

Body Control Module (BCM)

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Hella KGaA Hueck & Co.
Rixbecker Straße 75
D-59552 Lippstadt/Germany
Ph. + 49 29 41 38-0
Fax + 49 29 41 38-71 33
www.hella.com

Technical Information



Ideas today for
the cars of tomorrow



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the cars of tomorrow



Central control unit for lighting, car access, radio remote control, comfort and power

Contents

Challenges	4
Hella core competencies	5
Global presence as network strategy	5
BCM in detail	6
Considering the whole: systems engineering and architecture	6
Creating something great: individual system development	6
The project in focus	6
Faster, better and more efficient thanks to modular systems	6
Best prospects for the future	6
Hella KGaA Hueck & Co.	7

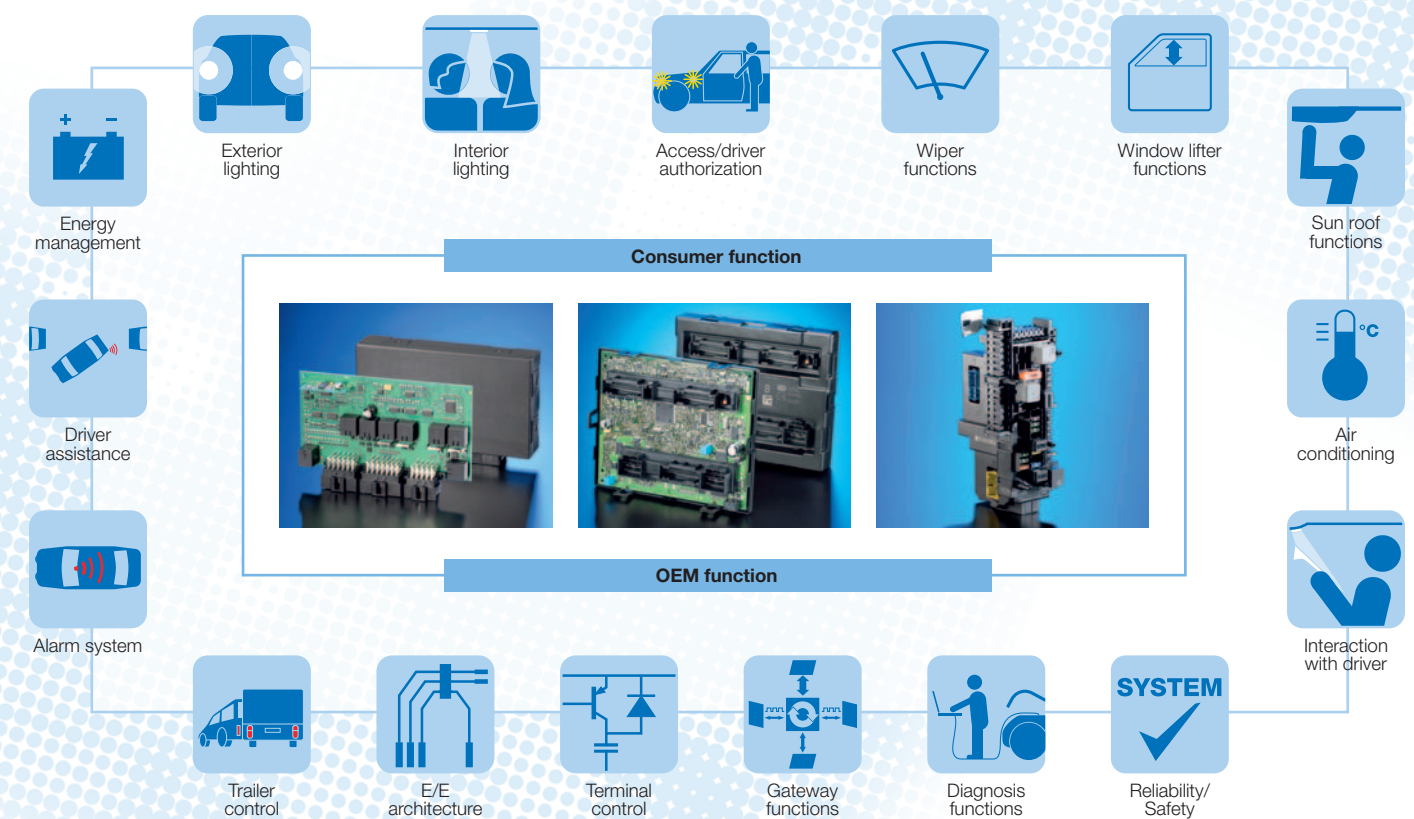
BCM – the central element of modern vehicle electric systems

