

VX-410/420 SERIES

VHF/UHF Portable Radios



VX-410 Series

VX-420/A Series

- 5 WATTS POWER OUTPUT (SELECTABLE TO 1 WATT)
- 32 CHANNEL CAPABILITY
- 256 CHANNEL : VX-420A Series
- 8-CHARACTER ALPHANUMERIC DISPLAY (VX-420/420A Series)
- 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 SIDE FUNCTION BUTTONS
- 4 PROGRAMMABLE FRONT-PANEL FUNCTION BUTTONS (VX-420/420A Series)
- FRONT PANEL KEYPAD ILLUMINATION (VX-420/420A Series)
- 12.5/20/25 kHz BANDWIDTH (PROGRAMMABLE BY CHANNEL)
- COMPANDER INCLUDED (AVAILABLE ON WIDE AND NARROW CHANNELS)
- VOICE ENCRYPTION BUILT IN
- SmarTrunk II™ Operation Available
- 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



VX-410/420 SERIES

VHF/UHF Portable Radios

The VX-410/420 Series of 32-Channel and VX-420A Series of 256 -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 Comander, and Multi-mode Scanning. The VX-410/420/420A may be programmed, by channel, for 12.5/20/25 kHz channel spacing, and for simplex or split operation.

The deluxe VX-420/420A 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-410/420/420A 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-410/420/420A 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-410/420/420A 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-410/420/420A 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-410/420/420A Portables may be equipped with advanced FNB-V6 7LI 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 OR 256 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. The 256-Channel Capacity of the VX-420A Series divides between 2 or 16 groups.



Photo is VX-420

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-420/420A additionally provides four front-panel programmable keys, for a total of six available custom buttons.



OPTIONAL TRUNKING CAPABILITY

Installation of the SmarTrunk II™ module enables use of the VX-410/420/420A on systems equipped for the trunking operation.

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

For smooth integration into advanced radio systems, the VX-410/420/420A 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/deactivation 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-410/420/420A radios for an emergency task force, the Clone feature allows copying of all channel and configuration data from one VX-410/420/420A 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 Storage 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.

SECURITY PASSWORD FEATURE (VX-420/420A Series)

The VX-420/420A Series provides a security password feature which can minimize the chance that your transceiver could be used by an unauthorized party. When the password feature is activated, the radio will ask for the four digit password to be entered when the radio is first turned on. You must enter the password from the keypad.



DURABLE CONSTRUCTION

ULTRA COMPACT

The VX-410/420/420A Series Portables features and performance are housed in an ultra-rugged, compact case measuring only 58 (W) x 108.5 (H) x 30 (D) mm, and weighing less than a pound with the standard FNB-V57 Battery.

MIL-STD RATED

Designed for use under the most demanding conditions, the VX-410/420/420A 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

The VX-410/420 Portables (32 channel version) are also available in Intrinsically Safe (IS) versions, for leading-edge communications capability in hazardous operating situations. Included in the IS certification is approval for use in dangerous hydrogen and acetylene environments.



VX-410 Series



ACTUAL SIZE

VX-420/420A Series

Specifications

	VHF		UHF	
	VX-414/424	VX-424A	VX-417/427	VX-427A
General				
Frequency Range	134-160 MHz (A) 146-174 MHz (C)	146-174 MHz (C)	400-440 MHz (AS2) 420-450 MHz (B) 440-470 MHz (CS)	440-470 MHz (CS)
Number of Channels	32 channel (16 channel x 2 banks)	256 channel (group 2~16)	32 channel (16 channel x 2 banks)	256 channel (group 2~16)
Channel Spacing	25/20/12.5 kHz			
Battery Life (5-5-9.0 duty)	W/FNB-V67LI(1600mAh): 10hrs. (13hrs. w/saver)		W/FNB-V67LI(1600mAh): 9.5hrs. (12hrs. w/saver)	
Battery voltage	7.5 VDC			
Temperature Range	-30° C to +60° C			
Case size (W x H x D)	58 x 108.5 x 30 mm with FNB-V57			
Weight (approx.)	300 g with FNB-V67LI, Antenna and Belt clip			
Receiver Measurements made per EIA standard TIA/EIA-603				
Circuit Type	Double-conversion Super-heterodyne			
IFs	50.85 MHz & 450 kHz			
12-dB SINAD Sensitivity	< 0.25µV			
Squelch Sensitivity	< 0.20µV			
Adjacent Selectivity	> 70 dB (25/20 kHz) / > 65 dB (12.5 kHz)			
Intermodulation	> 70 dB			
Spurious Rejection	> 70 dB			
Image Rejection	> 70 dB			
FM Ham 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	16K0F3E, 11K0F3E			
Maximum Deviation	±5.0 kHz (25 kHz) / ±2.5 kHz (12.5 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 are 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	500.2/Procedure I, II	500.3/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, II	502.3/Procedure I, II	502.4/Procedure I, II
Temperature Shock	503.2/Procedure I	503.3/Procedure I	503.4/Procedure I, II
Rain	506.2/Procedure II	506.3/Procedure II	506.4/Procedure I, III
Humidity	507.2/Procedure II, III	507.3/Procedure II, III	507.4
Salt Fog	509.2	509.3	509.4
Dust	510.2/Procedure I	510.3/Procedure I	510.4/Procedure III
Vibration	514.3/Procedure Cat. 10	514.4/Procedure Cat. 10	514.5/Procedure Cat. 24
Shock	516.3/Procedure I	516.4/Procedure I	516.5/Procedure I

