



## **Guardian Project 25 Compliant Equipment**

**- Product Catalog -**



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## GUARDIAN PROJECT 25 RADIO EQUIPMENT



### **Introduction:**

Datron World Communications manufactures a full Project 25 compliant VHF product line of subscriber equipment for the APCO Public Safety market. These radios include portable, mobile, and desktop models. Each radio is a feature-rich, high technology radio designed for military, government, public safety, and business applications. They are fully digital radios, and meet APCO Project 25 FDMA common air interface standards for interoperability with other Project 25 radios. The Guardian products also operate as analog radios, offering full backward compatibility with conventional wideband FM systems.

A distinct feature of the Guardian product line is its ease of programming and operation. Guardian radios are easy to program using the company-provided programming software. All Guardian radios use the same programming software, thus making it easy to set up nets that include different types of radios. Once programmed, the radios are easy to operate. Datron has designed its Guardian product line such that the operator interface for all the radios is almost identical. Thus, if a user learns how to operate one type of radio he can operate other types with little or no additional training. See page 8 for a description of the Guardian programming accessories and ordering information.

## Radio Products

Datron core radio products include the following:

### Portable Radios

- G25RPV100 5W Portable Radio

### Mobile Radios

- G25RMV100 50W Conventional Mobile Radio
- G25RMV110 110W Remote Trunk Mount Mobile Radio
- G25RMV110-5 5W Mobile Radio

### Desktop Radios

- G25RBV100 50W Desktop Radio
- G25RBV110 110W Desktop Radio

An Enhanced Emergency Response Package (containing “Fire Features”), DES-OFB (digital DES) Encryption, AES encryption, OTAR, and GPS operation are embedded firmware options that can be added to each Guardian radio. See pages 5 through 8 for a more complete description of these options.

A complete line of accessory equipment is also available to complement each type of Guardian radio product. These are described in the appropriate section of this catalog.

## Embedded Options for Guardian Subscriber Radios

The following five options, which can be embedded in any or all of its Project 25 subscriber radios, are offered by Datron. These are:

1. Enhanced Emergency Response Package (includes “Fire Features”)
2. DES-OFB (Digital DES) Encryption
3. AES Encryption
4. OTAR Operation
5. GPS Operation

To order any of these options, please use the part numbers listed below.

| Part No.  | Description                         |
|-----------|-------------------------------------|
| G25ASU001 | Enhanced Emergency Response Package |
| G25APE001 | DES-OFB Encryption                  |
| G25APE002 | OTAR Operation                      |
| G25APE003 | GPS Operation                       |
| G25APE004 | AES Encryption                      |

A summary description of these options is provided on the following 3 pages of this catalog.

## Enhanced Emergency Response Package (with “Fire Features”)

Datron’s G25ASU001 is a firmware upgrade available for use in all Guardian products and designed especially for P-25 radio users operating in high-risk emergency environments. In addition to the normal features and functionality of Datron’s reliable standard P-25 software, this special enhancement package offers the following additional capabilities:

| <u>Part Number</u> | <u>Description</u>                                  |
|--------------------|-----------------------------------------------------|
| G25ASU001          | Enhanced Emergency Response Package (FIRE FEATURES) |

- 1. Improved Priority Scan:** Allows for two modes of operation in the radio:
  - Scan Mode plus Priority Channel Interleave
  - Priority Channel Pre-emptive Scanning
- 2. Enhanced Unit ID Display:** Adds a Unit ID Display to the radio mode. When “on”, and when a digital Transmission is received, the Unit ID associated with the Receive signal will be displayed on the channel line of the Receive screen.
- 3. Enhanced Backlight Capability:** Allows the user to select a “backlight on Rx” parameter from the GLOBAL settings menu whose status can be toggled on or off when the Backlight function is mapped to a programmable side key.
- 4. Enhanced Busy Signal Indicator:** The busy light is turned on whenever the unit detects any signal on the Rx channel, not just when the radio breaks squelch.
- 5. Improved Selective Zone Cloning Operation:** Contains a special “Fire” bank with 3 zones of 16 channels each (48 channels with 48 possible shadow channels). In addition to retaining the option for full cloning operation, the radio also provides the option to clone radio global settings.
- 6. Transmit squelch tone pick list:** This allows the user to program (in non-volatile storage) up to 32 tones “quick picked” from the radio keypad. Also allows the user the option to map NAC codes to CTCSS tones with the PC programmer for a seamless transition from analog to digital systems.
- 7. Password protected zones:** A password will be required to alter, clone, or PC program the protected zones. The PC Programmer can read or write the zone password.
- 8. Unit ID call pick list:** The user can make easy unit ID calls from a preprogrammed list (in non-volatile storage) of up to 99 names. Also, received transmissions will display the name of the incoming unit ID call.

