



# DEFENSE

Booklet



SIMPLIFICATION IS OUR INNOVATION

**Radiall** 



## FOREWORD

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Radiall is a leading supplier of interconnect solutions in the defense industry. We are recognized for our innovative solutions that ensure easy and reliable connections in systems that require high performance and small form factor for military platforms in air, land, sea and space.

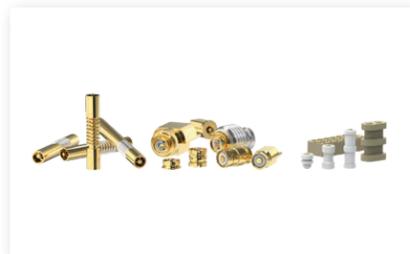
Our global presence allows us to support key defense players on a local level.

Radiall has developed a broad and unique product portfolio offer in:

- *RF connectors and cable assemblies*
- *Optoelectronics*
- *Optical interconnect systems*
- *Microwave systems*
- *Multipin solutions*

# ACTIVE ANTENNAS

Active antennas are designed to provide high communication levels and an accurate view of the modern battlespace. Depending on the mission, an active antenna can ensure beamforming communication, IFF, surveillance tracking or multirole missions. Radiall can address custom requirements to fit every need, from high performance and solderless RF connectors to high bandwidth end-to-end optical solutions data processing.



## IMP FAMILY

Radiall has introduced innovative connectors to follow the trend of miniaturization of applications while increasing performance. The products provide increased integration density, lighter interconnection and simplified product integration. The IMP Family is comprised of different products designed to suit a variety of applications in the defense and space industries: IMP-HD, IMP-LP and IMP-SR.

- Up to 40 GHz
- Low phase noise option available on demand
- Insertion loss:  $\leq -0.15$  dB @ 18 GHz
- Crosstalk:  $-85$  dB typ. @ 18 GHz



## SMP FAMILY

The Radiall SMP Series meets MIL-STD-348, figure 326 interface standard and DESC specifications 94007 and 94008. They are intermateable with GPO<sup>®</sup>. There are three levels of retention (applicable to the male connectors when ordering), which provide different levels of force required to connect and disconnect the connectors:

- Full detent for a positive locking with a maximum retention
- Limited detent for a positive locking with a medium retention
- Smooth bore for the lowest retention (slide connection)



## POWER DIVIDER

Radiall's power dividers/combiners offer a wide frequency coverage from 0.22 GHz to 26.5 GHz with high performance. Targeting broadband electronic systems and complex test applications, Radiall offers the possibility to divide/combine 2, 3, 4, 6 and 8 ways of RF signals. Radiall power dividers/combiners are designed and tested per MIL-STD-202 standard.

- Broad band from 0.22 to 26.5 GHz
- 2, 3, 4, 6 and 8 ways divisions available
- Power dividers can be used as combiners



## CABLE ASSEMBLIES

Radiall has an extensive range of cable assemblies with outstanding electrical performance, low loss, high frequency and limited phase variation vs temperature that ensure the best reliability to active systems.



## 67 GHz RANGE (ATTENUATOR & LOAD)

Radiall 67 GHz range of attenuators and loads is the perfect solution when high RF performance is required and size or wide temperature range are critical.

- Exceptional VSWR performance
- Excellent stability in attenuation precision
- Wide temperature range:  $-55$  °C,  $+125$  °C
- Very small form factor



## D-LIGHTS MODULES

D-Lightsys<sup>®</sup> optoelectronic modules are transparent protocol independent optical transmitters, receivers and transceivers designed for harsh environments in demanding applications and markets. These products operate in a large temperature range and are available with a variety of options, including surface mount, pluggable and specific custom packages with data rates up to 12 Gbps.

- Bit rate from 0.1 up to 12 Gbps
- 4-channel transceiver and 12-channel transmitters or receivers
- Very compact form factor
- Low power consumption
- Custom pigtail length
- Large variety of termini/connector options
- Operating from  $-40$  °C to  $+90$  °C
- Qualified according to mil-aero standards

# RUGGEDIZED INTERCONNECTION

In the defense market, harsh environments are not just a possibility. It's a reality. Whether on land, sea or air, defense systems and equipment are often in front of extreme conditions that test their resilience, functionality and durability.

From scorching deserts to icy tundras and from turbulent seas to high-altitude mountain ranges, the challenges faced by defense equipment are multifaceted and unforgiving and need rugged interconnection.



## CONTACTLESS CONNECTOR

Radiall has developed a new generation of connectors that provides power and/or data without contact at short distance. Contactless power and/or data connectors are demonstrators that allow to test the technology up to 15 W.

