smiths interconnect
bringing technology to life

Connecting as one

Commercial

Aerospace 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 the supplier of choice for safe, efficient and reliable connectivity in commercial aerospace applications. We offer proven experience in high performance connector solutions, antenna systems, RF components and cable assemblies in line with the next generation of avionics equipment, engine systems, power distribution, SATCOM connectivity and various other airframe applications.

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 SATCOM, RF & Microwave Applications

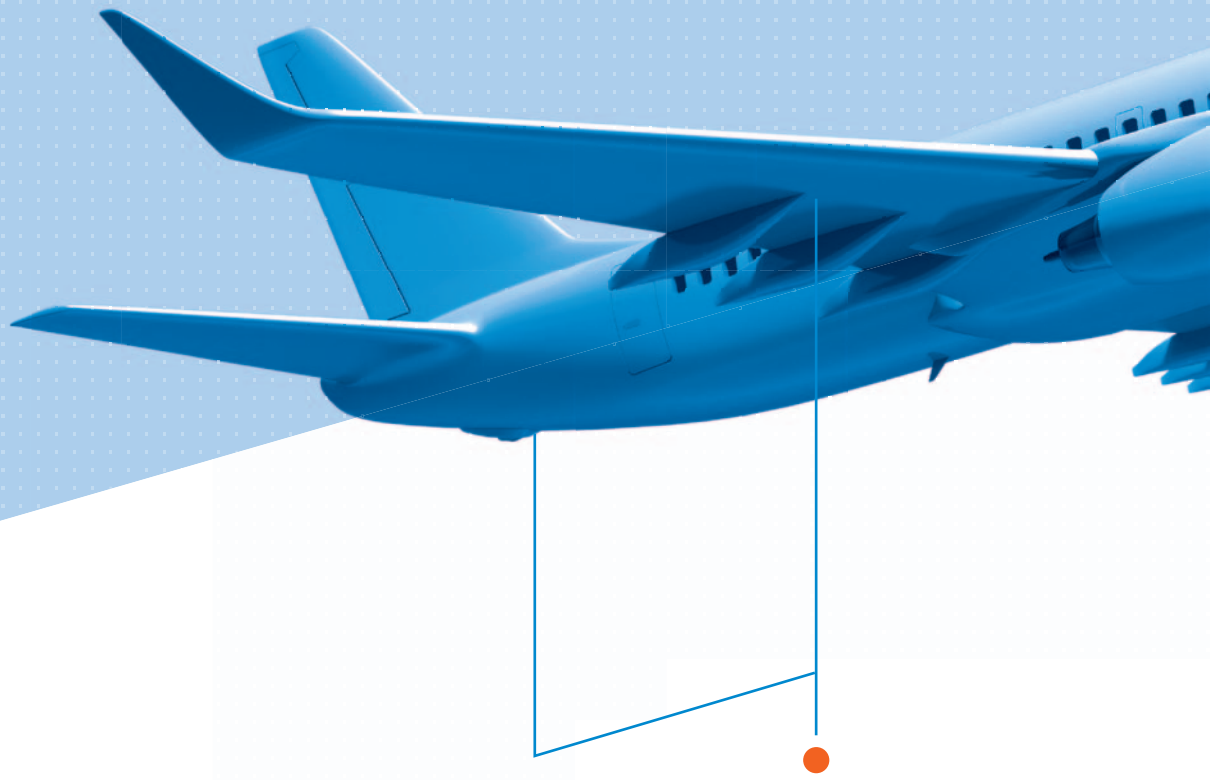
Best-in-class high frequency antennas and positioners for in-flight connectivity, instrumentation, flight termination, datalink, and telemetry applications integrated into the world's most respected commercial and military platforms.

TRAK

High Reliability RF/ Microwave Subsystems & Components

SATCOM High Power Transceivers, 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



Avionics

- Flight control systems
- Navigation systems
- Aircraft management systems
- Flight recorders
- Landing gear & brake control systems

Engine Systems

- Electronic engine controllers
- Power controllers
- Overspeed protection
- Vibration monitoring
- High temperature sensors

Providing A Competitive Advantage

Smiths Interconnect is committed to developing advanced interconnect solutions, technologies and full system integration capabilities for the latest generation of aircraft. Our solutions are well-suited to address both the reliability required for flight critical systems as well as environmental and mechanical concerns such as shock, vibration and extreme temperature ranges.

