

***Guardian*[™] Portable Radio**

Model G25RPV100

Operator Manual G25APK001

Revision A



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APCO Project 25 Compliant

**IMPORTANT INFORMATION REGARDING
SAFE AND EFFICIENT OPERATION
AND COMPLIANCE WITH ELECTROMAGNETIC ENERGY STANDARDS
READ THIS INFORMATION BEFORE USING YOUR TWO-WAY RADIO**

Radio Frequency (RF) Energy and Two-Way Radio Operating Characteristics

Your Guardian two-way radio contains a transmitter and receiver. It generates RF energy ONLY when transmitting. When it is receiving or powered off, it does not generate RF energy. To transmit you must push the push-to-talk button. To receive you release this button.

Your Guardian two-way is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- United States Federal Communications Commission (FCC), Code of Federal Regulations (CFR) 47, Part 2, Sub-part J
- American National Standards Institute (ANSI) / Institute of electrical and Electronic Engineers (IEEE) C95.1-1991.
- Other standards as required for other countries.

To assure optimal radio performance and make sure human exposure to RF energy is within the guidelines set forth in the above standards, always adhere to the following procedures:

In front of the face two-way radio operation

Hold the radio in a vertical position with the microphone at least four inches (10 cm) away from the lips.

Body-worn operation

Always place the radio in an approved clip, holder, holster, case, or body harness for this product if you wear a radio on your body when transmitting. Use of unapproved accessories may exceed FCC RF exposure guidelines.

If you do not use approved body-worn accessories and are not using the radio in the intended use positions (along side of the head in phone mode, or in front of the face in two-way mode, or with a remote speaker/microphone with antenna) then keep the antenna and radio four inches from the body when transmitting.

Antenna care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

Approved accessories

Contact your Datron sales representative for a list of approved Guardian radio accessories.

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Guardian™ Operator Manual for use with Guardian portable radio.

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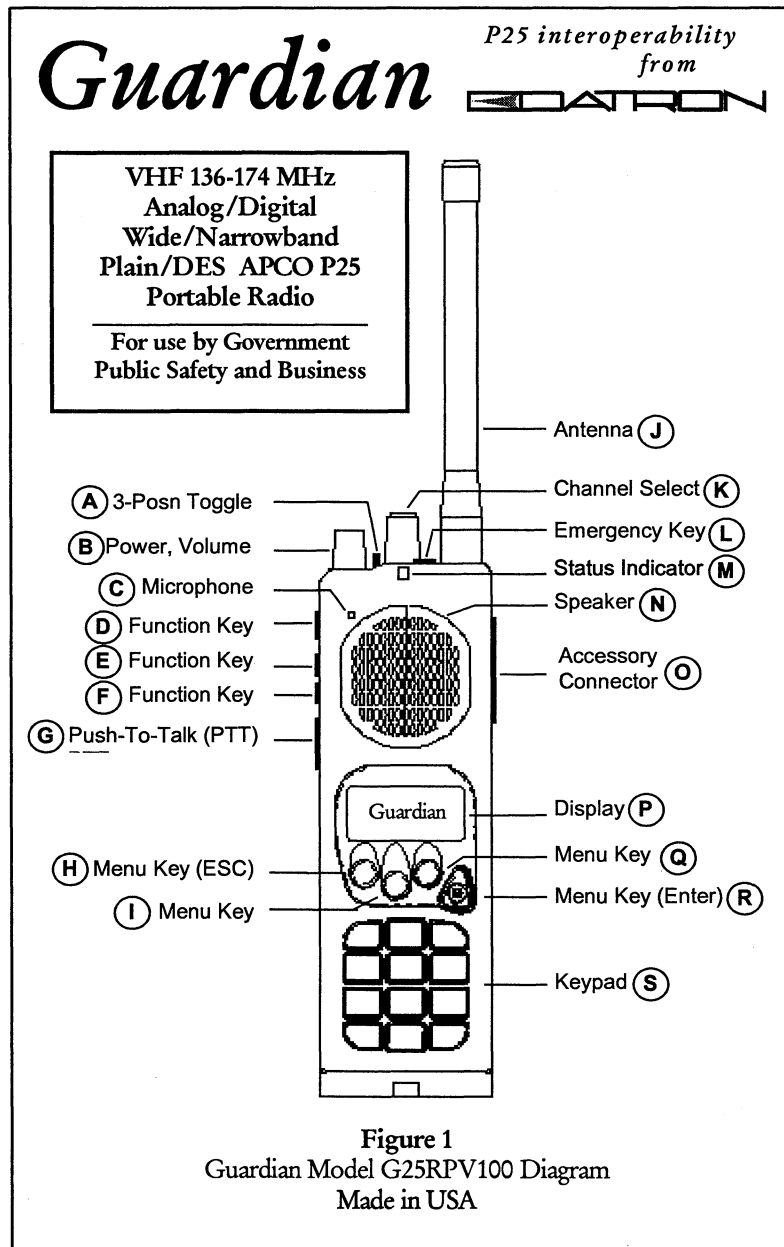
IMPORTANT NOTE

