PRODUCT SUMMARY

TAG-320B

TAG-320B is the main processing unit for powertrain control of a racing car. It may be used with an external driver unit to provide direct control of ignition and direct or manifold injection, along with all other powertrain control functions. The TAG-320B provides a powerful processing platform with minimum latencies for customer applications based on 32-bit microprocessors. Application code is automatically generated from MATLAB/Simulink models. Advanced data logging, high-speed telemetry control and rich communications are all provided. TAG-320B integrates with the McLaren Applied suite of software tools including System Monitor, ATLAS and MCT. The TAG-320B is built with full FIA security measures including advanced memory protection.

APPLICATION

- Control and monitoring of a racing car powertrain
- Up to 8-cylinder engines
- Throttle-by-wire
- Clutch-by-wire
- Semi-automatic gearbox
- Reduced Data Access support for application IP protection
- Powerful onboard data logging and telemetry control
- Ethernet connection to application and data analysis tools (System Monitor and ATLAS)

KEY FEATURES

- Application processing power Coremark ~16,000
- Extremely low latency, high frequency input sampling
- Digital filtering and anti-aliasing on all analogue inputs
- Data logging memory 4GB Flash

SENSOR INPUTS

- Up to 66 general-purpose 0 to 5V analogue inputs (12-bit, 10ksps, four of which are software configurable as general-purpose TTL outputs)
- 16 general-purpose configurable 0 to 5V or Pt1000 analogue inputs (12-bit, 10ksps)
- Eight general-purpose configurable 0 to 5V analogue inputs with optional strong pull-ups for use with digital switches (12-bit, 10ksps)
- Four high-speed 0 to 5V analogue inputs (12-bit, 100ksps)
- "Pits pedal" and "Ethernet IP address" analogue inputs (12-bit, 1ksps)
- Three inductive or DHE speed inputs (factory configured)
- Eight DHE speed inputs
- Two K-type thermocouple inputs (12-bit)
- Two wide-band lambda interfaces (12-bit)
- Lap trigger interface
- Ignition switch input

OUTPUTS

- Ten ±12mA servo valve drive stages (10ksps)
- Ten 3A low-side drive stages
- Ten 1A high-side drive stage
- One 3A high-side drive stage
- Eight 7A high-side drive stages
- Eight TTL injection control outputs
- Eight open-drain ignition control outputs
- Eight general purpose open-drain outputs
- Two RS422 differential outputs for 1ms time synchronisation and engine synchronisation signals
- Up to four general-purpose TTL outputs (all of which are software configurable as analogue inputs)
- Two oscilloscope outputs
- Four 150mA 12V sensor supplies
- One 150mA 10V sensor supply
- One 150mA 5V supply for lap trigger receiver
- Eight 100mA 5V precision sensor supplies

COMMUNICATIONS

- One Wired Ethernet interface (10/100/1000Mbps)
- One ARCNET interface (10Mbps maximum)
- One dual-channel FlexRay interface (20Mbps)
- Eleven CAN interfaces (1Mbps maximum)
- One RS232 interface (1Mbps maximum)

CONNECTION DEFINITION

- Integral, sealed, Lemo 5M motorsport connectors
- Connector A 66-way
- Connector B 114-way
- Connector C 114-way

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ELECTRICAL

- Supply voltage 7.5 to 16V DC
- Supply voltage not to exceed 17V continuous (the unit is protected against transients and reverse polarity)
- Supply current quiescent (ignition off) 4mA
- Supply current operating (no load on outputs) 3A typical at 13.8V
- Supply current operating (max load on supplies) 5A typical at 13.8V
- 32-bit Real Time Operating System
- Internal tri-axis accelerometer

MECHANICAL

- Aluminium Case (hard black anodised)
- Weight 1.35kg

RoHS COMPLIANCE

- RoHS Compliant

ENVIRONMENTAL AND COOLING

- Splash resistant to standard motorsport fluids
- 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
- When driving loads, adequate forced-air cooling must be applied to ensure the internal operating temperature remains within specified limits
- Storage temperature -25°C to +85°C
- Vibration 100 to 1000Hz, all axes, 24 hours
- Vibration isolation is recommended

