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Customized Input Sensing (CIS)

IEE offers human-machine interfaces for vehicle on-board devices requiring touch-sensitive and intuitive navigation. Unlike conventional switches, which have the limited capacity of just turning on or off, our smart input devices enable the user to access a wider range of functions through a simple touch.

Our CIS sensors are available in a range of configurations – from simple switches through to more complex sliders, scrollers and touchpads.

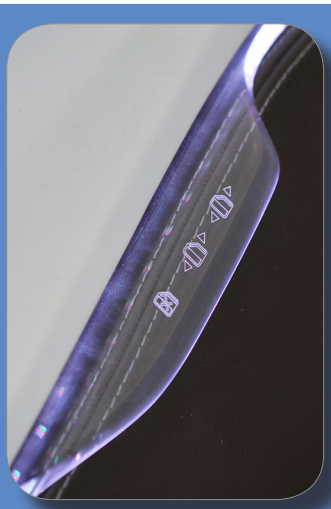
IEE's CIS sensors are available in two options:

- Force Sensing Resistor (FSR)
- TwinSenZ – FSR sensors enhanced with a capacitive sensing option

Force Sensing Resistor (FSR) Sensors

FSR uses variable resistance to detect the pressure that is applied to a sensor cell. This technology is very reliable and can be incorporated into thin and flexible applications. FSR also allows a high degree of design freedom and adapts to a simple electronic interface.

Our FSR sensors consist of two substrates with a spacer in between. The spacer creates the cell structure, while the printed structures on the sensor create the contact. The sensors can also be covered with a variety of materials.



Key Advantages of an FSR Sensor

- **Dynamic FSR cell response.** Because activation requires a certain pressure level, programs and devices cannot be unintentionally activated. The sensor also offers a select and confirm function that operates according to different pressure levels.
- **Thin and lightweight.** Each sensor has a thickness of less than 0.5 mm.
- **Flexible design.** Our FSR sensors are simple and easy to integrate, and the shape can be adapted to suit any geometrical environment. The technology is also ideal for a range of uses where space is limited and complex functionality is required.
- **Reliable technology.** The sensors are based on IEE's proven FSR foil-type contact technology.
- **Added value.** Different sensor functions can be combined in the one device, providing a wider range of uses for the end-consumer.

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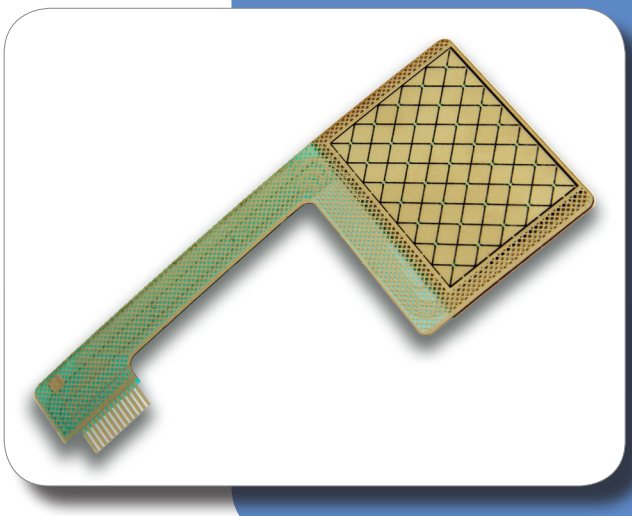
TwinSenZ Sensors



TwinSenZ sensors are a combination of IEE's capacitive and FSR technologies.

Unlike FSR sensors, which measure contact pressure, capacitive sensors evaluate the change in electrical fields generated by finger movement. This means that they can be activated by a soft touch, and proximity detection is also possible.

By combining both functionalities in one sensor, we have created a smart input device that uses capacitive sensing for pre-selection and pressure activation for confirmation – ensuring programs or devices are not unintentionally switched on.

Key Advantages of a TwinSenZ Sensor

- **Select and confirm function.** TwinSenZ combines the advantages of capacitive and force sensing resistor technology in one sensor – capacitive sensing for pre-selection and a dynamic FSR cell response for confirmation. Because activation requires a certain pressure level, programs and devices cannot be unintentionally activated.
- **Thin and lightweight.** Each sensor has a thickness of less than 0.5 mm.
- **Flexible design.** Our TwinSenZ sensors are simple and easy to integrate, and the shape can be adapted to suit any geometrical environment. The technology is also ideal for a range of uses where space is limited and complex functionality is required.
- **One compact package.** Different sensor functions can be combined in the one device, providing a wider range of uses for the end-consumer. TwinSenZ can also be integrated with proximity sensing.

About Us

IEE is an innovative developer of specialized sensing systems. Our sensing systems are dedicated to the following markets: Automotive, Building Management & Security, and Medical, Health & Sports.

IEE was founded in1989 and is headquartered in Luxembourg. We operate in Europe, the U.S. and Asia, and employ 1,600 people worldwide. More than 10% of our workforce is dedicated to Research and Development.

For more information, please visit www.iee.lu.

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