

Amphenol Sensors

Delivering Value-Add  Sensors

Amphenol NAATBatt 2025



Leading Interconnect Technologies

Extending the reach of the interconnect system



Core pillars of technology innovation

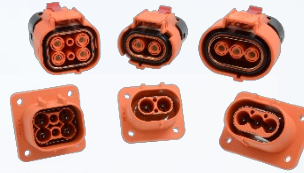


Amphenol Vehicle Electrification Portfolio

LOW AND HIGH VOLTAGE CONNECTIONS
FT. RADSOK® CONTACT TECHNOLOGY



AUXILIARY HV/LV
CONNECTIONS



TRANSMISSION
CONNECTIONS



PASS-THROUGH

BATTERY SWAP MODULES (BSM)



BATTERY PACK

POWER
DISTRIBUTION
UNIT

MOTOR
CONTROL UNIT

TEMPERATURE
SENSING



THERMAL
RUNAWAY
DETECTION

BMS COVERS



DC/DC

CHARGER

MOTOR

SPEED AND POSITION
SENSING

PRESSURE AND P/T
COMBINED SENSING



BATTERY FLEX AND
THERMISTOR HARNESS



CABLE ASSEMBLY



CCS1, NACS, etc
CHARGING

DC/AC BIDIRECTIONAL
INVERTERS

RIGID AND FLEXIBLE BUSBARS



ROTOR POSITION SENSOR (Resolver alternative)



