Amphenol
COMMUNICATIONS SOLUTIONS

Automotive Solutions

Amphenol has a successful history providing interconnect solutions that adhere to industry standards like USCAR and meeting LV214 severity levels.

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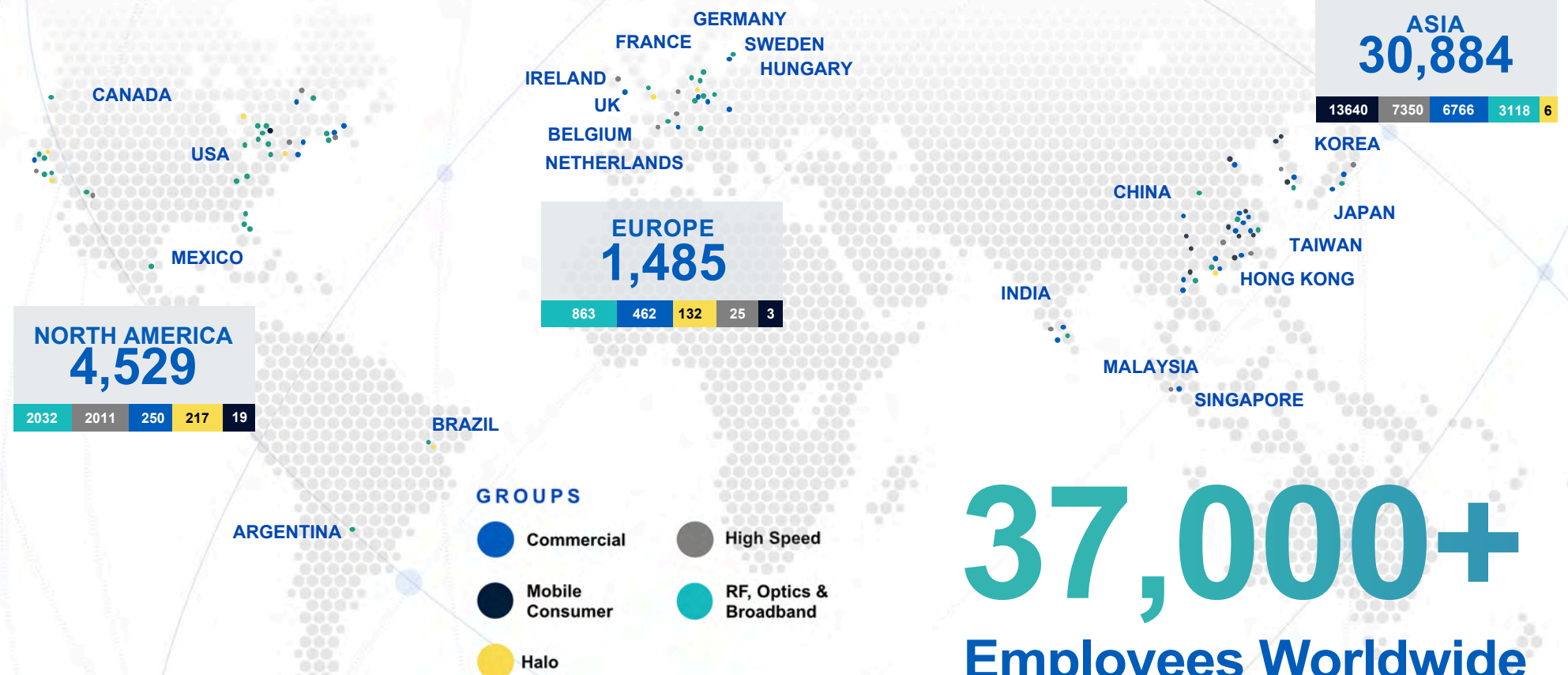
Amphenol Corporation is one of the world's largest designers and manufacturers of electrical, electronic and fiber optic connectors and interconnect systems, antennas, sensors and sensor-based products and coaxial and high-speed specialty cable.

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.