Power Distribution

- Power distribution & management
- Auxiliary power units
- De-icing systems
- Power conversion
- Motor drives

SATCOM Connectivity

- In-flight entertainment
- Cabin communication systems
- Wireless connectivity
- High speed networking

Avionics

Board Level

Market Leading Reliability

Smiths Interconnect avionic board level solutions maximize system performance through unmatched signal integrity and mechanical endurance with a wide range of standard product and custom solutions.

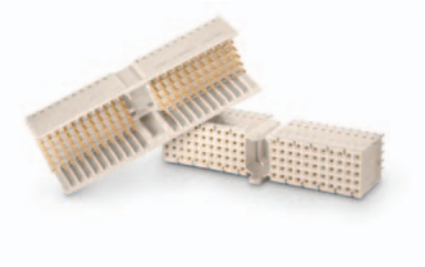
Key Benefits

- Product versatility and program heritage
- Reduced system costs due to immunity to shock and vibration
- Ability to operate under extreme temperatures
- Low insertion and extraction forces for reduced board strain and improved serviceability

Compact PCI Systems

Aurora & cPCI Series

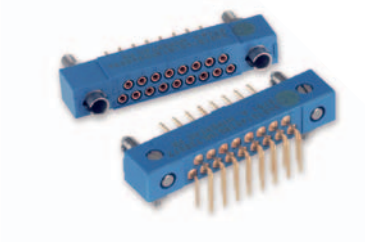
- Qualified to NASA GSFC: S-311-P-822
- Intermateable with cPCI COTS systems
- Hyperboloid & bifurcated contact systems
- Data rate performance up to 6.25 Gbps



High Density PCB

55302 Compliant/KN Series

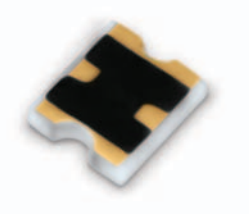
- Available in 2 and 3 row configurations, from 17 to 160 contacts
- ESA qualified: ESCC 3401 039
- Guiding devices with or without polarization (16 keys available)
- Wire wrap, crimp, solder cup, straight and right angle PC tails
- Front release, rear removable contacts



RF Components

Attenuator Range

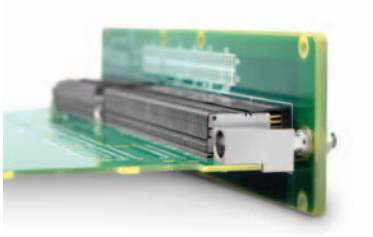
- Fixed to 50 GHz and temperature variable to 36 GHz
- Power handling up to 400 watts
- Totally passive with no signal distortion
- Several metallization and configuration options



Rugged PCB

KVPX Series

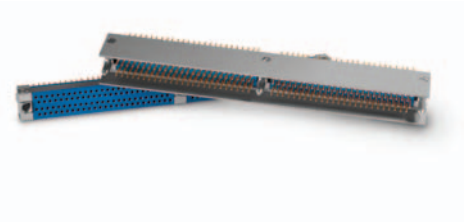
- Fully footprint compatible with VITA 46/48 standards
- Flexible modular design for standard 3U, 6U and custom configurations
- 100 Ω impedance for differential pair configurations
- Data rate performance up to 10 Gbps



Signal & Power PCB

MHD/MDD Series

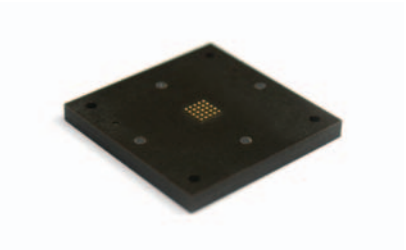
- Signal and HE 807 cavities for power and coaxial contacts
- Ruggedized metal or plastic shell available
- ESA qualified: ESCC 3401/065
- Up to 400 signal contact positions



Spring Probe

Customizable Interposers

- Low profile, high compliance ratio
- Compression mount termination options
- Mixed signals and functionality designed into a single connector
- Integrated alignment, latching and sealing features



Avionics

I/O

Enhanced Technology

Smiths Interconnect avionic I/O solutions offer versatility in mounting options, with modular construction focusing on standard products as well as customer configured solutions. Our products have a proven pedigree providing application confidence with superior EMI shielding.

