

# VX-920 SERIES

## VHF/UHF Portable Radios



- Power Output: 5 W
- Wide Band
  - VHF: 134 - 174 MHz
  - UHF: 400 - 470 MHz and 450 - 520 MHz
- VX-929 / 924 with LCD version:
  - Maximum 512 channels / 32 Groups
- VX-921 without LCD version:
  - Maximum 48 channels / 3 Groups
- Large LCD (Dot Matrix / 12 Characters + 7 Segments / 3 Characters)
- Wide / Narrow (12.5 / 20 / 25 kHz), programmable per channel)
- CTCSS/DCS Encode / Decode
- DTMF ANI / DTMF Paging
- Built-in 5-Tone Signaling
- 2-Tone Encode and Multiple-2 Tone Decode
- User Selectable Tone
- Submersible External Microphone MH-66 Series (optional)
- Scan: Channel Scan, Priority Scan, Dual Watch, Follow-me Scan, Follow-me/DW and TA Scan
- Comander (Wide and Narrow Band)
- Loud 700 mW Audio Output
- AF Minimum Volume
- 7-Color LED: Flash pattern and color can be set as 2-Tone or 5-Tone Incoming Call Alert or for Emergency Mode use
- Lone Worker
- RX / TX Battery Save
- Programmable Home Channel function
- Direct Channel Recall (#1-#4)
- Programmable Function Keys
- BCLO / BTLO and TOT
- Remote Radio Stun / Kill / Revive (5-Tone)
- Clear Voice (Improves Tx audio in noisy environments)
- Audio Pitch Control
- Speed Dial (16-key version only)
- ARTS™ (Auto-Range Transpond System)
- Encryption (Optional FVP-36 or FVP-35 required)
- Voice Storage (Optional DVS-5 required)
- ANI Encoder (MDC-1200®, GE-Star® and DTMF: Optional VME-100 required)
- ANI Encoder / Decoder (MDC-1200®, GE-Star® and DTMF (Encode): Optional VMDE-200 required)
- PC Programmable
- MIL-STD 810C/D/E/F
- Intrinsically Safe Version Available (Pending)

### VX-929

512 ch/32 groups with  
16 Keys and LCD

### VX-924

512 ch/32 groups with  
4 Keys and LCD

### VX-921

48 ch/3 groups  
without LCD



# VX-920

**IP55**  
Water Jets

**IP57**  
Submersible  
1 m for 30 min

## SERIES

Reliability, ruggedness, and interoperability like never before. The VX-920 series of Vertex Standard portables is ready to respond when you are, with a wide array of signaling capability, along with big audio, operator and system security measures, and PC programmability for quick deployment. Submersible to IP57 specifications, and built to U.S. MIL-STD specifications, the VX-920 Portables are your assurance of long-term reliability under the most difficult operating circumstances.



## VERSATILITY

**VX-929 / 924 with LCD: Maximum 512 Channels/32 Groups**  
**VX-921 w/o LCD: Maximum 48 Channels/3 Groups**

The LCD-equipped version provides massive channel storage capability: up to 512 channels may be programmed into as many as 32 groups. A single radio may therefore be programmed with channel sets for a number of different jurisdictions or organizations, ensuring seamless interoperability. The VX-920 Series without the LCD can accommodate up to 48 channels in up to three groups.

### CTCSS/DCS Encode/Decode

High-performance Encoder/Decoder circuits for both CTCSS and Digital Code Squelch are provided, for access to tone/code controlled systems. DCS is ideal for crowded RF environments, providing superior immunity from false opening of the squelch.

### DTMF ANI/DTMF Paging

Fleet and network operation are enhanced by the built-in DTMF ANI/Paging circuit.

### 2-Tone Encode and Multiple 2-Tone Decode

The VX-920 Series can transmit a 2-Tone paging call, and can receive 2-Tone calls using different tone combinations.

### User Selectable Tone

One of the front panel's "programmable" keys may be designated so as to allow the user to select a CTCSS or DCS tone from a pre-defined Tone Table.

### Scan: Channel Scan, Priority Scan, Dual Watch, Follow-me Scan, Follow-me Dual Watch, and TA Scan

The VX-920 Series provides unmatched flexibility in its scanning features. Designed to optimize operation in a wide variety of system environments, these scanning capabilities ensure that you never miss an important call!



Actual Size

**VX-929**



**VX-924**



**VX-921**



### Companion (Wide and Narrow Band)

For operation in systems requiring Companding, the VX-920 Series portables include both Wide- and Narrow-band Companding circuitry, programmable channel by channel.

### Lone Worker

The Lone Worker feature is designed to emit an alarm for 30 seconds when the Lone Worker Timer (programmed by the dealer) has expired. If the user does not reset the timer by pressing the PTT switch, the radio switches to the Emergency mode.

### RX/TX Battery Saver

When engaged, the Receive-mode Battery Saver rapidly pulses the portable on and off, reducing current consumption and extending battery life. If a call is received, the Battery Saver is disengaged, and normal operation resumes. On transmit, the Battery Saver will reduce transmitter power, thus extending operating time, when you are within close range of a strong repeater or dispatch center.

