VX-410/420 SERIES

VHF/UHF Portable Radios

VX-410 Series

VX-420 Series

- FREQUENCY RANGE
  VHF: 146 — 174 MHz
  UHF: 450 — 490 MHz
- 5 WATTS POWER OUTPUT (SELECTABLE TO 1 WATT)
- 32 CHANNEL CAPABILITY
- 8-CHARACTER ALPHANUMERIC DISPLAY (VX-420)
- MULTI-MODE SCAN (DUAL WATCH, PRIORITY, FOLLOW-ME)
- 5-TONE ENCODE/DECODE
- 2-TONE ENC/DEC (DUAL 2-TONE DEC)
- CTCSS / DCS ENCODE AND DECODE
- DTMF ANI/DTMF PAGING (REQUIRES OPTIONAL FVP-25)
- 2 PROGRAMMABLE FUNCTION BUTTONS (SIDE) ON BOTH VX-410 AND VX-420
- 4 PROGRAMMABLE FRONT-PANEL FUNCTION BUTTONS (VX-420)
- FRONT PANEL KEYPAD ILLUMINATION (VX-420)
- 12.5/20/25 kHz BANDWIDTH (PROGRAMMABLE BY CHANNEL)
- COMPANDER INCLUDED (AVAILABLE ON WIDE AND NARROW CHANNELS)
- VOICE ENCRYPTION BUILT IN (NOT AN OPTIONAL MODULE!)
- VX-TRUNK™ OPTIONAL (SMARTRUNK™ UNIT REQUIRED)
- VOICE STORAGE (OPTIONAL DVS-5 REQUIRED)
- ARTS™ (AUTO RANGE TRANSPOND SYSTEM)
  - BCLO, BTLO AND TOT FUNCTIONS
  - RX POWER SAVE CIRCUIT
  - PC PROGRAMMABLE
  - RADIO-TO-RADIO CLONING
  - RUGGED CONSTRUCTION
  - LOUD, CLEAR AUDIO OUTPUT
  - MIL-STD 810 D/E/F
  - INTRINSICALLY SAFE (IS) OPTION
  - COMPACT CASE SIZE, LIGHT WEIGHT

Vertex Standard
We make a difference

VX-410/420 SERIES

VHF/UHF Portable Radios

The VX-410/420 Series of 32-Channel VHF/UHF Portables features 5 Watts of Power Output and a host of leading-edge built-in features for demanding business/industry and public safety applications. Included as standard features are Dual 2-Tone Decode, 2-Tone Encode, 5-Tone Encode/Decode, Encryption, Voice Compander, and Multi-mode Scanning. The VX-410/420 may be programmed, by channel, for 12.5/20/25 kHz channel spacing, and for simplex or split operation.

The deluxe VX-420 version features an eight-character alphanumeric display, 4 additional programmable keys and illuminated keypad. Both the VX-410 and VX-420 are available in Intrinsically Safe versions, and all are built with legendary Vertex ruggedness and unmatched cost-performance.

HIGH PERFORMANCE

5 WATTS POWER OUTPUT

The VX-410/420 Portables produce a full 5 Watts of power output, with an additional selection of 1 Watt available for increased battery life when higher power is not required.

12.5/20/25 kHz BANDWIDTH (PROGRAMMABLE BY CHANNEL)

When programming radios for use in different jurisdictions or geographical regions, the VX-410/420 Portables may be programmed, channel by channel, for 12/5, 20, or 25 kHz channel spacing environments, with both bandwidth and deviation automatically set according to each channel s requirements.

LEADING-EDGE DESIGN

Crafted with care for use in areas of severe RF pollution, the VX-410/420 Portables include excellent adjacent-channel selectivity and immunity from Intermodulation, along with TIA-compliant ±2.5 ppm frequency stability.

LOUD 500 mW AUDIO OUTPUT

Ideal for reception in noisy environments, the VX-410/420 Portables' high-powered audio is coupled to a large internal speaker, assuring solid copy throughout difficult crowd control, fire, or sporting-event operations.

LONG-LIFE LITHIUM-ION BATTERY (1600 mAh)

The VX-410/420 Portables may be equipped with advanced FNB-V67 Lithium-Ion Battery Packs with 1600 mAh of capacity, for operating times of up to ten hours or more, even when using 5 Watts (5-5-90 duty cycle).

