

InterSKY[®] 4M

Tactical broadband satellite military communications system



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Elbit Systems' InterSKY[®] 4M two-way broadband military satellite communications system delivers highly reliable broadband multi-service (voice, video and data) capabilities for static, deployed and maneuverable needs. InterSKY[®] 4M supplies the relevant data in real-time, customized to the user's operational needs and security privileges. Fully integrated in Elbit C⁴I, and with support for both OTH (Over The Horizon) and BLOS (Beyond Line Of Sight) two-way communication as part of Elbit Systems' C⁴I Military Systems, InterSKY[®] 4M enables both stationary and mobile military units at all levels to maintain full connectivity at all times. InterSKY[®] 4M is a scalable MOTS-based system with the flexibility to operate at C, Ku, Ka, and X-band, broadcasting mission-critical data over both military and commercial satellites.

Robust tactical communication

Designed specifically for government and military applications, InterSKY[®] 4M performs satellite acquisition, re-acquisition and tracking without prior configuration or user intervention. System-wide quality of services ensures that common resources are managed in real-time, enabling the prioritization of applications, users and traffic. InterSKY[®] 4M's advanced broadcast technologies ensure reliable communications in all weather conditions and terrains.

Satcom on-the-move (SOTM)

InterSKY[®] 4M provides mobile broadband communications, full MIL-STD compliant, for all fighting vehicles, tracked and wheeled, mobile forces. The low-visibility profile antennae and high data rate broadband capabilities ensure uninterrupted communications at high speeds and in rough terrain. The system includes an internal GPS receiver and gyroscope, and is easy to install and operate.

Space segment efficiency

The system's advanced acceleration and compression technologies allow for the efficient utilization of scarce satellite and bandwidth resources. InterSKY[®] 4M extends the reach of the network by allowing more operative units to be deployed within a given resource. InterSKY[®] 4M's efficiency also results in lower operational costs, typically utilizing between 30-50% less satellite resources in order to deliver the required bandwidth.

Comprehensive solution

InterSKY[®] 4M is a comprehensive platform encompassing all elements for the design, deployment and management of the entire satellite network. The platform's intuitive central management interface is comprised of a central Military Satellite Hub (MSH) ground station, Remote Military Satellite Routers (MSRs) and the advanced InterSKY[®] Management System, which includes a Network Control Center and Network Management System.

InterSKY® 4M/MSR – 1000: OTH (On the halt)



The continuous flow of accurate real-time intelligence is critical for mission success. The MSR-1000 is a transportable satellite communication (SATCOM) solution that integrates all components necessary for military broadband satellite communication into a single, portable wheeled unit – enabling rapid and reliable deployment in the battlefield.

Suitable for emergency response and in-theater communications, the MSR-1000's scalable performance establishes it as the optimal BLOS (beyond line-of-sight) communication solution for all command levels.

- Segmented or single piece carbon fiber antennas
- Universal RF kits across antenna sizes
- Five frequency band options: Ku, Ext-Ku, X, Ka and C
- Configurable to customer needs
- Integrated with ruggedized IDU (MSR-R) or with 19" IDU (MSR-PRO)
- Manual or auto-acquiring
- Simple to set up, even by non-professional personnel
- Optional tracking controller, beacon receiver and integrated spectrum analyzer
- Aperture size from 0.45m to 2.8m

InterSKY® 4M/MSR – 2000: OTM (On the move)



Mobile and maneuvering military forces require an advanced satellite on-the-move (SOTM) solution. The MSR-2000 meets that need with a rugged broadband router, low-profile antenna (Elsat 2000 or Elsat 2100) and radio frequency terminal (RFT) that work together to seamlessly deliver reliable communications on and off the battlefield.

Suitable for land-based, sea-bound or airborne broadband connectivity on moving vehicles, the MSR-2000 offers the best size, weight, and power (SWaP) in its class, ensuring the best possible broadband connectivity in all operational scenarios.

- Integrated with rugged IDU (MSR-R) or 19" IDU (MSR-PRO)
- Fast initial acquisition and reacquisition (recovery from blockage)
- No need for synchronization, system connectivity or GPS
- Compact ODU (antenna, BUC)
- Shared bandwidth dedicated carrier
- Adaptive spread spectrum per VSAT
- Auto satellite tracking and in-motion, hands-free operation

InterSKY® 4M/MSR –3000: MPK (Man pack)



Ideal for the dismounted soldier, the MSR-3000 portable man-pack satellite communication (SATCOM) solution offers BLOS (beyond line-of-sight) communication for all command levels. Packaged in a single-handed carry case or backpack, the integrated satellite router features advanced protocol acceleration and optimization combined with robust encryption capabilities and includes an interface to an external encryption unit.

- Flat panel and small reflector antennas
- Universal RF kits across antenna sizes
- Five frequency band options: Ku, Ext-Ku, X, Ka and C
- Configurable to customer needs
- Integrated with ruggedized IDU (including protocol acceleration, encryption, VoIP gateway and video compression)
- Manual or auto-acquiring
- Simple to set up, even by non-professional personnel
- Optional tracking controller, beacon receiver and integrated spectrum analyzer

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Key Technical Features

The MSH consists of an antenna, a common RF amplification, frequency conversion system and a base band unit with hot redundancy. The MSH system monitors and controls the entire network, manages remote terminal set up, and routes all data traffic between terminals and the hub. For added resilience geo-redundancy is supported. The system employs sophisticated Demand Assigned Multiple Access (DAMA) algorithms to ensure that each application is efficiently and reliably handled, minimizing re-transmissions and delay – where delay is a concern – and ensuring that the desired grade of service is achieved with the optimum space segment allocation.

InterSKY[®] 4M complies with the DVB-S/S2 standard. The Hub to Satellite link is rainproof based on Automatic Uplink Power Control (AUPC). The Satellite to Remote Gateway link is rainproof based on Adaptive Coding and Modulation (ACM) and Variable coding and modulation (VCM). Shiron Satcom combined AUPC and ACM into a proprietary, patented AUPC & AMC Controller (AAC) to provide total rain-proofing for the InterSKY[®] 4M platform.

8PSK modulation for the return channel, Automatic Control Functions, Bandwidth on Demand (BoD), Redundancy, and Quality of Service (QoS) are among some of the special features inherent in the InterSKY[®] 4M system.

InterSKY[®] 4M's field-proven DVB-S2 solution with patented Dynamic CC MF-TDMA (clear channel multi frequency TDMA) technology, in combination with bi-directional ACM/VCM, provides greater space segment efficiency and high-quality connectivity. Boasting more "bits per second per Hertz" than any other comparable system, InterSKY[®] 4M delivers better broadband satellite connectivity at the lowest cost.



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