

GRECOM PSR-800

EZ Scan-SD Digital



Owner's Manual

GRECOM PSR-800

EZ Scan-SD Digital

Handheld Scanning Receiver

OWNER'S MANUAL - Please read before using this equipment.

IMPORTANT:

This manual uses the following symbols to emphasize Warnings, Notes and Usage Hints



WARNING

A WARNING symbol is used to indicate possible risk of personal injury or damage to equipment



NOTE

A NOTE symbol is used to indicate an operational note that relates to the current paragraph of the manual



HINT

A HINT symbol is used to indicate a usage hint that relates to the current paragraph of the manual

Please take the time to read this manual completely before using your new scanner.

IMPORTANT NOTICE:

The PSR-800 handheld scanner is designed to receive analog or digital P25 transmissions only, and cannot be used to monitor other unsupported digital modes or encrypted radio traffic.

FCC ID ADV0602902

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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Introduction

Welcome to scanning with the PSR-800! The PSR-800 is an advanced digital handheld scanning receiver with a simple and easy to understand user interface. The PSR-800 is a professional-quality digital scanning receiver, yet it is designed to provide ease of use, especially for beginners.

The PSR-800 is equipped with the entire USA and Canada RadioReference databases in a special on-board Library, giving you instant access to the frequencies and systems used by public safety, local government and business all over North America! Use the PSR-800 PC Application (included) to keep your scanner's RadioReference Library and firmware up to date.

Please take a few moments to read this manual carefully before using your PSR-800. The PSR-800 is unlike any other digital scanner ever produced, and we want you to fully understand how it can maximize your enjoyment of the scanning hobby.

Features

Easy to Understand User Interface - A simplified keypad and display with familiar Scan, Pause, Skip and Navigation controls make it easy for you to use your PSR-800. Behind the scenes, GRE's exclusive Object Oriented database runs the show, with support for millions of stored objects, limited only by MicroSD card capacity.

The Complete RadioReference USA and Canada Database On MicroSD Card - The entire USA and Canada databases from www.radioreference.com are stored on a standard MicroSD Card that is included with the PSR-800, giving you access to the most comprehensive radio data available without connecting the PSR-800 to a computer or the Internet!

Improved P25 Functionality - The PSR-800 detects and masks encrypted voice audio, and decodes RadioID/TalkgroupID data embedded in voice packets.

Built-In Discriminator Output - A built-in Discriminator Output provides raw discriminator signal to third party signal decoding software without risky hardware modifications.

Upgradeable CPU Firmware, DSP Firmware and Library - Keep your radio's CPU and DSP firmware and RadioReference library current with enhancements and updates as they become available with free upgrades!

MicroSD Card - Uses an industry standard MicroSD card to store the RadioReference data library and all of your programming - capacity for millions of stored objects!

Full USB Interface - Industry standard Composite Device USB interface with USB Mass Storage Device (MSD) and Serial Data (CDC) support. Access the MicroSD card without removing it from the radio, stream decoded Control Channel data and upgrade your radio's firmware over USB.

Powerful PSR-800 PC Application Software Included - Customize existing programming or add new objects to scan, and keep your PSR-800 firmware and Library data up to date.

SKYWARN Storm Spotter Functionality - Instant access to frequencies used by storm spotter networks. You can monitor storm conditions as they occur, and become aware of dangerous conditions before the media or emergency management officials are able to announce them to the general public.

SAME and All Hazards Weather Alerting - The PSR-800 features a Dedicated SAME Weather Alert Receiver mode, alerting you to severe weather and other hazards in the specific area(s) that you select, or, the PSR-800 can check your local NOAA weather frequency periodically, even while scanning, and alert you when an All Hazards alert occurs.

Multi-System Trunking - Scans most common analog trunked radio system signaling formats, including P25, Motorola, EDACS and LTR. Both talkgroup and individual call monitoring are supported.

Powerful Spectrum Sweeper - Quickly sweeps the PSR-800's frequency ranges for transmissions from nearby sources. When a nearby transmission is found, the PSR-800 automatically tunes to that frequency and receives the traffic.

200 Scanlists - The PSR-800 provides the unprecedented ability to group your stored objects using up to 200 Scanlists plus a special Skywarn scanlist. Objects can be mapped to as many Scanlists as desired, giving you complete flexibility for grouping objects and selecting groups in any combination for scanning.

Scan Sets - Scan Sets expand the functionality of Scanlists by allowing you to define different combinations of enabled Scanlists as Scan Sets, then you can select one or more Scan Sets for scanning using a simple menu system. With Scanlists

and Scan Sets you have unlimited possibilities for grouping, enabling and disabling objects for scanning.