CANADA

USA

MEXICO

BRAZIL

ARGENTINA

GERMANY
FRANCE
SWEDEN
HUNGARY
IRELAND
UK
BELGIUM
NETHERLANDS

INDIA

CHINA
KOREA
JAPAN
TAIWAN
HONG KONG
MALAYSIA
SINGAPORE

NORTH AMERICA
4,529

2032	2011	250	217	19

EUROPE
1,485

863	462	132	25	3

ASIA
30,884

13640	7350	6766	3118	6

GROUPS

- ● Commercial
- ● High Speed
- ● Mobile Consumer
- ● RF, Optics & Broadband
- ● Halo

37,000+
Employees Worldwide

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.

Automotive Lighting

Modern automobiles are rich with ADAS features like smart LED lighting for adaptive headlights, and superior interior lighting. Amphenol provides a range of advanced USCAR2 compliant connectors like Microspace™, which are compact and meet LV214 standards.

Advanced Electronics Systems

Amphenol brings a broad array of innovative technology and solutions to support the growth in the automotive industry, particularly in plating, signal integrity performance, and power management.
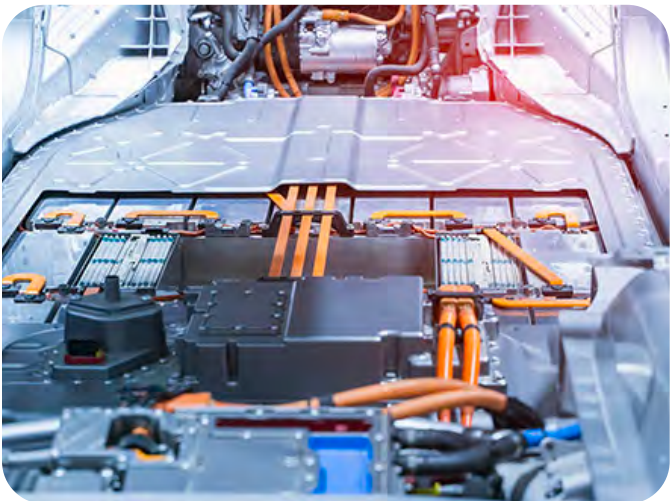
Battery Management Systems

The battery is considered as the strategic component of any electric vehicle. Amphenol offers a range of compact, flexible high performing automotive grade connectors for these power circuit designs.
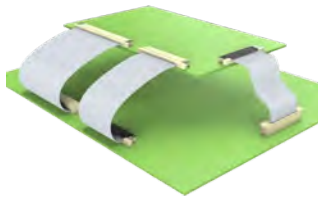
Ve-NET™

- Developed according to USCAR-2 & LV214
- Using shielded twisted pair cables to support MULTI-GIG high data transmission rate.
- Supports Automotive Ethernet, LVDS, APIX3, and FPD-Link IV

Mini HSbridge+ /HSbridge+

- Compliant with USCAR-30 USB and USCAR-2
- High data rate up to 10Gb/s, current rating up to 5 amps of power output
- Multiple volume and colour coding effectiveness complaint with automotive requirements

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.

HSC Connector System

USCAR-2 COMPLIANT COMPACT HIGH SPEED INTERCONNECT SYSTEM
HSC connector system is a fully shielded interconnect system that supports data rates up to 1Gb/s and more. With 0.50mm square terminals, it allows a lighter and smaller connector design.

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.

FloatCombo™ Floating Board-to-Board Connector System with Power Pin

- 0.50mm pitch connector with 4 independent power pins
- Supports 5A current per power pin and high-speed data rates up to 16Gb/s
- Various stacking heights from 8mm to 30mm with large floating allowance
- USCAR-2 T3V2 qualified

FFC Jumper

- Easy to operate
- Available in numerous circuit sizes (4 to 60)
- Both Type S (same-side) and Type O (opposite-side) available
- PET Insulation

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.

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

RIGHT ANGLE NON-ZIF FLEX AUTOLOCK CONNECTORS
USCAR-2 T3V2 qualified 0.50mm pitch right angle non-ZIF flex connector with an auto lock mechanism and surface mount termination.

