

# Percept Road Noise Cancelling Sensors >

Reducing unwanted road noise helps improve the driving experience and enhances passenger comfort and safety. Percept Road Noise Cancelling (RNC) Sensors deliver real-time monitoring capabilities that enable the vehicle to dynamically adapt to changing conditions for optimal noise reduction.

## ADVANTAGES AND FEATURES

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

The IP6K9K-rated seal helps ensure reliable operation.

**Improves system efficiency**

The superior packaging design allows for a clearer signal.

**Features high sensitivity to energy sources, allowing sensor placement farther from the energy source if required**

The superior packaging design allows for a clearer signal than traditional noise-cancelling sensors, which often suffer from interference and less effective noise isolation.

**Offers design 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 are available.

**Reduces the harness weight of the vehicle and eliminates heavy star-pattern cabling**

The sensor uses an efficient daisy-chain wiring design.

**Permits low latency and results in less time between the sensor receiving vibrations and the module receiving a notification signal**

Percept RNC Sensors use the A2B digital communication protocol.

Communication Protocol	A2B
Protection Rating	IP6K9K
Distortion	Max. monitored shock load +/- 16 g
Monitored Frequency Bandwidth	4000Hz
Noise Floor	<100µg/√Hz for x- and y-axes <150µg/√Hz for z-axis
Latency	<150µs
Operating Temperature	-40 to +115°C

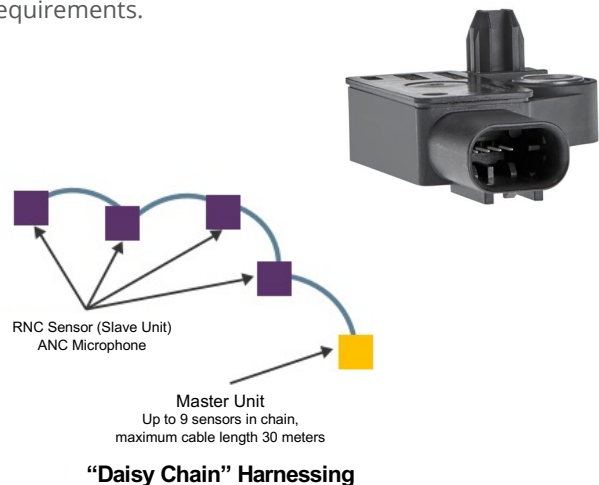
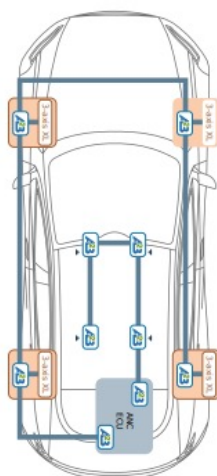


**Provides durability in harsh conditions and 50% space savings compared with USCAR 0.64mm connectors**

The system's compact USCAR 0.50mm Mini50 and Molex DuraClik connectors meet high-vibration and high-temperature design requirements.

**Captures vibration energy transfer from the suspension into the vehicle chassis at the earliest perceptible time**

The low latency enables optimal timing of corrective action.



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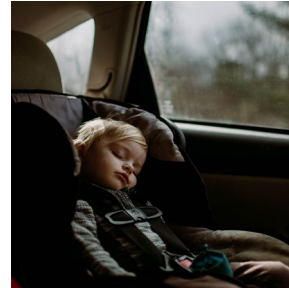
## MARKETS AND APPLICATIONS

### Automotive and Commercial Vehicles

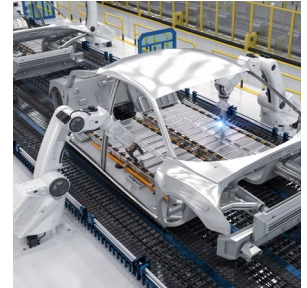
Active noise cancellation systems  
Advanced driver-assistance systems (ADAS)  
Electric vehicles  
In-cabin applications  
In-cabin noise reduction systems  
Off-highway and construction vehicles



*In-Cabin Applications*



*Active Noise Cancellation Systems*



*Electric Vehicles*

## SPECIFICATIONS

### Accelerometer

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

### 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  
    100Mbps 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](http://www.molex.com)