This radio is designed to be set up by authorized technicians using a PC computer and the Guardian™ programming software. PC programming can enable or disable many of the radio's features from user keyboard access per user agency security policy. All, some, or none of the features and functions described in this manual may be available to the user. To successfully operate the radio, it is important to understand how the radio was programmed prior to issuance by the user agency. Consult authorized agency personnel for features and functions made available or restricted to the user.

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Guardian™ Portable Radio



Introduction

The Guardian personal communications transceiver was carefully crafted with advanced electronics, software and materials technologies incorporated into a rugged, compact design intended for years of reliable service with reasonable care. Numerous combinations of options, features, and channel settings are possible through PC programming. Consult authorized personnel for information and user training and before attempting to modify radio settings.

Accessories

A variety of optional accessories including heavy-duty batteries, leather and nylon carry cases, specialized antennas, speaker-microphone and service manual are available for the Guardian radio. Contact your Datron representative for details on Guardian options and accessories.

Quick Start

Assumes the radio has been initially set up using the Guardian PC programming software.

1. **Battery.** Install charged battery.
2. **Antenna.** Install correct antenna (Fig.1-J). Do NOT operate radio without antenna.
3. **Power up.** Turn power-volume knob (Fig. 1-B) clockwise about half way around. Set volume to comfortable level when a transmission is heard. Nominal 5 second delay at power-up is normal.
4. **Select channel.** Turn channel knob (Fig. 1-K) until the desired channel is shown on display.
5. **Receive.** Listen using built-in speaker (Fig. 1-N). Note: the first volume knob click position mutes the speaker.
6. **Transmit.** Press the PTT key (Fig. 1-G) and speak about 4 inches away from microphone (Fig. 1-C). Release the PTT key when finished speaking. Do not hold the PTT longer than necessary after talking.

KNOW YOUR RADIO Is it set up to zeroize encryption keys? Emergency call using alert or silent? Other mission-specific programming? Make it your priority to find out. Consult authorized personnel for specific instructions.

Features & Specifications

The Guardian, battery-operated, 256 channel (4 banks, 16 zones) portable transceiver provides multi-mode plain and secure communications in the 136-174 MHz spectrum. Premium quality standard features include DES SBCF analog encryption, high-output variable intensity liquid crystal display (LCD), tri-color light emitting diode (LED) status indicator, illuminated DTMF keypad, sure-set detented rotary 16-position volume and channel knobs, and programmable toggle switch, emergency and function keys. Channels can be individually programmed for 25 kHz wideband or 12.5 kHz narrowband operation, analog or digital, plain or encrypted, with transmitter power settable from 0.1 to 5 watts in five steps. Up to seven shadow channels may be programmed for any channel, providing all-mode radio performance. 16 encryption keys may be stored in the radio.

Capacities

Channels

256 channels (frequency pairs) are available for programming. Each can be programmed for receive and transmit frequencies, wideband or narrowband, analog or digital, various squelch types, encryption key, power output level, and 8-character alphanumeric channel ID display tag.

Zones of Channels

16 zones (groups of channels) are available for programming. Each zone may have up to 16 channels (16 zones x 16 channels/zone = 256 channels). Zones may be assigned ID display tags of up to 8 alphanumeric characters, and may be selected as programmed by the toggle switch, function keys, or through the menu and keypad.

Banks of Zones

Four banks (groups of zones) are available for programming. Each bank may have up to 16 zones assigned. Banks may be assigned ID display tags of up to 8 alphanumeric characters, and may be selected as programmed using the menu and keypad.

