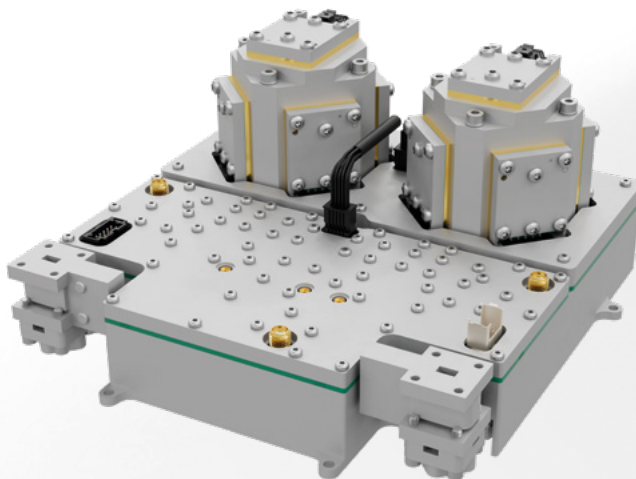


FREQUENCY CONVERTERS

Maximise network capacity with reliable frequency switching



Preserving signal integrity



RELIABLE CONNECTIONS ACROSS THE FREQUENCY SPECTRUM

Modern communication systems depend on the ability to move signals accurately between frequencies while sustaining performance, stability and signal quality. Filtronic frequency converters perform this vital function, giving communication system operators access to greater bandwidth while maintaining signal integrity.

We design and manufacture a range of frequency conversion subsystems, including block upconverters (BUCs) and low-noise block downconverters (LNBs), engineered to support reliable uplink and downlink communications across space.

FREQUENCY SHIFT: MOVING UP TO mmWAVE

As a leading specialist in mmWave innovation, we have developed frequency conversion systems at Ka-band and above for use in demanding applications. We continue to extend these capabilities, supporting advanced communications applications at higher mmWave frequencies, such as Q, V, E, W and D-band.



Built to preserve signal integrity, maximise spectrum flexibility and improve network capacity, **Filtronic frequency converters** provide access to wider bandwidths and significantly higher data rates – without compromising on signal quality.

Frequency converter applications

SPACE: TRANSLATING SIGNALS BETWEEN EARTH AND SPACE

Frequency conversion is fundamental to satellite communications, enabling signals to move efficiently between spacecraft, ground infrastructure and end users. For satellite uplinks, our systems translate input signals from terrestrial networks into the correct frequency band for transmission to satellites. Increasingly, these frequency bands are in the mmWave spectrum. For satellite downlinks, our frequency converters translate incoming signals from satellites into the correct frequency for terrestrial transmission.

DEFENCE: CLEAR TRANSMISSION FOR CRITICAL OPERATIONS

Defence-sector radar, electronic warfare, signals intelligence and tactical radio systems depend on precise and reliable connectivity across the frequency spectrum to support mission-critical communication, sensing and surveillance. By shifting signals up or down, our frequency converters support long-range signal transmission and high-resolution sensing – delivering reliable operation where accuracy and resilience are critical.

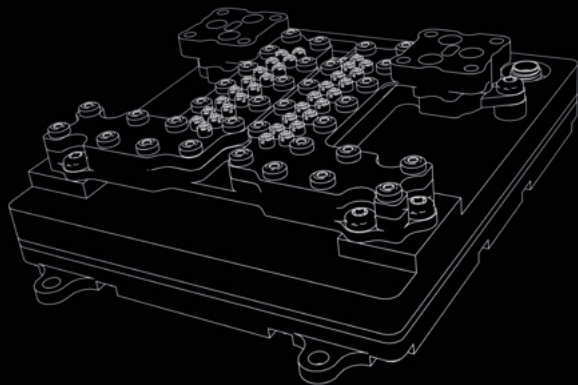
TERRESTRIAL: BOOSTING PERFORMANCE AT HIGHER FREQUENCIES

As terrestrial communication systems move towards higher frequencies, wider bandwidth and increasingly complex architectures, high-performance frequency conversion becomes increasingly important. Our frequency converters play a key role in enabling the evolution of next-generation communication networks by supporting the move into higher-frequencies to achieve greater speed, reliability and capacity.



From satellite payloads and ground infrastructure to defence systems and high-performance terrestrial networks, we deliver the frequency conversion technology that keeps critical signals moving with greater efficiency, reliability and control.

Our frequency converter technologies



Proven systems for powerful performance

Filtronic is redefining frequency converter performance by addressing atmospheric loss, component size and reliability challenges to meet the evolving needs of high-capacity communications applications.

UP/DOWN CONVERTERS

Our combined up/down converters offer rugged, reliable performance in high-throughput satellite (HTS) systems at Ka, Q, V, E and W-bands. They are designed to optimise signal integrity, enabling high-data-rate, multi-band communications.

BLOCK UPCONVERTERS (BUCS)

By combining powerful SSPAs with frequency converters and transmitters, our block upconverters (BUC) turn low-frequency IF signals into higher-frequency RF signals, and boost them for accurate transmission over long distances.

LOW NOISE BLOCK DOWNCONVERTERS (LNBS)

Our LNBs combine low-noise amplifiers (LNAs) with frequency downconverters and transmitters. They receive weak RF signals from distant assets, such as satellites, amplify them and convert them to lower frequencies (IF) for transmission on terrestrial networks.

BUC – FOR SATELLITE UPLINK COMMUNICATIONS

- Ideal for fixed Earth station applications.
- Housed in a compact, rugged weatherproof package for wideband multi-carrier satellite services.
- Built-in fault diagnostic capability via remote monitor and control.

AVAILABLE IN THREE MODELS:

- **Dual IF E-band 50W** – providing >25 watts of linear power (Plin).
- **Twin IF V-band 50W per IF** – providing >20 watts of linear power (Plin) for each of two carriers.
- **Twin IF V-band 100W per IF** – providing >40 watts of linear power (Plin) for each of two carriers.

LNB – FOR SATCOM TERMINALS AND FEEDER LINKS

- Integral LNA and twin block downconversion in a single antenna-mountable unit.
- Twin block downconversion uses two local oscillators with both IF outputs simultaneously available.

AVAILABLE IN TWO MODELS:

- **E-band** – for E-band satcom feeder links. Full E-band RF input covering 71.0 - 71.6GHz.
- **Q-band** – for Q/V-band satcom terminals. Full Q-band RF input covering 37.5 - 42.5GHz.