



Proposal: Winnebago County- Fire Dept Radios- 2023-10-06

Prepared for:

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Of
Winnebago County

Prepared by:

On
10/6/2023

VP8000

Multi-Band · Multi-Protocol
Mission Critical Portable Radio

The KENWOOD Viking 8000 series Multi-Band, Multi-Protocol portable is specifically designed for today's public safety agencies with advanced features and ergonomics to meet the first responder's mission critical operational needs.

Features

- Multi-Band operation (VHF, UHF, 700/800 MHz)
- Multi-Protocol
 - P25 Phase 1 & 2 Trunking
 - P25 Conventional
 - DMR¹
 - Viking16 (SmartNet/SmartZone™ Compatible)
 - FM Analog
- Mixed protocol zones (each channel in a zone can be from a different system)
- 1024 channels (2048 & 4096 options)
- Public safety ergonomics: Flare grip for control, large glove friendly knobs, large emergency button
- 3-Watt audio maximum output for high noise environments
- Voice annunciation & custom announcement creation
- Fully ruggedized - IP67/68 & MIL-STD-810 C/D/E/F/G/H
- Full key models (with numeric keypad)
- Built-in GPS receiver/antenna for enhanced awareness
- MDC-1200 & GE-Star signaling
- P25 Authentication
- Bluetooth® / Bluetooth Low Energy
- Wi-Fi® 2.4 & 5 GHz (802.11a/b/g/n/ac)
- Man Down
- Instant Recording Replay (IRR) and Voice Recording
- Text Messaging
- Radio Cloning
- FIRESafe® Fire Ground Commander and First Responder
- Encryption
 - ARC4™ software encryption; compatible with Motorola ADP™
 - P25/TIA defined: AES-256
 - DES-OFB
 - Over-the-Air-Rekeying (OTAR)

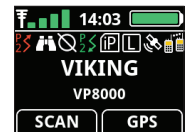


User Selectable Color Themes

- Large full-color top LCD
- Multi-line text on both front and top displays
- Top flip display changes text orientation for viewing while in holster
- Multiple visual indicators including battery health & signal strength
- Day & night user selectable display options (8 themes available)



Day - High Contrast



Night - High Contrast

Accessories

Complete line of accessories including microphones, speakers & antennas. Download the accessory catalog [here](https://info.efjohnson.com/viking-accessory-catalog/):
<https://info.efjohnson.com/viking-accessory-catalog/>



We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



Armada® Fleet Management

Update radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either direct computer connection or Over-the-Air Programming (OTAP). Elite Battery Management enables wireless tracking of battery fleet.



TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

VP8000 Portable Specifications

General		VHF	UHF	700/800 MHz
Frequency Ranges (FCC ID K44515000)		136-174 MHz	380-520 MHz	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz
Channel Spacing	Analog	12.5/15/20/25 ² /30 ² kHz	12.5/25 ² kHz	12.5/25 kHz
	Digital	12.5 kHz	12.5 kHz	12.5 kHz
Frequency Stability		±1.0 ppm -22 °F to +140 °F (-30 °C to +60 °C) [+77 °F Reference (+25 °C)]		
Maximum Channels or Talkgroups		1024 (2048 and 4096 options)		
Number of Zones		255		
Maximum Channels Per Zone		255		
Power Supply		7.5 V DC ±20%		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)		
Case		Reinforced polycarbonate plastic - black or high visibility (additional fee)		
Dimensions (radio with battery)	KNB-L2 (2600 mAh)	3.04/2.28 x 5.91 x 1.73 in. (77.3/58.0 x 150.0 x 44.0 mm) [W(Top/Bottom) x H x D, projections not included]		
	KNB-L3 (3400 mAh)	3.04/2.28 x 5.91 x 1.94 in. (77.3/58.0 x 150.0 x 49.4 mm) [W(Top/Bottom) x H x D, projections not included]		
	KNB-L11 (3900 mAh)	3.04/2.28 x 5.91 x 2.02 in. (77.3/58.0 x 150.0 x 51.4 mm) [W(Top/Bottom) x H x D, projections not included]		
Weight (radio with battery)	KNB-L2 (2600 mAh)	18.7 oz (530.0 g)		
	KNB-L3 (3400 mAh)	20.2 oz (574.0 g)		
	KNB-L11 (3900 mAh)	20.7 oz (586.0 g)		
Receiver		VHF	UHF	700/800 MHz
Sensitivity	P25 Digital (5% BER)	-122 dBm (0.178 µV)	-121 dBm (0.199 µV)	-120 dBm (0.224 µV)
	Analog (12 dB SINAD) @ 12.5 kHz	-122 dBm (0.178 µV)	-121 dBm (0.199 µV)	-120 dBm (0.224 µV)
Selectivity	P25 Digital	62 dB		
	Analog @ 12.5 kHz	75 dB	71 dB	65 dB
	Analog @ 25 kHz	78 dB	75 dB	70 dB
Intermodulation		77 dB		
Spurious Rejection		85 dB		
Audio Distortion		1.25% (Analog)		
Audio Output Power		Nominal 1.5 W (P25 Digital < 1% Distortion), Maximum 3 W		
Transmitter		VHF	UHF	700/800 MHz
RF Output Power		1W/6W	1W/5W	1W/3W
Spurious Emission		77 dB	76 dB	75 dB
FM Hum & Noise	Analog @ 12.5 kHz	51 dB	47 dB	43 dB
	Analog @ 25 kHz	57 dB	53 dB	49 dB
Audio Distortion		1%		
Emission Designator		11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W, 7K60FXD, 7K60FXE, 7K60F1E, 7K60F1D, 7K60F1W, 7K60FXW		16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W, 7K60FXD, 7K60FXE, 7K60F1E, 7K60F1D, 7K60F1W, 7K60FXW

MIL Standard	810H
Low Pressure	500.6/ I, II
High Temperature	501.7/ I, II
Low Temperature	502.7/ I, II
Temp. Shock	503.7/ I
Solar Radiation	505.7/ I
Rain	506.6/ I, III
Humidity	507.6/ II
Salt Fog	509.7
Dust	510.7/ I
Vibration	514.8/ I
Immersion	512.6/ I
Shock	516.8/ I, IV, VI

Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4 (ADP compatible)
Encryption Keys per Radio	Capable of storing 1024 keys. Programmable for 252. Common Key Reference (CKR), 252 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command, OTAR Zeroize, Tamper Detection
Standards	FIPS 140-3 Level 1, FIPS 140-3 Level 3, FIPS 197 (Pending)

Hazardous Location Standard (Pending)	
Certification Lab	CSA Group
Standard Applied	ANSI/TIA 4950-A-2014, UL913 5th Edition & ANSI/ISA-12.12.01-2011
Classification Rating	Intrinsically Safe: Classes I, II, III, Division 1, Groups C ³ , D, E, F, G Non-incendive: Class I, Division 2, Groups A, B, C, D
Approved Battery	KNB-LS7
Approved Speaker Microphones	KMC-70M, KMC-70GR, KMC-72W

International Protection Standard

Dust & Water	IP54, IP55
Immersion	IP67, IP68 ⁴

¹ DMR - future release

² 25 and 30 kHz are not included in the models sold in the USA or US territories.

³ Division I US Group C is applicable for radio with approved battery only, or radio with approved battery and KMC-70-type speaker microphone only. If radio is in combination with any other approved accessories, Group D is applicable.

⁴ IP68 = 2 m/2 hours

Specifications shown are typical and subject to change without notice. Please check the website for the latest version. V0112.23

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EF Johnson Technologies, Inc.

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1440 Corporate Drive, Irving, TX 75038-2401
Phone: 800.328.3911 · efjohnson.com

VP6000

VHF · UHF · 700/800 MHz
P25 Phase 1 & 2 · Viking16

The KENWOOD Viking 6000 series portable is specifically designed for today's public safety agencies with advanced features and ergonomics to meet the first responder's mission critical operational needs.

Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- Mixed protocol zones (each channel in a zone can be from a different system)
- 1024 channels (2048 and 4096 options)
- Public safety ergonomics: flare grip for control, large glove friendly knobs, large emergency button
- 1 Watt audio output for high noise environments
- Voice annunciation & custom announcement creation
- Fully ruggedized - IP67/68 & MIL-STD-810 C/D/E/F/G
- Full key models (w/ numeric keypad)
- Built-in GPS receiver/antenna for enhanced awareness¹
- MDC-1200 & GE-Star signaling
- P25 Authentication
- Bluetooth[®]
- Man Down
- Instant Recording Replay (IRR)
- Voice Recording
- Encryption
 - ARC4™ software encryption; compatible w/Motorola ADP™
 - P25/TIA defined: AES-256
 - DES-OFB
 - Over-the-Air-Rekeying (OTAR)

¹Refer to the Viking VP6000 operating manual for detailed requirements & conditions for proper GPS operation.

Accessories

Complete line of accessories including microphones, speakers & antennas. Download the accessory catalog at www.efjohnson.com/products/accessories.

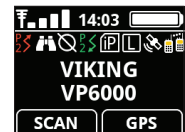


User Selectable Color Themes

- Multi-line text
- Top flip display changes text orientation for viewing while in holster
- Multiple visual indicators including battery health & signal strength
- Backlight changes for event identification
- Day & night user selectable display options (8 themes available)



Day - High Contrast



Night - High Contrast

Compatible with Multiple P25 Systems

- ATLAS[®] P25 Phase 1 and Phase 2 System
- Motorola Astro[®] 25 - P25 Phase 1 & Phase 2
- Harris VIDA[®] - P 25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA[™] Radia - P25 Phase 1 & Phase 2

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



Armada[®] Fleet Management

Update radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either direct computer connection or Over-the-Air Programming (OTAP). Elite battery management enables wireless tracking of battery fleet.



TrueVoice[™] Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

VP6230/6330/6430 Portable Specifications

General		VP6230	VP6330	VP6430
Frequency Range		136-174 MHz (FCC ID K44431400)	Type 1: 450-520 MHz (FCC ID K44431500) Type 2: 380-470 MHz (FCC ID K44431501)	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz (FCC ID ALH442000)
Max. Channels Per Radio		1024 (2048 and 4096 options)		
Number of Zones		255		
Max. Channels Per Zone		255		
Channel Spacing	Analog	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz
	Digital	12.5 kHz	12.5 kHz	12.5 kHz
Power Supply		7.5 V DC ±20%		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)		
Frequency Stability		±1.5 ppm	±1.5 ppm	±1.5 ppm
Case		Polycarbonate - black or high visibility (additional fee)		
Dimensions W(Top/Bot- tom) x H x D Projections not included	KNB-L2 (2,600 mAh)	2.76/2.28 x 5.90 x 1.73 in. (70.0/58.0 x 149.8 x 44.0 mm)		
	KNB-L3 (3,400 mAh)	2.76/2.28 x 5.90 x 1.94 in. (70.0/58.0 x 149.8 x 49.4 mm)		
Weight with Battery	KNB-L2 (2,600 mAh)	171 oz (484.5 g)		
	KNB-L3 (3,400 mAh)	18.6 oz (527.5 g)		
Receiver		VP6230	VP6330	VP6430
Sensitivity	P25 Digital (5% BER)	-119 dBm		
	Analog (12 dB SINAD)	-119 dBm		
Selectivity	P25 Digital	60 dB		
	Analog @ 12.5 kHz	65 dB		
	Analog @ 25 kHz	73 dB		
Intermodulation		73 dB		75 dB
Spurious Rejection		80 dB	75 dB	
Audio Distortion		2.5%		
Audio Output Power		500 mW/8 Ω (3% Distortion)/1,000 mW/8 Ω (5% Distortion)		
Transmitter		VP6230	VP6330	VP6430
RF Output Power		1W/6W	1W/5W	1W/3W
Spurious Emission		70 dB		
FM Hum & Noise	Analog @ 12.5 kHz	40 dB		
	Analog @ 25 kHz	45 dB		
Audio Distortion		2%		
Emission Designator		16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W		16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W