COOLANT LEAK SENSOR

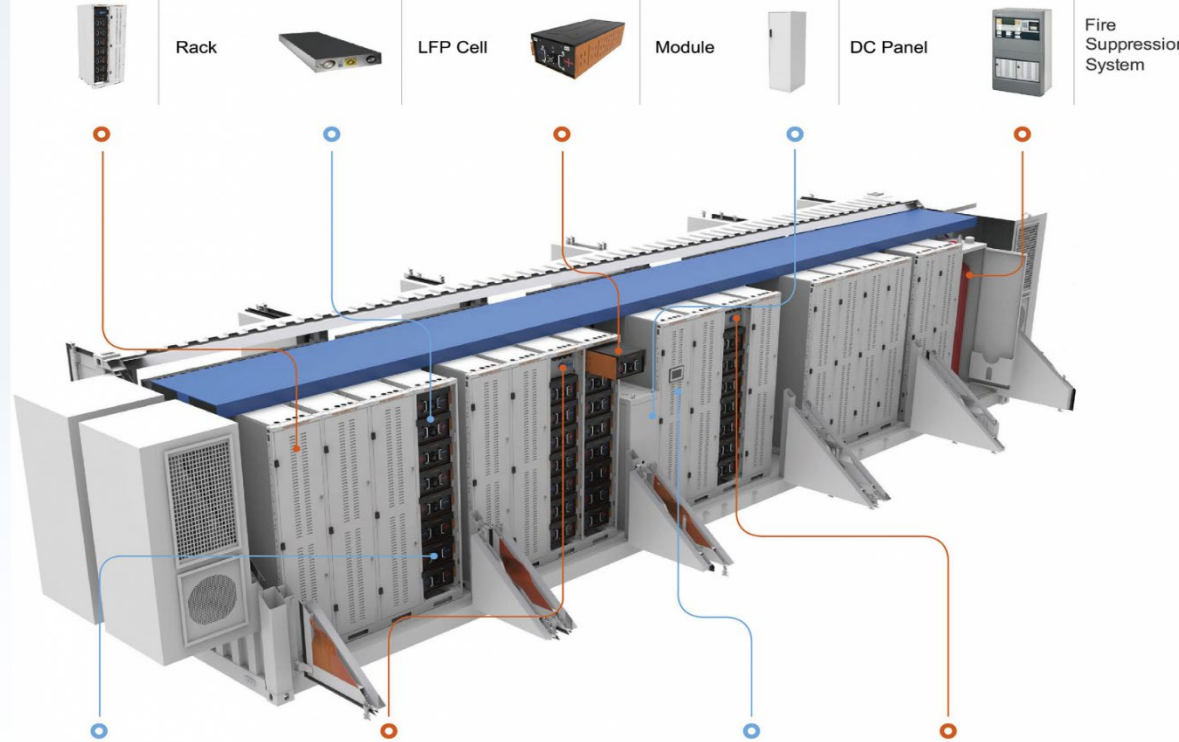


Amphenol ESS Portfolio

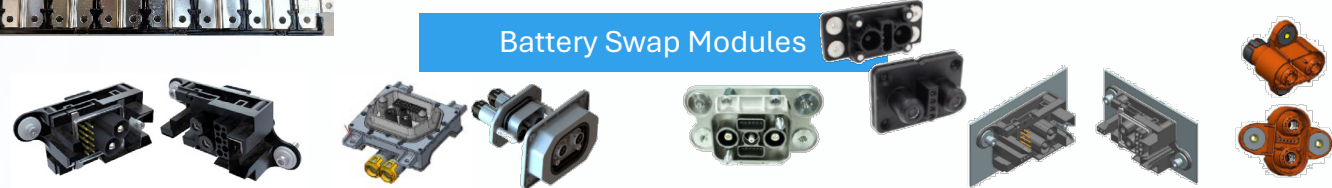
HV connectors & assemblies



Cell connection systems

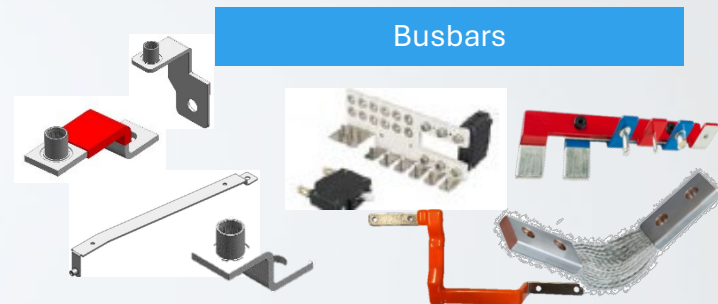


Battery Swap Modules



Blind mate

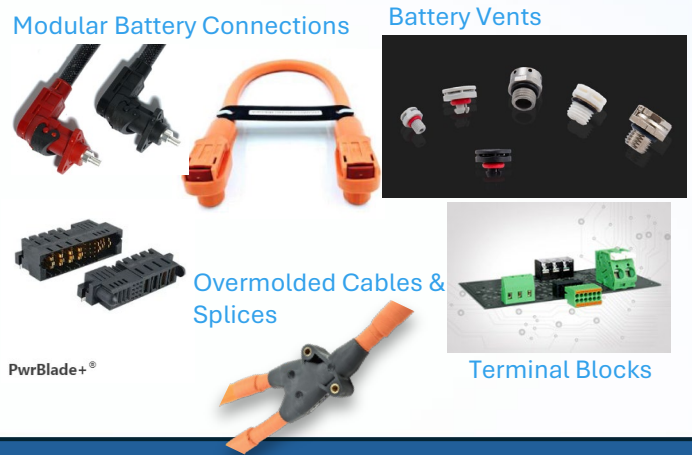
Busbars



Sensors



Other



Barklip® BK300

PwrBlade+®

EVSE Charger Portfolio

EV Charging Plug and Inlets



GB/T

- AC up to 80A
- DC +500A
- Combo Inlet Optional



CCS1 SAE DCFC

- AC up to 80A UL
- DC up to 350A UL
- HPC DC up to ~500A UL
- Inlet up to 130mm (500A)



CCS2 IEC DCFC

- AC up to 63A (1 or 3 Phases)
- DC up to 400A IEC
- HPC DC +500A IEC
- Inlet up to 130mm (500A)



MCS

- Level 1 +350A
- Level 2 +1000A
- Level 3, 3000A
- 1250V



AC SAE J1772

- AC up to 60A UL
- DC up to 350A UL
- HPC DC up to ~500A UL
- Inlet up to 130mm (500A)



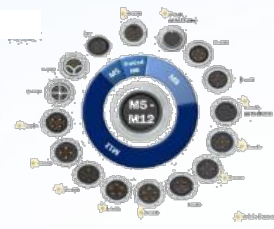
AC IEC

- AC up to 63A (1 or 3 Phases)
- DC up to 400A IEC
- HPC DC +500A IEC
- Inlet up to 130mm (500A)