VERSATILITY

32 CHANNEL CAPACITY

The 32-channel capacity of the VX-410/420 Portables includes quick access, and the channel-specific information loaded during programming minimizes the extra keystrokes required on competing models. Two banks of 16 channels each are provided for convenient channel access.

PROGRAMMABLE " SOFT" KEYS

Two buttons on the side panel of the VX-410 may be custom-programmed for specific functions needed in your application. The VX-420 additionally provides four front-panel programmable keys, for a total of six available custom buttons.

OPTIONAL TRUNKING CAPABILITY

Installation of the optional SmarTrunk® module enables use of the VX-410/420 on systems equipped for VX-Trunk operation.

DUAL 2-TONE AND 5/6-TONE SYSTEMS BUILT IN

For smooth integration into advanced radio systems, the VX-410/420 Portables are equipped with 2-Tone Encode/Decode, Dual 2-Tone Decode, as well as 5/6-Tone Encode/Decode circuitry. In addition, DTMF ANI and DTMF Paging capability is also available through installation of the optional FVP-25 DTMF Pager Unit.

EASY USER INTERFACE

ADVANCED 8-CHARACTER ALPHANUMERIC DISPLAY

Providing an Alphanumeric Channel Label of up to 8 characters, the LCD display also provides convenient operating function icons to provide instant recognition of radio status.

ERGONOMIC CONSTRUCTION

The carefully-engineered case construction features a gently rounded shape for a solid grip, whether the radio is wet or dry. Its over-sized keys are easy to activate, and the operating firmware has been carefully shaped by years of feedback from public safety, business, industry, and government users.

KEY LOCK

A Soft key may be programmed as a Key Lock control, to prevent inadvertent channel change or unwanted activation/de-activation of functions. This is especially valuable in surveillance operations, where the radio may be concealed and subject to accidental pressure on its keys.

RADIO TO RADIO CLONE FEATURE

For quick programming of the VX-410/420 radios for an emergency task force, the Clone feature allows copying of all channel and configuration data from one VX-410/420 to another, using the optional CT-27 Cloning Cable.

SECURITY

BUILT-IN ENCRYPTION

The built-in Encryption circuit provides security for your important public safety and private security communications, and it may be enabled at the time of radio programming by the dealer.

OPTIONAL VOICE RECORDER

The optional DVS-5 Voice Recorder Unit allows you to record and store up to 120 seconds of incoming receiver audio, ideal for keeping an audible record of an important message. Audio may be saved either as a one-time 2-minute recording, or a constantly refreshing " last 120 seconds" recording may be made.

PROGRAMMING SECURITY

Cloning capability may be disabled at the time of programming, to prevent unauthorized access to channel data. The transceiver also may be programmed with an access password, to prevent unauthorized attempts to gain access to channel data via computer programming.

DURABLE CONSTRUCTION

ULTRA COMPACT

The VX-410/420 Series Portables features and performance are housed in an ultra-rugged, compact case measuring only 2.3" (W) x 4.3" (H) x 1.2" (D), and weighing less than of a pound with the standard FNB-V57 Battery.

MIL-STD RATED

Designed for use under the most demanding conditions, the VX-410/420 Portables are built in compliance with MIL-STD 810 D/E/F specifications for reliable operation in environments including shock, vibration, high and low temperature, low pressure, rain, humidity, salt fog, and dust.

INTRINSICALLY SAFE (IS) VERSIONS AVAILABLE (pending)

The VX-410/420 Portables are also available in Intrinsically Safe (IS) versions, for leading-edge communications capability in hazardous operating situations. Included in the IS certification for the VX-410/420 is approval for use in dangerous hydrogen and acetylene environments.