ELECTRO MAGNETIC COMPATIBILITY

- Complies with the essential protection requirements of 89/336/EEC

SERVICE

- Recommended service interval 12 months

BASE CONTROL UNIT

Order Code	Description
O 030 072 017 002	TAG-320B

PRODUCT ADD-ONS

Order Code	Description
O 020 023 000 000	TAG-320B Logging Capacity 4GB (Standard)
O 020 023 000 001	TAG-320B Logging Capacity 8GB (SECU Standard)
O 020 023 000 002	TAG-320B Logging Capacity 16GB
O 020 023 000 003	TAG-320B Logging Capacity 32GB
O 020 023 001 000	TAG-320B Logging Parameters 800 (Standard)
O 020 023 001 001	TAG-320B Logging Parameters 1500
O 020 023 001 002	TAG-320B Logging Parameters 2000 (SECU Standard)
O 020 023 002 000	TAG-320B FIA Application Size Restriction Enabled (SECU Standard)
O 020 023 002 001	TAG-320B FIA Application Size Restriction Disabled (Standard)
O 020 023 003 000	TAG-320B Ancillary Logging Capability Disabled (Standard)
O 020 023 003 001	TAG-320B Ancillary Logging Capability Enabled (SECU Standard)
O 020 023 004 000	TAG-320B Supported Applications 3 (Standard)
O 020 023 004 001	TAG-320B Supported Applications 6
O 020 023 004 002	TAG-320B Supported Applications 9 (SECU Standard)
O 020 023 005 000	TAG-320B Telemetry Output Disabled (Standard)
O 020 023 005 001	TAG-320B Telemetry Output Annual Subscription (F1 SCS) (SECU Standard)
O 020 023 005 002	TAG-320B Telemetry Output Annual Subscription (CONTROL LIMITED)
O 020 023 006 000	TAG-320B Processor Speed 900Hz (Standard)
O 020 023 006 001	TAG-320B Processor Speed 1500Hz (SECU Standard)

PRODUCT SUMMARY

TAG-320B

McLaren System Monitor is a software package for configuring and tuning automotive control systems.

McLaren Control Toolbox (MCT) contains a set of toolboxes for MATLAB which provide the ability to generate software for McLaren components via Simulink and the MATLAB toolchain. To generate code from Simulink for any McLaren Applied products, the MCT, plus the appropriate HSP is required.

MCT Hardware Support Package (HSP) is in addition to MCT that allows targeting a specific control unit when building applications. It adds a library of custom blocks especially for the control unit of choice.

ACCOMPANYING SOFTWARE

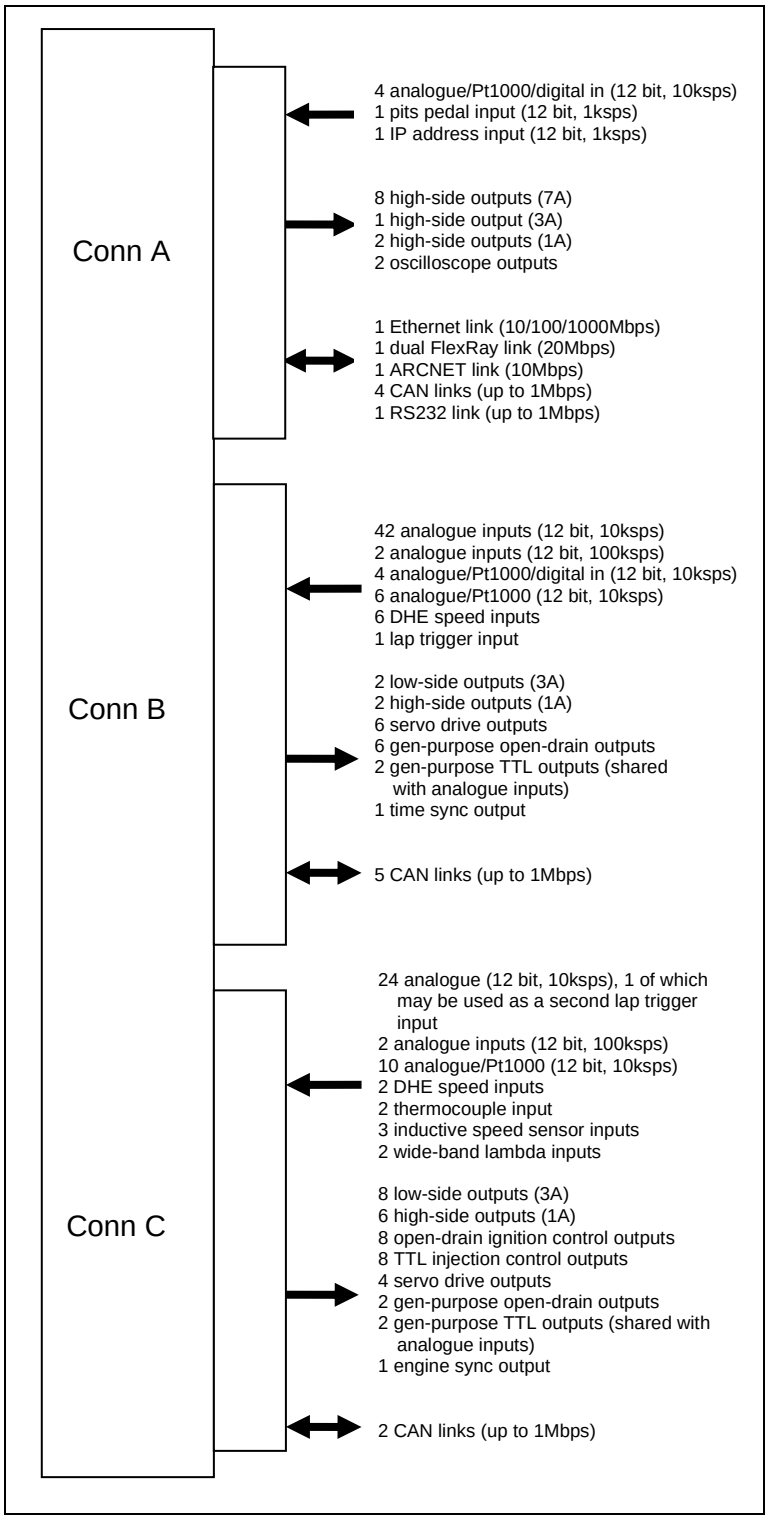
Order Code	Description
O 020 014 000 101	Single Seat System Monitor Licence
O 020 021 000 000	MCT Core Seat
O 020 021 001 000	MCT Core Site
O 020 021 006 000	HSP TAG-320B Seat
O 020 021 007 000	HSP TAG-320B Site

