

smiths connectors

INTERCONNECT SOLUTIONS FOR

**INDUSTRIAL**

MACHINERY | AUTOMATION | TEST



# SMITHS CONNECTORS

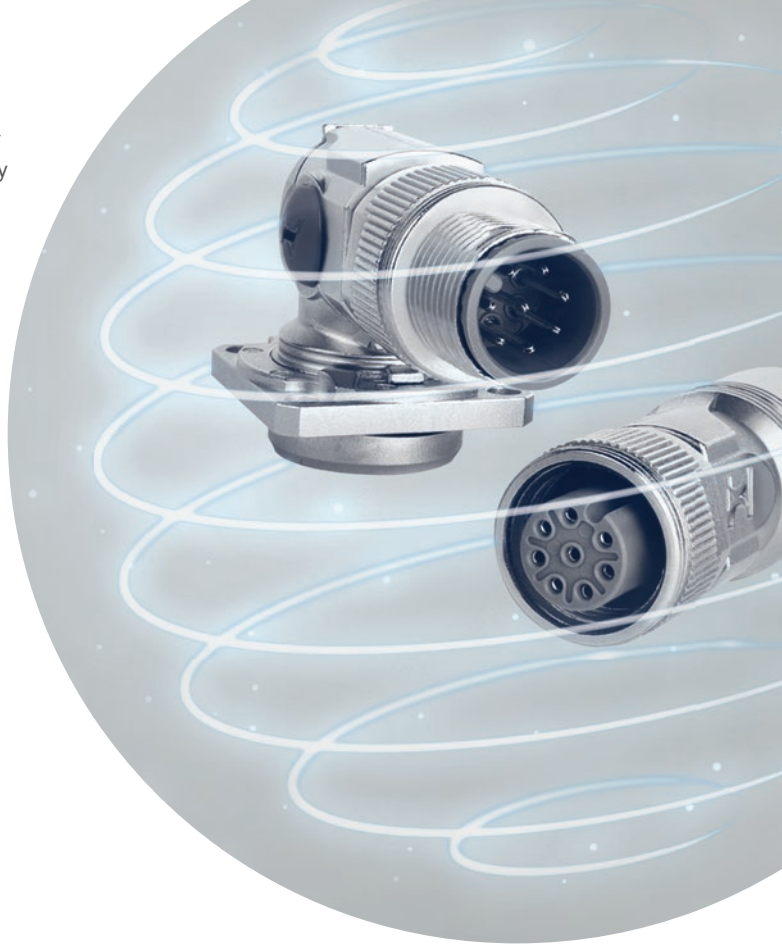
Smiths Connectors is a leading supplier of application-specific, high-reliability electrical interconnect solutions from highly integrated assemblies to micro-miniature connectors and spring probe contacts.

Smiths Connectors is comprised of Hypertac, IDI and Sabritec brands, which are synonymous of exceptional performance when critical applications require a technologically advanced, high quality, multi-pin electrical connection to ensure reliability and safety.

Alongside Smiths Microwave and Smiths Power, Smiths Connectors is part of the Smiths Interconnect division of Smiths Group, a global leader in applying advanced technologies for markets in threat and contraband detection, energy, medical devices, communications and engineered components. Smiths Group employs around 23,000 people in more than 50 countries.

***By uniting the competencies and capabilities of three world leading interconnect brands, Smiths Connectors offers:***

- ▶ Broad Range of Advanced Interconnect Technologies
- ▶ Vast Knowledge of Served Markets & Applications
- ▶ High Volume Product Platforms
- ▶ Complete Tailored Solutions
- ▶ Unmatched Reliability & Durability
- ▶ Global Reach with Local Support



# ENGINEERING SUPERIOR SOLUTIONS



# GROUP CAPABILITIES

Smiths Connectors' in-house capabilities encompass design, development, manufacturing and testing. Providing operational excellence tailored to volume manufacturing requirements, global sourcing, world class engineering talent, and rapid prototyping enable Smiths Connectors to respond quickly and accurately to customer's needs, and to provide the most reliable interconnect solutions.

