

Amphenol Marine Market



<http://www.industrial-amphenol.com>



Marine Market

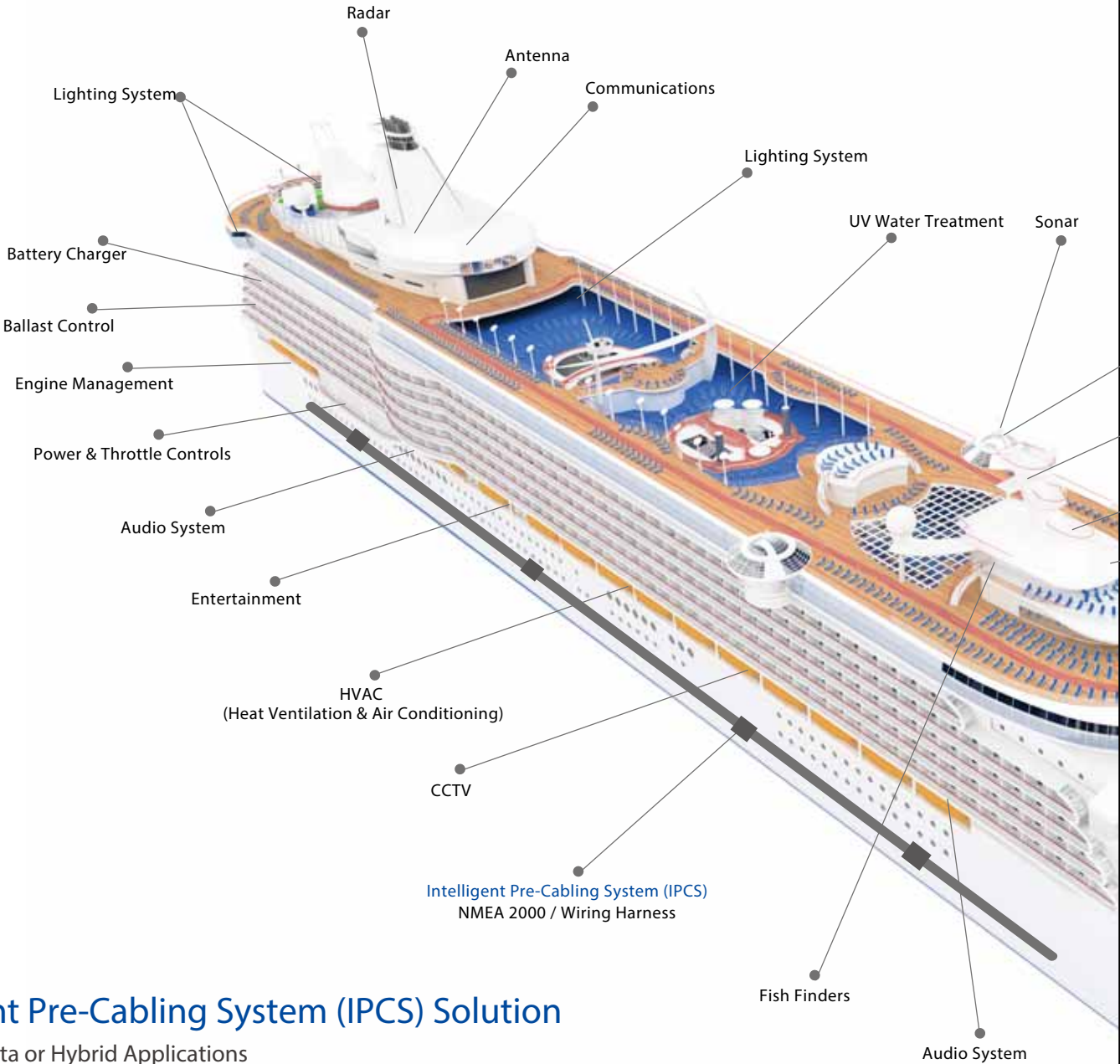
Amphenol Corp is the world's leader in interconnect solutions and your ideal choice for marine electronic and electrical equipment. From motors, engines, transducer, radar, echo-sounder, fish finder, deep sea vessels autopilot, chart plotter, VHF, Satellite Radio and communication devices, multimedia displays, security systems, sensors, electrical systems, entertainment system, HVAC to LED Lighting...you can always find suitable products and solutions.