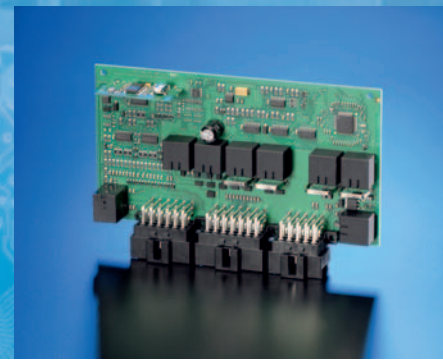
Optimization and advanced developments in terms of comfort, safety and variety are already presenting a great challenge to the vehicle electric system. The Body Control Module (BCM) is the core component for the realization of a broad range of functions. This central control unit can combine classic power distribution and the safeguarding of relay and fuse boxes with the advan-

tages of intelligent, micro-controller controlled systems. In addition, BCMs play a deciding role in cost efficiency as they allow for the amount wiring within the vehicle to be significantly reduced by providing interfaces for bus systems. Depending on the architecture approach different variants of central control units can be created from numerous combination possibilities. From

more universal entry-level BCMs to highly integrated variants.

In short: Central control units provide an enormous functional density that is sure to increase even further in the future. And that is exactly what Hella is creating when designing these central control units: the future.





Entry-level central control unit



Central control unit for lighting, access, radio remote control, comfort and power



Central control unit for commercial vehicles



Central control unit with modular power and energy distribution

Challenges of our time

Long before the general discussion about global warming began, developers of pioneering and future technologies had already focused on energy efficiency and the protection of resources. The development and optimization of BCMs follows the same principle – designed not only to reliably meet the requirements of

the future, they also have to be flexible and be able to be used in all vehicle platforms. A challenge which Hella masters by means of modular systems and the effective use of synergies. This not only guarantees cost efficiency, but particularly the fulfillment of a wide range of different individual requirements – a decisive market advantage.

Today, we are one of the leading suppliers of BCMs. Not only because of excellent products and years of know-how, but mainly because Hella's BCMs already cover today the important market requirements of the future.

Hella core competencies

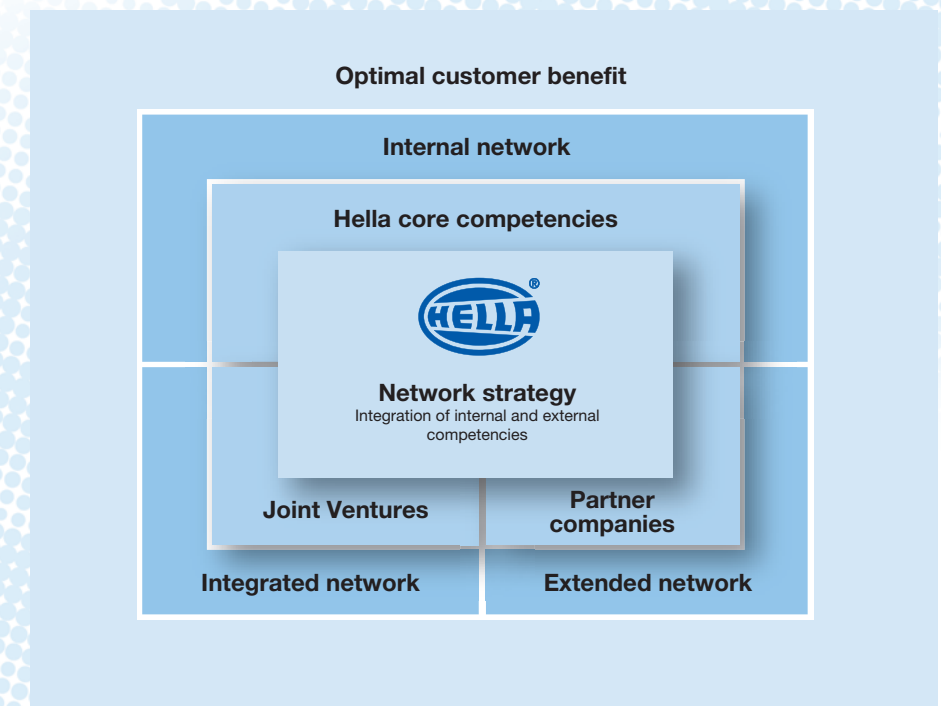
Hella's core competencies are in the fields of lighting, energy management, access systems, comfort systems, driver assistance and power electronics and distribution. Hella's know-how in vehicle electronics and mechatronics has made us into one of the leading worldwide specialists in this field. All this while not neglecting the peripheral control units, such as trailer connection units and seat control units.

An important factor for the measurable success of our BCMs is the high functional density that we can offer our customers. This happens through the use of highly integrated modules, an optimized and innovative packaging technology, as well as cutting-edge design and production methods. In addition, modern simulation supported development methods allow for the successful implementation of demanding innovation projects. For us, complexity is a challenge for which our staff in the BCM department, cooperating with internal and external technology and method specialists, provide professional solutions.

