



# Medical Capabilities

# About Us

**Smiths Interconnect** is a leading provider of technically differentiated electronic components, subsystems, microwave and radio frequency products that connect, protect and control critical applications in the commercial aviation, defense, space, medical, rail, semiconductor test and industrial markets.

Smiths Interconnect is a key partner to the medical device industry. Our connectivity solutions are used extensively in areas where signal integrity and reliability are essential to the well-being of the patient. We create value while mitigating risk through expert design and manufacturing, reliable end-to-end solutions and a deeply consultative approach to meet the specific requirements of the medical industry.

Our technology brands (EMC, Hypertac, IDI, Lorch, Millitech, RF Labs, TECOM, and TRAK) are synonymous with exceptional performance whenever a technologically advanced, high quality solution is required to ensure reliability and safety.

Smiths Interconnect is part of Smiths Group plc, 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 22,000 people in more than 50 countries.

By unifying  
the competencies  
and capabilities of  
its world-leading  
interconnect brands,  
Smiths Interconnect  
offers:

- Technical excellence and vast market experience
- A comprehensive product portfolio providing customers with a single point of supply across multiple markets
- Advanced engineered solutions integrating the combined expertise of our technology brands to create value for our customers
- Optimized quality through first class materials, state-of-the-art development methods, and world class talent
- Robust financial pedigree and reputable heritage of Smiths Group

# Technology Brands



**EMC**

High Reliability RF/Microwave Resistive & Signal Distribution Components

Board-level components incorporating advanced resistive and signal distribution technologies for a broad range of frequency spectrum and applications. Extensive portfolio of RF devices used to attenuate, level or terminate signals available in a variety of packages and footprints.



**HYPERTAC**

High Performance Electrical Connectors for the Most Demanding Applications

Premium interconnect solutions for electrical and electronic applications requiring superior quality, performance and reliability. Hypertac connectors utilize the superior performing hyperboloid contact technology; ideal for harsh environments and safety critical applications.



**IDI**

High Density Interconnect & Semiconductor Test Solutions with Spring Probe Technology

World's most comprehensive offering of spring probe based solutions, including contacts, connectors, interposers, semiconductor test sockets, and ATE interfaces. Off-the-shelf and custom products proven to deliver the best solution for the customer's specific application.



**LORCH**

RF/Microwave Conditioning Products with High Selectivity Using Multiple Topologies

Innovative solutions for the electronics and communications industries. Ranging from high performance wireless and RF products to micro-miniature, cavity, discrete, waveguide, tunable, ceramic, and tubular filters and integrated assemblies.



**MILLITECH**

Leader in Millimeter Wave Technology & Product Solutions

Specializing in the engineering, manufacturing, and test of millimeter-wave components, assemblies, and fully integrated subsystems for SATCOM, test and measurement, radar and scientific applications.



**RF LABS**

High Frequency Microwave Cable Assemblies & Coaxial Components

High performance microwave cable assemblies and coaxial components supporting high performance operations, application-specific premium interconnects for durability and harsh environments.



**TECOM**

Advanced Antenna Systems & Solutions for RF & Microwave Applications

Best-in-class high frequency antennas and positioners for instrumentation, flight termination, datalink, in-flight connectivity, and telemetry applications integrated into the world's most respected commercial and military platforms.