Shadow Channels

Up to 7 shadow channels are available for each primary channel. Shadow channels enable the user to monitor and reply (if all settings match) to all transmissions on a given channel regardless of modulation mode (analog or digital), bandwidth, squelch mode, or encryption key. Shadow channels count toward the 256 channel total radio capacity. Each shadow channel must have the same transmit and receive frequencies, scan list, talk-around, locked options, and transmit power level as its associated primary channel. Shadow channels may have different modulation modes, bandwidths, squelch modes, digital

network access codes (NAC), and encryption key than their associated primary channel. Either the primary or shadow channel may have analog encryption enabled. Shadow channels may only be created and edited through PC programming. Consult authorized personnel for shadow channel assignments.

Encryption Keys

Up to 16 encryption keys may be stored in the radio for optional selective assignment to each applicable channel. User selection of a new key from the key list replaces the default key for a selected channel.

Encryption Algorithm

Standard Guardian software includes single bit cipher feedback (SBCF) analog DES encryption usable on 25 kHz wideband channels.

Squelch Options

Analog squelch options: none, continuous tone-coded squelch system (CTCSS), digital-coded squelch (DCS). Digital squelch options: none, network access code (NAC), talk-group identifier (TGID) including individual call.

Controls

Power-Volume Knob (Fig. 1-B)

Detented rotary power switch and volume control. The most counter-clockwise position is power-off. First clockwise position is power-on, speaker muted. Next clockwise positions increase the speaker volume. Detents (clicks) prevent accidental knob rotation caused by user's clothing.

Channel Selector Knob (Fig. 1-K)

16-position rotary switch is programmable for radio operating channels. Consult authorized personnel for channel assignments.

Toggle Switch (Fig. 1-A)

Three-position toggle switch optionally programmable for zone select, transmit encryption enable/disable; scan on/priority/off; power high/low; talk-around on/off; monitor on/off, or not used. Consult authorized personnel for toggle switch function assignments.

Emergency Key (Fig. 1-L)

Pushbutton switch (key) is optionally programmable to actuate the emergency call, panic-zeroize encryption keys, or switch not used. Consult authorized personnel for function assignment.

Push-To-Talk (Fig. 1-G)

The PTT key is dedicated to push-to-transmit, release-to-receive radio operation.

Function Keys (Figs. 1-D, E, F)

Three buttons (keys) located above the PTT switch are optionally programmable for monitor on/off, LCD backlight bright/dim/off, transmit encryption

enable/disable, scan list add/delete, scan on/priority/off, keypad disable, signal strength indicator on/off; talk-around on/off; home channel select, power high/low, next zone, or not used. Consult authorized personnel for function assignments.

Menu Keys (Figs. 1-H, I, Q, R)

Four buttons perform various functions determined by the display immediately above. The right-hand key (Fig. 1-R) is the ENTER key and the left-hand key (Fig. 1-H) is the ESCAPE key for many menu functions.

Keypad (Fig. 1-S)

12 buttons may be used with menus to make selections during programming and to perform as telephone DTMF keys when transmitting in analog mode.

Indicators

Status Indicator (Fig. 1-M)

The color LED status indicator signifies:

Color	Action	Meaning
Red	Steady	Transmit mode
Green	Steady	Receive mode / channel is busy
Green	Flashing	Encrypted receive mode
Orange	Steady	Emergency call state / low-battery condition

Display (Fig. 1-P)

High-output variable intensity LCD shows radio operating status for the selected channel: B = bank, Z = zone, C = channel, S = shadow channel, H = home channel, TX = transmit mode, RX = receive mode. a around letter means included in scan list. TA = talk-around, $\cap\cap\cap$ = repeater, $\leftrightarrow$ = encrypted. Channel types AW = analog wideband, AN = analog narrowband, DG = digital, around symbol means squelch is active.

Connectors

Multi-Purpose (Fig. 1-O)

Used to connect speaker-microphone, PC computer for programming, another Guardian radio for cloning.

Antenna (Fig. 1-J)

Screw base (SMA) receptacle for whip antenna. Do not substitute non-Guardian antennas, connect radio to external amplifier, or use radio without any antenna; the radio may be damaged or the range reduced.

Emergency Call

Options are alert or silent. When the EMERGENCY key is pressed (if programmed for emergency operation) in alert mode, EMERG TX and EMG display, and the radio beeps every time the radio transmits the emergency message until de-

activated. In silent mode, emergency transmissions are made but the radio does not beep and emergency messages do not display.