MIL Standard	810G
Low Pressure	500.5/ I, II
High Temperature	501.5/ I, II
Low Temperature	502.5/ I, II
Temp. Shock	503.5/ I
Solar Radiation	505.5/ I
Rain	506.5/ I, III
Humidity	507.5/ II
Salt Fog	509.5
Dust	510.5/ I
Vibration	514.6/ I
Immersion	512.5/ I
Shock	516.6/ I, IV

Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4
Encryption Key/ Radio	126 Common Key Reference (CKR), 126 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

Hazardous Location Standard

Certification Lab	CSA Group
Standard Applied	ANSI/TIA 4950-A-2014, UL913 5th Edition & ANSI/ISA-12.12.01-2011
Classification Rating	Intrinsically Safe: Classes I, II, III, Division 1, Groups D, E, F, G Non-incendive: Class I, Division 2, Groups A, B, C, D

Accessories

Approved Battery	KNB-LS7
Approved Speaker Microphones	KMC-54WDM

International Protection Standard

Dust & Water	IP54, IP55
Immersion	IP67**, IP68***



NCI
NIELSON COMMUNICATIONS, INC.
"wireless & security solutions"

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www.nielsoncom.com

* 25 and 30 kHz are not included in the models sold in the USA or US territories.

** IP67/IP68 - Must have the Speaker Mic UDC connector or UDC protector connected.

*** IP68 = 1m/2H

Specifications shown are typical and subject to change without notice Please check the website for the latest version.

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EF Johnson Technologies, Inc.

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1440 Corporate Drive, Irving, TX 75038-2401

Phone: 800.328.3911 · ejohnson.com

VP5000

VHF · UHF (High & Low) · 700/800 MHz
P25 Phase 1 & 2 · Viking16

At just under 5.5 inches tall (140 mm), these small KENWOOD Viking portable radios are packed with advanced features for today's public safety agencies.

Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- Mixed protocol zones (each channel in a zone can be from a different system)
- 1024 channels
- 1 Watt audio output for high noise environments
- Voice annunciation & custom announcement creation
- Fully ruggedized - IP67 & MIL-STD-810 C/D/E/F/G
- Full key models (w/numeric keypad) & standard key models (w/o numeric keypad)
- Built-In GPS receiver/antenna for enhanced awareness¹
- MDC-1200 & GE-Star signaling
- P25 Authentication
- Bluetooth®
- Man Down
- Instant Recording Replay (IRR)
- Voice Recording
- Encryption
 - ARC4™ software encryption; compatible w/Motorola ADP™
 - DES-OFB
 - AES-256 (FIPS 140-2) Single and Multi-Key
 - Over-the-Air-Rekeying (OTAR)
 - VK5000 or Motorola KVL3000/KVL4000 Keyloader

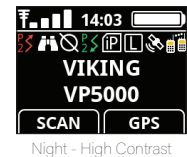
Accessories

Complete line of accessories including microphones, speakers & antennas. Download the accessory catalog at www.efjohnson.com/products/accessories.



User Selectable Color Themes

- Multi-line text
- Multiple visual indicators including battery health & signal strength
- Day & night user selectable display options (8 themes available)



Compatible With P25 Systems

- ATLAS® P25 Phase 1 and Phase 2 System
- Motorola Astro® 25 - P25 Phase 1 & Phase 2
- Harris VIDA® - P25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA™ Radio - P25 Phase 1 & Phase 2

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



Armada® Fleet Management

Update radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either direct computer connection or Over-the-Air Programming (OTAP). Elite battery management enables wireless tracking of battery fleet.



TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

VP5230/5330/5430 Portable Specifications

General		VP5230	VP5330	VP5430
Frequency Range		136-174 MHz (FCC ID K44431400)	Type 1: 450-520 MHz (FCC ID K44431500) Type 2: 380-470 MHz (FCC ID K44431501)	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz (FCC ID ALH442000)
Max. Channels Per Radio		1024		
Number of Zones		255		
Max. Channels Per Zone		255		
Channel Spacing	Analog	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz
	Digital	12.5 kHz	12.5 kHz	12.5 kHz
Power Supply		7.5 V DC ±20%		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)		
Frequency Stability		±1.5 ppm	±1.5 ppm	±1.5 ppm
Dimensions (W x H x D) Projections Not Included	KNB-L2 (2,600 mAh)	2.28 x 5.47 x 1.56 in. (58.0 x 138.9 x 39.5 mm)		
	KNB-L3 (3,400 mAh)	2.28 x 5.47 x 1.77 in. (58.0 x 138.9 x 44.9 mm)		
Weight with Battery	KNB-L2 (2,600 mAh)	14.3 oz (406 g)		
	KNB-L3 (3,400 mAh)	15.8 oz (449 g)		
Receiver		VP5230	VP5330	VP5430
Sensitivity	P25 Digital (5% BER)	-119 dBm (0.025 µV)		
	Analog (12 dB SINAD)	-119 dBm (0.025 µV)		
Selectivity	P25 Digital	60 dB		
	Analog @ 12.5 kHz	65 dB		
	Analog @ 25 kHz	73 dB		
Intermodulation		73 dB		75 dB
Spurious Rejection		80 dB		75 dB
Audio Distortion		3%		
Audio Output Power		500 mW/8 Ω (3% Distortion)/1,000 mW/8 Ω (5% Distortion)		
Transmitter		VP5230	VP5330	VP5430
RF Output Power		1W/6W	1W/5W	1W/3W
Spurious Emission		-70 dB		
FM Hum & Noise	Analog @ 12.5 kHz	40 dB		
	Analog @ 25 kHz	45 dB		
Audio Distortion		2%		
Emission Designator		16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W		16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W

Mil Standard	810G
Low Pressure	500.5/ I, II
High Temperature	501.5/ I, II
Low Temperature	502.5/ I, II
Temp. Shock	503.5/ I
Solar Radiation	505.5/ I
Rain	506.5/ I, III
Humidity	507.5/ II
Salt Fog	509.5
Dust	510.5/ I
Vibration	514.6/ I
Immersion	512.5/ I
Shock	516.6/ I, IV

Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4
Encryption Key/ Radio	126 Common Key Reference (CKR), 126 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

Hazardous Location Certification	
Certification Lab	CSA Group
Standard Applied	ANSI/TIA 4950-A-2014, UL913 5th Edition & ANSI/ISA-12.12.01-2011
Classification Rating	Intrinsically Safe: Classes I, II, III, Division 1, Groups D, E, F, G Non-incendive: Class I, Division 2, Groups A, B, C, D
Approved Battery	KNB-LS7
Approved Speaker Micro-phones	KMC-54WDM
International Protection Standard	
Dust & Water	IP54, IP55
Immersion	IP67**/68***



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*Refer to the Viking VP5000 operating manual for detailed requirements & conditions for proper GPS operation.