RADSOK POWER



INSTRUMENTATION CONNECTORS



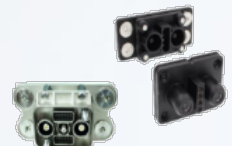
ANTENNAS



IoT MODULES



Splices



Blind Mate Connectors



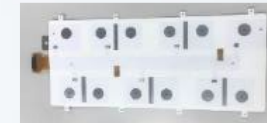
Terminal Blocks



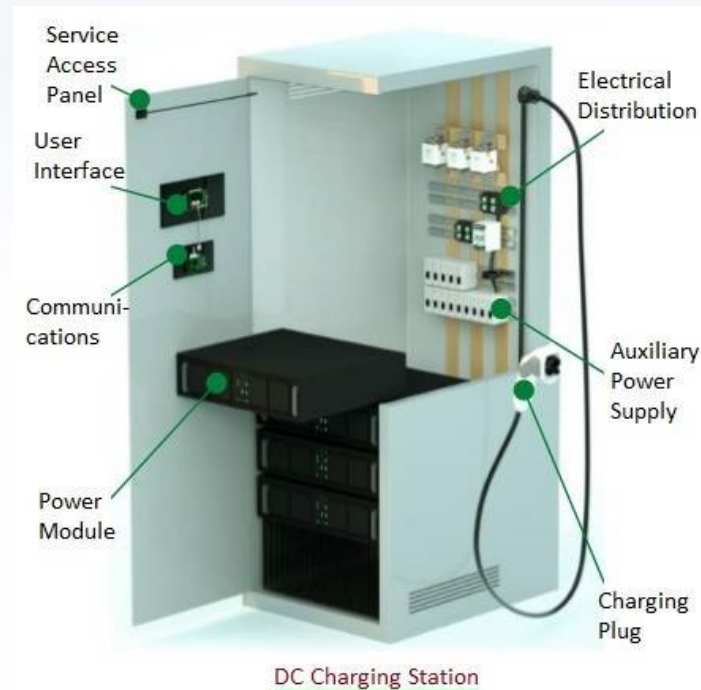
MANUAL
SERVICEDISCONN
ECT



RIGID AND FLEXIBLE BUSBARS



LAMINATED BUSBARS



PRESSURE AND P/T
COMBINED SENSING



CURRENT SENSOR



IRSENSOR

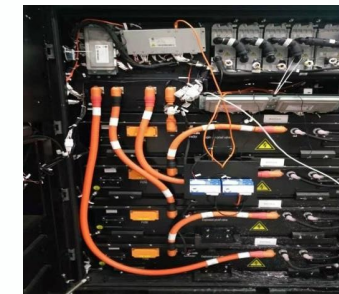


COOLANT LEAK SENSOR

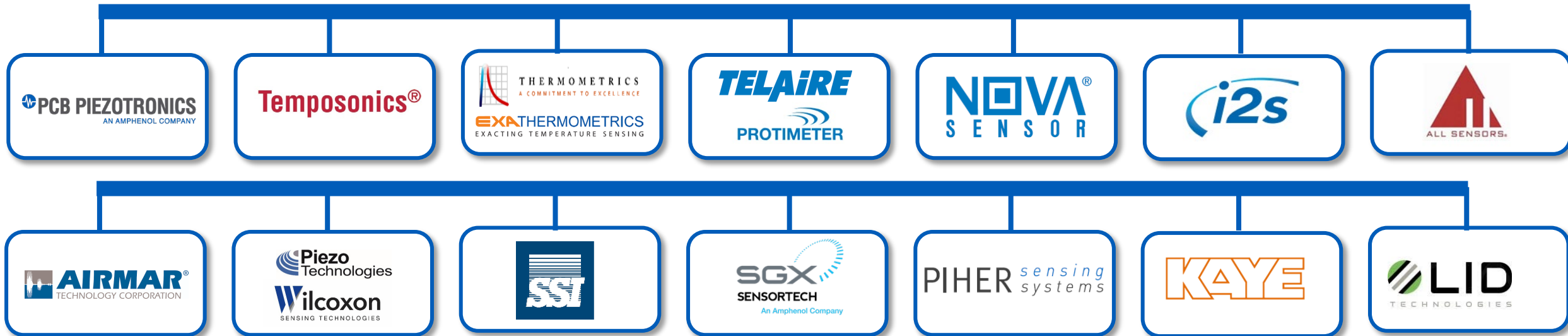


TEMPERATURE SENSING

LOW AND HIGH VOLTAGE CONNECTIONS FT. RADSOK®



Amphenol Sensors




25 Brands














35 sites in 13 countries

Over 7,200 Employees

Product Overview

Amphenol Sensors

Delivering Value-Add  Sensors

-  Temperature
-  Pressure
-  Gas Detection
-  Humidity
-  Validation
-  Angular Position
-  Acceleration/Vibration
-  Speed
-  Level
-  Concentration
-  Linear Position
-  Acoustic
-  Weather



TPMS and Telematics

Temposonics®

Linear Position
Level Sensing



Magnetostrictive
linear position

PIHER *sensing systems*

Position, Speed,
Current

Hall-effect and
inductive position
(rotary and linear)



Current



E-Motor rotor
position



Trimmer & controls



Speed



Carbon printing for
actuators



Tilt



Temperature



Coolant temp



Medical probes



Boiler probes



Epoxy-coated NTC
chip thermistor



Combo temp & pressure



Outside air temp



EXATHERMOMETRICS
EXACTING TEMPERATURE SENSING

TELAIRE

PROTIMETER

Gas, Humidity,
Moisture

Motor coil /
inverter



Defog



Gas sensing – CO2



Humidity &
dust sensing



Fluid level &
concentration



Ultrasonic,
speed &
pressure



Accelerometers &
Accessories



Level
Concentration
Speed
Pressure

PCB PIEZOTRONICS
AN AMPHENOL COMPANY

Vibration, Shock, Motion,
Pressure, Force, Acoustics

AIRMAR
TECHNOLOGY CORPORATION

Ultrasonic transducers for
marine &
WeatherStations®



Piezo
Technologies

Piezoceramics
Ultrasonic/Acoustic

Wilcoxon
SENSING TECHNOLOGIES

Vibration, Acceleration,
Condition Monitoring



Piezoelectric ceramics



Acoustic sensors



Air-in-line sensors



Accelerometers



Air Quality
(Gas, PM2.5)



Measurement of toxic
gases & oxygen



Pressure
Temperature



Combined
pressure and
temperature



PM2.5 dust sensing

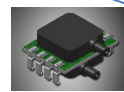


Hydrogen



MEMS type
gas sensor

Pressure



Digital pressure



Pressure



Validation
Instruments




Validation systems



Monitoring solutions

Leading Sensor Technology ... connecting the physical and digital worlds

Amphenol Sensors

Delivering Value-Add  Sensors

Sensing Element Technology

Packaging and Electronics

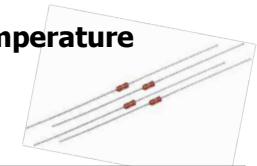
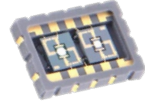
Pressure

