Engine Control Unit

TAG-400i (IndyCar Series)

Product Summary
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).

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
Connection Definition

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)
- One CAN

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

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
- The following internal parameters are monitored:
  - Board temperatures
  - Unit supply voltages
TAG-400i development system

- 8 Cylinder engine control
- Onboard ignition and injection drive stages
- Lambda and knock interfaces
- 100BaseT ethernet
- 4x CAN interfaces
- Onboard logging memory and data acquisition system

Program version management
ECU reprogramming
Data Tuning
Live parameter display
Purge Link
ActiveX interface
CAN configuration
Data Acquisition configuration

Live data display via ethernet or wireless
Upload of logged data
Waveform, scatter, bar chart, histogram, FFT display types
MATLAB export
Numeric functions
ActiveX interface

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**Description** | **Ordercode**
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