

## XL-185Pi

### Single-Band LMR Meeting UL Class 1, Division 1 Requirements

The L3Harris XL-185Pi is built to today's toughest specs for reliable communications in the most challenging operations. This single-band portable meets UL Class 1, Division 1 (C1D1) standards through intrinsic safety in hazardous environments.

Ideal for fire departments, utilities, mining, hazmat responders and oil and gas workers, the XL-185Pi delivers advanced connectivity with robust LMR voice and data over VHF, UHF or 700/800 frequencies. Wi-Fi® and Bluetooth® are also included as standard. This portable has a tough aluminum I-beam frame with seals hardened against water and dust penetration. Compact and ergonomic, the XL-185Pi fits naturally into users' hands, with controls shaped for fast, easy gloved-hand operation.

Engineered for audio excellence with a 1.5 watt/4.0 watt max amplifier and woofer and tweeter speakers, the XL-185Pi also features advanced noise cancellation technologies. These suppress acoustic feedback and provide clear audio communications in a wide range of conditions.

Standard security capabilities on the XL-185Pi include single-key AES and DES encryption.



### RUGGEDIZED FOR OPERATIONS IN EXTREME CONDITIONS

#### KEY BENEFITS

- > Meets UL C1D1 standards for operation in hazardous environments through intrinsic safety
- > Robust connectivity with VHF, UHF or 700/800 frequency capabilities
- > Compact and ergonomic, ruggedized to withstand extreme conditions
- > Advanced noise cancellation technologies deliver clear audio in a variety of challenging scenarios
- > Communications secured through a choice of encryption methods, including single-key AES

## SPECIFICATIONS FOR: XL-185P<sub>i</sub>-INTRINSICALLY SAFE LAND MOBILE RADIO

GENERAL		
<b>Radio Models:</b> Full Keypad Partial Keypad	TFT LCD w/DTMF keypad, navigation cluster, soft keys TFT LCD w/partial keypad, navigation cluster, soft keys	
<b>Dimensions w/Battery (H x W x D)</b>	5.8 x 2.3 x 1.6 in (148.0 x 60.0 x 42.0 mm)	
<b>Weight</b>	17.9 oz (507 g) w/Battery and Antenna	10.4 oz (296 g) w/o Battery and Antenna
<b>Housing Colors</b>	Midnight Black, High-Visibility Yellow, High-Visibility Green	
<b>Interfaces:</b> Front Display Top Display Keypad Buttons  Tx/Rx Indicator	320 x 178 pixels, 1.8 inch transreflective LCD, 16-bit color with backlight 128 x 32 pixels, 1.1 inch multi-color backlight, sunlight readable Backlight, 3 soft keys, 5-way navigation key, full DTMF keypad Large PTT button, on/off knob, volume knob, red emergency button, 16-position top-mounted rotary knob, 2-position concentric switch, 4-position toggle switch, 3 programmable side buttons Multi-colored LEDs	
<b>Channel/Talkgroup Capacity</b>	1,250 total conventional channels and 13,824 total talkgroups	
<b>Radio programming</b>	Firmware, personalities and feature set over Wi-Fi	
<b>Transceiver</b>	<b>Supported Bands</b> VHF, UHF or 700/800 MHz	<b>Channel Capacity</b> 12,500 (1,250 per mission plan)
<b>Environmental:</b> Relative Humidity Vibration Drop Shock Immersion <sup>1</sup>	5% @ 140°F (+60°C), 95% @ 122°F (+50°C) USDA LMR Standard, Section 2.15 and MIL-STD-810G, Test Method 514.6 1.0 meter drop to concrete (exceeds TIA-603-D) 2 meters for 4 hours in accordance with MIL-STD-810G/IP68	
<b>Operating Temperature<sup>2</sup></b>	-22° to +140°F (-30° to +60°C)	
<b>Storage Temperature<sup>3</sup></b>	-40° to +176°F (-40° to +80°C)	
<b>Altitude</b>	<b>Operational</b> 15,000 feet (4,572 meters)	<b>In Transit</b> 40,000 feet (12,192 meters)
<b>Electrical Input Voltage</b>	7.5 VDC (nominal)	
<b>GPS/GNSS Specifications:</b> Channels Tracking Sensitivity (dBm) Acquisition Sensitivity (dBm) Cold Start w/-130 dBm input Hot Start w/-130 dBm input	P25 standard Tier 2 and L3Harris in-band 52 -166 (GPS), -163 (GLONASS) -146 (GPS) <35 seconds <1 second	
<b>Safety:</b> Hazardous Location Options RoHS Compliant	U.S.: Class 1, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1 hazardous locations; Class 1, Division 2, Groups A, B, C and D Canada: Class 1, Division 2, Groups A, B, C and D hazardous locations	