## DES-OFB Encryption (Digital DES)

Datron offers a digital encryption option with all of its subscriber radios. The Data Encryption Standard, Output Feedback (DES-OFB) and AES encryption can be ordered as an option by using the part numbers listed below.

| Part No.  | Description                                  |
|-----------|----------------------------------------------|
| G25APE001 | DES-OFB Encryption for the Guardian Portable |
| G25APE004 | AES Encryption                               |

DES-OFB is a Project 25 Digital Encryption System allowing secure compatible communications with Project 25 digital radios in narrowband channels.

The DES-OFB algorithm operates on 64-bit input vectors with a 56-bit key variable to produce 64-bit output vectors. The DES key variable consists of 56-bits, but it is always represented as a 64-bit number of 16 hexadecimal characters with each pair of hex characters having odd parity. The odd parity check provides some assurance of manually inputting the correct characters into a key loading device.

Even though there are different part numbers for the DES encryption for the portable and for the rest of the radios, this is merely a configuration control issue and does not affect the interoperability between products using Digital DES Encryption. The Guardian radios are all interoperable with one another in this mode.

### AES Encryption

The Advanced Encryption Standard (AES) is a block cipher adopted as an encryption standard by the U.S. government. It has been analyzed extensively and is now used worldwide.

Datron radios can have all three encryption standards available on the same unit, and operation on any type of encryption can be controlled on a channel-by-channel basis.

## OTAR Encryption

|           |                |
|-----------|----------------|
| G25APE002 | OTAR Operation |
|-----------|----------------|

Over-the-Air-Rekeying (OTAR) is an optional feature that provides a mechanism for the radio to receive encryption keys without direct connection to a key loading device. The Guardian P25 radio uses OTAR with any key management facility (KMF) compliant with the Project 25 standards. From a radio operator perspective, the only possible action is to request a re-key.

## GPS Operation

G25APE003

GPS Operation

### GPS Option

GPS reporting on a Project 25 channel is accomplished by receiving GPS data from any GPS receiver (real-time RS232 output GPS data required) into the radio, then transmitting via Project 25 to another Guardian P25 radio.

### GPS Applications

The Guardian P25 GPS offers the advantage of real-time GPS and a central depository for collecting GPS data from several sources. Some current applications are:

- Resource tracking (personnel)
- Target mapping
- Search and rescue
- Grid searches

The Guardian P25 GPS implementation system consists of one or more GPS field radios reporting to a GPS receiving radio (base). Each field radio consists of a Guardian P25 radio with the GPS option, a GPS adapter cable and a customer supplied GPS radio of choice, Guardian GPS microphone, or Guardian vehicular GPS receivers.

The base consists of a Guardian P25 radio with GPS option, a PC Programmer cable, and a customer-supplied laptop running GIS by ESRI ArcMap software. This system, with standard ESRI, displays the radios on the map (unlabeled).

Software packages other than ESRI ArcMap also work if they support standard NMEA \$GGA strings and can receive the \$GGA data from a serial port.

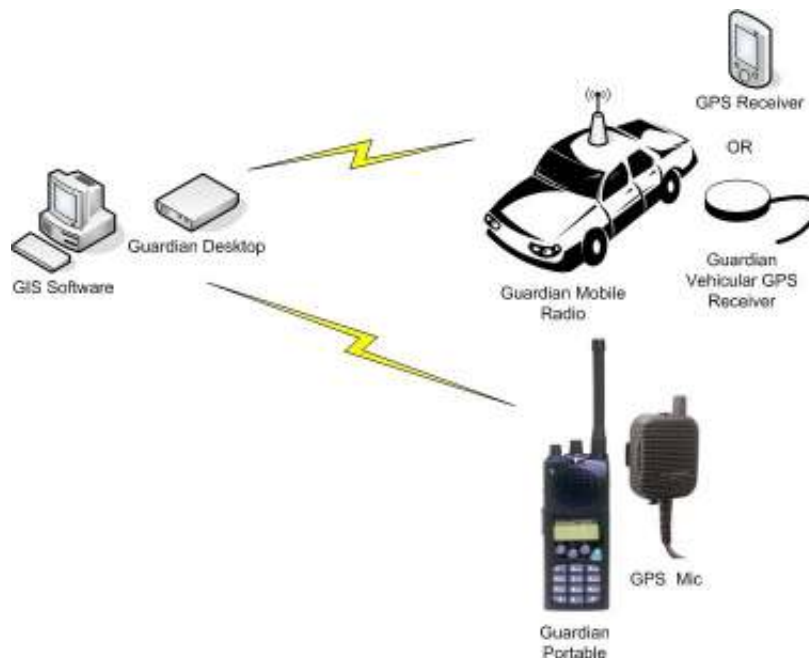


Figure 1 Typical GPS Application



## PROGRAMMING ACCESSORIES

The Guardian programming software (running on an appropriate PC) is required in order to access the full set of Guardian portable radio features. Frequencies and other radio parameters (excluding encryption keys and global settings) may be cloned from another Guardian radio or keyed in from the accessory DTMF microphone. The complete programming kit includes the universal Guardian programming and cloning cable, software and manual, all packaged in a vinyl carrying case. Sale of the programming kit is limited to authorized agencies, companies and individuals.

