

STANDARD® SENSOR PROGRAM

Highlights

- 1 Standard® offers more than 9,000 different Sensors covering over 80 categories
- 2 Standard® has more than 2,600 ABS Speed Sensors, representing 700M repair opportunities
- 3 Many popular Sensor categories are powertrain natural, meaning they fit gas, diesel, hybrid and electric vehicles



What's in your box?



Growing Market

Modern vehicles are equipped with more sensors than ever. Electronic safety systems and a focus on reducing emissions has created entirely new categories of sensors that were unimaginable 20 years ago.

The Automotive Sensors market is expected to grow at 6.6% annually through 2030.

Sources: SMP Internal Data
Reports Insights, Automotive Sensors Market Study, Nov 2022

Standard®
has more than 2X
the Sensors for a 2018
Toyota RAV4
compared to a
2000 model



2018 RAV4 32 Sensors

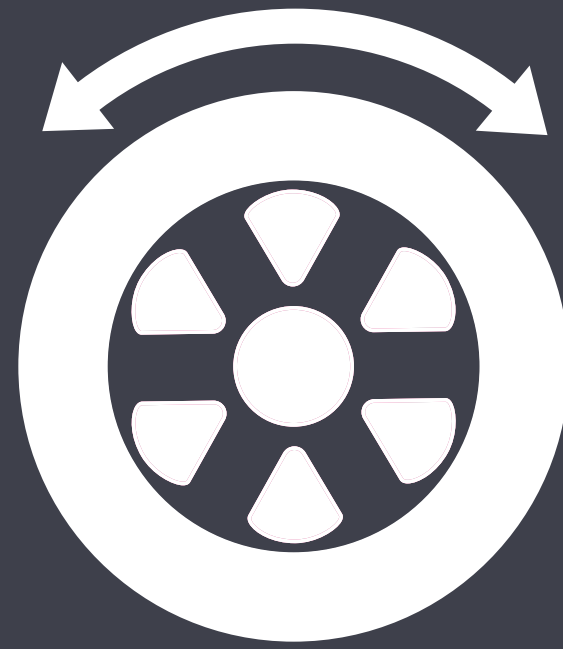
- | | |
|----------------------------------|--------------------------------|
| ABS Speed Sensors X 4 | Front Park Assist Sensors X 4 |
| Ambient Air Temperature Sensor | Rear Park Assist Sensors X 4 |
| Transmission Input Sensor | TPMS Sensors X 4 |
| Transmission Output Sensor | Vehicle Speed Sensor |
| Battery Current / Volt Sensor | Windshield Washer Level Sensor |
| Blind Spot Detection Sensors X 2 | |
| Brake Pedal Travel Sensor | |
| Camshaft Position Sensors X 2 | |
| Coolant Temperature Sensor | |
| Crankshaft Position Sensor | |
| Cruise Control Distance Sensor | |
| Knock Sensor | |
| MAP Sensor | |

2000 RAV4 14 Sensors

- | | |
|--------------------------------|----------------------------|
| ABS Speed Sensors X 4 | Crankshaft Position Sensor |
| Ambient Air Temperature Sensor | Air Intake Temp Sensor |
| Transmission Oil Temp Sensor | Knock Sensor |
| Camshaft Position Sensor | MAP Sensor |
| Coolant Temperature Sensor | Throttle Position Sensor |
| | Vehicle Speed Sensor |

STANDARD® SENSORS

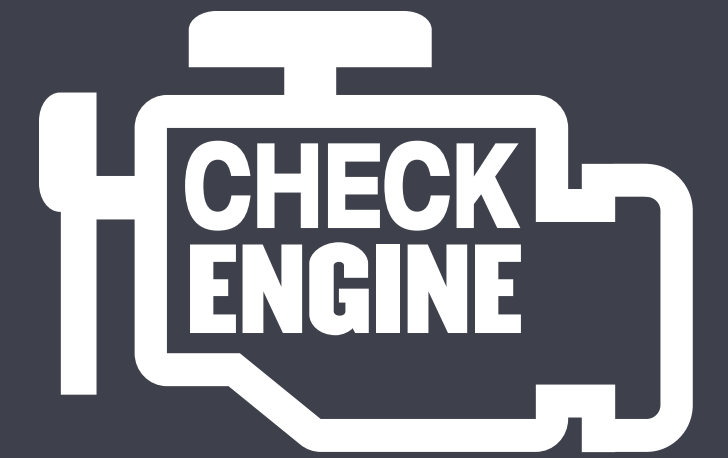
Impact on Engine Systems



**Sensors on modern vehicles
are becoming more
complex. Some ABS speed
sensors include multiple
sensors that also measure
the direction of the
wheel rotation**



**Any sensor that measures
vehicle position, speed,
throttle position, wheel
speed, or proximity can
affect the performance of
electronic safety systems**



**A faulty cam sensor can
cause an extended crank
situation. When the
vehicle is being started,
the engine may just
continue rotating as the
computer is looking for
enough information**

STANDARD® SENSORS

A Complete Sensor Program

Standard® offers more than 80 different kind of Sensors across multiple categories. The Standard Sensors Program includes Chassis and Drivetrain Sensors, Fluid Level Sensors, Fuel Sensors, Position Sensors, Temperature Sensors, Pressure Sensors ADAS Sensors, and more.

Standard® Sensors are engineered and tested for precision and will integrate correctly with the complex systems on today's vehicles.

Standard® Sensor Program

Chassis & Drivetrain Sensors

- ABS Speed Sensors
- Vehicle Speed Sensors
- Transmission Input and Output Sensors
- Turbocharger Speed Sensors

Fluid Level Sensors

- Engine Oil Level Sensors
- Coolant Level Sensors
- Windshield Washer Level Sensors
- Brake Fluid Level Sensors
- Fuel Level Sensors

ADAS Sensors

- Park Assist Sensors
- Blind Spot Detection Sensors
- Steering Angle Sensors
- Cruise Control Distance Sensors

Fuel Sensors

- Knock Sensors
- Mass Air Flow Sensors
- Diesel Injection Control Pressure Sensors
- Diesel Nitrogen Oxide (NOx) Sensors
- Fuel / Water Separator Sensors
- Flex Fuel Sensors

Position Sensors

- Crankshaft Position Sensors
- Camshaft Position Sensors
- Throttle Position Sensors
- Fuel Vapor / Vent Pressure Sensors
- Accelerator Pedal Position Sensors
- Camshaft and Crankshaft Position Sensors
- EGR Valve Position Sensors

Temperature Sensors

- Coolant Temperature Sensors
- Intake Air Temperature Sensors
- Cylinder Head Temperature Sensors
- Exhaust Gas Temperature Sensors
- Ambient Air Temperature Sensors
- Cabin Air Temperature Sensors

Pressure Sensors

- TPMS Sensors
- MAP Sensors
- Fuel Pressure Sensors
- EGR Valve Pressure Feedback Sensors
- Exhaust Back Pressure Sensors
- Diesel Particulate Filter Pressure Sensors
- ...and others

STANDARD® ABS SPEED SENSORS

What's New

New vehicles with complex safety systems depend on real-time data from ABS sensors. Standard® delivers new numbers to make sure you have the coverage needed to get your customers back on the road.

