

The Interior Division at Continental

In-car information management is becoming more and more important in light of the growing requirements of drivers with respect to operation, functionality and safety. The Interior division of Continental AG supplies the requisite products and services for the automotive industry.

Regensburg. The Interior division of Continental AG was created as one of three new divisions following the takeover of the automotive supplier division of Siemens AG in December 2007. The Chassis & Safety division develops and produces products for active and passive safety, safety and chassis sensors and chassis components. The Powertrain division focuses entirely on products that have to do with the drivetrain. The Interior division covers all of the activities of Continental connected with the display and management of information within the vehicle. "Always on" is the vision of the company's electronics developers: They intend to ensure that the driver has all of the information he wants at his disposal at all times, can stay in touch with the outside world if desired, and at the same time retains full control of his vehicle.

Information management as a main focus

In today's vehicles, countless pieces of information need to be exchanged constantly among the various electronic components, and selected information has to be presented to the driver. If the information to be presented would not be selected from the rest, even the most seasoned professional driver would be hopelessly overwhelmed. This means that the information obtained through the various sensors, control units, antennae, and operating devices needs to be prepared. The driver must be supplied with the data relevant to him in a way that is reasonable and useful to him. Furthermore, the driver must be given the opportunity to affect the flow of information. In the optimum case, the driver should be free to operate features at will, using push or turn controls operated by touch, buttons, touchscreens, touchpads, or even speech recognition. Continental now has more than 100 years of experience in generating and presenting information in the car. The developers at the Interior division of Continental AG are able to offer their customers – above all, car manufacturers worldwide – systems that enable safe, flexible and clear information management. The so-called human-machine interface plays an important role in this. For all

of its products that supply information directly to the driver or the passengers or are operated by the vehicle's occupants, the Interior division particularly emphasizes ensuring that the operation of its features is high-quality, as intuitive as possible, and suitable for the driving situation. Important is also that the function feedback is unambiguous. This approach accommodates the growing density of information in the vehicle and ensures that the safety aspects are not neglected.

The business units of the Interior division

The spectrum involved in generating, conveying, and presenting information as well as the design of the human-machine interface is a broad one. Accordingly, the business units in the Interior division focus on the various needs of customers. Development and production take place worldwide in 22 countries on five continents. The Interior division is headed by Helmut Matschi and is headquartered in Regensburg.

The Body & Security business unit

The Body & Security business unit develops and produces electronics systems that enable the access to the car, ensure the authorization to drive and guarantee the availability of basic and comfort functions in the car. Many of the products support the driver discreetly. The business unit's product spectrum includes the central Body Control Units (BCUs), which control, for example, the windshield wipers, headlights or the electronic immobilizer. The Door Control Units (DCU) contain the electronics for the external mirrors and the window lifts with anti pinch functionality. The Seat Control Units (SCO) are used to offer optimum seating comfort by controlling the electric motors for the seat adjustment, the seat heating or the occupant detection.

The Body & Security business unit supplies car manufacturers with the necessary components for the immobilizer, alarm systems and classic radio controlled locking systems as well as modern keyless entry systems where the driver only needs to touch the door handle to unlock the door automatically. The intelligent tire pressure monitoring system informs the driver if the tire pressure is not correct, so the tires can be kept inflated properly, thus reducing the rolling resistance. This optimizes the durability of the tires and reduces the exhaust of CO₂. As early as in the next vehicle generation, an advanced Tire Information System will be installed as standard, making the tire data available for other car electronic

systems. The braking system for example will then be able to react better in critical driving situations by using the information about the tires and their status. The driver receives additional information such as the mileage of the tire or whether it is a winter or summer tire.

To ensure that each electronic component is provided with the optimum amount of energy in every individual driving situation, the Body & Security business unit also develops the battery and energy management system. By managing the energy available in the vehicle, the overall fuel consumption can be reduced and additional CO₂ exhaust can be avoided, thus contributing to environmental protection.

One of the Body & Security business unit's special fields of expertise is the flexible function partitioning in the control units for technical and cost reasons. Here the various vehicle functions can be distributed optimally amongst the different control units at hand.

