

DEFENCE

Powerful, proven
RF technologies
for mission-critical
defence systems

Securing critical connectivity

Filtronic high-performance RF-to-mmWave subsystems are precision engineered to support resilient, secure, dependable communication and sensing systems for the defence sector.

PROVEN PERFORMANCE ACROSS LAND, SEA, AIR AND SPACE

Modern defence operations and decision-making rely on seamless connectivity and resilient communications across land, sea, air and space. Success depends on information moving quickly and securely between platforms, systems and personnel – often in the most volatile and contested environments.

Filtronic designs and manufactures RF technologies for defence applications where failure is not an option. From radar and electronic warfare to surveillance and tactical communications networks, our systems provide the precision, performance and reliability needed to support complex missions.

A TRUSTED ALLIED PARTNER

Filtronic is a trusted long-term partner to leading defence primes worldwide. We work with defence organisations and governments to develop innovative solutions to emerging challenges in the national security landscape. With our secure supply chains, deep understanding of defence requirements and decades of assured delivery, customers know they can rely on us when operational security, command continuity and battlefield supremacy are at stake.

EXTENDING COVERT ADVANTAGES AT mmWave

In a contested world, the spectrum is a battlefield of it's own. A world of uncertain geopolitics and shifting alliances, gaining control of the highly contested electromagnetic spectrum is vital to securing critical defence capabilities. Filtronic helps defence forces achieve fast, accurate and controllable battlespace connectivity by shifting RF capabilities upwards into uncongested mmWave frequencies (Q, V, E and W-band). Transmitting and receiving signals at these frequencies offers particular benefits for defence applications, with highly directional beams reducing the probability of interception or detection, and mitigating against interference.

Our mmWave systems enable high-capacity communications, secure point-to-point links and sensing systems in crowded battlespaces. Our broader microwave expertise extends into X-band frequencies, supporting applications including military satellite communications, radar and electronic warfare systems.



Fast, accurate
and controllable
battlespace
connectivity

Our impact in defence

In defence operations, mission success requires every RF subsystem to perform flawlessly under stress. Filtronic delivers essential technologies that underpin the most advanced military navigation, surveillance, sensing and communications platforms.



The technology
behind **detection,**
protection
and **survival**



SPACE

ENABLING GLOBAL DEFENCE OPERATIONS FROM ORBIT

Space is an essential operational domain for defence missions, enabling far-reaching communications, intelligence and enhanced situational awareness. Our RF modules form the backbone of space-based defence systems, enabling secure, resilient links across global operations.

Our satellite payload subsystems facilitate reliable data transmission between multi-orbit constellations and Earth. They also enable inter-satellite communications, supporting faster data exchange and enhanced operational capability. For next-generation spaceborne radar systems, we provide transmit-and-receive technologies to support continuous high-resolution imaging.

AIR

ULTRA-FAST, LOW-LATENCY CONNECTIVITY FROM SURFACE TO SKY

Airborne platforms operate in fast-moving environments where speed, precision and signal integrity are prerequisites. Our advanced mmWave subsystems deliver the high-bandwidth, low-latency links needed to maximise connectivity for these airborne systems.

Switched filter banks, transmit/receive modules and frequency converters support exceptional signal quality in airborne radar systems, such as AESA Radar. Our technologies also deliver highly reliable communications, sensing and payload performance for Uncrewed Aerial Vehicles (UAVs), helping to extend operational reach in modern warfare.



GROUND

POWERING OPERATIONAL ADVANTAGE ON LAND

We help defence primes build ground-based systems to deliver uninterrupted connectivity across multiple operational domains. Our solid-state power amplifiers (SSPAs), frequency converters, RF filters and other systems are engineered to maintain consistent performance in the most testing conditions.

Active Electronically Scanned Array (AESA) radars depend on the speed and precision of our systems to detect, track and monitor fast-changing operational environments. Our mmWave technologies support electronic warfare jammers, decoys and support systems – helping to maintain operational dominance where electromagnetic spectrum is under threat.

