

Scalable Multi-Orbit SATCOM: A Hybrid DIFI/ Analog System for Diverse Deployment Scenarios





Multi-Orbit DIFI Capable SATCOM Suite

The Command Series (C-Series) is a multi-orbit DIFI-capable SATCOM suite designed to facilitate communication across diverse satellite constellations. The C-Series incorporates auxiliary hardware required for modem-antenna Beyond Line of Sight (BLOS) military and commercial communication. Crucial for mission planning and execution, operators can maintain critical BLOS communication on all platforms. Including RF over IP (DIFI) technology and operational across multiple satellite networks, including GEO (WGS), MEO and LEO, the C-Series provides a robust, future-proof SATCOM interface solution.

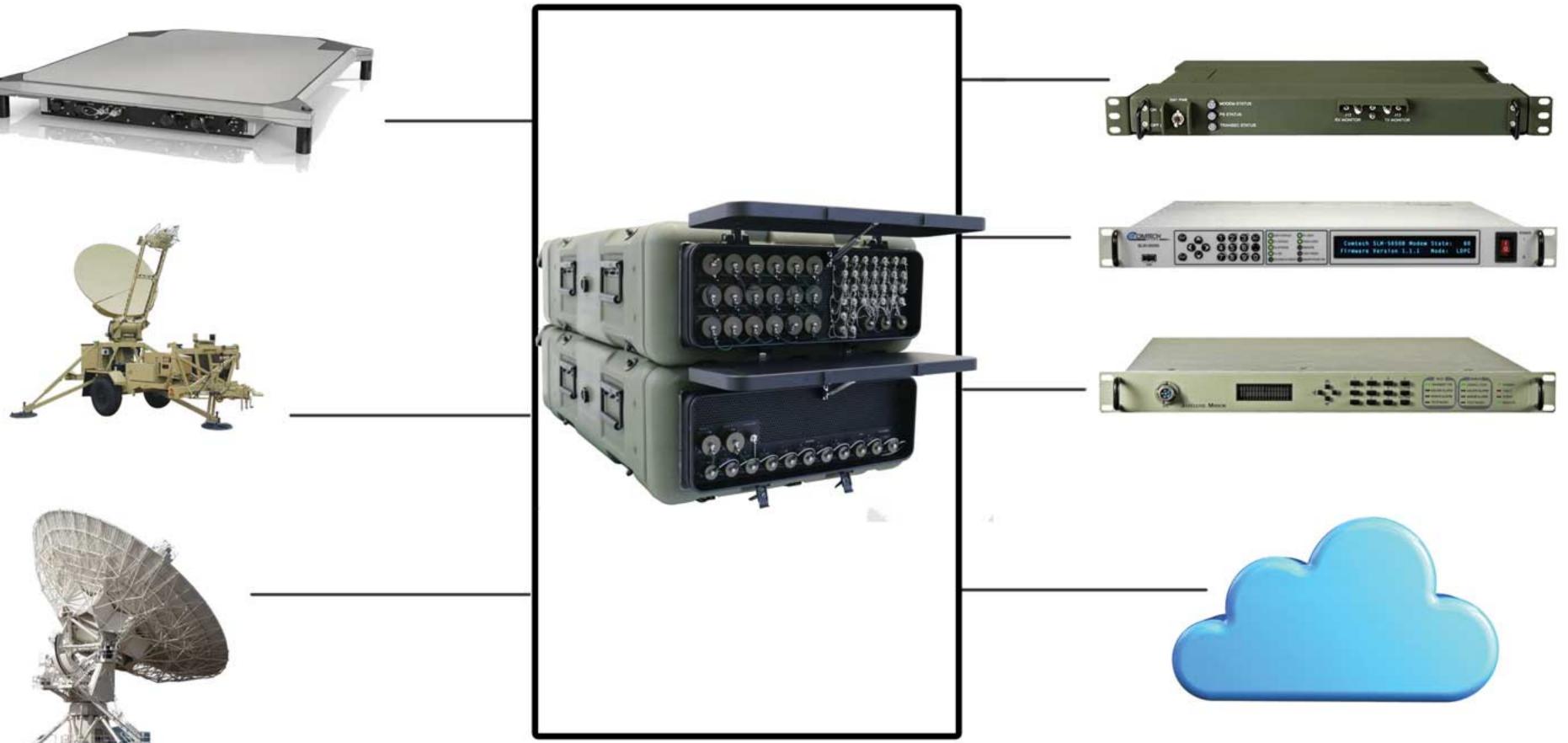
The C-Series contains an L-band Switch Matrix (LISM) designed IAW MIL-STD-188-164 and -165 L-band DACs and ADCs perform the digitizing/packetizing functions of the DIFI Intermediate Frequency Converter (IFC). An integrated spectrum analyzer and a digital signal channelizer and aggregator offer sophisticated signal processing capabilities. The Wideband Signal Processor (WSP) monitors and analyzes frequency, channel selection, and aggregation of multiple missions. 10 MHz frequency distribution An IP switching array controls external devices and routes wide and narrow-band DIFI signals. The 1 GbE Ethernet switch monitors and controls external modems. A high-throughput switch fabric equips the C-Series with high-throughput data handling for multiple external DIFI streams. Custom FPGA fabric ensures that DIFI packets are deterministically routed with minimal latency, providing a network capable of high-definition video, secure voice communications, and extensive data transmission. On-board computer hardware is available for users to implement tailored functionality, including control or waveform generation.