* 25/30 kHz in VHF/UHF Bands (except T-Band) are not included in the models sold in the USA or US territories.

** IP67/68 - Must have the Speaker Mic Universal Connector or Universal Connector Protector connected.

***IP68=1m/2H Specifications shown are typical and subject to change without notice Please check the website for the latest version. V.02.25.19

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Phone: 800.328.3911 · efjohnson.com

VM7000

VHF (with High Power and Low Band High Power² options) ·
 UHF-Low · UHF-High · 700/800 MHz
 Analog · P25 Phase 1 & 2 · Viking16

With the VM7000 All-Band Multi-Deck Mobile, you can simultaneously receive and display up to four bands so you never miss a call. The "select" and "unselect" speakers give you the option for audio control similar to a dispatch console. KENWOOD Viking® is the industry's only mobile platform providing TrueVoice™ noise cancellation.



Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- 1024 channels (2048 and 4096 options)
- Mixed protocol zones
- P25 Authentication (Link Layer Authentication)
- P25 IP packet data
- P25 GPS data (built in GPS)¹
- MDC-1200 & GE-Star signaling
- P25 Conventional vote scan
- Single or Dual Remote Mount configuration
- External speaker
- Over-the-Internet-Programming (OTIP)
- Encryption
 - ARC4™ software encryption; compatible with Motorola ADP™
 - DES-OFB
 - AES-256 (FIPS 140-2) Single and Multi-Key
 - Over-the-Air-Rekeying (OTAR)
 - VK5000 or Motorola KVL3000/KVL4000 Keyloaders
- WiFi
- Instant Recording Replay (IRR)
- Voice Recording

¹Refer to the Viking VM7000 operating manual for detailed requirements & conditions for proper GPS operation.

Accessories

Complete line of accessories including microphones, speakers & antennas.
 Download the accessory catalog at
www.efjohnson.com/products/accessories.

Enhanced Control Head

- Larger display - 2.75" (36 x 60 mm)
- Resolution of 400 x 240 pixels
- Viewing angle of 140°
- Multi-color LCD + TX/RX (green/red) LEDs
- D-Pad & more PF keys, dedicated emergency key & channel/volume control knobs
- Replaceable A/B/C button labels
- User selectable themes (8 themes available)
- Day & night display options



Day - High Contrast



Night - High Contrast

Compatible With P25 Systems²

- ATLAS® P25 Phase 1 and Phase 2 System
- Motorola Astro® 25 - P25 Phase 1 & Phase 2
- Harris VIDA® - P25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA™ Radio - P25 Phase 1 & Phase 2

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



Armada® Fleet Management

Update your radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either a direct computer connection, Over-the-Air Programming (OTAP), or Over-the-Internet Programming (OTIP).



TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

VM7000 Mobile Specifications

General		VHF Low Band (110W) ²	VHF (110W)	VHF	UHF	700/800 MHz	
Frequency Range		39-50 MHz	136-174 MHz	136-174 MHz	Type 1: 450-520 MHz Type 2: 380-470 MHz	RX: 762-776, 851-870 MHz TX: 762-776, 792-806, 806-825, 851-870 MHz	
Max. Channels Per Radio		1024 (2048 and 4096 options)					
Number of Zones		255					
Max. Channels Per Zone		255					
Channel Spacing	Analog	12.5/15/20/25*/30* kHz			12.5/25* kHz	12.5/25 kHz	
	Digital	Not applicable	12.5 kHz				
Power Supply		13.4 V DC ±15 %			13.6 V DC ±15 %		
Current Drain	Standby	1.3 A			1.2 A		
	RX	3.3 A			3.0 A		
	TX	28 A			14 A		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)					
Frequency Stability		±1.0 ppm			±1.5 ppm		
Dimensions (W x H x D) RF Deck + Front Head Unit (not including KCH-20RV)		7.01 x 2.56 x 13.84 in. (178 x 65 x 351.5 mm)			6.73 x 1.89 x 7.24 in. (171 x 48 x 184 mm)		
Weight - RF Deck + Front Head Unit (not including KCH-20RV)		12.1 lbs (5.5 kg)			3.31 lbs (1.5 kg)		
Weight - RF Deck + Front Head Unit (not including KCH-20RV)		12.1 lbs (5.5 kg)			3.75 lbs (1.7 kg)		
Receiver		VM7630H	VM7730H	VM7730	VM7830	VM7930	
Sensitivity	P25 Digital (5% BER)	Not applicable	-119 dBm (0.25 µV)				
	Analog (12 dB SINAD)	-119 dBm (0.25 µV)					
Selectivity	P25 Digital	Not applicable	60 dB				
	Analog @ 12.5 kHz	60 dB					
	Analog @ 25 kHz	75 dB					
Intermodulation		80 dB					
Spurious Rejection		85 dB				87 dB	
Audio Distortion		3%			2%		
Audio Output Power		12 W/4 Ω (External Audio Output)			4 W/4 Ω (Remote Control Head: 3 W/4 Ω)		
Transmitter		VM7630H	VM7730H	VM7730	VM7830	VM7930	
RF Power Output Power		25W-110W			5W/50W	5W/45W - (Type 1: 450-485 MHz) 5W/40W - (Type 1: 485-520 MHz) 5W/40W - (Type 2: 380-470 MHz)	2W/30W (700 MHz) 2W/35W (800 MHz)
Spurious Emission		-80 dB			-73 dB	-75 dB	-80 dB
FM Hum & Noise	Analog @ 12.5 kHz	45 dB				40 dB	
	Analog @ 25 kHz	50 dB				45 dB	
Audio Distortion		2%					
Emission Designator		VM7730H/7730/7830: 16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W VM7930: 16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W					