Gas

Pressure & Force

Density

NTC Temperature



MEMS

Piezoelectric

Thermistor Ceramics



Temperature

Vibration & Acceleration

Level

Vibration & Acceleration

PTC Temperature



Position



Magnetostriction



Position



Hall Effect and Inductance

Speed



Current



Gas



Optical, Chemical, Capacitance



Level



Dust

Acoustic



Advanced Packaging & Microelectronics



Wireless & IoT



Systems and Software

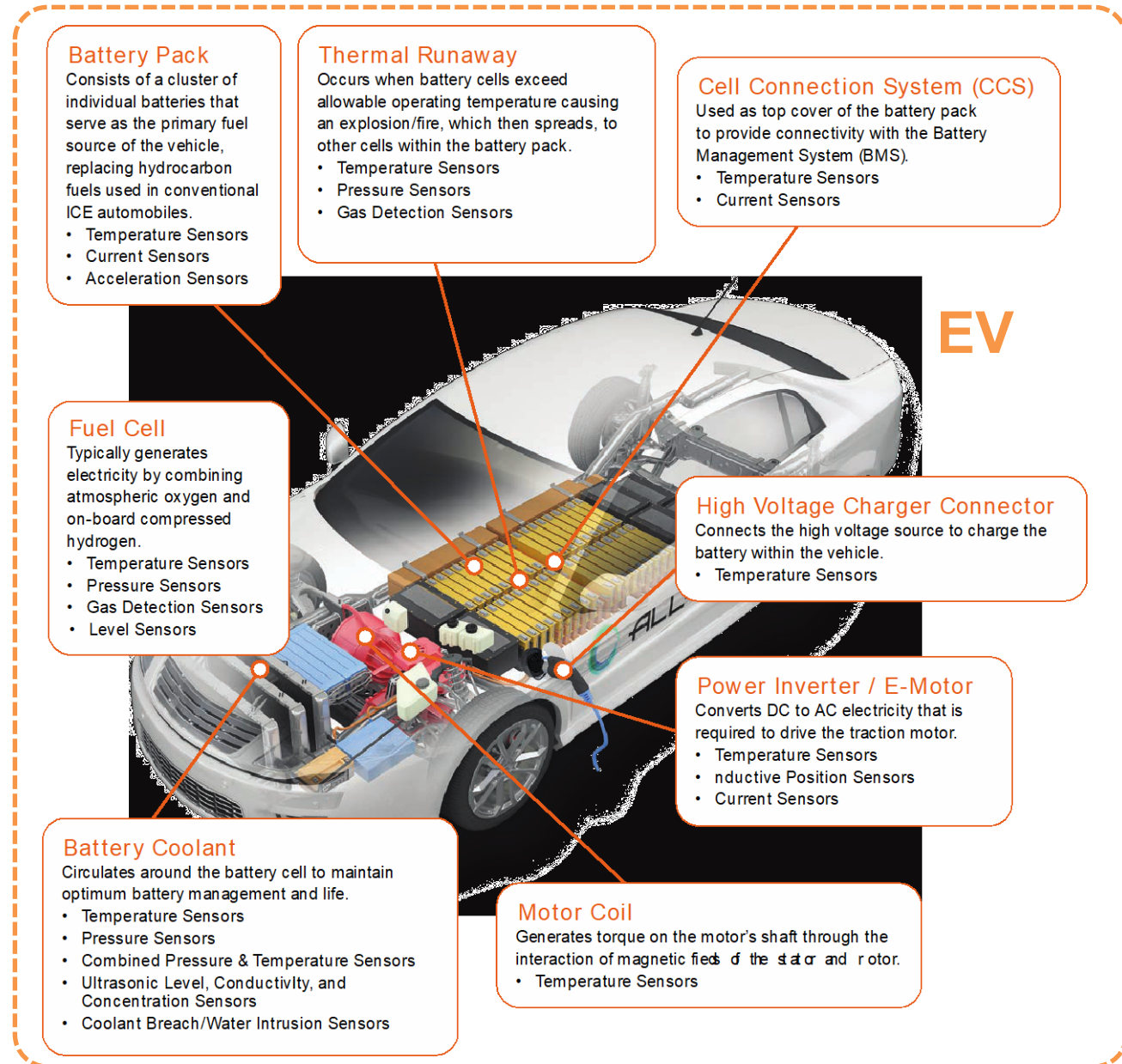
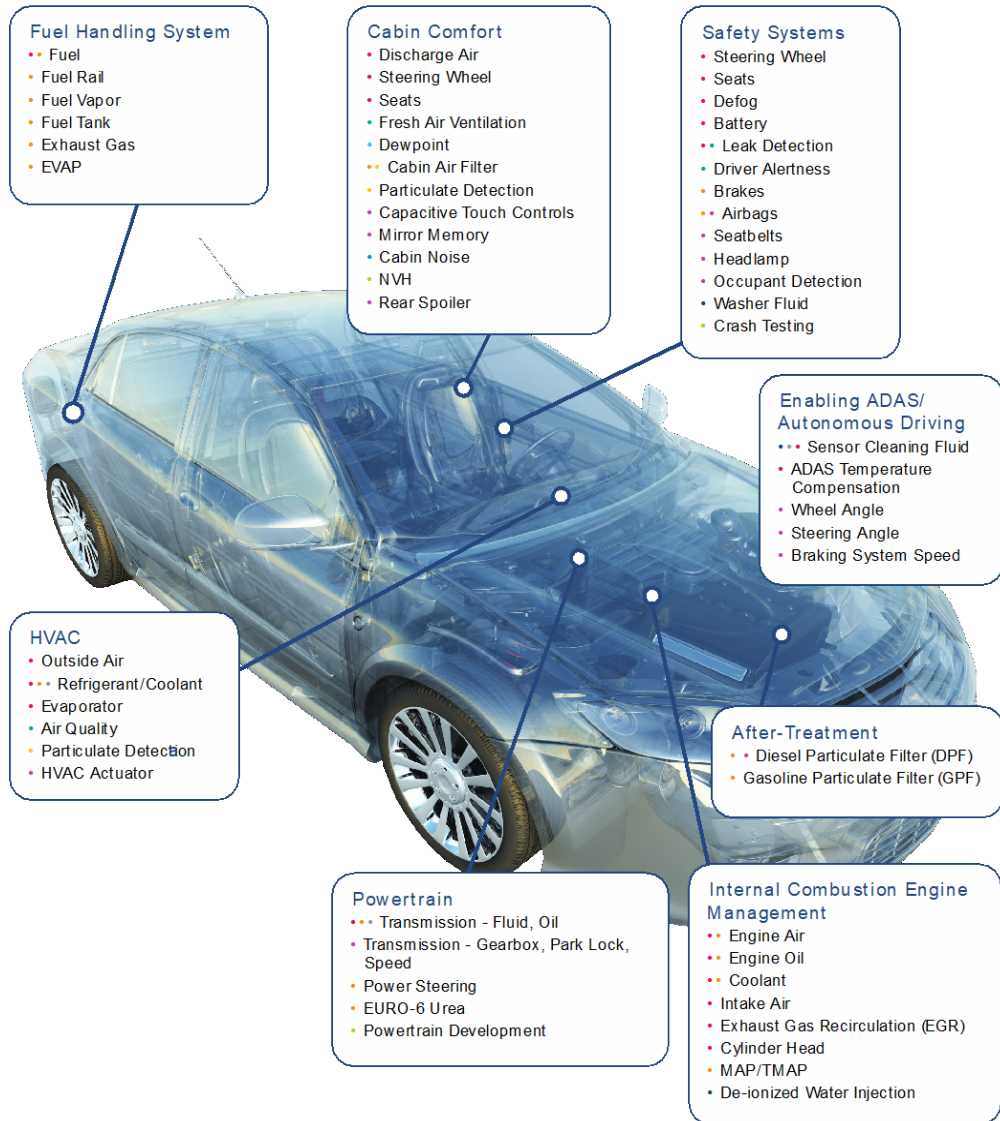