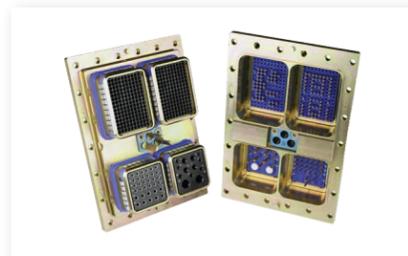
- Contactless and power transmission - Power supply up to 15 W
- Data transmission, CAN, 250 kbps
- Distance of transmission 8 to 16 mm
- 24 VDC/24 VDC
- High misalignment tolerance



## OUTDOOR/ARMORED CABLE ASSEMBLIES

From double jacketing to the highest level of protection (Projack), the armored SHF range will resist high mechanical stress while providing first class electrical performance. Today, armored SHF cable assemblies are used in the heaviest defense and industrial environments where durability and reliability are essential. The Projack shielding protects SHF Ultra Low Loss cables and fully resists to crush, abrasion and traction. Radiall's Projack also prevents from kink effects and provides watertightness.

- Hermetically-sealed cable assemblies
- Accurate phase matching
- FAR 25, RTCA DO160 qualified
- Available with Self-Lock connectors
- Existing ultra flexible solutions
- Wire Lock
- Stainless Steel 316L



## MPX

Radiall's MPX Series, also known as DoD-C-83527 or EN3682, is used in military applications to connect avionics to the equipment rack. A ruggedized version of the Arinc 600, Radiall's MPX Series brings together high density and robustness to answer the civil and military aerospace market's needs when harsh environmental conditions are a concern. Available for coax BMA and optical LuxCis®, Q-MTitan™ and Expanded Beam.

- Mechanical Performance
  - Random vibration: see MIL-DTL-83527B
  - Shock (Test procedure 27 of EIA364): 30 g / 11 ms / half sine
  - Mating/unmating (Test procedure 9 of EIA364): 500 cycles
- Environmental Performance
  - Temperature range: -65 °C (-85 °F) to +150 °C (+302 °F)
  - Temperature life (see MIL-DTL-83527B): 500 hours at 150 °C (+302 °F)
  - Altitude immersion about 75,000 feet



## REPLACING CADMIUM PROTECTION

With the interdiction of the cadmium protection, Radiall has developed a new plating to guarantee the performances of our products in military applications. We created a tin-zinc alloy that provides the same performances as cadmium and is compliant with REACH and RoHS.

- REACH and RoHS compliant
- 100 hours salt spray, 500 hours in progress
- Available for EPX, MPX and NSX



## HERMETIC CONNECTORS

Hermetic connectors are used for applications requiring an extremely rugged and reliable seal in high-pressure environmental conditions. They are designed with a fused glass-to-metal seal, which is soldered into the connector body and seals the connector internally.

- Available interfaces: BMA, SMA, SMP, SMPM
- Leak rate less than 10<sup>-8</sup> cc/sec of helium at 1 atmospheric differential pressure



## EXPANDED BEAM EB-LUXCIS® SOLUTIONS

Radiall's EB-LuxCis® product range offers Expanded Beam technology for high performance and durability within multipin connector solutions. This product range features the commonly used LuxCis® ARINC 801 fiber optic contact inserted into a 2 or 4 channel (MM or SM) Expanded Beam insert.

EB-LuxCis® is the ideal solution for demanding applications in highly contaminated environments where low maintenance is essential.

- Can be used in MIL-DTL 38999, EN4165, EPX and MPX connectors

# ELECTRONIC WARFARE

In today's defense market, the effectiveness of modern military capabilities hinges on mastery of the electromagnetic spectrum. This spectrum is vital for enabling warfighters to communicate seamlessly, detect threats and safeguard themselves from harm.

EW detects, interprets and disrupts signals across the electromagnetic spectrum, including radar, radio and infrared, to protect military assets from potential threats.



## SMP-LOCK®

The SMP-LOCK® is a sub miniature lock-on connector, operating in the range DC to 40 GHz.

This secure connector based on SMP interface features a robust locking mechanism, which dramatically increases the retention force of the interface and prevents accidental disconnection. It was designed for high reliability applications.

- Frequency range: DC - 40 GHz
- Durability: 500 mating cycles
- Power rating at 1 GHz: 100 W (CW)



## COUPLER

Radiall offers a comprehensive range of microwave couplers from 150 MHz to 18 GHz. It includes 3 dB hybrid 90° and directional couplers, octave bands and wide bands. The offer is equipped with SMA and N connectors and is compliant with MIL-STD-202 environmental testing (military grade).

