

Amphenol

COMMUNICATIONS SOLUTIONS



e-mobility

Amphenol provides compact, robust, leading-edge interconnect solutions for EV charging stations, electric, hybrid electric, battery electric vehicles, and powertrain applications including e-bikes, e-scooters, electronic forklifts, hybrid electric vehicles, and electric vehicles.

amphenol-cs.com



Amphenol Overview

Amphenol Communications Solutions (ACS), a division of Amphenol Corporation, is a world leader in interconnect solutions for Communications, Mobile Consumer Products, RF, Optics, Broadband and Commercial electronics markets.

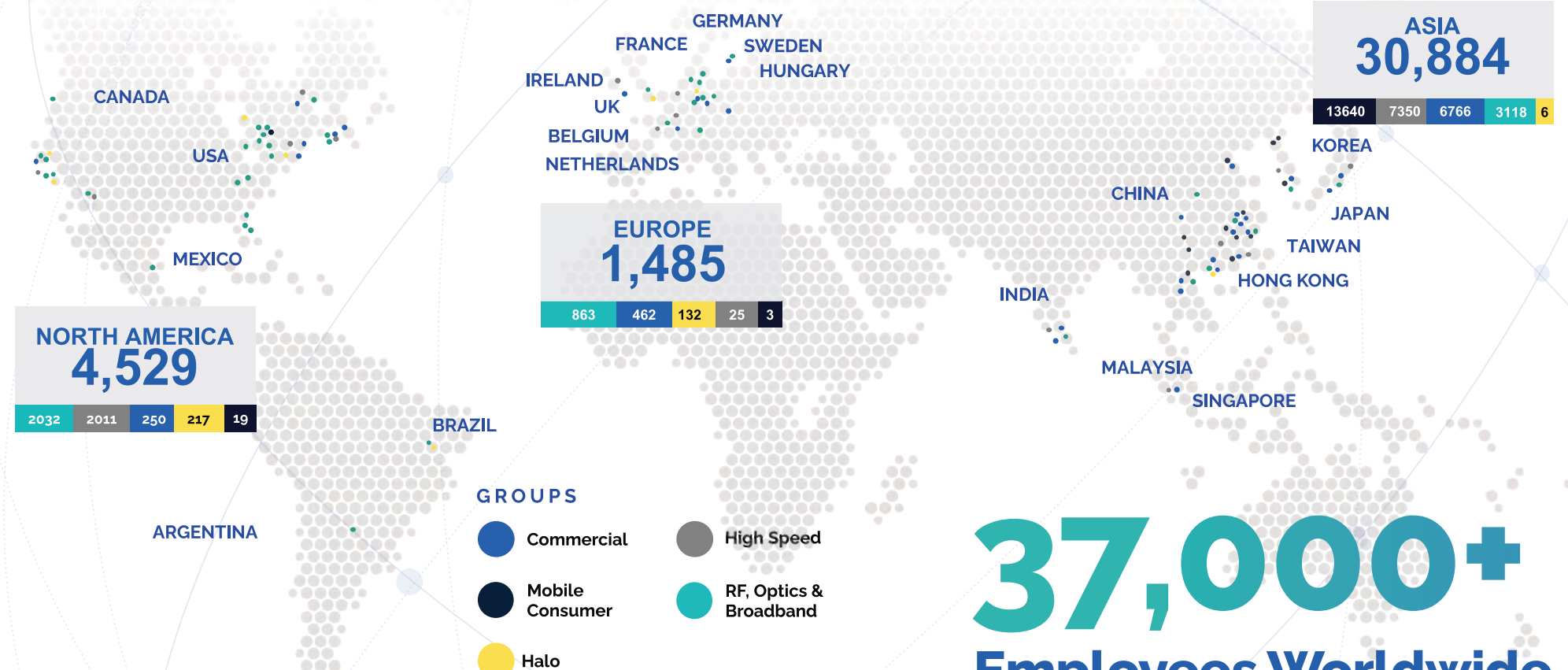
Amphenol Corporation is one of the world's largest designers and manufacturers of electrical, electronic and fiber optic connectors and interconnect systems, antennas, sensors and sensor-based products and coaxial and high-speed specialty cable.