VX-410 Series ACTUAL SIZE **VX-420 Series**

Specifications

	VX-414/424 VHF	VX-417/427 UHF
General		
Frequency Range	146-174 MHz	450-490 MHz
Number of Channels	32 channel (16 channel x 2 banks)	
Channel Spacing	12.5/20/25 kHz	
Battery voltage	7.5 VDC	
Temperature Range	−22° F to +140° F (−30° C to +60° C)	
Case size (W x H x D)	2.3 x 4.3 x 1.2 inches with FNB-V57 (58 x 108.5 x 30 mm with FNB-V57)	
Weight (approx.)	0.71 lb (320 grams) with FNB-V57, antenna and belt clip	
Receiver	**Measurements made per EIA standard TIA/EIA-603**	
Circuit Type	Double-conversion superheterodyne	
IFs	50.85 MHz & 450 kHz	
12-dB SINAD Sensitivity	< 0.25 µV	
Squelch Sensitivity	< 0.20 µV	
Adjacent Selectivity	> 70 dB (25 kHz) > 65 dB (12.5 kHz)	
Intermodulation	> 70 dB	
Spurious Rejection	> 70 dB	
Image Rejection	> 70 dB	
FM Hum and Noise	> 45 dB	
AF Output	0.5 W @ 4 Ohms, 5% THD	
Transmitter	**Measurements made per EIA standard TIA/EIA-603**	
Power Output	5.0/1.0 W (Selectable)	
Frequency Stability	better than ±2.5 ppm	
Modulation System	Direct FM	
Maximum Deviation	±2.5 kHz (12.5 kHz)/±5.0 kHz (25 kHz)	
FM Noise	> 45 dB	
Spurious Emission	< 70 dB below carrier	
AF Distortion (@ 1 kHz)	< 3 %	
Microphone Type	2-k Ohms condenser	

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

Applicable MIL-STD

Standard	MIL 810D Methods/Procedures	MIL 810E Methods/Procedures	MIL 810F Methods/Procedures
Low Pressure	500.2/Procedure I, II	500.3/Procedure I, II	500.4/Procedure I, II
High Temperature	501.2/Procedure I, II	501.3/Procedure I, II	501.4/Procedure I, II
Low Temperature	502.2/Procedure I	502.3/Procedure I, II	502.4/Procedure I, II
Temperature Shock	505.2/Procedure I	505.3/Procedure I	505.4/Procedure I, II
Rain	506.2/Procedure I, II	506.3/Procedure I, II	506.4/Procedure I, III
Humidity	507.2/Procedure II, III	507.3/Procedure II, III	507.4/Procedure I
Dust	510.2/Procedure I	510.3/Procedure I	510.4/Procedure I, III
Vibration	514.3/Procedure Cat. 10	514.4/Procedure Cat. 10	514.5/Procedure Cat. 10
Shock	516.3/Procedure I, IV	516.4/Procedure I, IV	516.5/Procedure I, IV

Intrinsically Safe Approvals (pending)
The VX-410/420 VHF and UHF models have been given an intrinsically safe rating for use in ANSI/UL-913-88 Class I,II, and III, Division 1, Groups A, B, C, D, E, F, and G hazardous environments on models equipped with the Intrinsically Safe option.

Accessories & Options

MH-45B4B
Speaker/Microphone

MH-37A4B
Speaker/Microphone

VC-25
VOX Headset

FVP-25
DTMF Pager Unit

FVP-35
Encryption Unit

DVS-5
Digital Voice Storage Unit

VT60/VT60FS (w/Encryption)
VX-Trunk Unit

MDC1200
Digital ANI encoder Unit

FNB-64
7.2V 700mAh Ni-Cd Battery Pack

FNB-V57
7.2V 1100mAh Ni-Cd Battery Pack

FNB-V57IS
7.2V 1100mAh Ni-Cd
Intrinsically safe (IS) Battery

FNB-V67LI
7.4V 1600mAh Lithium-Ion Battery

FBA-25
Alkaline Battery Case (6 x AA size)

NC-77B/C/U
Overnight Desktop Charger
(C for 220-240 VAC/U for 230 VAC)

VAC-800B/C/U*
Desktop Rapid Charger
(for FNB-64/-V57/-V57LI)
VAC-810B/C/U*
Desktop Rapid Charger
(for FNB-67LI)

VAC-6800
6-Unit Multi Charger

VCM-1
Mobile Mounting Bracket
for VAC-800

CT-42
PC Programming Cable
(CT-28 + CT-29)

CT-27
Clone Cable (Set-to-Set Cloning)

CE64
Programming Software

*B for 120 VAC/C for 220-240 VAC/U for 230 VAC

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We make a difference

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