



# Energy Storage System

From Residential to Commercial energy storage systems, Amphenol provides a wide variety of interconnect solutions for energy storage systems.

[amphenol-cs.com](http://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.**

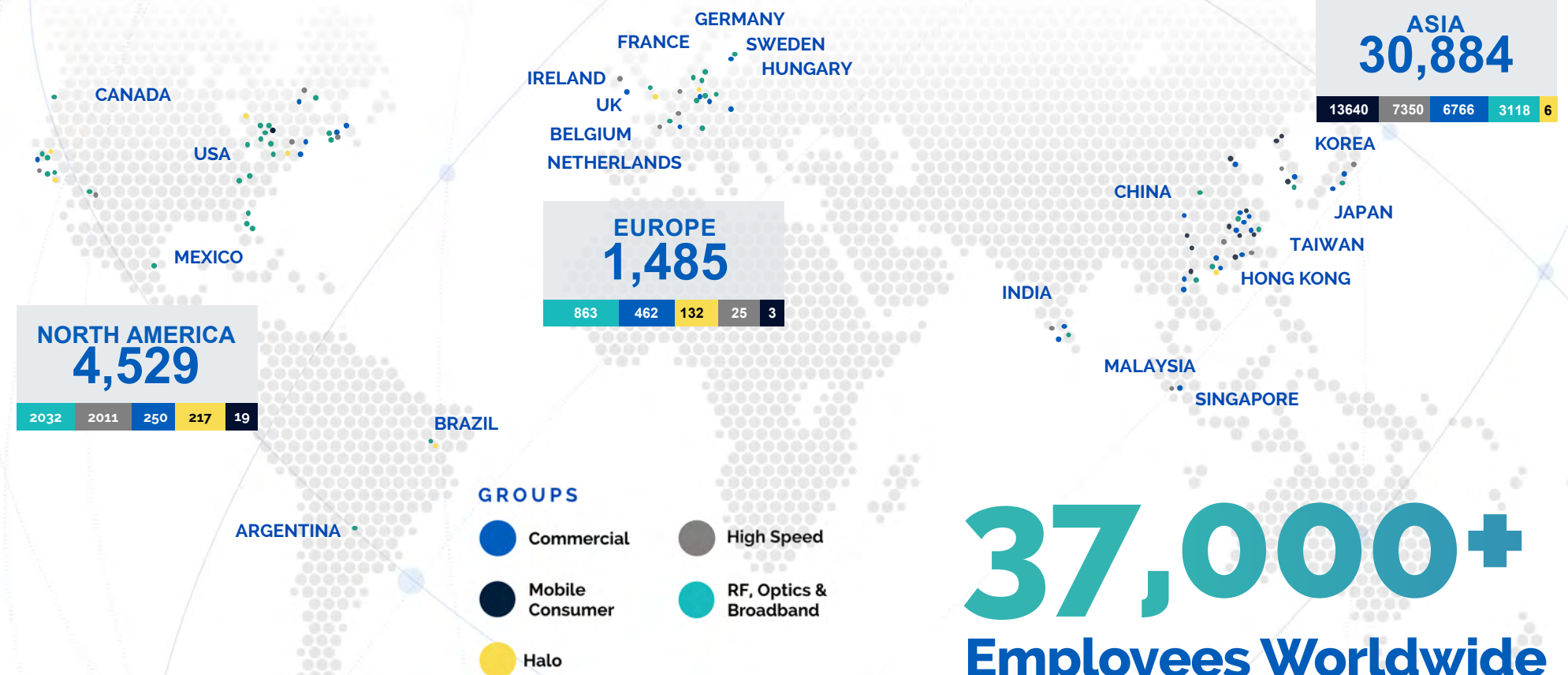
Amphenol Corporation is one of the world's largest designers and manufacturers of electrical, electronic and fiber optic connectors and interconnect systems, antennas, sensors and sensor-based products and coaxial and high-speed specialty cable.

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

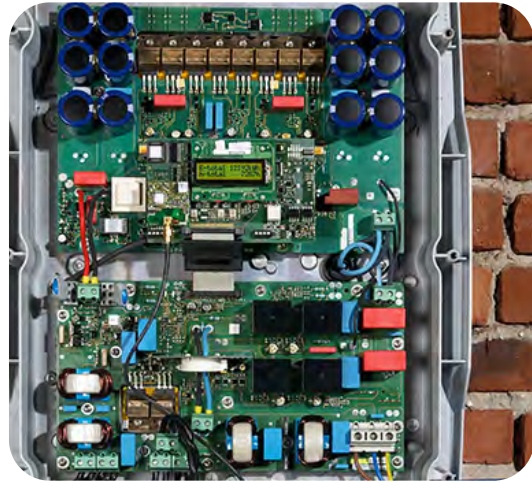
We place heavy emphasis on R&D for both new product and technology development, focusing on the advancement of the next generation of high-speed interconnects and power distribution solutions as well as innovative manufacturing solutions.