| Model No. | Description                                                                                                |
|-----------|------------------------------------------------------------------------------------------------------------|
| G25AXR010 | Complete Programming Kit (contains all items listed below). NOTE: Good for programming all Guardian radios |
| G25AXK001 | Programming manual                                                                                         |
| G25AXG004 | Cloning Cable for programming                                                                              |
| G25AXD001 | Vinyl carrying case                                                                                        |
| G25AXR001 | Programming Software on CD-ROM                                                                             |

### Key-Fill and other Adapters

| Model No. | Description                                                        |
|-----------|--------------------------------------------------------------------|
| G25AXG002 | Guardian Portable KVL-3000 Keyfill Adapter                         |
| G25AXG003 | Guardian Mobile/Desktop KVL-3000 Keyfill Adapter                   |
| G25AXG005 | Guardian Universal Side Connector (fits many Spectra™ accessories) |

**Note:** the same programming software is used for all types of Guardian radios.



## GUARDIAN PORTABLE RADIO

The Guardian P25 portable radio (G25RPV100) operates from 136 to 174 MHz, featuring 256 channels (frequency pairs), 16 zones (groups of channels), and 4 banks (groups of zones), plus scan list. Channels may be individually programmed for wideband or narrowband, analog or digital. Up to 7 shadow channels are available for each primary channel. Shadow channels enable the user to monitor and reply (if specific settings match) to all transmissions on a given channel regardless of modulation mode, bandwidth, squelch mode, or encryption key (shadow channels count towards 256 channel max.). Transmit power is programmable for individual channels from 0.1 to 5 Watts in five steps. Standard Project 25 features include non-trunked common air interface and digital modulation. The standard software includes single bit cipher feedback (SBCF) analog DES encryption, with capacity for 16 keys, usable on 25 kHz wideband channels. Fire Features and Digital DES packages are available as options.

The radio includes an integral illuminated DTMF keypad, a high output variable intensity liquid crystal display (LCD), tri-color LED status indicator, three programmable function keys and a toggle switch, plus a programmable emergency button. The radio is fully programmable from a PC using Guardian software, and may be cloned (parameter subset) with another Guardian radio. Selective programming may be performed using the radio keypad.

Analog squelch options include no squelch, continuous tone-coded squelch system (CTCSS), and digital-coded squelch (DCS). Digital squelch options are no squelch, network access code (NAC), and talk group identifier (TGID) including individual call.

Refer to page 11 to see the Guardian portable radio system packages with part number and ordering information.



## GUARDIAN PORTABLE SYSTEM PACKAGES

The Guardian G25RPV100 portable radio includes an operator's manual and quick reference card. Different portable radio "combo" packages can be put together as indicated in the equipment matrix below. Each package includes a unique combination of antenna and battery. The battery is either one of the high capacity rechargeable packs listed below or the "clamshell" attachment, which houses AA cells. These packages can be ordered by attaching the appropriate 3-digit suffix to G25RPV--- as shown in the matrix. **NOTE: the basic portable unit, G25RPV100, comes with just the operator's manual and quick reference card.**

| G25RPV---            | 100 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Portable Radio       | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   |
| Ant., 136-150 MHz    |     | Y   |     |     |     | Y   |     |     |     | Y   |     |     |     |
| Ant., 150-162 MHz    |     |     | Y   |     |     |     | Y   |     |     |     | Y   |     |     |
| Ant., 162-174 MHz    |     |     |     | Y   |     |     |     | Y   |     |     |     | Y   |     |
| Ant., 136-174 MHz    |     |     |     |     | Y   |     |     |     | Y   |     |     |     | Y   |
| Batt., LiIon, 3.6A   |     | Y   | Y   | Y   | Y   |     |     |     |     |     |     |     |     |
| Batt., NiMH, 4AH     |     |     |     |     |     | Y   | Y   | Y   | Y   |     |     |     |     |
| Clamshell batt. pack |     |     |     |     |     |     |     |     |     | Y   | Y   | Y   | Y   |
| Operators manual     | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   |
| Operators Guide      | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   | Y   |



**Guardian Portable Radio  
with  
Carrying Case  
and  
Speaker Microphone**

## GUARDIAN PORTABLE RADIO ANTENNA ACCESSORIES

Datron offers rugged, over-molded, black rubber whip antennas manufactured for use with the Guardian portable radios in the frequency range indicated. Note that the first three antennas may provide slightly greater range than the broadband model due to their narrower bandwidth.