ACS has an expansive global presence in research and development, manufacturing, and sales. We design and manufacture a wide range of innovative connectors as well as cable assemblies for diverse applications including server, storage, data center, mobile, RF, networking, industrial, business equipment and automotive.

Strong Global Presence

We place heavy emphasis on R&D for both new product and technology development, focusing on the advancement of the next generation of high-speed interconnects and power distribution solutions as well as innovative manufacturing solutions.

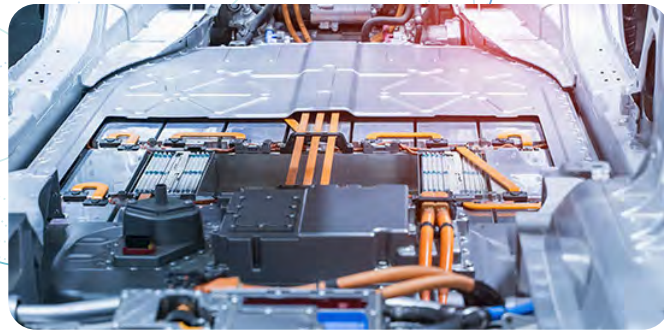
- Our R&D centers worldwide have registered thousands of patents and licensing agreements, developing some of the world's first innovations in connectors such as Shield-less High-Speed Connectors, Ball-Grid-Array Attachments, economical Stamped High-Power Contacts and cost effective yet reliable plating processes.
- We relentlessly seek improvements of our products, increasing our solutions' overall cost effectiveness, precision and reliability. This ensures that we meet or even surpass the ever changing needs and expectations of market trends.



37,000+

Employees Worldwide

APPLICATION SCOPE



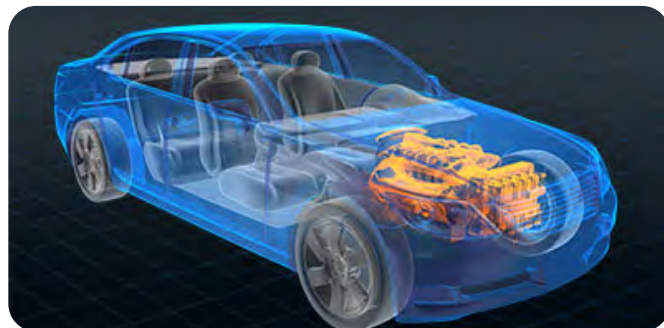
Battery Management Systems

The battery is considered as the strategic component of any electric vehicle. All electric vehicles (EVs) are equipped with a Battery Management System (BMS) that intelligently controls the battery charge and protects it from operations beyond the safe limits.



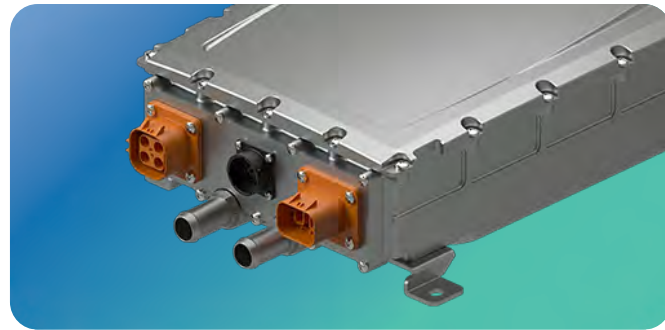
Power Inverter and Converter

The power inverter/converter unit within an electric vehicle converts the high voltage DC energy from the battery to a multiphase AC current that helps to drive the traction motor. The EV power management system also comes with a converter that does the reverse function at times of regenerative braking.



Vehicle Control Unit

Vehicle Control Units (VCU) are considered the powertrain management system within an electric vehicle. They help with various functionalities of a vehicle from torque coordination, to gearshift operations, voltage management, and charging control.



On-Board Charger

On-Board Chargers are an integral and built-in part of Electric Vehicles for interfacing with AC-based charging systems. The Alternating Current (AC) supplied by the charger passes through the cable to reach the OBC, which then converts it to DC to charge the EV battery under the supervision of the Battery Management System (BMS).



