smiths interconnect
bringing technology to life

Connecting as one



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.



Defense
Capabilities

more > smithsinterconnect.com

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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 highly reliable connectivity in various military and defense applications. Our proven industry expertise lies in designing and manufacturing integrated microwave assemblies, subsystems, direction finders, SATCOM, datalinks, antennas, connector solutions and cable assemblies that achieve optimal system performance in demanding environmental conditions.

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 Topographies

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

Providing A Competitive Advantage

We offer a breadth of highly reliable, quality interconnect solutions proven in the harshest military environments. Our know-how and application expertise ensure the design, manufacture and supply of cost effective, high volume products and complete tailored solutions. We work closely with our customers to address their current needs and, as a technology leader, constantly enhance our capability to solve tomorrow's problems. Our technically differentiated solutions provide our customer with a competitive advantage when tackling the challenges of higher power, higher data rates, wider bandwidth, and greater connectivity all within a smaller footprint.

Communications



- Airborne, Vehicular and Naval
- Ground Based (Stationary and on the Move)
- Man-portable
- SATCOM
- Datalinks
- Missiles
- Timing and Networking

EW



- Electronic Countermeasure (ECM)
- Electronic Protection (EP)
- Electronic Support Measures (ESM)
- Simulation

ISR



- Remote Sensing and Surveillance
- Data Analysis
- Data Recording
- Data Distribution and Management
- Positioning and Networking

Radar



- Surveillance Radar
- Precision Approach Radar
- Target Acquisition Radar
- Early Warning Systems
- Fire Control Radar
- Radar Altimeter



Communications

Top: Smiths Interconnect connector solutions enable superior war-fighter communication.

Enhanced Technology

Smiths Interconnect solutions enhance mission-critical communication systems through superior connectivity enabling greater bandwidths and data rates. Industry-proven to be highly reliable on harsh air, land and sea platforms, we work closely with our customers to provide a competitive edge for their next generation software defined communications architecture.

Key Benefits

- Superior connectivity
- Greater bandwidths
- Higher data rates

Cable Assemblies

High Performance Flexible Cables

- Low-loss, high frequency cable assemblies available for dynamic and static applications
- Durable options for improved MTBF and reduced cost of ownership
- High power, low attenuation coaxial cable assemblies for longer assemblies in antenna use



Connectors

High Speed Copper

- Standard 100 and 150Ω 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



RF Components

Resistors and Terminations

- Innovative design and material maximize power-to-size ratio
- Low and high power designs from 0.1 to 800W
- Alumina, ALN, BeO and diamond substrates
- Wide range of resistance values
- High precision and reliability



Connectors

SnapTac©

- Lightweight, robust, quick release, miniature size
- Exceptional signal integrity
- IP67 sealing
- Spring loaded contacts
- Circular or rectangular options, with or without over-moulding and cabling
- Designed for extreme environmental conditions



RF Filters

Low-loss Filters

- Low-loss RF filter solution up to 40 GHz
- Various configurations and topologies available to meet specific RF conditioning needs
- High selectivity designs mitigate interference and improve range





Communications

Top: Smiths Interconnect supports key programmes under development and in service.

Market Leading Reliability

From military transport aircraft via advanced missile platforms to rapidly deployable ground stations in a remote location, our antenna and networking capabilities provide our customers with timely and accurate communications coverage that meets critical requirements within an optimised footprint. Key design drivers include reducing the Size, Weight and Power (SWaP), conformality to the platform and superior system reliability.

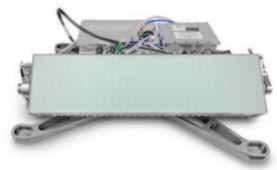
Key Benefits

- Time and precision accuracy
- Comprehensive communications product offering
- Low SWaP/conformal solutions

Airborne SATCOM

KuStream® Antenna Systems

- Continuous connectivity at any altitude
- Market leading reliability provides lower total lifecycle cost
- Network agnostic Ku-band terminal solution saves re-provisioning time and cost



