



ITT

Interconnect Solutions
Cannon, Veam, BIW

Audio, Entertainment, and Lighting



Engineered for life

Cannon, VEAM, BIW

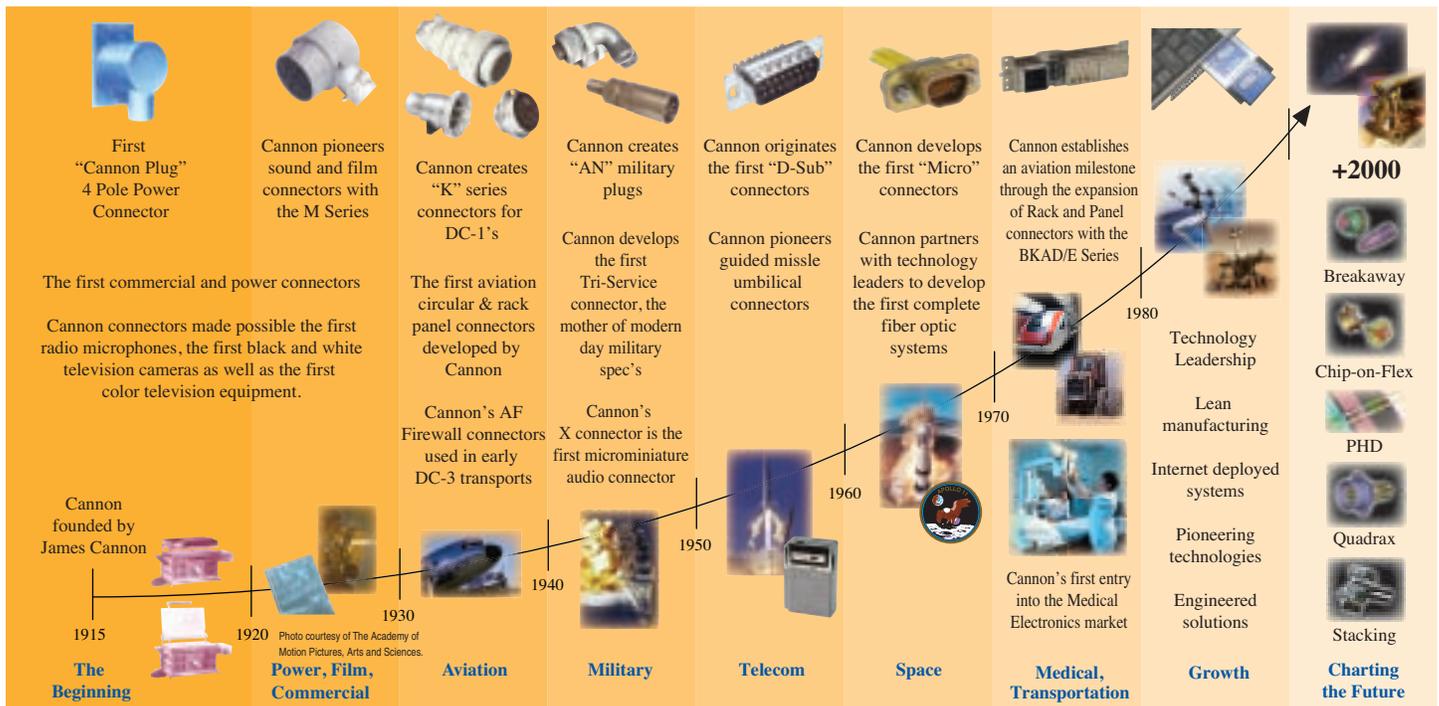
A Historical Achievement of Technology Leadership

Defining and Championing Innovation

Showcasing a portfolio of creativity, ITT's "Engineered For Life" execution embraces products which have become ubiquitous in a broad collection of markets including: Military/Aerospace, Civil Aircraft, Industrial Instrumentation, Medical, Oil & Gas, Energy, Transportation, Telecom/Handset, Computer, Consumer, and Automotive.

ITT's rich interconnect history embraces contributions to both technological breakthroughs and social movements. With one of the industry's broadest product offerings, ITT's interconnect products have supported:

- Every Free World space mission, bringing the universe to our doorstep.
- Motion picture, radio, and television equipment, serving laughter and entertainment to millions.
- Commercial and military communications systems, linking the voices of the world.
- Computerized tools, reshaping the information highway.
- Aircraft, rapid transit, and automobiles, mobilizing our expanding society.
- Oil and natural gas production, powering the world's economies.
- Agricultural equipment, attacking the roots of world hunger.