<sup>1</sup> Optional feature

<sup>2</sup> Extreme low temperatures adversely affect battery life

<sup>3</sup> Store batteries at +25°C ± 5°C

LMR TRANSMITTER			
Frequency Bands	VHF*	UHF*	700/800 MHz
<b>Frequency Ranges (MHz)</b> Option 1 (U.S.)  Option 2 (International/Non-rebanded)	136-174  136-174	378-522  378-522	768-776, 798-806, 806-816, 851-861  763-776, 793-806, 806-825, 851-870
<b>Rated RF Power/Talkaround (W)</b>	1-6	1-5	0.5-3
<b>Frequency Stability (-30 to +60°C)</b>	±1.0 ppm	±1.0 ppm	±1.0 ppm
<b>Modulation Limiting (kHz)</b>	2.5, 4, 5 (FM)	2.5, 4, 5 (FM)	2.5, 4, 5 (FM)
<b>Audio Response (dB)</b>	+1/-3	+1/-3	+1/-3
<b>Spurious and Harmonics (dBc)</b>	-80 (FCC Part 90)	-80 (FCC Part 90)	-80 (FCC Part 90)
<b>FM Hum and Noise Companion Receiver (dB):</b> @ 25 kHz @ 12.5 kHz	70 47	60 47	55 45
<b>Audio Distortion (%)</b>	<1.25	<1.25	<1.25
<b>Project 25 Modulation Fidelity (%)</b>	1.0	1.0	1.0
<b>Project 25 Adjacent Channel Power (dBc)</b>	>71	>71	>71

\*Full-spectrum multiband VHF and UHF product is compliant with applicable FCC narrowbanding mandate below 512 MHz

REGULATORY DATA							
Frequency Range	RF Output	Frequency Stability	FCC Type Acceptance No.	Applicable FCC Rules	Industry Canada Certification No.	Applicable Industry Canada Rules	NTIA Cert. No.
136-174 MHz	6 W	±1.0 ppm	OWDTR-0153-E	22, 74, 80, 90	3636B-0153	RSS-119	SPS-217 49/1
378-522 MHz	5 W	±1.0 ppm	OWDTR-0152-E	22, 74, 80, 91	3636B-0152	RSS-119	SPS-217 49/1
768-776 MHz	3 W	±1.0 ppm	OWDTR-0151-E & OWDTR-0154-E	90	3636B-0151 & 3636B-0154	RSS-119	NA
798-806 MHz	3 W	±1.0 ppm	OWDTR-0151-E & OWDTR-0154-E	90	3636B-0151 & 3636B-0154	RSS-119	NA
806-816 MHz	3 W	±1.0 ppm	OWDTR-0154-E	90	3636B-0154	RSS-119	NA
806-825 MHz	3 W	±1.0 ppm	OWDTR-0151-E	90	3636B-0151	RSS-119	NA
851-861 MHz	3 W	±1.0 ppm	OWDTR-0154-E	90	3636B-0154	RSS-119	NA
851-869 MHz	3 W	±1.0 ppm	OWDTR-0151-E	90	3636B-0151	RSS-119	NA

## SPECIFICATIONS FOR: XL-185P<sub>i</sub>-INTRINSICALLY SAFE LAND MOBILE RADIO

REGULATORY DATA (Continued)								
Frequency Range (MHz)		RF Output (W)	Frequency Stability	FCC Type Acceptance No.	Applicable FCC Rules	Industry Canada Certification No.	Applicable Industry Canada Rules	NTIA Cert. No.
2402-2460 MHz	VHF single band	0.2 W	N/A	OWDTR-0153-E	15	3636B-0153	RSS-119	NA
	UHF single band	0.2 W	N/A	OWDTR-0152-E	15	3636B-0152	RSS-119	NA
	RB single band	0.2 W	N/A	OWDTR-0154-E	15	3636B-0154	RSS-119	NA
	NRB single band	0.2 W	N/A	OWDTR-0151-E	15	3636B-0151	RSS-119	NA
5180-5825 MHz	VHF single band	.01 W	N/A	OWDTR-0153-E	15	3636B-0153	RSS-119	NA
	UHF single band	.01 W	N/A	OWDTR-0152-E	15	3636B-0152	RSS-119	NA
	RB single band	.01 W	N/A	OWDTR-0154-E	15	3636B-0154	RSS-119	NA
	NRB single band	.01 W	N/A	OWDTR-0151-E	15	3636B-0151	RSS-119	NA