- 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



### AC-DC Inverters

The AC/DC Inverters or PCS (Power Conditioning Systems) work in conjunction with battery units for the smooth functioning of the Energy Storage System. Amphenol's enhanced power connectors and cable solutions are ideal for use in these systems.



### Battery Management System

Battery Storage, the key component of an Energy Storage System (ESS), is often equipped with a Battery Management System (BMS). From medium power wire-to-board connectors to board-to-board and card edge connectors, Amphenol has an extensive array of compact, reliable solutions that support BMS operation inside an ESS.



### Battery Storage System

Amphenol offers compact, flexible high performing connectors that support Battery Storage systems within an Energy Storage System (ESS.)



### ESS Controllers

An ESS Controller is used for efficient management of the battery modules in an Energy Storage System and manages charging, discharging of battery modules in addition to monitoring and controlling the environment temperature inside the ESS. It works alongside the BMS to collect and process data like voltage, current and fuse status. Through a CAN bus, these units maintain communication between battery racks and power conversion units of the ESS. Check out Amphenol's innovative connector solutions supporting ESS Controllers.



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

COMPACT, ROBUST AND VERSATILE AUTOMOTIVE-GRADE CONNECTOR SYSTEM  
1.27mm pitch connectors with a current rating up to 3A per contact making ideal for higher power applications.



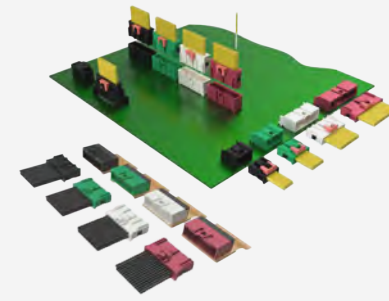
### FlexFast™ Flex-to-Board

MORE FLEXIBLE ASSEMBLY AUTOMOTIVE GRADE CONNECTOR SYSTEM  
FlexFast™ FPC-to-Board connector's compact design address the growing demand for automotive application market. The connector design is compliant to USCAR-T3V2 and LV-214 S1 specifications



### EnergyKlip™ Connectors

The EnergyKlip™ series enables flexibility in system designs while maximizing current density. EnergyKlip™ connectors are available in 160A, 250A, and 350A contact configurations. This connector family offers sealed IP67 protection along with a robust latching system, which empowers them to perform at high efficiency in harsh environments.



### 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 with a nominal current carrying capacity of 2A and supports cable wire gauges from 22AWG to 26AWG.



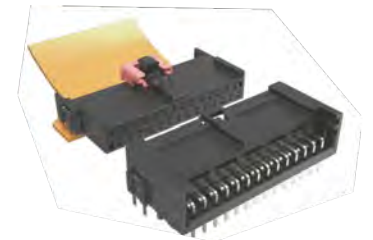
### Minitek® Pwr 5.7 Connector System

5.70MM COMPREHENSIVE SOLUTION WITH CURRENT RATING UP TO 23A  
Features scoop proof housing to prevent damage to terminals, and polarized mating geometry to prevent mis-mating.



### CoolPower® HD Connectors

CoolPower® HD is the newest and most powerful connector in the CoolPower® product line to-date. CoolPower® HD is rated for up to 350A per pin and can be modified due to its flexible housing form-factor. There are several latching options available to ensure a reliable, uninterrupted connection in both straight and 90-degree cable housing exit variations. CoolPower® HD is a versatile connector and can be used in various applications including energy storage systems, data centers, EV chargers, and more.



### FlexLock™ FPC-to-Board Connectors

MORE FLEXIBLE SOLDERING AUTOMOTIVE GRADE CONNECTOR SYSTEM  
FlexLock™ FPC-to-Board connectors come in a compact design and provide nominal current carrying capacity of 2A per contact to support higher power application.



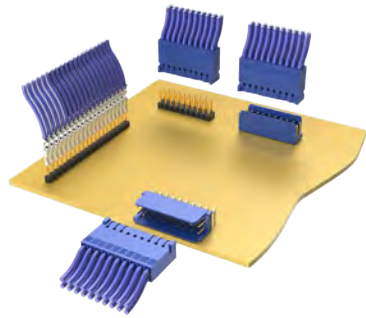
### FloatCombo™ 0.50mm Floating Board-to-Board Connectors with Power Pin

HIGH SPEED HIGH CURRENT POWER PIN BOARD-TO-BOARD CONNECTORS  
With 4 independent power pins supporting 5A current per pin in 0.50mm pitch, connectors are ideal for applications that need large current and space-saving. Provides a high-speed transmission performance of up to 16Gb/s.