| Model No. | Description                      |
|-----------|----------------------------------|
| G25APA001 | Antenna, 136-150 MHz, low-split  |
| G25APA002 | Antenna, 150-162 MHz, mid-split  |
| G25APA003 | Antenna, 162-174 MHz, high-split |
| G25APA004 | Antenna, 136-174, broadband      |

## GUARDIAN PORTABLE RADIO POWER ACCESSORIES

Datron offers high capacity rechargeable battery packs and “clamshell” housings for AA primary cells (cells not included). The rechargeable packs are shipped in a completely uncharged condition. The radio should be operated at the 2W level when using disposable batteries, either in the clamshell holder or in the disposable pack, for optimum battery performance and life. Also available is a battery eliminator, which allows the radio to be operated from a +12Vdc vehicle system. The battery eliminator attaches to the rear of the radio in place of the battery pack and plugs into the vehicle cigarette lighter port. It features a 6 foot coiled cord and cigarette lighter plug.

| Model No. | Type                     | Description                                       |
|-----------|--------------------------|---------------------------------------------------|
| G25APB004 | Rechargeable             | NiMH, 4000 mAH                                    |
| G25APB006 | Rechargeable             | Li-Ion, 3500 mAH                                  |
| G25APB010 | Clamshell holder, black  | Fitted for AA alkaline cells (2W radio operation) |
| G25APB011 | Clamshell holder, orange | Fitted for AA alkaline cells (2W radio operation) |
| G25APB015 | Battery Eliminator       | Plugs into vehicle +12Vdc light port              |



**Guardian Portable Radio  
with  
Batteries  
and  
Battery Chargers**

## GUARDIAN PORTABLE RADIO CHARGING ACCESSORIES

Datron offers a line of rapid battery chargers and battery analyzers for its Guardian rechargeable battery packs. Charge time for the batteries is approximately 0.5 to 2.75 hours depending on the battery chemistry, battery condition, and the state of battery charge at the time. Both a single unit and a 6-unit rapid charger are available.

The analyzers listed below perform the function of analyzing, conditioning, and then charging the Guardian rechargeable battery packs for longer service life. Single unit, 3-unit, and 6-unit battery analyzers are all available from Datron for use with its battery packs.

| Model No. | Description                   |
|-----------|-------------------------------|
| G25APC010 | Single-unit universal charger |
| G25APC020 | 6-unit universal charger      |

## GUARDIAN PORTABLE RADIO CARRYING ACCESSORIES

A variety of carrying cases for Datron's portable radio are available. Cases in either nylon or leather, manufactured specifically for the Guardian portable, are offered with different attachment modes including belt loop, belt clip, or detachable belt loop with D-swivel.

Belt clips are also available that mount directly to the Guardian radio battery packs for attachment to the user's belt.

| Model No. | Material      | Attachment                                             |
|-----------|---------------|--------------------------------------------------------|
| G25APD001 | Case, Nylon   | Belt Loop                                              |
| G25APD002 | Case, Nylon   | Belt Clip                                              |
| G25APD003 | Case, Nylon   | Detachable belt loop with D-swivel                     |
| G25APD004 | Case, Leather | Belt Loop                                              |
| G25APD005 | Case, Leather | Belt Clip                                              |
| G25APD006 | Case, Leather | Detachable belt loop with D-swivel                     |
| G25APD007 | Case, Leather | Belt Loop, for use with clamshell holder               |
| G25APD008 | Case, Leather | Belt Clip, for use with clamshell holder               |
| G25APD009 | Case, Leather | Belt loop with D-swivel, for use with clamshell holder |
| G25APD011 | Belt Clip     | For Clamshell holder for AA cells or rechargeable pack |

## GUARDIAN PORTABLE RADIO AUDIO ACCESSORIES

Datron offers a speaker/microphone for attachment to an epaulet or for palm operation of the Guardian radio. Also offered are two-piece and three-piece surveillance kits. They consist of high quality acoustic ear tubes, heavy-grade jacketed cables, and a detachable or integrated palm (or lapel) microphone with PTT, depending on the type selected.