ITT Interconnect Solutions

ITT Interconnect Solutions is a division of the multi-national ITT Corporation, a \$11.6 billion dollar global enterprise representing the brands Cannon, VEAM, and BIW. Our connector portfolio remains the most extensive in the industry offering the most reliable and cost effective range of interconnect solutions. These innovations have enabled ITT to provide products and technologies to such markets as:

- Automotive
- Computer/Consumer
- Industrial/Instrumentation
- Military/Aerospace
- Oil Fields
- Telecom/Handset
- Transportation

When you specify a Cannon, VEAM or BIW connector, you can rely on a product designed, developed, and manufactured to the highest quality and reliability standards. This tradition of excellence is based on ITT's corporate culture of operating its businesses under the principles of Six Sigma. At ITT, Six Sigma is not just a quality philosophy but a complete corporate culture that drives the entire business. Our Value Based Management and Value Based Product Development systems are two cornerstones that allow for the development of both leadership and product engineering principles, ensuring the correct industry leading products are developed to the accepted market driven lead times. These principles have allowed ITT to become the market leader in all of our business portfolios.

Six Sigma Manufacturing

ITT operates manufacturing facilities in the United States, Germany, Italy, Mexico, China, Japan and the UK, all of which have particular product area strengths allowing ITT to offer a truly global footprint to our customers. Our facilities are world class and accommodate full vertical integration utilizing the latest manufacturing technologies including: automated and robotic machining centers, Super Market manufacturing cells, Kanban pull systems, and automated electrical, mechanical, and optical test and inspection equipment. The combination of our manufacturing strength and our

advanced manufacturing facilities allows ITT to offer products at market driven prices. Our capabilities, especially in robotics, computerized precision tooling, Kaizen Project Management, Six Sigma tools, and testing, give ITT the most optimized global manufacturing footprint in the interconnect industry.

The Custom Difference

As the industry leader in harsh environment interconnect applications, ITT's world class engineering teams will work directly with our customers to design and develop cost effective solutions for their applications. In many cases we may modify one of our standard designs to ensure a highly reliable solution where timing is critical. Yet, in those cases where a complete custom interconnect solution is required, ITT will work with our customer's Engineers to design an interconnect solution which will be cost effective yet highly reliable. As professional consultants, our Engineering teams will provide a thorough systems and mechanical analysis of any proposed solution. These analyses provide our customers with sophisticated electrical signal and mechanical characterizations to determine the best solution for their application.

RoHS Compliance Information

ITT has implemented a strict parts control plan for all ITT electronics plants worldwide that allows the Cannon, VEAM, and BIW connector product portfolios to meet the requirements of European Union Directive 2002/95/EC better known as the Reduction of Hazardous Substances initiative. As appropriate, specific Cannon, VEAM, and BIW products may be ordered with an R prefix number which insures our customers will receive RoHS compliant parts for their commercial electronics applications and equipment. Since most RoHS hazardous substances center around specific metal plating and lead solder coatings, ITT's products for RoHS compliance are available in the following plating finishes: electroless nickel, stainless steel, Anodize over aluminum and Gold plating. It should be noted that gold plating would be recommended as the replacement for tin-lead solder when ordering board mount connectors.

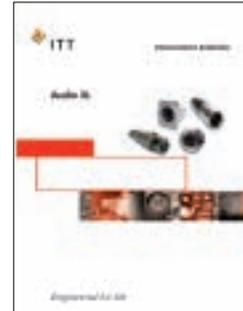


In today's demanding entertainment markets, customers face many product choices. Why choose ITT ICS?

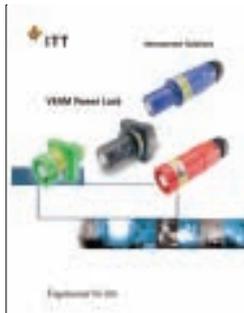


Cannon pioneered the first Audio connectors during the early 1920's, the birth of the entertainment industry. Continuing our innovation in these markets, Cannon has moved beyond these early products into today's digital entertainment age. Advances in our portfolio have fostered expansions into lighting, power, and signal processing interconnects. Our products range from low cost solutions, engineered for less demanding applications to higher-end products, designed for extra durability, ruggedness, and increased power requirements. When

choosing ITT Interconnect Solutions, rest assured you are partnered with the industry's longest participant in interconnect products.



