

# Rack Parallel Type Electric Power Steering MCU to Enhance Functional Safety in Compliance with ISO 26262 Standard



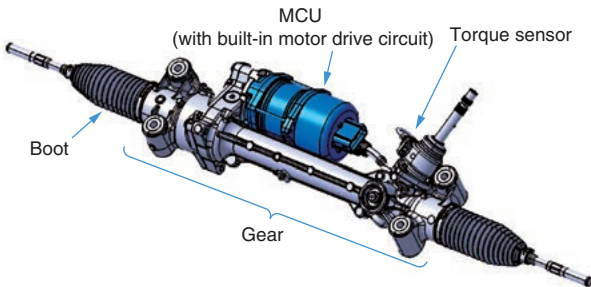
JTEKT has developed a rack parallel type electric power steering MCU (Motor Control Unit) in compliance with ISO 26262, an international standard for functional safety of automobiles that has the capabilities to continue operational assistance in case the ECU hardware of the electric power steering has failed, and the resistance and anti-corrosiveness against immersion from inside of the gear into the MCU.

We have started the mass production of this product after a system in which an internal audits department independently from design and development departments for conducting the functional safety audit and assessment for this product was established.

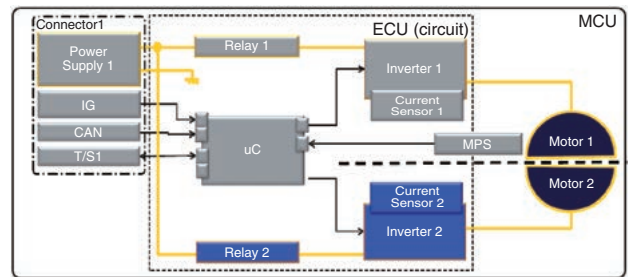
## Features

### 1. Continuous operational assistance at hardware failure

A torque sensor that detects driver's operations and a motor drive circuit that generates assist torque are consisted dual system. This enables a continuous operational assistance in another normal circuit even if one ECU hardware has failed.



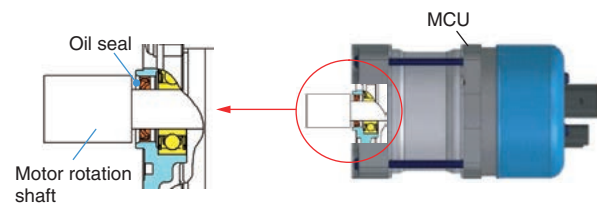
System configuration



Configuration block of MCU

### 2. Resistance to immersion from inside of the gear into the MCU

Although immersion to the gear is prevented by the boot, if a vehicle runs on a flooded road, etc. while the boot is broken, there is a concern about malfunction of MCU due to the immersion from inside of the gear to the MCU. Hence a structure with an oil seal mounted to the motor shaft was adopted as a preventive measure.

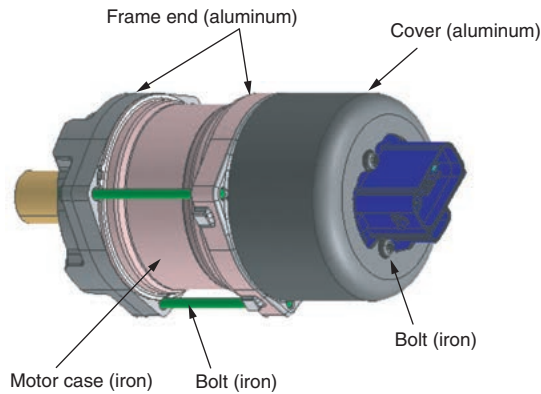


Structure with oil seal

3. Anti-corrosion specifications

This product was designed to have the following anti-corrosion specifications in consideration of being mounted for heavy-duty environment.

Material	Component	Surface treatment
Aluminum	Frame end, cover	Alumite is added to prevent corrosion on the seal surface
Iron	Bolt, motor case	Zinc-nickel plating is adopted to secure anti-corrosiveness



Anti-corrosion specifications

(Electronics Engineering Dept., Steering Systems Business Headquarters)