



Unity® XG-100M
Mobile
Full-Spectrum
Multiband

ULTIMATE PERFORMANCE IN ONE RADIO

Unity XG-100M: The Truly Interoperable Solution for P25 Multiband Performance

The Unity XG-100M full-spectrum multiband radio's user-centric design delivers unprecedented interoperability, ease of use, and advanced capabilities in a radio that users can depend on for years to come. By supporting both digital APCO P25 secure and analog FM communications across the VHF, UHF, and 700/800 MHz bands in a single radio, responders can communicate with multiple jurisdictions and agencies operating on multiple frequencies and systems. In addition, the XG-100M supports Harris' Enhanced Digital Access Communications System (EDACS®) and ProVoice™ 800 MHz trunking and the receipt of Low Band VHF (30-50 MHz) frequencies. Designed to scan continuously across all bands, voice modes, and encryption types, the XG-100M provides users exceptional capability and interoperability in a rugged radio that meets the requirements of mission-critical communications. An optional vehicular repeater is available to extend network connectivity for portable radios and provide added user safety.

Standard features found on the Unity XG-100M include:

- > AMBE+2™ Vocoder – provides noise cancellation capability and enhances audio quality
- > Active Noise Cancellation – with built-in microphone that combines with the hand held microphone to suppress noise
- > Built-in GPS – for position tracking and rapid response for emergencies
- > Rugged for Field Use – built to exceed MIL-STD-810G for durability



HARRIS®
assuredcommunications®

Built upon Harris' long history of fielding mission-critical software-defined radios that support evolving customer requirements through software-only upgrades, the Unity XG-100M allows flexibility for future growth.

FUTURE READY

The Unity XG-100M is an investment that agencies can rely on as transitions occur to P25 technology. The mobile supports P25 conventional and trunked operation, wideband and narrowband channels, and its software-defined architecture allows field upgrading to operating modes such as P25 Phase 2. With a 3-year standard radio warranty, the Unity XG-100M is a future-proof investment.

SUPERIOR AUDIO EXPERIENCE

Using the CH-100 control unit, the XG-100M features Harris' proprietary noise suppression capability to provide clear and crisp voice quality in high-noise environments. The CH-100 is designed with a built-in microphone and advanced signal processing technology that work with the hand held microphone for built-in noise suppression. The AMBE+2 vocoder optimizes the quality of communications and controls distortions to provide one of the best audio experiences available.

NEXT-GENERATION USER INTERFACE

The user-centric design of the XG-100M with the CH-100 control unit offers significant capability and flexibility beyond push-to-talk:

- > Large full-color display with resistive touch control
- > Intuitive menu-driven graphical user interface
- > Menu color coding to assist user operation
- > Large knobs and buttons for channel select, volume control, and emergency calls
- > Front-panel programming



ADVANCED FEATURES

The XG-100M delivers the advanced features required by critical communication users.

- > Multiple Mixed Systems Zones allows users to communicate across multiple types of systems: analog conventional, P25 trunked, and P25 conventional. Zones composed of multiple systems are created and users can assign knob positions to channels and talkgroups on these 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.
- > GPS provides quick and accurate unit location information to dispatchers via the radio network.

ACCESSORIES



The XG-100M operates with a full complement of Harris accessories. Several control units are highlighted below. All are available in front or remote mount designs.

The CH-100 control unit incorporates a large 4.3-inch touchscreen color display that includes a powerful graphical user interface and a built-in microphone that works with the hand held microphone to support noise suppression. Wireless audio accessories for the CH-100 are supported by Bluetooth® technology. For security purposes, pairing management is controlled from the radio interface, and Bluetooth can be disabled, if desired.

The CH-721 control unit is a more traditional unit with a 3-line 12-character alphanumeric display. The control unit is available in Scan (limited keypad) or System (full keypad) models and supports 800 MHz EDACS and ProVoice trunking operation. The Scan model has large menu selection buttons. The System model has a 12-button keypad to allow advanced operations without the need for a DTMF microphone. The front panel also has an ambient light sensor for automatic display dimming.

The HHC-731 Hand Held Controller provides the advanced features of the CH-721 System control unit, including siren and light bar control, in a compact package. The ruggedized design meets a full range of environmental specifications and supports 800 MHz EDACS and ProVoice trunking operation. The 3-line 12-character alphanumeric display is backlit for use in low-light areas. The small size of the HHC-731 makes it ideal for covert operations and use in space-constrained environments.

GENERAL SPECIFICATIONS

Dimensions (H x W x D):

Radio Only (50W):
2.0 x 6.9 x 9.7 in.
(50 x 175 x 247 mm)

RU and CH-721 CU

(Includes Knobs):
2.4 x 6.9 x 12.8 in.
(60 x 175 x 325 mm)

CH-721 CU (Remote):
2.4 x 7.0 x 4.0 in.
(60 x 175 x 100 mm)

RU and CH-100 CU
(Includes Knobs):
3.3 x 7.0 x 11.6 in.
(84 x 178 x 295 mm)

CH-100 CU (Remote):
3.3 x 7.0 x 2.8 in.
(84 x 178 x 71 mm)

System Voltage:

10.8 to 16.6 VDC Negative
Ground

Operating Temperature

Range:

-22 to +140°F (-30 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)

Channel/Talkgroup Capacity:

CH-100: 12,500 (1,250 per
mission plan)

CH-721: 1,250

Speaker:

External, 15W

Control Unit Options

CH-100: Touchscreen, 16-bit
color, 480 pixels x 272 pixels,
4.3 in., sunlight readable LCD

CH-721: System and Scan
models available, 3-line 12-
character alphanumeric
display
HHC-731: Ruggedized and
compact design, provides
CH-721 features, 3-line 12-
character alphanumeric display