Alert Tones

Audible tones signal important information to the user about the radio's operating state or condition:

Tone Pitch	Tone Length	Meaning
Low	Burst	Key press error/failed self-test/talk timeout warning/empty channel
Low	Steady	Talk timed-out/talk inhibit/invalid mode/radio locked
Medium	Burst	Key press/passed self-test/receiving in clear voice
Medium	Pulsed	Emergency call mode/key error
High	Burst	Low battery
High	Pulsed	Individual call

Programming

The feature and functions of the Guardian radio are determined by software. Initial radio setup must be accomplished by authorized personnel using a PC and Guardian radio programming software. Programming from the radio keypad may be enabled or restricted per user agency policy.

Radio Operation

Power-Volume

Rotate the power-volume knob (top left) clockwise about half way around. Set the volume to a comfortable level when a transmission is heard. This control features detents (clicks) so the volume can't be accidentally raised or lowered when brushed against clothing. Speaker is muted on first click setting. Immediately after power-up the radio self-tests for several seconds, then changes to the channel status display.

Primary Channel Select

Rotate the channel select knob (top center) while observing the display to choose the desired channel. Consult authorized personnel for programmed channel assignments.

Shadow Channel Select

When a transmission is received on a shadow channel, an S displays with the channel ID. The talk-back timer allows the user to transmit within 10 seconds on the shadow channel. The talk-back timer is reset at the end of each message received. Shadow channels may be held or selected by pressing * followed by the shadow channel number 1-7 while the associated primary channel is selected. Revert to the primary channel by pressing * 0 or * * or ESCAPE or by just allowing the talk-back timer to reset itself.

Home Channel Select**Using Programmed Key**

If a function key has been programmed for home channel, press the HOME key. Consult authorized personnel for home channel assignment.

Using Menu and Keypad

Press the ENTER key to access the main menu. Use the ▲ and ▼ keys to highlight selections. Highlight HOME menu, press ENTER. Press ESCAPE.

Zone Select**Using Programmed Key**

If a function key or the toggle switch has been programmed for zone select, select the zone using the ZONE key or toggle switch position. Consult authorized personnel for zone key assignment.

Using Menu and Keypad

Press the ENTER key to access the main menu. Use the ▲ and ▼ keys to highlight selections. Highlight the SELECT menu, press ENTER, highlight ZONE, press ENTER. Use the ▲ and ▼ keys to select a zone, press ENTER, press ESCAPE.

Bank Select

Press the ENTER key to access the main menu. Use the ▲ and ▼ keys to highlight selections. Highlight the SELECT menu, press ENTER, highlight BANK, press ENTER. Use the ▲ and ▼ keys to select bank, press ENTER, press ESCAPE.

Talk-around Select**Using Programmed Key**

If a function key or the toggle switch has been programmed for talk-around, press the TALK-AROUND key or select the toggle switch position to select or deselect talk-around. Consult authorized personnel for talk-around key assignment.

Using Menu and Keypad

Press the ENTER key to access the main menu. Use the ▲ and ▼ keys to highlight the SELECT menu, press ENTER, highlight TKRD, press ENTER. Use the ▲ and ▼ keys to toggle off or on, press ENTER, press ESCAPE.

Scan Select**Using Programmed Key**

If a function key has been programmed for scan select, press the SCAN key or select the SCAN toggle switch position to select or deselect scanning. Consult authorized personnel for scan key assignment.

Using Menu and Keypad

Press the ENTER key to access the main menu. Use the ▲ and ▼ keys to highlight the SCAN menu, press ENTER. Highlight SCAN, press ENTER. Use the

▲ and ▼ keys to toggle off or on, press ENTER. Similar actions for MODE and PRI'TY functions. Press ESCAPE. See *Radio Programming* section for additional scan information.

Squelch Adjust

Press and briefly hold the key programmed for MONITOR until the SQUELCH ADJUST appears on the display. Use the ▲ and ▼ keys to change the squelch setting. Consult authorized personnel for monitor key assignments.

Transmit Inhibit Override

If the radio is programmed for transmit inhibit override, press PTT twice quickly to transmit over existing conversation on channel. See *Radio Programming* section for additional transmit inhibit information.