Whether you build small boats, yachts, fishing boats, commercial ships, tankers, LNG ships, ferries, cruises...Amphenol LTW Intelligent Pre-Cabling System (IPCS) not only can solve your needs for electrical and electronic cabling system but most importantly helps you CUT and SAVE from 30% to 90% of your installation TIME and COST. Amphenol LTW's IPCS provides peace of mind so you

do no longer need to worry about quality of workmanship which is prone to fire and other hazards jeopardizing the safety and security of the boat. Most importantly, it enables flexibilities of connection and additions.

Amphenol LTW's IPCS helps your boat get lighter, more reliable and thus consume less gas whilst trimming down dramatically the number of cables and wires including other connecting components. IPCS is not wire harnesses. As such, not only you reduce and save dramatically raw cables and cable size but also on connecting components. As a result, you can focus on increasing the number of boats out of your shipyards, reduce dramatically the time to market and speeding up the down payment of your customers. Most importantly, your boats are more competitively priced with the greatest advantages in weight and gas consumption including quality and workmanship of the boats.

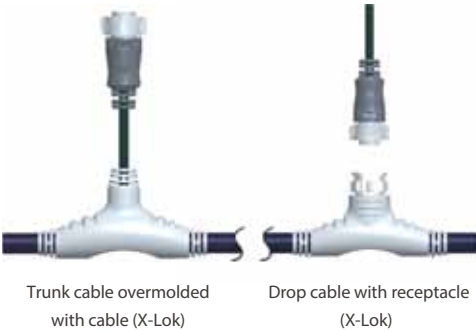
Market Overview



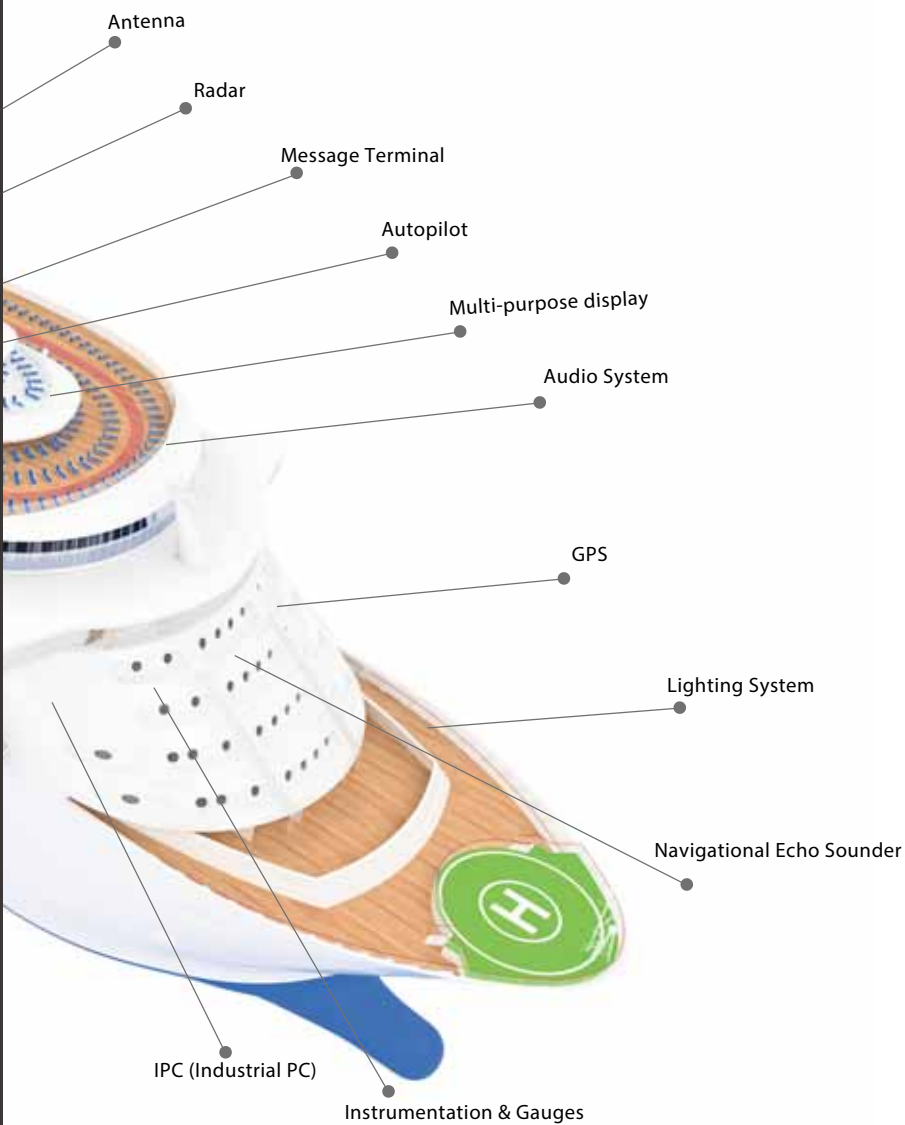
Intelligent Pre-Cabling System (IPCS) Solution