USCAR

Automotive Grade PCI Express® Gen 5 Card Edge Connectors

PCIe® Gen 5 straddle mount connectors outperform the industry standards with higher speed along with complying to USCAR. The optimized series supports backwards mating and is footprint compatible with PCIe® 4/3/2/1

Automotive Grade PCIe® M.2 Gen 4 Card Edge Connectors

HIGH DENSITY HIGH PERFORMANCE CONNECTOR
Amphenol's PCIe® M.2 Gen 4 connectors provide 67 contacts on 0.50mm pitch and signal transmission speed of 16Gb/s. It is designed for PCIe® 4.0, USB 3.0/3.1 and SATA 3.0 applications, and USCAR compliant, making it suitable for automotive applications.

FlexFast™ Flex to Board Connector Solution

- Small size and low height flex to board connection solution.
- 0.45mm/0.75mm/0.9mm/1.5mm/1.8mm pitch. Pin counts from 12~100pin
- Automotive grade compliant to USCAR2 and LV214
- Designed for BMS, battery pack, Inverter+DCDC applications

BarKlip® XP Series

- Connectors Rated from 200A-1000A
- No housings to maximize power-density
- Mounts directly to PCB or busbar

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.

PwrBlade+® I/O

- Rated up to 50A per contact
- Power and signal contacts are highly configurable
- Wide wire size range available
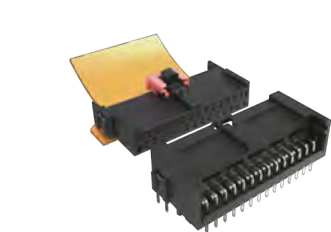
FlexLock™ 3.20mm / 2.54mm

- FPC system for easy assembly
- USCAR-T2V2, LV-214 S3 compliant.
- 2A per contact, TPA, CPA features.

WireLock® 1.80mm

- Robust, low mating force.
- USCAR-T2V2, LV-214 S3 compliant.
- 2A per contact, TPA, CPA features

Minitek MicroSpace™ High Voltage Selective Loaded 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.

EnergyKlip™ EK160

- Rated up to 160A per contact
- IP67 seal available
- Robust latching system

EnergyKlip™ EK350

- Rated up to 350A per contact
- IP67 seal
- Robust latching system

IPC-M50 Connector

- Rated up to 50A per 6AWG contact (UL rated currents up to 120A)
- Rated up to 10,000 mating cycles
- UL tested and approved when cross-mated with competitive connectors

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

COMPACT, ROBUST AND VERSATILE CONNECTOR SYSTEM
Minitek MicroSpaceXS™ Crimp-to-Wire connector platform's unique design meets LV214 Severity-3 and USCAR-T2V2 specifications.

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

COMPACT, ROBUST AND VERSATILE CONNECTOR SYSTEM
Minitek MicroSpaceXS™ Waterproof Crimpto-Wire connector platform's unique design is compatible to LV214 Severity-3 and USCAR-T2V2 specifications.

Minitek® Pwr Connector and Cable Assembly

- Wire-to-wire and wire-to-board solutions
- Current rating from 5A to 25A
- Available in pitch sizes of 3.00mm, 4.20mm, and 5.70mm

IPC-M350 Connector

- Rated up to 500A per 350MCM (185mm2) contact
- Rated up to 10,000 mating cycles
- UL tested and approved when cross-mated with competitive connectors

DuraEV™

- Provides continuous current of 70A and withstands 10,000 mating cycles
- IP67 rated portable and fixed battery connectors for charging and discharging electric vehicles
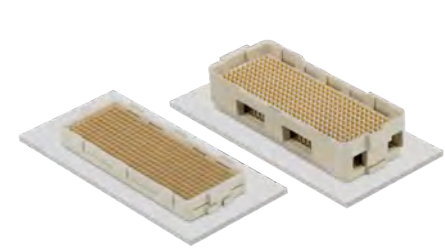- Robust and durable solution

