Percept Sensors ›

Percept Sensors from Molex comprise a sensor family targeted for the transportation industry, using accelerometers and microphones to support safety, automated driving, road noise cancelling and machine health.

FEATURES AND ADVANTAGES

Enables the sensor to be placed where needed, protecting against water and dust ingress in harsh environments such as adjacent to the tire
IP6K9K rating

Allows for a cleaner signal, leading to improved system efficiency
Superior packaging design

Features high sensitivity to energy sources, allowing sensor placement farther from the energy source if required
Low noise density excitation

Offers flexibility for parallel or perpendicular sensor positioning relative to the ground to enable mechanical mounting to a vehicle and permit a variety of connector orientations and terminal sizes
Various mechanical housing configurations available

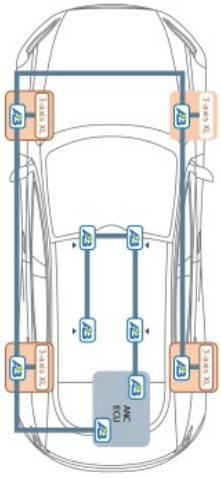
Reduces the harness weight of the vehicle and eliminates heavy star-pattern cabling
Daisy-chained sensor design

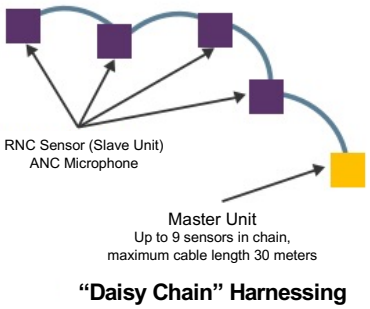
Permits low latency and results in less time between the sensor receiving vibrations and the module receiving a notification signal
A2B digital communication protocol

Communication Protocol	A2B
Protection Rating	IP6K9K
Distortion	Max. Monitored Shock Load - +/- 16 g
Monitored Frequency Bandwidth	4000 Hz
Noise Floor	<70 ug/√Hz
Direction	Omnidirectional
Operating Temperature	-40 to +115°C

Provides 50% space savings compared with USCAR 0.64mm connectors
Designed with our USCAR 0.50mm Mini50 connectors or Molex DuraClik for high-vibration and high-temperature design requirements

Captures vibration energy transfer from the suspension into the vehicle chassis at the earliest perceptible time
Enabling optimal timing of corrective action





"Daisy Chain" Harnessing

Percept Sensors ›

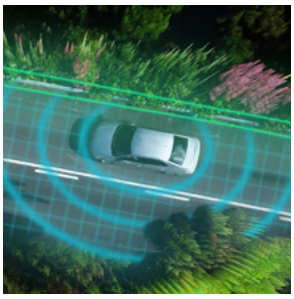
MARKETS AND APPLICATIONS

Automotive and Commercial Vehicles

In-cabin noise reduction
Active noise cancellation
Safety systems
Autonomous vehicles
Advanced driver-assistance systems (ADAS)
Fleet and commercial vehicle monitoring
Off-highway and construction vehicles
Commercial aviation
Train and locomotive monitoring
Condition-based monitoring
Vehicle diagnostics
Automated parking sensors
Incident reporting systems
Security systems

Advanced Driver-Assistance Systems (ADAS)

Safety Systems



Autonomous Vehicles

SPECIFICATIONS

ROAD NOISE CANCELLATION (RNC) SENSORS

Accelerometer

Maximum Monitored Shock Load: 16 g in all axes
Anticipated Sensory Frequency Range: 200 to 500 Hz
Programmable Frequency Range: 500 Hz to 4kHZ
Low Latency: 150µ max. at 2kHz bandwidth
Low Noise:
  <100µg/√Hz for x- and y-axes
  <150µg/√Hz for z-axis
Digital Output: Up to 14 Gbps

Mechanical

Installation Force into Vehicle position (max.): 25N
Retention Force Prior to Nut-and-Screw Fastening: >15N
Axial Pull Force After Fastening (min.): 350N
Retained in Place by M6 Screw and Nut
Torque Value of Screw and Nut: 20 ± 2N*m

Environmental

Operating Temperatures: 40 to +115˚C
Protection Classification: IP6K9K
  (dust and high-pressure spray) per ISO 20653
Vibration Classification: On-vehicle spring mass
Chemical Resistance: Exterior body and underbody
Mechanical Shock/Drop: Pothole and collision rated

Harnessing Expectations

2x jacketed unshielded twisted pairs for
  100 Mbps transmission
Twisted pair cable types must comply with
SAE-J3117 standard and the Open Alliance
Specification for Communication Channel 2.0 =
  equivalated to 100BaseT1
Digital Matched Differential Impedance: 100 Ohms
Sensor units are daisy-chained together

www.molex.com/en-us/products/sensors/percept-sensors

Order No. 987652-6142 USA/0k/GF/2023.06