

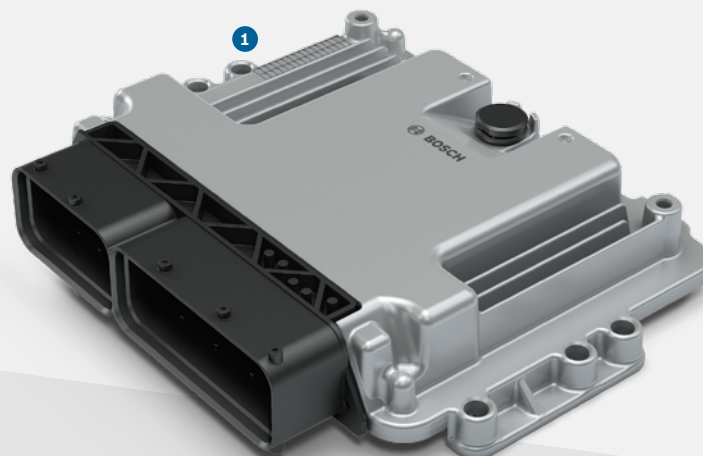
Transmission technology

Transmission control unit



BOSCH

Invented for life



PRODUCT BENEFITS

- ▶ High level of processing power and scalability for present and future requirements
- ▶ Variable software-sharing model
- ▶ Meets the requirements for functional safety (ISO 26262) up to ASIL D
- ▶ Hardware safety module for high level of access safety
- ▶ Comprehensive product range for all markets

1 Transmission control unit



drive comfortably

thanks to optimum transmission control in every driving situation

TASK

With many transmissions, the gear change is made by means of a hydraulic controller, which is activated by a transmission control unit. Intelligent control software adjusts the switching behavior of the transmission to the actual driving situation.

By controlling the electrohydraulic or electromechanical transmission actuators, the transmission control unit enables comfortable and dynamic driving performance to be achieved. It also performs a diagnosis of the transmission and its components.

FUNCTION

The transmission control unit evaluates the relevant sensor signals and converts them by means of the software into control commands for the transmission actuators. The transmission control unit contains a microcontroller and integrated switching circuits (ASICs), which are optimized for specific applications, as well as inputs for the sensors and output stages for controlling the actuators. Modular software architecture facilitates the use of variable software-sharing models.

VARIANTS

The transmission control unit (TCU) is available as either integrated in the electronic module (iTCU), attached to the transmission (aTCU) or as a stand-alone version. In addition to this, the control unit is also available with a metal casing (iTCU-S) for applications up to 145°C.

drive economically

due to optimum selection of the transmission ratios

drive safely

thanks to state-of-the-art computer architecture (multicore in lock-step mode)

TECHNICAL CHARACTERISTICS

Microcontroller	55 nm / 65 nm technology (multicore optional)
Communication interfaces	e. g. CAN-FD, FlexRay, Ethernet
Power control	ASIC with variable control concepts
Basic software	AUTOSAR 4.0