Antenna & Quasioptical Products

mmW Antenna Systems

- Full range of millimeter-wave antenna products and technologies including aperture, reflector, and lens-based
- Standard models from 18 to 325 GHz
- Custom designed antenna arrays available
- Additional offerings: polarizers, orthomode transducers, monopulse comparators, and waveguide rotary joints



Network Time Protocol (NTP) Servers

- Designed for time synchronizing networks using IRIG-B as the time reference
- Accepts a fiber optic or wireline IRIG-B time code
- Time synchronization of SIPRNET and NIPRNET
- Remote configuration and monitoring via Ethernet and RS-232



Positioners/ Controllers

- Fixed and mobile positioning systems
- Man-portable to 7 meter installations
- Reflector and feed assemblies reaching 0.5 to 325 GHz



Tactical Global Positioning Systems (GPS)

- Compact, rugged enclosure
- Contains a rubidium oscillator and low phase noise cleanup oscillator
- Remote configuration and monitoring via Ethernet and RS-232
- Standard C/A-Code GPS or optional SAASM GPS



Time Code Processors

- Modular construction with over 100 options
- Standard C/A-Code GPS or optional SAASM GPS
- Wide variety of outputs available
- Remote configuration and monitoring through Ethernet and RS-232
- Rugged enclosure





EW

Electronic Warfare

Top: Smiths Interconnect provides mission-critical connectivity for the modern battlefield.

Innovative Solutions

Smiths Interconnect solutions form an essential part of our customers' requirement to create disruptive Electronic Warfare (EW) technologies that enable them to outpace rapidly evolving threats from adversaries. Our continuous drive to develop innovative solutions, whilst maintaining high quality and on-time delivery standards, provides the support our customers require in this dynamic environment.

Key Benefits

- Innovative and continuously evolving product portfolio
- Timely delivery
- Rigorous quality criteria

Cable Assemblies

Semi-Rigid, Hand-formable, and Flexible Series

- High performance RF
- Wide range of connector, plating and jacket type options
- Custom bent configurations or packaged straight for on-site routing



Connectors

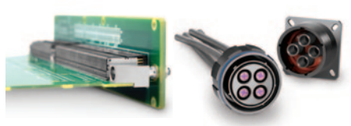
Fiber Optic and Rugged COTS PCB

Single and Multimode

- Butt-joint and expanded beam
- Floating design (<-0.5dB), low loss fiber options
- MIL-DTL-38999, ARINC 600 compatible
- PC or APC ferrule end face

KVPX Series

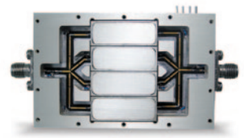
- Fully footprint compatible with VITA 46/48
- Flexible modular design
- 100Ω impedance for differential pair configurations
- Performance up to 10 Gbps



Integrated Filter Assemblies

Switched Filter Banks

- Offer high selectivity in broadband systems
- Optimized integration provides low loss and fast switching speed in a ruggedized package
- Ideal RF conditioning solution for frequency conversion and signal intelligence applications



Integrated Microwave Assemblies

Up/Down Converters

- Single and multi-channel
- Control at high dynamic range
- Phase and gain matching
- Radiometer and RADAR front ends
- Compact size
- Performance under vibration
- MIC/SMT content optimized for performance and cost
- Through 325 GHz



mmW Components

Amplifiers

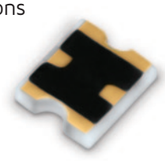
- Broad array of power amplifiers (AMP) up to 16-way, and low noise amplifier (LNA) solutions
- Standard models from 18 to 110 GHz
- Superior performance and efficiency for high frequency applications
- GaN, GaAs, InP, and SiGe technologies
- Custom variations of standard millimeter-wave amplifiers, as well as multi-component assemblies and solutions



RF Components

Attenuators

- Product versions from DC to 50 GHz
- Excellent RF broadband performance
- 50 years of proven space and military heritage
- Footprint compatibility with Thermopad®
- Surface mount, wire bond, tab, flange and coaxial configurations





ISR

Intelligence, Surveillance, Reconnaissance

Top: Smiths Interconnect solutions enable success in ISR operations.

