

Vehicle dynamics

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Vehicle dynamics



VEHICLE DYNAMICS

Pedals

Context

- Needs

- Solutions
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Context

In today's automotive world, driving comfort, safety and fuel economy are key objectives. Sensing solutions for advanced electronic control systems help meet these needs.

Clutch, brake and accelerator pedal position are used by electronic control units (ECU) to implement functions such as:

- Brake-by-wire
- Shift-by-wire
- Clutch-by-wire
- Electronic throttle control
- Optimization of fuel injection and ignition timing
- Hill-holder
- Start lock
- Keyless start
- Automatic parking brake release
- Cruise control
- Anti-stall function
- Clutch-riding alarm
- Clutch position indication
- Brake light switch

Each of these functions relies on specific sensing solutions that require a high level of know-how in the field.

Electricfil masters all the leading sensor technologies to bring you the right sensing solution for your every need.

Function needs

To implement X-by-wire and a number of driver assistance functions, sensors are required to monitor the clutch, brake and accelerator pedal position and send the information to electronic control systems. This can be done by various types of position sensors or switches located on or near the pedals or their operating mechanisms.

Sensors needs

The sensors that provide this information must offer:

- High accuracy
- Small size
- Fast response
- Easy integration
- High reliability
- Diagnostic capabilities

Depending on where they are installed, they must also withstand severe environmental conditions:

- High temperatures
- Rapid temperature fluctuations
- Electromagnetic disturbances
- Vibrations
- Corrosive liquids

Electricfil solutions

Electricfil Automotive masters **all leading sensor technologies** to produce optimum sensing solutions for every need. The solution path is based on more than 25 years of experience in the field.

- **Analysis of customer needs** to select the most suitable sensor type from our proven core technologies (LVDT, Hall, Eddy-Current, GMR, AMR, VR, etc.)
- **Determination of degree of integration** (single sensor, sensor cluster or mechatronic module)
- **Circuit design and ASIC development** if required
- **Selection of electronic components and assembly technology** (e.g. surface mounted devices, discrete components)
- **Package design**, including the selection of materials (PA, PPS, PBT, etc.), assembly process (laser, thermal or vibration welding), potting, overmolding and encapsulation techniques, sizing, etc.
- **Selection of interconnections** (leadframe, flex foil, cable harness, etc.)
- **Magnetic circuit design** (magnet materials, pole piece dimensions, etc.)
- **FMEA, reliability studies, computer simulations, prototyping, initial samples**, etc.

Electricfil sensing solutions for vehicle dynamics

- > [Hall linear/angular position sensor](#)
- > [LVDT linear/angular position sensor](#)
- > [Hall linear position switch](#)