Expanded V-Scanner II Storage System - With the expanded V-Scanner II (VS-II) storage system, you can use the PSR-800 PC Application to save up to 200 V-Scanner configurations on the MicroSD Card, which can be recalled at any time in the field using the radio's keypad.

Audio Recording - Record received audio from selected objects and searches to the Micro SD card. Replay recorded audio using powerful built-in playback system or transfer to PC for playback and archiving.

Built-In Clock/Calendar - Date and time stamp recorded audio files, and "alarm clock" function allows you to program the scanner to wake up and start scanning at a specific time each day.

Built-in Service Searches - Predefined service search ranges make it easy to find activity in your area.

GRE'S Exclusive Alert LED - Programmable tri-color LED displays thousands of colors that can be used to indicate different types of activity or activity on special channels. Program color sequences with multiple colors for special alerts.

Audible alarms - Programmable audible alarms can be configured to sound when certain objects are active.

Programmable Backlight and Alert LED Flash Patterns - The backlight can be programmed to flash with custom flash patterns when certain objects are active, providing another way alerting the operator when important radio traffic is present.

Signal Strength Meter – Shows relative strength of received signals.

Slim, compact case design with textured exterior finish and large speaker - Designed for durability, one-handed operation and ease of use.

The FCC Wants You To Know

This equipment has been tested and found to comply with the limits for a scanning receiver, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential

installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Scanning Legally

Your scanner covers frequencies used by many different groups including police and fire departments, ambulance services, government agencies, private companies, amateur radio services, military operations, pager services, and wireline (telephone and telegraph) service providers. It is legal to listen to almost every transmission your scanner can receive. However, it is illegal to divulge the contents of any transmissions you receive to a third party and there are some transmissions you should never intentionally listen to. These include:

- Telephone conversations (cellular, cordless, or other means of private telephone transmission)
- Paging transmissions
- Any intentionally scrambled or encrypted transmissions

According to the Electronic Communications Privacy Act (ECPA), you are subject to fines and possible imprisonment for

intentionally listening to, using, or divulging the contents of such a transmission unless you have the consent of a party to the communication (unless such activity is otherwise illegal).

This scanner has been designed to prevent illegal reception of protected transmissions. This is done to comply with the legal requirement that scanners be manufactured so as to not be easily modifiable to pick up those transmissions. Do not open your scanner's case to make any modifications that could allow it to pick up transmissions that are illegal to monitor. Doing so could subject you to legal penalties.

GRE encourages responsible, legal scanner use.

In some areas, mobile use of this scanner is unlawful or requires a permit. Check the laws in your area. It is also illegal in many areas to interfere with the duties of public safety officials by traveling to the scene of an incident without authorization.

How the PSR-800 Works

Your PSR-800 is designed with an easy-to-use simplified keypad that provides ◀ ▶ ▲ ▼ navigation keys, a MENU key, a SKIP key and a ▶/II/SEL key. The PSR-800's uncluttered keypad gives you instant access to the functions that you need most while using your scanner.

The PSR-800 is designed to use high capacity MicroSD Card memory. The PSR-800 uses MicroSD Card memory to hold the entire RadioReference database for the United States and Canada, giving you the ability to automatically program your scanner anywhere without using an external software application and without connecting to the Internet. We call this special version of the RadioReference database "the Library". The PSR-800 also uses MicroSD Card memory to hold all of your configuration data, providing virtually unlimited storage space for your configurations. Multiple copies of radio configurations can be saved on the MicroSD Card using GRE's new Virtual Scanner II (VS-II) storage and recall technology.

For more information about the RadioReference database, please visit <http://www.radioreference.com>.

To use the PSR-800, you first browse the Library to find things that you want to monitor. We call these things "scannable objects", or simply "objects". As you find objects in the Library that you want to add to the collection of objects that your radio will scan, you import them from the Library to the PSR-800's Scanlists, which are also stored on the MicroSD Card. There are 200 regular Scanlists in the PSR-800, and a special "Skywarn" Scanlist where you can store objects that you want to monitor during times of severe weather, such as amateur radio repeaters and power company frequencies that you may wish to monitor when severe weather is present.

Included with the PSR-800 is a companion PSR-800 PC Application and USB interface cable that allow you to add your own objects and edit the objects that are stored in the PSR-800's Scanlists.