Critical Support in Demanding Environments

The breadth of quality and reliable Smiths Interconnect solutions, ranging from miniaturized RF components to wideband antennas, is extensively applied by our customers in developing their cutting edge Intelligence, Surveillance and Reconnaissance (ISR) systems. Our technically differentiated products formed from an in-depth knowledge of our customers' needs and the demanding military environment, provides critical support in ensuring high capacity, rapid-rate ISR data is accurately and efficiently captured, analyzed, distributed and controlled.

Key Benefits

- Critical relationships enable in-depth knowledge of our customers' needs
- Facilitating high capacity and rapid-rate data distribution
- Extensive range of high quality and reliable solutions

Cable Assemblies

Lab-Flex AF Series

- Excellent performance in the most extreme environmental conditions
- Cable designed to prevent moisture ingress and comes standard with braided jackets to reduce risks of damaging the cable during installation



Connectors

RF Coax/Triax

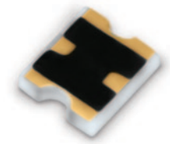
- Spring loaded for optimum contact mating force
- Low VSWR
- Size 8: 1.15:1 Typ Mated Pair
- Size 12: 1.25:1 Typ Mated Pair
- Insertion Loss: 0.15dB to 26.5 GHz Typ (Size 8) and 0.2dB to 40 GHz Typ (Size 12)



RF Components

Thermopad®

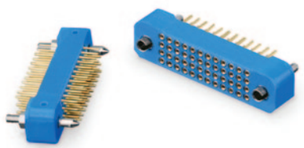
- Totally passive solution for temperature compensation
- Wide range of solutions form DC to Ka band
- Available in wide range of attenuation values and TCA shifts
- Available in many configurations and qualified for high reliability applications



Connectors

Signal & Power High Density PCB

- Available with hyperboloid and spring probe contact technologies for superior vibration resistance
- Ranges from 17 to 490 contacts, with straight dip, right angle solder, crimp, solder cup and wire wrap termination options
- Guiding devices with or without polarization (16 keys available)
- Front release, rear removable contacts



Wideband Antennas

- Used as stand-alone antennas or reflector feeds in parabolic antenna systems
- Standard models from 18 to 110 GHz
- Vast array of omnidirectional antennas





Radar

Top: Smiths Interconnect provides complex solutions for tomorrow's radar technology.

Powerful Performance in Unique Conditions

Smiths Interconnect is the supplier of choice for a broad global customer base across a wide range of radar types installed on air, land and sea defence platforms. Our solutions are developed to meet the critical demands of higher power and an ever decreasing footprint whilst ensuring a lower lifecycle cost as a result of their renowned quality and reliability.

Key Benefits

- Supports higher power requirements
- Flexibility through scalable solutions to accommodate reducing footprints
- Excellent signal integrity

Cable Assemblies

Lab-Flex Series

- Low-loss, high frequency cable assemblies up to 50 GHz
- Phase stable over temperature for consistent performance in phased array systems
- Available with range of miniature connectors for high-density installations



Connectors

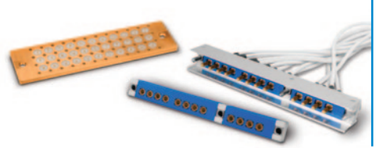
Signal & Power PCB and EMI filtered

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

PCB 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



Ferrites

SMT/Microstrip Ferrite

- Available in Surface mount (SMT) and Microstrip configurations
- UHF through L-Band frequency range, Peak power performance
- Small and compact
- Compatible with tape and reel and standard solder reflow profiles



Integrated Microwave Assemblies

- Functionality includes up/down converters, power amplifiers, modulators/ demodulators, broadband, switched filter networks, LNA's, oscillators, switches, synthesisers, ferrite isolator and receiver protectors
- High reliability, quality and superior performance
- Ruggedized for temperature and vibrations
- Custom form factors



RF Components

Diamond RF Resistive®

- High power-to-size ratings to 300W
- Excellent peak power performance
- Extremely low parasitic capacitance
- Super compact form factor
- Space and military qualified



mmW Components

High Power Circulators

- Four-port, differential phase shift device
- Provide protection, isolation, and duplex capability to high power transmitters and receivers
- High isolation
- Low insertion loss
- High power handling
- Performance up to 110 GHz



