

RF-7850D

Multi-channel Multi-mission Radio

The L3Harris RF-7850D is the ultimate in SWaP-reduced multi-channel communications for Tactical Vehicles and Tactical Operations Centers (TOC). This multi-mission radio gives customers the unprecedented choice of either two simultaneous 30-512 MHz channels, or an optional second channel for continuous coverage spanning 30-2500 MHz. When used in a vehicular application, the RF-7850D mounts in a low-profile chassis, is easy to install and concealed without interfering with vehicle navigation and passenger egress.



The RF-7850D leverages the TDMA Networking Waveform (TNW) family for true simultaneous voice and data services over wideband, narrowband and ECCM channels. The 7850D is the only radio in its class providing interoperability across every echelon of the battlefield, bridging communication from the tactical edge soldier to the VHF and UHF mid-tier and the airborne tier, supporting seamless communications throughout. The RF-7850D is interoperable with legacy Falcon® I and II® systems and is software-defined, ready to interface with next-generation waveforms and networking technology.

Common USB, Ethernet, WPAN and GPS capabilities provide access to advanced systems solutions through an easy-to-use interface. The RF-7850D supports up to 50 watts of power output when paired with the L3Harris RF-410 Power Amplifier, providing advanced Autonomous and Radio Control modes for the entire waveform library.

The RF-7850D also includes the L3Harris Mission Module interface, supporting additional technologies and custom capabilities, ranging from new waveforms to commercial solutions. Soldiers can employ the RF-7850D to crossband three disparate networks together simultaneously, into a single all-informed network.



LOW SWaP, FULL-SPECTRUM VERSATILITY

KEY BENEFITS

- > Three times smaller than any comparable radio
- > Seamless interoperability with Falcon III® airborne and soldier radios
- > Mission Module interface supports rapid addition of new technologies
- > Versatile mounting options, saves space for other mission-critical equipment
- > Ideal for TOC and vehicular multi-echelon networking
- > Full spectrum, 30-2500 MHz coverage answers evolving mission challenges

GENERAL	
Channel 1 Frequency Range	Narrowband: 30-512 MHz; Wideband: 225-512 MHz AM: 108-512MHz
Channel 1 Spacing/Bandwidth	8.33 kHz (AM only), 12.5 kHz (AM only), 25 kHz, 75 kHz, 1.2MHz
Channel 2 Frequency Range	VHF/UHF Option Narrowband: 30-512 MHz Wideband: 225-512 MHz AM: 108-512 MHz
	UHF/L/S Band Option Narrowband: 225-512 MHz Wideband: 225-2500 MHz
Channel 2 Spacing/Bandwidth	VHF/UHF Option 8.33 kHz (AM only), 12.5 kHz (AM only), 25 kHz, 75 kHz, 1.2 MHz
	UHF/L/S Band Option 25 kHz, 500 kHz, 1.2 MHz, 5.0 MHz
Net Presets per Channel	25 total per mission plan Multiple mission plans available
GPS	Internal GPS accepts external GPS input
Radio Control	Keypad Display Unit; Web User Interface (WebUI); HTTP (WebAPI)
Software Environment	Software-defined radio

CHANNEL 1 TRANSMITTER	
Power Output	Selectable: 0.25, 1, 2, 5 W High + power out mode: 10 W +1/-2db
Harmonic Suppression	> -50 dBc typical
Audio Output	Variable and fixed level
Frequency Stability	+/- 1 parts per million

CHANNEL 2 TRANSMITTER	
Power Output	VHF/UHF Option Selectable: 0.25, 1, 2, 5 W High + power out mode: 10 W +1/-2db
	UHF/L/S Band Option Selectable: 0.25, 1, 2, 3.2 W
Harmonic Suppression	> -50 dBc typical
Audio output	Variable and fixed level
Frequency Stability	+/- 1 parts per million

RECEIVER	
Sensitivity	FM: -116dBm @ 12dB SINAD AM: -103.5dBm @ 10dB SINAD
Squelch	Selectable: Off, noise, tone, CTCSS, digital
IF Rejection	> 70 dB

POWER	
Power Input	10 VDC-32 VDC
Power Consumption	Maximum 320 W

SECURITY	
Encryption per Channel	128 & 256 bit L3Harris proprietary Citadel and AES; Customer Algorithm Modification (CAM)

PHYSICAL	
Dimensions	2.8 H x 10.4 W x 9.2 D in (7.1 H x 26.4 W x 23.4 D cm)
Weight	12 lbs (5.2 kg)

PHYSICAL	
Color/Finish	CARC green, CARC black, CARC tan

CHANNEL 1 MODES AND WAVEFORMS	
Voice and Data Modes	AM/FM Analog Voice: FSK/TCM Data FSKASK MELP Voice: GMSK/QPSK Data FSK/ASK CVSD Voice: ECCM
ECCM	Quicklook 1A,2,3 and Quicklook Wide
Narrowband Networking	TDMA Networking Waveform (TNW) 25 and 75
Wideband Networking	ANW2 [®] C, M-TNW
Optional Waveforms	SINGGARS with Pavilion encryption; Satellite Tactical Communications (STC); HAVEQUICK I/II APCO P25 Phase 1 conventional mode

CHANNEL 2 MODES AND WAVEFORMS		
Channel 2 VHF/UHF Option	Voice and Data Modes	AM/FM Analog Voice: FSK/TCM Data FSKASK MELP Voice: GMSK/QPSK Data FSK/ASK CVSD Voice: ECCM
	ECCM	Quicklook 1A,2,3 and Quicklook Wide
	Narrowband Networking	TDMA Networking Waveform (TNW) 25 and 75
	Wideband Networking	ANW2C, M-TNW
Channel 2 UHF/L/S Band Option	Optional Waveforms	SINGGARS with Pavilion encryption Satellite Tactical Communications (STC) HAVEQUICK I/II APCO P25 Phase 1 conventional mode
	Voice and Data Modes	FM Analog Voice: FSK/TCM Data FSK MELP Voice: GMSK/QPSK Data FSK CVSD Voice: ECCM
	Narrowband Networking	TNW 25
	Wideband Networking	ANW2C, M-TNW, S-TNW, TGW2, V-TNW

ENVIRONMENTAL	
Temperature	Storage: -40°F to +185°F (-40°C to +85°C) Operation: -22°F to +131°F (-30°C to +55°C)
Immersion	1 meter of water (3 ft) per MIL-STD-810G
MIL-STD-810G	Altitude storage Temperature storage Rapid decompression Solar radiation Humidity Sand and dust Vibration Shock crash hazard Icing/freezing rain Altitude operation Temperature operation Thermal shock Blowing rain Salt Fog Functional shock Explosive atmosphere Fungus

INTERFACES	
External Data	IP, USB RNDIS and Serial
Audio	Standard 6-Pin, IP, USB
Antenna Ports	30-2500 MHz, TNC; 50 Ohms
Programming	Communications Planning Application (CPA) USB, Ethernet, Over-the-Air Fill
WPAN	Wi-Fi [®] and Bluetooth [®]
Remote Control	IP, WPAN, ASCII
WebUI	IP, WPAN; Web Browser (Chrome, FireFox, Safari)
Mission Module	Power and USB interface
RF-410 Control Cable	USB Support
External Speaker and Fan	28 VDC

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