For the most recent applications check the online catalog at www.standardbrand.com.



ALS3268
Ford Super Duty
(2016-2011)
VIO: 1.2M



ALS3282
Audi / VW Cars and SUVs
(2022-2019)
VIO: 797K



ALS3340
Toyota Corolla
(2022-2019)
VIO: 823K



STANDARD® CAM AND CRANK SENSORS

What's New

Standard® offers more than 1,100 Cam and Crank Sensors, representing 698 million repair opportunities. New Sensors are introduced regularly to make sure you have the late-model coverage you need.

For the most recent applications check the online catalog at www.standardbrand.com.



PC1233
Camshaft Sensors
Ford Super Duty
(2021-20)
VIO: 139K



PC1200
Camshaft Sensors
Hyundai / Kia
Cars and SUVs
(2020-2017)
VIO: 136K



PC1230
Crankshaft Sensors
Toyota Cars and SUVs
(2021-18)
VIO: 1.05M



STANDARD® MAP SENSORS

What's New

Standard® offers more than 330 MAP (Manifold Absolute Pressure) Sensors, covering 200 million vehicles on the road. Standard® is committed to regularly introducing new MAP sensors to cover late-model import and domestic vehicles.

For the most recent applications check the online catalog at www.standardbrand.com.



AS727
GM Cars and Trucks
(2020-19)
VIO: 51K



AS733
GM SUVs
(2019-2017)
VIO: 15K



AS735
Hyundai / Kia Cars
(2020-2019)
VIO: 138K



STANDARD® ABS SPEED SENSORS

Top Movers

IMPORT
APPLICATIONS



ALS1442
Nissan Cars
(2013-07)



ALS1564
Honda / Acura Cars
(2012-08)



ALS1553
Honda / Acura Cars
(2012-09)



ALS684
Toyota / Lexus Trucks & SUVs
(2022-03)



ALS468
Audi / VW Cars
(2016-06)

DOMESTIC
APPLICATIONS



ALS1932
Dodge / Jeep SUVs
(2017-07)



ALS1918
Jeep SUVs
(2018-07)



ALS482
GM Trucks & SUVs
(2014-07)



ALS1465
GM Trucks & SUVs
(2013-00)



ALS2380
Ford Cars, SUVs & Vans
(2018-13)

STANDARD® ABS SPEED SENSORS

Engineering & Performance

The ABS speed sensors on some newer vehicles measure more than just the speed of each wheel. They also monitor the direction which the wheel is rotating. A wheel that is rotating backwards will send a unique signal to the ECU that lets the vehicle know the speed and direction of each wheel. This data is used by the electronic safety systems to help keep everyone in the vehicle safe.



Aftermarket
Competitor

Uses one simple sensor to measure wheel speed

Generates the same signal for forward and reverse

Doesn't give the ECU enough information, especially in emergency situations



Standard®
ALS684

Uses multiple micro sensors to measure wheel speed and wheel rotation

Generates separate signals for forward and reverse

Provide the ECU with accurate and complete information to keep crash avoidance systems operating as designed

STANDARD® CAM AND CRANK SENSORS

Top Movers

IMPORT
APPLICATIONS



PC934

Hyundai / Kia Cars & SUVs
(2022-11)



PC715

Nissan Trucks & SUVs
(2020-05)



PC499

Nissan / Infiniti Cars & SUVs
(2008-02)



PC775

Nissan / Infiniti Cars & SUVs
(2020-06)



PC812

Honda Cars
(2015-08)



PC684

Chrysler, Dodge & Jeep
Cars, Trucks & SUVs
(2017-07)



PC278

GM Cars, Trucks & SUVs
(2018-08)



PC552

GM Cars, Trucks & SUVs
(2007-00)



PC643

Ford Trucks & Vans
(2011-97)



PC244

Chrysler, Dodge & Jeep
Cars, Trucks & SUVs
(2007-99)

