

# **Automotive Electronics**

A Profile of International Markets & Suppliers to 2012

---



# **Automotive Electronics**

## **A Profile of International Markets and Suppliers to 2012**

Research Consultant: Andrew Fletcher

ISBN: 1 905429 193

First Edition: April 1990  
Second Edition: October 1992  
Third Edition: October 1995  
Fourth Edition: January 1998  
Fifth Edition: November 2000  
Sixth Edition: September 2003  
Seventh Edition: July 2006  
Eighth Edition: November 2008

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise without prior consent of the copyright owner.

*Whilst every care is taken to ensure that the data published in this report are accurate, the Publishers cannot accept responsibility for any omissions or inaccuracies appearing or for any consequences arising therefrom.*

© Andrew Fletcher/Reed Electronics Research, 2008

Reed Electronics Research  
Harvard House  
Grove Technology Park  
Wantage  
Oxon OX12 9FF, UK  
Tel: +44 (0) 1235 227310  
Fax: +44 (0) 1235 227322  
Web Site: [www.rer.co.uk](http://www.rer.co.uk)

## **CONTENTS**

### **1 INTRODUCTION**

### **2 MANAGEMENT BRIEFING**

- 2.1 Automotive Electronics – Market Trends
  - 2.1.1 Overview
- 2.2 Key Trends by Product
  - 2.2.1 Powertrain
  - 2.2.2 Body & Chassis/Safety
  - 2.2.3 Steering
  - 2.2.4 Suspension
  - 2.2.5 Integration
  - 2.2.6 Passive Restraint/Safety
  - 2.2.7 Convenience
  - 2.2.8 Lighting
  - 2.2.9 Navigation/Telematics
  - 2.2.10 Multiplexing/Wiring
- 2.3 Market Data
- 2.4 The Major Players
  - 2.4.1 Trends
  - 2.4.2 The Major Players
  - 2.4.3 Supplier Summaries

### **3 AUTOMOTIVE ELECTRONICS MARKET AND TECHNOLOGY TRENDS**

- 3.1 Market and Technology Overview
- 3.2 Powertrain
  - 3.2.1 Alternators/Starters
    - Integrated Starter/Alternator
    - 42-Volt Electrical Systems
  - 3.2.2 Engine Control
    - Ignition
    - Fuel Injection
      - Gasoline Direct Injection
    - Engine Management Systems
    - Valve Control/Camless Engines
    - Electronic Throttle (Drive-by-Wire)
    - Air/Fuel Intake Modules
    - Diesel Engine Management
    - Hybrid & Other Alternative Fuel Vehicles
  - 3.2.3 Transmission
    - All-Wheel Drive
- 3.3 Body & Chassis/Safety
  - 3.3.1 Overview
  - 3.3.2 Braking & Related Systems
    - Anti-Lock Braking (ABS)
    - Stability Management
    - Electrohydraulic Braking
    - Brake-by-Wire
  - 3.3.3 Driver Assistance
    - Adaptive Cruise Control
    - Lane Departure Warning/Collision Avoidance

- Night Vision
- 3.3.4 Steering
  - Electronically-Controlled Hydraulic
  - Electric Power Steering
  - Four Wheel Steering
  - Active Steering
  - Steer-by-Wire
- 3.3.5 Suspension
- 3.3.6 Passive Restraint
  - Pretensioners/Seat Belts
  - Frontal Airbags
  - Side-Impact Airbags
  - Rollover Protection Systems
  - Related Airbag Development
  - Smart Airbags
  - Systems Approach
  - Pedestrian safety
  - Pre-Crash Systems
- 3.4 Instrumentation & Display
  - Cockpit Modules
- 3.5 Convenience
  - 3.5.1 Security
  - 3.5.2 Climate Control
  - 3.5.3 Body Controllers
  - 3.5.4 Automotive Lighting
  - 3.5.5 Wiper Systems
  - 3.5.6 Power Operated Systems
  - 3.5.7 Navigation/Telematics
  - 3.5.8 Tyres
  - 3.5.9 Parking Assist
  - 3.5.10 Other Products
- 3.6 System Level
  - 3.6.1 Multiplexing/Networking
    - Electrical Distribution
  - 3.6.2 Diagnostics
- 3.7 Market Data
  - 3.7.1 Economic Overview
  - 3.7.2 Market Penetration
  - 3.7.3 Market Data
  - 3.7.4 Analysis of the North American Passenger Car Market
  - 3.7.5 Analysis of the North American SUV, Pick-up Truck and Minivan Market