Emergency Call

Activate

Press the EMERGENCY key (must be programmed). The radio initiates and continues in emergency call state until emergency call is manually deactivated. The radio can be programmed for either alert or silent emergency call mode. Consult authorized personnel for guidance.

Deactivate

Press and hold the EMERGENCY key (must be programmed) until the radio beeps, or by powering-off the radio with the on-off-volume knob.

Encryption Select

Selection of encrypted or plain mode is automatic since channels are programmed for plain or encrypted mode. If the user attempts to re-program the radio from encrypted to plain mode, this causes the radio to generate an "invalid mode" alert tone when PTT is pressed for an encrypted channel. See *Radio Programming* section for additional information.

Transmitting

Press the PTT key and speak at normal level about 4 inches from microphone (Fig. 1-C). Release the PTT key when finished speaking. Do not hold the PTT longer than necessary after talking. Channels programmed for receive-only operation sound an alert tone and display RX ONLY, and do not transmit.

Zeroize Encryption Keys

Press the emergency key to ZEROIZE (must be programmed) encryption keys. Selective zeroization may also be performed using the radio programming menu if enabled. See *Radio Programming* section for additional encryption key zeroization information.

Radio Programming

User programming of the radio's functions and features from the radio keypad is selectively permitted or restricted according to agency policy by authorized technicians using radio setup software. Internal radio software provides limited user access to certain features and settings when allowed. Menus shown in this manual which have been disabled from user access may not be available on the radio. Consult authorized personnel for guidance as to which features and functions are enabled for the user.

Main Menu

Press ENTER (right-most menu key, Fig. 1-R). Press ESCAPE (left-most menu key, Fig. 1-H) to revert to a previous menu or to end user programming.

Submenus

Use the middle menu keys (Fig. 1-I, Q) immediately below the ▲ and ▼ display symbols to move through and highlight the names of submenus to locate features and settings to be changed. Sub-menus may consist of more than one display and are cyclic (roll over to the first item after the last item). When more than one menu is available, ▼ displays in the lower right corner of the display.

Passwords Required

Passwords may be required to enter the PROGRAM (program) COVERT and ENCRPT (encrypt) submenus. Use the keypad to enter predetermined passwords. Consult authorized personnel for guidance. When submenus have been disabled, the radio displays the MENU DISABLE.

Change Settings

Highlight the target setting and press ENTER. Press the ▲ and ▼ keys to scroll through the available preprogrammed choices or enter data from the keypad. Press either ENTER to choose the new value or ESCAPE to exit with no change to the existing value. Passwords may be required to change RX (receive) and TX (transmit) frequencies, and the scan delay period. Use the keypad to enter predetermined passwords. Consult authorized personnel for guidance.

Enter Data

Numeric

Each keystroke shows the keyed number on the display and moves the cursor to the right. Press ENTER when finished.

Alphanumeric

Press the key bearing the desired letter multiple times as required to show it on the display. Use the ◀ and ▶ keys to navigate across the line. Press ENTER to confirm the entry and/or drop down to the next line.

Scan Operation Menu

Press the ENTER key to access the main menu. Highlight SCAN, press ENTER. Choose to enable or disable the scan function, select the scanning mode SCAN/SEARCH/ZONE, and enable or disable priority channels. SCAN enables normal scanning, SEARCH enables scan of all frequencies programmed into the radio, ZONE scans all zones in the zone scan list. PRITY (priority) scanning includes OFF (none), PR1 (one) or PR2 (two) predefined priority Channels. Activity on priority channels overrides all other modes except emergency.

Select Menu

Press the ENTER key to access the main menu. Highlight SELECT, press ENTER. Choose programmed channels, zones, and banks, and to enable/disable the talk-around mode. ZONE permits alternate zone selection, and BANK permits bank selection different than the bank used in a programmed bank scan. TKRD (talk-around), when ON, forces the transmit frequency to equal receive frequency for a selected channel, useful for direct radio-to-radio communication when a repeater is unavailable.

Home Channel Menu

Press the ENTER key to access the main menu. Highlight HOME, press ENTER. Press ENTER to switch the radio directly to the programmed home channel. Press ESCAPE to revert to the previous operating channel.

Programming Menu

Allows the user to change global radio settings, channel settings, scan options, and the password. Press the ENTER key to access the main menu. Highlight PROGRM, and press ENTER. Note: LISTS and SCLISTS are future developments, presently unavailable.