Intrinsically Safe Information

The VX-410/420 Intrinsically Safe Version, 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.



VERTEX STANDARD CO., LTD.

4-8-8 Nakameguro, Meguro-ku, Tokyo 153-8644, JAPAN

For our latest product news, visit us on the Internet:
<http://www.vxstd.com>

2006.1003NA(EXP)

B9200453C Printed in Japan

Accessories & Options

 MH-45B4B Speaker/Microphone	 MH-37A4B Earpiece/Microphone	 VC-25 VOX Headset
 FVP-25 DTMF Pager Unit	 FVP-35 Rolling Code Encryption Unit	 DVS-5 Digital Voice Storage Unit
 VME-100 MDC1200®/GE-STAR® ANI Encoder Unit	 VMDE-200 MDC1200®/GE-STAR® ANI Encoder/Decoder Unit	 MDC1200 Digital ANI Encoder Unit
 FNB-V94 7.2V 1800mAh Ni-MH Battery Pack	 FNB-V67LI 7.4V 1600mAh Lithium-Ion Battery	 FNB-83 7.2V 1400mAh Ni-MH Battery Pack
 FNB-V57 7.2V 1100mAh Ni-Cd Battery Pack	 FNB-V57IS 7.2V 1100mAh Ni-Cd Intrinsically Safe (IS) Battery	 FBA-25A Alkaline Battery Case (6 x AA size)
 VAC-6010 6-unit Multi Charger (for FNB-V57/V57IS/V94/83)	 VAC-10B/C* Desktop Charger (for FNB-V57/V57IS/V94/83)	 VAC-800B/C* Desktop Rapid Charger (for FNB-V57/V57IS) VAC-810B/C* Desktop Rapid Charger (for FNB-V67LI)
 VAC-6800 6-Unit Multi Charger (for FNB-V57/V57IS) VAC-6810 6-Unit Multi Charger (for FNB-V67LI)	 VCM-1 Mobile Mounting Bracket for VAC-800/810	 CT-27 Cloning Cable (Set-to-Set Cloning)

* SmarTrunk™ Logic Board is available by SmarTrunk System Inc.

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

VH-115S
Lightweight headset w/ Boom

VH-215S
Lightweight Padded headset,
Single Speaker

VH-225S
Lightweight Padded Headset,
Dual Speaker

CLIP-17C
Swivel Belt Clip

Programming Cable	USB	FIF-10/A + CT-106
	RS-232C	CT-29 + CT-28
Programming Software	CE64 (VX-410/420 Series)	
	CE78 (VX-420A Series)	

ANTENNA LIST

UHF	ATU-6A	400-430 MHz		
	ATU-6D	450-485 MHz		
	ATU-6DS	450-485 MHz/3.5"		
VHF	ATV-6A	134-151 MHz/3.5"	ATV-8C	161-174 MHz
	ATV-6B	150-163 MHz/3.5"	ATV-10A	145-155 MHz HIGH GAIN
	ATV-6C	161-174 MHz/3.5"	ATV-10B	150-160 MHz HIGH GAIN
	ATV-6XL	VHF UNTUNED	ATV-10C	155-165 MHz HIGH GAIN
	ATV-8A	134-151 MHz	ATV-10E	165-175 MHz HIGH GAIN
	ATV-8B	150-163 MHz		

VERTEX STANDARD <http://www.vertexstandard.com>

US Headquarters

109 00 Walker Street, Cypress, CA 90630, U.S.A.

Phone +1 714-827-7600

YAESU EUROPE B.V.

P.O. Box 75525, 1118 ZN Schiphol, The Netherlands Phone +31 20-5005270

YAESU UK LTD.

Unit 12, Sun Valley Business Park, Winnall Close Winchester, Hampshire, SO23 0LB, U.K. Phone +44 196 286 6667

VERTEX STANDARD HK LTD.

Unit 5, 20/F., Seaview Centre, 139-141 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong Phone +852 2732 2288

VERTEX STANDARD AUSTRALIA PTY. LTD.

Normanby Business Park, Unit 14/45 Normanby Road Notting Hill 316 8, Victoria, Australia Phone +61 3 95182100