#### **4 AUTOMOTIVE ELECTRONICS SYSTEMS MANUFACTURERS**

- 4.1 Overview
- 4.2 Major Suppliers
- 4.3 Profiles of the Major Suppliers
  - 4.3.1 Aisin Group
  - 4.3.2 Robert Bosch
  - 4.3.3 Continental AG
  - 4.3.4 Delphi Corporation
  - 4.3.5 Denso
  - 4.3.6 Hella
  - 4.3.7 Hitachi

- 4.3.8 Johnson Controls Inc
- 4.3.9 Lear
- 4.3.10 Mitsubishi Electric
- 4.3.11 TRW Automotive
- 4.3.12 Valeo
- 4.3.13 Visteon
- 4.4 Other Companies
  - 4.4.1 Alps Electric
  - 4.4.2 Arvin Meritor Inc
  - 4.4.3 Autoliv
  - 4.4.4 Fujitsu Ten
  - 4.4.5 Honda Elesys
  - 4.4.6 Hyundai Autonet
  - 4.4.7 Hyundai Mobis
  - 4.4.8 Keihan
  - 4.4.9 Key Safety Systems
  - 4.4.10 Magneti Marelli
  - 4.4.11 Omron
  - 4.4.12 Sumitomo Electric
  - 4.4.13 Tokai Rika
  - 4.4.14 TT Electronics
  - 4.4.15 Yazaki

## **5 DIRECTORY**

- 5.1 Major Manufacturers of Automotive Electronic Systems

## **6 THE WORLD CAR MARKET**

- 6.1 The World Car Market
  - 6.1.1 Overview
  - 6.1.2 World Passenger Car Production
  - 6.1.3 North America
  - 6.1.4 Western Europe
  - 6.1.5 Japan
  - 6.1.6 Rest of World
- 6.2 The World's Leading Car Manufacturers
  - 6.2.1 BMW
  - 6.2.2 Daimler
  - 6.2.3 Chrysler
  - 6.2.4 Fiat
  - 6.2.5 Ford
  - 6.2.6 Fuji Heavy Industries
  - 6.2.7 General Motors
  - 6.2.8 Honda
  - 6.2.9 Hyundai
  - 6.2.10 Mazda
  - 6.2.11 Mitsubishi
  - 6.2.12 Nissan
  - 6.2.13 PSA
  - 6.2.14 Renault
  - 6.2.15 Suzuki
  - 6.2.16 Toyota

- 6.2.17 Volkswagen
- 6.3 Directory of Major Car Manufacturers

## **7 APPENDICIES**

- 7.1 Car Production by Segment
- 7.2 Exchange Rates

### **NOTE: PROVISIONAL CONTENTS**

## 1 INTRODUCTION

*Automotive Electronics - A Profile of International Markets and Suppliers* analyses the market for non-entertainment electronic systems within passenger cars. Now in its eighth edition, the publication has monitored the dramatic growth in the use of automotive electronic systems, a market driven by legislation, customer demand and the benefits electronics bring to the car manufacturer. Continued growth however, will be achieved in a rapidly changing environment. The development of new and emerging markets, concentration within the supply industry and the move to a systems approach are just some of the factors which will influence the automotive electronics market in the first decade of the new century.

Section 2, the Management Briefing, provides a summary of the key findings of the report.

Section 3 is an overview of the principal market and technological trends within the automotive electronics industry. The chapter looks at key devices and applications and covers the devices themselves as well as key systems including powertrain, passenger safety, instrumentation and display and future technologies. The market data, included in Section 3, was compiled in October/November 2008, with a forecast through to 2012. The publication does not look at the use of electronics for commercial vehicles or the market for infotainment systems (including communications), both important markets in their own rights.

Information has been obtained through desk research and an extensive interview programme with leading executives of the major car manufacturers, automotive electronic system suppliers, electronic component companies and relevant associations and government bodies.

Statistics on world car production and sales, included in Section 6, have been compiled from data from the relevant associations and car manufacturers, with the forecasts based on information from the interview programme and consideration to other monitoring organisations. Section 6 also provides profiles of the major car manufacturers.

The leading electronic system manufacturers are profiled in Section 4, along with details on the structure of the industry. For the eighth edition further information has been included on second tier suppliers. Information for the profiles has been obtained from data supplied by the companies themselves, [emarketforecasts.com](http://emarketforecasts.com) and from Reed Electronics Research's database. The Reed Electronics Research (RER) database is compiled from company and press sources worldwide.

The directory section covers the major manufacturers of automotive electronic systems worldwide. The information has been obtained via telephone and Internet based research. Additional information on the major electronic component companies was obtained from RER's information database.

Section 7 provides a breakdown of car production by segment and a table of exchange rates against the US dollar.

