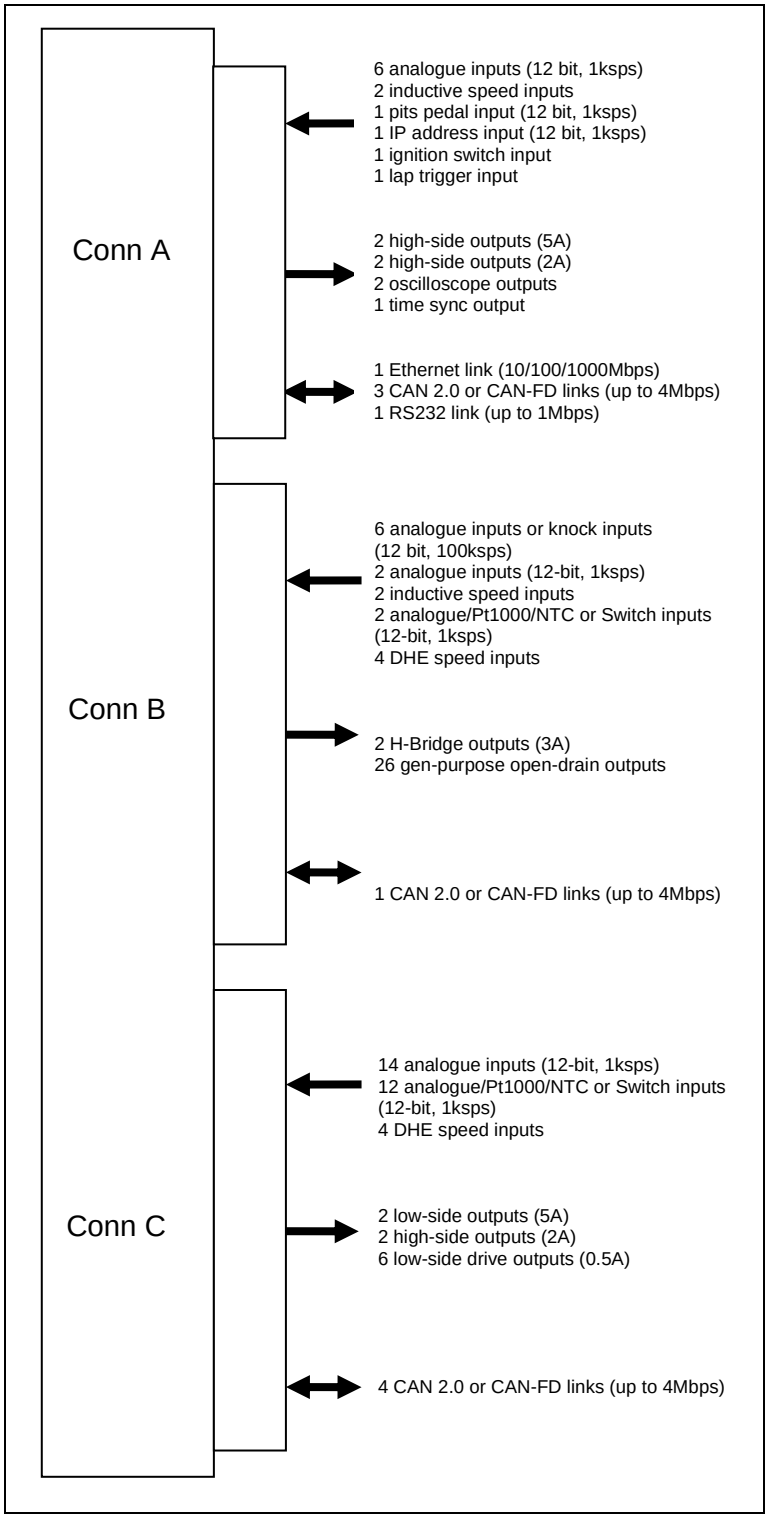
## CONNECTOR DIAGRAM

- Connector Details

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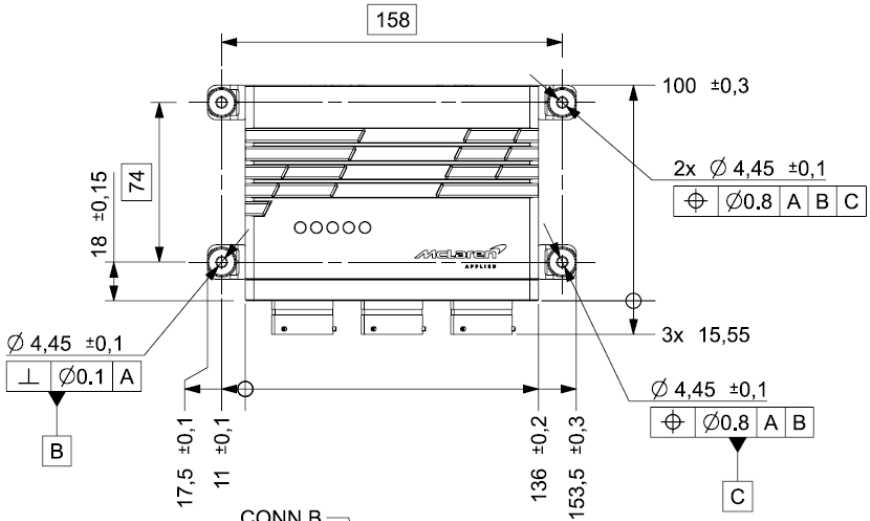
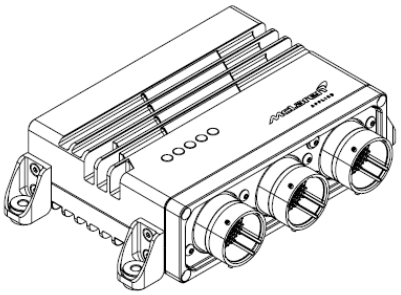
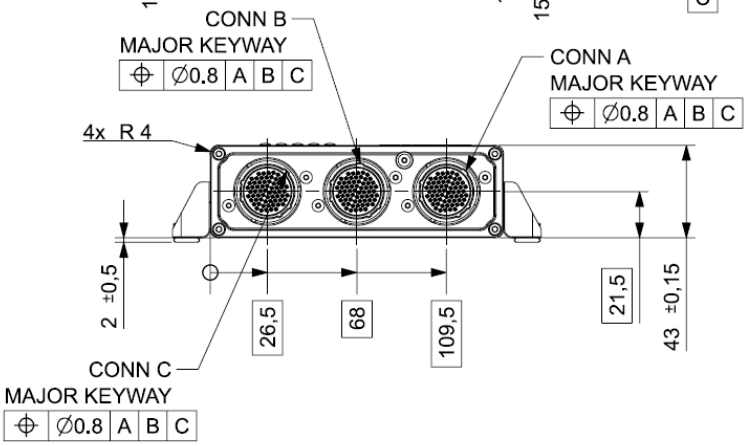