DOMESTIC
APPLICATIONS

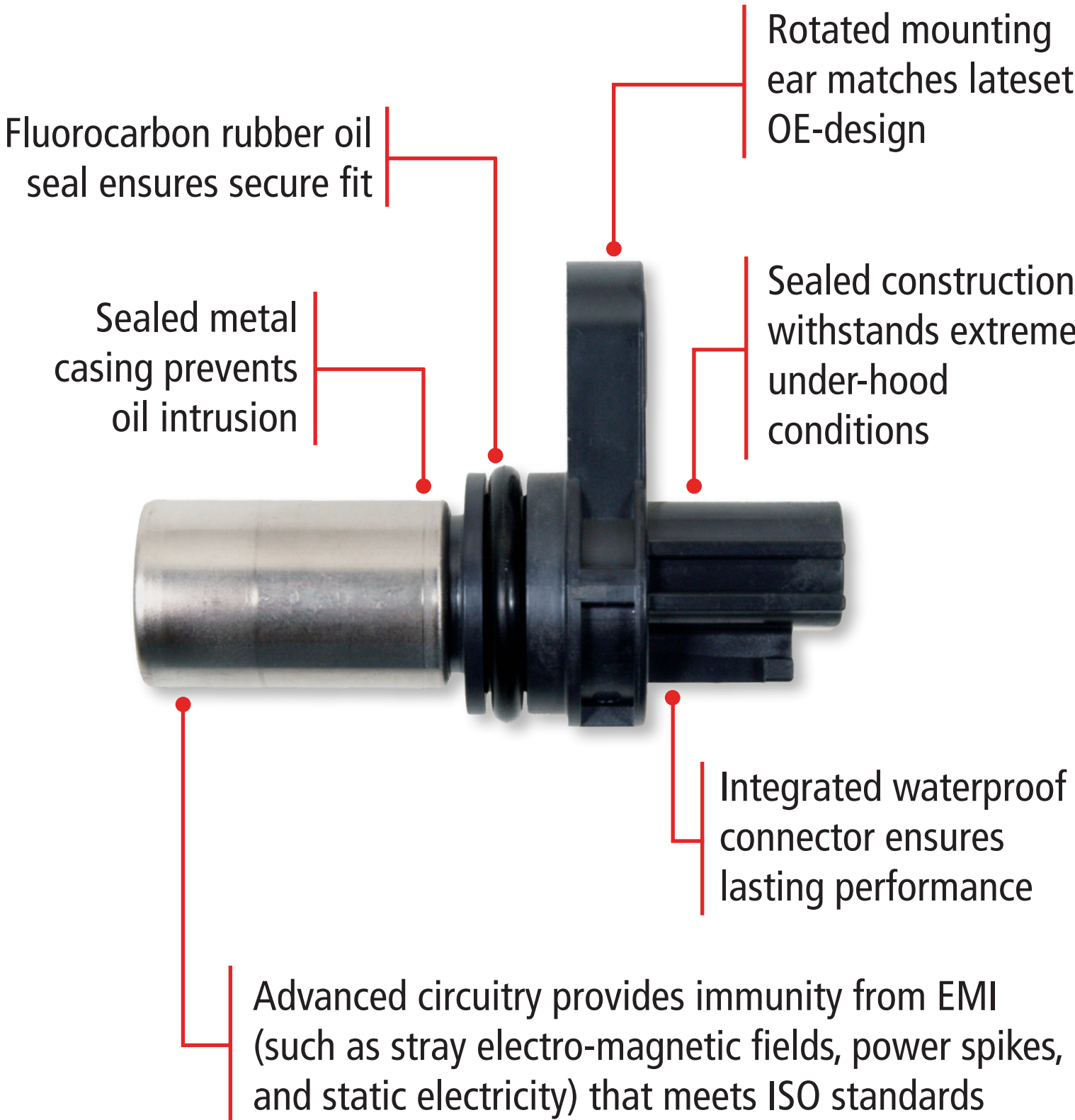
STANDARD® QUALITY

Cam and Crank Sensors

Today's advanced engines depend on information from cam and crank sensors to make thousands of decisions per mile about fuel and ignition. Failing or low-quality sensors can affect fuel economy and vehicle performance.

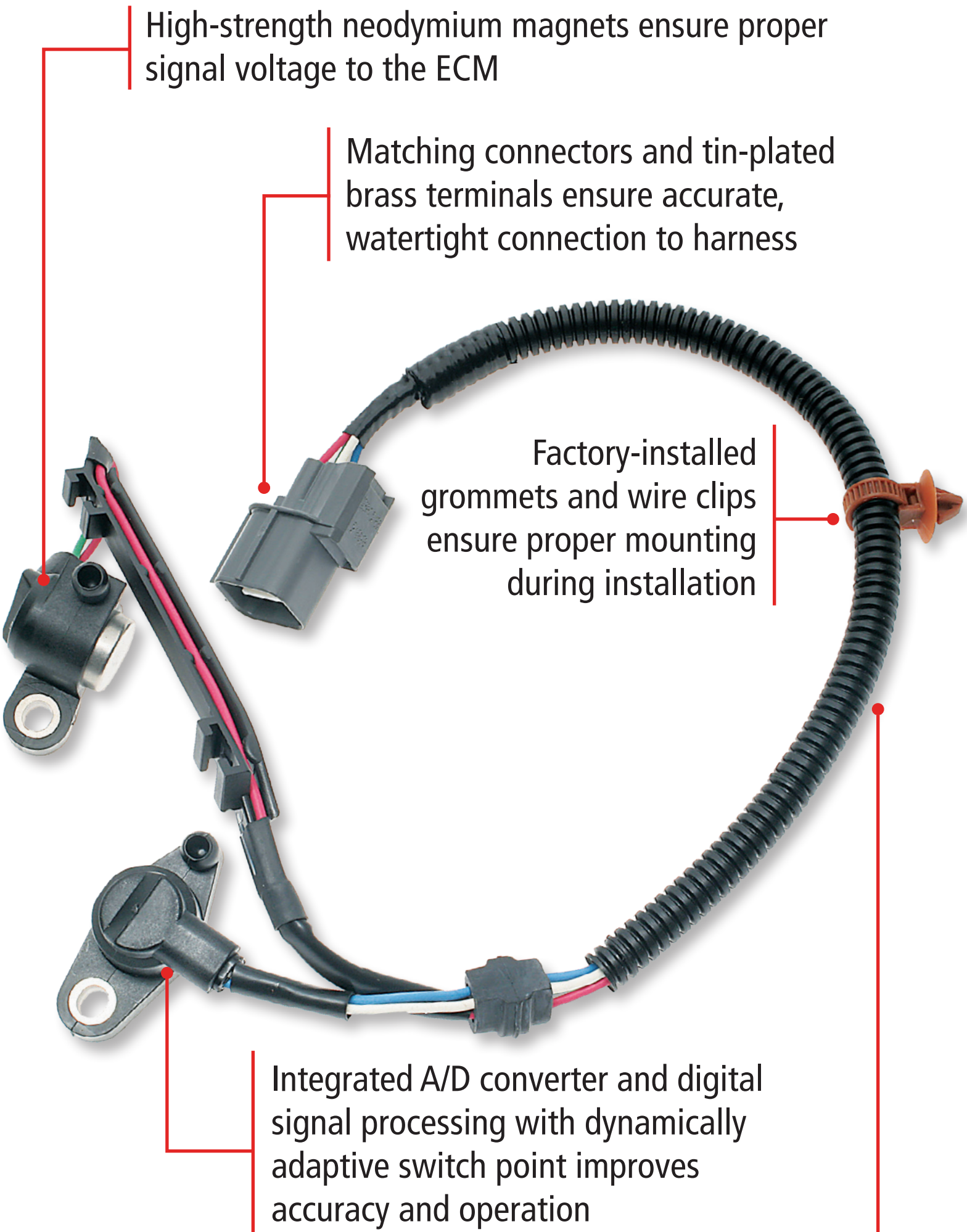
Standard® considers every signal detail to deliver a Sensor that operates correctly in all conditions.