Cell Connection System

A Cell Connection System (CCS) is integrated into the top battery cover of the EV battery module to bring high-voltage connectivity as well as channel signals like temperature and pressure sensing information to the BMS.



EV Charging

With a wide portfolio of power products supporting 15A-1000A ratings, low contact resistance, high thermal support and component modularity, Amphenol offers the most efficient solutions for the modern EV charging station.

High Speed Connectors (Ethernet)



Vehicle Control Unit

Ve-NET™ Multigigabit Differential Connector System

Automotive-grade Ethernet solution developed according to USCAR-2 & LV214, along with miniaturized and various sealed/non-sealed configurations. Featured high data rates up to 50Gbps per port and highly compact and robust to fulfill automotive applications such as camera systems, ADAS, and Autonomous Driving. Supports Automotive Ethernet, LVDS, APIX 3 PCIe and FPD4.



Vehicle Control Unit

HSD (High Speed Data) Connector System

COMPLIANT WITH USCAR-2 SPECS HSD connector system is a fully shielded interconnect system that can be used with shielded twisted quad cables. It has a high performance digital system for low-voltage differential signals which prevents interference from crosstalk and external sources.



Vehicle Control Unit

NETBridge+™ Automotive Ethernet Connector System

USCAR-2 COMPLIANT AUTOMOTIVE ETHERNET CONNECTORS NETBridge+™ Automotive Ethernet Connector System is designed for automotive applications and can transmit up to 100Mb/s and 1Gb/s according to IEEE 100BASE-T1 and 1000BASE-T1 and will be upgraded to 10Gb/s.

Wire/Flex to Board



Battery Management System

Cell Connection System

FlexFast™ Flex to Board Connector Solution

Small size and low height flex to board connection solution. Compliant to USCAR2 and LV214 and designed for BMS, battery pack, Inverter+DCDC applications.



Battery Management System

On-Board Charger

Power Inverter and Converter

Cell Connection System

FlexLock™ FPC-to-Board Connectors

MORE FLEXIBLE SOLDERING AUTOMOTIVE GRADE CONNECTOR SYSTEM USCAR-T2V2 and LV-214 S3 compliant with 2A per contact current carrying capacity and available in 10 to 30 position.



Battery Management System

USCAR

Power Inverter and Converter

Cell Connection System

WireLock®

MORE RELIABILITY LOW MATING FORCE AUTOMOTIVE GRADE CONNECTOR SYSTEM WireLock® is a 1.80mm pitch wire-to-board and flex-to-wire connector system. Its compact design addresses the growing need for space-saving automotive-grade connectors.



Power Inverter and Converter

Vehicle Control Unit

Minitek MicroSpaceXS™ Waterproof 1.27mm Crimp-to-Wire Connector Platform

COMPACT, ROBUST AND VERSATILE CONNECTOR SYSTEM Minitek MicroSpace™ High Voltage selective loaded Crimp-to-Wire connector platform's unique design enables LV214 Severity-2 and performs at 3.81mm, 6.35mm, and 8.89mm pitch with 400V, 800V and 1200V.



On-Board Charger

Power Inverter and Converter

Vehicle Control Unit

Minitek® Pwr 4.2 High Current Connector

ROBUST, VERSATILE AND HIGH CURRENT PERFORMANCE Minitek® Pwr 4.2 High Current Connector (HCC) is designed for power applications with current rating up to 13A per contact and wire gauge range from 30 to 16AWG for Wire-to-Wire and Wire-to-Board applications.

FFC/FPC



Battery Management System Vehicle Control Unit

2.00mm FFC/FPC connectors with Autolock Mechanism

NON-ZIF FLEX CONNECTOR WITH AUTOLOCK
LV214 S1 qualified non-ZIF flex connector with an autolock mechanism and surface mount termination.



On-Board Charger Power Inverter and Converter Vehicle Control Unit

0.50mm and 1.00mm FFC/FPC ZIF Connectors

Right angle ZIF flex connectors with a front flip locking mechanism, surface mount termination, and double contact points. Features low profile height of 2.55mm.