Password Entry

If required (programmed), enter the predefined password for this radio and press ENTER. Incorrect password entry causes INVALID ENTRY to display. Press ESCAPE and retry. If invalid password entry is attempted three times consecutively, ACCESS DENIED displays. Press ESCAPE to resume radio operation. Power off, on radio to attempt entering a valid password.

Global Parameter Submenu

Accessed from programming menu. Highlight GLOBAL, press ENTER. Choose from the global radio settings:

Parameter	Range of Values, Action Taken
BKLITE (Backlight)	BRIGHT/DIM/OFF
BL DLY (Backlight delay)	0 - 9 seconds
TOT (Timeout timer)	30 - 300 seconds in 30 second intervals/OFF
DISPLY (Display)	ALPHA/NUMBER
HOM (Home channel)	Home channel designation

EMG (Emergency)	Emergency channel designation
ALERT	NORMAL/SILENT
P/D EM	(Future development)
TX INH (Transmit inhibit)	CARR/CARR+O/TONE/TONE+O/NAC/ NAC+O/NONE
RPTR	(Future development)
RESET	Delete entire parameter configuration

BK LITE (Backlight)

Enables/disables/varies the intensity of the LCD and keypad illumination.

BK DLY (Backlight Delay)

Sets the time delay for the LCD and keypad backlighting.

TOT (Time-Out Timer)

Sets the transmit timer from 30 seconds 300 seconds for a single transmission. OFF setting allows unlimited transmitting time.

DISPLY (Display)

Sets the display to show either numeric (only numbers) or full alphanumeric information.

HOM (Home Channel)

Sets the home channel. Press ENTER, select the desired home channel using the channel knob, press ENTER to record the selected channel as the home channel.

EMG (Emergency Channel)

Sets the emergency channel within the active zone and bank. Press ENTER, select the desired emergency channel using the channel knob, press ENTER to set the selected channel as the emergency channel.

ALERT (Emergency Call)

Sets the emergency call alert mode. Highlight ALERT, choose NORMAL or SILENT to change the emergency call alert state. In normal mode, EMERG TX and EMG displays and the radio beeps every time the radio transmits the emergency message until deactivated. In silent mode, the radio does not beep and the emergency messages do not display.

TX INH (Transmit Inhibit)

Sets the transmit inhibit feature to one of six behaviors:

Parameter	Action Taken
NAC	Inhibits transmission on a busy channel using a different NAC
NAC+O	Override NAC inhibit with two rapid PTT actions
CARR	Inhibits transmission on a busy channel
CARR+O	Override CARR inhibit with two rapid PTT actions
TONE	Inhibits transmission on a busy channel using a different squelch tone
TONE+O	Override TONE inhibit with two rapid PTT actions
NONE	No transmit inhibit

RPTR (Repeater Delay)

This feature is under development and is not currently available.

RESET (Global Erase)

Resets radio to factory defaults; erases all user settings.

Channel Setup Submenu

Used to change user-enabled channel settings. Accessed from programming menu. Highlight CHANNEL, press ENTER. Select the desired channel using the channel knob before accessing this menu. Channels enabled for user programming show the channel ID and alphanumeric tag (if defined). Channels can be selectively locked by PC programming so that values cannot be changed from the radio's keypad. If a locked channel is selected the CHANNEL LOCKED/ACCESS DENIED displays. Press the ▲ and ▼ keys to scroll through the available choices (table below). Press either ENTER to choose the new value or ESCAPE to exit without changing the existing value. To quickly cycle to the next desired channel for programming, press ▼ after the HI PWR parameter has been set.

Parameter	Range of Values, Action Taken
MODE (Modulation)	ANALOG/DIGITAL
B/W (Bandwidth)	12.5 kHz / 25 kHz
ENCRPT (Encryption)	ENABLE / DISABLE
K (Encryption key)	Choose from pre-established list of keys
RX (Receive frequency)	Enter receive frequency using keypad
SQ (Squelch)	Receive squelch sensitivity setting
RXNAC (Receive NAC)	Choose digital receive network access code
RXSQMD (Receive squelch)	NONE/NOISE/DCS/CTCSS
TON (CTCSS tone)	Choose CTCSS squelch tone
CODE (DCS code)	Choose DCS code
TALKGP (Talk group)	Enter 5 digit number of talk group
TX (Transmit frequency)	Enter transmit frequency using keypad
TXNAC (Transmit NAC)	Choose digital transmit network access code
TXSQMD (Transmit squelch)	NONE/ DCS/CTCSS
LO PWR (Low Tx power)	Choose low transmit power setting
HI PWR (High Tx power)	Choose high transmit power setting