### Programmable Function Keys

Customization of feature access is easily accomplished at the time of programming, thanks to the "programmable" keys that may be assigned functions needed most in your operating environment.

### PC Programmable

All channel and other configuration data may be uploaded to the portable by the dealer in a matter of minutes, allowing efficient setup of a fleet of radios when rapid deployment is required.

### ANI Encoding and Decoding (MDC-1200®, GE-Star®, and DTMF (Encode): optional VME-100 or VMDE-200 required)

Automatic Number Identification, triggered by the pressing of the PTT key, is available in the most popular industry-standard formats, via the optional VME-100 (for Encoding only) or VMDE-200 (for Encoding and Decoding) module.

## HIGH PERFORMANCE

### Power Output: 5 Watts

The VX-920 Series provides up to five solid Watts of transmitter power, for extended communications range. For more localized applications, the power output may be reduced to 2.5 Watts, 1 Watt, or 1/4 Watt, for enhanced battery life.

### Wide/Narrow (12.5/20/25 kHz) Programmable per Channel

When programming radios for use in different jurisdictions, the VX-920 Series portables may be set up, channel by channel, for use in 12.5 kHz, 20 kHz, or 25 kHz channel spacing environments. Deviation and bandwidth are automatically set according to the configuration you choose.

### Built-in 5-Tone Signaling

For advanced network or fleet operations, a 5-Tone Encoder-Decoder circuit is included in the VX-920 Series. An expensive option on many competing brands, this included feature enhances operation without impacting your budget.

### Loud 700 mW Audio Output

Ideal for reception in noisy environments, high-powered audio of the VX-920 Series is coupled to a large internal speaker, assuring solid copy throughout difficult crowd control, fire, or sporting-event operations.

### Clear Voice (Improves TX Audio in Noisy Environments)

The unique Clear Voice feature provides a specialized form of audio processing that helps the user's voice stand out more clearly when he or she is operating in a very noisy environment.

### Speed Dial (16-key Version only)

An easy-to-use DTMF Speed Dialer feature is included in the VX-929, for specialized selective calling, telephone interconnect, or other applications.

### Voice Storage (optional DVS-5 required)

The optional DVS-5 Digital Voice Storage Unit allows you to store and play back up to 120 seconds of incoming received audio, so you can archive an important incoming message.

## EASY USER INTERFACE

### 7-Color LED for Incoming Call Alert

The front panel of the VX-920 Series includes an ultra-bright LED that can display up to seven different colors, with a variable flash pattern, to alert the operator when a 2-Tone or 5-Tone call has come in, and during Emergency mode operation.



### Large LCD (Dot Matrix/12 Characters + 7 Segments/3 Characters) (VX-929/924)

The large, easy-to-read display includes a 12-character dot matrix that provides a wealth of information about the operating channel, as well as various status icons. Illuminated using Vertex Standard's renowned Omni-Glow™ back-lighting, the VX-929/924's LCD is clearly visible at night, with minimal degradation of your night vision.



### Programmable Home Channel Function

The user may select, out of the dealer-programmed channel list, one channel to be the "Home" channel, which may be assigned to a "programmable" key for one-touch access to a critically-important channel.

### Direct Channel Recall (#1 - #4)

Any or all of the programmable keys may be assigned as direct-access one-touch keys for selecting important operating channels.

### Audio Pitch Control

When using the radio in a noisy environment, the Audio Pitch Control adds aggressive equalization to the audio on the incoming signal, allowing it to "punch" through the ambient noise so the user will have a better chance of understanding the incoming transmission.

### ARTS™ (Auto-Range Transpond System)

The ARTS™ feature is a "handshake" system that uses DCS coding to confirm that two ARTS™-equipped units are within communication range. If an "out of range" condition develops, an alarm will sound and the communications center can instruct the field unit to move to a better location (or assistance to the field unit can be dispatched).

## SECURITY

### BCLO/BTLO and TOT

To prevent interference to other users on busy channels, the Busy Channel Lock-Out (BCLO) and Busy Tone Lock-Out (BTLO) features prevent transmission by the portable if the channel is occupied. And the Time-Out Timer (TOT) feature will automatically cut off transmission if the programmed maximum transmit time is exceeded.

### Remote Radio Stun/Kill/Revive (5-Tone)

To prevent use of the portable by an unauthorized operator (in case of theft, non-payment of subscription, etc.), a dispatch center can send a 5-Tone command to "Stun" (temporary disabling) or "Kill" (permanent disabling) a unit. If the "Stun" command has been sent, another 5-Tone "Revive" command may also be sent, re-enabling operation of the portable.

### Encryption (Optional FVP-35 or FVP-36 required)

The FVP-35 (Rolling Code) and FVP-36 (Inversion) Encryption Units provide security for your important public safety and security communications.

## DURABLE CONSTRUCTION

### Rugged, Submersible Design

The VX-920 Series portables are housed in an ultra-rugged, impact-resistant case that is designed to exceed U.S. MIL-STD 810C/D/E/F standards for shock, vibration, and driving rain; it also meets international waterproofing standard IP55 (water jets) and IP57 (submersion in water to a depth of 1 m for up to 30 minutes).