First introduced by Cannon in 1958, the overwhelming industry acceptance of our XLR connectors culminated in their recent induction into the TECnology Hall of Fame by the Mix Foundation for Excellence in Audio, further symbolizing our instrumental participation in the advancement of audio technology. This recognition substantiates Cannon's XLR as the industries leading audio connector.



In addition to the XLR, global audio and video professionals specify our Mini-XL (40% smaller than XLR), XLB-PCB, and XLM-PCB connectors. These connectors display such high reliability that they are also preferred by such industries as military, medical, test/instrumentation, transportation, and industrial.

Continuing with our entertainment product portfolio, many OEM and field installation experts select the Veam Powerlock connectors for their versatility in power distribution systems and reliability under the most severe operating conditions. These keyed single pole color coded locking connectors prove uniquely capable in managing high currents and provide IP67 sealing coupled with safe handling upon installation. Typical Powerlock applications include three phase motors, generators, load banks, and lighting distribution centers. The Veam Powerlock series is a favorite among carnivals, outdoor broadcast/concert events, theatres, and construction.



To meet the interconnect demands of the entertainment lighting industry, Veam introduced the VSC series. Available in 7 pin and 19 pin configurations, this threaded coupling multi-pin cylindrical connector provides extreme durability, IP67 sealing, first mate-last break grounding, and Socapex compatibility. Applications include break-in/break-out cables, dimmers, distribution/ junction/ outlet boxes, splitters, cable extensions, and motor drives for hoists (7 pin). Studios, touring groups, theatres, and broadcast/concert event coordinators consider the VSC a clear choice due to its ruggedness and quality.

Moving back to our original question, which company's entertainment products have invented the standard since audience's marveled at the first "talking" motion pictures? Entertainment professionals know the answer. ITT ICS Cannon & Veam continue to own center stage with audio, lighting, and power products that have served laughter and entertainment to millions.

VEAM GRH

The GRH is a quarter turn coupling 5 pin cylindrical power connector for 100 amps continuous service. This is an extremely rugged connector with a compact size in comparison to competitive offerings. Set screw contact termination affords ease of wire installation.



Product Features...

- Finger protected contacts guarantee operator safety
- Rubber covered coupling nut for superior grip and durability
- Machined aluminum shells with black hard anodize finish
- High shock and vibration resistance

Applications...

- Power Distribution Boxes
- Portable Power Generation Systems



VEAM CIR_FR

Used for HMI lighting applications, these rugged connectors with hard black anodized finish are available with extended coupling nuts for better gripping. These connectors use metal or composite backshells. Various types of strain relief options are available.

Product Features...

- Quick-Disconnect, Postive Lock
- UL Recognized

Applications...

- HMI Lights
- Studio Controls



VEAM VSC

VSC is a threaded coupling 19 pin cylindrical series of connectors for lighting applications. These connectors use the VEAM superior quality and design concept to provide a very rugged version of the Socapex™, SL-419 connector family. A 7 pin version VSC is now available.



Product Features...

- Meets IP67 in a mated condition
- UL Recognized
- Machined aluminum shells with black hard anodize finish

Applications...

- Break-out & Break-in Cables
- Dimmers
- Junction Boxes



Cannon XLR

First introduced in 1958, ITT's broad range of XLR connectors are extensively used in a wide variety of audio OEM applications. Available in configurations of 2 and 7 positions, our plugs and receptacles offer precision, machined contacts, shock-absorbing rubber insulators, and lightweight aluminum shells. RoHS Compliant.



Product Features...

- Rugged design to withstand extreme field use
- Resilient socket insulator which minimizes vibration and electric noise
- Quick disconnect latch lock
- Low reflectivity satin finish
- Multiple plating options available
- Intermatable with XLM and XLB series



Applications...

- Broadcasting/Entertainment Equipment
- Medical and Industrial Control Devices

Cannon Mini-XL

The Mini-XL audio connector is 40% smaller than traditional XLR connectors. The 3 to 6 position plugs and receptacles feature precision machined contacts and accommodate both cable and panel mount applications. This quick one touch connect/disconnect circular connector is designed to withstand extreme field use. RoHS Compliant.