Scan Setup Submenu

Used to set basic functions of scan delay, revert mode, and two priority scan channels. Accessed from the programming menu. Highlight SCAN, press ENTER. The DELAY setting is the length of time in seconds the radio camps on the channel after the last transmission has ended and before scanning resumes. The radio switches to the REVERT channel when the user switches out of scan mode. Choices are: LSTSEL the last channel selected, LASTRX the last channel received, and HOME the home channel. The radio switches to the priority channel (P1 or P2) whenever activity is detected on either of these channels.

Parameter	Range of Values, Action Taken
DELAY (Scan delay)	Set time in seconds to resume scanning
RVERT (Revert channel)	LSTSEL/LASTRX/HOME
P1 (Priority 1 channel)	Designated 1 ST priority channel
P2 (Priority 2 channel)	Designated 2 ND priority channel

Password Setup Submenu

Used to change the radio programming password. Accessed from the programming menu. Highlight PSSWRD, press ENTER. Enter the current password, press ENTER. If entry for current password is incorrect, INVALID ENTRY displays. Press ESCAPE and try again. Three consecutive invalid entries and ACCESS DENIED displays. Enter the new password, press ENTER. Confirm the new password by entering it again, press ENTER. If the confirming new password is entered incorrectly, NEW PASSWORD REJECTED displays.

Covert Mode Setup Menu

Press ENTER to access the main menu. Highlight COVERT, press ENTER. Used to setup radio for covert operation including muting the speaker, alarms, beeps, and backlighting (see table below). Enter the predefined password for this radio and press ENTER. Covert settings override all other radio programming.

Parameter	Range of Values, Action Taken
DISPLY (Backlight)	OFF/ON Disable/enable backlighting
SPEAKR (Speaker)	OFF/ON Disable/enable speaker
WHISPR (Speaker)	OFF/ON Disable/enable speaker
KBEEPS (Key beeps)	OFF/ON Disable/enable key beeps
ALARMS (User alert tones)	OFF/ON Disable/enable user alert tones
LED (Status indicator)	OFF/ON Disable/enable LED status indicator
DEFAULT (Audible alarms)	Resets radio to non-covert (normal) settings

Encryption Setup Menu

Used to set-up radio for encrypted operation. Access from the main menu. Highlight ENCRYPT, press ENTER. Enter the predefined password for this radio and press ENTER.

Parameter	Range of Values, Action Taken
KEYSEL (Key select)	Choose the active key for the channel
ZEROIZE (Zeroize keys)	Zeroize key for channel or all keys
DF KEY (Default key)	Activates the channel's default key

Radio Cloning

Cloning enables the transfer of channel settings between Guardian radios. Consult authorized personnel for guidance. Perform the following steps to clone one Guardian radio with another:

1. Power-off both radios.
2. Connect the source and target radios together using the Guardian cloning cable.
3. Power-on the target radio, then the source radio.
4. The source radio automatically detects the connection and displays **FULL CLONE**.
5. Press **PTT** on the source radio to start the download. If there are problems between the source and target radios, the source radio times-out after 20 seconds, **CLONING ERROR** displays, radio reverts to **PTT TO SEND** for another attempt. Correct problem, repeat step.
6. When finished, the target radio resumes normal operation.
7. The source radio displays **PTT TO SEND** and remains in cloning mode in order to clone additional radios, if desired.
8. Press **ESCAPE** or power off, on to resume normal radio operation.

