

# Amphenol Sensors

Connecting your world through  
Sensor Innovations

## Heavy Vehicle & Off-Road (HVOR)

Amphenol Sensors is a leading innovator in sensor technologies and measurement solutions. Offering the most diverse sensor portfolio of standard and customized products for the world's most demanding regulatory and industry-driven applications, Amphenol creates value by providing critical information for real-time decisions.

Efficiency under high demand. For agriculture, farm, and construction, Amphenol Sensors combines its expertise in automotive sensors with the high demands inherent of heavy equipment.

Our sensors maximize the efficiency and lifetime of your heavy equipment, which translates to improved operational costs, operator safety and environmental compliance.



# Amphenol Sensors

## HVOR Sensor Solutions

- Temperature ● Pressure ● Gas ● Humidity ● Dust/Particulates
- Position ● Level ● Combination ● Acoustics ● Acceleration

### Fuel Handling System

- Fuel
- EVAP

### Cabin Comfort

- Discharge Air
- Steering Wheel
- Seats
- Dewpoint
- Cabin Air Filter
- Particulate Detection
- Joystick Control
- Cabin Noise
- NVH
- Hand Throttle
- Toxic Gas Detection
- Cabin Suspension

### Safety Systems

- Steering Wheel
- Seats
- Defog
- Battery
- Leak Detection
- Brakes
- Seatbelts
- Washer Fluid
- Leak Detection
- Steering Wheel



### HVAC

- Outside Air
- Refrigerant/Coolant
- Evaporator
- Air Quality
- Particulate Detection
- HVAC Actuator

### Motion Control & Driver Assistant Systems

- Boom Arm Position / Extension
- Bucket / Tool Position
- Tilt Cylinder Control
- Hitch Position
- Telehandler Position
- Suspension Control
- Outrigger Position
- Load Management
- Automated Electro-hydraulic Steering

### Powertrain

- Transmission - Fluid, Oil
- Transmission - Gearbox, Park Lock, Speed
- Power Steering
- EURO-6 Urea
- Steering Angle
- Pedals
- Powertrain Development

### Engine Management

- Engine Air
- Engine Oil
- Coolant
- Intake Air
- Exhaust Gas Recirculation (EGR)
- Cylinder Head
- MAP/TMAP
- Hydraulic Fluid

### After-Treatment

- Diesel Particulate Filter (DPF)
- Diesel Exhaust Fluid (DEF)
- Gasoline Particulate Filter (GPF)

## ENGINE MANAGEMENT

### ● Temperature Sensors

- High accuracy • High stability
- Noise immune NTC option
- Fast response time • Combination sensor options



### ● Pressure Sensors

- High accuracy • High performance
- Long-term stability • Custom options
- Suitable for ambient temperatures up to 150°C
- Temperature measurement option



### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



### ● Level, Concentration & Conductivity Sensors

- High accuracy
- Detects proper fluid fill and contaminant
- Customizable options



## CABIN COMFORT

### ● Temperature Sensors

- High accuracy • High stability
- Noise immune NTC option
- Moisture resistant
- Fast response time



### ● Pressure Sensors

- High performance • High accuracy
- Customizable design
- Multiple output options



### ● Gas Detection Sensors

- Detectable gases: CO<sub>2</sub>, CO, NO<sub>2</sub>, NH<sub>3</sub>
- PWM and LIN bus, Custom packaging options



### ● Dew Point Sensors

- Combined temperature and humidity measurement
- PWM and LIN bus
- Custom package options



### ● Dust Particulate Sensors

- PM2.5 • Laser detection
- Fast response • High accuracy



### ● Position Sensors

- Non-contact inductive and hall-effect technologies
- Excellent resolution and precision
- Reliable in harsh environments
- Touchless mechanical solutions



### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



### ● Acoustic Sensors

- Specialized microphones for a wide variety of applications
- High temperature, water and dust resistant models available
- Highly accurate



### ● Accelerometers

- Wide frequency ranges available
- Single and triaxial configurations
- Robust design for demanding environments
- Various mounting methods
- Electrically isolated
- High sensitivity and low noise



## MOTION CONTROL & DRIVER ASSISTANT SYSTEMS

### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



## POWERTRAIN

### ● Temperature Sensors

- High accuracy • High stability
- Customized to application
- Utilizes metallurgical bond glass-coated NTC



### ● Pressure Sensors

- Stable and accurate • Durable
- Customizable design • Multiple output options



### ● Position Sensors

- Non-contact inductive and hall-effect technologies
- Excellent resolution and precision
- Reliable in harsh environments
- Touchless mechanical solutions



### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



### ● Combined Pressure & Temperature Sensors

- High accuracy • Oil resistant
- Wide temperature range: -40°C to 150°C
- Robust against pressure spikes



### ● Accelerometers

- Wide frequency ranges available
- Single and triaxial configurations
- Robust design for demanding environments
- Various mounting methods
- Electrically isolated
- High sensitivity and low noise



## SAFETY SYSTEMS

### ● Temperature Sensors

- Fast response time • High accuracy
- High stability • Proven reliability
- Deep domain expertise
- Duplicate manufacturing locations



### ● Pressure Sensors

- High accuracy • Small size
- Long-term stability
- Diagnostic and protective features (ASIL)