- Broad band from 0.15 to 18 GHz
- 6, 10, 20, 30 dB standard coupling values
- Low insertion loss and VSWR
- High directivity



## HDQX

Radiall's High Density Quadrax (HDQX) connector range provides high-speed communication solutions (transmission of Ethernet and RF high-speed signals) by combining compact and rugged qualities for high reliability and signal integrity. Available for Quadrax data transmission or Q-MTitan™ optical transmission.

- Rectangular shape: space-saving
- Simple and secure with a central locking device
- Lightweight composite strain relief or custom backshells



## POWER-MAX ULTRA

As a leader of coaxial board-to-board connection in the telecom market, Radiall introduces a new range of high power coaxial board-to-board connectors, the Power-Max Ultra family, as one of the leading solutions in the market that has the ability to support long-term power handling of 300 W.

- Utilizes high thermal conductivity material
- 300 W continuous (3 KW 1%) capability
- Compact size
- Height range from 20 mm



## PHASE MATCHED SHF CABLES

Radiall is a leading manufacturer of high frequency, low loss, high performance cable due to its mastery of foam PTFE wrapping technology. Radiall's SHF cable offering includes phase-matched cable assemblies for radar applications. A complete set of phase-matched, time-delay-matched or amplitude-matched SHF cable assemblies are available.

- Typical phase matching:  $\pm 0.28\%$  / GHz
- Ultra low loss
- Available in harness configuration