For Power, Data or Hybrid Applications

X-lok type



IPCS Benefits	
Eliminates Workmanship Quality Problems	Beneficial To Worker's Safety And Health
Huge Savings In Installation Time And Cost	Flexible For Power, Data And Hybrid Applications
Safe And Protected	Indoor Or Outdoor Applications
Configurable As Per Request	Suitable For Any Connectors, Cables, Conduits And Pipes, etc.



■ Ferry



■ Cargo



■ Luxury Yacht



■ Coast Guard



■ Fishing Vessel



■ Liquefied Natural Gas Tanker



■ Oil Tanker & Drilling Platform



Product Focus

↘ Circular

- Screw Threaded Type, Lock Bayonet Type, Push Lock
- Panel mounts, Molded With Cable & Field Installable available
- Hybrid Connectors—Power and Data
- Options from 2 to 31 contacts, 2A to 20A
- UV Resistant; Waterproof IP65~IP68
- Operating temperature : -40°C ~ +85°C
- Customizations are possible
- Various sizes, over 1000 items, plastic and metal



↘ NMEA 2000

- Available in Micro Style "M12" 5P Conn & Mini Style "7/8" 5P Conn for drop and trunk lines respectively
- Compatible with Industrial Bus Systems (Devicenet & Profibus)
- Compact and rugged design available in IP67/IP68 unmated waterproof to withstand harsh marine environments
- Panel mounts, Field Installable, Tee Adapters, Molded With Cable & Junction Boxes available
- Operating temperature: -20°C ~ 80°C
- Corrosion & Vibration Resistant
- Thin & Thick PVC Cables available (Sun, Oil Resistant & Flame rated)
- Various cable lengths to match installation requirements
- NMEA 2000® approved



↘ USB

- Screw Threaded or Lock Bayonet Type
- USB A, USB B and Mini USB
- IP67/IP68 unmated waterproof; UV Resistant
- Panel mounts, Molded With Cable available
- Operating temperature: -20°C ~ +80°C
- Easy & simple connection structure
- PnP – plug and play
- Master/Slave framework



↘ Cable Joiner

- Simple and reliable cable interconnections
- Meet various cable OD and wire sizes
- Safety locking outlined in UL6703A
- Quick installation: standard crimping butt terminals or screw terminal blocks
- IP67 waterproof



↘ M Series Sensor

- Available in M8 (2P~6P); M12 (3P~12 in A, B, D & X Codes); Mini 7/8" 5P
- Compact and rugged design available in IP67/IP68 unmated waterproof
- Receptacle, Field Installables & Molded With Cable available
- Meets industry standards (IEC, DeviceNet, EtherNet I/P, Profibus & ProfiNet)
- Operating temperature
Field installable: -40°C ~ 105°C
Receptacle: -40°C ~ 105°C
Overmolded with Cable
PVC Cable: -20°C~80°C
PU Cable: -20°C~85°C
- PVC, PUR Jackets available for cables (Sun, Oil Resistant & Flame rated)
- UL/CSA Approval
- Hybrid Available Upon Request



↘ RJ45

- Screw Threaded or Lock Bayonet Type
- Fast connectivity Networking in Harsh environments
- IP67/IP68 mated and unmated waterproof
- Panel mounts, Molded With Cable & Field Installable available
- Shielded & Unshielded versions
- IDC, RJ Jack in 180 & 90deg., Terminal Block and Cable terminated
- Meets industry standards (ODVA, ProfiNet)
- UV Resistant



↘ D-SUB

- Standard D-Sub (9P~50P), High Density D-Sub (15P~78P) and Mixed Options Available
- Panel mounts, Molded With Cable & Field Installable available
- Various Connection types such as hand solder, wire wrap, straight and angled PCB, with and without boardlock, and flat cables
- High Reliability for Harsh Environment
- IP67/IP68 waterproof
- Special Latches instead of thumb screws



