

VX-820 SERIES

VHF/UHF Portable Radios



- Power Output: 5 W
- Wide Band
 - VHF: 134 - 174 MHz
 - UHF: 400 - 470 MHz and 450 - 520 MHz
- VX-829 / 824 with LCD:
 - Maximum 512 Channels / 32 Groups
- VX-821 w/o LCD:
 - Maximum 16 Channels / 1 group
- Large LCD (Dot Matrix / 12 Characters + 7 Segments / 3 Characters) VX-829 / 824
- Wide / Narrow (12.5 / 20 / 25 kHz), programmable per channel
- CTCSS / DCS Encode / Decode
- DTMF ANI / DTMF Paging (Requires FVP-25 for 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
- Compander (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)
- Speed Dial (16-key version only)
- ARTS™ (Auto-Range Transpond System)
- Encryption (Optional FVP-25/36 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-829

512 ch/32 groups with
16 Keys and LCD

VX-824 VX-821

512 ch/32 groups with
4 Keys and LCD

16 ch/1 group
without LCD



VX-820



SERIES

Today's demanding public safety communications environment demands reliability, ruggedness, and versatility like never before. The VX-820 series of Vertex Standard portables answers the call with a wide array of signaling capability, along with big audio, operator and system security measures, and PC programmability for quick deployment. And these portables are submersible to IP57 specifications, your assurance of long-term reliability under the most difficult operating circumstances.



VERSATILITY

VX-829 / 824 with LCD: Maximum 512 Channels / 32 Groups
VX-821 w/o LCD: Maximum 16 Channels / 1 Group

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-820 Series without the LCD can accommodate up to 16 channels in a single memory group.

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 (optional FVP-25 required for DTMF Paging)

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

2-Tone Encode and Multiple 2-Tone Decode

The VX-820 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-820 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!

Companion (Wide and Narrow Band)

For operation in systems requiring Companding, the VX-820 Series portables include both Wide- and Narrow-band Companding circuitry, programmable channel by channel.



ACTUAL SIZE

VX-829



VX-824



VX-821



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 W

The VX-820 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-820 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-820 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-820 Series is coupled to a large internal speaker, assuring solid copy throughout difficult crowd control, fire, or sporting-event operations.

Speed Dial (16-key version only)

An easy-to-use DTMF Speed Dialer feature is included in the VX-829, for specialized selective calling, telephone interconnect, or other applications.

Voice Storage (Optional DVS-5 required)

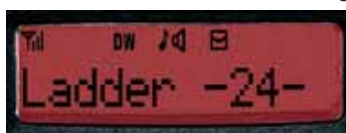
The optional DVS-5 Digital Voice Storage Unit allows you to store and play back up to 120 seconds of incoming received audio, so you can archive an important incoming message.

EASY USER INTERFACE

Large LCD

(Dot Matrix / 12 Characters +7 Segments / 3 Characters) (VX-829/824)

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-829/824's LCD is clearly visible at night, with minimal degradation of your night vision.



7-Color LED for Incoming Call Alert

The front panel of the VX-820 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.



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.

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-35/36 or FVP-25 required)

The FVP-35 and FVP-36 Encryption Units provide security for your important public safety and security communications. A DTMF Paging function is also included in the FVP-25 module, for selective calling.

DURABLE CONSTRUCTION

Rugged, Submersible Design

The VX-820 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 (IP57), 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
- Audio Pitch Control

VX-820 SERIES VHF/UHF Portable Radios

Specifications

| | VHF | UHF |
|---|--|----------------------------|
| General Specifications | | |
| Frequency Range | 134-174 MHz | 450-520 MHz 400-470 MHz |
| Number of Channels | 512 (VX-829 / 824) / 16 (VX-821) | |
| Number of Groups | 32 (VX-829 / 824) / 1 (VX-821) | |
| 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 |
| Ambient Temperature Range | -30° C to +60° C | |
| Frequency Stability | ±2.5 ppm | |
| Dimensions (W x H x D) | 57.5 x 96.5 x 37.5 mm | |
| Weight (approx) | 310 g w/Ant, Battery (FNB-V86LI) and Belt clip | |

| | VHF | UHF |
|--------------------------------|--------------------------|-----|
| Receiver Specifications | | |
| Sensitivity (12 dB SINAD) EIA | 0.25 / 0.32 uV | |
| Adjacent Channel Selectivity | 75 / 70 dB | |
| Intermodulation | 75 / 70 dB | |
| Spurious and Image Rejection | 75 dB | |
| Hum and Noise | 48 / 42 dB | |
| Audio Output | 700 mW @16 Ohms, 5 % THD | |

| Transmitter Specifications | |
|-----------------------------------|----------------------|
| 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 | 503.2/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 | 507.2/Procedure I, 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-820 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



YAESU MUSEN CO., LTD
ISO9001:2000 certification

ISO14001:1996



YAESU MUSEN CO., LTD
ISO14001:1996 certification

Accessories & Options

| | | | | | |
|--|--|--|--|--|---|
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| | | | | | |
| | | | | | * B for 120 VAC / C for 230 VAC Various accessories listed may not be available in some countries. |

MH-65B7A Submersible External Microphone
MDC1200 Digital ANI Encode Unit
FIF-10/A USB Programming Interface

CT-108 PC Programming Cable (for FIF-10/A)
CT-109 PC Programming Kit (CT-29 + CT-115)
CT-115 PC Programming Cable (for VPL-1)

CT-116 Radio to Radio Cloning Cable
LCC-820 Leather Case
CE59 Programming Software

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

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