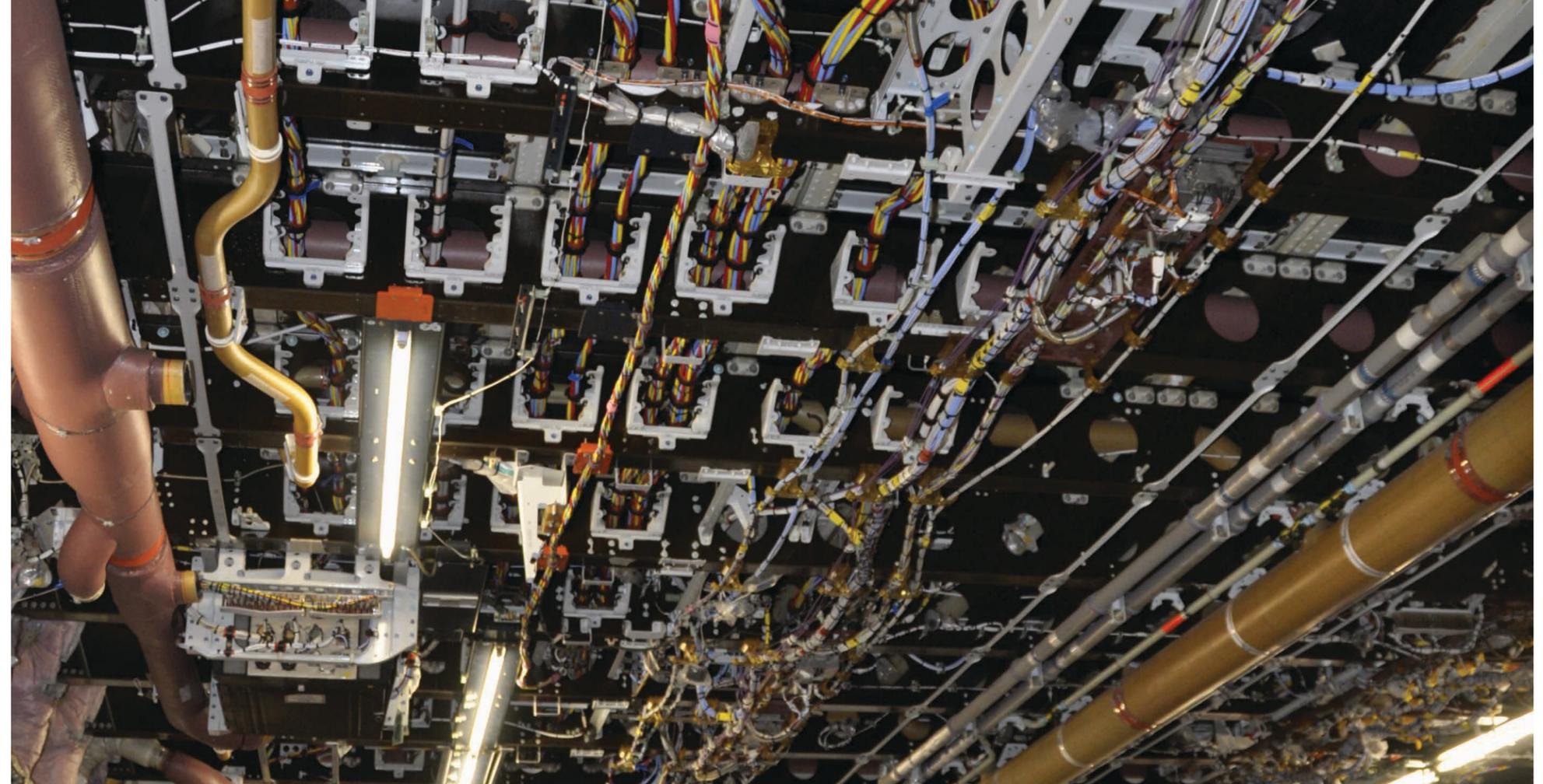
## COAXIAL SWITCHES

Our wide range of microwave coaxial switches are highly reliable, due to the Radiall Modular System for Electromechanical Switches (RAMSES). RAMSES is a patented concept that enables a typical operating life of 10 million cycles while ensuring no degradation in contact resistance reliability over time.

- Frequency up to 67 GHz
- Multiple configurations available
- Excellent RF performances
- High power handling
- Designed for harsh environments

# EWIS (ELECTRICAL WIRING INTERCONNECT SYSTEM)

Modern aircraft relies increasingly on electrical equipment for electronic warfare (EW), communication, stealth and targeting. This requires a robust electrical and optical network infrastructure. Electrical Wiring Interconnection Systems (EWIS) have evolved from simple analog connections to complex digital architectures, incorporating signal, RF and optical links. Our offerings accommodate various conditions, including light, high-density, sealed or unsealed, pressurized or unpressurized and salt-laden environments. Our harnesses and connectors are adaptable to optimize EWIS for specific application needs.



## LUXCIS® BASED SOLUTIONS

The LuxCis® product range is a proven flexible and always expanding fiber optic interconnect solution for MultiMode, SingleMode and SingleMode APC applications in aerospace and other harsh environments.

Selected as the basis for ARINC 801 standard for aerospace optical interconnects, Radiall's LuxCis® ARINC 801 is widely used in a variety of harsh environments, including aerospace and military applications.



## MULTIFIBER OPTICAL SOLUTIONS IN MULTIPIN CONNECTORS

Q-MTitan™ series is a complete range of high density fiber optic interconnect solutions for aerospace and military applications, providing an innovative design to protect an MT ferrule and a ruggedized multichannel interconnect in a small package.

The Q-MTitan™ contacts are designed for use in the existing #8 Quadrax cavities of off-the-shelf multipin connectors, such as MIL-DTL-38999, ARINC 600 NSX, EN4644 EPX, EN4165 connectors, Quick Fusio™ and more.

- 12 and 24 channels per ferrule
- 55/+125 °C operation
- Cable retention
- High levels of shock and vibration



## FIBER OPTIC SIMPLEX AND MULTIFIBER ASSEMBLIES

With over 40 years of experience in manufacturing fiber optic solutions, Radiall delivers high quality harnesses and complex optical systems, including D-Lightsys® active devices, ruggedized fiber optic interconnect solutions and multipin connectors.

Radiall's broad range of reliable and robust fiber optic products feature cutting-edge technology in order to support harsh and demanding environments.

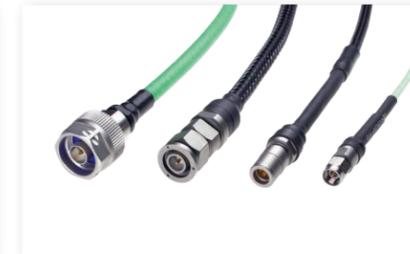
The fiber optic portfolio is based on complementary optical technologies: Physical Contact (PC), including best-in-class LuxCis® ARINC 801, High Density MT ferrule and Expanded Beam (EB) technology.



## ASNE CONNECTORS

Reliable design with bayonet or screw-on for quick and secure connection. BNC, TNC, N and C connectors offers a secure connection with the bayonet coupling system, reducing the risk of accidental disconnection.

- Robust design
- Secure connection
- Up to 18 GHz



## SHF AIRFRAME

Based on the Radiall "General Interconnect Range," this product family has been specially developed to suit most on-board applications requiring hermetically sealed cable assemblies.

Based on high precision wrapping (like the General Interconnect Range), this special SHF construction unites optimal electrical performances, lightweight (use of flat braid) and high resistance to harsh environmental conditions.

As a result, this product range exhibits extremely long life in very severe environments.

This cable range is ideal for all on-board applications for which cable assemblies are located in non-pressurized and non-protected areas.