Our defence technologies

From powerful signal amplification to precise spectrum optimisation, our RF-to-mmWave subsystems provide the performance, resilience and flexibility demanded by today's advanced defence systems.

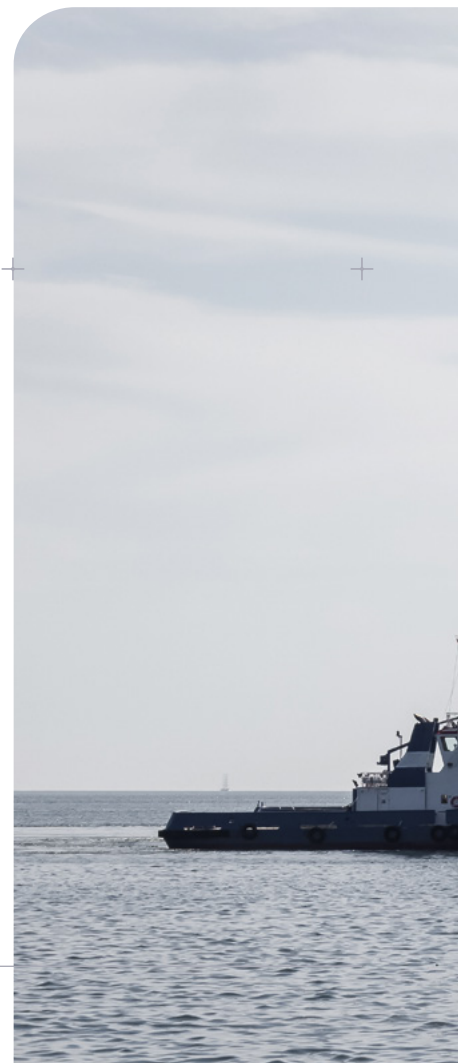
Our vertically integrated design, manufacturing and testing capabilities allow us to develop products rapidly from early Technology Readiness Level (TRL) prototypes through to high-volume production in the same state-of-the-art facilities – helping defence customers keep pace with the evolving threat landscape.

SOLID STATE POWER AMPLIFIERS (SSPAs) – BOOSTING LONG-RANGE CONNECTIONS

Amplifiers boost input signals for long-distance transmission. Our ground-breaking mmWave SSPAs are designed to operate efficiently at high power densities for ground gateways, radar and electronic warfare systems. Our Cerus SSPA range provides industry-leading performance at V, E and W-band, meeting growing demand for high-data-rate transmission across operational defence infrastructure.

FREQUENCY CONVERTERS – OPTIMISING BANDWIDTH AND DATA CAPACITY

Proven to provide fast, precise signal translation, our block upconverters (BUCs) and low-noise block downconverters (LNBs) offer rugged performance in high-throughput communications systems. They operate at Ka, Q, V, E and W-bands to enable high-volume, multi-band operation – helping to maximise spectrum flexibility and improve network capacity.





TRANSMIT AND RECEIVE (TxRx) – SECURING PRECISE COMMUNICATION LINKS

Our transceivers combine transmit and receive functionality for use in tactical radio, telecommunications and satellite networks. Our bespoke TRMs integrate transmit and receive signal paths with additional RF functions such as power and low-noise amplification, filtering, attenuation and phase control. Used in electronically steerable antenna arrays, they provide precise control for beamforming and beam steering.

FILTERS – MAINTAINING CLEAR SIGNALS IN EXTREME CONDITIONS

Defence systems depend on RF filters to select desired frequencies, suppress interference and protect signal integrity. Our filters play a key role in reducing noise and enhancing signals for radar and communications systems. We use advanced materials and techniques to create lightweight, compact filters, built to withstand extreme temperatures, shock and electromagnetic interference in battlefield situations.





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