

# VX-450 Series

## VHF/UHF Portable Radios

### SPECIFICATION SHEET – NORTH AMERICA

#### Durable On-the-Job Responsiveness

The industrial grade VX-450 Series maximizes worker uptime with expanded safety applications and convenient built-in features designed for heavy duty use.

#### Monitor Worker Safety

As with all Vertex Standard radios, the VX-450 series includes built-in Emergency and Lone Worker alerts. Emergency notification is user-initiated with a press of a button for the radio to switch to a designated channel and send an alert for help. Lone Worker is a built-in timer that requires the user to reset at a predetermined interval. If not reset, the radio automatically switches to Emergency mode to alert help.

When constant contact is required at all times, Vertex Standard's exclusive Auto-Range Transpond System (ARTS™) is included to inform the user that other ARTS™ - equipped radios are within communication range.

The optional Man Down function (with DVS-9 unit) is programmable to monitor a variety of worker timed safety scenarios vertically and horizontally as well as worker degree of motion. Adjusting the settings of the 3-axis sensor adapts the radio to each distinct work environment to monitor movement.

#### Intrinsically Safe Option for Hazardous Locations

Intrinsically safe models are SGS certified to the requirements of ANSI/UL913 5th Edition for use in Class I, II, III, Division I; Groups C,D,E,F,G; Temp T3C hazardous locations.

#### Solid Build for Extreme Environments

Withstands job site abuse meeting military standards for ruggedness and meets the IP 57 ingress protection standard where water does not harm the radio when submersed to a depth of 3 feet for up to 30 minutes.

#### Loud Audio and Voice Responsiveness

Features 700 mW loud audio output ideal for noisy work environments.

Includes Channel Announcement which speaks the channel description to simplify changing channels when focused on other tasks simultaneously.

Features voice activation (VOX) when used with MH-81A4B headset that enables users to transmit voice without pressing the Push To Talk button for hands-free operation.

Record up to 120 seconds of voice messages using the optional DVS-8 Voice Storage unit.

#### Built-in Selective Signaling Modes for Greater Flexibility

Includes MDC-1200® encode/decode along with both 2-tone and 5-tone encode/decode providing selective radio calling and efficiency in supporting a variety of discreet communications needs.

#### Large Group Communications Made Easy to Manage

Both the VX-459 and VX-454 radios have a massive 512-channel capacity and 32 groups to easily manage a variety of calls at the most complex job site or plant operation. The VX-459 also includes Direct Channel Entry to punch in the channel desired from the keypad for fast navigation.



#### The Vertex Standard Difference

Our number one goal is achieving superior customer satisfaction by delivering products and services that exceed your expectations. Vertex Standard radios are built to last and are backed by an industry-leading 3 year warranty.

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www.vertexstandard.com/lmr

## Additional Features

- ✦ Nine programmable keys (VX-459)
- ✦ Seven programmable keys (VX-454)
- ✦ Three programmable keys (VX-451)
- ✦ 8-Character alphanumeric display (VX-454/459)
- ✦ Voice inversion encryption
- ✦ Manual on/off encryption activation
- ✦ RX/TX Battery power save
- ✦ DTMF ANI
- ✦ DTMF Speed dial
- ✦ DTMF Paging
- ✦ CTCSS/DCS Encode and Decode
- ✦ Stun/kill/revive (5-tone)
- ✦ Compander
- ✦ Clear voice
- ✦ Whisper
- ✦ Minimum volume control
- ✦ Manual squelch adjustment
- ✦ BCLO, BTLO and TOT Functions
- ✦ Programmable LED color alert
- ✦ Priority scan
- ✦ Dual Watch scan
- ✦ Follow-me scan
- ✦ Talk Around scan
- ✦ Radio-to-radio cloning
- ✦ LTR® Trunking (option)

## Accessories

- ✦ MH-360S: Compact speaker microphone
- ✦ MH-37A4B: Earpiece microphone
- ✦ MH-450S: Speaker microphone
- ✦ MH-45B4B: Noise canceling speaker microphone
- ✦ MH-66A4B: Submersible speaker microphone†
- ✦ MH-81A4B: Over-the-head light duty VOX headset†
- ✦ VH-110S: Over-the-head heavy duty dual-muff headset
- ✦ VH-115S: Behind-the-head headset with boom mic
- ✦ VH-215S: Over-the-head single-muff headset
- ✦ VH-120S: Earpiece mic with palm PTT switch
- ✦ VH-130S: Earpiece with palm mic and PTT switch
- ✦ FNB-V113LI: 2300 mAh Li-Ion battery
- ✦ FNB-V113LIIS: 2300 mAh Li-Ion battery (IS)
- ✦ FNB-V134LI-UNI: 2300 mAh Li-Ion battery
- ✦ FNB-V133LI-UNI: 1380 mAh Li-Ion battery
- ✦ FNB-V112LI: 1140 mAh Li-Ion battery
- ✦ VAC-UNI: Single unit charger for UNI batteries
- ✦ VAC-6058: Multi unit charger for UNI batteries
- ✦ VAC-450: Desktop rapid rate charger (non-UNI)

## Option Boards

- ✦ DVS-8: Digital voice storage unit
- ✦ DVS-9: Man down alert with digital voice storage‡
- ✦ FVP-44: Rolling code encryption†

