

SECURE, CONVERGED  
MILITARY AND PUBLIC SAFETY  
COMMUNICATIONS

# Harris Falcon III<sup>®</sup> RF-900P Tactical Land Mobile Radio

**HARRIS**<sup>®</sup>  
*assuredcommunications*<sup>®</sup>

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# The Harris Falcon III® RF-900P: Secure, Converged Military and Public Safety Communications in a Single High-Performance Radio

## KEY FEATURES

- Secure Interoperability with Harris Falcon multiband tactical radios and all P25-compliant radios
- Software-defined architecture for easy field upgrading
- Superior audio experience
- Easy-to-use interface with significant capability and flexibility beyond push to talk
- Ruggedized to MIL-STD-810G
- GPS position tracking
- P25 conventional and trunked operation
- VULOS operation

The Harris RF-900P Tactical Land Mobile Radio (LMR) is the ideal solution for converged military and public safety radio communications. Interoperable with both Harris Falcon® multiband tactical radios and P25-compliant public safety radios, it's easy to use and comes complete with an array of advanced capabilities, including full-spectrum coverage, wideband and narrowband functionality, secure voice, situational awareness and P25 conventional and trunked operation.

## ADVANCED CAPABILITY, INTEROPERABILITY IN A RUGGED RADIO

The Tactical LMR supports secure digital APCO P25 and FM/FSK communications across the VHF, UHF and 700/800 MHz bands in a single high-performance radio. Capable of operating on any P25 network, it allows public safety personnel with tactical communications need to communicate seamlessly with multiple military organizations operating on various frequencies and systems. Designed to scan continuously across different bands, voice modes and encryption types, the Tactical LMR provides exceptional capability and interoperability in a rugged radio.

## FUTURE READY

Continuing the Harris tradition of fielding mission-critical software-defined radios, the Tactical LMR meets evolving customer needs through software upgrades – including upgrades to operating modes, such as P25 Phase 2. It also eliminates the cost of using and maintaining separate radios for military and public safety communications, so customers can invest in additional radios to expand their communications networks.

## SUPERIOR AUDIO EXPERIENCE

With Harris' proprietary noise suppression capability, the Tactical LMR provides clear, crisp voice quality in high-noise environments. Dual microphones and advanced signal processing technology provide built-in noise suppression, and an AMBE+2, CVSD vocoder provides noise cancellation capability – optimizing communications quality and controlling distortions to provide one of the best audio experiences available.

## EASY TO USE NEXT-GENERATION USER INTERFACE

The user-centric design offers significant capability and flexibility beyond push-to-talk:

- Intuitive menu-driven graphical user interface with full-color display
- Large 5-way navigation key and soft keys
- User-defined switch
- Large knobs and configurable top display
- Night Vision Goggle profile
- Comfortable for use with gloves
- Front-panel programming

## ADVANCED FEATURES

The Tactical LMR delivers the advanced features required by critical communication users.

- > **P25 Conventional Situational Awareness** Employs data from built-in GPS to aid in personnel accountability and rapid response. The radio screen displays a unique identifier for each Tactical LMR user as well as their position.
- > **Multiple Mixed Systems Zones** Allows communication across multiple types of systems: analog conventional, digital mode VULOS, P25 trunked and P25 conventional. Creates zones composed of multiple systems so users can assign knob positions to channels and talkgroups on disparate systems.
- > **Command Tactical Zone** Allows users to create custom zones to communicate with radios not part of preset zones – regardless of frequency and with no need for programming through computer interfaces. Custom zones provide up to 48 additional channel assignments.
- > **Bluetooth® Clone** Enables communications between multiple versions and types of radio programming. With the press of a few buttons, users can clone programming in seconds to effectively communicate with other users.



## PERFORMANCE ENHANCING ACCESSORIES

The Tactical LMR operates with a full complement of Harris accessories including:

- > **VC4000 Charger.** Mount in a vehicle or use as a desk charger to charge Li-Ion and Li-Polymer batteries in about 4 hrs. Provides microprocessor-controlled charging for long battery life and maximum battery performance. Protective circuitry prevents damage to batteries resulting from charging when outside required temperature or voltage range. Also charges batteries with/without radio attached, and accommodates a portable with speaker mic and/or belt clip still attached.
- > **Wireless Bluetooth Remote Speaker Microphone (RSM).** Provides capability to add an RSM to the system wirelessly. This Class 2 device, with a 10-meter wireless range, employs Secure Simple Pairing and encryption, and contains a Lithium rechargeable battery with a 12-hr. shift life. Compact design includes volume control buttons, a dedicated Emergency button, PTT button, Pairing and Power buttons, a 2.5-mm audio jack for earpiece accessories, and a ruggedized lapel clip for secure attachment to clothing.
- > **Standard Speaker Microphone.** Includes 2-position volume control setting, emergency button, rubber PTT, and earphone jack in a compact yet highly functional design. A clothing clip rotates a full 360° for complete accessibility, and construction meets MIL standard specifications, meeting the needs of a wide range of users.