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

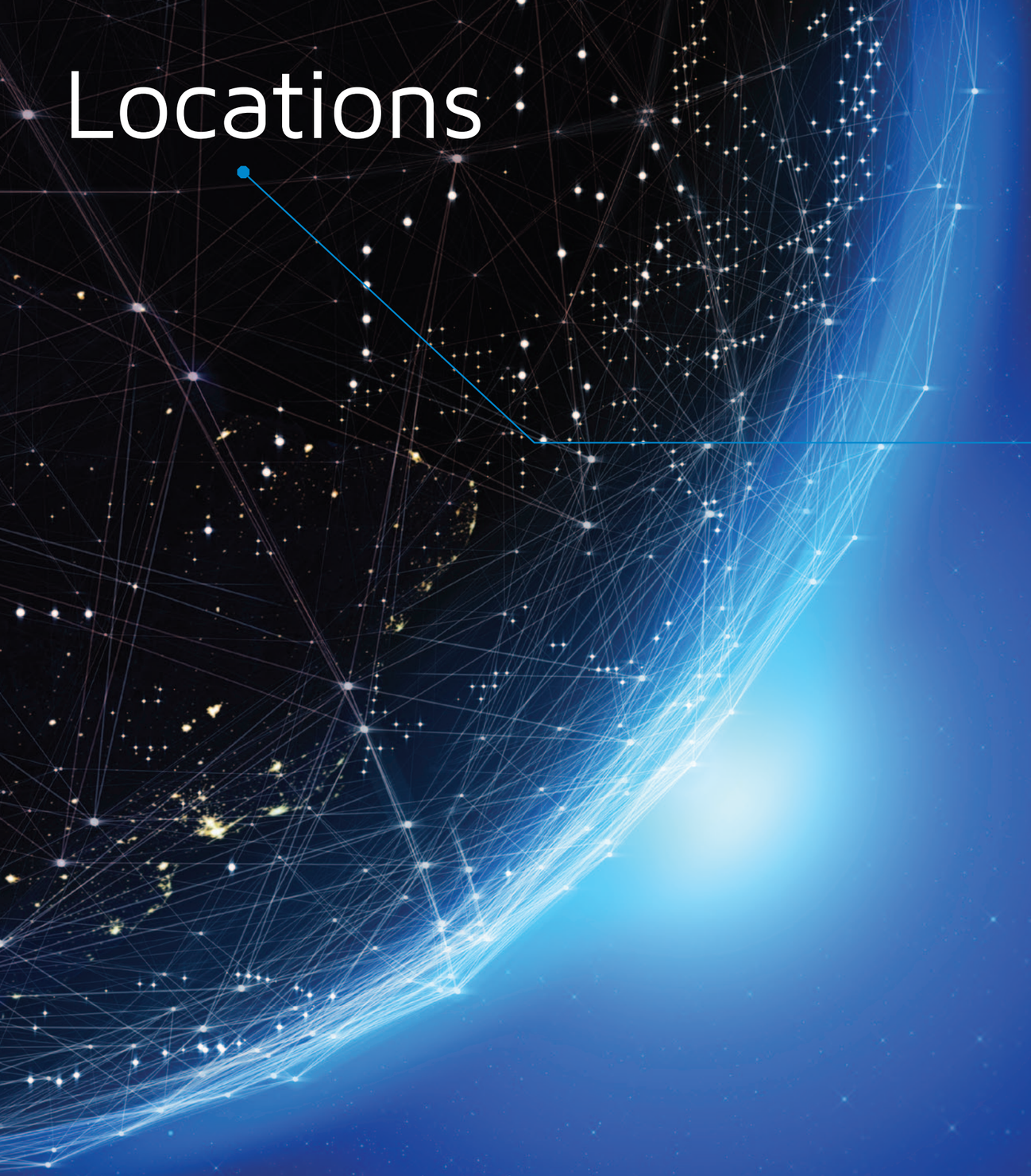
- CNC Turning & Milling Centres
- Cabling / Prototype Assembly
- 3D Printing

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
- High Power RF Testing



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.

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