



# SupplierBusiness

## The Automotive Mirrors and Cameras Report

2013 Edition



## CONTENTS

Executive Summary/Overview .....	6
Introduction .....	6
Supplier analysis.....	10
Mirrors.....	10
Legislative background .....	12
Technical trends .....	14
Mirrors.....	14
Cameras.....	17
Introduction .....	17
Cameras in use – a selection of case studies .....	22
Audi .....	22
Chrysler/Dodge .....	24
Daimler/Mercedes-Benz .....	24
Ford.....	27
GM.....	30
Honda.....	35
Land Rover .....	36
Mitsubishi .....	37
Nissan.....	38
Suppliers .....	42
Bosch .....	42
Continental .....	43
Ficosa .....	45
Gentex.....	47
Hella .....	50
Ichikoh .....	51
Magna .....	51
Murakami .....	55
SMR .....	57
TRW .....	58
Valeo .....	59
Mobileye – a key tier two with leading camera technology.....	59
Supplier Profiles .....	61
Bosch.....	61
Continental .....	70
Ficosa .....	84
Gentex .....	88
Hella .....	91
Ichikoh .....	96

Magna .....	98
Mobileye .....	105
Murakami Corporation .....	107
Samvardhana Motherson Reflectec .....	109
TRW .....	111
Valeo .....	120

## TABLES AND FIGURES

Figure 1: BMW 3-series mirror supplied by Gentex .....	6
Figure 2: Standard Ficosa interior mirror .....	7
Figure 3: Estimated global market for exterior rear-view mirrors [Source: AutoAnalysis estimates] .....	10
Figure 4: Estimated global market for interior rear-view mirrors [Source: AutoAnalysis estimates] .....	11
Figure 5: Audi RS5 exterior mirror. The Audi RS5 mirror above shows the water deflecting channels which are characteristic of Audi mirror design .....	16
Figure 6: Audi R8 mirror made of CFRP .....	16
Figure 7: Valeo BeamAtic camera-based lighting system in action.....	17
Figure 8: Display of Value 360Vue system.....	20
Figure 9: The Valeo BeamAtic and 360Vue system operate from the interior mirror ....	21
Figure 10: The AMOLED mirror screen in the Audi R8.....	23
Figure 11: The rear camera on the Audi A8.....	23
Figure 12: The display for the 2013 Dodge Ram Rear View Camera .....	24
Figure 13: The display for the Mercedes Active Lane Keeping Assist is in the centre of the instrumentation display .....	25
Figure 14: Schematic of Mercedes camera and sensor systems .....	26
Figure 15: Ford Fusion Rear View Camera display.....	28
Figure 16: Ford Driver Assistance systems .....	28
Figure 17: Ford Forward Collision Warning system .....	29
Figure 18: Ford Fusion Lane Keep Assist display. The 2013 Ford Fusion also features Ford Lane Keep Assist technology .....	29
Figure 19: Opel Insignia Forward Camera View display .....	30
Figure 20: The OpelEye camera can now read road signs .....	31
Figure 21: The Rear Cross Traffic Alert system from GM's Buick brand .....	31
Figure 22: The display from the 2013 Buick Verano rear-view camera showing Cross Traffic Alert function in action.....	32
Figure 23: The Forward Collision Warning system on the GMC Terrain is displayed on the centre of the dashboard .....	33
Figure 24: The Rear View Camera display on the 2013 GMC Acadia. <i>The latest GMC Acadia also features a rear-view camera.</i> .....	34
Figure 25: The rear-view camera display on the 2013 Honda Civic .....	35
Figure 26: The rear-view camera on the Honda Accord is fitted just above the licence plate.....	35
Figure 27: The customisable display for the Surround Camera system on the Range Rover Evoque .....	37

Figure 28: Schematic of Mitsubishi's Lane Departure Warning system .....	37
Figure 29: Nissan Qashqai exterior mirror with Around View Monitor camera .....	39
Figure 30: Nissan Around View Monitor display.....	40
Figure 31: Infiniti version of Nissan's Around View Monitor display. <i>In the Infiniti version, moving object detection is already offered</i> .....	41
Figure 32: Road Sign Recognition display from Bosch.....	42
Figure 33: Night Vision display from Bosch .....	43
Figure 34: Ficosa mirror supplied to Peugeot 508 .....	47
Figure 35: Gentex mirror on BMW 3-series.....	48
Figure 36: Magna mirror on Ford Fusion. <i>The Ford Fusion uses Magna's auto-dimming mirror which includes information display</i> .....	52
Figure 37: Magna's award-winning Infinity mirror .....	54
Figure 38: Magna mirror showing Blind Zone display feature .....	55
Figure 39: Murakami's Hydrophilic mirror. <i>The picture shows the difference between ordinary glass and glass which has been applied with Murakami's hydrophilic coating. The coating transforms the individual droplets of water into a single optically consistent film of water, improving visibility greatly.</i> .....	56
Figure 40: Two pictures showing the different images seen without reverse auto down and with reverse auto down.....	56
Figure 41: Schematic showing MobilEye applications .....	57
Table 1: Selected examples of Mobileye applications are: [Source: Mobileye] .....	59