## EPX®

The EPX® Series offers a wide range of solutions based on two insert sizes with a large variety of shells and contacts. This product range provides an excellent trade-off between the number of available contacts and the space used. A large range of possibilities: disconnect, rackable and bulkhead.

- Mechanical Performance
  - EPX® Disconnect: 100 cycles
  - EPX® Rack & Panel: 500 cycles
  - Nickel, cadmium and tin-zinc protection available
- Electrical Performance
  - Shell to shell conductivity: < 2.5 mΩ
  - Dielectric Withstanding Voltage: 1,500 Vrms at sea level

# OPTRONIC SYSTEMS

Optronic systems play a crucial role in advanced technology, enhancing capabilities in battlefields. Optronic systems combine optical and electronic components to facilitate functions such as sensing, detecting and processing of optical signals. These systems utilize various optical elements like lenses, processors and mirrors.



## S-LIGHT MODULES

S-Light optoelectronic modules are transparent protocol independent optical transmitters, receivers and transceivers designed for harsh environments, demanding applications and markets. These products operate in a large temperature range and are available with a variety of options.

- Data rate from DC up to 10.3 Gbps
- 1-channel transceiver, 1-channel transmitter or 1-channel receiver
- Pluggable interface
- Very compact form factor
- Low power consumption
- Custom pigtail length
- Large variety of termini/connector options
- Operating from -40 °C to +90 °C
- Qualified according to mil-aero standards



## E-LIGHT

Designed for harsh environments, this transceiver combines a small pluggable form factor package with an ARINC 801 optical contact disconnect.

- Data rate from 0.1 up to 5 Gbps
- 1 Tx + 1 Rx transceiver
- ARINC 801 optical disconnect
- Compact size: < 350 mm<sup>2</sup>
- Link budget: > 11 dB @ 5 Gbps over the temperature range
- Operating from -40 °C to +90 °C
- Qualified according to mil-aero standards



## FORTERO

To meet the demand for extremely high rate of data transfer in a hive minded military machine market where sensors and weapons share data at record-breaking rates in increasingly rugged environments, Radiall has developed the Fortero.

- Proven connector with long track record of dependability in high-speed rail
- Simple design that is easily assembled and disassembled without special tooling
- Failsafe visual, audible and tactile cues ensure connection that never loosens



## QUICKFUSIO™ 4 LUXCIS®

The QuickFusio™ Series is optimal for optronic systems with its versatile, lightweight design at competitive costs. Radiall's innovation yields a compact shape, enabling effortless mating. QuickFusio™ provides high performance in harsh aerospace environments. Available in jam nut version or square flange.

- Mechanical Performance
  - Mating/unmating: 500 cycles
  - Random vibration: EN2591 - 403 - method B - 44.8 grms
  - Compatible with four optical contacts LuxCis® or 1 Q-MTitan™
- Environmental Performance
  - Temperature range: -40 °C to +80 °C
  - Salt spray: 96 hours
  - Altitude immersion: 55,000 feet



## MPX OPTICAL SOLUTION

Radiall's MPX Series, also known as DoD-C-83527 or EN3682, is used in military applications to connect avionics to the equipment rack. A ruggedized version of the Arinc 600, Radiall's MPX Series brings together high density and robustness to answer the civil and military aerospace market's needs when harsh environmental conditions are a concern. Available for coax BMA and optical LuxCis®, Q-MTitan™ and Expanded Beam.

- Mechanical Performance
  - Random vibration: see MIL-DTL-83527B
  - Shock (Test procedure 27 of EIA364): 30 g / 11 ms / half sine
  - Mating/unmating (Test procedure 9 of EIA364): 500 cycles
- Environmental Performance
  - Temperature range: -65 °C (-85 °F) to +150 °C (+302 °F)
  - Temperature life (see MIL-DTL-83527B): 500 hours at 150 °C (+302 °F)
  - Altitude immersion about 75,000 feet



## EPX™ RACK & PANEL EB

The EPX™ range is also available for optical solutions, including the LuxCis® monofiber, Physical Contact or Expanded Beam. The spring floating system allows a strong and secure Rack & Panel solution and guarantees optical performances.

- Available in different protection: nickel, cadmium and tin-zinc
- Same level of performance as the EPX™ Disconnect

# MUNITIONS

Munitions, such as missiles, are made of dense subsystem arrangements embedded in a small package. They encompass a wide range of needs, from ultra-flexible and compact RF interconnect solutions and high-speed data to free-space solutions that are capable of transmitting mission data in extremely demanding outdoor environments.



## AMMUNITION GNSS ANTENNAS

Radiall has developed and produced antennas for artillery munitions from 76 mm to 155 mm caliber in GNSS and telemetry bands. These products are mechanically cylindrical or conical and can withstand an acceleration of > 25,000 G.

