Engine Control Unit TAG-400i

The TAG-400i is a compact, self-contained engine management system and data logger for race engines.

The unit is an evolution of the TAG-400 which has been used successfully in open-wheel and motorcycle racing applications. The TAG-400i has extended functionality with increased processing power and I/O capability.

The TAG-400i exploits Power PC technology, but with an uprated processor that now offers more than six times the application processing power than the TAG-400, providing a powerful and flexible platform for extracting the optimum performance from an engine.

The TAG-400i can be offered as part of a turnkey system or can support customer prepared applications autocoded from Simulink models using our Graphical Development Environment (GDE).

In Detail

Application

- Control and monitoring of engine and/or gearbox.

Electrical

- Supply Voltage 7.9 to 16.0V DC
- Supply Voltage not to exceed 17V continuous (the unit is protected against transients and reverse polarity)
- TAGOS 32-bit Real Time Operating System
- Data logging memory capacity 1Gbyte
- High performance application processor running at 264MHz

Mechanical

- Case material hard anodised aluminium

- Weight 939g

Other Features

- One System Monitor configuration tool software licence supplied per team purchasing TAG-400i

Connection Definition

- Integral, sealed, military standard connectors

Environmental

- Splash resistant to standard motorsport fluids
- Lids sealed with o-rings and screws sealed with silicone rubber
- Maximum humidity 95% non-condensing
- Minimum operating temperature -10°C
- Internal temperature not to exceed 70°C as measured by internal diagnostic sensors
- Storage temperature -10 to +85°C
- Vibration 100 to 1000Hz, all axes, 24hrs

Electro Magnetic Compatibility

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

Sensor Inputs

- Four Inductive Speed Sensors (two Crank Sync; two Turbo speed)
- One DHE Cam Sensor
- Four DHE Speed Sensors
- 23 Analog (0 to 5V, 1KHz)
- Seven NTC Temperature Sensors (configurable as analogues)

- Two K-type thermocouples
- Two wideband Lambda
- Four Knock Sensors (configurable as analogues)
- 10 switches
- One Lap trigger

Outputs

- Eight inductive ignition drive stages (20A)
- Eight manifold injector drive stages (30V)
- Eight trigger outputs for external injector drive unit
- One Timesync for external drive unit
- One High side driver (5A)
- Two High side drivers (3A)
- Eight High side drivers (2A)
- Six Low side drivers (1A)
- Two Low side drivers (Tacho/Speedo) (0.5A)
- Two H-Bridge Drivers (7.5A)
- Two Engine Synchronous low side drivers (1.5A)
- Two Lambda heaters
- Two Oscilloscope Diagnostic
- External sensor supplies

Communications

- One Ethernet
- Four CAN 2.0B bus (up to 1Mbps)
- One RS232 (up to 222kbps)