When paired with an Intrinsic Safe battery and other accessories, the Tactical LMR is Factory Mutual Intrinsic Safe for operation in hazardous conditions.

## GENERAL SPECIFICATIONS

### Dimensions (H x W x D):

(Without Knobs and Antenna)  
With battery:  
6.50 x 2.43 x 1.83 in.  
(167.6 x 61.7 x 46.5 mm)

**Weight (with Battery):**  
22.5 oz (638g)

**Input Voltage:**  
7.5 VDC (nominal)

**Immersion:**  
1 meter for 30 minutes in accordance with MIL-STD-810G

**Battery Life (at 5% Tx, 5% Rx, and 90% standby):**  
Li-Polymer: >12 hours (3600 mAh)

**Operating Temperature Range:**  
-4 to +140°F (-20 to +60°C)

**Relative Humidity:**  
Per MIL-STD-810G

**Altitude:**  
Operational: 15,000 ft (4,572 m)  
In Transit: 40,000 ft (12,192 m)

**Front Display:**  
176 pixels x 200 pixels, 2.2 in. transreflective LCD, 16-bit color with white LED backlight

**Top Display:**  
128 pixels x 32 pixels, 0.91 in. Organic Light-Emitting Diode (OLED)

**Keypad:**  
Backlight, 2 soft keys, 5-way navigation key, 4x3 keypad, home button

**Buttons/Switches:**  
Large PTT button, on/off knob, volume knob, red emergency button, 16-position top-mounted rotary knob, 2-position concentric switch, 3-position toggle switch, 3 programmable side buttons

**TX/RX Indicator:**  
Multi-color LED

**Channel Capacity:**  
12,500 (1,250 per mission plan)

**Options and Accessories**  
Speaker microphones, programming software and cables, surveillance accessories, antennas, cases, straps, belt loops and swivel mounts, and desk chargers.

**Intrinsically Safe Options**  
Factory Mutual Intrinsically Safe for Class I, II, and III, Division 1, Groups D, F, and G, hazardous (classified) locations and suitable for Class I, Division 2, Groups A, B, C, and D hazardous (classified) locations.

# Harris Falcon III<sup>®</sup> RF-900P Tactical Land Mobile Radio: Exceptional Operation for Critical Communications

## LEARN MORE

To learn more about the Harris Tactical Land Mobile Radio and its advanced features, contact Harris at [TacticalCommunications@harris.com](mailto:TacticalCommunications@harris.com)

Harris is dedicated to providing advanced, technology-based solutions that solve government and commercial customers' mission-critical challenges.



### TRANSMITTER

TYPICAL PERFORMANCE SPECIFICATIONS	FULL-SPECTRUM MULTIBAND*
Frequency Range (MHz)	136-174 (VHF), 380-520 (UHF), 762-870 MHz (700/800)
Rated RF Power (W)	VHF: 1-6, UHF: 1-5, 700/800: 0.5-3
Rated RF Power Talkaround (W)	VHF: 1-6, UHF: 1-5, 700/800: 0.5-3
Frequency Stability (-30 to +60°C) (ppm)	±0.5
Modulation Limiting (kHz)	2.5, 4, 5 (FM)
VULOS WBFSSK (25kHz)	VHF: -51, UHF: -54, 700/800: -50 VHF: -45, UHF: -47, 700/800: -44
Audio Response (dB)	+1/-3
Spurious and Harmonics (dBc)	-70, FCC Part 90
FM Hum and Noise @ 25 kHz (dB)	VHF: -51, UHF: -54, 700/800: -50 VHF: -45, UHF: -47, 700/800: -44
Audio Distortion (%)	<1.25
Project 25 Modulation Fidelity (%)	<1.00
Project 25 Adjacent Channel Power (dBc)	>67
VULOS Modulation Fidelity (%)	TBD: need procedures to calculate
VULOS Adjacent Channel Power (dBc)	TBD: need procedures to calculate
Emission Designators	16K0F3E, 11K0F3E, 8K4F1E, 8K4F1D, 12K00G1E, 12K00G1D, 14K0F3E

\*VHF product is compliant with applicable FCC narrowbanding mandate below 512 MHz.