↘ Pre-Cabling Solution

- 3 or 4 Contacts
- 300 V/AC, 5A Drop, 30A Trunk
- IP67 waterproof; UV Resistant
- Operating temperature: -40°C ~ +85°C
- Intertek approved to UL6703A & UL9703
- Uninterrupted cable - Lower power drop than conventional cabling systems
- Various configurations of pitch and T Connector Quantity
- Cable End-Cap and Cable Joiner available
- Ease of installation and service
- Customization is possible



Product Focus

Frontshell & Backshell for 38999 TV Bronze

- BACKSHELLS available for: Mechanical retention, Sealing
- EMI protection...
- FRONTSHELLS available for plugs and receptacle equipped with metallic chain, nylon cord, stainless steel rope ...



38999 TV Bronze

- Based on 38999-III standard requirements.
- Conform to the European Standard CECC 75.201.002
- 500H Salt spray exposure per EIA 364.26
- Operating temperature from -65°C to +200°C



1977 Connectors

The composite 1977 connectors are available in 5 contact configurations, from 50 contacts gage 20 to 5 contacts gage 8. Locking as well as keying and fixing on structure is allowed by the pin & socket polarizers. This product range is derived from the EN345/1900 product range for industrial applications.



Micro-USB

The Micro-USB interface was designed especially for harsh environment communication systems. This new product development combines the benefits of a rugged and IP68 sealed connector with the recognized technology of Micro-USB.

- Conformance to High Speed USB 2.0 specification
- Intermateable with CPTS Micro-USB connectors and cable assemblies
- 2000 mating cycles
- 5 different keying options
- Miniature footprint <16mm Ø
- Temperature range -55°C to +85°C
- 1000hrs salt spray
- Vibration 10g sine, 30hrs, 5KHz



USB-A Plastic Receptacle With Integrated Self Closing Cap USB Neoprene Plug

USB-A Field neoprene and plastic solutions are used for harsh environments. The receptacle includes a automatic cap that protects it from dust and fluids when neither the plug nor the USB Memory key are mated.

- Sealing level: IP67 when mated with plug or rugged USB Memory key, IP54 when receptacle with SCC alone
- Push pull mating



RJF TV & USBF TV Series In Bronze Marine

RJFTV and USBFTV products are also available with Bronze marine shells to meet the requirements of the marine applications in term of high corrosion resistance and robustness.

- Bronze marine shell, MIL-DTL-38999 series III type
- IP68
- Salt spray > 500h



Monoblock Cable Clamps

The monoblock cable clamps for industrial applications allow the perfect fixing of electrical cable harnesses on a structure. These cable clamps are fully designed in composite with silicon overmolding, providing a perfect protection to the wires from shocks and vibrations. They are available in 8 sizes, to cover the whole diameters from 3 to 48 mm. They are fixed on structure by a screw and are closed by a simple cable tie.



Composite EN4165 / SIM Splice

These modular composite splice provide reliable and simple connection between two EN4165/SIM modules. They are available with or without cable clamp, with or without flange, to be fixed on/under a structure or Feedthru. They can be fitted with RMT EN4165/SIM modules (blue silicone elastomer), from 4 contacts gage 12 to 12 contacts gage 20 (contacts as per MIL-C-39029 or EN3155 spec.). This product range is NFF 61-030 approved for the RMT market and features an IP 66 Ingress protection rating.



Raceways

Designed to secure and guide wire bundles and cable harnesses, Raceways were designed with durability and convenience in mind. Built in a one-piece, lightweight design with multiple fixing points, our Raceways are strong, durable and make wire bundle installation and maintenance easy.



AT Series™ Plugs, Receptacles & Wedgelocks

AT Series™ connectors are a high-performance, cost-effective solution able to be used in a variety of interconnect applications: Heavy Duty, Transportation, Marine, Diagnostic, Military, Alternative Energy and Agricultural. They contain superior environmental seals, seal retention capabilities and feature RockSolid™ Contact technology.

- 2, 3, 4, 6, 8 and 12 positions available



AT Series™ Plugs, Receptacles & Wedgelocks

ATP Series™ connectors are designed as a high-performance, cost-effective, thermoplastic solution to be used within the Marine, Heavy Equipment, Agricultural, Automotive, Alternative Energy fields, as well as other demanding interconnect applications. Available in 2 and 4 position options, the ATP Series™ Connectors contain superior environmental seals, seal retention capabilities and are designed for use with 10-14AWG with size 12 contacts handling up



USB Key Neoprene

This hardened neoprene USB key is designed to be resistant to harsh environments. USB keys are useful tools for downloading data from measuring equipment or automation systems.