Standard® Camshaft Position Sensors



PC464
Nissan
(2018-02)

Standard® Crankshaft Position Sensors



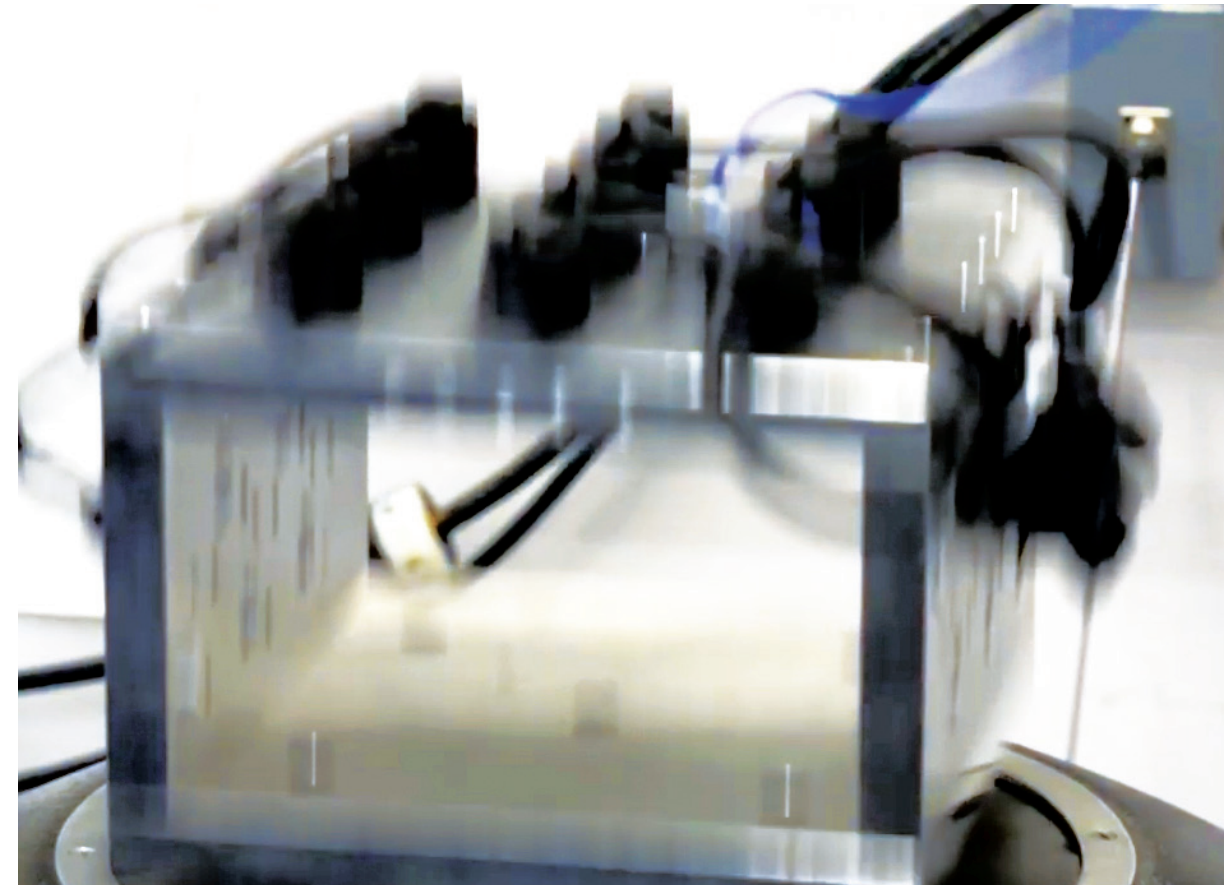
PC133
Honda/Acura
(2002-96)

STANDARD® TESTING

Cam and Crank Sensors

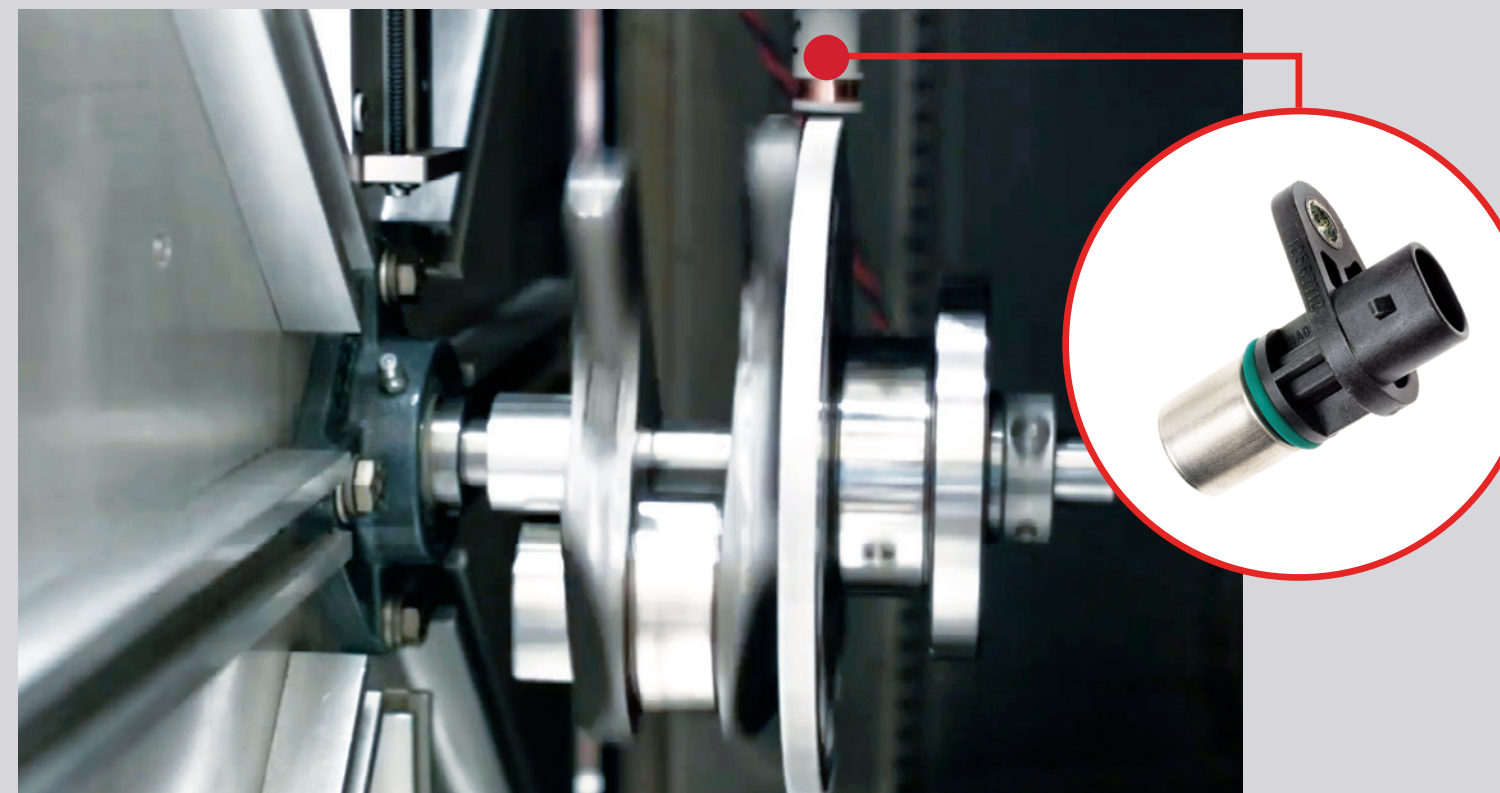
Standard® Cam and Crank Sensors are manufactured in our North American TS16949-certified facility and are rigorously tested for pulse width and signal amplitude.