We are a global provider of interconnect solutions that create value for our customers by providing them with a competitive advantage. We leverage our application specific and engineering expertise to design and manufacture superior connectors, contacts and systems that ensure optimal performance, reliability, durability and safety in critical applications.

We meet the customer's need, whether it is a single contact, a wide portfolio of standard products, custom interconnect, cable harness or a complete pre-tested sub-system. Our success does not rely solely on our technology alone, but also on data management, manufacturing systems, forward planning tools, quality control and the ability to supply functional prototypes.

## QUALITY

First-class materials, state-of-the-art development methods, advanced know-how and exact processing are the essential ingredients of our quality expertise. Industrial applications demand consistent quality and reliability as downtime is costly and impacts manufacturing. Our diverse product offering, from off-the-shelf products to customized solutions, provides unrivaled performance under the most stringent elements. This, combined with ISO certified facilities and quality assurance makes Smiths Connectors the leading provider of interconnect solutions for the industrial market.

### The Essential in Industrial Technologies

Reliability is the essential attribute in the leading edge technologies that we utilize. With performance such as exceptional tolerance to shock and vibration, low insertion forces, high current ratings, high mating cycles and low contact resistance, our products deliver a competitive advantage and value to our customers' offerings.

### Compliant with International Industrial Standards

- ▶ DIN IEC 61984 (VDE0627)
- ▶ DIN IEC 61076-2-101
- ▶ DIN IEC 60512
- ▶ RoHS

## ENGINEERING DESIGN & DEVELOPMENT

- ▶ CAD/CAM and Solid Modeling
- ▶ Electromagnetic and Molding Simulation
- ▶ Finite Element Analysis

## PROTOTYPING

- ▶ CNC Turning and Milling Centers
- ▶ Cabling/prototype Assembly
- ▶ 3-D Printing

## TESTING / QUALIFICATION

- ▶ Electrical, Metallurgical & Mechanical Testing
- ▶ Environmental Testing

## MANUFACTURING

- ▶ Extensive Machine Shops
- ▶ Contact Assembly
- ▶ Connector & Cable Assembly
- ▶ System Integration
- ▶ Validation Tests

## CERTIFICATIONS

- ISO 9001** ▶ General International Standard for Quality Management System

- ISO 14001** ▶ International Standard for Environmental System Management

- OHSAS 18001** ▶ International Standard for Occupational Health and Safety Management Systems





# INTERCONNECT SOLUTIONS FOR

# INDUSTRIAL

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## TECHNOLOGIES

### Hyperboloid



Hypertac® is a superior performing hyperboloid contact technology designed for use in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivaled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance.

### High Speed Data



Quadrapax and Twinax contacts are designed for transmission of Ethernet high-speed signals required in harsh environment applications where excellent integrity and high reliability are crucial. Manufacturing to the following protocols: Fiber Channel, Ethernet (10 Base-T, 100 Base-T, 1000 Base-T), Firewire (IEEE 1394A and 1394B), USB, DVI and infiniband.

### Spring Probes



Spring probes are designed to optimize performance in high reliability, multi-cycle applications. Spring probes are compliant contacts which makes them ideal for blind mate applications as they self-correct for x, y, z, rotational and angular misalignment of the target. Offered in compressed heights less than 2 mm and utilized on pitches as tight as 0.4mm, they are well-suited for high density, board-to-board, battery contact, and high frequency applications.

### Fiber Optic Termini



Fiber optic contacts support wide bandwidth applications and are suitable for inclusion in a broad variety of connector styles. All fiber optic connectors and contacts are offered fully terminated and tested ensuring signal integrity for ruggedized application environments.

### EMI/EMC Filter



EMI filter connectors use co-fired multi-layer ceramic capacitor arrays together with inductive materials to realize robust, high performance low pass filter networks. They can be combined with high energy TVS diode technology to achieve high level lightning and EMP transient protection.

### RF Coax/Triax



Coax and Triax contacts provide superior electrical performance plus shielding to eliminate interference from outside electrical sources in a connector. Triaxial contacts are designed for low-loss concentric 50, 75 and 95 Ohm cable types.