Mil Standard	810C	810D	810E	810F	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
Temp. Shock	503.1/ I	503.2/ I	503.3/ I	503.4/ I, II	503.5/ I
Solar Radiation	505.1/ I	505.2/ I	505.3/ I	505.4/ I	505.5/ I
Rain	506.1/ I, II	506.2/ I, II	506.3/ I, II	506.4/ I, III	506.5/ I, III

Mil Standard	810C	810D	810E	810F	810G
Humidity	507.1/ I, II	507.2/ II, III	507.3/ II, III	507.4	507.5/ II
Salt Fog	509.1/ I	509.2/ I	509.3/ I	509.4	509.5
Dust	510.1/ I	510.2/ I	510.3/ I	510.4/ I, III	510.5/ I
Vibration	514.2/ VIII, X	514.3/ I	514.4/ I	514.5/ I	514.6/ I
Shock	516.2/ I, V	516.3/ I, V	516.4/ I, V	516.5/ I, V	516.6/ I, V

International Protection Standard

Dust & Water IP54, IP55**

*IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio.

*25/30 kHz in VHF/UHF Bands are not included in the models sold in the USA or US territories. Analog measurements made per TIA 603 and specifications shown are typical.

²VHF Low Band High Power is analog mode only, multi-deck configuration only.

All specifications are subject to change without notice. Please check the website for the latest version.
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Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4
Encryption Key/ Radio	126 Common Key Reference (CKR), 126 Physical Identifier, (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197



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"wireless & security solutions"

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14 of 16

SVR-350 GUARDIAN The Scalable Vehicular Repeater

SIMPLEX COVERAGE

2 WATT COVERAGE

ESP™ PRIORITY STRUCTURE

P25 SMART TRUNKING™ / EVRS

ANALOG & P25 EMERGENCY

P25 PHASE 1 COMPLIANT

AES/DES ENCRYPTION OPTIONS



- ▲ SVR-200 and SVR-250 Compatible
- ▲ P25 Upgradeable In The Field
- ▲ SVR-P250 and SVR-P255 Compatible with P25 Option
- ▲ Software Configured Audio Levels and Jumpers
- ▲ ESP™ Multi-Vehicle Format
- ▲ Available in VHF, UHF, 700 & 800 MHz Models
- ▲ Seamless Trunking Handshake with EVRS Option
- ▲ Factory Interface Cables for Most Popular Public Safety Radios



SVR-350™ Guardian™ Analog and P25 Vehicular Repeater

The SVR-350™ Guardian™ is the latest and most advanced simplex vehicular repeater from Pyramid Communications. This is the first vehicular repeater offered by Pyramid that is scalable from a full featured analog unit to a digital P25 unit later. Optional Software Feature Keys (SFK) can add capabilities like P25 digital operation, AES/DES Encryption, EVRS and more!

In analog mode, the unit is fully backwards compatible with SVR-200™ and SVR-250™ analog systems. Users can enjoy a budget friendly entry to the SVR product line with the option to add APCO Project 25 Phase 1 digital, and enjoy clear and secure communications in P25. In P25 mode, the SVR-350™ Guardian is backwards compatible with SVR-P250™ and SVR-P255™ products.

Optionally, the unit supports Pyramid's P25 SmartTrunking feature and works with mobile radios using the EVRS trunking protocol, to create a seamless trunking handshake between the mobile

radio network and SVR-350™ user. This ensures that portable radio users outside the vehicle get quick and accurate notifications of all transmissions to the P25 network. Users will get indications of **Channel Grant, Busy, Denial, Out of Range** just as if they were on a trunked channel of the digital network.

In addition, when in P25 operation, the SVR-350™ offers optional **AES and DES encryption**, and enhanced P25 **emergency signaling** from portable to dispatch through the SVR-350™. This allows the SVR to relay an emergency with **Hot Mic** from the portable radio user.

The SVR-350™ also utilizes Pyramid's latest **ESP™ and ESP2™** priority structures that resolve priority conflicts during repeater idle time rather than at the critical start of a conversation.

714-901-5462
www.pyramidcomm.com


PYRAMID
COMMUNICATIONS
Since 1990



Specifications SVR-350



TRANSMITTER

	VHF	UHF	764-870
Frequency Range	136-174 MHz	380-470 MHz	764-776 MHz + 850-870 MHz
RF Power Out	0.5 - 2W	0.5 - 2W	0.25 - 1W
Spurious Emissions	-70dBc	-70dBc	-70dBc
Frequency Stability -30°~+60°C	±1.5PPM	±1.5PPM	±1.5PPM
Modulation	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D
Hum and Noise			
25/30kHz	-43dB	-43dB	-40dB
12.5kHz	-38dB	-38dB	-33dB
Audio Response (300-3kHz)	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave
Audio Distortion	<3% @ 1kHz 60% deviation	<3% @ 1kHz 60% deviation	<3% @ 1kHz 60% deviation
Local Mic Sensitivity	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP
FCC Type Acceptance	LRUSVR-P250VA	LRUSVR-P250UA	LRUSVR-P250MB
Industry Canada Approval	2390A-SVRP250VA	2390A-SVRP250UA	2390A-SVRP250MB

RECEIVER

	VHF	UHF	764-870
Frequency Range	136-174 MHz	380-470 MHz	764-776 MHz + 850-870 MHz
Analog Sensitivity	0.28µV	0.28µV	0.28µV
Digital Sensitivity (5% BER)	0.20µV	0.20µV	0.20µV
Squelch Sensitivity	.2µV to 2µV adjustable	.2µV to 2µV adjustable	.2µV to 2µV adjustable
Selectivity			
25/30kHz channel	75dB	75dB	75dB
12.5kHz channel	65dB	65dB	65dB
Spurious/Image Rejection	75dB	75dB	75dB
IMD Response	75dB	75dB	75dB
Frequency Stability	±1.5PPM	±1.5PPM	±1.5PPM
Audio Response (300-3kHz)	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave
Audio Output	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K
Local Rx Audio	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion



Power Requirements

DC Supply	13.6VDC negative ground ± 25%
Standby	250mA
Receive	500mA @ 400mW Rx audio
Transmit	<3A @ rated output

Physical Dimensions	5.75" W x 10" L x 2.25" H
Weight	38 ounces
Case	One-piece extruded aluminium

Mil-Std-810H Ratings	
501.5	Procedure II High Temp +60°C
502.5	Procedure II Low Temp -30°C
507.4	Procedure II Humidity
514.5	Procedure I Category 8 Vibration, Ground Vehicle
516.5	Procedure I Shock



VM5000

VHF · UHF (High & Low) · 700/800 MHz
P25 Phase 1 & 2 · Viking16

With uncompromised quality and performance, the VM5000 has built-in speakers to take the complexities out of mission-critical communications.

Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- 1024 channels
- Mixed protocol zones
- P25 Authentication (Link Layer Authentication)
- P25 IP packet data
- GPS AVL data (built in GPS)¹
- MDC-1200 & GE-Star signaling
- Analog & P25 Conventional vote scan
- Dash mount (KCH-19 control head only)
- Remote mount
- Dual control heads
- Internal or external speaker
- Fixed control station
- WiFi (remote mount configuration only)
- Bluetooth (Future)
- Instant Recording Replay (IRR)
- Voice Recording
- Encryption
 - ARC4™ software encryption; compatible w/Motorola ADP™
 - DES-OFB
 - AES-256 (FIPS 140-2) Single and Multi-Key
 - Over-the-Air-Rekeying (OTAR)
 - VK5000 or Motorola KVL3000/KVL4000 Keyloader

¹Refer to the Viking VM5000 operating manual for detailed requirements & conditions for proper GPS operation.

Accessories

Complete line of accessories including microphones, speakers & antennas.
Download the accessory catalog at
www.efjohnson.com/products/accessories.

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



Basic Control Head

- Resolution of 422 x 154 pixel
- Viewing angle of 140°
- User selectable themes (8 themes available)
- Day & night display options



Day - High Contrast



Night - High Contrast

Compatible With P25 Systems

- ATLAS® P25 Phase 1 and Phase 2 System
- Motorola Astro® 25 - P25 Phase 1 & Phase 2
- Harris VIDA® - P25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA™ Radio - P25 Phase 1 & Phase 2



Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



Armada® Fleet Management

Update your radios in a group rather than one at a time. One template programs both portables & mobiles. Supports direct computer connection, Over-the-Air Programming (OTAP), or Over-the-Internet Programming (OTIP).



TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

VM5730/5830/5930 Mobile Specifications

General		VM5730	VM5830	VM5930
Frequency Range		136-174 MHz	Type 1: 450-520 MHz Type 2: 380-470 MHz	RX: 762-776, 851-870 MHz TX: 762-776, 792-806, 806-825, 851-870 MHz
Max. Channels Per Radio		1024		
Number of Zones		255		
Max. Channels Per Zone		255		
Channel Spacing	Analog	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz
	Digital	12.5 kHz	12.5 kHz	12.5 kHz
Power Supply		13.6 V DC ±15 %		
Current Drain	Standby	0.45 A		
	RX	2.3 A		
	TX	13 A		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)		
Frequency Stability		±1.5 ppm		
Dimensions (W x H x D) Radio w/Control Head, Projections not Included		6.73 x 1.89 x 6.93 in. (171 x 48 x 176 mm)		6.73x1.89x7.72 in. (171.0 x 48.0 x 196 mm)
Weight (Radio w/Control Head)		3.53 lbs (1.6 kg)		3.75 lbs (1.7kg)

Receiver		VM5730	VM5830	VM5930
Sensitivity	P25 Digital (5% BER)	-119 dBm (0.25 µV)		
	Analog (12 dB SINAD)	-119 dBm (0.25 µV)		
Selectivity	P25 Digital	60 dB		
	Analog @ 12.5 kHz	60 dB		
	Analog @ 25 kHz	75 dB		75 dB
Intermodulation		80 dB		
Spurious Rejection		85 dB		87 dB
Audio Distortion		2%		
Audio Output Power		4 W/4 Ω (Remote Control Head: 3 W/4 Ω)		
Transmitter		VM5730	VM5830	VM5930
RF Output Power		5W/50W	5W/45W - (Type 1: 450-485 MHz) 5W/40W - (Type 1: 485-520 MHz) 5W/40W - (Type 2: 380-470 MHz)	2W/30W (700 MHz) 2W/35W (800 MHz)
Spurious Emission		-73 dB	-75 dB	-80 dB
FM Hum & Noise	Analog @ 12.5 kHz	45 dB		40 dB
	Analog @ 25 kHz	50 dB		45 dB
Audio Distortion		2%		
Emission Designator		VM5730/5830: 16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W VM5930: 16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W		

Mil Standard	810C	810D	810E	810F	810G
Low Pressure	5001/ I	5002/ I, II	5003/ I, II	5004/ I, II	5005/ I, II
High Temperature	5011/ I, II	5012/ I, II	5013/ I, II	5014/ I, II	5015/ I, II
Low Temperature	5021/ I	5022/ I, II	5023/ I, II	5024/ I, II	5025/ I, II
Temp. Shock	5031/ I	5032/ I	5033/ I	5034/ I, II	5035/ I
Solar Radiation	5051/ I	5052/ I	5053/ I	5054/ I	5055/ I
Rain	5061/ I, II	5062/ I, II	5063/ I, II	5064/ I, III	5065/ I, III

Mil Standard	810C	810D	810E	810F	810G
Humidity	5071/ I, II	5072/ II, III	5073/ II, III	5074	5075/ II
Salt Fog	5091/ I	5092/ I	5093/ I	5094	5095
Dust	5101/ I	5102/ I	5103/ I	5104/ I, III	5105/ I
Vibration	514.2/ VIII, X	514.3/ I	514.4/ I	514.5/ I	514.6/ I
Shock	516.2/ I, V	516.3/ I, V	516.4/ I, V	516.5/ I, V	516.6/ I, V

INTERNATIONAL PROTECTION STANDARD

Dust & Water IP54, IP55¹

¹IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio.

Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4
Encryption Key/Radio	126 Common Key Reference (CKR), 126 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197



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*25/30 kHz in VHF/UHF Bands are not included in the models sold in the USA or US territories.

Analog measurements made per TIA 603 and specifications shown are typical. Digital measurements made per TIA 102CAAA and specifications shown are typical. All specifications are subject to change without notice. Please check the website for the latest version. V02.2219 © Copyright 2019 EF Johnson Technologies, Inc. (E.F. Johnson Company is operating entity)

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COMMUNICATION AND SECURITY SOLUTIONS

QUOTE

QUOTE #	BUPWQ1992
DATE	10/6/2023

TO Adam BellCorelli
 Winnebago County
 415 Jackson St
 Oshkosh, WI 54903-4875
 Winnebago
 Phone: (920)232-3450

SALESPERSON	JOB	PAYMENT TERMS	DUE DATE
Ben W			

QTY	DESCRIPTION	UNIT PRICE	TOTAL PRICE
	Kenwood Viking VP8000 Dual Band VHF/700/800 High Vis Green Radio		

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COMMUNICATION AND SECURITY SOLUTIONS

73	<p>VP8000GRF2 KENWOOD MULTI BAND RADIO, GREEN, MODEL 2, WITH ANTENNA AND BATTERY Configuration VP8000GRF2 VP8000, M2, GR Frequency 832VP8000-VHF VHF Frequency 832VP8000-7800 7/800 MHz Model Standard Keypad (M2) Housing Hi Visibility (Green) Model Options Immersion Antenna KRA-47MB Wideband Antenna Battery KNB-L2M Li-ion 2600mAh (L2 Standard) Speaker Microphone KMC-70GR KMC-70GR Speaker Mic (Hi-Viz) Protocol Analog FM Protocol P25 CAI AMBE+2 System Analog Conventional System 8322000002 P25 Conventional System 8322000005 P25 Phase 1 Trunking System 8322000006 P25 Phase 2 TDMA Channels 8326000006 1024 Ch Encryption 8323000003 Multi Key DES-OFB Encryption 8323000005 ARC4 (ADP Compatible) Prog and Data Conventional Voting Scan Prog and Data TrueVoice Noise Cancellation Prog and Data 8326000039 WiFi Prog and Data 8326000025 Bluetooth Prog and Data 8326000033 Bluetooth Low Energy Prog and Data 8326000015 25KHz Disabled Prog and Data 8326000028 Instant Recording Replay Prog and Data 8326000029 Voice Recording (included) Prog and Data VL-8001 Factory Activation of Radio Option Licenses Other 3 Year Warranty Other END-OF-CONFIG-FLAG *** End of Radio Configuration ***</p>		
73	KSC-52BK CHARGER, SINGLE BAY RAPID RATE, B-POCKET, VP-T		
	PROGRAMMING AND SETUP OF RADIOS		
	SubTotal		\$330,471.00
	Kenwood Viking VP6430 Single Band 700/800 High Vis Green Radio		

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COMMUNICATION AND SECURITY SOLUTIONS

363	<p>VP6430GRF2 KENWOOD 700/800 MHZ, MODEL 2, P25 CONVENTIONAL/TRUNKING, DES-OFB INCLUDED, (HIGH VIS) Configuration VP6430GRF2 VP6430, 7/800 MHz, M2, GR Frequency 7/800 MHz Series VP6430 Model Standard Keypad (M2) Housing Hi Visibility (Green) Model Options Immersion Model Options Micro SD memory card (installed) Packing 835VP6000PK001 VP6000 PACKINGKIT Antenna KRA-32K 7/800 MHz 1/2 Wave (Whip) Battery KNB-L2M Li-ion 2600mAh (L2 Standard) Speaker Microphone KMC-70GR KMC-70GR Speaker Mic (Hi-Viz) Protocol Analog FM Protocol P25 CAI AMBE+2 System Analog Conventional System 8322000002 P25 Conventional System 8322000005 P25 Phase 1 Trunking System 8322000006 P25 Phase 2 TDMA Channels 8326000006 1024 Ch Encryption 8323000003 Multi Key DES-OFB Encryption 8323000005 ARC4 (ADP Compatible) Prog and Data Conventional Voting Scan Prog and Data TrueVoice Noise Cancellation Prog and Data 8326000028 Instant Recording Replay Prog and Data 8326000029 Voice Recording (included) Other 3 Year Warranty Other END-OF-CONFIG-FLAG *** End of Radio Configuration ***</p>		
363	KSC-52BK CHARGER, SINGLE BAY RAPID RATE, B-POCKET, VP-T		
	PROGRAMMING AND SETUP OF RADIOS		
	SubTotal		\$1,303,329.72
	Kenwood Viking VM7000 Single BandMobile Radio (Dual Band Upgradeable)		

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COMMUNICATION AND SECURITY SOLUTIONS

61	<p>VM7000 KENWOOD MOBILE RADIO, MULTI BAND CAPABLE Primary Band 1 VM7930BF-P 7/800 MHz Secondary Band 2 No Band 2 Secondary Band 3 No Band 3 Secondary Band 4 No Band 4 Control Head KCH-20RV KCH-20 Single Remote Remote Cable 1 KCT-71M3 25 ft Remote Cable 2 N/A Microphone KMC-65M KMC-65M Standard Mic Basic Accessories KCT-23M3 Standard Deck DC Cable Basic Accessories KMB-33M Standard Deck Mounting Bracket Basic Accessories KRK-17BF Remote Kit Other Accessories 597539077901 USB Micro B Extension Cable Other Accessories KCT-46 Ignition Sense Cable Other Accessories Connect external speaker to KCH-20 Other Accessories KES-5A KES-5 speaker for KCH-20 Other Accessories KCT-72M KCH-20 connection cable Protocol Analog FM Protocol P25 CAI AMBE+2 System Analog Conventional System 8322000002 P25 Conventional System 8322000005 P25 Phase 1 Trunking System 8322000006 P25 Phase 2 TDMA Channels 8326000006 1024 Ch Encryption 8323000003 Multi Key DES-OFB Encryption 8323000005 ARC4 (ADP Compatible) Prog and Data Conventional Voting Scan Prog and Data TrueVoice Noise Cancellation Prog and Data 8326000015 25KHz Disabled Prog and Data 8326000028 Instant Recording Replay Prog and Data 8326000029 Voice Recording (included) Other 3 Year Warranty Other END-OF-CONFIG-FLAG *** End of Radio Configuration ***</p>		
61	EM-M11003 ROOF MOUNT ANTENNA, 3dB GAIN, 764-869 MHZ		
122	LAR-NMOKHFUD 17' LARSEN COAX WITH AN NMO MOUNT		
61	RFN-1005-3C 7/800 MHz N(M) CRIMP CONNECTOR FOR RG-58 AND LMR-195		
	PROGRAMMING AND SETUP OF RADIOS		
	SubTotal		\$258,155.66
	Kenwood Viking VM7000 Dual Band Mobile Radio		