Confidential - Not

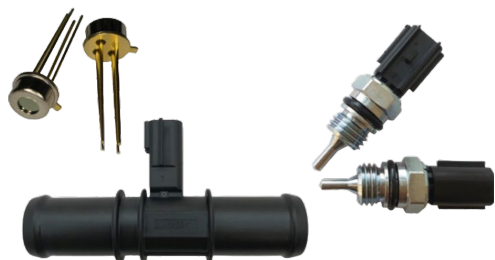
Broadest Automotive Sensor Portfolio in the Industry

|| Temperature || Pressure || Gas || Humidity || Dust/Particulates || Position/Speed

|| Current || Level || Combination || Acoustics || Acceleration



Exploring Amphenol Sensors EV Range (1/3)



Temperature Sensors

Thermistors:

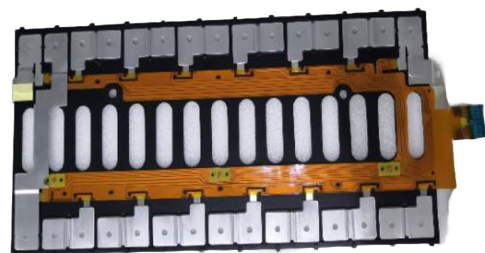
Available in application-specific form factors, thermistors provide fast, high accuracy temperature measurement of critical components.