Product Features...

- Rugged design to withstand extreme field use
- Resilient socket insulator which minimizes vibration and electric noise
- Quick disconnect latch lock
- Low reflectivity satin finish
- Rear cap available in plastic or metal
- High density solution
- Gold plated contacts standard



Applications...

- Broadcast/Entertainment Equipment
- Medical and Industrial Control Devices



Cannon XLM-PCB



The XLM male and female PCB metal flange mount receptacles offer durability, reliability, space savings, and greatly improved EMI shielding over our plastic XLB-PCB connectors. Ease of installation is enhanced since the grounding terminal can be used to temporarily fasten the connector to the circuit board during assembly. The XLM-PCB connectors are interchangeable and intermateable with our XLR series. RoHS Compliant.



Product Features...

- One piece metal shell and barrel
- Nylon insulator
- Improved EMI shielding
- Space saving smaller shell
- Snap in PCB retention feature
- Separate ground contact
- Quick disconnect latch lock

Applications...

- Broadcasting/Entertainment Equipment
- Medical and Industrial Control Devices

Cannon XLB-PCB

The XLB male and female PCB flange mount receptacles are a plastic low cost alternative to our metal XLM-PCB connectors. They are ideal for applications where EMI protection and precise mechanical stability are not essential. The XLB-PCB connectors are interchangeable and intermateable with our XLR series. RoHS compliant.



Product Features...

- Lightweight design.
- Separate ground contact
- Nylon insulator
- Quick disconnect latch lock



Applications...

- Broadcast/Entertainment Equipment
- Medical and Industrial Control Devices

Cabling Capabilities

What's unique about ITT's cable assembly capabilities is that we have the flexibility to meet demanding schedules and design requirements. From concept to prototyping, engineering to manufacturing, you may rely upon the innovative capabilities of Interconnect Solutions.

Product Features...

- Customized solutions.
- Harness design and/or design consultation.



Applications...

- Broadcast/Entertainment Equipment
- Medical and Industrial Control Devices
- Industrial
- Mobile Generators
- Lighting Distribution Panels



VEAM PowerLock

The Veam Powerlock Series, VDE approved, single pole connectors are designed for use in applications up to 660 amps with copper and aluminium cables up to 300mm². The contacts are finger touch protected with locking and keying for safety. Color coding to suit USA, European, Australian and UK 3 Phase standards is available.



Product features...

- VDE approved
- Color and mechanical coded
- 660 amp continuous power handling
- IP67 sealing
- Finger protected
- Crimp and Set-Screw (400 amp max) contacts

Applications...

- Lighting Distribution Panels
- Outdoor Events
- Mobile Generators
- Theme Park Rides

VEAM NRG & PowerLock Box

The patented Powerlock mating system guarantees a correct and safe sequence of mating and unmating of the Powerlock Source and Drain cable connectors. The patented cam operated covers on each port of the NRG Box ensure the correct sequence of Ground, Neutral, Phase1, Phase 2, and Phase 3.



Product Features....

- Color and mechanical coding
- Electrical safety connector switch for remote control and mechanical safety plug prevents unauthorized unmating under load
- Safe power distribution up to 660 Amps
- Suitable for 19" rack mounting
- Finger protected
- Lock to prevent interface
- Watertight when connectors are mated

The 2U high PowerLock Box is available in 2 versions, either with or without (shown right) a sealed lid. The sealed version has a watertight lid that can be secured when not in use to protect and prevent unauthorized access.



VEAM SNAPLOCK

Snaplock connectors are used to connect single pole power cables. These connectors provide small dimensions, fast and easy harnessing procedures, and quick mating/unmating operations. This connector family offers improved safety characteristics through utilization of insulated bodies, sealing/locking mechanisms, and protected carrying elements. Snaplock now includes new Set-Screw contacts that do not require crimp tools and are available to fit a range of cable sizes.

Product features...