### IPC Connectors

Amphenol's IPC connectors are the ideal solution for battery interconnects, forklift / EV charging, and other DC power distribution applications. The IPC family of products accommodates current ratings from 50A to 350A per contact. These connectors are designed for cable-to-cable applications and are available in multiple color-coded options with built-in keying features for proper mating. These rugged connectors are capable of 10,000 mating cycles.



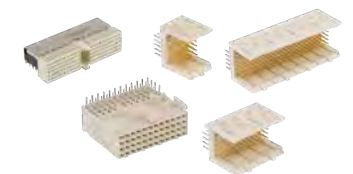
### Dubox® 2.54mm Crimp to Wire

The Dubox® connector families offer an extensive range of through-hole and surface-mount part options, including single or double-row in either straight or right angle orientation from 2 to 50 positions, with a current rating of 3A (maximum) per individual contact.



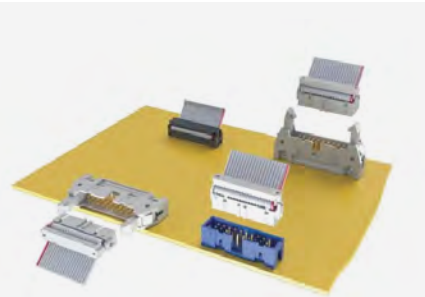
### PwrBlade® MiniMezz Connector Series

LOWEST PROFILE HYBRID MEZZANINE CONNECTORS  
Available in stack heights ranging from 8mm - 20mm with options for power & signal contacts. Modular tooling design to accommodate wide range of application requirements.



### Industrial Backplane Connectors

- 2.00 mm Millipacs® series hard metric connector, 2mm Metral® series future bus connector & 2.54mm DIN 41612 connector for robust applications in the Industrial segment
- Features 2-beam twisted tulip contact which provides an equalized signal path



### Quickie® IDC Cable-to-Board Connector System

PRECISE AND DURABLE IDC CONNECTION WITH DUPLEX PLATING AND DUAL POLARIZATION  
Dual polarization feature prevents connector mismatching. Duplex plating saves cost and guarantees 100+ mating cycle performance.



### BarKlip® BK500 IO

- Distributes up to 500A per contact
- Simple configurable plug-and-play solutions
- Fully compliant with ORv3 Power Output Specifications



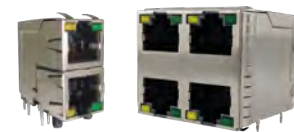
### Rugged USB 3.0

RUGGED USB CONNECTOR FOR HARSH ENVIRONMENT APPLICATION. Provides a great IP67 water/dust proof performance. Interface is sealed in both the mated and un-mated conditions.



### PwrBlade® Mini Cable-to-Board Connector

LOW PROFILE POWER & SIGNAL HYBRID CABLE CONNECTOR  
PwrBlade® Mini Cable-to-Board strengthens the PwrBlade® cable portfolio even further. Mini cable-to-board serves as an I/O cable configuration to meet the ever-increasing demand for higher current density in low profile applications.



### RJ / Modular Jacks

- Cat5, Cat5e, Cat6, Cat6A
- Single port, ganged, stacked multi-port, LEDs, shielded
- Vertical, right angle
- PoE++ capability
- Industrial, commercial, medical, consumer, military applications

### Energy Storage Systems



Find more products and resources on the Amphenol ESS webpage

Amphenol provides a range of high power connectors and many more advanced interconnects for ESS.