RadioReference Copyright Notice

The data contained in the PSR-800's Library is provided by special arrangement with RadioReference and is Copyright ©2011 RadioReference.com LLC whom retains sole ownership of the database. We ask that you respect this copyright by adhering to the following guidelines:

The Library data is intended for your personal use only in conjunction with programming and using your PSR-800. As such RadioReference.com LLC grants the customer a non-exclusive single license to only be used with the PSR-800 radio and its associated PC software. The Library shall not be copied or transferred to any 3rd party in any electronic or physical form or posted on any website.

To decompile the RadioReference data base or convert it for use with another scanning receiver is expressly prohibited.

The RadioReference database is developed and maintained by unpaid volunteers who are dedicated scanning hobbyists. The accuracy of the Library data is subject to errors in the user-submitted data reported to RadioReference, and also to the system configuration changes that a radio system operator may make from time to time. Field-testing the Library data for accuracy is not feasible.

For detailed radio system information worldwide, be sure to visit <http://www.radioreference.com> frequently. We encourage you to get involved with RadioReference, and submit your own new or updated data to the database, which will result in future updated editions of the Library!

GRE and RadioReference are not responsible for errors, omissions or outdated Library data.

Installing the PSR-800 PC Application

PSR-800 comes with an easy to use computer application that you can use to modify your PSR-800's programming, add your own custom programming, configure your scanner, and backup your data configurations. Although the PSR-800 is fully functional without the computer application, we strongly recommend that you install the application and use it to back up your stored data configurations. Full documentation for the PSR-800 PC Application can be found in the application's Help system.

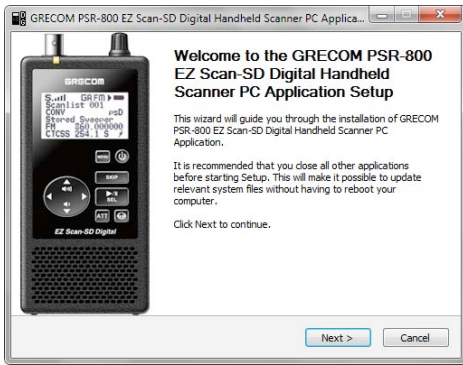
To begin the installation process, insert the CD into your computer's CD-ROM drive. The PSR-800 Application installer will then start.



The PSR-800 Application installer will install the following components by default:

- The PSR-800 EZ Scan-SD Digital Handheld Trunking Scanner PC Application and help files
- The currently available frequency database library

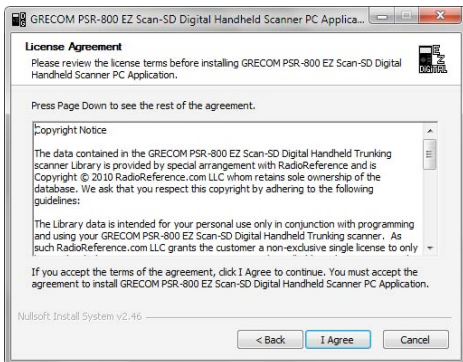
The following procedure is used to install the PC application software. Screen captures of each step the user may observe are shown along with descriptions of the choices the user is required to make.



Welcome Screen:

Click “Next” to begin the installation process for the GRECOM PSR-800 EZ Scan-SD Digital Handheld Scanner PC Application.

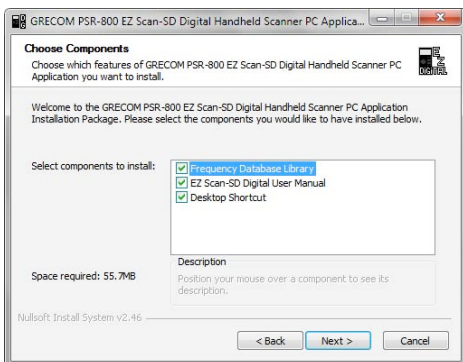
Click “Cancel” to abort the install.



License Agreement:

The GRECOM PSR-800 EZ Scan-SD Digital Handheld Trunking scanner uses library database information licensed from RadioReference.com LLC. You must accept the license agreement before you can install the software. To accept the license agreement, click on the I Agree button.

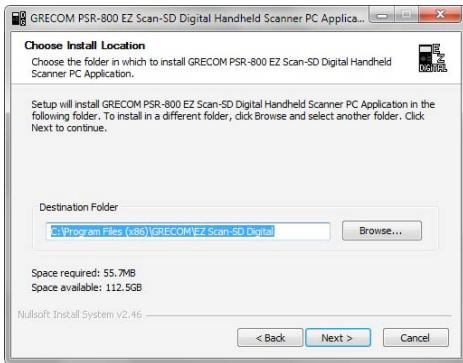
Click “Cancel” to abort the install.