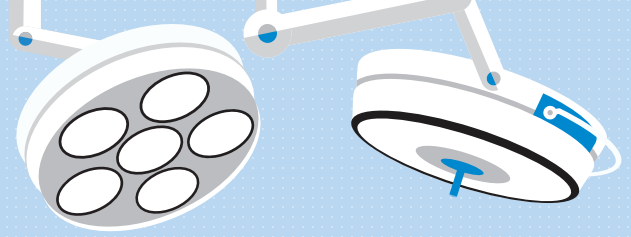


**TRAK**

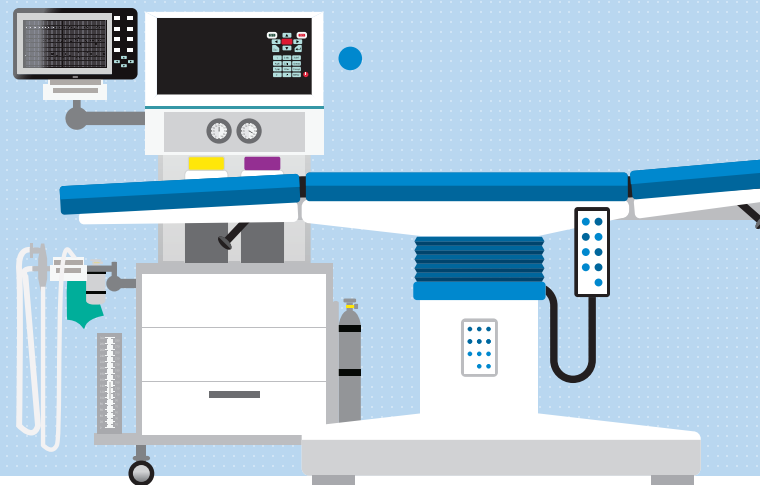
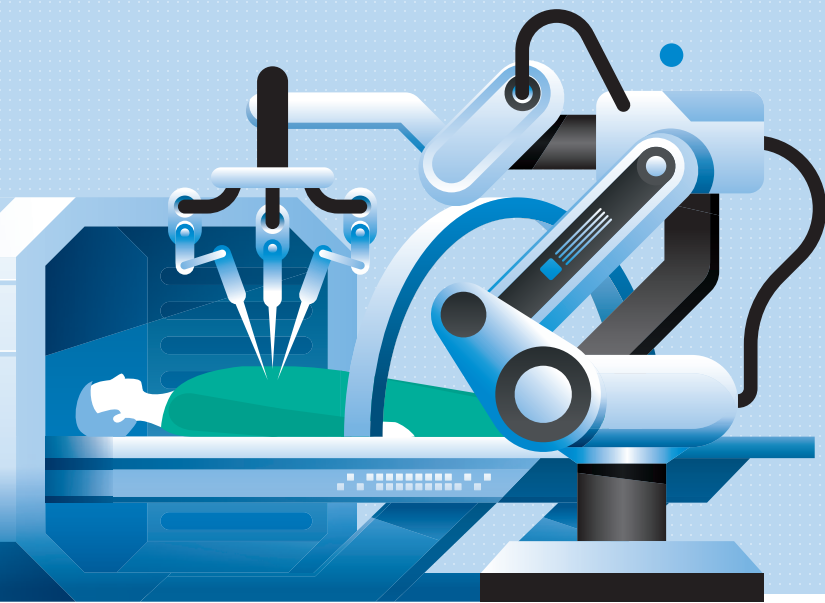
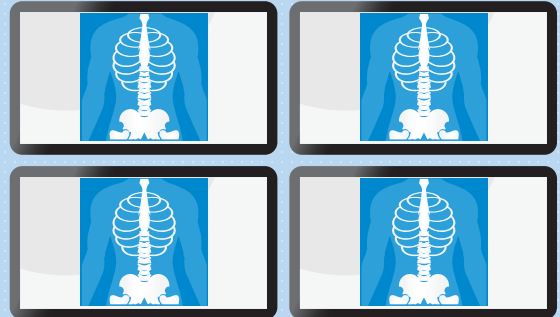
High Reliability RF/Microwave Subsystems & Components

Integrated microwave subsystems and assemblies, high performance ferrites, and time and frequency systems for defense, commercial aerospace, space, homeland security and public safety applications.