DuraSWAP™ Swappable Battery Connectors

- IP67 rated swappable battery connector
- Provides continuous current of 100A and withstands 10,000 mating cycles
- Connector mates in four different orientations

AUTOMOTIVE

MEG-Array®

INDUSTRY-PROVEN BGA ARRAY CONNECTOR
The MEG-Array® Mezzanine Connector system provides the high density and high-speed benefits of a large array supported by the reliability and low costs of standard surface mount PCB assembly.
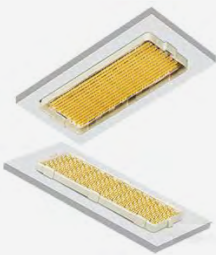
MEG-Array® R+

56GB/S HIGH SPEED MEZZANINE BGA CONNECTOR SYSTEM
Leveraging proven technologies, including an industry leading BGA design, offering superior self-aligning and self-leveling.

Lynx™

HIGH SPEED AND DOUBLE DENSITY LOW-PROFILE BOARD-TO-BOARD CONNECTOR
Amphenol's Lynx™ is a 4-row product offering doubling the density in a 2-row footprint that is suitable for a wide variety of applications in datacom, enterprise server, telecommunication,

TR Multicoax Connector

THE HIGHEST DENSITY, HIGH SPEED COAX CONNECTOR
TR Multicoax connectors deliver superior signal integrity from multiple high speed analog or digital channels. With a choice of 20GHz, 40GHz, 70GHz, and 90 GHz configurations, users can upgrade their connectors according to bandwidth requirements of their application

Chameleon®

ADAPT AND ADVANCE TO THE NEXT GENERATION
With performance speeds up to 25 Gbps+, Chameleon meets the demand for faster, smaller and more compact connector solutions. Chameleon delivers a new level of performance unlike any other platform connector on the market today.

InfinX®

OPTIMIZED FOR PERFORMANCE AND DIFFERENTAIL PAIR SIGNALING
The InfinX® high-speed mezzanine connector solution is designed to meet the needs of 25+Gb/s applications. Available in 4- and 6-Pair configurations, InfinX is your best choice for high speed board-to-board applications.

cStack™

CUSTOMIZABLE SOLDERLESS INTERPOSER-BASED ONE-PIECE STACKER
The Amphenol cStack™ high speed solderless interconnect solution provides limitless flexibility for board-to-board mezzanine applications and board-to-board stackable and coplanar applications.

AUTOMATE® Mini-FAKRA Connectors

The AUTOMATE® Mini-FAKRA connector series is a space-conscious, high-performance interface capable of supporting data transfer rates up to 20 Gbps. Ideal for compute modules, wire harnesses and camera applications. Custom sealed solutions available.

AUTOMATE® Mini-FAKRA Cable Assemblies

AUTOMATE® Mini-FAKRA cables assemblies are designed with a compact, modular housing and available in multi-port configurations for camera and other high-bandwidth automotive applications. High-performance up to 9 GHz with secure and easy mating and unmating.

FAKRA Connectors

Color-coded and mechanically keyed for easy installation and to prevent mismating, the FAKRA interface is available in IP67 and non-IP67 PCB and cable-mount configurations designed to perform up to 6 GHz. Commonly used in compute modules, wire harnesses and camera applications.

Smart Antenna Interconnect

Consolidates wireless functions into a single module that utilizes custom RF products to enable the mounting of these modules directly to external vehicle antennas. Ruggedized for use in automotive environments against mechanical and environmental stresses.