The Connectivity business unit

When it comes to networking the car with the outside world or integrating mobile devices into the car, the experts of the Connectivity business unit are in their element. In the last ten years, for example, they produced telematics units for more than 15 million vehicles worldwide. These communication units ensure not only that information is received in the vehicle, but can also transmit information from the vehicle, in contrast to the traditional radio. More and more automotive manufacturers offer their customers a wide array of services based on the car's networking with traffic control centers. This enables, among other things, an automatic emergency call in the event of an accident (eCall), which ensures greater road safety as the rescue services can be informed more quickly. Continental supplies the in-car infrastructure needed for these functions.

Because mobile phones, multimedia players, and other multifunctional devices are becoming permanent companions to more and more people, the developers at Continental are ensuring that networking of such devices with the car intensifies as well. Bluetooth-based hands-free kits are already the standard today. Mobile devices are recognized by the car ever more easily and their content played back over the built-in speakers, thanks in part to a close cooperation between Continental and Microsoft. To minimize the additional distraction when activating the various functions, they are to an ever greater extent integrated

seamlessly in the car. The control elements already installed in the car and the natural voice operation will soon be a standard for operating the mobile phone or the latest multimedia player in the car.

The Commercial Vehicles & Aftermarket business unit

The Commercial Vehicles & Aftermarket (CV & AM) business unit accommodates the specific requirements of the commercial vehicle and aftermarket sector. A global network of marketing and service companies ensures proximity to local customers. Covering the product brands Continental, VDO and ATE, the business unit offers electronic products, systems and services for commercial and special vehicles and a broad selection of products for specialized workshops and ensures that replacement parts are available even after the automotive manufacturer discontinues production of a series.

With more than 80 years of experience in the commercial vehicle segment, this business unit develops and produces products that make commercial and special vehicles safer, cleaner, more fuel-efficient and makes their use in day-to-day business more efficient. Thus, CV & AM has been able to establish itself as the market and technology leader for example in the tachograph segment. In addition, the business unit's portfolio includes control systems for drive and onboard electronics, onboard toll units, telematic units and display instruments. This business unit also markets commercial vehicle-specific products from other divisions (navigation systems, driver assistance systems, etc.).

Along with its original equipment products, CV & AM offers an extensive line of products for the independent parts trade and non-affiliated workshops. These products include fuel systems, components for windshield and headlight cleaning systems, instrumentation, locking systems, engine actuators, replacement parts for brakes, and diagnostic instruments. Furthermore, the business unit is responsible for supplying replacement parts when a series has been discontinued by the vehicle manufacturer (Original Equipment Services, OES). After the end of production, the OES organization takes on full responsibility for the product, including sales and distribution, logistics, production, and quality assurance, ensuring that replacement parts are available after the end of series production.

The Instrumentation & Displays business unit

When it comes to displaying information in the car, automotive manufacturers turn to the experts at the Instrumentation & Displays business unit. Beyond the driver's own feeling for the car, the speed was the first objective information to become available in the vehicle. The eddy-current tachometer, the first forerunner of today's instrument clusters, was patented for this purpose as far back as in 1902; the concept has now been refined and developed into its latest form, the head-up display. The head-up display projects important information such as speed, navigation guidance, and status indicators directly onto the windshield. Worldwide, car manufacturers rely on VDO's more than 100 years of experience in this area in order to provide drivers with dependable, easy-to-read multifunctional instruments. The engineers and designers continue in this tradition, applying state-of-the-art technical advances and ergonomic findings to their designs, customized to meet customer wishes, for the display systems marketed under the VDO brand. The selection of instrument clusters available ranges from cost-optimized instruments for vehicles in the low-price segment to complex, multidimensional clusters with high-resolution color displays for the premium segment. Because it is not necessary for every piece of information to appear in the driver's direct field of vision, Instrumentation & Displays also supplies display systems for the center console. In addition, display systems for the front passenger and rear-seat passengers are being developed. These secondary displays are designed and produced in such a way that they can be hidden away when not in use, for example behind a protective cover in the cockpit. And finally, by contrast, VDO instrument clusters for motorcycles come without any kind of additional protective covering; instead, these instruments, which have been adjusted for the special conditions when driving on two wheels, remain easy to read even under harsh outside conditions.