## VX-450 Series Specifications

	VHF	UHF
<b>General Specification</b>		
Frequency Range	134 - 174 MHz	450 - 512 MHz
Number of Channels and Groups	512 / 32 Groups (VX-459,VX-454) 32 / 2 Groups (VX-451)	
Power Supply Voltage	7.5V DC ± 20%	
Channel Spacing	12.5 / 20* / 25* kHz	
PLL Steps	1.25 / 2.5 / 5 / 6.25 kHz	5 / 6.25 kHz
Battery Life (5-5-90 duty)		
2300 mAh FNB-V113LI (FNB-V113LIIS)	18.5 hours (w/saver) / 16 hours	18 hours (w/saver) / 15.5 hours
2300 mAh FNB-V134LI-UNI	18.5 hours (w/saver) / 16 hours	18 hours (w/saver) / 15.5 hours
1380 mAh FNB-V133LI-UNI	11 hours (w/saver) / 10 hours	11 hours (w/saver) / 10 hours
1140 mAh FNB-V112LI	9.5 hours (w/saver) / 8.6 hours	9.2 hours (w/saver) / 8.3 hours
IP Rating	IP 57	
Operating Temperature Range	-22°F to +140°F (-30°C to +60°C)	
Frequency Stability	±2.5 ppm	
RF Input-Output Impedance	50 Ohms	
Dimension (H x W x D)		
VX-451 Model	4.3 x 2.3 x 1.7 inches (109 x 58.5 x 43 mm) FNB-V113LI (and IS)	
	4.3 x 2.3 x 1.7 inches (109 x 58.5 x 43 mm) FNB-V134LI-UNI	
	4.3 x 2.3 x 1.4 inches (109 x 58.5 x 35 mm) FNB-V133LI-UNI	
	4.3 x 2.3 x 1.3 inches (109 x 58.5 x 34 mm) FNB-V112LI	
Weight (Approx.) with Antenna, Belt Clip		
VX-451;VX-454/459	12.0 oz; 12.9 oz (340 g; 366 g) FNB-V113LI (and IS)	
	11.6 oz; 12.6 oz (330 g; 356 g) FNB-V134LI-UNI	
	9.9 oz; 10.8 oz (281 g; 307 g) FNB-V133LI-UNI	
	10.4 oz; 11.4 oz (296 g; 322 g) FNB-V112LI	

### Receiver Specification: measured by TIA/EIA-603

Sensitivity 12dB SINAD	0.25 µV typical
Adjacent Channel Selectivity	70 dB / 65 dB
Hum and Noise	45 dB / 40 dB
Intermodulation	70 dB / 65 dB
Spurious and Image Rejection	70 dB
Audio Output	700 mW (internal @ 16 Ohms, 5% THD) 500 mW (external @ 4 Ohms, 5% THD)

### Transmitter Specification: measured by TIA/EIA-603

Output Power	5 / 2.5 / 1 / 0.25 Watt (selectable by channel)
Modulation	16K0F3E, 11K0F3E
Maximum Deviation	± 5.0 kHz / ± 2.5 kHz
Conducted Spurious Emissions	70 dB below carrier
FM Hum and Noise	45 dB / 40 dB
Audio Distortion	< 3 % @ 1 kHz

## Applicable MIL-STD

Standard	Methods/Procedures				
	MIL 810C	MIL 810D	MIL 810E	MIL 810F	MIL 810G
Low Pressure	500.1 / I	500.2 / I, II	500.3 / I, II	500.4 / I, II	500.5 / I, II
High Temperature	501.1 / I, II	501.2 / I, II	501.3 / I, II	501.4 / I, II	501.5 / I, II
Low Temperature	502.1 / I	502.2 / I, II	502.3 / I, II	502.4 / I, II	502.5 / I, II
Temperature Shock	503.1 / I	503.2 / I	503.3 / I	503.4 / I	–
Solar Radiation	505.1 / I	505.2 / II Cat. A1	505.3 / II Cat. A1	505.4 / I, II Cat. A1	–
Rain	506.1 / I, II	506.2 / I, II	506.3 / I, II	506.4 / I, III	506.5 / I, III
Humidity	507.1 / I, II	507.2 / II, III	507.3 / II, III	507.4 / III	507.5 / I, III
Salt Fog	509.1 / I	509.2 / I	509.3 / I	509.4 / I	509.5 / I
Dust	510.1 / I	510.2 / I	510.3 / I	510.4 / I, III	510.5 / I
Vibration	514.2 / VIII, X	514.3 / Cat. 10	514.4 / Cat. 10	514.5 / Cat. 20, 24	514.6 / Cat. 20, 24
Shock	516.2 / I, III, V	516.3 / I, IV	516.4 / I, IV	516.5 / I, IV	516.6 / I, IV

Specifications are subject to change without notice or obligation. Vertex Standard is a trademark of Vertex Standard LMR, Inc. All other trademarks are the property of their respective owners. †Intrinsically Safe system approved. Complete list of IS accessories in Owners Manual. \*25 kHz will not be available on new equipment in the U.S.A. after 1/1/2013. © 2013 Vertex Standard LMR, Inc. All rights reserved. NSS\_450\_09/2013