L3HARRIS®
FAST. FORWARD.

FALCON III® RF-7850A-MR

Multi-channel Airborne Networking Radio

The L3Harris RF-7850A-MR leads the industry as the world's first airborne-certified two-channel networking radio. Delivering next-generation performance through simultaneous voice, high-speed IP networked data and full motion ISR video, this multi-channel solution connects the tactical edge to the aerial tier, enhancing Command and Control.

Ideal for fixed- and rotary-winged aircraft, the RF-7850A-MR offers multi-channel and multiband capabilities, and is fully interoperable with legacy waveforms and all L3Harris Falcon® radios. It easily integrates into a wide variety of platforms to support multiple missions, waveforms and modes of operation. Plus, it provides two wideband channels in the same Size, Weight and Power (SWaP) as a traditional single-channel narrowband radio.

The L3Harris Multi-channel Airborne Radio extends battlefield networks Beyond-Line-Of-Sight through tactical VHF/UHF networks to provide extended range and secure air-to-air and air-to-ground communications. The RF-7850A also includes a variant designed for unmanned aircraft deployment.

HIGH-SPEED, WIDEBAND AIRBORNE NETWORKING

KEY BENEFITS

- World's first airborne-certified dual-channel networking radio
- Same SWaP as single-channel solutions
- Provides high-speed networked data and video via M-TNW
- Full compatibility with legacy narrowband and L3Harris wideband radios
- Fulfills evolving mission needs for ISR, close combat support and joint operations with ground troops
- Improves and expands battlefield communications with an interoperable airborne relay node

GENERAL

RT Nomenclature	RF-7850A-MR
Radio Channels	Dual-channel radio
Frequency Range	Narrowband: 30-512 MHz Wideband: 225-512 MHz
Channel Spacing/Bandwidth	8.33, 12.5, 25, 75 kHz and 1.2 MHz
Net Presets	25 per channel
GPS	Internal GPS Accepts external GPS input
Management Tool	Communications Programming Applications
Software Environment	Software Defined Radio
RF Input/Output Impedance	50 Ohms

TRANSMITTER

Power Output	Up to 10 watts per channel
Harmonic Suppression	> 50 dBc typical
Frequency Stability	±1 parts per million
Spurious Suppression	> 50 dBc typical

RECEIVER

Sensitivity (for XXdb SINAD)	AM: -103.5 dBm at a -10 dBm SINAD FM: -116 dBm at a 12 dBm SINAD
Squelch	Noise, tone, CTCSS, digital
IF Rejection	80 db typical

POWER

Power Input	28 VDC per MIL-STD-704F

SECURITY

Encryption	128 and 256 bit L3Harris proprietary Citadel® AES 128 and 256 Customer Algorithm Modification

MODES AND WAVEFORMS

Voice and Data Modes	AM/FM Analog Voice FSK/ASK MELP Voice FSK/ASK CVSD Voice	FSK/TCM Data GMSK/QPSK Data ECCM
ECCM	Quicklook 1A, 2, 3 and Quicklook-Wide	
Narrowband Networking	TDMA Networking Waveform (TNW) 25K and 75K	
Wideband Networking	M-TNW, ANW2®C (optional)	
Optional Waveforms	Export SINCGARS with Pavilion encryption Satellite Tactical Communications HAVEQUICK I/II APCO P25 Phase 1 conventional mode ARROW™ SATURN	

PHYSICAL

Dimensions	6.2 H x 5.95 W x 10.14 D in (15.7 H x 15.1 W x 25.75 D cm)
Weight	11.75 lbs (5.34 kg)
Color/Finish	CARC Black

ENVIRONMENTAL

Airworthiness	RTCA DO-160G Per MIL-HDBK-516	
Shock and Vibration	MIL-STD-810G fixed wing and rotary wing aircraft	
Altitude	50,000 ft	
Temperature	MIL-STD-810G -40°F to +140°F (-40°C to +60°C) (operational-convection cooled) -67°F to +185°F (-55°C to +85°C) (storage)	
EMI/EMC	MIL-STD-461	
Electromagnetic Environmental Effects (E3) Survivability and Lightning	MIL-STD-461 MIL-STD-464	
MIL-STD-810G	Vibration Crash hazard shock Drip Salt/fog Fluid contamination Humidity Rain Bench handling shock Ice and freezing rain	Functional shock Windblown dust Acceleration Explosive atmosphere Fungus/mold growth Solar radiation Acoustic noise Gunfire shock

INTERFACES

Data	USB 2.0, Synchronous, Asynchronous, and Ethernet
Audio	Analog, fixed level, and Internet Protocol
Antenna Port	50 Ohm TNC female
Programming	Communications Programming Applications
Remote Control	ASCII and Ethernet (Web API)
HMI Options	12178-5100-01 Radio Control Unit 12113-1000-3x Tactical Keypad Display Unit (KDU) RF-7850AP-SW101 WebUI Soft KDU

INCLUDED ACCESSORIES

10515-0482-4100	Quick Reference Guide
12113-1000-32	Maintenance Keypad Display Unit
12178-7030-A006	Bench-top Power Cable
12178-7600-01	RF-7850A-MR Radio Mount

OPTIONAL ACCESSORIES

12178-5100-01	RF-7850A-MR Radio Control Unit
12178-7000-01	RF-7850A-MR Bench-top Programming Kit
12178-5700-01	Airborne Tuneable Antenna Adapter Kit
12178-5750-01	Integration Kit, Airborne Tuneable Antenna Adapter
12178-7500-01	RF-7850A-MR Integration Kit
RF-7850A-AT001	Aircraft Antenna VHF/UHF Coverage (30-512 MHz)
RF-7850A-AT002	Aircraft Antenna Wideband (225-512 MHz)
RF-7850A-AT101	Antenna, Aircraft, 30-512 MHz, Tuneable

TECHNICAL PUBLICATIONS

10515-0482-4200	RF-7850A-MR Operator's Manual
10515-0482-7000	RF-7850A-MR Interface Control Document

See L3Harris Product Catalog for accessories

Falcon III® RF-7850A-MR Multi-channel Airborne Networking Radio

Non-Export Controlled Information

L3Harris Technologies is the Trusted Disruptor in the defense industry. With customers' mission-critical needs always in mind, our 50,000 employees deliver end-to-end technology solutions connecting the space, air, land, sea and cyber domains in the interest of national security.

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