Other audio devices are available upon special request. These items include:

- Lapel microphones with in-line earphones. Features electret microphone and PTT combination in a rugged housing with a metal clip attachment. Available with either a standard ear-bud style earphone, or a rubber ear-hook.
- Miniature boom headsets with in-the-ear speaker and rubber ear-loop. Features in-line PTT that can be clipped to user's lapel or belt, or the unit can be remotely keyed using an optional remote cord.

| Model No. | Description                                                                                                                                                   |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| G25APS001 | Speaker/microphone. Splash-proof with adjustable mounting clip and accessory jack for connecting an optional earphone                                         |
| G25APS004 | 3-piece Surveillance kit. Features acoustic tube earphone with in-line jack for connecting detachable palm (lapel) microphone and PTT.                        |
| G25APS005 | 3-piece Surveillance kit. Features acoustic tube earphone with integrated palm (lapel) microphone and PTT.                                                    |
| G25APS006 | 2-piece surveillance kit. Features single-wire acoustic tube earphone with in-line jack for connecting optional microphone and PTT                            |
| G25APS007 | Speaker/microphone with remote antenna mount. Splash-proof with adjustable mounting clip and accessory jack for optional earphone. Includes adapter and tool. |
| G25APS008 | Speaker microphone with integral GPS receiver                                                                                                                 |

## GUARDIAN PORTABLE RADIO DOCUMENTATION

A full complement of manuals, including an operator manual, service manual, and quick reference guide, is available for each portable radio. **The operator manual and quick reference guide are included with each radio purchased.**

| Model No. | Description                                    |
|-----------|------------------------------------------------|
| G25APK001 | Operator Manual, Guardian portable radio       |
| G25APK002 | Quick reference guide, Guardian portable radio |
| G25APK003 | Service Manual, Guardian portable radio        |

## GUARDIAN MOBILE RADIOS



### Introduction

Datron offers three types of mobile radio under the Guardian label. These are:

1. A conventional 50W mobile
2. A remote trunk mount 110W mobile
3. A 5W mobile

All Guardian Project 25 mobile radios operate from 136 to 174 MHz, and feature 256 channels, 16 zones and 4 banks, plus scan list. Channels may be individually programmed to be wideband or narrowband, analog or digital. Up to 7 shadow channels are available for each primary channel (shadow channels count towards 256 channel maximum). Switch selection enables front panel or remote speaker or both. Standard Project 25 features include non-trunked common air interface, digital modulation, and SBCF DES encryption, with capacity for 16 keys. The radios include a high output variable intensity liquid crystal display (LCD), tri-color LED status indicator, three programmable function keys and toggle switch, and an external speaker switch. Analog squelch options include no squelch, continuous tone-coded squelch system (CTCSS), and digital-coded squelch (DCS). Digital squelch options are no squelch, network access code (NAC), and talk group identifier (TGID) including individual call.

The radios are fully programmable using a PC computer and Guardian software and may be cloned (parameter subset) from another Guardian radio. Limited programming may be performed using the optional DTMF microphone.

## **GUARDIAN 50W MOBILE RADIO**

Datron's G25RMV100 is a self-contained 50 watt mobile radio designed for mounting next to the operator in the front of the vehicle. The basic radio comes with an Operator's manuals and Quick Reference Card. Brackets are available that allow easy under-the-dash mounting of the radio in any attitude from horizontal to vertical. The transmit power is adjustable for any level from 20 to 50 watts in 5 steps. Optional 14 ft and 25 ft power cables are available for connecting the radio to the vehicle battery.

Refer to page 19 to see the Guardian 50W mobile radio system packages with part numbers and ordering information.

## **GUARDIAN 110W REMOTE MOUNT MOBILE RADIO**

Datron's G25RMV110 is a remotely controllable mobile radio featuring a powerful 110 watt PA and a separate control console containing the R/T unit. This radio is configured to allow remote mounting of the power amplifier unit in the rear of a vehicle, with complete control achieved from the dash-mounted local control (R/T) unit. The basic radio includes the mounting bracket for the remote PA, the 25 ft interface control cable between the control console and the PA, and the power cables from the vehicle battery to both the control console (10 foot) and PA (25 foot). A mounting bracket for the control console is also available but must be ordered separately.

Refer to page 18 to see the Guardian 110W Remote Mobile radio system packages with part numbers and ordering information.

## **GUARDIAN 5W MOBILE RADIO**

Datron's G25RMV110-5 is a self-contained 5 watt mobile radio designed for mounting next to the operator in the front of the vehicle. It comes with a bracket that allows easy under-the-dash mounting of the radio in any attitude. Transmit power is programmable for individual channels from 0.1 to 5 Watts in five steps. The G25RMV110-5 is a convenient and cost-effective mobile radio for users operating in a "campus" environment. It has all the features of Datron's higher power mobiles in a compact, easy to mount package.

The 5W mobile is composed of the control head from Datron's 110W remote mount mobile, a mounting bracket, and a 10 foot power cable to connect the unit to the vehicle primary power supply.