Data logging

- 1Gbyte

Diagnostics

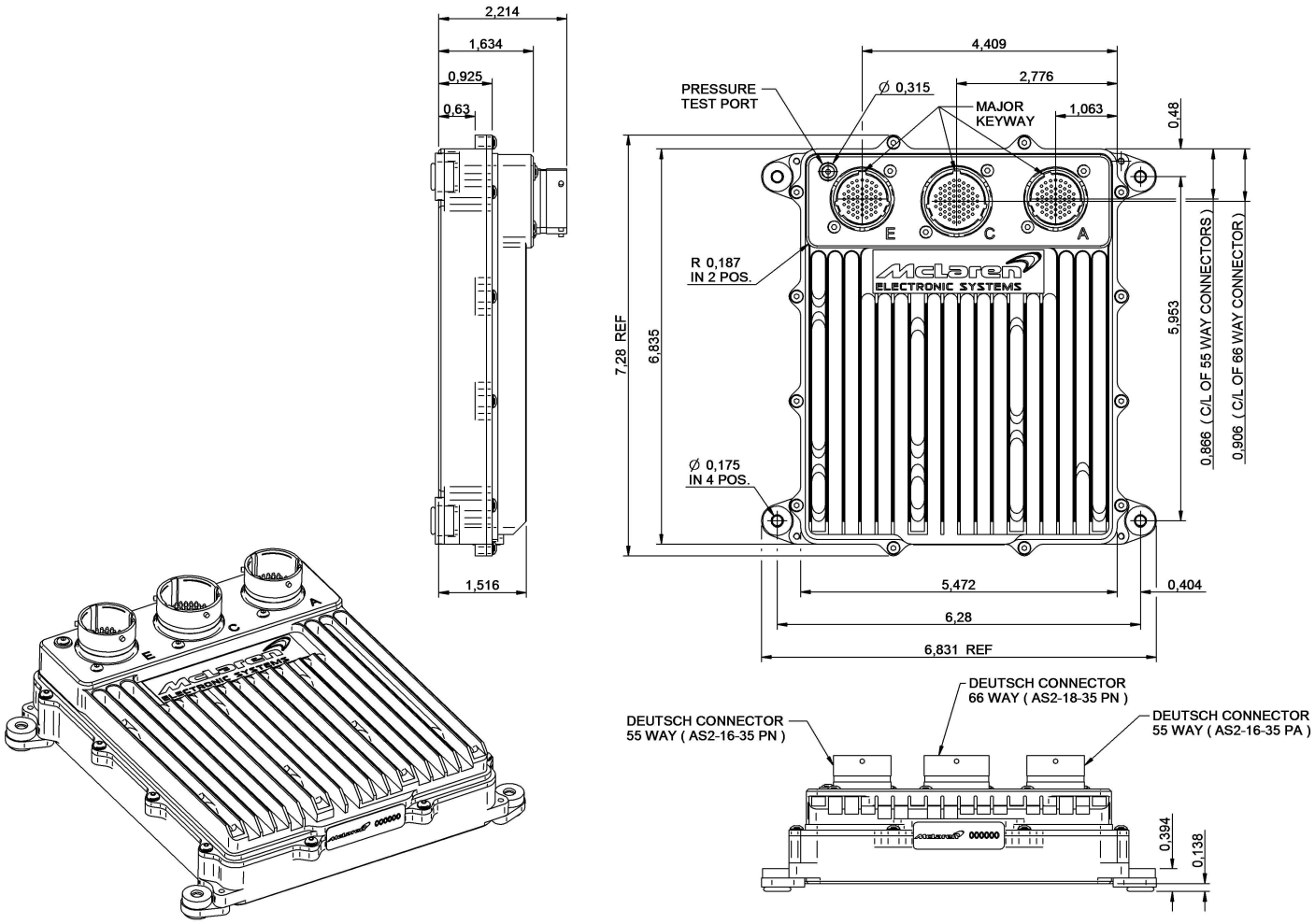
- Sensor readings are checked for out of range and open circuit

  Board temperatures

  Unit supply voltages

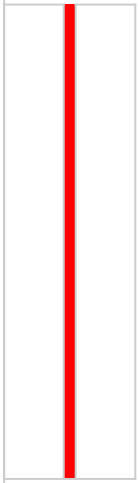
Images/Diagrams

O 030 012 015 XXX



Connector Diagram

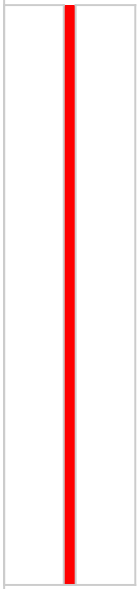
Connector Details



Engine Connector

←
- Two Inductive crank speed
- Four DHE speed
- Two Lambda

→
- Two Lambda heater
- Eight Ignition drivers
- Eight Injection drivers (30V)
- Six Low side (1A)
- Two Low side (0.5A)
- Two High side (3A)
- Two High side (2A)



Chassis Connector

←
- 18 Analogue inputs
- Three Switch inputs
- Seven Temperature
- Two Thermocouple
- Four Knock
- One Lap trigger

→
- Two Scope
- One High Side (5A)
- Two High side (2A)

↔
- One Ethernet
- One CAN
- One RS232

AUX Connector

←
- Five Analogue inputs
- Two Turbo Speed inputs
- Seven Switch inputs
- One DHE speed

→
- Six Inj Trigger Outputs
- Two Sync Trigger Outputs
- One Timesync output
- Four High Side (2A)
- Two H-Bridge (7.5A)

↔
- Two CAN

Ordercodes

Description	Ordercode
TAG-400i	**O 030 012 015 000**