Connecting to electrically steerable antennas, mobile antennas, and various emergent and traditional modems, the Command Series provides flexibility and mobility. Connectivity is vital for deploying communication solutions in dynamic environments, where traditional fixed installations may not be viable. The C-Series multi-orbit SATCOM suite demonstrates progression in satellite communications, providing a comprehensive solution capability for mission planning and execution.



MEO

COMMAND SERIES



Hybrid DIFI/IF Satcom Suite

ABSTRACT:

The Quintech Command Series (C-Series) serves as the ultimate solution for trustworthy satellite communications. The Multi-Orbit DIFI Capable SATCOM suite ensures operation between multiple, diverse satellite constellations. Designed to be MIL-STD-188-164C compliant, the C-Series is ruggedized to withstand extreme heat and cold temperatures enabling it to be the desired choice for military operations. The C-Series is highly flexible and easily set up from transit to full deployment to establish communication quickly and effectively. While in deployment mode, the Command Series allows connection to a diverse array of antennas and modems. The L-band distributing and combining matrices allow full-duplex communication of analog RF to the modems and terminals and DIFI converters. The DIFI converters allow for the connection of digital modems and terminals to the matrix. A spectrum analyzer is available to view the uplink or downlink signals via the L-band matrix. In addition to the L-band routing capabilities, a DIFI router allows signal management, including splitting, combining, and routing in the digital domain.



COMPLETE TERMINAL INTERFACE SYSTEM

SUPPORTS FULL DUPLEX INTERFACE OF ANALOG AND/OR DIGITAL TERMINALS

ALL TRANSMISSION TYPES – COPPER 50-75, RF OVER FIBER, RF OVER IP (DIFI) INTEGRATED SPECTRUM ANALYZER, 24 PORT GBE SWITCH, 10 MHZ REFERENCE SYSTEM, X86 COMPUTE

INTEGRATED MANAGEMENT & CONTROL WITH MAGNUM-OS & VUE

MIL-STD-188-164C COMPLIANT

COMPATIBLE WITH GEO & NGSO CONSTELLATIONS

AVAILABLE IN MIL-STD-810H or DO-160 IN AN IP65 RUGGEDIZED ENCLOSURE

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Tactical and Fixed Deployment Configurations



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The C-Series SATCOM system represents a cutting-edge solution for reliable satellite communication, designed for deployment in both tactical environments and fixed data centers. Its ruggedized design ensures that it can withstand harsh and contested conditions, making it an ideal choice for military operations and remote field applications. With an IP65 rating, the C-Series is protected against dust ingress and water exposure, allowing it to perform optimally in various weather conditions. This durability is complimented by its temperature-hardened components, which enable the system to function effectively across a wide range of temperatures, from extreme heat to severe cold.

In addition to its environmental resilience, the C-Series has been engineered to meet stringent military standards. Customers can choose configurations that comply with MIL-STD-810H or DO-160 requirements, ensuring that the system can endure rigorous shock and vibration conditions often encountered in tactical scenarios. This makes the C-Series a reliable partner for military personnel, and other users who require uninterrupted communication capabilities in dynamic and potentially hostile environments.

The versatility of the C-Series is further enhanced by its capacity for both tactical deployment and integration within data centers. When installed in fixed locations, the system leverages advanced technologies to provide high-speed, secure satellite communications that meet the demands of modern data-driven operations. This dual capability allows organizations to seamlessly transition between tactical and fixed operations without compromising on performance or reliability. Whether in the field or in a controlled data center environment, the C-Series stands out as a robust and adaptable solution for all satellite communication needs.

