

# GATE VCU

Datasheet

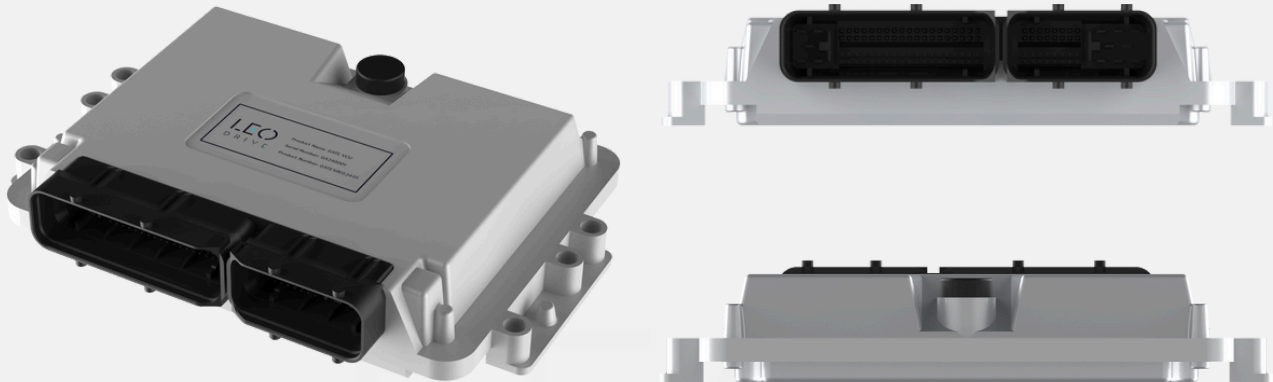


A safer driving with advanced  
integrated control

Designed & Manufactured by [Leo Drive](#)

## About GATE VCU

Leo Drive's GATE VCU is engineered to efficiently manage the communication within the vehicle's Controller Area Network (CAN) through advanced driver assistance features (ADAS). This sophisticated integration streamlines drive-by-wire functionalities, thereby eliminating the need for additional actuators for braking or steering. By leveraging these built-in capabilities, GATE VCU ensures a seamless and efficient vehicle control system, enhancing both safety and driving experience.



## Capabilities

- ✓ Steering Wheel Angle and Torque Limitation
- ✓ Throttle Control
- ✓ Brake, Handbrake and Emergency Brake Control
- ✓ Gear Selection (DNRP)
- ✓ Environmental Controls (Window Adjustment, Central Lock, Windshield Wiper)
- ✓ Lighting and Signal Operations (Blinkers, Hazard Light, High Beam, Flasher, Horn)

## Software

The embedded software operates on a Real-Time Operating System (RTOS), meticulously designed to ensure high reliability and performance in automotive applications. This software encompasses advanced features such as task management, precise timing, and optimized network communication.

## Technical Specifications

|                       |   |
|-----------------------|---|
| Processor             | ST SPC58EG80E5 Dual Core 180 MHz  |
| Memory                | 768 kB RAM  |
| Storage               | 4 MB Flash  |
| Inputs                | 12 Digital Input<br>10 Analog Input   |
| Outputs               | 5 High-Side Driver (1A PWM Capable)<br>10 Low-Side Driver (1A PWM Capable)<br>2 Analog Output |
| Power Consumption     | ~5W, Varying with Operational Load  |
| Operating Voltage     | 9-32V   |
| Operating Temperature | -40°C to 100°C  |
| Dimension             | 207x150x42mm  |
| Weight                | ≤700g   |
| Housing               | Die-casting Aluminum  |
| Connections           | 8 CANFD for high-speed networking<br>4 LIN for local interconnect networks                    |

## Vehicle Status Messages

|                  |  |
|------------------|--|
| Steering Wheel   | Angle, Rate, Driver Applied Torque   |
| Throttle         | Pedal Position   |
| Motor            | Torque, RPM  |
| Brake            | Hydraulic Pressure, Brake Pedal Position   |
| Handbrake        | Status   |
| Gear             | Level Status, Position (DNRP)  |
| Vehicle Dynamics | Individual Wheel Speeds, Lateral Acceleration,<br>Longitudinal Acceleration, Vehicle Mass Estimation,<br>Vehicle Pitch Value |
| Fuel             | Level  |

## Compatibility

Ensuring broad compatibility, the GATE VCU is designed to integrate seamlessly with various models from Audi, Ford, SEAT, Škoda, and Volkswagen. It has undergone rigorous testing on the Volkswagen Golf Mk8 and Cupra Formentor and is fully extensible to other models within the MQB Evo platform. Our comprehensive functional and performance evaluations guarantee seamless integration and optimal performance across all supported vehicles.

