Pedestrian protection is gaining more and more attention due to new legislation requirements and tougher consumer ratings. This is leading to the introduction of pedestrian protection systems, like active hood lifting. For triggering these actuators a reliable sensing system is required.

Continental has developed an innovative sensing system based on air pressure sensing. Our pedestrian protection system reduces the risk of head injury in the event of a collision. Within 10–15 milliseconds of an impact, the active hood of the vehicle or window airbag is triggered. This reduces the risk of death or severe injury to the pedestrian from hitting the hood and underlying engine block.
Sensing Principle of PPS pSAT
The pedestrian sensor consists of an air hose that is laid across the entire width of the car in its front bumper. The hose is situated directly behind the foam block that is fitted at the front of the vehicle to absorb energy. Standardized pressure sensors (pSAT) are installed at either end of the air-filled pressure hose.

When a vehicle collides with an obstacle, the resulting pressure exerted on the hose through the front bumper and foam block creates a typical waveform that is detected by the two sensors at the ends of the hose and forwarded to the SPEED airbag control unit. A pedestrian protection algorithm in the analysis software and velocity information from the vehicle's information network enable the type of collision to be rapidly identified. The signal propagation time also allows conclusions to be drawn about the location of the impact, for example the front right-hand corner or the middle of the vehicle.

The sensor is easily adaptable to any vehicle, which means there are almost no restrictions, even in the event of a facelift.

Key Benefits
› rapid recognition of pedestrian impact situation
  supporting PDI2
› robust - resistant to misuse situations and environmental influences
› integrated temperature measurement
› easy to integrate into existing bumper systems
› additional system for maximum safety
› increased measurement range for Front Crash Detection supporting small overlap configurations
› cost-optimized design based on standard components

Excellent discrimination performance comparing strongest no fire signal (by German misuse working group defined test situations) and weakest must fire signal (created by pedestrian impactor, representing a 6 year old child)