Key Benefits

- Increased system level protection due to superior EMI filtering and transient protection options
- Modular construction provides design flexibility
- Optimized impedance matching for signal integrity
- Superior data transfer rates under extreme environmental exposure

Edge Card PCB

C9394 Series

- 6 Row LRM on 1.905mm pitch
- EMI shielded aluminum faraday cage
- Edge card SMT flex, wire wrap and straight PC tails
- Low temperature rise for higher current density
- Conforms to MIL-DTL-55302

Flexible Cable Assemblies

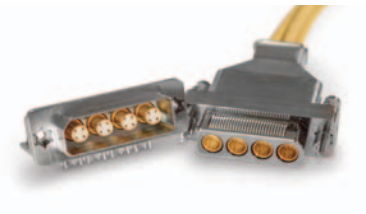
Lab-Flex® Family

- Field proven up to 65 GHz
- Low loss, up to 40% less loss
- Custom braids for strength
- Shielding greater than 90 dB
- Stranded center conductor version available

High Speed Copper

Quadrax and Twinax

- Standard 100 and 150 Ω quadrax and twinax contacts
- Micro twinax and quadrax connectors
- Rugged D-Sub, ARINC and MIL-DTL-38999 standard quadrax and twinax
- Data rates up to 6.25 Gbps
- Reverse gender quadrax contacts



EMI Filter

Transient Protected Solutions

- Intermateable and interchangeable with standard non-filter connectors
- C, L and Pi style of all formats
- Insertion loss simulation for actual circuit configurations
- TVS protection meeting the requirements of RTCA D-160 section 22 up to level 5

Fiber Optic

Single and Multimode

- Butt-joint and expanded beam technology
- Floating design (< -0.5dB), low loss fiber available
- Connector formats for MIL-DTL-38999, ARINC 600
- Fully terminated and tested
- PC or APC ferrule end face

Rigid Cable Assemblies

Semi-rigid and Conformable

- High frequency
- RF leakage: up to > 100 dB
- Copper or aluminum jackets
- Range of protective coverings available

Engine

Systems

Extreme Robustness

Smiths Interconnect engine system solutions offer superior hyperboloid contact technology resulting in higher temperature and vibration capability allowing for more sensors, monitoring and control systems to be located at or near the engine system.

Key Benefits

- Extended contact life for increased MTBF and reduced system cost of ownership
- Modular construction of EMI/EMP filtering designed for high shock performance requirements (> 1,000 G's)
- Significant performance at elevated temperature conditions beyond standard MIL Spec (> 260°C)
- Sensor positioning closer to the engine

Circular Power

HBB Series

- Current rating 300 A and 500 A, 1 pole
- Cable and panel mount variants
- Push lock to mate connector
- Rugged metal shell
- 360° EMI/RFI shielding option
- Sealed IP69 and IP6K9K when mated

EMI Filter

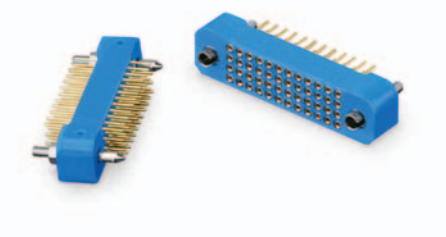
Transient Protected Solutions

- Optimized filter style and value on receipt of signal type and data rate
- Improved shock and vibration resistance
- Low impedance control system
- Transient protection in accordance with RTCA D 160F waveform and level specifications

High Density PCB

55302 Compliant/KA Series

- Available in 2 to 5 row configurations, from 17 to 490 contacts
- Over 2,500 configurations
- Guiding devices with or without polarization (16 keys available)
- Straight dip, right angle solder, crimp, solder cup and wire wrap termination options
- Front release, rear removable contacts



RF Components

Diamond RF Resistives

- Highest power and frequency, smallest size
- Very low parasitic capacitance
- Footprints from 0402 (20W) to 2010 (300W)
- Size and weight reduction in space & hi-rel applications
- Easy-to use packages: chips, flange and tabbed

Power

Distribution

Increased Power Spectral Density

Smiths Interconnect power distribution solutions offer superior hyperboloid contact technology resulting in system stability as well as higher power density, low contact resistance and temperature variants. Systems include overall power distribution, auxiliary power units, de-icing systems, power conversion and motor drives. Modular power connections for low mating force multi-pole configurations with available interlock options.

