

Electronic control technology for motorcycles

“SHOWA EERA® Gen2 (Electronically Equipped Ride Adjustment)”

Front fork

- Second-generation electronic control technology targeted also at lightweight motorcycles and small-displacement scooters
- Incorporating the control board for the actuator, which varies damping force, into the suspension unit has made a separate ECU for suspension control no longer necessary. Simplified wiring and lighter weight are also realized.
- Cost competitiveness is improved by incorporating a G sensor into the control board, resulting in a system configuration that does not require a stroke sensor.
- In addition to the rear shock absorber, the front fork is equipped with the same system.



At EICMA 2023, we announced our proprietary second-generation electronically controlled suspension system “SHOWA EERA® (Electronically Equipped Ride Adjustment) Gen2.” By integrating a downsized ECU into the suspension, electronic control is achieved without needing a separate ECU. The Gen2 system to be exhibited at EICMA 2024 is expanded also to the front fork. The Gen2 system is designed to be adoptable for either or both of the front and rear suspensions together with the “gear pump-driven suspension spring adjuster,” so that the SHOWA EERA® Gen2 family is expanded, and vehicles of diverse model characteristics and prices can be equipped with electronically controlled suspension systems.

“SHOWA EERA® Gen2” has been given an improved damping force variation performance and fewer parts by improving the structures of the sensor and the damping force control valve. The system allows electronically controlled suspension systems to be mounted on vehicles of a wide range of categories,

including small-displacement motorcycles.

The function of a conventional stroke sensor coil is realized with a flexible board. In addition, the suspension control ECU, which gives commands to each suspension unit, has been downsized and integrated into the suspension unit. In consequence, the Gen2 system can be mounted on small-displacement motorcycles with limited mounting space and also realize individual electronic control of the front and rear suspension units.

Besides, by embedding a G sensor (accelerometer) in the small ECU integrated with the suspension, the state of the motorcycle body can be simply measured even if the stroke sensor has been eliminated. Thus, electronic control is feasible also on small-displacement motorcycles that need to offer cost competitiveness, such as lightweight motorcycles and scooters.

The valve with a new structure has reduced the number of parts and ensures a wider variation range of damping forces than the first-generation "SHOWA EERA®." By changing the program from its wide variation range and mounting a new type of stroke sensor, "SHOWA EERA® Gen2" can be adapted also to large vehicles and sports vehicles that require more elaborate control. It is compatible with vehicles of wider categories.

The newly developed "SHOWA EERA® Gen2" system for front forks extends the same concept and technology as the "SHOWA EERA® Gen2" system for rear suspensions announced last year to front forks. An integrated mechanical/electrical system has been realized by mounting the small ECU, which can also be equipped with a G sensor, on the top of the fork or on the axle holder.

"SHOWA EERA® Gen2," which is an evolved form of an electronically controlled suspension system, can utilize the optimum damping force characteristic for the characteristics of each vehicle, from lightweight motorcycles to sports motorcycles, by changing the program or the damper structure. "SHOWA EERA® Gen2" therefore can help improve not only the running performance of vehicles equipped with it but also safety.

*Information contained in this Technical Information is current as of November 5, 2024 but may be subject to change without prior notice.