### RECEIVER

TYPICAL PERFORMANCE SPECIFICATIONS	FULL-SPECTRUM MULTIBAND*
Frequency Range (MHz)	136-174 (VHF), 380-520 (UHF), 762-870 MHz (700/800)
Channel Spacing (kHz)	25 (wideband*), 12.5 (narrowband)
Sensitivity (12 dB SINAD) (dBm)	VHF: -121.1, UHF: -123.0, 700/800: -121.4
Project 25 Reference Sensitivity @ 5% BER (dBm)	VHF: -121.0, UHF: -122.9, 700/800: -121.4
Adjacent Channel Rejection @ 25 kHz (dB)	VHF: 77.8, UHF: 73.7, 700/800: 72.7
P25 Adjacent Channel Rejection @ 12.5 kHz (dB)	VHF: 66.2, UHF: 62.2, 700/800: 62.0
Intermodulation (dB)	VHF: 74.3, UHF: 78.8, 700/800: 78.5
VULOS Reference Sensitivity @ 5% BER (dBm)	TBD: need procedures to calculate
VULOS Adjacent Channel Rejection @ 25 kHz (dB)	TBD: need procedures to calculate
Spurious and Image Rejection (dB)	VHF: 70, UHF: 75, 700/800: 70
FM Hum and Noise @ 25 kHz (dB)	VHF: -54.8, UHF: -49.1, 700/800: -48.2 VHF: -53.8, UHF: -43.7, 700/800: -42.8
Rated/Max. Audio Output (mW)	500/1200
Audio Distortion	1.1% @ rated power

\*VHF product is compliant with applicable FCC narrowbanding mandate below 512 MHz.

### ENVIRONMENTAL SPECIFICATIONS

STANDARD	PARAMETER	METHODS & PROCEDURES
MIL-STD-810G*	Low Pressure	500.5/1,2

\*Also meets equivalent superseded MIL-STD-810D, -E, and -F. Methods & procedures can be furnished upon request.

### FALCON FAMILY INTEROPERABILITY

Encryption	AES 256-bit
Waveform	25KHz WBFSSK
Vocoder	16K CVSD
Secure Modes of Operation	Voice & GPS Position Reports

### DIGITAL OPERATION

PROTOCOL	P25	VULOS
Vocoding Method	AMBE+2™ Enhanced Full Rate & Enhanced Half Rate	CVSD
Data Rate (kbps)	9.6	16
Modulation	Phase 1 TX: C4FM, RX: C4FM & WCQPSK Phase 2 TX: HCPCM, RX: WCQPSK	WBFSSK
Encryption Algorithms	AES	AES
Encryption Keys	128 keys (64 AES, 64 DES)	128 keys (64 AES, 64 DES)
Encryption Keying	Harris Keyloader, P25 Conventional and Trunked OTAR, KVL-3000+	Harris Keyloader, P25 Conventional and Trunked OTAR, KVL-3000+
Intermodulation (dB)	VHF: 74.3, UHF: 78.8, 700/800: 78.5	TBD: Need procedures to calculate

### REGULATORY DATA

FREQUENCY RANGE (MHz)	RF OUTPUT (W)	FREQUENCY STABILITY (ppm)	FCC TYPE ACCEPTANCE NUMBER	APPLICABLE FCC RULES	INDUSTRY CANADA CERTIFICATION NUMBER	APPLICABLE INDUSTRY CANADA RULES	NTIA CERTIFICATION NUMBER
136-174	6.0	0.5	AQZ-XG-100P00	22, 80, 90	122D-XG100P00	RSS-119	J/F 12/9952
380-520	5.0	0.5	AQZ-XG-100P00	22, 90	122D-XG100P00	RSS-119	J/F 12/9952
763-775, 793-805	2.5	0.5	AQZ-XG-100P00	90	122D-XG100P00	RSS-119	NA
806-824, 851-869	3.0	0.5	AQZ-XG-100P00	90	122D-XG100P00	RSS-119	NA



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