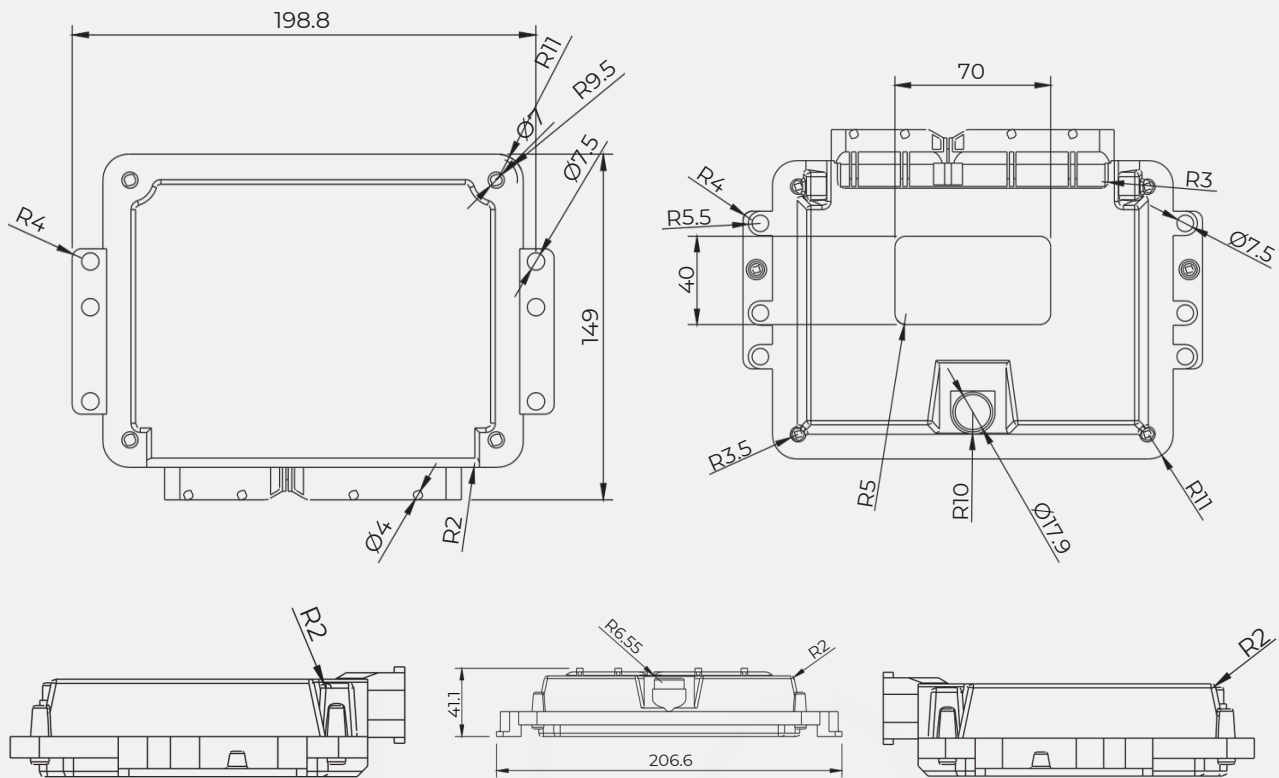
- Audi A3 Mk4 (2020 – Present)\*
- Audi Q6 (2022 – Present)\*
- Cupra Formentor (2021 – Present)
- Ford Tourneo Connect Mk3 (2022 – Present)\*
- SEAT León Mk4 (2020 – Present)\*
- Škoda Kodiaq Mk2 (2023 – Present)\*
- Škoda Superb Mk4 (2023 – Present)\*
- Volkswagen Caddy Mk4 (2020 – Present)\*
- Volkswagen Golf Mk8 (2019 – Present)
- Volkswagen Multivan (T7) (2022 – Present)\*
- Volkswagen Passat (B9) (2023 – Present)\*
- Volkswagen Tiguan Mk3 (2023 – Present)\*



