



TOUCH FOIL TECHNOLOGY ENHANCES IN-VEHICLE EXPERIENCE



PEDOT-based touch foil offers automotive manufacturers efficiencies and cost savings, while delivering the vehicle features consumers demand.

BUSINESS CHALLENGE

As more automobile manufacturers move toward adopting advanced driver-assisted systems (ADAS) and look toward the creation of autonomous vehicles, the technology inside of vehicles — the automobile cockpit — continues to undergo design upgrades. Today, vehicles include technology features and options that must be durable and easy to use as well as have a sleek look and design. Touchscreens and capacitive buttons aim to match today's digital world and bring smart technology to drivers' fingertips.

However, replacing traditional mechanical switches with touch screens and capacitive buttons can present design and cost challenges. In fact, some automotive manufacturers lack the knowledge and in-house design experience for implementing capacitive touch.

Historically, when designing capacitive touch into devices, engineers have relied on indium tin oxide (ITO), which is considered too brittle and inflexible to be used on curved surfaces. An alternative to ITO, PEDOT sensors having been shown to endure 50,000+ bend cycles. PEDOT also offers a more cost-effective solution. But many automotive manufacturers may hesitate in turning to PEDOT as a solution due to a lack of in-house knowledge and design experience with the technology.

SOLUTION

As consumers want touch-activation features but automotive manufacturers struggle with designing the solutions and finding cost-effective options, Molex helps automotive customers meet all these needs.

Compared with ITO, PEDOT capacitive touch foil delivers an economical alternative while also broadening the applications for capacitive interfaces. For example, it's thin (typically ~0.10 to 0.50mm thickness) and flexible, enabling applications with different shapes or curved surfaces. Also, the touch foil has high transparency in the icon area, allowing backlighting to pass through from the PCB to the plastic icons. When the vehicle is manufactured, the touch foil is applied to the back side of the user interface, which is typically a plastic part with graphics or icons for switches.

With PEDOT touch foil, carmakers are increasingly able to differentiate their brand with a unique look and feel inside their vehicles. The interior technology also provides a customized and signature user experience and allows the driver to personalize the overall automotive experience.

Today, because they struggle with deploying touch foil solutions that are good quality, many China-based companies are approaching Molex for design support and troubleshooting related to PEDOT. For more than 10 years, Molex has been developing PEDOT solutions for automotive customers. Today, most OEMs are now using touch foils for their new vehicle models, and Molex has become an industry leader for such applications.





COLLABORATIVE APPROACH

PEDOT touch foil is very customizable for integration into vehicles. Molex works closely with our customers to ensure our designs meet their needs, reviewing specifications and gaining a thorough understanding of their expectations. Next, our team creates a design concept and reviews it with our customers. Molex offers full design support for the hardware, software and mechanical aspects. Working with Molex, customers also benefit from our quality control systems, which ensure we deliver superior quality to meet automotive customers' needs and expectations.

Through our collaborative process, Molex engineers use their expertise to implement every technical advantage available to deliver an effective solution. From design concept through mass production, the goal of our holistic approach is to ensure the best possible performance of the entire user interface. Whether the needs are for superior quality or cost-effective solutions, our design team's flexibility can deliver exactly what our customers envision for their capacitive touch needs.

AUTOMOTIVE APPLICATIONS

Today, PEDOT touch foil is widely used for many switches in a car, such as those in the center stack, overhead console and steering wheel. Essentially, it can be used for any capacitive touch application that replaces mechanical buttons.

Molex engineers have expertise when it comes to capacitive switch applications and automotive requirements. Our team is ready to provide customers with early-stage design support and will tackle even the most cutting-edge car interior requirements with innovative technologies. Molex offers strong professional design and manufacturing capabilities along with electrical and software development, supporting automotive manufacturers' goals for the cars of today and the future.

PEDOT-BASED

To learn more www.molex.com/link/pedot.html

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