



Customized vehicle system development technology: **Bosch Engineering becomes development partner for GLM's next-generation production EV GLM G4**

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- ▶ Bosch plans to supply a Vehicle Control Unit (VCU) as the electronic control unit providing vehicle control intelligence for the electric vehicle (EV) supercar "GLM G4."
- ▶ Integrated control E/E architecture optimization by the VCU incorporating EV algorithms enables lighter body and optimized onboard communications
- ▶ First use of a Bosch VCU for an EV passenger car by a Japanese automaker
- ▶ Utilizing Bosch Engineering's custom development capabilities for small-lot production vehicles

Yokohama - Bosch Engineering K.K., the Japanese subsidiary of Bosch Engineering GmbH, a provider of engineering services such as development and optimization in the field of mobility electronic control systems, is promoting joint development with GLM Co., Ltd. aiming to incorporate a vehicle control unit (VCU) into the "GLM G4" EV supercar. GLM plans to start series production of the car in 2019. If the car is produced in 2019, GLM will be the first Japanese automaker to undertake a mass production project incorporating a VCU for an EV passenger car. Furthermore, Bosch Engineering K.K. will work as a development partner for the G4, undertaking optimization of the vehicle E/E architecture and development of the electronic components.

Bosch Engineering GmbH was established in Germany in 1999 to respond flexibly to small-lot production and prototype development needs by leveraging Bosch's established technologies used in large-scale series production. Using the Bosch Group's hardware and series production expertise, Bosch Engineering GmbH customizes software and applications to enable custom development of small-lot production cars. Bosch Engineering K.K. representative director Kotaro Ryuzaki said of the collaboration, "The collaboration with GLM on development of an EV supercar, will enable us to realize the same business model of

engineering for super cars that Bosch Engineering has cultivated in Europe. We consider it an opportunity to provide expertise on custom development to Japanese automakers. The opportunity to collaborate with GLM, a creative company full of new ideas, brings various insights to our company." Regarding the role of Bosch Engineering in this collaboration, GLM President Hiroyasu Koma said "Working with Bosch Engineering, which has DNA of Bosch's proven track record of providing innovative technology to automobile manufacturers around the world, is sure to accelerate the development of the GLM business model. I believe that this will result in dramatic improvements to both quality and development speed, not only for the finished car business, but also for our platform business which provides technology modules globally."

Integrated control by VCU and optimization of E/E architecture to enable vehicle weight reduction

Previously, each vehicle function has been controlled by its own ECU. Current premium vehicles sold on the market have upward of 100 ECUs, creating significant issues related to the weight of the wire harnesses and ECUs, and space requirements. Going forward, Bosch Engineering will supply G4 with VCUs that include algorithms tailored to EVs, and that will perform integrated control of each function across vehicle domains. By integrating control of each function with the VCU and optimizing the entire vehicle E/E system, wire harnesses can be simplified to reduce weight, the number of onboard ECUs can be reduced to save space, and vehicle onboard communications can be optimized. Vehicle weight reduction and space saving are particularly important to meet the demand for high acceleration performance in super sports cars such as the G4.

Bosch Engineering K.K. and GLM plan to expand the scope of their collaboration in the development of the G4 beyond the VCU and E/E architecture going forward.

Press photos: BEGJ-01, BEGJ-02, BEGJ-03

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Bosch Engineering GmbH is a wholly owned subsidiary of Robert Bosch GmbH and is head-quartered in Abstatt, Germany. As a systems development partner to the automotive industry since 1999, the company with its more than 2,200 associates offers development services for powertrains, safety and convenience systems, and electrical and electronic systems – from the original concept to series production. Specialized in electronics and software, it draws on Bosch's proven large-scale series production technology to develop tailored solutions for a wide variety of applications in passenger cars, commercial vehicles, off-highway and recreational

vehicles, and in rail applications, ships, and industry. Bosch Engineering GmbH also coordinates all the Bosch Group's motorsports activities.

Additional information can be accessed at www.bosch-engineering.com

The Bosch Group is a leading global supplier of technology and services. It employs roughly 390,000 associates worldwide (as of December 31, 2016). The company generated sales of 73.1 billion euros in 2016. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 120 locations across the globe, Bosch employs some 59,000 associates in research and development.

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