L3HARRIS®
FAST. FORWARD.

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/RF-411 Power Amplifiers, 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

> Available ARROW™ waveform enables resilient interoperability with L3Harris RF-7800V, RF-7850M/A, AN/PRC-158, AN/PRC-163 and AN/PRC-167 radios

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/-2 db
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/-2 db
	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: -116 dBm @ 12 dB SINAD AM: -103.5 dBm @ 10 dB 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)
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	SINCGARS with Pavilion encryption; Satellite Tactical Communications (STC); HAVEQUICK I/II APCO P25 Phase 1 conventional mode ARROW SATURN

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
	Optional Waveforms	SINCGARS with Pavilion encryption Satellite Tactical Communications (STC) HAVEQUICK I/II APCO P25 Phase 1 conventional mode ARROW SATURN
Channel 2 UHF/L/S Band Option	Voice and Data Modes	FM Analog Voice: FSK/TCM Data FSK MELP Voice: GMSK/QPSK Data FSK CVSD Voice: ECCM
	Narrowband Networking	TNW 25, TNW 75
	Wideband Networking	ANW2C, M-TNW, S-TNW, TGW2, V-TNW
	Optional Waveforms	Vanguard™ and Vapor™

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 / Altitude operation Temperature storage / Temperature operation Rapid decompression / Thermal shock Solar radiation / Blowing rain Humidity / Salt Sand and dust / Fog Vibration / Functional shock Shock crash hazard / Explosive atmosphere Icing/freezing rain / 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
USB Support	RF-410/RF-411 Control Cable
External Speaker and Fan	28 VDC

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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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