- Sealing level: IP67 when mated with a receptacle or with neoprene protective cap



* Design and specifications are subject to change without notice.

Product Focus

➤ Luminus Series

The Luminus Series are lightweight, cost-effective connectors that are highly reliable and simple to use. With multiple product options to choose from, they accept Stamped & Formed contacts or AS39029 contacts, and are environmentally-sealed to IP68. Ideal for where space is limited, these innovative connectors feature a locking mechanism that ensures stability, and are suitable for blind-mating.

- Quick, simple connection: makes wire installation and maintenance easy and efficient
- Interfacial and Triple-Barrier seal: enables environmental sealing (IP68 rating)



➤ Cable Separator

Cable Separator is designed to guide and manage power cables throughout the length of a vehicle. They feature a six degree angled groove within the part to help improve the efficiency of the cable routing. It is lightweight & easy to install



➤ Standoffs

Designed to help guide and manage wire bundles and cable harnesses. The high performance Standoffs were designed with strength and stability in mind. Our Standoffs are made with PEEK a very strong, non-conductive & non-corrosive, lightweight material - designed to replace aluminum and other metals. They come with a locking feature for security and are designed with ribs to provide additional strength. They're compatible with a wide range of P-Clamp & Omega Clamp sizes and are compatible with Raceways as well.



➤ RJ FIELD RJF RB & RJF544 Series

RJ Field allows you to use an Ethernet Class D/Cat5e connection for 10 BaseT, 100BaseTX or 1000 BaseT networks in harsh environments. With the patented RJ Stop system, you can use a standard RJ45 cordset in a protective composite plug which protect it from shocks, dust and fluids. No hazardous on-field cabling and grounding

- Composite shell
- IP68
- Salt spray > 1000h
- Reverse bayonet (RJFRB) and Push pull (RJF544) coupling



➤ APeX Galley Connector, Rectangular

Intermateable and interchangeable with other ARINC 810 galley connectors, APeX Galley Connector, Rectangular is a robust connector that uses overmold technology to set it apart from the rest. It also features a guide pin for quick and simple blind mating.



➤ In-line Junction 1119 Series

These in-line junctions are based on the 1777 Quick junction modules technology. They are available in 1 to 3 contacts for copper cable contacts. Compact, thin and easy to use, they are perfectly suited in a cable harness to simply and quickly repair a damaged wire.



* Design and specifications are subject to change without notice.

➤ Circular Galley

Designed specifically for galley systems, it was tested to MIL-STD-1344 connector and EN 2591 contact standards. Highly reliable and easy to use, it is also interchangeable and intermateable with other pre-existing equipment in the field.

- Versatility: Crimp termination connection system with 3, Power (10 AWG) & 3 Control (16 AWG)
- Blind-Mate Connection: designed with a key feature to enable quick and simple mating
- Many Choices: configurable to PCB contacts; plating options available



➤ 1777 Modules

Quick junction modules for signal and low current distribution purpose, where sealing, space and weight-saving are prime requirements. These track-mounted modules (on metallic or composite track) are available from 8 contacts size 12 up to 18 contacts size 20 in different contact configurations. 1777 series also offers hybrid PCB solder modules. Can also be mounted on DIN rail with an



➤ MIL-T-81714 Series I and II Splices

Single and Dual Splices are designed to provide a quick and efficient solution to customer wiring requirements. Series I meet MIL-T-81714/11, /12, and /24 standards and Series II meet MIL-T-81714/65. Both series are highly resistant to temperature and fluids. They are available in



12-22 AWG
Also available are the TJSE electronic splices – which can be supplied with a wide variety of diodes, resistors, capacitors, and fuses. New products include inline diode splices (M81714/21) and inline fuse splices (M81714/23).

➤ Omega Clamp & P-Clamp

Engineered with strength and stability in mind, the high performance P-Clamps and Omega Clamps were developed to replace and outperform traditional P-Clamps and Saddle Clamps. Featuring an overmold silicone cushion with PEEK polymer, our clamps are completely non-conductive & non-corrosive, lightweight, and very durable.