# INDUSTRIAL PRODUCT PLATFORMS

## Circular - M12



- ▶ Compact design (outside Ø 15mm)
- ▶ Over-molded and free assembled versions
- ▶ Rotating 90° backshell option
- ▶ 360° electromagnetic shielding
- ▶ Quick to terminate
- ▶ Intermateable with standard M12's
- ▶ Machined or stamped contacts

## Circular - M23/M40/M58



- ▶ Signal and power options
- ▶ Robust design
- ▶ Ground connection for power options
- ▶ Stainless steel versions (M23 only)
- ▶ 360° electromagnetic shielding
- ▶ Intermateable with standard M connectors
- ▶ Machined or stamped contacts (M23 only)

## Modular - H/N/L Series



- ▶ Mixed signal, power, and coaxial modules
- ▶ Provides up to 300A power
- ▶ Cable to chassis, cable to cable and rack & panel
- ▶ Metal backshell with strain relief and plastic backshell with adjustable cable clamp and 1/2 turn quick disconnect jackcrew
- ▶ Float mountable for blind mating

## Rectangular - REP Series



- ▶ 2, 6 and 12 way standard insulators
- ▶ PCB receptacle with straight or bent termination
- ▶ Voltage rating up to 400V
- ▶ Extended crimp contact capability allowing wire sections from 0.50mm<sup>2</sup> to 2.5mm<sup>2</sup>

## High Power - HBB Series



- ▶ 300A and 500A current rating
- ▶ Push lock to mate connector
- ▶ Quick release latch to unmate
- ▶ Metal and plastic versions available
- ▶ Cable and panel mount variants
- ▶ Gender reversible
- ▶ Polarized
- ▶ 360° EMI/RFI shielding option
- ▶ Finger protected contacts

## Value Added Solutions



- ▶ Customized high quality cable assembly solutions
- ▶ Custom over-molded connectors
- ▶ Integral electronics and PC boards
- ▶ Customer specified connectors to mate with existing systems
- ▶ Signal, power, coax and fiber optic terminations

# RELIABILITY IS KEY

## APPLICATIONS

Industrial Robots  
Factory Automation  
Chemical & Pharmaceutical  
Processing Equipment  
Manufacturing Machine Tools  
Conveyor Systems  
Production Test Equipment  
Laser and Welding Equipment  
Bespoke OEM Production Equipment

Production environments are becoming increasingly automated and utilizing higher levels of integration in the pursuit of efficiency improvements. The drive for continuous improvement is creating a requirement for high reliability interconnects, as network failures can result in expensive line down situations. Smiths Connectors' interconnect products contain leading contact technologies which offer unrivaled performance through superior design and performance.

With our global business footprint and extensive engineering expertise we offer customers local design and engineering service to develop the optimum solution for any given application.

Smiths Connectors' products and performance characteristics provide real commercial benefit in terms of total cost of ownership.



*Quick Release  
High Power Connectors  
HBB Series*

*Rectangular  
Plastic Connectors  
REP Series*



# MACHINERY





*High Power  
Circular Connectors  
**P Series***



*Heavy Duty Modular Connectors  
Signal, Power, Fiber Optics, High  
Speed and Coax Contacts  
**HyperMod Series***



*High Reliability  
Modular Connectors  
**L Series***



# DELIVERING OPTIMUM CONNECTIVITY

## APPLICATIONS

Control Equipment  
Network Components  
Sensors and Actuators  
Servomotors and Drives  
Inverters  
Vision Systems

Smiths Connectors offers a high quality range of both standard and custom interconnects to meet the exact needs of the industrial market today. With robust, easy to terminate designs containing leading edge technologies, these products offer unrivaled performance. Our connectors ensure the optimum balance between cost and performance, making them the ideal choice for industrial applications operating in demanding environments where there is a high cost of failure.

Smiths Connectors' range of industrial interconnect products offers an ideal solution for applications where a connection is required to control, drive, monitor or test a device within a manufacturing environment.