Key Benefits

- High current-carrying capacity in a compact size
- Customer configurable architecture
- > 20 independent points of contact provide low voltage drop and minimize temperature rise
- High resistance to vibration and shock reduces maintenance costs

Circular Power

HBB Series

- Current rating 300 A and 500 A, 1 pole
- Cable and panel mount variants
- Push lock to mate connector
- Rugged metal shell
- 360° EMI/RFI shielding option
- Sealed IP69 and IP6K9K when mated

High Density PCB

55302 Compliant/KN Series

- Available in 2 and 3 row configurations, from 17 to 160 contacts
- ESA qualified: ESCC 3401 039
- Guiding devices with or without polarization (16 keys available)
- Wire wrap, crimp, solder cup, straight and right angle PC tails
- Front release, rear removable contacts

Modular Power

MRG Series

- Mate detection system
- Custom single pole, dual pole, tri-pole and multi-pole configurations
- Common amperage-rated molded components
- Up to 1,000 A current carrying capacity

Signal & Power PCB

MHD/MDD Series

- Signal and HE 807 cavities for power and coaxial contacts
- Ruggedized metal or plastic shells available
- ESA qualified: ESCC 3401/065
- Up to 400 signal contact positions

SATCOM

Connectivity

Always Connected

Smiths Interconnect SATCOM terminals provide unmatched customer experience with broadband gate-to-gate connectivity along with network agnostic architectures enabling best in class user experience.
Our cable assemblies and components are designed for highly dynamic flexure and temperature variable environments and are the market leading choice in fully integrated antenna systems.

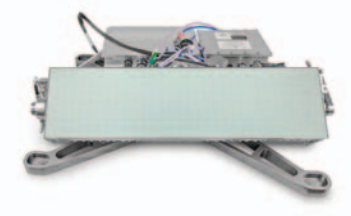
Key Benefits

- Connect at gate and stay connected for improved customer experience
- Network & modem agnostic enables selection of best in class connectivity and least cost routing
- 360° skew rotation reduces the number of antenna configurations needed
- Proven technology with over 1000 KuStream® 1000 installs and 15 million flight hours

Ku-Band Antenna System

KuStream® 1000 Series

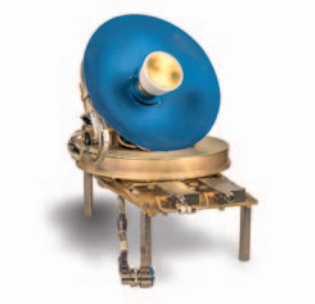
- Integrated 4 LRU system
  - Satellite Antenna Assembly (SAA)
  - Antenna Control Unit (ACU)
  - High Power Transceiver (HPT)
  - Modem agnostic (customer selected)
- Large Installed Base
  - Over 1000 aircraft installations
  - More than 15 million flight hours
  - Commercial and military variants
- Full compliance with stringent FCC regulatory standards
- Market leader
  - Gate-to-gate connectivity
  - Operates on global Ku-band networks and new HTS satellites
  - Proven and trusted



Ka-Band Antenna System

KaStream® 5000 Series

- Light weight highly integrated 3 LRU system
  - High gain antenna system with integrated High Power Transceiver (HPT)
  - Antenna Control Unit (ACU)
  - Modem agnostic (customer selected)
- Interchangeable Ku and Ka Band Antenna platforms (STAA only) for maximum flexibility
- Broad frequency coverage for military and commercial use



Ku-Band Antenna System

KuStream® 5000 Series

- Light weight highly integrated 3 LRU System
  - High gain antenna System with integrated High Power Transceiver
  - Antenna Control Unit (ACU)
  - Modem agnostic (customer selected)
- Interchangeable Ku and Ka Band Antenna platforms (STAA only) for maximum flexibility
- Full Ku-band spectrum coverage for military and commercial use
- Market Leader
  - Gate-to-gate connectivity
  - Operates on global Ku-band networks and new HTS satellites
  - Proven and trusted