**Guardian 5W Mobile Radio**

**GUARDIAN 50W MOBILE RADIO SYSTEM PACKAGES**

The Guardian G25RMV100 50W mobile radio includes an operator manual and quick reference card. Different conventional mobile radio “combo” packages can be put together as indicated in the equipment matrix below. Each package includes a unique combination of power cable and microphone. The former

is either a 14 foot cable or a 25 foot cable, while the latter is either a standard microphone or a DTMF model. These packages can be ordered by attaching the appropriate 3-digit suffix to G25RMV--- as shown in the matrix. **NOTE: the basic 50W mobile unit, G25RMV100, comes with just the operator’s manual and quick reference card.**

| G25RMV                    | 100 | 200 | 201 | 202 | 203 |
|---------------------------|-----|-----|-----|-----|-----|
| Conventional Mobile Radio | Y   | Y   | Y   | Y   | Y   |
| 14 foot power cable       |     | Y   |     | Y   |     |
| 25 foot power cable       |     |     | Y   |     | Y   |
| Standard palm microphone  |     | Y   | Y   |     |     |
| DTMF microphone           |     |     |     | Y   | Y   |
| Mounting bracket          |     | Y   | Y   | Y   | Y   |
| Operator manual           | Y   | Y   | Y   | Y   | Y   |
| Operator Guide            | Y   | Y   | Y   | Y   | Y   |



## GUARDIAN 110W REMOTE MOBILE RADIO SYSTEM PACKAGES

The Guardian G25RMV110 110W Remote mobile radio includes an operator manual and quick reference card. Different remote mobile radio “combo” packages can be put together as indicated in the equipment matrix below. Each package includes a unique combination of microphone – either a standard microphone or a DTMF model may be used. These packages can be ordered by attaching the appropriate 3-digit

suffix to G25RMV--- as shown in the matrix. **NOTE: the basic 110W Remote mobile unit, G25RMV110, comes with the operator’s manual and quick reference card. It also includes the power cables from the vehicle to the R/T unit and the PA, and the interface cable between the R/T unit and the PA.**

| G25RMV                   | 110 | 300 | 301 | 302 | 303 |
|--------------------------|-----|-----|-----|-----|-----|
| Remote Mobile Radio      | Y   | Y   | Y   | Y   | Y   |
| Standard palm microphone |     | Y   |     | Y   |     |
| DTMF microphone          |     |     | Y   |     | Y   |
| Operator manual          | Y   | Y   | Y   | Y   | Y   |
| Operator Guide           | Y   | Y   | Y   | Y   | Y   |

## GUARDIAN MOBILE RADIO ANTENNA ACCESSORIES

Guardian standard mobile radio narrow-band antennas are ¼ - wave antennas with a shock absorbing rubber insert for durability. They feature a low-profile ¾” hole mount and connector. Datron offers four separate antennas optimized for best performance within their particular frequency band. We also offer a separate low profile antenna with a slightly wider bandwidth. This latter antenna is offered in two separate versions as indicated below. Other antennas, including 5/8 – wave antennas, can also be obtained from Datron as part of the overall mobile radio package.

| Model No. | Description                                                                                 |
|-----------|---------------------------------------------------------------------------------------------|
| G25AMA001 | Antenna, 136-144 MHz, narrowband, ¼-wave                                                    |
| G25AMA002 | Antenna, 144-152 MHz, narrowband, ¼-wave                                                    |
| G25AMA003 | Antenna, 152-162 MHz, narrowband, ¼-wave                                                    |
| G25AMA004 | Antenna, 162-174 MHz, narrowband, ¼-wave                                                    |
| G25AMA005 | Antenna, LP, ¾” hole rooftop mount, w/cable. 24 MHz BW (specify frequency coverage desired) |
| G25AMA006 | Antenna, LP, w/o mount or cable. 24 MHz BW (specify frequency coverage desired))            |
| G25AMA007 | Mount, heavy-duty magnetic, with cable and PL259 (for G25AMA006)                            |
| G25AMA008 | Mount, heavy-duty trunk lid, with cable and PL259 (for G25AMA006)                           |

## GUARDIAN MOBILE RADIO AUDIO ACCESSORIES

### MICROPHONES:

Datron offers two types of microphone for use with its mobile radios; a palm microphone, which features a coiled cord and black finish, and a DTMF microphone, which provides radio programming capability using the microphone keypad.

| Model No. | Description              |
|-----------|--------------------------|
| G25AMM001 | Standard palm microphone |
| G25AMM002 | DTMF palm microphone     |

### REMOTE SPEAKER:

The remote loudspeaker attaches to the Guardian mobile radio and can produce up to 10 Watts of communications audio. It includes 10 feet of cable, a connector, and mounting bracket.

| Model No. | Description         |
|-----------|---------------------|
| G25AMS001 | Loudspeaker, remote |

## GUARDIAN 50W MOBILE RADIO POWER CABLE ACCESSORIES

Datron offers two separate power cables for use with its 50W conventional mobile radio in a vehicle. The 50W mobile radio normally uses the 14 foot cable set listed below. The heavy-duty 25 foot cable set is intended for longer runs between the vehicle battery and 50W mobile radio. Both cables include fuses, crimp connectors, and instruction sheet. The cables are to be connected directly to the vehicle battery, and used only with the 50W conventional mobile radio.