Encryption Keyfill

Encryption key fill can be accomplished using a PC and Guardian programming software. A key variable loader (KVL) is a separate optional accessory which may also be used for keyfill. Consult the KVL instruction manual for information regarding its operation. Perform the following steps to load keys into a Guardian radio using a KVL:

1. Power-off the target radio.
2. Connect the KVL to the target radio.
3. Power-on the radio.
4. The radio automatically detects the situation and displays **KVL KEY FILL**. If not, check connections, repeat step.
5. Press the **▲** and **▼** keys to select the desired key slot. Press **ENTER** to select the desired slot for loading the new key.
6. To verify the key identification, press **ID** for the key ID display. Press **TAG** to return to the key display.
7. Press **ENTER** to access the key transfer display.
8. Press **PTT** on the KVL to initiate the key transfer. When the transfer is successful, **SUCCESS KEY DATA UPDATED** displays. If unsuccessful, **FAILURE KEY DATA NOT UPDATED** displays. Press **ENTER** to return to the key tag or key ID displays.
9. To abort the transfer, press **ESCAPE** on the radio to return to the key tag or key ID displays.
10. Press **ESCAPE** or power off, on the radio to resume normal operation.

Troubleshooting

The following table of symptoms, possible causes, and suggested corrective actions may be helpful. Consult authorized personnel for further guidance.

Symptom	Probable Cause	Corrective Action
Radio does not power-on	Dead or defective battery	Install charged battery
Cannot talk with other users in plain mode	Radios programmed for different frequencies/squelch tones/talk-group ids	Program radios to same frequencies settings
Background noise or other conversations heard	Other users on channel or improper squelch tone setting	Select another channel or program squelch tones to eliminate interference
Error message on display	Operational error in radio	Follow display instructions
Alarm message on display	Encryption alarm in radio	Press PTT to clear alarm. Ensure encryption key is loaded into selected slot
Limited talk-out range	Radio signal obstructed or insufficient height above terrain	Move away from large metal objects/to higher ground/hold radio vertical

Product Information

Factory Support

This product is covered by the limited warranty shown on the back cover of this manual. For warranty service, contact Technical Support Services Group, Datron World Communications Inc., Vista, CA, 92083, or phone (760) 597-3755 or email service@dtwc.com. Be prepared with the following information before calling: (1) radio model number, serial number, and date of installation, (2) name of dealer or supplier of equipment, (3) detailed explanation of the suspected problem, (4) return shipping instructions, (5) telephone or fax number where the buyer can be contacted. Do NOT return a radio to the factory for service without first obtaining an RMA number from the Technical Support Services Group.

User Servicing

No user serviceable parts inside. Product is subject to ESD damage. Specialized maintenance and repair procedures are required. Unsuccessful attempts to repair product can void warranty. This product requires customer-specific programming to function as required. Radio programming is performed using a PC and authorized software. Factory does not have knowledge of customer-specific programming. Government agency users should contact their authorized technical personnel for assistance with correct operation of this product.

Limited Warranty and Remedies

Datron warrants that its manufactured products (radios) are free from defects in design, materials, and workmanship for a period of 24 months from date of shipment from factory. Products such as antennas, batteries, carry cases, and other parts which are purchased from other vendors for resale are warranted for a period of 12 months from date of shipment from factory. If products do not provide satisfactory service due to defects covered by this warranty, Datron will, at its option, replace or repair the item(s) free of charge. This warranty is limited to the original purchaser and is not transferable. Repair service performed by Datron is warranted for the balance of the original warranty or 90 days, whichever is longer.

Exclusive Warranty: There are no other warranties beyond the warranty as contained herein. No agent, employee, or representative of Datron has any authority to bind Datron to any affirmation, representation, or warranty concerning the equipment or parts that is not in conformity with the warranties contained herein. EXCEPT AS EXPRESSLY SET FORTH ABOVE, NO OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, ARE MADE WITH RESPECT TO THE EQUIPMENT OR THE PARTS CONTAINED THEREIN, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND DATRON EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED HEREIN.

Limitations of Warranty: This warranty does not cover: (1) physical damage to the equipment or its parts that does not involve defects in design, material, or workmanship, including damage by impact, liquids, temperature, or gases, (2) damage to the equipment or its parts caused by lightning, static discharge, voltage transients, or application of incorrect supply voltages, (3) defects or failures caused by unauthorized attempts to repair or modify the equipment, (4) defects or failures caused by abuse or misuse.

Remedies: Buyer's sole remedies and the entire liability of Datron are set forth above. In no event will Datron be liable to Buyer or any other person for damages, including any incidental or consequential damages, expenses, lost profits, lost savings, or other damages arising out of use of or inability to use the equipment.

*Guardian*TM radios are manufactured by Datron World Communications Inc. in Vista, CA, USA. Datron is respected worldwide as the best value supplier of voice and data communications products for government and business.

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VISTA, CA USA**