### Submersible External Speaker/Microphone MH-66 Series (optional)

When operating in an emergency situation where immersion of the radio and/or its accessories could occur, the optional MH-66 Series Speaker/Microphone is rated to the same submersibility specifications as the portable itself, ensuring that your essential communications won't be interrupted if the microphone gets dropped into the water.

### Other Features

- AF Minimum Volume
- Radio-to-Radio Cloning
- Signal Strength Meter
- Battery Indicator

# VX-920 SERIES VHF/UHF Portable Radios

## Specifications

	VHF	UHF
<b>General Specifications</b>		
Frequency Range	134-174 MHz	450-520 MHz 400-470 MHz
Number of Channels	512 (VX-929 / 924) / 48 (VX-921)	
Number of Groups	32 (VX-929 / 924) / 3 (VX-921)	
Channel Spacing	12.5 / 20 / 25 kHz	
PLL Steps	5 / 6.25 kHz	
Power Supply Voltage	7.4 VDC ±20 %	
Current Consumption		
STBY (w/save)	75 (30) mA	75 (30) mA
RX	200 mA	200 mA
TX	1.7A	1.9A
Battery Life (w/Battery save) (RX 5 : TX 5 : STBY 90 Duty)	12.5 h (16 h) w/ FNB-V87LI	11.5 h (15 h) w/ FNB-V87LI
Temperature Range	-30° C to +60° C	
Frequency Stability	±2.5 ppm	
Dimensions (W x H x D)	57.5 x 133 x 37.5 mm	
Weight (approx.)	370 g w/Ant, Battery (FNB-V86LI) and Belt clip	

	VHF	UHF
<b>Receiver Specifications</b>		
Sensitivity (12 dB SINAD) EIA	0.25 / 0.32 μV	
Adjacent Channel Selectivity	75 / 70 dB	
Intermodulation	75 / 70 dB	
Spurious and Image Rejection	80 dB	75 dB
Hum and Noise	48 / 42 dB	
Audio Out put	700 mW @16 Ohms, 5 % THD	

<b>Transmitter Specifications</b>	
Power Output	5 / 2.5 / 1 / 0.25 W
Modulation	16K0F3E 11K0F3E
Spurious Emissions	70 dB
FM Hum & Noise	45 / 40 dB
Audio Distortion (@1 kHz)	Less than 3 %

Measurements per EIA standards unless noted above. Specifications subject to change without notice or obligation.

## Applicable MIL-STD

Standard	MIL 810C Methods/Procedures	MIL 810D Methods/Procedures	MIL 810E Methods/Procedures	MIL 810F Methods/Procedures
Low Pressure	500.1/Procedure I	500.2/Procedure I, II	500.3/Procedure I, II	500.4/Procedure I, II
High Temperature	501.1/Procedure I, II	501.2/Procedure I, II	501.3/Procedure I, II	501.4/Procedure I, II
Low Temperature	502.1/Procedure I	502.2/Procedure I	502.3/Procedure I, II	502.4-3/Procedure I, II
Temperature Shock	503.1/Procedure I	503.2/Procedure I	503.3/Procedure I	503.4/Procedure I, II
Solar Radiation	505.1/Procedure I	505.2/Procedure I	505.3/Procedure I, II	505.4/Procedure I, II
Rain	506.1/Procedure I, II	506.2/Procedure I, II	506.3/Procedure I, II	506.4/Procedure I, III
Humidity	507.1/Procedure I, II	507.2/Procedure II, III	507.3/Procedure II, III	507.4/Procedure I
Salt Fog	509.1/Procedure I	509.2/Procedure I	509.2-3/Procedure I	509.4/Procedure I
Dust	510.1/Procedure I	510.2/Procedure I	510.3/Procedure I	510.4/Procedure I, III
Vibration	514.2/Procedure VIII, X	514.3/Procedure I Cat. 24	514.4/Procedure I Cat. 24	514.5/Procedure I Cat. 24
Shock	516.2/Procedure I, II, V	516.3/Procedure I, IV	516.4/Procedure I, IV	516.5/Procedure I, IV

## Applicable International Protection Standard



## Intrinsically Safe Information (Pending)

The VX-920 series, equipped with any of optional units, meets the requirements of ANSI/UL913 6th Edition for Class I, Division 1, Groups A-D; Class II, Groups E-G; and Class III for hazardous locations.

## ISO9001:2000



## ISO14001:1996



## Accessories & Options

<b>MH-65B7A</b> Submersible External Microphone	<b>CT-108</b> PC Programming Cable (for FIF-10/A)	<b>CT-109</b> PC Programming Kit (CT-29 + CT-115)	<b>CT-116</b> Radio to Radio Cloning Cable	<b>LCC-920</b> Leather Case	<b>CE59</b> Programming Software	
<b>MDC1200</b> Digital ANI Encode Unit	<b>CT-115</b> PC Programming Cable (for VPL-1)					
<b>FIF-10/A</b> USB Programming Interface						

\* B for 120 VAC / C for 230 VAC

Various accessories listed may not be available in some countries.



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