Cable Assemblies

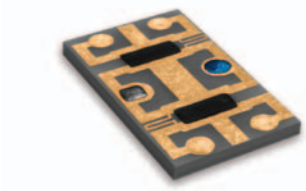
Lab-Flex® Series

- Low loss designs available from DC-65 GHz
- High shielding and extremely durable due to braiding designs and solder sleeve terminations
- Stranded Centre Conductor (Lab-Flex® S) designs ideal for high flexure rate requirements

RF Components

Board-level Devices

- Resistive components up to 50 GHz
- Power handling up to 400 watts
- Temperature variable attenuators for passive gain compensation
- Broadband performance with compact form factor



Ferrites & Passive Sub-Assemblies Waveguide

Isolators and Transitions

- Designed to operate up to 50 GHz with superior electrical performance
- Optimized for high power applications
- RF sealed and robust
- Waveguide devices and assemblies optimized for Ku and Ka bands

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

- EN/AS 9100
- MIL-DTL-3933
- MIL-DTL-39030
- MIL-DTL-38999
- MIL-DTL-83723
- MIL-DTL-83527
- MIL-DTL-24308
- MIL-DTL-83513
- MIL-C-26500
- MIL-C-81511
- MIL-C-26482
- MIL-PRF-55342
- ARINC 404
- ARINC 600
- ARINC 628
- ARINC 800
- ARINC 801
- HE 801
- HE 704
- Nadcap
- NF C-UTE C93-424

Engineering

- 3D EM Modelling
- Advanced RF & System Modelling
- CAD/CAM & Solid Modelling
- Finite Element Analysis
  - Thermal Analysis
  - Shock & Vibration Analysis
- Reliability Analysis

Manufacturing

- Precision Machine Shops
- Connector, Contact & Cable Assembly
- Automated PCB Assembly & Inspection
- Automated Hybrid Assembly
  - Die Placement
  - Wedge & Wire Bonding
  - Gap Welding
- NASA Certified Soldering
- 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
- Near Field/Compact Antenna Range

Locations

Connecting Global Markets

Smiths Interconnect's strong focus on serving international markets and customers is supported by our global network of sales offices across America, Europe and Asia.

Americas

- Costa Mesa, CA
  +1 714 371 1100
  info.us@smithsinterconnect.com
- Hudson, MA
  +1 978 568 0451
  info.us@smithsinterconnect.com
- Kansas City, KS
  +1 913 342 5544
  info.us@smithsinterconnect.com
- Milpitas, CA
  +1 408 957 9607 x 1125
  info.us@smithsinterconnect.com
- Northampton, MA
  +1 413 582 9620
  info.northampton@smithsinterconnectinc.com
- Salisbury, MD
  +1 800 780 2169
  info.us@smithsinterconnect.com
- Stuart, FL
  +1 772 286 9300
  info.us@smithsinterconnect.com
- Tampa, FL
  + 1 813 901 7200
  info.tampa@smithsinterconnectinc.com
- Thousand Oaks, CA
  +1 805 267 0100
  info.thousandoaks@smithsinterconnectinc.com

Europe

- Deggendorf, Germany
  +49 991 250 120
  info.de@smithsinterconnect.com
- Dundee, UK
  +44 1382 427 200
  info.dundee@smithsinterconnect.com
- Elstree, UK
  + 44 20 8236 2400
  info.uk@smithsinterconnect.com
- Genova, Italy
  +39 0 10 60361
  info.it@smithsinterconnect.com
- Rouen, France
  +33 2 32 96 91 76
  info.fr@smithsinterconnect.com

Asia

- Shanghai, China
  +86 21 3318 4650
  info.asia@smithsinterconnect.com
- Singapore
  +65 6846 1655
  info.asia@smithsinterconnect.com
- Suzhou, China
  +86 512 6273 1188
  info.asia@smithsinterconnect.com

UK Headquarters

- London, UK
  +44 20 7004 1600
  info.uk@smithsinterconnect.com

US Headquarters

- Stuart, FL
  +1 772 286 9300
  info.us@smithsinterconnect.com

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.

more > **smithsinterconnect.com**