Standard® Camshaft Position Sensors



Standard® Camshaft Position Sensors are subjected to 48-68 hour vibration tests across multiple planes. This helps to ensure correct and accurate performance in any situation.

Standard® Crankshaft Position Sensors



Standard® Crankshaft Position Sensors undergo intense chamber testing from -40 to 257 degrees. Our extensive testing helps protect against incorrect voltage output and short circuits to maintain accuracy in all conditions.

STANDARD® MAP SENSORS

A Closer Look

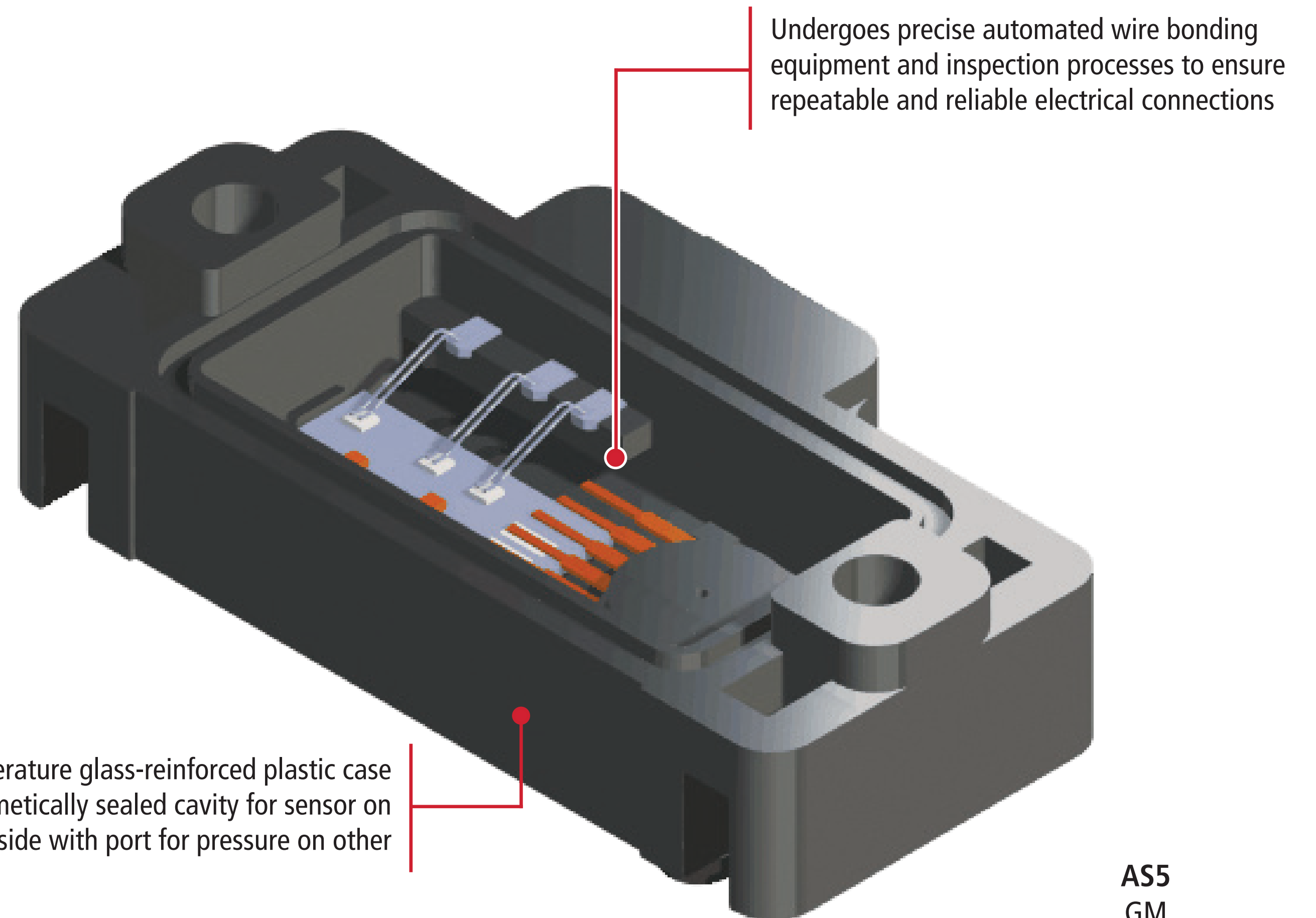
MAP sensors convert vacuum/manifold pressure to an electric signal. The real-time information is used for both fuel delivery and ignition.

Standard® MAP Sensors are 100% tested to make sure variations in pressure generate the correct output to match OE performance in all conditions.

Did you Know

Many modern turbocharged engines use both MAP and MAF sensors.

Standard® MAP Sensors



AS5
GM
(2004-85)

STANDARD[®] SENSORS

Accelerator Pedal Sensors

The performance and accuracy of Accelerator Pedal Sensors is critical to vehicle performance, fuel economy and safety. Standard has over 425 Accelerator Pedal Sensors, covering 250 million vehicles.

Standard Sensors undergo intense testing to make sure the output matches the slope and linearity of the original in all pedal positions.