### ● Position Sensors

- Robust and reliable modular design
- Selectable working principle: potentiometric, hall effect, reed switch



### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



### ● Level & Concentration Sensors

- High accuracy
- Continuous monitoring for fluid contamination
- Programmable for irregular shape tanks
- Customizable options



### ● Accelerometers

- Wide frequency ranges available
- Single and triaxial configurations
- Robust design for demanding environments
- Various mounting methods
- Electrically isolated
- High sensitivity and low noise



### ● Gas Detection Sensors

- Detect the presence of combustible gases that indicate batteries Thermal Runaway conditions.
- Sensitivity to multiple gases: H<sub>2</sub>/CO<sub>2</sub>/NH<sub>3</sub>/CO
  - Temperature / Humidity Sensor
  - Pressure sensor (20 up to 250 kPa)
  - Fast response time: <1 second
  - IP6K7 rating



## HVAC

### ● Temperature Sensors

- High accuracy • High stability
- Noise-immune NTC option
- Moisture resistant
- Fast response time



### ● Position Sensors

- Robust and reliable modular design
- Custom form-factor available
- Selectable working principle: Potentiometric, hall effect, reed switch



### ● Pressure Sensors

- Leakproof • High accuracy
- Media compatibility



### ● Gas Detection Sensors

- Detectable gases: CO<sub>2</sub>, CO, NO<sub>2</sub>, NH<sub>3</sub>
- PWM and LIN bus, custom packaging options



### ● Dust Particulate Sensors

- PM2.5 • Laser detection
- Custom packaging options



### ● Combined Pressure & Temperature Sensors

- Leakproof
- High accuracy
- Diagnostic and protective features (ASIL)
- Wide pressure range: 10 bar to 200 bar



## FUEL HANDLING SYSTEM

### ● Temperature Sensors

- High accuracy
- High stability
- Integral/pigtail options
- Combination sensor options



### ● Pressure Sensors

- High accuracy
- High performance
- Long-term stability
- Custom options



### ● Position Sensors

- Absolute, non-contact measurement
- Highest reliability
- Robust and compact design for harsh environments



### ● Level Sensors

- High accuracy
- Continuous monitoring
- Robust non-contacting sensors
- Slosh and aeration filtering software



## AFTER-TREATMENT

### ● Temperature Sensors

- High accuracy • High stability
- Integral/pigtail options
- Fast response time
- Right angle and straight probe options



### ● DEF Level, Temperature & Concentration Sensors

- High accuracy
- Continuous monitoring
- Meets EPA regulations
- Programmable for irregular shape tank



### ● Pressure Sensors

- High reliability
- High accuracy
- Up/down stream pressure
- Customizable design
- Compatible with exhaust gas media and acid condensates



# Sensor Technologies

## MAJOR MARKETS SERVED

	Thermometrics, Inc. Temperature	Telaire Gas & Moisture	NovaSensor Pressure	Protimeter Moisture Meters	Kaye Thermal Validation	SGX Sensortech Gas	Piher Sensing Systems Position, Speed, Current	Wilcoxon Sensing Technologies Vibration	Piezo Technologies Ultrasonic	i2s Pressure & Temperature	All Sensors Ultra Low Pressure	SSI Technologies Level, Concentration, Speed & Pressure	Exa Thermometrics Temperature	PCB Piezotronics Vibration, Pressure, Force & Acoustics	Endevco Vibration, Pressure & MEMS	Temposonics Position, Velocity, Level
Aerospace (Commercial)	●		●			●	●				●	●	●	●	●	●
Agriculture	●	●		●		●	●			●	●	●	●	●		●
Air Quality (Indoor)	●	●	●	●		●	●	●			●	●	●	●		
Automation	●	●					●	●			●		●	●		●
Automotive	●	●	●			●	●			●		●	●	●	●	●
Construction & Restoration				●								●		●		●
Vehicle Electrification	●	●	●			●	●			●		●	●	●	●	●
Energy	●					●	●	●	●		●		●	●		●
Environmental Monitoring					●	●					●					●
<b>Heavy Vehicle &amp; Off-Road (HVMR)</b>	●		●			●	●			●		●	●	●	●	●
After-Treatment	●					●						●	●			
Cabin Comfort	●		●			●	●					●	●	●		●
Engine Management	●		●							●		●	●			●
Fuel Handling System	●		●				●			●		●	●			●
HVAC	●					●	●			●		●	●			
Powertrain	●		●				●			●		●	●	●		●
Safety Systems	●					●	●			●		●	●		●	●
HVACR	●	●	●			●	●	●		●	●	●	●	●		
Industrial	●	●	●	●		●	●	●		●	●	●	●	●		●
Marine	●					●	●	●			●	●		●		●
Medical	●	●	●		●	●	●		●		●	●				●
Military	●		●			●	●	●	●		●	●		●	●	●
Non-Destructive Testing (NDT)									●							
Oil & Gas	●		●			●	●	●	●		●	●	●	●		●
Pharmaceutical & Biotech					●	●					●	●		●		●
Process Control	●	●	●			●	●	●		●		●	●	●		●
Railway	●					●	●	●			●	●	●	●	●	●
Thermal Validation					●											