The Interior Modules business unit

The experts at the Interior Modules business unit specialize in integrating a wide array of products into the cockpit and develop new operation concepts as well as air conditioning controls. Working on orders from automotive manufacturers, the business unit develops and produces complete cockpits for new generations of vehicles on four continents, working together with Faurecia in a joint venture in cockpit production. The cockpits are delivered to the carmakers "just in sequence" or are even built into the new vehicles by Continental experts, right at the manufacturer's plant. Interior Modules has also become one of the

preferred suppliers to the automotive industry worldwide in the field of operation and controls of air conditioning systems. In addition, the business unit also offers a broad selection of touch-based operating systems such as knobs, and complete operating units as well. For example, the operating unit in the roof of the vehicle has become an important electronics hub in many new vehicles, based on the integration and electronics know-how of the developers at Interior Modules. Operating units in the center consoles (faceplates) as well as complete center stacks with screens and other components provided by Interior Modules ensure that the necessary design flexibility is maintained, especially with respect to the ever-increasing number of design variants offered by vehicle manufacturers. At the same time, the business unit offers new opportunities for integration of infotainment systems, also for rear-seat passengers.

The Multimedia business unit

Continental has been a trendsetter in the field of navigation and multimedia systems since 1994. At that time, the company (with its predecessor, Philips Car Systems), supplied the first factory-installed navigation system in a European vehicle model. Today, the Multimedia business unit develops and produces for all vehicle classes. The portfolio ranges from simple CD-radios and radios with integrated hands-free functions and connector for MP3-players to multimedia systems with integrated navigation and high-resolution display. The Multimedia business unit offers its customers a wide range of storage medium products. Where once only CDs were used as storage media for map data, the multimedia systems supplied by Continental now also use hard drives for storage of both navigation information and audio files. High-performance graphics systems for three-dimensional map display are also part of the company's repertoire today, along with voice operation and international multimedia system applicability. But the company's developers put their innovative talents to use not only for the upper end of the product spectrum. A lot of know-how is also put into development for vehicles of the lowest price category. With special radios and navigation systems for this market segment, the Multimedia business unit is paving the way for good entertainment on the road in this sector as well. And for the many drivers whose vehicles did not come with built-in navigation systems, the Multimedia business unit also offers retrofit navigation systems. These systems, marketed under the brand "VDO Dayton", are distinguished by ease of operation, speed, and the broad array of features they offer. The

latest generation, for example, also offers mobile digital television reception in 16:9 widescreen format.

Customer satisfaction as the benchmark for all products

Developing, producing, and marketing high-quality products counts among Continental's core competencies. With its stringent quality requirements, Continental AG has set standards in the automotive industry. To accomplish this, suppliers are included in the development and production processes at a very early stage so that the highest possible quality standards can be met. Perfect products, seamless integration of the latest technologies, cost efficient systems, recognition of the need for a human-machine interface that is both well designed and flexible, and the ability to realize that interface, are at the same time the cornerstones of success for the Interior division and the entire corporation.

Supplying both, OEMs and the Aftermarket worldwide, the Interior Division of Continental AG develops and produces electronic systems which allow the information in a vehicle to be controlled and communicated according to the requirements of the driver and the driving situation. The Division achieves annual sales of more than € 6 billion (based on 2006 figures) with a workforce of more than 33,000 employees currently. The range of products includes instruments clusters and multifunctional displays, control units, electronic car entry systems, tire information systems, climate control systems, radios, multimedia and navigation systems, telematic solutions as well as cockpit modules and systems. The Interior Division develops vehicle electronics enabling car-to-car and car-to-infrastructure communication, Internet access and the seamless integration of mobile devices (car-to-device). The focus on systems integration offers customers less complexity and ensures efficient and cost-effective solutions for the management of information in passenger cars as well as commercial and special vehicles.

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