Camera Module Interconnect

Custom camera backs and high-float blindmateable internal interconnect connect high bandwidth camera modules used for ADAS, 360 surround view and safety applications. External connectivity options include FAKRA, Mini-FAKRA and pre-terminated cable with an overmolded strain relief.
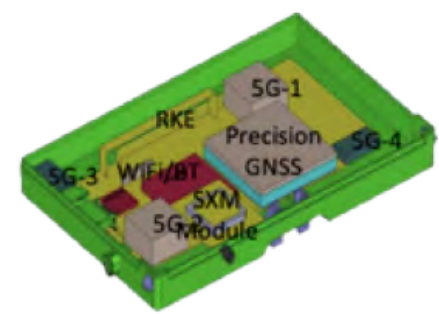
FAKRA to AMC/AMC4 Cable Assemblies

FAKRA to AMC and AMC4 assemblies combine the automotive industry-standard FAKRA connector with the ultraminiature AMC or AMC4 connectors on micro-coax cable. Ideal for tight spaces, these configurations are commonly used to connect cameras, antennas, sensors or other devices in the cab of a vehicle. Custom solutions are available.
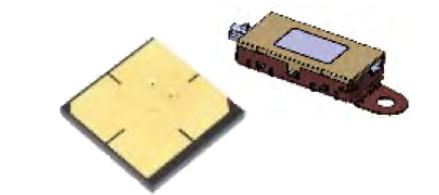
FAKRA to FAKRA Cable Assemblies

FAKRA to FAKRA assemblies are used to connect cameras, antennas, sensors and other devices to a vehicles ECU or compute modules. Standard configurations feature straight and right-angle FAKRA plugs and jacks terminated to RG-174 or RG-58 low loss cable. Custom FAKRA cable assemblies and harnesses are available in any configuration utilizing a wide array of automotive cable types.
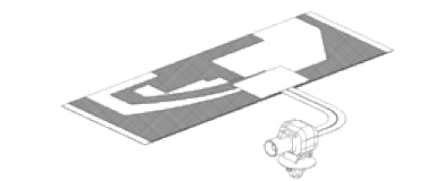
SAA Automotive Antennas

Smart Antenna Modules

- Receiver / Tuner next to Antenna
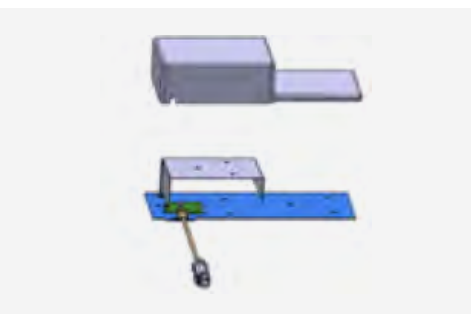- MIMO Antenna
- Digital communication HSD /
- Ethernet

Data Communication

- GSM to LTE / Future 5G
- Telematic Data

Autonomous Driving

- GPS / Glonass / Galileo
- Precision GNSS Recognition
- Car 2 X communication
- Traffic data broadcasting

Passive and Active Antenna components

- Amplifier LNA
- Swtiches / Gateways
- Multiplexer / Splitter

Comfort and Safety: Low Frequency – Short Range

- Bluetooth / WIFI
- Wireless Chargin
- Keyless Entry

Remote Controlled Functions

- Keyless Entry
- Remote HVAC Control
- Vehicle Pre Condition

Antenna Wiring Solutions

- FAKRA / Coax
- HSD
- Ethernet

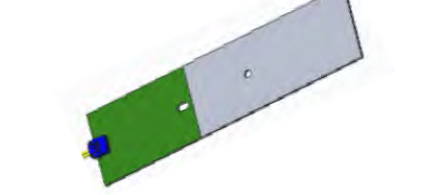## Broadcast / Infotainment

- Satellite Radio SDARS
- Television UHF/VHF
- Glass Antennas
- FM / AM Radio
- DAB Radio
- DTV

Hidden 5G

Transparent Antenna

V2X

LTE/WIFI

Spoiler Ant AM/FM/DAB

AM/FM LNA

AM/FM/DAB Printed on Glass
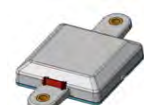
Battery coil

GPS

V2X Compensator

NFC/Reader

V2X Antenna
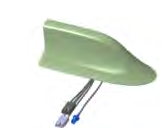
Sharkfin Antenna 5G, GNSS, V2X, WIFI

Battery Coil

BT/UWB Module

Battery coil

AUTOMOTIVE/EV

Amphenol
COMMUNICATIONS SOLUTIONS

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