- GNSS bands (GPS L1/ L+L2/ Galileo, Glonass)
- Suitable for critical environments (> 25,000 g acceleration)
- Omnidirectional antennas
- Passive or active antenna
- Mono or Bi-band antenna
- Anti-jamming beam switching possible
- Temperature range -40/+70 °C peak for few ms
- Chocks > 20,000 g, ~5 ms (axial)



## AMMUNITION TELEMETRY ANTENNAS

The telemetry antennas send flight parameters during the flight of the munition. It accelerates and reduces development costs.

- Telemetry band up to 2.3 GHz
- Suitable for critical environments (> 20,000 g acceleration)
- Omnidirectional antennas



## SMPM-LOCK

SMPM-LOCK is the smallest connector on the market with a locking system. This connector features electrical performance up to 65 GHz and provides a safe connection in shock and strong vibration environments.

- Frequency range: DC - 65 GHz
- IP67 sealing option
- Robust locking system



## SMPW

The SMPW, the new subminiature coaxial connector, features higher data rates and frequencies for next-generation equipment. It also features a frequency range from DC to 100 GHz. With exceptionally low VSWR, SMPW is available in two coupling mechanisms: full detent and smooth bore. The SMPW is 40 percent smaller than SMPM.

- Frequency range: DC - 100 GHz
- Low VSWR (1.02 @ 67 GHz)
- Axial misalignment: 0.3 mm
- Radial misalignment: 2.2°



## QUICKFUSIO™ 6 GHz

QuickFusio™, the smallest connector, is also available for high-speed RF components. This design is qualified for six contacts MCC, with performances up to 6 GHz.

- S band compliant
- Full sealed solution
- Square flange mounting



## QUARTZ SPDT SMT RELAYS

With an innovative micro-mechanical design, the Quartz micro-relay series offers excellent RF performance, reliability, repeatability and high power handling up to 26.5 GHz.

The miniature size, low weight and low installation cost make these coaxial switches an ideal solution for various applications where severe environmental characteristics are required.

# EMBEDDED SYSTEMS

In the realm of defense, embedded systems play a pivotal role in accessing cutting-edge technologies and information. Security is paramount for military embedded systems, given their exposure to rugged environments. Radiall RF cables, connectors, optical interconnect solutions and microwave devices emerge as ideal choices for embedded systems deployed across diverse military vehicles.



## BMA

Sub miniature blind mate slide-on connector, operating in the range DC to 22 GHz. BMA was designed for high frequency Rack & Panel RF applications. It is standardized under IEC 60169-33.

- Frequency range: DC - 22 GHz
- Durability: > 1000 mating cycles
- Power rating at 1 GHz: 450 W
- Temperature range: -65 °C / +165 °C



## IMP-LP HYBRID

IMP-LP provides a low profile solderless board-to-board solution. Its design uses a cold interposer/holder, allowing for high density and cost-effective integration with high RF performance. Hybrid solution allows an interconnect between a front panel and solderless PCB.

- High frequency: 40 GHz
- Front interface: SMP, SMPM, SMP-LOCK, SMPM-LOCK



## ATTENUATORS

Radiall offers a wide range of attenuators from DC to 67 GHz, equipped with BNC, SMA, SMA 2.9, SMA 2.4, SMA 1.85 and other connector series up to 1000 W.

- Compatible with many connectors (BNC, TNC, SMA, SMA 3.5, SMA 2.9, SMA 2.4, SMA 1.85)
- Frequency range: DC - 67 GHz
- Power up to 100 W for attenuators
- Power up to 1000 W for loads
- Qualified for harsh environments per MIL-DTL-39030



## D-LIGHT

D-Lightsys® optoelectronic modules are transparent protocol independent optical transmitters, receivers and transceivers designed for harsh environments in demanding applications and markets. These products operate in a large temperature range and are available with a variety of options, including surface mount, pluggable and specific custom packages that cover data rates up to 12 Gbps.

- Bit rate from 0.1 up to 12 Gbps
- 4-channel transceiver and 12-channel transmitters or receivers
- Very compact form factor
- Low power consumption
- Custom pigtail length
- Large variety of termini/connector options
- Operating from -40 °C to +90 °C
- Qualified according to mil-aero standards



## EPXB2 BULKHEAD RECEPTACLE

The new bulkhead technology ensures permanent sealing when installed on a disconnect panel or output between two zones with different environmental conditions.