- Rated Current: 250 Amp.
- Rated Voltage 1500Vac
- Cables from 25 to 70 sqmm
- Protection IP67when mated
- Flame retardant thermoplastic material (UL94-V0) for body
- Crimp, Set-Screw and M12 threaded post contacts
- Finger proof on sourced male contact
- Socket contact with multipoint band



VEAM CIR

The VEAM CIR Series is the most versatile electrical, optical and pneumatic multi-pin connector available today. Designed originally for the hostile environment of Transit applications, CIR has earned acceptance in Military, Commercial, Nuclear and Entertainment markets requiring nearly non-destructible connector systems.

Product Features...

- Quick Quarter Turn Coupling
- Environmental Sealing
- High shock and Vibration resistance
- Over 250 insert arrangements available

Applications...

- Mass Transit
- Military/Defense
- Nuclear
- Commercial
- Entertainment



1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

ITT Interconnect Solutions, a Division of ITT Corporation manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues.

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A limited warranty applies to Cannon products. In general, except for obligations assumed by Cannon under this warranty, Cannon shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence or strict liability arising in connection with the design, manufacture, sale, use or repair of the products. Product availability, prices and delivery dates are exclusively subject to our respective order confirmation form; the same applies to orders based on development samples delivered. Please refer to www.ittcannon.com (General Terms of Sale) for the complete text of Cannon's applicable Terms and Conditions, including Warranty.

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Circular/Filter/Hermetic/Fiber Optic Connectors

As a world leader in circular, filter, and hermetic connectors, ITT can leverage its design and manufacturing expertise to fit virtually any application. Our expertise includes fast positive mating for a wide range of military applications, as well as numerous sizes and contact configurations for various harsh environments. Our wide variety of fiber optic products include hybrid contacts, multi-channel, rack and panel, and hi-rel assemblies, including MIL and ARINC standard solutions. ITT can meet numerous specs, including NATO and MIL standards.

www.ittcannon.com/circulars • www.ittcannon.com/filter • www.ittcannon.com/hermetics • www.ittcannon.com/fiberoptics



D-Subminiature Connectors

Cannon invented D-sub connectors in 1952. Our family of D-Subs now includes combinations of signal, power and RF, as well as severe service sealed connectors. Cannon D-Subs are available with an extensive line of backshells and accessories and are one of the most economical shielded connector solutions available. ITT D-Sub connectors are qualified to the MIL-DTL-24308 specification.

www.ittcannon.com/dsubs



Microminiature Connectors

Developed first by Cannon in the 1960's, Interconnect Solutions microminiature connectors offer high performance and reliability with exceptional versatility. Available in rectangular, circular, and strip configurations for countless applications, many of our connectors meet or exceed applicable requirements of the MIL-DTL-83513 specification.

www.ittcannon.com/micro



Rack and Panel Connectors

Initially pioneered by Cannon during the 1930s, Interconnect Solutions is the world leader in rack and panel connectors, offering unmatched variety of shell configurations and insert arrangements, materials, plating, and contact options. Many of our standard and custom designs meet the stringent requirements of ARINC 600, ARINC 404 (MIL-C-81659), and MIL-DTL-83733 standards.

www.ittcannon.com/rackandpanel



RF Connectors

ITT Interconnect Solutions has been providing interconnect products to the Microwave and RF industry since 1963 (formerly The Sealectro Corporation). The RF 50 & 75 Ohm product lines cover UHF band through Ku band requirements. These connectors and cable assemblies are available with a thread type, snap type, bayonet type or slide on coupling method. The frequencies range from DC to 18+ GHz.

www.ittcannon.com/RF50 • www.ittcannon.com/RF75



Transportation

The ITT ICS interconnect range includes sealed circular and rectangular connectors in metal or plastic shells. These configurations include board to cable or cable to cable/ bulkhead applications. Both signal and power contacts can be combined in various layouts. All product lines within the Transportation segment offer very low contact resistance providing maximum signal integrity.

www.ittcannon.com/transportation



ITT Interconnect Solutions is an international manufacturer and supplier of connectors including circular, rectangular, fiber optic, RF, power and high voltage, audio, PMCIA, Compact Flash Card, enclosures, cable assemblies, and application specific custom solutions. The Interconnect Solutions portfolio includes the brands Cannon, VEAM, and BIW. As a worldwide leader in connector technology for nearly a century, ITT offers one of the broadest product offerings, six sigma manufacturing capability, Value Based Product Development with exceptional engineering capability, and an extensive sales, distribution, and customer support network.





ITT

Customer Support Locations

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