



# HISTORY

1993

First Formula One  
Engine Control  
System



1999

McLaren win Constructors  
Championship  
Using the TAG-310



2007 - Present

McLaren Applied  
Technologies Sole  
supplier to IndyCar  
TAG-400i ECU



2012 - Present

McLaren Applied  
Technologies  
Sole supplier to  
NASCAR



2014

Formula E

Using MAT E-motor, MCU & TAG-400i



1989



1989

**TAG Electronics  
Founded**

Ron Dennis  
identifies the power  
of real-time  
electronics in  
motorsport



1995

McLaren F1 wins  
Le Mans 24HOURS  
TAG-312 Engine controller

2010

**Diversification  
into Aviation**



2013

**McLaren P1 launched**

Using MAT E-motor & MCU



PRESENT

2008 - Present

McLaren  
Applied  
Technologies Sole  
supplier to Formula One



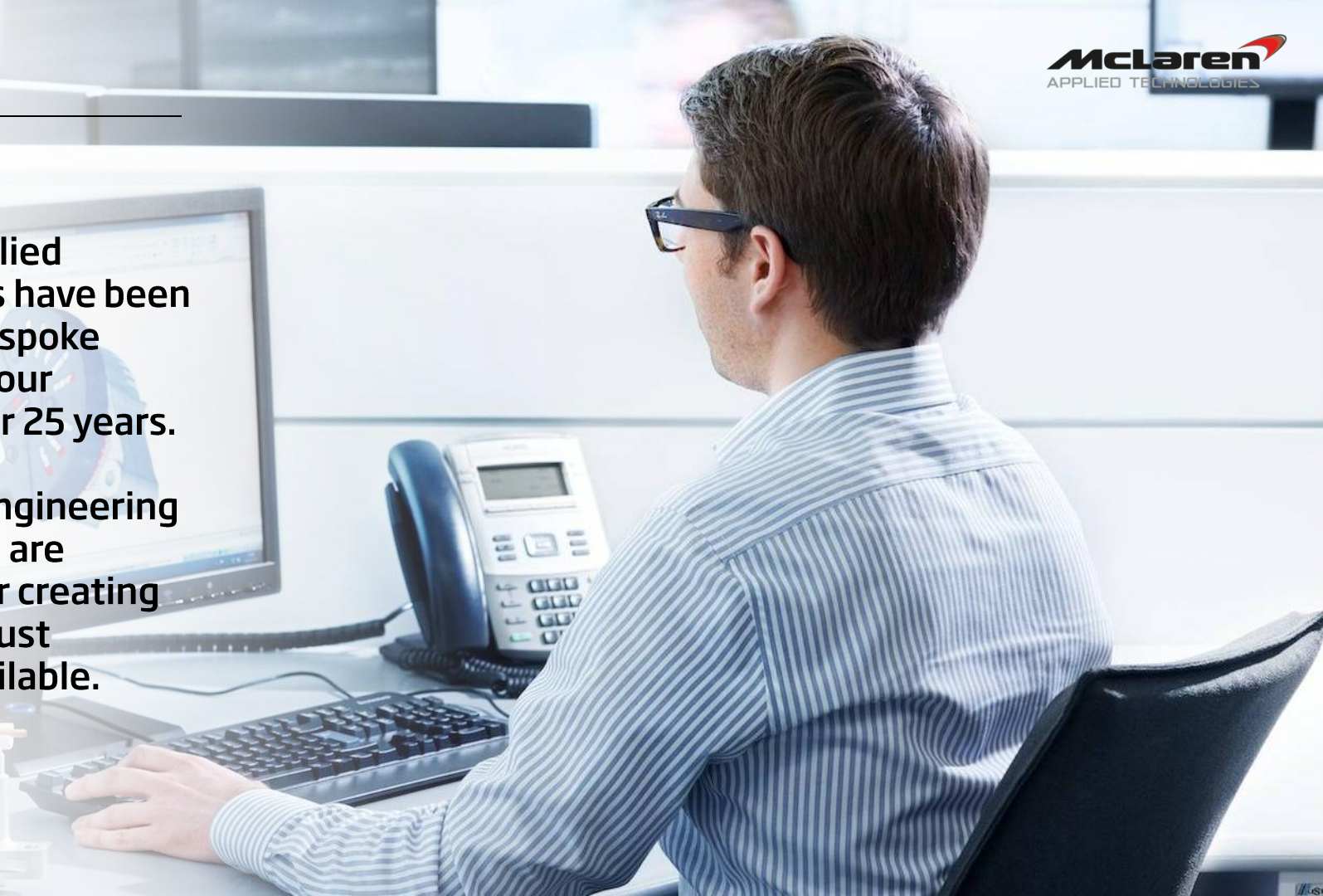


CONTROL SYSTEMS  
**HYBRID & EV**  
SIMULATION  
**ANALYTICS**  
ALTERNATORS  
**SENSORS**

## DESIGN

**McLaren Applied Technologies have been designing bespoke products for our customers for 25 years.**

**Our design engineering departments are renowned for creating the most robust products available.**



## MANUFACTURE

**We produce 98% of our products at the McLaren Technology Centre.**

**Our on-site facilities allow us to closely monitor and improve manufacturing processes to ensure that we produce the best possible product.**



