

Automotive Sensor Products

Dual Seat Belt Buckle and Tension Sensor



General Description

The seat belt presence sensor detects whether the seat belt buckle is latched or unlatched. The tension sensor detects the tension of the seatbelt. This sensing system helps determine the optimum airbag deployment. It is also used as an input to the electronic park brake and the unbuckled warning system.

Operation

Basic Principle

The sensor is in a pre-defined single logic output state. When the seat belt buckle thorn moves from an unlatched to a latched position the magnetic circuit will be complete, activating the Reed Switch, which will switch the logic (voltage) output levels to the customer's electrical interface. Concurrently, a Hall Effect sensor would detect the actual position of the spring loaded buckle and output a voltage that is proportional to that position to the customer's electrical interface.

Packaging Options

Custom packaging can be provided to meet any need, please contact Littelfuse Engineering for details.

Features

- ♦ Magnetically operated position sensor
- ♦ Integrated in spring loaded seat belt buckle
- ♦ Dual output for 1) presence and 2) tension
 - 1) Two logic output states (100 & 400 Ohm)
 - 2) Ratiometric voltage output (belt tension)
- ♦ Operates when the thorn in the seat belt buckle moves from an unlatched to a latched position
- ♦ Choice of cable length and clips
- ♦ Choice of connector and terminals
- ♦ Ability to customize sensor output to customer needs

Benefits

- ♦ Robust construction makes this sensor well suited to harsh environments
- ♦ Non-contact, Reed and Hall Effect technology

Applications

- ♦ Vehicle Occupant Safety Systems

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Functional Characteristics

Parameter			
Type			
Reed Switch Sensor			
Logic			Normally Closed
Electrical			
Voltage	Switching	Max.	12Vdc
Closed State Current Sensing		Min.	5mA
		Max.	30mA
Environmental/Mechanical			
Temperature	Operating	Celsius	-40°C to +85°C
Mechanical Shock	6ms ½ Sine	Max.	50g

Littelfuse

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