- Modular design: mateable with any EPXB2 plugs
- Optimized design: no change in wiring process
- Mature design: qualification according to EN4644



## OPTICAL SOLUTIONS IN MULTIPIN CONNECTORS

Q-MTitan™ is the ruggedized high density optical solution for harsh environments. It is the base design for the aerospace industry standard ARINC 846, which sets the standard for interconnect assembly solutions, based on MT ferrule for use in air transport applications.

- Excellent performance: (cable or connector dependent)
- Temperature range: -55 °C to +125 °C
- Durability: 500 mating cycles
- Vibration: 41.7 Grms
- Easy retrofit solution of #8 Quadax cavity into 12 fiber optic channels

# SOLDIER TACTICAL COMMUNICATION

In challenging tactical environments, the deployment of interconnects is crucial, necessitating solutions capable of withstanding harsh environmental conditions. Radiall's tactical connectors embody a resilient design, facilitating effortless connection and maintenance. These connectors fulfill essential criteria, including resilience against high compressive and tensile loads, as well as protection from dust, dirt and water ingress, addressing vital needs for reliable performance in demanding environments.



## SCREW-ON CONNECTORS

Screw-on connectors provide a robust connection with high electrical performance and very high frequency up to 67 GHz. This range covers high RF performances and high power and could be suitable for various environments.

- Frequency up to 67 GHz
- Sealing up to IP68
- Durability: up to 500 mating cycles minimum
- Power: up to 1500 W @ 8 GHz



## QUICK-LOCK AND SECURE CONNECTORS

Quick-Lock and Secure connectors are designed to provide the ease of use of a snap-on type with the reliability of a screw-on type. Quick-Lock types are typically 10 times faster to mate than standard screw-on connectors and eliminate the need for a torque wrench. They feature low engagement force and enable higher interconnection density. They allow for 360° cable rotation after installation, which makes cable routing much easier.

- Up to 65 GHz
- Sealing up IP68
- Durability: up to 500 mating cycles minimum



## MILITARY RADIO ECM EQUIPMENT (QUARTZ)

With an innovative micro-mechanical design, the Quartz micro-relay series offers excellent RF performance, reliability, repeatability and high power handling up to 26.5 GHz.

The miniature size, low weight and low installation cost make these coaxial switches an ideal solution for various military radio communication applications.



## EXPANDED BEAM ASSEMBLIES

Radiall's EB-LuxCis® product range offers Expanded Beam technology for high performance and durability within multipin connector solutions. This product range features the commonly used LuxCis® ARINC 801 fiber optic contact inserted into a 2 or 4 channel (MM or SM) Expanded Beam insert.

EB-LuxCis® is the ideal solution for demanding applications in highly contaminated environments where low maintenance is essential.

- Can be used in MIL-DTL 38999, EN4165, EPX and MPX connectors



## SMALL FORM FACTOR CABLE ASSEMBLIES

With very small outer diameters and bending moment, these cable assemblies allow very easy routing during installation. Usable in severe thermal conditions, these cable assemblies are available with a large range of connector series.

- RG type of cable
- Semi rigid type of cable



## TNC

TNC was designed as a threaded version of the BNC to improve RF performance stability at higher frequencies. A high frequency version operating up to 18 GHz, TNC 18 connector is a robust, high precision stainless steel version. The TNC Self-Lock was introduced in 2011 for airborne systems and is fully compatible with any standard TNC receptacle.

- TNC provides higher performance with screw-on concept
- High power versions
- Frequency range: DC - 18 GHz
- Temperature range: -65 °C / +150 °C

# ANTENNA TACTICAL COMMUNICATION

Radiall has extensively collaborated with military end users to offer a global range of antennas for defense and security applications. They cover a frequency band from 30 MHz to 6 GHz including UHF, VHF, L and S band. Available through different form factors, these antennas are designed to be integrated on military handheld radio, manpack, military vehicles, LMR and PMR systems and positioning devices.



## VEHICULAR ANTENNAS

Vehicular antennas are radio communication antennas integrated on all types of military vehicles. They cover a frequency band from 225 MHz to 2.4 GHz and more, including the UHF band. The vehicular antenna products are offered as robust tubular form factor and can be mounted on standard NATO base.

- IP67
- Environmental performance according to MIL-STD-810G
- Robust design



## FLEXIBLE ANTENNAS

These antennas are very well suited for use on ground drone/robots. Robust spring allows to the robot to flip over without breaking or deforming the antenna; it returns to its original position.