## FORMULA ONE

The FIA recognised that the costs of competing were becoming unsustainable for some teams. To solve one problem and assist in the solution of the other, the FIA put out a tender in 2006 for a standard set of electronics for F1.

McLaren won the contract - already supplying complete control systems to F1 since 1993, we were recognised as a trusted supplier to many of the teams.

## NASCAR

In 2012 the NASCAR Sprint Cup underwent the biggest regulatory change in over 60 years, moving from carburetors to electronic fuel injection.

The standard ECU (Engine Control Unit) behind this momentous change was developed, manufactured and supported by McLaren Applied Technologies.



## INDYCAR

INDYCAR introduced a standard control system in 2012 with the introduction of the new DW12 chassis and 2.6L V6 Turbo engines produced by Honda and Chevrolet.

The TAG-400i unit was chosen for this championship as it provided suitable regulatory control for the championship organisers but enough freedom for the manufacturers to develop their own strategies.





## FIA FORMULA E

The inaugural season saw the introduction of the Spark SRT-01 using - McLaren E-Motor, MCU and TAG-400i control system.

To keep ahead of the competition, McLaren has introduced an evolution of the system to provide improved efficiency and power for Season 2.



## ELECTRIFICATION FOR PERFORMANCE

The McLaren P1 rewrote the supercar rules by combining the internal combustion engine and an electric powertrain to provide performance never seen before.

McLaren Applied Technologies was tasked with the design of both the electric, permanent magnet motor and the motor control unit (MCU).

**120Kw** Power  
**130Nm** Torque  
**96%** Efficiency

**McLaren  
created the  
first ever Hybrid  
Supercar**



## 24 HOURS OF RACING

McLaren Applied Technologies has long been producing control systems used to compete in the most challenging of races: The Le Mans 24 hours.

McLaren Applied Technologies' success at Le Mans continues to this day with all manufacturers in LMP1 using McLaren's electronics.

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## SENSOR TECHNOLOGY

**Motorcycle racing can be one of the toughest environments for sensors; high revving high vibrations from the engines can be catastrophic for sensor reliability.**

**One team had this very problem and turned to McLaren Applied Technologies to assist. A non-contact Hall Effect sensor was the solution and solved the issue.**

**Sensor life has been improved by over 500%**



## ALTERNATORS

Not many manufactures can claim that their alternators work after spending several hours at the bottom of a lake, but McLaren can.

McLaren's alternators are renowned for their reliability and provide unrivalled power density.

The introduction of Lithium-ion batteries has put an increased demand on alternators. This has lead to the introduction of the new Intelligent alternator.



## SOFTWARE

High performance software is required to extract the maximum from our electronic control systems.

The McLaren Applied Technologies control and analytical software is renowned for its speed, accuracy and capacity.



## AERODYNAMICS

The S-Works + McLaren TT cycling helmet is not only the fastest in a straight line (0.5s per km compared to the previous best in class), its performance is insensitive to changes in wind condition and rider movement.



## SIMULATION

As legal requirements grow and customer tastes become ever more exacting, it has never been more complex or costly to bring a road car from initial design to the showroom.

McLaren is utilizing 15 years of continuous development experience in Formula 1 to create and deliver a next generation of driving simulator. The Vehicle Dynamics Simulator (or VDS) is a tightly integrated driver-in-the-loop system for use in the engineering development of road cars





## ANALYTICS

Our work with the National Air Traffic Control Service (NATS) and Heathrow Airport is just one example of how Decision Insight - McLaren's latest software platform for real time, predictive decision support - delivers real benefits.

The Decision Insight platform enables controllers to optimise the flow of air and ground traffic: from the optimum approach pattern to the fastest journey to the right gate.



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## PIONEERING & INNOVATION AWARD

**McLaren Applied Technologies has been awarded the Pioneering and Innovation Award at the 2015 Autosport Awards ceremony.**

**Chosen by a committee of Autosport staff, this year's judges wanted to recognise a company that has developed outstanding and innovative products and services both within and beyond motorsport.**

**Applied Technologies builds on McLaren's long motorsport experience to deliver innovative breakthroughs across a range of diverse sectors including health, energy, transport and financial services.**