- Lock open & closed feature increases ease of installation
- Compatible with tubes up to 2" in diameter



➤ SIM / EN4165 – Bronze Material

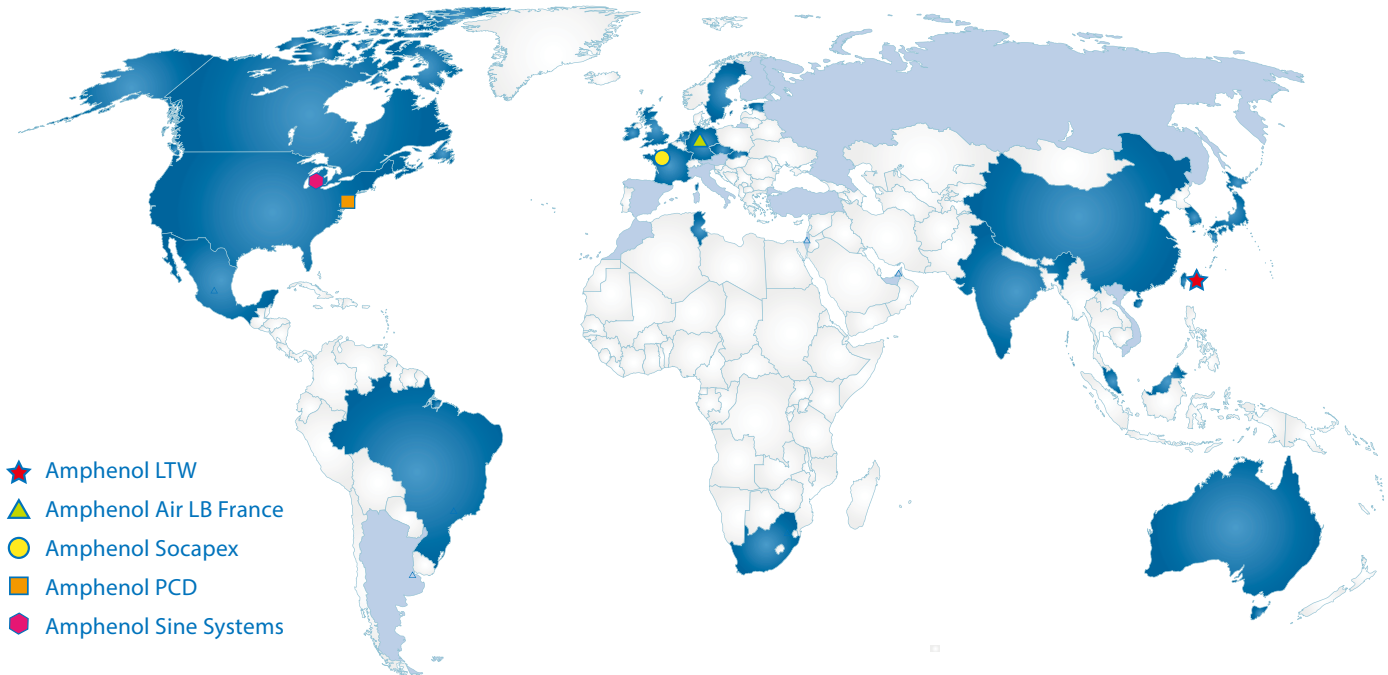
EN4165/SIM connectors are modular, multi-contact (as per MIL-C-39029 or EN3155 spec. from gage 8 to 23, RJ45, optical termini, PCB contacts ...), and multi-functional rectangular connectors. Now available in Bronze material for Marine applications, qualified according the EN4165 spec., they feature clicker nut or rack & panel plug with standard and flange-mount receptacle that can be assembled side by side on a panel providing unparalleled contact density. Many keying positions are also available.



Amphenol

Since 1932 Amphenol has been the interconnect technology provider of choice to industry leading companies throughout the world. With a broad and diverse product portfolio, Amphenol is able to develop the right solutions for our customers across the diverse segments of the rapidly expanding electronics market.

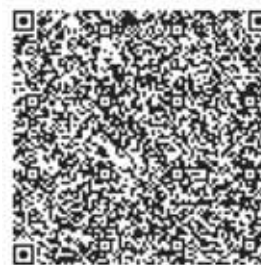
With dedicated employees working at 85 facilities in more than 30 countries, Amphenol has the unique advantage of having both diversified global reach while still being a focused organization. Our focus comes from entrepreneurial management team dedicated to specific markets and regions.



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