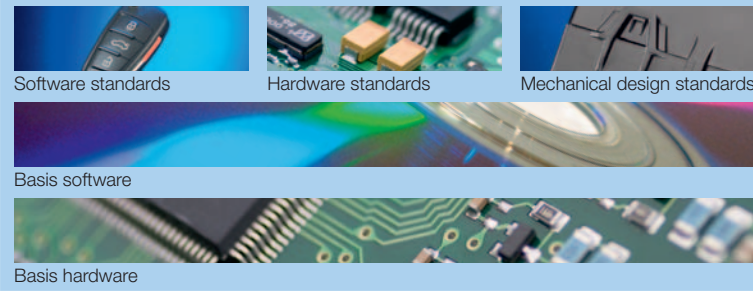
Global presence as a network strategy
We aim to convince customers in markets all over the world with consistently highest quality. This ambitious aim is achieved by numerous specific joint ventures with strategic partners, target-oriented project management as well as situation and projects specific orientation. To be able to maintain this flexibility in the future, we are

always open to new strategic alliances. A strategic approach that leads to optimum supplies for our customers: by merging the strengths of different specialists, using flexible technical solutions and customer specific implementation of the integration platform BCM, ensuring a smooth project workflow thanks to coordination of sub-suppliers and partners.

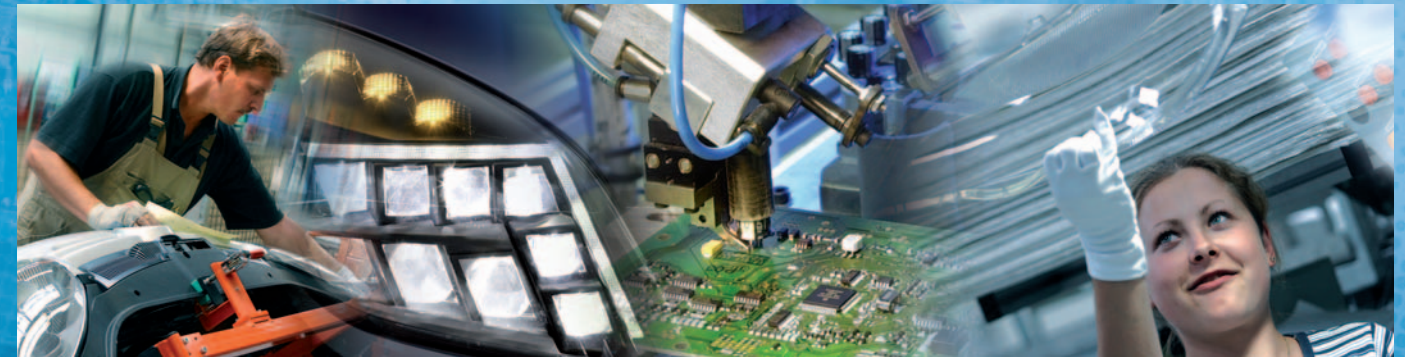
OEM requirements	Hella BCM solutions
<ul style="list-style-type: none"> Cost-efficient implementation of functions 	<ul style="list-style-type: none"> Technologies: lighting, energy management, access systems, driver assistance systems
<ul style="list-style-type: none"> Reliability, future orientation, guaranteed function 	<ul style="list-style-type: none"> Modern development, packaging technologies
<ul style="list-style-type: none"> Re-use, cross carline solutions, scalability, mastering of complexity 	<ul style="list-style-type: none"> System reliability and safety, high degrees of product maturity, 2 ppm philosophy
<ul style="list-style-type: none"> Support of global OEM platforms, growth in new markets 	<ul style="list-style-type: none"> System reliability and safety, module architecture, AUTOSAR, function integration
<ul style="list-style-type: none"> Fast product cycles and diversification 	<ul style="list-style-type: none"> Platform strategy: software, hardware, mechanics
<ul style="list-style-type: none"> Energy efficiency 	<ul style="list-style-type: none"> Competency E/E architectures
<ul style="list-style-type: none"> Differentiating innovations 	<ul style="list-style-type: none"> Flexibility, efficient product development
	<ul style="list-style-type: none"> Network value strategy, system partnerships
	<ul style="list-style-type: none"> Global presence: development and production, direct proximity to customers



Hella modular system BCM



Flexible customer solution



Modular and scalable central control units based on the Hella modular system

BCM in detail

Considering the whole: systems engineering and architecture

General demands on comfort, safety, equipment and diversity of variants is increasing almost daily, and along with them the requirements on the vehicle electric system architecture. To stay ahead of today's rapid developments it is vital that functionality, wiring harness and power supply of the whole vehicle electrical system is perfectly harmonized. Systematic analysis, development and optimization of the architectures is required. Or, in a nutshell: professional systems engineering and architectural knowledge. Through Intedis, the joint venture successfully established on the market in 2001, we provide our customers with both. (www.intedis.com).

