

BodySense™

BodySense™ is a sensing system that supports airbag suppression for child restraint systems in vehicles. Infant-only suppression, in combination with low-risk airbag deployment technology, is the most widely accepted safety strategy to fulfill the FMVSS 208* regulation issued by the National Highway Traffic Safety Administration (NHTSA) in the U.S.

Two-class occupant classification

BodySense™ is able to distinguish between child restraint systems (class 1) and other passengers in the front seat (class 2). The system also supports the seat belt reminder function and can generate an “airbag off” sign.

Easy integration and calibration

BodySense™ can be easily integrated into the A-surface of the car seat, above the seat heater, between foam and trim. The electronics can be integrated into several locations within the seat foam or underneath the seat (i.e. plugged ECU). The seat frame does not need to be altered. The seat manufacturer integrating BodySense™ does not need to calibrate the sensing system – a one-time calibration (zeroing) is done at IEE during the manufacturing process.

Long-term reliability

Unlike pressure-based sensing devices in vehicle seats, the classification performance of BodySense™ is not influenced by aging or relaxation effects of trim and foam material, which, over time, cause changes in pre-load. Moreover, BodySense™ offers reliable classification regardless of seat belt tension or occupant position.

Foil or textile

The sensing system is available in both a foil-based design and conductive textile. The textile version offers more flexibility to fulfill the extensive requirements of the automotive industry's top segments.

*Federal Motor Vehicle Standard 208 on occupant crash protection



BodySense™

Seat heater

Key Features

- Conductive surface in textile material offers enhanced comfort performance
- Plugged electronics allow underseat mounting
- Integrated solution covering both BodySense™ and seat heater functions
- High-speed CAN, LIN and K-bus communication interface available
- Independent of changing temperature conditions
- Integrated Seat Belt Reminder function

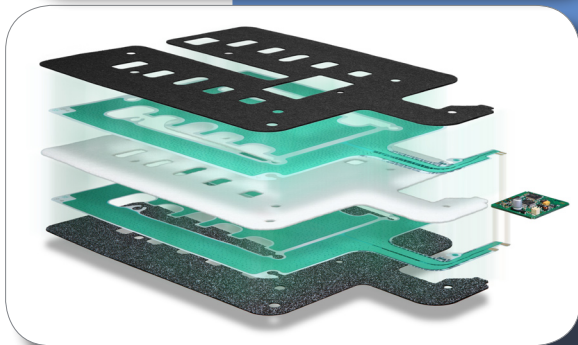
Capacitive Sensing Technology



BodySense™ consists of two electrodes: “Sense” and “Guard”. The same AC voltage is applied on both electrodes to enable capacitive measurement.

The “type” of occupant determines the capacity between the Sense electrode and the car body. By measuring the current flowing from Sense to car body, BodySense™ determines the capacity. With a pre-defined threshold limit, BodySense™ can distinguish between class 1 and class 2 occupants. The Guard has a shielding function towards the influence of the environment below the sensor, such as seat heater, pan or frame.

The impedance between Sense and car body consisting of a resistive (real) and capacitive (imaginary) component is a function of the applied AC voltage and the measured current flow. Both capacitive and resistive components change when the seat gets wet. The BodySense™ algorithm is able to adapt the threshold limit between class 1 and 2 in case of wet or humid seats, thereby ensuring classification reliability in all environmental conditions.



About Us

IEE is an innovative developer of specialized sensing systems. Our sensing technologies are dedicated to the following markets: Transportation & Automotive, Public & Commercial Infrastructure, Consumer Electronics, Automation & Logistics™ and Medical & Healthcare.

IEE was founded in 1989 and is headquartered in Luxembourg. We operate in Europe, the U.S. and Asia, and employ 1,200 people worldwide. 20% of our workforce is engaged in Research and Development.

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

Headquarters
IEE S.A.

ZAE Weiergewan
11, rue Edmond Reuter
L-5326 Contern
Luxembourg

Phone: +352 2454 1
E-mail: iee@iee.lu