# Applications



- Surgical & Monitoring Systems
- Imaging Systems
- Disposables



## Surgical & Monitoring Systems

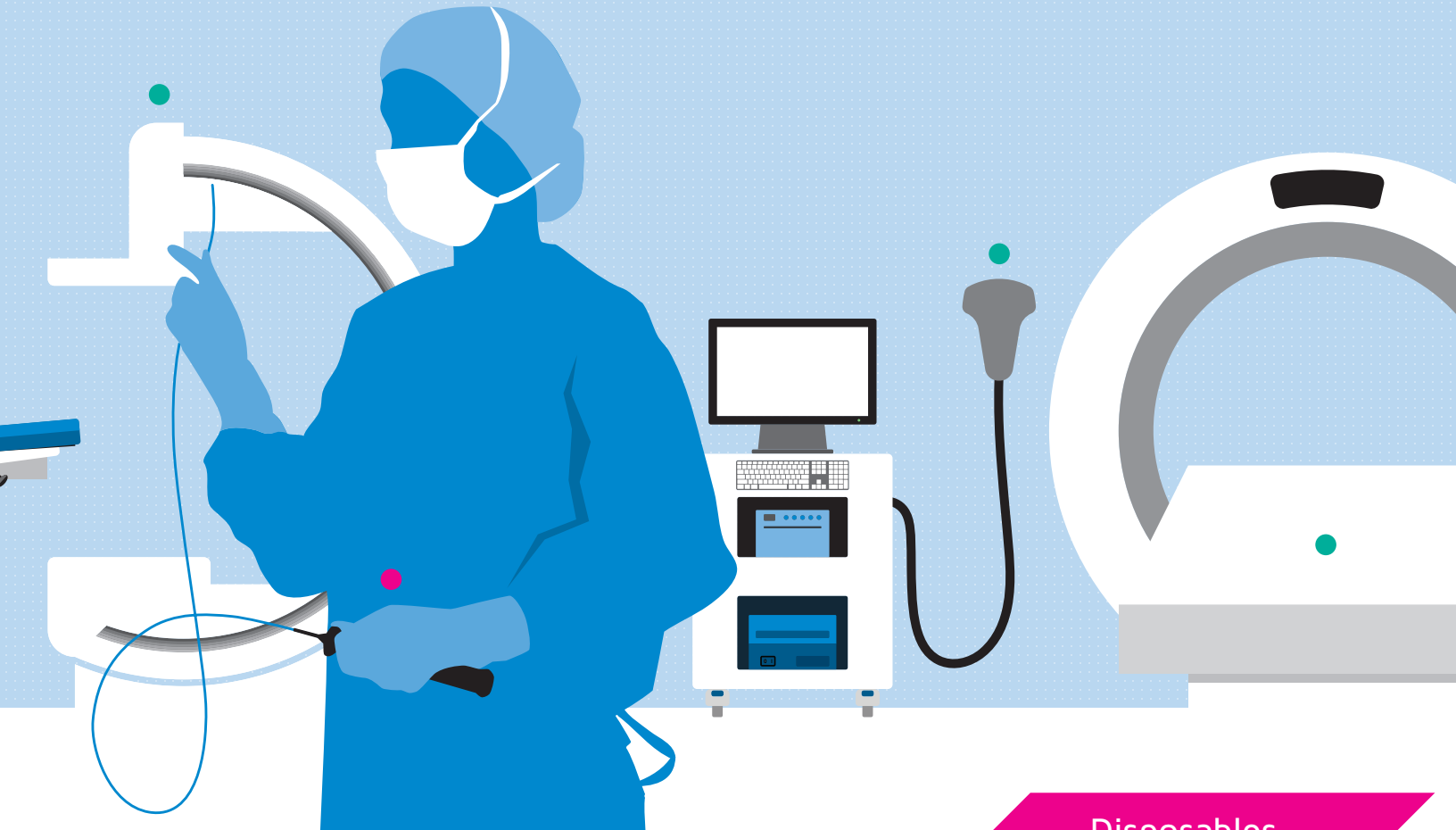


- Surgical Robots
- Surgical Equipment
- Hybrid Operating Rooms
- Endoscopy
- Infusion Pumps

- Patient Monitoring
- Dental Tools/Chairs
- Portable and Wearable Devices
- Home Health Monitors
- Automated External Devices

# Providing A Competitive Advantage

Reliability is the essential attribute in the leading edge technologies that we utilize. We offer proven quality and innovative connectivity solutions, constantly adapting our products to tomorrow's needs while meeting our customer requirements. We leverage our application specific expertise to design and manufacture superior connectors and cable assemblies, RF components and sub-systems that ensure optimal performance, durability and safety.



## Imaging Systems

- Magnetic Resonance Imaging (MRI)
- CT Scanning Systems
- Digital X-ray
- Ultrasound
- Positron Emission Tomography



## Disposables

- Electrophysiology Catheters
- Invasive Probes
- Painless Needle Systems
- Blood Gas Analyzers



# Surgical & Monitoring

## Systems



Top: Smiths Interconnect connectivity solutions are designed to be reliable under harsh environments including hospitals, clinics, and at home.