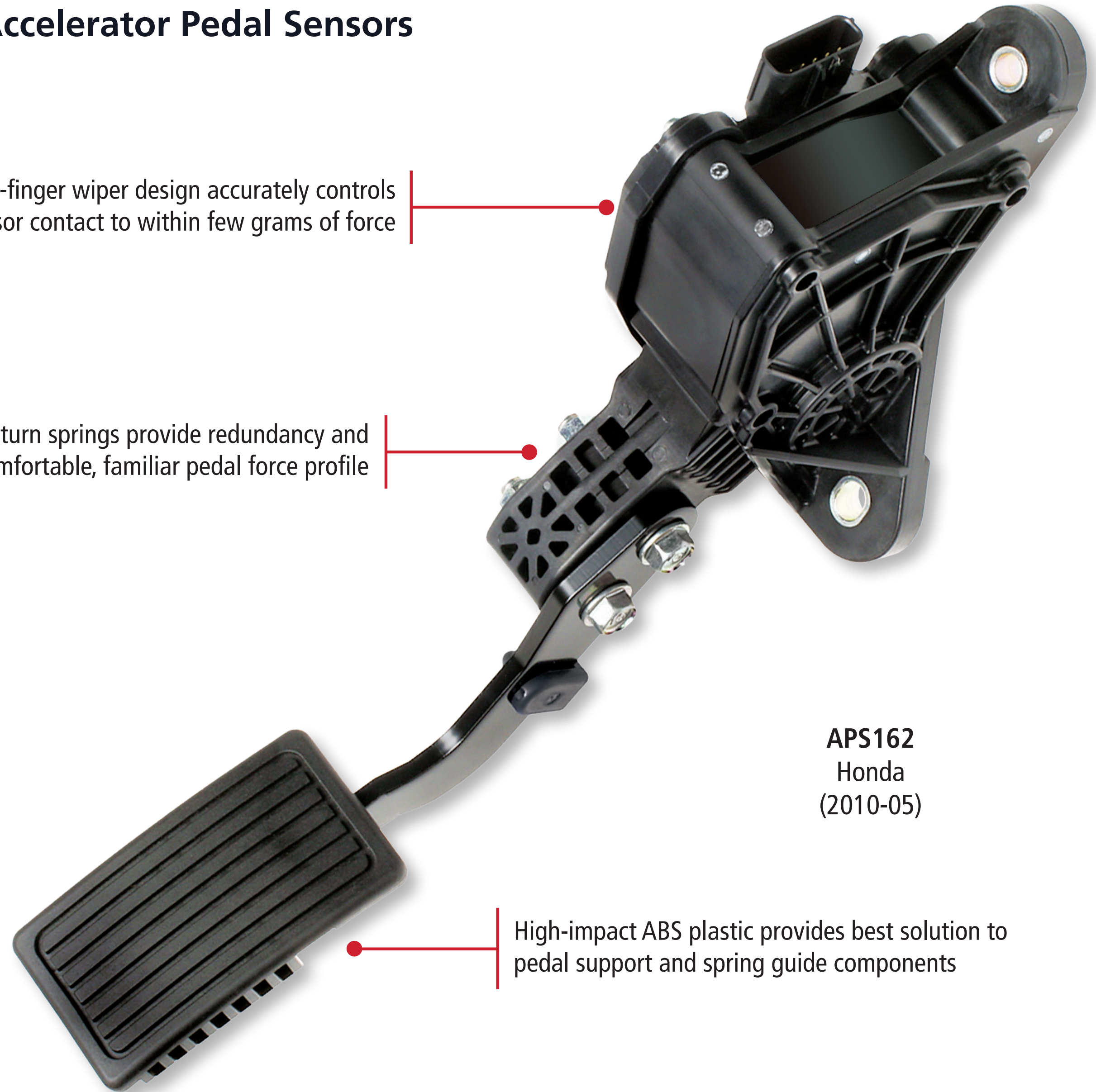
Standard[®] Accelerator Pedal Sensors

Multi-finger wiper design accurately controls sensor contact to within few grams of force

Dual return springs provide redundancy and comfortable, familiar pedal force profile

High-impact ABS plastic provides best solution to pedal support and spring guide components

APS162
Honda
(2010-05)



STANDARD® SENSORS

ADAS Sensor Program

Advanced Driver Assistance Systems rely on multiple sensors to provide real-time data to both the driver and the vehicle. Sensors that have failed or are not correctly calibrated may put the motorist and the occupants at risk.

StandardADAS.com includes the most-up-to information on our latest ADAS Components.



Blind Spot Detection Sensors

Standard® BSD Sensors are direct-fit replacements to ensure proper fit and performance. All BSDs undergo extensive quality testing and product validation.

123 SKUs / 46M Repair Opportunities



Steering Angle Sensors

Standard® Steering Angle Sensors are rigorously tested for fit, form and precise performance to match the original application they are replacing.

264 SKUs / 205M Repair Opportunities



Cruise Control Distance Sensors

Designed and manufactured to stringent quality standards to match the original for an easy install and to deliver precise performance.

71 SKUs / 32M Repair Opportunities



Park Assist Sensors

Standard® Park Assist Sensors are direct-fit replacements utilizing advanced ultrasonic technology that exactly matches the detection capabilities of the original sensors.

86 SKUs / 425M Repair Opportunities

STANDARD® SENSORS

TPMS Program

Standard® offers both QWIK-SENSOR® Multi-frequency Sensors and pre-programmed OE- Match Sensors. The QWIK-SENSOR® can be quickly programmed to fit almost any vehicle. OE-Match Sensors can be installed right out of the box, without any programming.

StandardTPMS.com features additional information on our TPMS Sensors, Service Kits, and Programming Tools.

QWIK®
sensor MULTI-FREQUENCY
Programmable TPMS Sensors



Available with rubber or metal valve stems

Can be programmed on or off of the vehicle

Works on both domestic and import vehicles with 314.9 MHz to 434 MHz systems

Military-grade lithium battery for maximum battery life

STANDARD OE-Match
TPMS
SENSORS



More than 230 SKUs for the industry's best coverage

Pre-programmed at the factory with exact OE protocol, so it's ready to install

Direct-fit replacement that matches the fit and performance of the original

Military-grade lithium battery for maximum battery life

STANDARD® TPMS PROGRAM

Manufacturing and Testing

All Standard® TPMS Sensors are designed and manufactured to meet the latest SAE2657 specifications.