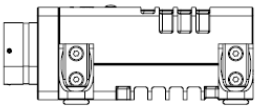
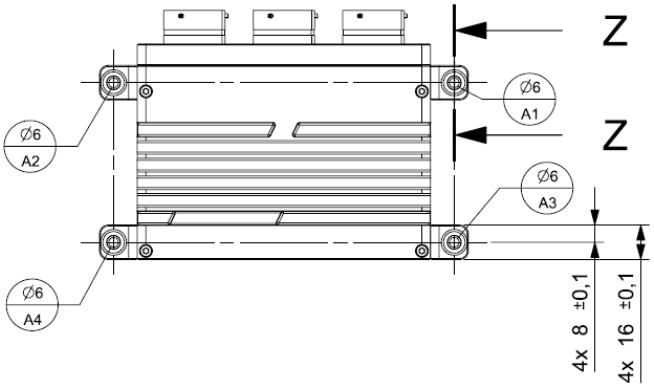
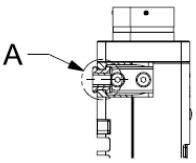


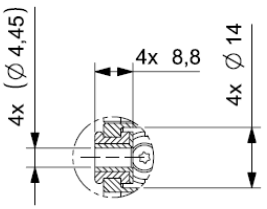


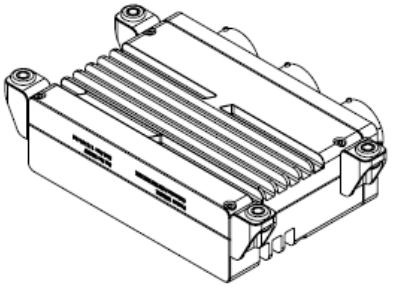



SECTION Z-Z




DETAIL A
SCALE 1:1

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