
Standex
Electronics
PARTNER | SOLVE | DELIVER
A Top Manufacturer of Premium EVs Makes it All Fit

At Standex, we develop the smallest reed switches in the world, making us a go-to source for many of today's automotive sensor needs.

50M

OVER 50,000,000

Standex automotive reed sensors currently on the road.

ZERO ENERGY CONSUMPTION IN PASSIVE STATE

Reed sensors do not draw consistent power, optimizing energy usage.

SMALLEST REED SWITCHES IN THE WORLD

Standex is the go-to partner for developing sensors that satisfy the compact size and space requirements of the automotive industry.

The number of sensors in a vehicle is on the rise: today's cars ship with over 100 sensors, ***and that number is climbing dramatically.***[1] Running these sensors using traditional electronic methods is a huge power draw. A problem that not only wrecks energy efficiency goals but can hinder the performance of battery-powered vehicles—whose goal is to maximize mileage.

Automotive manufacturers—especially those with an EV focus—are opting for **reed technology**. Other "always-on" electrified sensors require constant power, but not reed sensors. This type of sensor doesn't draw power while in its passive state, ***reducing energy consumption to zero.***

1 Juniper Research, "A Rising Demand for Automotive Sensors": https://www.juniperresearch.com/blog/december-2021/the-rising-demand-for-automotive-sensors

How Do Reed Sensors Work?

At the heart of a reed sensor is a reed switch, a technology that activates based on the presence of a magnetic field. The switch only sips a small amount of power in its "awake" phase.

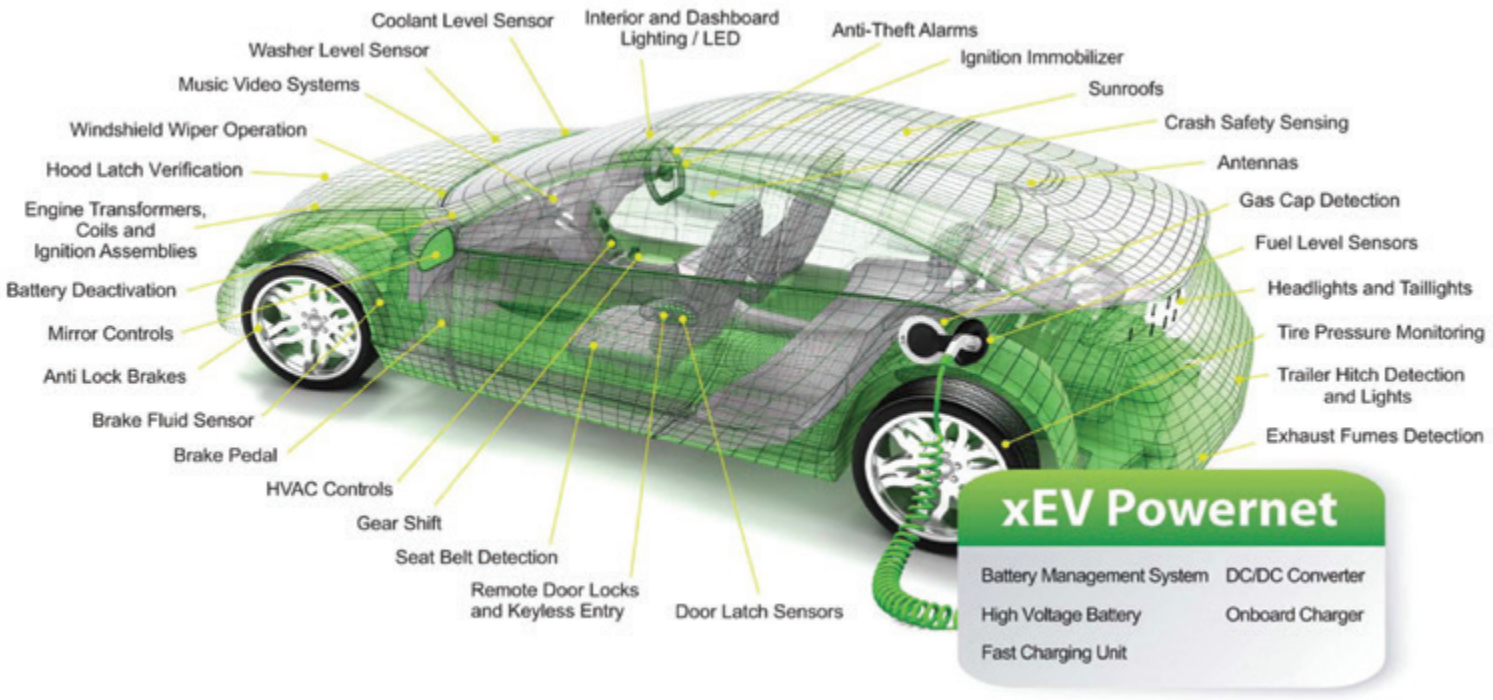
Even if you're unfamiliar with reed sensor technology, you probably use it every day.

As your bicycle wheel rotates, a magnet passes by a reed sensor that counts rotations to calculate the distance of your weekend ride.

When you open a door, flip a switch, measure fluid level, track an object, adjust a thermostat, fly a plane, drive a car, captain a boat, wash your clothes, get a medical test, or thousands of other activities—we are there.

You'll also find reed sensor technology in a home alarm system. When a prowler opens a window—separating the sensor from its magnet—the system notifies you of the intrusion.

