

Linear and Rotary  
Sensors  
in Automotive  
Applications



# Sensors from Novotechnik – for intelligent power control, environmentally conscious mobility and an optimized gear control

## Reliable Precision ... Worldwide

Automotive technology is developing at a rapid speed. Many innovations would not have been possible without modern sensors. In recent years, sensors have facilitated considerable progress in fuel economy and reduction of pollutant emissions. Without sensors, we would have neither hybrid drives nor double-clutch gear-boxes, nor automatic gearboxes nor X-by-wire systems, today.

Non-contacting linear and rotary sensors utilizing the Hall-principle are in demand for many applications. E-gas, for instance, which has been used in cars for several years, is now also becoming more and more accepted as a standard in the motorcycle market.

Our sensor solutions are also to be found in the complex steering management of the Segway Human Transporter, and they handle control tasks in high-speed ICE trains. They also ensure maximum efficiency in large solar and wind power plants.

Numerous manufacturers of mobile machinery, for example in the agricultural and construction machinery industry are relying on linear and rotary sensors from Novotechnik.



*If necessary, we develop individual solutions together with our customer.s*

## The Right Product For Every Application

Novotechnik is focussed intently on custom designs. To meet the needs of our customers in the best possible way, we offer our products in a variety of sizes and designs.

## Safety

Our sensors are designed for high EMC protection meeting the requirements for automotive applications. To this end, we are implementing industry-specific as well as customer-specific standards.

Sensors in potentiometer technology are passive systems and therefore inherently impervious to electromagnetic interference.

Depending on their technology and design, Novotechnik's sensors are suitable for temperature ranges from -40 °C to +150 °C.

Not only do they meet the requirements of the standard protection classes up to IP69K, but they are also tested to the most demanding requirements, exceeding standard specifications. This also includes the simultaneous impact of temperature, humidity and materials.

Many series are available as redundant versions meeting functional safety requirements. This reflects our many decades of experience as a supplier to the automotive industry, especially for safety-related applications.

Depending on the use, these sensors are designed to be resistant to adverse elements and media that can occur in operating environments. These include oils, fuels, salt water and other items customers specify to be included in our test program.

Particular emphasis is placed on the robustness of the sensors, so that they can withstand shocks and vibrations, commonly encountered in the proximity of engines.

*Our sensors are used wherever a high degree of protection and unlimited mechanical life are required.*

## Quality

Just how high our quality expectations are is documented by the fact that we were one of the first companies in the world to have its operations certified to ISO /TS 16949.

We are an A-supplier of renowned automotive suppliers, and we have been repeatedly awarded the "Supplier Award" by our customer Bosch.

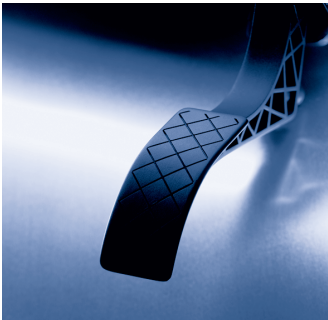
More than 75 million sensors sold without field returns confirm our high reliability.

At Novotechnik, the process that begins with stringent and demanding specifications ends with the inspection of every single product. This helps us ensure that every product which leaves our facility will work perfectly.

## Our Partners

In order to guarantee the highest quality, we develop, design, manufacture and assemble the majority of our products in our very own sophisticated production facilities in Ostfildern near Stuttgart, Germany. Whenever we are unable to independently produce a required item, we can rely on the support of a selection of proven and renowned partner companies. As a result, we are in a position to fill almost any order of any size from anywhere in the world.



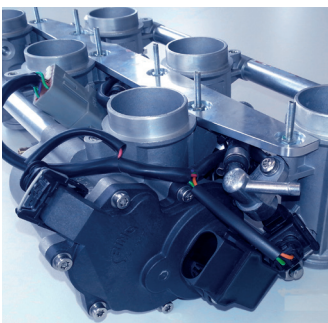


### Electronic Pedal Sensor

Electronic pedal sensor modules comprise an accelerator pedal, a rotary sensor, and a mechanism for simulating the traditional feeling of the accelerator pedal for the driver. When the accelerator pedal is pushed down, the pedal sensor transmits the information to the control electronics. Based on this information, the position of the throttle valve is calculated.

### E-Gas Throttling Device

The data captured by the pedal sensor is transmitted to the motor-driven throttle valve positioner via control and correction electronics. The current throttle valve position is measured by an integrated or adapted rotary sensor.



### Throttle Control

Throttle valve sensors are mounted on the throttle valve shaft. They are used to measure the opening angle of the throttle valve and to transmit the data in form of an electrical signal to the engine control unit. Based on this value, the electronic system then calculates the amount of fuel, which also depends on other factors, such as engine temperature, air pressure, speed, etc.

### Gear Selection Sensor

The gear selection sensor includes a resistance element and wiper support, or a non-contacting sensor. It features an integrated processor and is used for detecting the position of the gearshift. Since it is a mechatronic system, this sensor comprises mechanical components as an integrated unit (electronically controlled automatic transmission). The gearshift is decoupled mechanically from the transmission.



### Potentiometric Sensors

Very inexpensive and compact rotary sensors with integrated connector and return spring. Easy adjustment by way of sturdy mounting flanges.



### Non-contacting and Touchless Sensors

Non-contacting magnetic rotary sensors for harsh operating conditions, also available in redundant designs, from miniaturized formats up to robust heavy-duty sensors.



## A Worldwide Network

Today, Novotechnik is represented in all of the world's major markets – be it with our own offices or through approved dealers. Thanks to this tightly-knit network we can ensure that our customers can rely on first-class service and customer care – no matter where they are located.

For representatives worldwide see [www.novotechnik.de/en/service](http://www.novotechnik.de/en/service).

Wherever precise determinations of positions and angles are required, sensors from Novotechnik are the first-choice solution.

The measuring technology expertise that we have gathered in the course of 65 years constitutes just one of the secrets behind a success story that began back in 1947.

The other cornerstones of our success include a passion for technology and an obsession with precision and reliability. Then, there is our love of solution-oriented thinking, coupled with a fascination with new materials and production methods.

And of course, there is our constant awareness of the importance of providing sound advice and top-class service, complementing our overall goal of continuous improvement of our measuring systems.

The greatest secret of our success, however, has been the passionate pursuit of the best possible solution for each individual customer application. And to ensure that we remain the first-choice partner for our customers, we will continue to focus on the strengths that have made us the successful company that we are today.

Leading OEMs from a whole spectrum of industries put their trust in position sensors and rotary sensors made by Novotechnik: be it general engineering, hydraulics, pneumatics, measuring technology, medical technology or automotive engineering. And, speaking of the automobile industry, every day more than 50,000 of our sensor components are installed into new cars.