### 1.1 Scope

The products analysed for the report have been split into five main areas:

- Powertrain.
- Chassis and body.
- Display and instrumentation.
- Safety and convenience.

- System level.

The principal products within each area are shown below, though consideration has been given to future products in the market forecasts.

#### **POWERTRAIN**

- Electronic ignition.
- Electronic alternators/rectifiers.
- Electronic voltage regulators.
- Fuel injection petrol.
- Engine management systems.
- Diesel engine management systems.
- Electronic throttle (drive-by-wire).
- Cruise control
- Electronically-controlled transmission.
- Electronically-controlled all-wheel-drive.

#### **CHASSIS AND BODY**

- Anti-lock braking.
- Traction control.
- Stability management.
- Electrically controlled steering.
- Suspension (ride control, semi-active, active).

#### **INSTRUMENTATION AND DISPLAY**

- Primary electronic displays (vacuum fluorescent, LCD).
- Electronic drivers for analogue instrumentation.

## **SAFETY/CONVENIENCE**

- Passive restraint airbags, motorised seatbelts
- Driver Assistance.
- Automatic air conditioning.
- Trip computer/driver information centres.
- Navigation.
- Anti-theft devices (factory installed).
- Keyless entry.
- Central door locking.
- Power windows.
- Wiper modules.
- Power seat.
- Power mirror.
- Power sunroof.
- Lighting.
- Body Controllers.

## **SYSTEM LEVEL**

- Multiplexing/Networking.
- Electrical Distribution
- Diagnostics.

Although electronics is now used extensively on mid-range and smaller cars, the adoption of many electronic systems will remain in the luxury/executive car sectors. To take into account these differences, the report has split car production into five broad segments, though there is considerable product differentiation between each sector. The five segments have been fully revised for the eighth edition. Consideration has also been given to future changes within each segment.

The segments, with examples, are:

Luxury	- BMW 7 Series, Jaguar, Lexus, Cadillac
Executive	- BMW 5 Series
Medium-upper	- Ford Mondeo, BMW 3 Series

Medium-lower - Toyota Corrolla, Ford Focus, Mazda 323

Small - Suzuki Alto, Ford Fiesta, Peugeot 106, Nissan Micra

The market data presented in Section 3 of the report represents the value of electronics within the individual systems, at **OEM** prices, and **EXCLUDES** the value of the systems' **SENSORS** and **ACTUATORS**. To indicate real growth, the market estimates have been presented through to 2012 in constant 2007 US dollars.

# Automotive Electronics

## A Profile of International Markets & Suppliers to 2012

Please circle your chosen payment option:

	£ Sterling	US\$ (US Customers)	US\$ (Customers outside of the US)	Euro
Automotive Electronics A Profile of International Markets & Suppliers to 2010 (ISBN 1 905429 193)	£1295	\$2331	Customers outside of the US paying in \$ will be charged the Sterling rate converted to \$ at the current exchange rate	€1878
Automotive Electronics A Profile of International Markets & Suppliers to 2010 (ISBN 1 905429 193) - <b>PLUS CD</b>	£1440	\$2592	Customers outside of the US paying in \$ will be charged the Sterling rate converted to \$ at the current exchange rate	€2088

European Customers: Please state your VAT number:

\* UK customers ordering CD ROM version please add VAT of £25.38/CD ROM copy

### DELIVERY ADDRESS

Name (Mr/Ms): \_\_\_\_\_

Position: \_\_\_\_\_

Organisation: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

State \_\_\_\_\_

Postcode/Zip: \_\_\_\_\_

Country: \_\_\_\_\_

Tel: \_\_\_\_\_

Fax: \_\_\_\_\_

Email Address<sup>+</sup>: \_\_\_\_\_

### RETURN TO: ORDERS DEPT

**Fax:** +44 (0) 1235 227322

**Tel:** +44 (0) 1235 227310

**Post:** Reed Electronics Research,  
Harvard House, Grove Technology Park  
Wantage, Oxon OX12 9FF  
United Kingdom

<sup>+</sup> We would like to keep you informed about our products and services. Please tick here if you do not wish to be contacted about this information. We do not pass email addresses on to third parties

### PAYMENT

Payment enclosed - cheques payable to  
Reed Electronics Research  
(postage free of charge)

Please charge my MasterCard/Visa/  
American Express  
(postage free of charge)

Cardholder Name: \_\_\_\_\_

Cardholder Address: \_\_\_\_\_  
\_\_\_\_\_

Expiry Date: \_\_\_\_\_

Card Number: \_\_\_\_\_

Please invoice me: Company Purchase Order No:  
.....  
(postage and packing at cost)

Signature \_\_\_\_\_

Date: \_\_\_\_\_