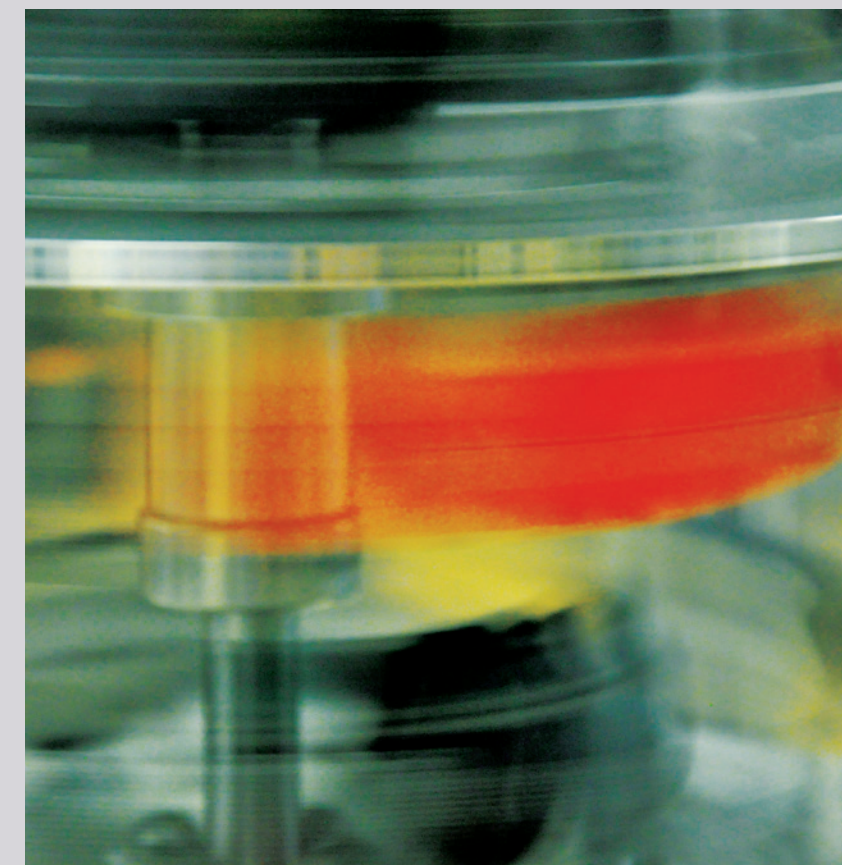
Our TPMS Sensors are subjected to multiple tests for operational temperature, thermal shock, extreme temperatures, humidity, contamination, salt fog, centrifugal force and mechanical testing. The result is a Sensor that works correctly in all conditions, and lasts.

StandardTPMS.com features additional information on our TPMS Sensors, Service Kits, and Programming Tools.



Standard® TPMS Manufacturing

Our facility produces more than a million Sensors each year and has earned multiple certifications, including US FCC, European E-Mark, and Canada IC while meeting FMVss138, SAE J2657, ISO9001 and IATF16949 quality standards.



Standard® TPMS Testing

To make sure our TPMS Sensors last, we subject them to a high-speed Accelerated Life Test.

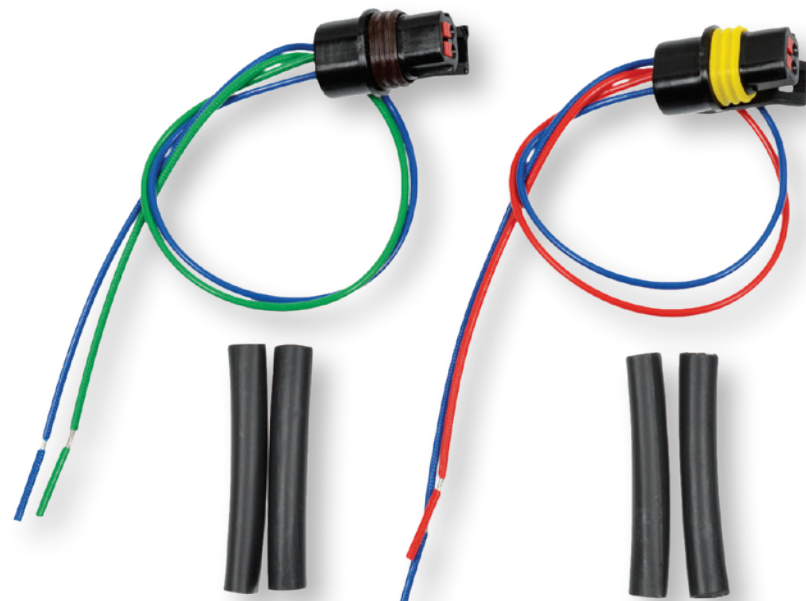
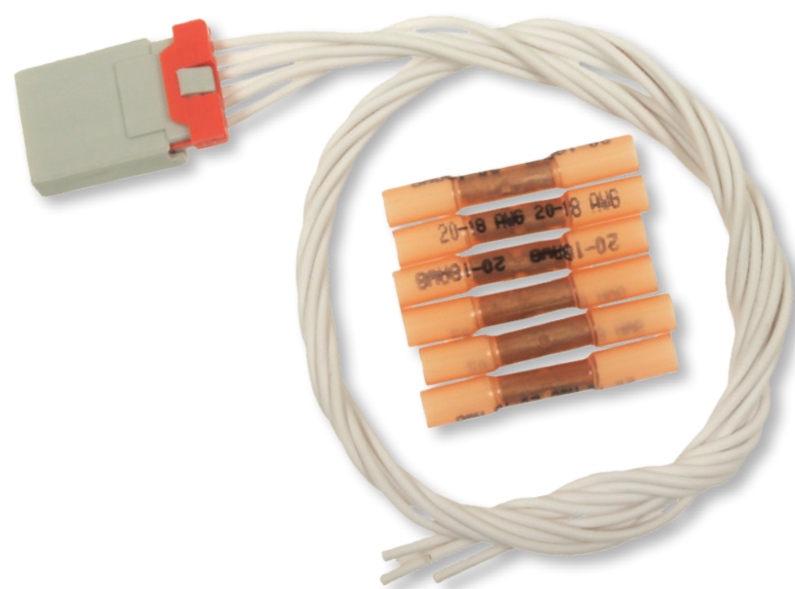
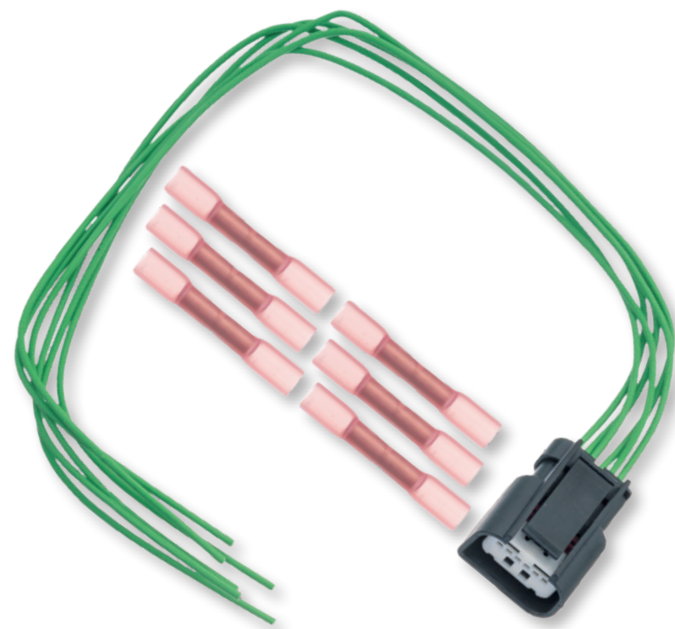
Related Parts

Sensor Connectors

In addition to over 80 different Sensors, we also offers thousands of connectors that you may need to get your customers back on the road.