High Power Density with Small Footprint

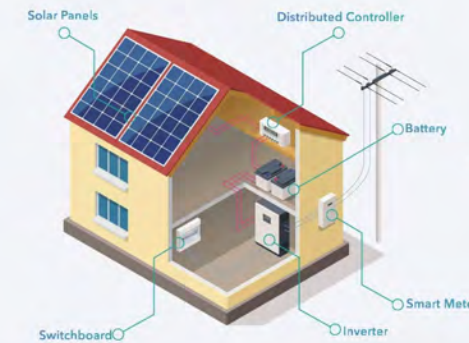


Hassle-free design for Field installation



High Reliability in rugged and harsh conditions

## Residential ESS



Minitek MicroSpaceXS™ 1.27mm Waterproof Wire to Board System



Minitek® 2.00mm Modular System



ComboStak® 0.80/2.00mm Hybrid Board to Board System



PwrBlade Mini

## Commercial ESS



BarKlip® BK200 I/O



CoolPower® Slim Drawer



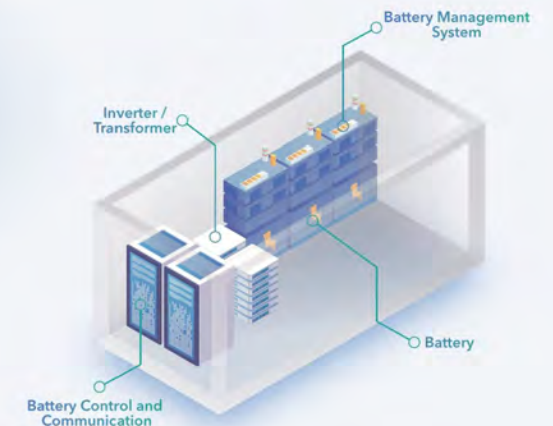
Floating Board-to-Board with Power Pin



PwrBlade+® Connector



ComboLock® 1.00/3.00mm Hybrid Wire to Board System



## EV charging



PwrBlade+® Connector



CoolPower® Slim Drawer



Minitek® 2.00mm - Wire-to-Board



PV® Wire-to-Board Connector System

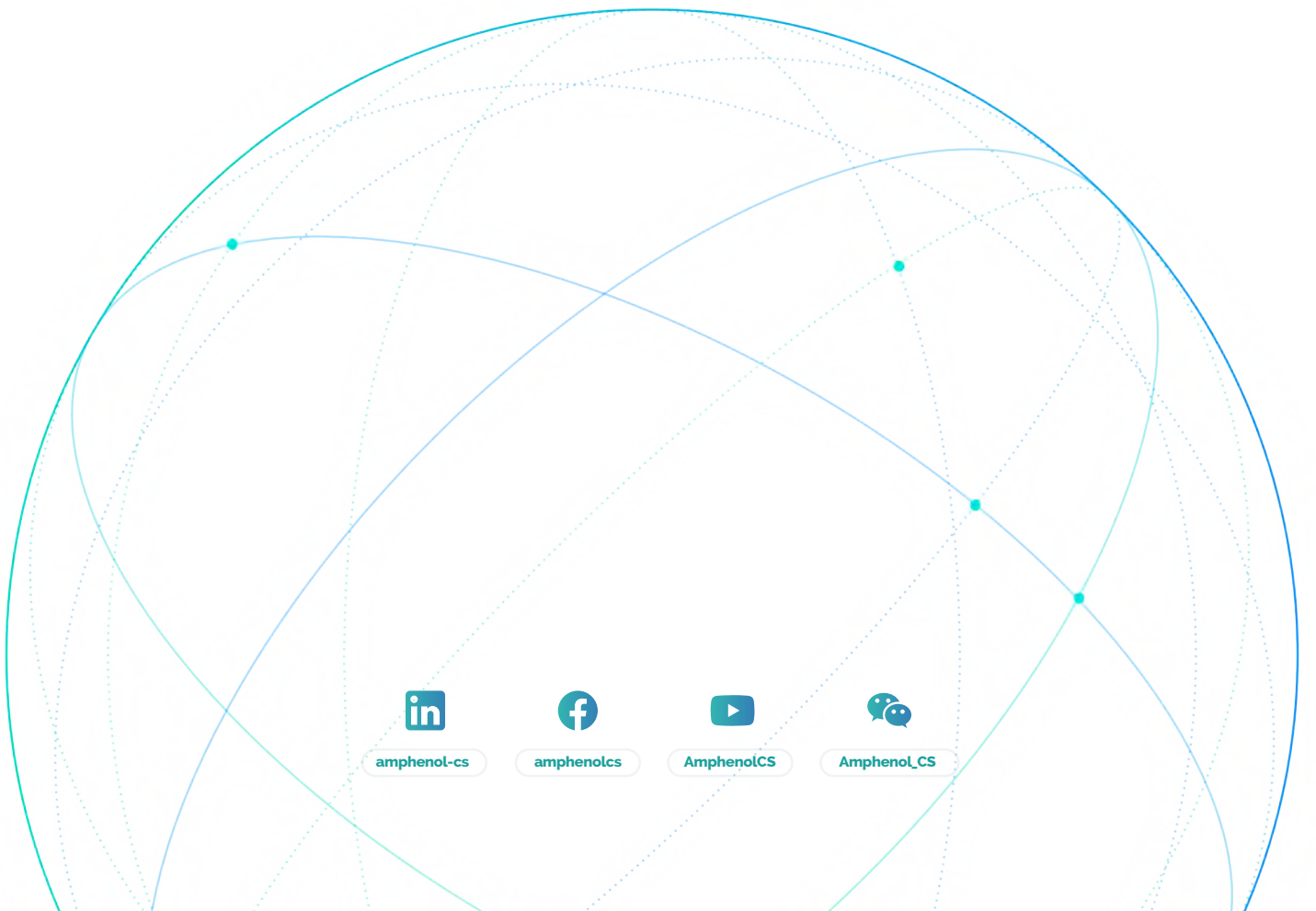


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# Amphenol

COMMUNICATIONS SOLUTIONS

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