Power Inverter and Converter Vehicle Control Unit

0.50mm FFC/FPC Connectors with Autolock Mechanism - F308/F332 Series

RIGHT ANGLE NON-ZIF FLEX AUTOLOCK CONNECTORS
F308/F332 series is a 0.50mm pitch right angle Non-ZIF flex connector with an auto lock mechanism and surface mount termination. It features a height of 2.45mm and comes in 6 to 68 contacts.

Board to Board



On-Board Charger Power Inverter and Converter Vehicle Control Unit

FloatCombo™ 0.50mm Floating Board-to-Board Connectors with Power Pin

HIGH SPEED HIGH CURRENT POWER PIN BOARD-TO-BOARD CONNECTORS
USCAR-2 T3V2 qualified 0.50mm pitch floating BTB connector featuring 4 independent power pins with 5A current per pin and high-speed transmission of up to 16Gb/s.



On-Board Charger

0.80mm Floating Board-to-Board Connectors - B406/B407/B410 Series

HIGH SPEED BOARD-TO-BOARD WITH FLOATING MECHANISM
Amphenol's B406/B407/B410 series are 0.80mm pitch floating board-to-board connectors which support stack heights up to 23mm and positions from 30 to 120.



Vehicle Control Unit

BergStak® 0.40mm Self-Alignment Board-to-Board Connector

USCAR-2 COMPLIANT CONNECTORS WITH SELF-ALIGNING FEATURE
FCI Basics BergStak® 0.40mm self-alignment connectors come with a stack height of 3.50mm and 30 positions extendable up to 10 to 60 positions with 10 positions incremental.

Battery Connectors



Vehicle Control Unit

ComboStak® and PowerStak® Board-to-Board Connectors

HYBRID AND MEDIUM POWER SOLUTION
ComboStak® and PowerStak® are compact, hybrid (signal and power) and power board-to-board connectors.



On-Board Charger eBike / eScooter

DuraEV™

PORTABLE AND FIXED BATTERY CHARGING AND DISCHARGING CONNECTORS
DuraEV™ is a standard connector solution offered with 2 power and 4/6 signal pins which employs a patented contact system that is capable of carrying a continuous current from 15A up to 70A with 10,000 mating cycles.

Power Connectors and Cable Assemblies



Power Inverter and Converter EV Charging

Barklip® BK200 I/O for EV Charging

DIRECT PLUGGABLE CLIP THAT CONNECTS TO BUSBARS IN EV CHARGING STATIONS
Amphenol's Barklip® BK200 I/O provides a convenient method of distributing up to 200A between busbars, cables and circuit boards. It features 14 fully independent cantilevered beams, providing a true compliant spring to adjust for variations in busbar alignment and surface finish.



EV Charging

PwrBlade® Connector

The PwrBlade® power distribution connector system from Amphenol includes power and signal contacts to provide power distribution and power control in a single connector.



EV Charging

Barklip® XP Connectors for EV Charging

HIGH POWER AND LOW RESISTANCE BUSBAR CONNECTOR FOR EV CHARGING STATIONS.
Amphenol's Barklip® XP connectors feature independent points of contacts that provide overall lower resistance and greater overall efficiency.



EV Charging

PwrBlade® Cable Assembly

The PwrBlade® cable connectors are designed to mate to PwrBlade® right-angle or vertical board-mounted headers. By expanding beyond board-to-board applications, designers can now connect power supplies and power distribution subassemblies in a wider range of applications.



Power Inverter and Converter

PwrBlade® Connector

NEXT GENERATION AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM
AC/DC power distribution connector with 58A/contact without exceeding a 30°C temperature rise in still air.



EV Charging

PwrBlade® Cable Connectors for EV Charging

PwrBlade® cable connectors offer flexibility to meet a wide variety of customer needs. The connectors come in both Cable-To-Cable and Cable-To-Board solutions.

e-Mobility

Amphenol provides a broad array of compact, robust, leading-edge interconnect solutions.



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