- Inline, probe, clip-on packages
- Sealed connection
- Complete portfolio of Resistance vs Temperature output

Infrared (Non-contact) Sensors:

Using infrared thermopile, IR sensors allow high speed, high accuracy temperature measurement of critical high voltage components

- FETS
- HV Junctions



Cell Connection Systems

Combining cell busbars and flexible printed circuits (FPC) into carrier-type and laminate-type designs, Cell Connection Systems provide reliable energy flow to and from cells within an array with critical monitoring and control features for current, voltage, and temperature.



Coolant Leak / Water Intrusion Sensor

Low-profile, cost-effective method of detecting liquid accumulation in a battery pack or enclosure.

- Fast response to liquid presence
- OBD compliant



RED Li-ion Cell Venting Detection

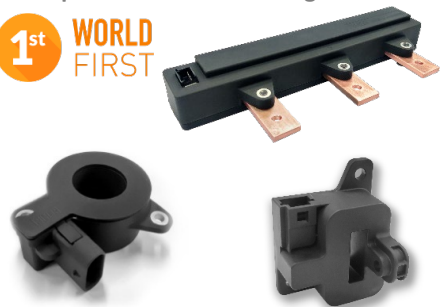
As components or assemblies, RED cell venting sensors exhibit fast detection of highly flammable hydrogen gas that is released as batteries fail and provide critical sensor information to the battery management system.

- Hydrogen concentration, with optional CO2, pressure, temperature, relative humidity
- fastest, most reliable indicator of single-cell venting to meet 5-minute safe egress regulation
- Mobile and industrial sensors available

Exploring Amphenol Sensors EV Range (2/3)

Three-phase TMR Busbar Integrated

1st WORLD FIRST



Current Sensors

Based on two different technologies: open-loop Hall-effect and coreless TMR sensors. Both technologies provide accurate, non-intrusive measurement of currents with galvanic separation between power and control.

- Measured values from ± 30 A to ± 4.000 A
- Busbar or wire mounting
- Total accuracy over temp error < 1%FS
- Linear error < 0.1%FS
- Simple or redundant analog ratiometric output

PIHER *sensing* systems



Position Sensors

Non-contact rotary and linear position monitoring using Hall-effect and inductive technology.

- Through-shaft, end-of shaft, ARC and touchless versions for applications such as pedal-by-wire, transmissions and steering. High accuracy and precision
- Low current consumption
- Stable performance in harsh environmental conditions
- Wide range of applications for xEV vehicles

PIHER *sensing* systems



Inductive eMotor Position Sensors

Lightweight, magnet-free alternative to conventional resolvers with accurate feed-back of linear or angular position, direction, and speed for electric motor commutation.

- Stray-field immune
- ASIL-D ready
- Through-shaft, end-of-shaft and ARC/off-axis configurations

PIHER *sensing* systems



Hall Effect Speed and Direction Sensors

Contactless measurement of rotating gears in transmission, wheels, motors and brake systems.

- Fast and near zero speed sensing capable
- Compact and rugged for automotive applications
- Resistant to humidity and high vibrations
- ESD protection
- Custom cable or connector interface

PIHER *sensing* systems

Exploring Amphenol Sensors EV Range (3/3)



High Pressure / Temperature Sensors

Developed to measure the pressure specifically in heat pumps or Hydrogen fuel cell applications

- Sensors operate in the low- to high-pressure range and have a robust design
- Sensors in accordance with ASIL A and ASIL B
- Meet the requirements for electromagnetic compatibility (EMC) and electrostatic discharge (ESD).



Coolant / Dielectric Fluid Property Sensors

Multi-measurand sensors to continuously monitor coolant or dielectric fluid properties, including:

- Fluid level
- Fluid temp
- Fluid conductivity
- Fluid dielectric loss (tan delta)



R&D and Test Sensors

PCB Piezotronics manufactures precision accelerometers, microphones, pressure transducers, force and strain sensors to fulfill a wide assortment of measurement requirements for field testing, factory production and design, as well as in R&D labs to acquire NVH data.