Creating something great: individual system development

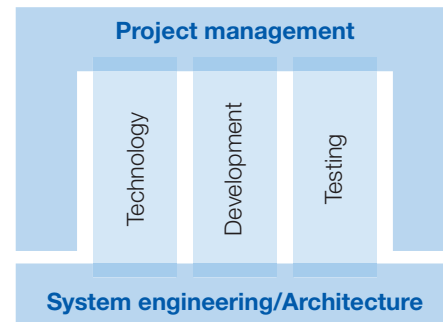
For our customers, Intedis means focused specialist knowledge, a broad range of experience and the use of innovative tools for architecture development. Our customers benefit enormously from our joint venture, particularly where early vehicle development or the optimization of existing series is concerned.

- Database-supported records
- Tracking of product requirements
- Comprehensive project planning, aligned to individual milestones
- Modelling of functions with system engineers

- Tool-supported derivation of architecture variants that can be evaluated at any time
- Dependable evaluation on architecture variants at the push of a button thanks to adapted metrics

The project in focus

For us, a successful project is like an architectural construction: the solid foundation is provided via professional systems engineering and far-reaching experience in terms of architectures, an ideal combination of technology, development and an adapted test strategy is built on this, all this under the safe roof of well-managed project management.



Faster, better and more efficient, thanks to modular systems

The use of scalable modular systems in hardware and software (especially AUTOSAR) is one of the major success factors in automotive electronics development today. In particular, the repeated use of standards increases individual product maturity, ma-

kes cost-efficient development possible and permits high functional complexity. Short innovation cycles are the result. Hella has a separate development section that works consistently on the development of modular systems in order to guarantee their efficient use. In the areas of software, circuitry hardware and mechanical design in particular, there are close interactions between the specific requirements of the central control units and the design of the modular systems:

- Software standards and architectures based on Autosar
- Hardware modular system with complete design specifications
- Virtual mechanical design components
- Function-based configuration management
- Standardized tools and processes

The modular design concept in the early design phase reduces development time significantly, increases productivity and achieves simplification of the interdisciplinary interfaces.

Best prospects for the future

When it comes to new technologies, Hella provides an outstanding range of possibilities. BCMs are as individual as you, our customers, are!

Contact us!

Hella KGaA Hueck & Co.

The automotive parts supplier develops and manufactures components and systems for lighting technology and electronics for the automotive industry. In addition, joint venture companies also produce complete vehicle modules, air-conditioning systems and vehicle electric systems. Hella has one of the largest aftermarket organizations in the world for automotive parts and accessories, with its own sales companies and partners in more than 100 countries. Hella is one of the top 50 automotive parts suppliers in the world and one of the 100 largest industrial companies in Germany. Almost 25,000 people work in 70 manufacturing facilities, production subsidiaries and joint ventures all over the world. More than 3,500 engineers and technicians work in research and development throughout the company group. Customers include all leading vehicle and system manufacturers, as well as the automotive parts aftermarket.

Network creates added value

Cooperation rather than concentration: In line with this aim, Hella enters project-related co-operations and works in joint ventures with independent suppliers, enabling the company to offer vehicle manufacturers an attractive alternative to mega suppliers in terms of innovative ability and global presence.

As a strategic investment in the innovative field of camera-based driver assistance systems, Hella took over 100 percent of shares in Aglaia GmbH, Berlin, on March 1, 2006. The company Hella Aglaia Mobile Vision GmbH develops prototype visual sensor systems as important components in innovative driver assistance systems and integrates them into vehicles. The company has created a very effective development platform with Cassandra for the implementation of these projects. It includes methods of quality assurance and progress control for the development work. Hella Aglaia Mobile Vision has developed freely configurable and inter-linkable application modules for the detection of lanes, objects, traffic signs, headlamps and rear lamps.

Hella cooperates with the Japanese supplier Stanley and the Korean supplier SL (formerly Samlip) in the field of lighting technology. HBPO GmbH is the only joint venture of its kind in the world and extremely successful in the area of design, development, production and logistics for complete front-end modules with the suppliers Behr, Stuttgart/Germany, and Plastic Omnium, France. Behr-Hella Thermo-control GmbH, a further joint venture with the Stuttgart-based supplier Behr, provides vehicle manufacturers with complete system development for vehicle air conditioning and engine cooling.

These examples demonstrate how Hella defines the term „customer benefit“: expert knowledge is linked and brought together in lean organizations with short decision paths. Hella is always open for new or extended partnerships, to be able to offer vehicle manufacturers optimum solutions with just the right partners.