*Compact Design  
M12 Connectors  
W Series*



*High Reliability  
Mini-Modular Connectors  
N/H Series*

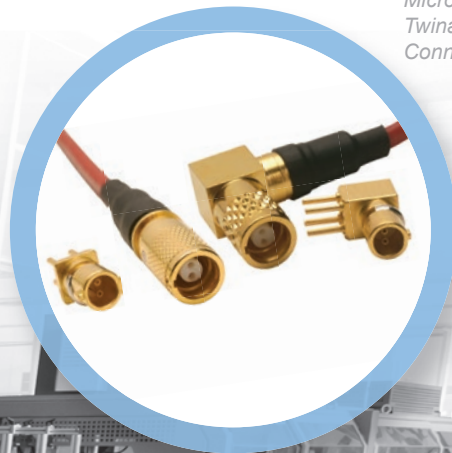
# AUTOMATION



*Wiring Systems  
for Automation*



*360° EMC Shielding  
M23 Connectors  
S/L Series*



*Micro  
Twinax/Quadax  
Connectors*



# ENSURING SAFETY

## APPLICATIONS

Hardware-in-the-Loop (HIL) Test  
Sensor Head Adjustment  
and Processor Unit Analysis  
Interfaces Direct Probe Contacting  
In-circuit Board Test Systems  
Board and Power Testers  
Test Bench  
Encoders  
Simulators  
Probers

The reliability of production test equipment is mainly dependent on the integrity of the active interfacing connectors used. At Smiths Connectors our products contain superior contact technologies which provide unrivaled performance in terms of longevity, low mating forces and electrical stability, making them ideal for these applications.

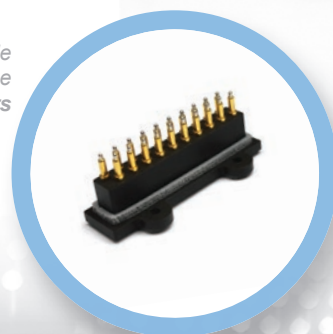
Smiths Connectors employs a number of contact technologies including high performance spring probes for testing printed circuit boards. These probes have been specifically developed for applications requiring very low contact resistance over a high number of mating cycles.



*Push-button  
Circular Connectors.  
D Series*



*Bare and Loaded  
Board Test  
Spring Contact Probes*



*Multi-Cycle  
Sealed Spring Probe  
Connectors*

# TEST EQUIPMENT



*Custom  
Coding Connectors  
HNG Series*



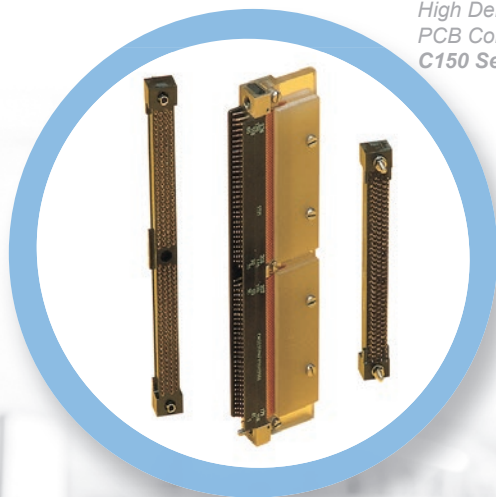
*Rectangular  
ZIF Connectors  
HDL Series*



*Rectangular  
Signal Connectors  
HLC Series*



*High Density  
PCB Connectors  
C150 Series*





## **SMITHS CONNECTORS** GLOBAL SUPPORT

### **AMERICAS**

Costa Mesa, CA  
Hudson, MA  
Kansas City, KS

1.714.371.1100  
1.978.568.0451  
1.913.342.5544

### **EUROPE**

France  
Germany  
Italy  
United Kingdom

33.2.3296.9176  
49.991.250.120  
39.10.60361  
44.20.8450.8033

### **ASIA**

Bangalore, India  
Shanghai, China  
Singapore  
Suzhou, China

91.80.2535.7351/52  
86.21.3318.4650  
65.6846.1655  
86.512.6273.1188