## Ensuring Safety

Reliable performance and protection against breakdown are vital in the medical industry. This is why Smiths Interconnect's connectivity solutions are used in surgical and monitoring systems across multiple applications. Our broad suite of interconnect solutions comply with regulatory and application specific requirements and enjoy a reputation of excellence in the marketplace.

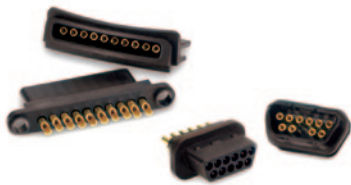
## Our Customers Benefit From:

- Increased value by extending the life of the capital equipment
- Customized solutions to solve unique challenges
- Reduced system downtime by maximizing Mean Time Between Failures (MTBF)
- Shortened assembly time and associated costs
- Safeguarded hospital personnel from inadvertent shocks with finger-proof design

## Cable to Board Connectors

### KS10 Series

- Single and dual row connector designs
- Up to 100,000 mating cycles
- Immune to shock and vibration
- Minimal contact resistance
- Robust insulator design
- Broad temperature rating: -55° to 85°C
- Available "first mate, last break" system



## Custom Cable Assemblies

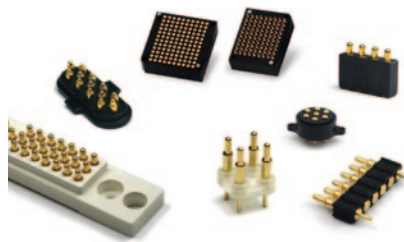
- Provides one-stop solutions
- Customized high quality cable harnessing
- Overmolded cable bend/strain reliefs
- Integral electronics and PC boards
- Custom overmolded connectors
- Coax and fiber optic terminations
- Advanced testing capabilities
- Customer specified connectors to mate with existing systems



## Miniature and Micro-Miniature

### Spring Probe Connectors and Interposers

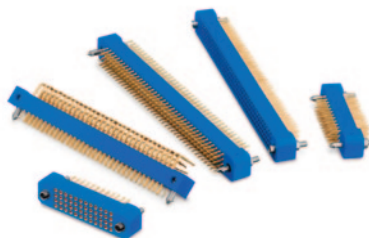
- Standard probes offered in custom configurations
- Ground, power and signal probe options
- Lowest stacking height
- Surface mount, thru-hole and solder cup terminations



## PCB Connectors

### Multiple Configurations

- Low, medium and high density connectors with long life cycle
- Signal, power, coaxial and high speed, RF contacts and spring probes solutions
- Board-to-board, cable to board, cable to cable and stacking

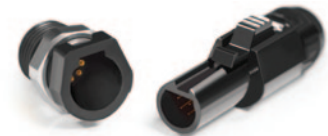


Note 1: Sterrad® is a registered trademark of Advanced Sterilization Products (ASP), a division of Ethicon ULS, LLC, a Johnson & Johnson Company.

## Push Button Connectors

### D Series

- Virtually intuitive mating, D-shaped housings prevent mismatching
- Hybrid signal, power and coaxial contact technologies
- Housing alignment and polarization
- Disposable and reusable versions available
- Custom cable assemblies available



## Push Pull High Density Connector

### HyperGrip® Series

- Signal, power, coax, fiber optic and spring probe solutions available
- Non magnetic versions available
- Disposable and reusable versions available
- Sterilizable: Autoclave, EtO, Sterrad®<sup>1</sup> protocols
- Mechanical keying and color coding for intuitive utilization
- Fingerproof design
- Shielded versions with continuous EMI and RFI shielding protection of 50dB @ 3GHz available





# Imaging

## Systems



Top: Smiths Interconnect non-magnetic connectivity solutions are ideal for Magnetic Resonance Imaging (MRI) applications.

## Superior Performance

Medical imaging equipment requirements continue to drive interconnect solutions to enable high-quality images to be generated faster and with superior resolution. Smiths Interconnect's innovative and durable connectivity solutions allow large volumes of data to be transmitted at high-speeds with high signal integrity.