Options and Accessories

Remote and front mount kits,
hand held controller, mobile
mic, DTMF mic, desk mic,
desktop control station, and
vehicular repeater

EXCEPTIONAL OPERATION FOR CRITICAL COMMUNICATIONS

TRANSMITTER

TYPICAL PERFORMANCE SPECIFICATIONS	FULL-SPECTRUM MULTIBAND*
Frequency Range (MHz):	136-174 (VHF), 380-520 (UHF), 762-870 (700/800)
Rated RF Power (W):	VHF: 5-50, UHF: 5-50, 700: 2-30, 800: 2-35
Rated RF Power Talkaround (W):	VHF: 5-50, UHF: 5-50, 700: 2-30, 800: 2-35
Frequency Stability (-30 to +60°C) (ppm):	±0.5
Modulation Limiting (kHz):	2.5, 4, 5 (FM)
Audio Response (dB):	+1/-3
Spurious and Harmonics (dBc):	-70, FCC Part 90
FM Hum and Noise @ 25 kHz (dB):	VHF-low: 48.2, VHF: 48.8, UHF: 48.6, 700/800: 48.0
@ 12.5 kHz (dB):	VHF-low: 47.1, VHF: 45.9, UHF: 46.2, 700/800: 44.4
Audio Distortion (%):	<1.0
Project 25 Modulation Fidelity (%):	<1.00
Project 25 Adjacent Channel Power (dBc):	>70
Emission Designators:	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):	30-50 (VHF low), 136-174 (VHF), 380-520 (UHF), 762-870 (700/800)
Channel Spacing (kHz):	12.5, 20, 25
Sensitivity (12 dB SINAD) (dBm):	VHF-low: -121.5, VHF: -122.1, UHF: -121.8, 700/800: 121.2
P25 Reference Sensitivity (5% BER) (dBm):	VHF-low: -121.5, VHF: -122.1, UHF: -121.8, 700/800: 121.2
Adjacent Channel Rejection @ 25 kHz (dB):	VHF-low: 80.6, VHF: 82.5, UHF: 77.4, 700/800: 77.0
P25 Adjacent Channel Rejection @ 12.5 kHz (dB):	VHF: 63.9, UHF: 62.9, 700/800: 61.9
Intermodulation (dB):	VHF-low: 81.9, VHF: 81.9, UHF: 81.8, 700/800: 82.5
Spurious and Image Rejection (dB):	VHF-low: 86.6, VHF: 83.0, UHF: 92.4, 700/800: 94.4
FM Hum and Noise @ 25 kHz (dB):	VHF-low: 49.5, VHF: 54.8, UHF: 48.2, 700/800: 52.0
@ 12.5 kHz (dB):	VHF-low: 46.6, VHF: 54.6, UHF: 45.0, 700/800: 44.9
Rated Speaker Audio Output Power (W):	15W RMS into 4 ohm
Audio Distortion (%):	<1.0 @ 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, Proc. I, II
	High Temperature	501.5, Proc. I, II
	Low Temperature	502.5, Proc. I, II
	Temperature Shock	503.5, Proc. I
	Solar Radiation	505.5, Proc. II
	Blowing Rain**	506.5, Proc. I
	Humidity	507.5, Proc. II
	Salt Fog	509.5, Proc. I
	Blowing Dust	510.5, Proc. I
	Vibration (Minimum Integrity)	514.6, Proc. I, Category 24
	Shock (Functional/Basic)	516.6, Proc. I
	Shock (Transit Drop)	516.6, Proc. IV
	U.S. Forest Service	Vibration Stability
		Par. 2.15

*Also meets equivalent superseded MIL-STD-810D, -E, and -F.

** CH-100 and CH-721 control units meet IP-65/MIL-STD-810, XG-100M radio unit meets IP-54

DIGITAL OPERATION

PROTOCOL	P25
Vocoding Method:	AMBE+2™ Enhanced Full Rate & Enhanced Half Rate
Data Rate (kbps):	9.6
Modulation:	Phase 1 TX: C4FM, RX: C4FM & WCQPSK Phase 2 TX: HCPM, RX: WCQPSK
Encryption Algorithms:	AES (FIPS-140-2 certified), DES-OFB, DES-CFB
Encryption Keys:	128 keys (64 AES, 64 DES)
Encryption Keying:	Harris Keyloader, P25 Conventional and Trunked OTAR, KVL-3000+ with CH-100

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 NUMBERS
30-50	0.009	0.5	AQZ-XG-100M00	80, 90	122D-XG100M00	RSS-119	NA
136-174	50	0.5	AQZ-XG-100M00	22, 80, 90	122D-XG100M00	RSS-119	J/F 12/9952
156-162	50	0.5	AQZ-XG-100M00	22, 80	122D-XG100M00	RSS-119	J/F 12/9952
380-520	50	0.5	AQZ-XG-100M00	22, 90	122D-XG100M00	RSS-119	J/F 12/9952
763-775, 793-805	30	0.5	AQZ-XG-100M00	90	122D-XG100M00	RSS-119	NA
806-824, 851-869	35	0.5	AQZ-XG-100M00	90	122D-XG100M00	RSS-119	NA



Technical specifications are subject to change without notice. Product sales are subject to applicable U.S. export control laws.



Public Safety and Professional Communications
221 Jefferson Ridge Parkway
Lynchburg, VA 24501 USA

1-800-368-3277 (+1-434-455-6403)

www.pspc.harris.com



harris.com

Harris, Unity, EDACS, and assuredcommunications are registered trademarks of Harris Corporation.
ProVoice is a trademark of Harris Corporation.
Trademarks and tradenames are the property of their respective companies.
Copyright © 2015 Harris Corporation All rights reserved. 02/15 ECR-7719L