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COMMUNICATION AND SECURITY SOLUTIONS

21	<p>VM7000 KENWOOD MOBILE RADIO, MULTI BAND CAPABLE Primary Band 1 VM7930BF-P 7/800 MHz Secondary Band 2 VM7730BF-S VHF Secondary Band 3 No Band 3 Secondary Band 4 No Band 4 Control Head KCH-20RV KCH-20 Single Remote Remote Cable 1 KCT-71M3 25 ft Remote Cable 2 N/A Microphone KMC-65M KMC-65M Standard Mic Basic Accessories KCT-23M3 Standard Deck DC Cable (Qty 2) Basic Accessories KMB-33M Standard Deck Mounting Bracket (Qty 2) Basic Accessories KCT-71M4 Control Cable Basic Accessories KRK-17BF Remote Kit (Qty 2) Other Accessories 597539077901 USB Micro B Extension Cable (Qty 2) Other Accessories KCT-46 Ignition Sense Cables (Qty 2) Other Accessories Connect external speakers to radio Other Accessories KES-5A KES-5 high power speaker (Qty 2) Other Accessories KAP-2 KAP-2 HA/PA Relay (Qty 2) Protocol Analog FM Protocol P25 CAI AMBE+2 System Analog Conventional System 8322000002 P25 Conventional System 8322000005 P25 Phase 1 Trunking System 8322000006 P25 Phase 2 TDMA Channels 8326000006 1024 Ch Encryption 8323000003 Multi Key DES-OFB Encryption 8323000005 ARC4 (ADP Compatible) Prog and Data Conventional Voting Scan Prog and Data TrueVoice Noise Cancellation Prog and Data 8326000015 25KHz Disabled Prog and Data 8326000028 Instant Recording Replay Prog and Data 8326000029 Voice Recording (included) Other 3 Year Warranty Other END-OF-CONFIG-FLAG *** End of Radio Configuration ***</p>		
21	EM-MX0152 "X"-NUT QUARTER WAVE VHF ANTENNA		
21	EM-M11003 ROOF MOUNT ANTENNA, 3dB GAIN, 764-869 MHZ		
42	LAR-NMOKHFUD 17' LARSEN COAX WITH AN NMO MOUNT		
21	RFI-RFU-505-ST UHF(M) PL259 CRIMP CONNECTOR RG58, RG142		
21	RFN-1005-3C 7/800 MHz N(M) CRIMP CONNECTOR FOR RG-58 AND LMR-195		
	PROGRAMMING AND SETUP OF RADIOS		
	SubTotal		\$117,663.42
	Kenwood Viking VM5930 with Pyramid SVR-350 DVRS		

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COMMUNICATION AND SECURITY SOLUTIONS

2	VM5930 7/800 MHz, EF JOHNSON MOBILE RADIO WITH A 3 YEAR WARRANTY Radio Type VM5930BF VM5000, 7/800 MHz Frequency 7/800 7/800 MHz Configuration Mobile Control Head KCH-19VM KCH-19 Dash Remote Cable 1 N/A Remote Cable 2 N/A Microphone KMC-65M KMC-65M Standard Mic Basic Accessories KCT-23M DC Cable - 10 ft Basic Accessories KMB-33M Standard Deck Mounting Bracket Protocol Analog FM Protocol P25 CAI AMBE+2 System Analog Conventional System 8322000002 P25 Conventional System 8322000005 P25 Phase 1 Trunking System 8322000006 P25 Phase 2 TDMA Channels 8326000006 1024 Ch Encryption 8323000003 Multi Key DES-OFB Encryption 8323000005 ARC4 (ADP Compatible) Prog and Data Conventional Voting Scan Prog and Data TrueVoice Noise Cancellation Prog and Data 8326000028 Instant Recording Replay Prog and Data 8326000029 Voice Recording (included) Other 3 Year Warranty Other END-OF-CONFIG-FLAG *** End of Radio Configuration ***		
2	SVR-350M GUARDIAN ANALOG VEHICULAR REPEATER 700 / 800 MHZ 12.5 KHZ		
2	9300-10-0020 P25 MODE - OPTION SFK FOR SVR-350 GUARDIAN		
2	7502-10-1245 PYRAMID INTERFACE		
2	SEC-1223 24 AMP, 13.8 VOLTS, SWITCHING POWER SUPPLY		
2	BPF-8604 PRE-SELECTOR 860 MHz, FACTORY TUNED		
4	TCK-203 3' TNC CABLE KIT FOR USE WITH BPF/BRF FILTERS		
2	SVR-TFC-DC SVR TACTICAL FIELD CASE. INCLUDES SKB 19" CASE AND MOUNTING H/W FOR RADIO/SVR & DC CABLES		
	PROGRAMMING AND SETUP OF DVRS		
	SubTotal		\$21,958.40
Price Does Not Include Installation of Mobile Radios			

SUBTOTAL	\$2,031,578.20
SALES TAX	\$0.00

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COMMUNICATION AND SECURITY SOLUTIONS

TOTAL	\$2,031,578.20
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To accept this quotation please sign, date and return: _____

PROPRIETARY & CONFIDENTIAL

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Prices are good for 30 days from date of quote. Shipping costs may vary from actual quoted estimate. Actual shipping and handling costs will be invoiced.

Thank You For Your Business!

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