- Various frequency and gain configurations:
  - 2.4 GHz, 6 dBi
  - LTE (690-960 & 1710-2700)
  - Dual band 2, 4/5, 4 GHz
  - Many more possibilities



## MANPACK RADIO ANTENNAS

Manpack radio antennas include all types of antennas integrated on the soldier manpack radio. They cover VHF, UHF, L and S bands from 30 MHz to 6 GHz and can be offered as multiband. These products are offered in a robust tubular form factor, with the possibility of gooseneck or spring integration.

- VHF, UHF, L and S band antennas from 30 MHz to 6 GHz
- Multiband antennas available
- Gooseneck or spring integration available
- Robust design tested per MIL-STD-810G
- Custom design available on request



## HANDHELD RADIO ANTENNAS

Handheld radio antennas include all types of antennas integrated on the soldier radio. They cover VHF, UHF, L and S bands from 30 MHz to 3 GHz and can be offered as multiband. These products are available in different form factors. Integration of gooseneck or sealing foot at the base of the antenna is also possible.

- VHF, UHF, L and S band antennas from 30 MHz to 3 GHz
- Multiband antennas available
- Overmolded whip or blade form factors
- Gooseneck or spring integration available
- Robust design tested per MIL-STD-810G
- Custom design available on request



## GNSS ANTENNAS

Radiall offers a global range of GNSS antennas in GPS L1, L1/L2, Galileo, Glonass and Beidou bands. Several form factors are available, including stub and square. These antennas can be active or passive and can withstand harsh environmental conditions (IP68, salt fog, vibrations) per MIL-STD-810G.

- Multi-frequencies: GPS L1, L1/L2, Galileo, Glonass, Beidou
- Stub or square form factor
- Active and passive antennas
- IP68, complies with MIL-STD-810-G



## PMR

LMR and PMR antennas are used for private mobile radio communication, including security service, policemen, firemen, etc. They cover a frequency band from 380 to 490 MHz and can be offered as multiband, with the option to include GPS.

- 380 MHz to 490 MHz antennas in TETRA band
- Quarter wave antennas using monopole design
- Possibility of multiband antennas, including TETRA + GPS band
- Robust design using overmolded form factor
- Custom design available on request

# POWER

More electrical equipment requires increased electrical power in the vehicle. EW, propulsion and communication led to the development of specific high power connectors that can be incorporated in harsh environments, new electric drones and ground vehicles.



## TARANIS

To respond to electrical power needs, Radiall has developed the Taranis, a connector with a small form factor, a light weight and high power performances. Usable at sea level and altitude (900 V at 25,000 feet), the unique grounding technology provides a 360° EMI shielding without backshells or any solder sleeve.

- Sealed IP68
- Available in right angle version, 1, 2 or 3 poles configuration.
- DC or AC current



## LUGLESS CONNECTOR

No torquing tools needed, easy to install and blindmate. With no surface preparations and sealed, strong and reliable connections, the Accord brings a range of advantages with our patented blade design.

- Up to 305 A in AWG0
- IP68
- 55 to 200 °C
- 300 mating cycles
- Very low RC



## BUSBAR LYRE

To avoid screw and bolts issues, Radiall has designed this innovative busbar connector. Simply slide the connector on the busbar and the job is done! No control needed. Easy to mate, it can fit all current application by increasing the number of legs on the Lyre.

- Straight or right angle version available
- Very low RC
- Up to 150 °C without material deformation



## CVS-CVB

Boasting over 300 inserts, accommodating up to 201 contacts and supporting currents of up to 150 A, as well as voltages reaching 4200 Vdc or 3000 Vac, CVS-CVB are highly versatile.

- Mechanical Performance
  - Durability: 500 mating and unmating cycles
- Environmental Performance
  - Temperature range: -55 °C/+200 °C
  - Salt spray: 48 - 500 hours
  - IP protection degree (EN 60529): up to IP67



## CVBS

This series, deriving from MIL-DTL-5015 and VG95234 specs, has become a popular standard among railway connection applications. Its success is mainly due to the bayonet coupling system composed of three ramps machined on the external side of the receptacle connector and three stainless steel studs mounted inside the plug connector's coupling nut.

- Fast and reliable coupling (coupling-nut rotation of 120° only and mating is audible, visible and tactile)
- Vibration and impact resistance



## SPPC-PWL

SPPC are Single Pole Power Connectors, designed to provide safe, reliable and quick connections for cable-to-cable or cable-to-equipment in electrical power distribution systems.

- Contact clip fixation
- Up to 750 A, 1000 V
- Flexible offer
- Up to 750A
- Multi-louver contact system

# SIMPLIFICATION is our INNOVATION

*We advance the design and engineering process for innovators, groundbreakers and pioneers of technology. We reduce weight, improve durability and streamline installation to provide leading-edge connectors that drive product performance.*

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## GLOBAL PRESENCE

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