Orion X650

HIGH-CAPACITY,TWO-CHANNEL TACTICAL MIMO RADIO

Built for large-scale combat operations, the Orion X650 revolutionizes mission-critical communication with unmatched flexibility, adaptability and performance. It's designed for missions that demand high throughput, frequency agility and survivability—whether on the move or at the quick halt.

Thanks to its four RF ports, the Orion X650 can be configured as either two independent radio channels—replacing two networked radios—or a single channel supporting 4x4 MIMO to maximize performance and resilience. It supports mesh, point-to-point and point-to-multipoint topologies.

Operators can easily switch between a library of data-centric waveforms to meet mission requirements while maintaining interoperability with fielded systems. Ultra I&C's waveforms support a variety of anti-jam and LPI/LPD features.

The Orion X650 can be factory-configured to a range of frequency bands, including dual-band S and C or tri-band L, S and C, on a per-channel basis. Its ruggedized design ensures reliable operation across air, land and sea.

Minimal training is needed to operate the Orion X650, and its intuitive interface makes configuration simple.

MULTI-CHANNEL OPERATIONS

- Two independent SDR channels with 2x2 MIMO or
- Single SDR channel supporting 4x4 MIMO for maximum performance

WAVEFORM FLEXIBILITY AND SURVIVABILITY

- Supports U.S. Army TRILOS and USMC LRS waveforms for interoperability
- Ultra I&C's High Throughput Mesh (HTM) waveform offering >200 Mbps
- Adaptive Frequency Hopping, Adaptive Power Control, Automatic Frequency Control, and Spectrum Scanning for enhanced resiliency

WIDE FREQUENCY AND POWER OPTIONS

- Dual-Band and Tri-Band coverage across L, S, and C bands
- High output power (up to 36 dBm per RF port) for extended range

BUILT FOR LARGE SCALE COMBAT OPERATIONS

- Lightweight at 8 lbs., suitable for mast, vehicle, or unmanned systems mounting
- Designed to meet MIL-STD-810H and MIL-STD-461G standards
- Embedded AI/ML accelerator

TECHNICAL SPECIFICATION

OPERATIONAL FLEXIBILITY

The Orion X650 integrates seamlessly across platforms:

- Mast-mounted: Enhanced field connectivity
- Vehicular-mounted: Mobility for dynamic operations
- UxV-mounted: Compatible with UAVs, USVs, and UGVs

The Orion X650 radio is supported by Ultra I&C's suite of accessories, including the Network and Power Unit (NPU) and specialized antennas, customizable for specific mission needs.

RADIO CHANNELS	Reconfigurable for 2x2 MIMO (dual-channel) or 4x4 MIMO (single-channel)
ANTENNA RF PORTS	4
WAVEFORMS	High Throughput Mesh (HTM), NBH, LBH (with optional diplexer)
TOPOLOGIES	Mesh, Point-to-Multipoint (PMP), Point-to-Point (PTP)
FREQUENCY BANDS	Options for: 2200-2500 and 4400-5000 MHz 4400-5000 and 5250-5850 MHz 1350-2500 MHz and 4400-5000 MHz
CHANNEL BANDWIDTHS	1.25 / 2.5 / 3.5 / 5 / 7 / 10 / 14 / 20 / 25 / 33 / 40 MHz
THROUGHPUT	>200 Mbps per channel; 400 Mbps (LBH)
TRANSMIT POWER OUTPUT	Up to 36 dBm/RF port
DIMENSIONS (W X H X D)	8.66 x 3.12 x 8.66 in. (22 x 7.92 x 22 cm)
WEIGHT	8 lbs (3.63 kgs)
POWER CONSUMPTION	<150W average (2 SDR)
VOLTAGE	36-55 VDC
MIMO SUPPORT	Space-Time Coding, Spatial Multiplexing
ENCRYPTION	AES256 (Standard) Designed for FIPS140-3 Level 2 (Suite B)
SPECTRUM RESILIENCE*	Adaptive Power Control Automatic Frequency Control Adaptive Frequency Hopping Band Diversity Spectrum Scan
INTERFACES	4 TNC or N RF Connectors 1 Gigabit Ethernet Military Circular Connector 1 Power Military Circular Connector 1 Auxiliary Gigabit Ethernet Military Circular Connector 1 Auxiliary RS232 and Power Military Circular Connector
MATERIAL	Tan/Green/Black Painted Aluminum
ENVIRONMENTAL STANDARDS	Designed to meet MIL-STD-810H
EMI/EMC	Designed to meet MIL-STD-461G

**Contact us for additional details*

ULTRA I&C

ultra-ic.com

1090.6-REV0725