**Note:** the proper power cables for both the 110W and 5W mobile radios are included as standard with these radios.

| Model No. | Description                                    |
|-----------|------------------------------------------------|
| G25AMG001 | Power cable, 14 foot, #12AWG wire, dual fuses  |
| G25AMG002 | Power cable, 25 foot, #10 AWG wire, dual fuses |

## GUARDIAN MOBILE RADIO MOUNTING BRACKETS

Two universal mounting brackets have been designed for optimal Guardian 50W mobile radio installation. They allow convenient mounting of the radio under a vehicle dashboard, on the transmission hump or in any other convenient location. The G25AML001 provides a near-horizontal mounting attitude. The G25AML003 is a

separate mounting bracket for the 50W mobile that allows mounting the radio in a near-vertical attitude.

The G25AML002 is a mounting bracket for the control head of the 110W mobile. It also is used to mount the 5W mobile and comes standard with the 5W mobile (G25RMV110-5).

| <b>Model No.</b> | <b>Description</b>                                                                                |
|------------------|---------------------------------------------------------------------------------------------------|
| G25AML001        | Mounting Bracket, 50W mobile radio. Designed for viewing the radio in a near-horizontal attitude. |
| G25AML002        | Mounting Bracket, 110W and 5W control head                                                        |
| G25AML003        | Mounting Bracket, 50W mobile radio. Designed for viewing the radio in a near-vertical attitude.   |

## PROGRAMMING ACCESSORIES

The same programming accessories are used for all Guardian radios. See page 9 for a description and part numbers.

## GPS ACCESSORIES

| <b>Model No.</b> | <b>Description</b>                                                                                                 |
|------------------|--------------------------------------------------------------------------------------------------------------------|
| G25GPS001        | Mag-Mount Vehicular GPS Receiver for Guardian Mobile Radios                                                        |
| G25GPS002        | Through-hole Mounted Vehicular GPS Receiver for Guardian Mobile Radios                                             |
| G25AXG007        | For Use of External Garmin GPS Units With Guardian Radios. Connects to Serial Output Cable Provided by Garmin.     |
| G25AXG009        | For Use of External Magellan GPS Units With Guardian Radios. Connects to Serial Output Cable Provided by Magellan. |

## OTHER ACCESSORIES

| <b>Model No.</b> | <b>Description</b>                                                                                                      |
|------------------|-------------------------------------------------------------------------------------------------------------------------|
| G25AXG008        | DB25 Break-Out Adapter for Access to Ignition Lead, Speaker, and GPS/Programming Data Connector (DB-9) on Mobile Radios |

## GUARDIAN MOBILE RADIO DOCUMENTATION

A full complement of manuals, including an operator manual, technical manual and quick reference guide, is available for each mobile radio. The operator manual and quick reference guide are included with each radio purchased.

| Model No. | Description                                               |
|-----------|-----------------------------------------------------------|
| G25AMD001 | Technical Manual, Guardian P25 50W Mobile/Desktop Radios  |
| G25AMD002 | Operator Manual, Guardian 50W Mobile/Desktop Radios       |
| G25AMD005 | Quick Reference Card, 5W, 50W, 110W Mobile/Desktop radios |
| G25AMK004 | Operator Manual, Guardian 110W P25 Mobile Radio           |
| G25AMK005 | Technical Manual, Guardian 110W P25 Mobile Radio          |
| G25AMK007 | Operator Manual, Guardian 5W P25 mobile radio             |
| G25AMK008 | Technical Manual, Guardian 5W P25 mobile radio            |

## GUARDIAN DESKTOP RADIOS

Datron offers the following desktop models of its Guardian Project 25 radios:

1. 50W Desktop Radio (G25RBV100)
2. 110W Desktop Radio (G25RBV110)

These radios have the same performance characteristics as the mobile radios. They operate from 136 to 174 MHz, and feature 256 channels, 16 zones and 4 banks, plus scan list. Channels may be individually programmed to be wideband or narrowband, analog or digital. Up to 7 shadow channels are available for each primary channel (shadow channels count towards the 256 channel limit. Switch selection enables the front panel or remote speaker or both. Standard Project 25 features include non-trunked common air interface, digital modulation, and SBCF DES encryption, with capacity for 16 keys.

The radios include a high output variable intensity liquid crystal display (LCD), tri-color LED status indicator, three programmable function keys and toggle switch, and external speaker switch.

Analog squelch options include no squelch, continuous tone-coded squelch system (CTCSS), and digital-coded squelch (DCS). Digital squelch options are no squelch, network access code (NAC), and talk group identifier (TGID) including individual call.