Aboard Vehicles, Reed Sensors Can Detect and Monitor:



- **Sun Visor Position.** Open or closed turns a vanity light on or off.
- **Brake Pedals.** Pedal position sensing can activate brake lights.
- **Sunroofs and Power Windows.** Sense various positions like open, close, and tilt.
- **Passenger Presence.** The vehicle knows which seats are occupied, affecting seat belt warnings and airbag deployment.
- **Level Sensing.** Wait for coolant, brake fluid, or fuel levels to reach a certain threshold.

Inside the Automotive Industry:

What makes reed sensors a **popular choice** for sensing projects?

Economize battery usage for electric vehicles.

Continually sense all moving parts within a vehicle, with minimal energy waste.

An electric vehicle doesn't have an engine to drown out interior noise. Reed switches do not use motorized parts, enabling a more hushed ride.

The Internet of Things is putting continuous pressure on automotive manufacturers to pack even more sensors into their designs. After all, *cars will do more than get us from place to place: the armada of sensors onboard turn them into wallets (pay for fuel without exiting your vehicle!), and autonomous cars turn drivers into idle spectators.* **See how reed sensors are vital to this top automotive manufacturer's EV program.**

The Challenge

A German manufacturer of premium electric vehicles faced the challenges of the sensor boom: how to make it all fit.

The team knew Standex was the right vendor; they just weren't sure what switch design to pick. They started with the KT Reed Relay, a product they'd worked with before. However, squeezing three KT relays into the unique footprint of their board proved difficult. They nearly considered overhauling the entire design and moving to a new technology—until we introduced them to a highly miniaturized, ultra-compact reed relay.

The Answer

The manufacturer connected with Standex to find the right fit. Familiar with our range of reed switch and relay sizes, they knew we were the team to solve this problem.

Together, Standex and this automotive powerhouse opted for the **MHV Reed Relay,** a compact design half the size of the client's initial selection.

MHV Relays

One of the smallest reed switches in the world. Many Standex sensors are smaller than a U.S. penny or euro cent coin.

Compact Footprint

Enter: a far more miniature design. Together, Standex and the client identified an even smaller reed relay capable of squeezing into their already existing board design. The collaborative approach saved the client time and money. With the MHV Relay on hand, they didn't have to overhaul their PCB. They could move forward in the design process and meet aggressive product delivery times.

Hermetically Sealed

Vehicles are subject to dust, dirt, rain, and the accidentally spilled drink. A reed sensor's hermetically sealed design makes it an attractive choice for busy, bustling, and unpredictable environments.

The switch itself is enclosed in a glass envelope filled with protective gas, typically nitrogen. It's often potted or encased to further defend against corrosion and other damaging elements.

Extremely Rugged

Bumps, curves, always on the move—depending on their use, sensors are also battered by unruly passengers. Reed switches are well-protected against the rigors of the road. Since they operate with limited componentry, reed sensors remain in operation through shock and temperature swings.

Long-Lasting, No Wear and Tear

Modern vehicles stick rubber to the road for 200,000–300,000+ miles. Equipment needs to hold up over the long haul. A reed switch's lack of moving parts bolsters an extremely long life expectancy. Reed switches can run for billions of cycles, far outlasting the lifetime of most vehicles.

What Brings the Client Back to Standex Time and Time Again?

To your end customer, our products are invisible. But they can make all the difference. If our products draw attention, that means they're not working. So we strive to remain *invisible and unnoticeable*—by ensuring our products work unfailingly.

Extensive Technical Support

At Standex, we stand behind a true partnership through value-added engineering. ***We don't just sell you what you ask for.*** We're not just a catalog to buy from. We forge a true collaboration with you to find the right solution for your project. In this project, we dug into the details of the client's project to transition their design from our KT Relay to the much smaller MHV footprint.

> ***We are fueling the processes that people may glance over or often take for granted daily. Our markets are as diverse as the applications we can influence. Energizing the performance of a solar panel, helping guide a satellite, bolstering the safety of a car better protecting a soldier in the field, or taking a recreational drive on a snowmobile—our ability to support the experience around what seems to be simple tasks through our innovative customer-driven technology is present.***

Vehicles ship with tens of thousands of parts. Automotive manufacturers appreciate our collaborative approach because they simply don't have time to hone the expertise required to mind all their switches, sensors, and relays. ***So they borrow this expertise from us.*** In this case, we openly helped the client solve other troubles—even though they did not stem from Standex components.

On-Site Labs and Testing

Streamline your testing needs by selecting a partner that has it all in-house. Inside our facilities, we can analyze product lifetime performance, safety, switching cycles, and more.

In the area? Come by for a visit. We happily host clients for on-site tours and meetings.

Stationed at an HQ on the other side of the globe? No problem; our experts also ace remote collaboration with a full portfolio of clients around the world.

Tight Turnaround Times

Electric vehicles are shrinking project lead times compared to conventional internal combustion models. Whether you're ramping up for an EV, hybrid, or gas-powered launch, we're set up to meet your project schedule.

Where Else Will You Find Standex?

You'll find Standex in more places than cruising the open road. All industries use magnetic switches like reed and Hall effect sensors. They're tucked into sensing components for renewable energy, industrial, smart grid, aerospace, agriculture, and so much more.

Experts predict IoT will inject 25 billion smart sensors into our daily lives by 2030.[2]

Now, more than ever, you need sensors that:

- Are energy-efficient
- Suit today's miniaturized, small-profile applications
- Last for billions of cycles

We're here to help.

2 Tech Jury, "2023 IoT Insights": https://techjury.net/blog/how-many-iot-devices-are-there/

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