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

LMR RECEIVER			
Frequency Bands	VHF	UHF	700/800 MHz
<b>Frequency Ranges (MHz):</b> Option 1 (U.S.) Option 2 (International)	136-174 136-174	378-522 378-522	768-776, 851-861 763-776, 851-870
<b>Channel Spacing (kHz)</b>	25 (wideband*), 12.5 (narrowband), 6.25 equiv (TDMA P25 Phase 2)		
<b>Frequency Stability (-30 to +60°C)</b>	±1.0 ppm	±1.0 ppm	±1.0 ppm
<b>Sensitivity (dBm):</b> @ 12 dB SINAD	-122	-121	-121 (700 MHz) -120 (800 MHz)
<b>Project 25 Reference Sensitivity (dBm):</b> @ 5% BER	-122	-121	-120.5
<b>Analog Selectivity (dB):</b> @ 25 kHz @ 12.5 kHz	77 71	77 70	74 64
<b>Project 25 Adjacent Channel Rejection (dB)</b>	66.2	62.2	62
<b>Offset Channel Selectivity (dB):</b> @ NPSPEC	NA	NA	30
<b>Intermodulation (dB)</b>	80	81	77
<b>Spurious and Image Rejection (dB)</b>	90	87	80
<b>FM Hum and Noise (dB):</b> @ 25 kHz @ 12.5 kHz	-60 -55	-60 -53	-55 -50
<b>Audio Output - Rated/Max (mW)</b>	1500 / N/A	1500 / N/A	1500 / 4000
<b>Audio Distortion @ Rated Power (%)</b>	1.1	1.1	1.1

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

ENVIRONMENTAL STANDARD			
Applicable MIL-STD	Parameter	Methods	Procedure/Categories
MIL-STD-810G*	Low pressure	500.5	1, 2
	High temperature	501.5	1, 2
	Low temperature	502.5	1, 2
	Temperature shock	503.5	1
	Solar radiation	505.5	1
	Contamination by fluids	504.1	2
	Rain	506.5	1, 3
	Humidity	507.5	2
	Salt fog	509.5	1
	Blowing dust and sand	510.5	1, 2
	Explosive atmosphere	511.5	1
	Immersion in water**	512.5	1
	Vibration (minimum integrity)	514.6	1, Category 24
	Vibration (basic transportation)	514.6	1, Category 4
	Shock (functional/basic)	516.6	1
	Shock (transit drop)	516.6	4
Shock (bench handling)	516.6	6	
IEC 60529	Dust tight, continuous immersion in water**		IP68

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

\*\*Optional feature

BROADBAND	
Wi-Fi	802.11 b/g/n 2.4 GHz and 5 GHz; supports 24 preconfigured and 8 user configured networks
Bluetooth	Bluetooth 4.0 (128-bit encryption)

## SPECIFICATIONS FOR: XL-185Pi–INTRINSICALLY SAFE LAND MOBILE RADIO

DIGITAL OPERATION		
Protocol	ProVoice™	P25
Vocoding Method	AMBE+2™ enhanced full rate	AMBE+2 enhanced full rate and enhanced half rate
Signaling Rate (kbps)	9.6	9.6
Modulation	GFSK	Phase 1 Tx: C4FM, Rx: C4FM and WCQPSK
L3Harris Failsoft Operation	Switch to site trunking mode (for L3Harris infrastructure) or P25 conventional	

ENCRYPTION	
Encryption Algorithms	Voice Encryption: Single-key AES/DES, Multiple-key AES/DES, DES-OFB, Encryption Lite (ARC4), 256-bit AES P25, 64-bit DES Control Channel Encryption: 128-bit AES (LLA)
Encryption Keys per Radio	Capable of storing 128 keys (128 AES, 64 DES), store up to 5 UKEKs per radio
Keying	L3Harris Key Loader, Over-the-Air Rekeying (OTAR) for respective UKEKs, Motorola KVL 3000+/4000,
Standards	FIPS 140-2, FIPS 197

BATTERIES			
Type	Dimensions (H x W x D)	Weight	Capacity (mAh)
Li-Ion	3.0 x 2.3 x 1.1 in	6.1 oz (174 g)	3100

## ACCESSORIES

The XL-185Pi is available with a selection of dependable C1D1-rated L3Harris accessories that operate in a range of environments. Several are shown below.

### Chargers

L3Harris offers a variety of chargers for the XL-185Pi: Single-Bay, 2-Bay, Multi-Bay and a Vehicular Charger for in-car charging. The chargers are designed to quickly and safely charge battery packs in approximately 1 to 4 hours.



Single-Bay Charger



2-Bay Charger



Multi-Bay Charger



Vehicular Charger

### Additional Accessories Available

Standard speaker microphones, earphones for standard speaker microphones, belt clip, Lithium Ion battery, PC programming software and cables and antennas.

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### XL-185Pi Intrinsically Safe Land Mobile Radio

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### Non-Export Controlled Information

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