## GUARDIAN 50W DESKTOP RADIO

Datron's **G25RBV100** is a self-contained 50 Watt desktop radio designed for tabletop mounting next to the operator. It comes as part of an integrated package that includes a companion ac power supply (with companion AC power cord). Input power is 110 or 220 VAC. The transmit power is adjustable for any level from 20 to 50 watts in steps. It comes with operator's manual and quick reference guide.

The radio is fully programmable using a PC computer and Guardian software and may be cloned (parameter subset) with another Guardian radio. Selective programming may be performed using the optional DTMF microphone.

### Guardian 50W Desktop Radio



## GUARDIAN 110W DESKTOP RADIO

Datron's **G25RBV110** is a self-contained 110 Watt desktop radio designed for tabletop mounting either next to the operator, or with the control console mounted next to the operator and the power amplifier unit with companion ac supply remoted up to 25 feet away. It comes as part of an integrated package that includes a companion ac power supply (with companion AC power cord) and also includes the connecting cable between the control console and the rest of the unit. Input power is 110/220 VAC. The transmit power is adjustable for any level from 50 to 110 watts in steps. It comes with operator's manual and quick reference guide.

The radio is fully programmable using a PC computer and Guardian software and may be cloned (parameter subset) with another Guardian radio. Selective programming may be performed using the optional DTMF microphone.



**G25RBV110 Control Console**



**G25RBV110 Power Amplifier and Supply**

## GUARDIAN DESKTOP RADIO AUDIO ACCESSORIES

Datron offers a standard desk microphone to go with the desktop radio. Also available are a palm microphone, which features a coiled cord and black finish, and a DTMF microphone that provides radio programming capability using the microphone keypad.

| Model No. | Description              |
|-----------|--------------------------|
| G25AMM001 | Standard palm microphone |
| G25AMM002 | DTMF palm microphone     |
| G25AMM003 | Desk microphone          |

## GUARDIAN DESKTOP RADIO DOCUMENTATION

A full complement of manuals, including an operator manual, service manual, and quick reference guide, is available for each desktop radio. The operator manual and quick reference guide are included with each radio purchased.

| <b>Model No.</b> | <b>Description</b>                                        |
|------------------|-----------------------------------------------------------|
| G25AMD001        | Technical Manual, Guardian P25 50W Mobile/Desktop Radios  |
| G25AMD002        | Operator Manual, Guardian 50W Mobile/Desktop Radios       |
| G25AMD005        | Quick Reference Card, 5W, 50W, 110W Mobile/Desktop radios |
| G25AMD004        | Operator Manual, 110W Remote Mount Mobile/Desktop radio   |
| G25AMK005        | Technical Manual, Guardian 110W P25 Mobile/Desktop Radio  |
| G25AMK007        | Operator Manual, Guardian 5W P25 mobile radio             |
| G25AMK008        | Technical Manual, Guardian 5W P25 mobile radio            |

## GUARDIAN EQUIPMENT LOGISTICS SUPPORT

### **Introduction**

With its extensive experience in supplying equipment throughout the world, Datron is capable of providing the comprehensive range of logistics services that modern communications equipment requires. Datron is committed to having processes in place that minimize life cycle cost, including training requirements and equipment repair.

### **Internal Construction**

Each Guardian radio features modular construction designed to minimize unit downtime due to internal circuit failure. The radio's subassemblies are almost entirely composed of surface mount technology (SMT) components. The hardware has been designed to provide a stable platform upon which the radio's software can run. All internal options, and upgrades to the product, are in software. This allows Datron to maximize the utilization of space and put more functionality into a smaller area.

### **Troubleshooting**

Because of the modular construction of the Guardian, qualified Datron service personnel can resolve problems to the subassembly level, then merely replace the defective board and quickly return the radio to the field. The manuals for the individual radios provide a detailed description of the diagnostic functions available in the Guardian radios.

### **Radio Repair**

If a customer has a defective guardian radio, he should contact Datron's Customer Service Group and provide the serial number(s) of the faulty equipment. Knowledgeable Datron personnel are available to assist the customer with their problems and can quickly determine the warranty status of the equipment. If it is deemed necessary to return the item(s) for factory repair, the customer should ship the equipment back to Datron. If the equipment is still within the warranty period it will be repaired or replaced free of charge. If it is outside of the warranty window, a cost to repair estimate will be provided to the customer. When the equipment is ready to return to the customer, Datron will ship it back at its expense.

Datron has a stock of modules that are designed to support the product at the subassembly replacement level. Identifying and replacing faulty subassemblies has been determined to be the best way to minimize equipment downtime. Troubleshooting procedures are present in the technical manuals that allow Datron's trained technicians to rapidly and accurately diagnose and replace a faulty module.

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