To find the connector you are looking for, visit StandardBrand.com.

Standard® Sensor Connectors



- | | |
|---|---|
| ABS Sensor Connectors | Oxygen Sensor Connector |
| Cruise Control Distance Sensor Connectors | Blind Spot Detection Sensor Connectors |
| Knock Sensor Connectors | Engine Speed Sensor Connectors |
| Accelerator Pedal Sensor Connector | Park Assist Sensor Connectors |
| EGR Valve Position Sensor Connectors | Camshaft Position Sensor Connectors |
| Mass Air Flow Sensor Connector | Exhaust Gas Temperature Sensor Connectors |
| Air Intake Temperature Sensor Connectors | Steering Angle Sensor Connectors |
| Engine Oil Level Sensor Connectors | Crankshaft Position Sensor Connectors |
| Misfire Sensor Connector | Fuel Pressure Sensor Connectors |
| Ambient Air Temperature Sensor Connectors | Vehicle Speed Sensor Connectors |
| Engine Oil Temperature Sensor Connectors | ...and more |

Standard[®] Pro Training Tech Tip

As experienced ASE-certified automotive technicians themselves, Standard[®] Pro Trainers are experts in engine and sensor technology.

Here's what they say to look out for when replacing a sensor.



When replacing a crankshaft position sensor, make sure the appropriate relearn is performed. Failing to do this may cause the vehicle to misfire and run poorly



Some sensor failures could be masked by "default strategy." Be sure to follow the correct diagnostic procedure and clear the memory after a repair

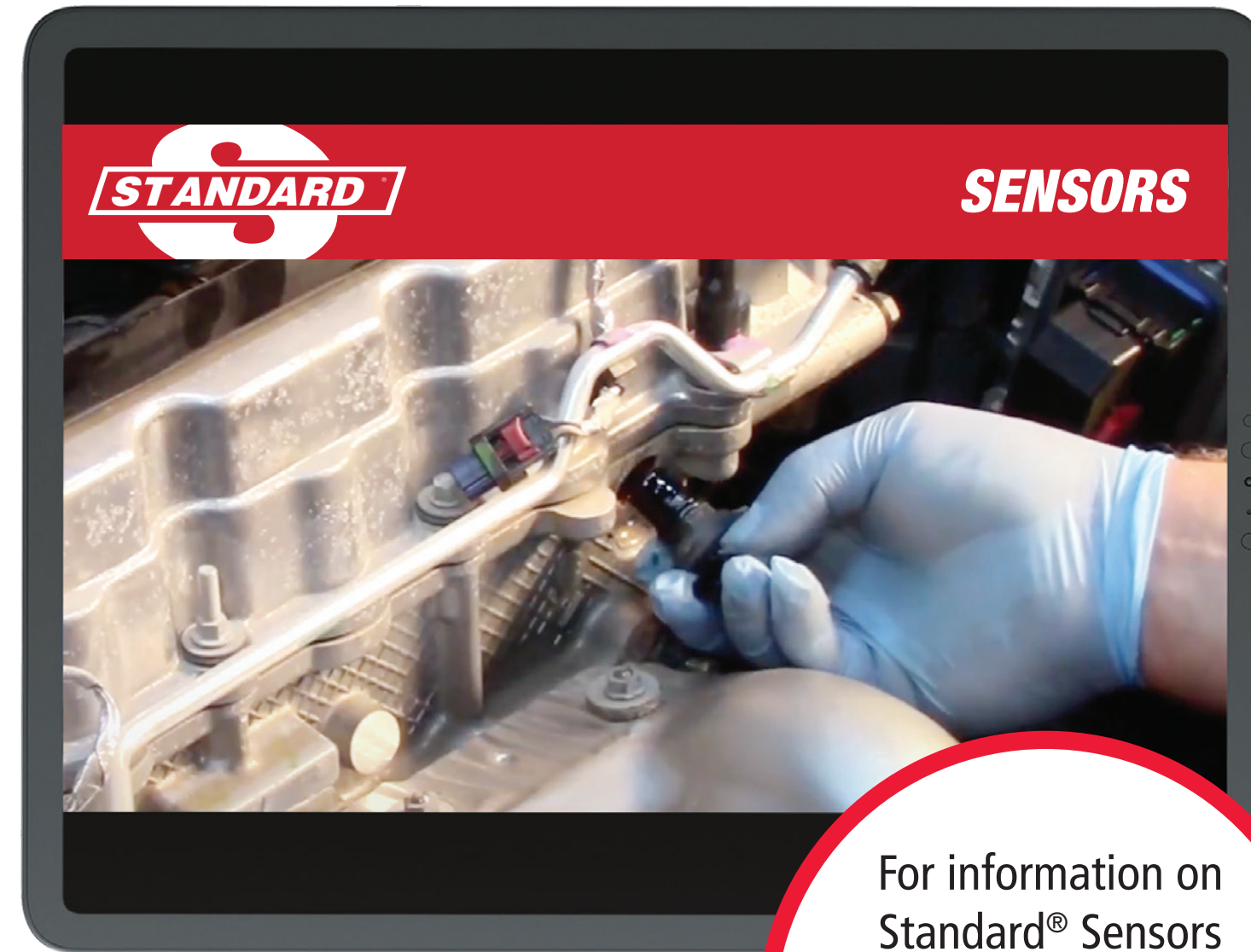
STANDARD® SENSORS

Standard® Professional Training

Award-Winning In-Person, Live Virtual, and Online Learning

Standard® Pro Training delivers accredited classes that educate technicians in the latest automotive repair technologies, and techs can earn CEU credits.

An extension of Standard® training, our extensive ADA-compliant YouTube professional installation video library has over 40 million views and 50,000+ channel subscribers.



For information on Standard® Sensors search "Sensors" "TPMS" or "ADAS" on the StandardBrand YouTube Channel



Available Classes

GM Electric Powertrain Management
SENT Sensor Overview
Rapid Sensor and Circuit Testing
Vehicle Electronic Fundamentals 1-7
Brain Teasers
Labscope

Visit StandardBrandTraining.com

IN-PERSON TRAINING



Available Classes

Powertrain Electronics
Body Control Electronics Diagnosis
Ignition System and Cam/Crank Synchronization
Labscope Power User
Misfire Diagnosis
Unleash The Power Of Your Scan Tool
Torque Management and Electronic Throttle Control