## Our Connectivity Solutions Provide:

- Reliability in every application
- Maintenance free operation
- Ease of use and secure handling
- High-integrity transmission of data, signals, and power
- Exceptional design flexibility



## Cable Assemblies

### Rugged Hybrid Cable Assemblies

- Designed to transmit video signals along with RF signals
- Magnetic permeability to  $\pm 30 \times 10^{-5} \mu$
- Self-cleaning wiping action
- High cycle life, up to 100k cycles
- Low mating forces
- Signal, power, coax, fiber optic and spring probe solutions available



## Docking Connector Systems

### Spring Probe Connectors

- Spring probe technology
- Non-magnetic
- Rugged housings
- High contact density
- High mating cycles
- Z-axis compliance



## Non-Magnetic RF Components

### Terminations

- Wide band response
- High power
- Low VSWR
- Easy installation
- Excellent heat transfer



## High Power Waveguide Load

### 10TE25

- High power water cooled S-Band waveguide
- Designed for imaging and clinical oncology treatment machines



## Modular Rack & Panel Connectors

### L&N Connector Series

- Hybrid connector: Signal, power, coax and high speed contacts available
- High density up to 765 contacts in one connector shell
- Modular and mini-modular series



## RF Cable Assemblies

### Lab-Flex® S Assemblies

- Excellent frequency response DC-40GHz
- Robust Solder Sleeve designs improve electrical performance
- High power designs available
- Cable designs for increased flexure life





# Disposables



Top: Smiths Interconnect disposable solutions are designed to meet ergonomic requirements and reduce total system cost.

## High Reliability in a Sensitive Environment

Smiths Interconnect disposable connectivity solutions use superior edge card, spring probe, and Hypertac® hyperboloid technologies to provide reliability on both reusable and disposable devices.

## Our Connectivity Solutions Offer:

- Low system costs with highly efficient assembly process
- Reliable and secure connections
- Effective solutions to specific application challenges

## Disposable Contacts

### Stamped Hyperboloid Contacts HCS™

- Ideal for high volumes requiring a fully automated crimping process
- Delivered on reels for crimping machines with automatic feeder lines
- High reliability wire and insulation crimp



## Edge Card Connectors

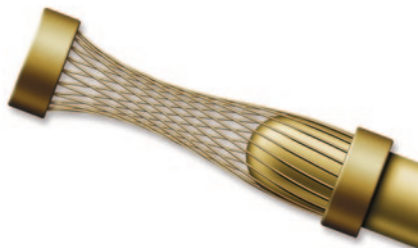
### Eclipta – ECL Series

- Double-ended edge card contact design
- Mates to PCB board on the disposable connector side
- High mating cycle life
- Plug and play design
- Meets typical sterilization requirements
- Quick intuitive mating
- Embedded electronic feasible



## Hypertac® Contacts and Connectors

- Reusable Hypertac® contact connectors mating to simple drawn pins in the disposable connector
- Ultimate signal integrity and power contact capabilities
- Up to 100,000 mating cycles



## Spring Probe Contacts and Connectors

- Reusable spring probe connectors mating to PCB in the disposable connector
- Extremely high density
- Allows for self-correction of target misalignment



# Capabilities

Smiths Interconnect's in-house capabilities encompass design, development, manufacturing and testing to respond quickly and accurately to customers' needs, and provide the most reliable connectivity solutions.

## Certifications Standards Compliance

- ISO 9001
- ISO 13485
- ISO 14001
- OHSAS 18001





## Engineering

- 3D EM Modeling
- Advanced RF & System Modeling
- CAD/CAM & Solid Modeling
- Finite Element Analysis
- Reliability Analysis

## Manufacturing

- Precision Machine Shops
- Connector, Contact & Cable Assembly
- Automated PCB Assembly & Inspection
- Automated Hybrid Assembly
- Automated Test & Tune
- System Integration
- Validation Testing

## Prototyping

- CNC Turning & Milling Centers
- Cabling / Prototype Assembly
- 3D Printing

## Testing/Qualification

- Electrical Acceptance & Lot Test
- Mechanical
- Environmental
- RF Test Capability up to 325 GHz
- High Speed Digital
- Anechoic Chamber Testing
- ESS Environmental Qualification
- ESS Temperature, Shock & Vibration
- Metallurgical
- Real Time X-ray
- High Power RF Testing





We aim to be your global partner for innovative connectivity solutions where reliability, high quality, technical expertise, application knowledge, and a reputation for excellence is vital.





# KENSINGTON

ELECTRONICS Inc.

*Not just products - Solutions!*

INTERNATIONAL,  
ALASKA & HAWAII

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