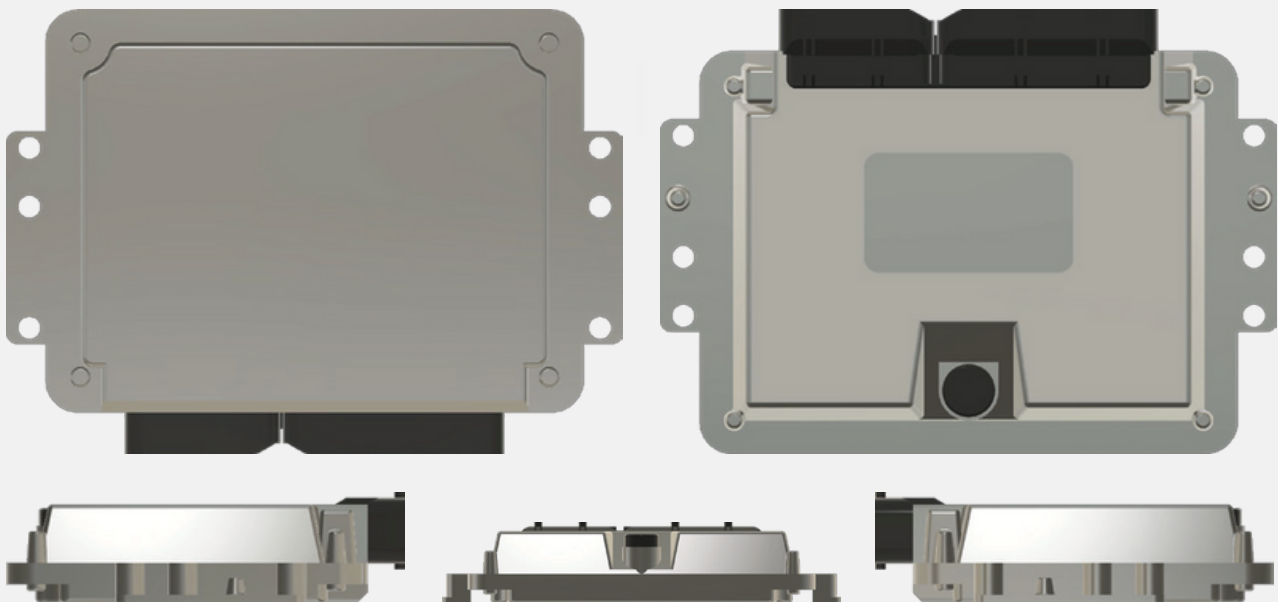
## What's in the Package?

- ✓+ GATE VCU main unit
- ✓+ **Harness** with automotive connectors, including an interception relay to manage the CAN traffic of the vehicle
- ✓+ **E-Stop Button** with mode switch feature
- ✓+ **CAN FD Adapter (Optional)** for the connection of CAN FD and CAN networks to a computer via USB
- ✓+ **Controller / Joystick (Optional)** for the in-vehicle testing of x-by-wire systems (ROS2 driver is available)

## Mechanical Drawing - Box



## Mechanical Drawing - Visual





## About Leo Drive

We are dedicated to transforming the transportation sector by leveraging our expertise in developing state-of-the-art autonomous vehicles. Since our establishment in 2015, we have followed a co-creation and design-win approach to customize our solutions according to the unique needs of projects.

[leo@leodrive.ai](mailto:leo@leodrive.ai)

## Meet FLUX PDS

Check out Leo Drive's Power Distribution System solution



### HQ:

Leo Drive Teknoloji A.Ş.  
+90 212 276 2000  
Türkiye

### EU Office:

Leo Drive B.V.  
The Netherlands

## Sales / Support Team

[sales@leostore.ai](mailto:sales@leostore.ai)  
[support@leostore.ai](mailto:support@leostore.ai)

[Support Portal](#)