PRODUCT SUMMARY

TAG-320B

CONNECTOR DIAGRAM

- Connector Details



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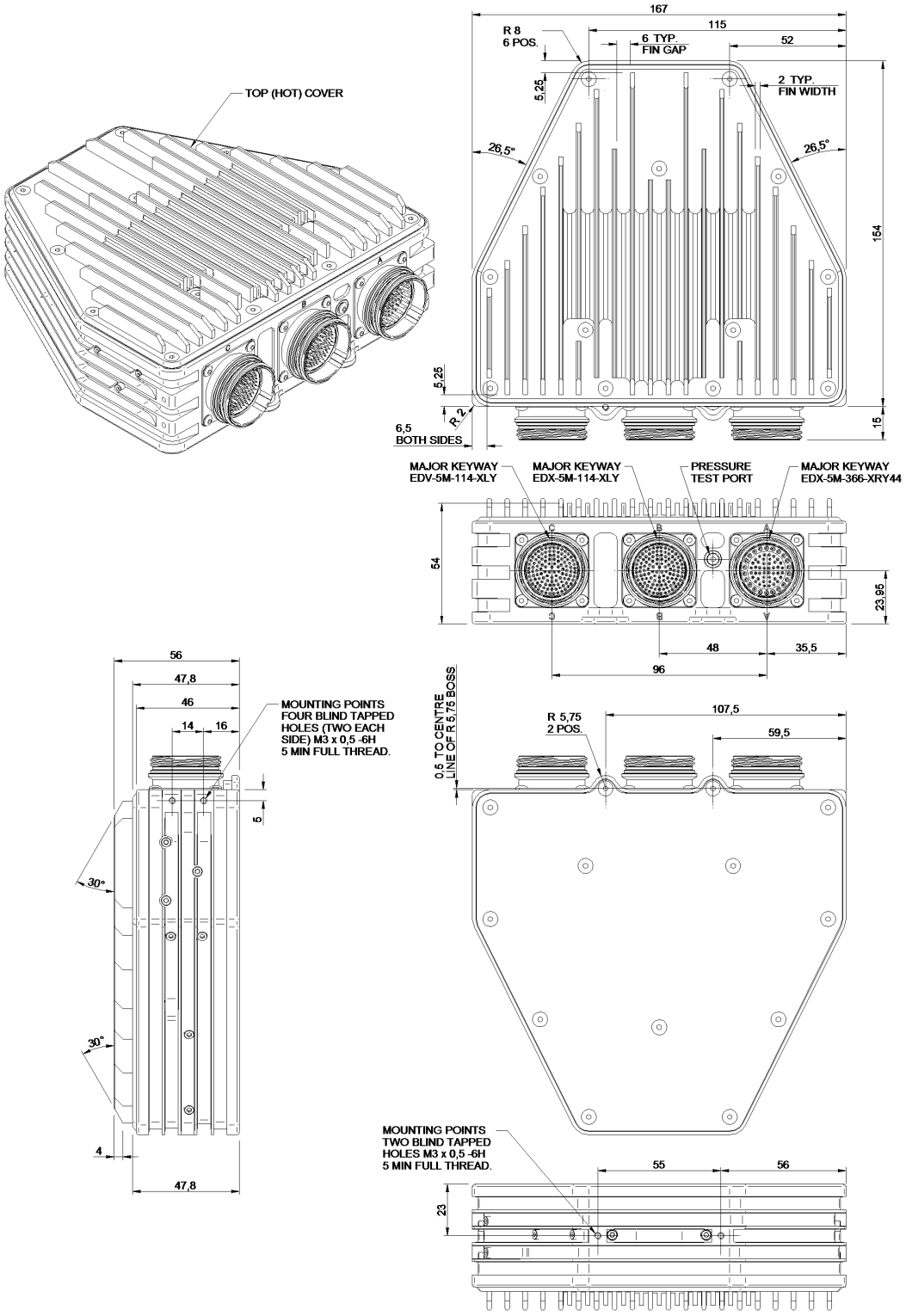

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