Select Components:

This screen allows you to select the extra components that should be installed along with the PC Application. Options include a Desktop Shortcut, the user manual and the frequency library database.

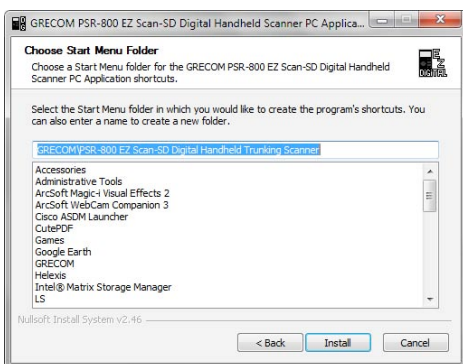
Once the components have been selected, click “Next” to continue.



Choose Install Location:

This screen allows the user to select the destination folder for the application and the USB Cable install. The database library files will be installed in the EZScan\DB folder located in the user's My Documents folder regardless of this setting.

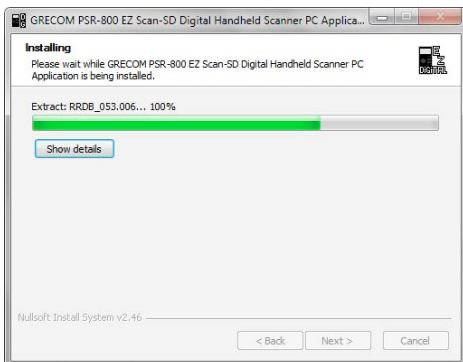
Click "Next" to continue.



Choose Start Menu Folder:

Select the name of the folder used to store shortcuts in the Start menu.

Click "Next" to continue.



Installing:

This screen is shown while the selected files are being copied to your computer.

Click "Next" to continue.



Completing the Install:

This is the final install screen.

To start the EZ Scan-SD Digital Handheld Scanner Application, check the “Run the EZ Scan-SD PC Application” checkbox and click “Finish.”

Getting Familiar With Your PSR-800

The following illustrations are provided to help you get familiar with your PSR-800 controls and display.

PSR-800 Front View



Figure 1 - PSR-800 front view


Understanding the Keypad

Your PSR-800 features an simplified backlit keypad with 10 keys that are used to operate the unit. Figure 2 highlights the various keys and their basic functions.



Figure 2 - Keypad layout

POWER/Backlight

The POWER  key is located to the top right of the keypad. Press and hold for one second to turn the PSR-800 on and off. Press briefly to toggle the backlight on and off while the radio is powered on.

MENU Key

The MENU key provides access to additional functions related to the current operating mode of the scanner, and provides access to the Main Menu, where the main PSR-800 functions are controlled.

SKIP Key

When pressed while the PSR-800 is monitoring or paused on an object, the SKIP key will temporarily disable reception on the object. Pressing SKIP again while the object is selected will resume normal monitoring. Skipped objects can also be restored using the Restored Skipped option from the Main Menu.

When editing text, pressing the SKIP key clears all text at and to the right of the cursor.

When in Playback mode, the SKIP key stops playback of the current recording, and when playing multiple recordings, advances to the next recording.

When in Weather mode, the SKIP key toggles between Normal weather radio mode and SAME Standby mode.

In many Menu functions, the SKIP key is used to cancel or abort a pending change.

SCAN/PAUSE/SELECT Key

The SCAN/PAUSE/SELECT key ►/II/SEL controls PSR-800's Scan, Pause and Playback modes, and is used in menus to select, enable or disable options.

UP Arrow Key

The UP Arrow key ▲ is used to increase the volume when the PSR-800 is scanning or monitoring objects. When browsing objects, the ▲ key scrolls up through objects in a Scanlist. When using menus, recordings or the Library, the ▲ scrolls up through the available items.

DOWN Arrow Key

The DOWN Arrow key ▼ is used to decrease the volume when the PSR-800 is scanning or monitoring objects. When browsing objects, the ▼ key scrolls down through objects in a Scanlist. When using menus, recordings or the Library, the ▼ scrolls down through the available items.

RIGHT Arrow Key

The RIGHT Arrow key ► is used to resume scanning when the PSR-800 is scanning or monitoring objects and is stopped on an active object while scanning without locking out or skipping the object. When browsing objects, the ► key scrolls up through the Scanlists. When using menus or the Library, the ► navigates forward, or in, to the next menu or Library listing or

level. In Playback mode, the ► key advances five seconds forward in the recorded file being played.

LEFT Arrow Key

The LEFT Arrow key ◀ is used to resume scanning when the PSR-800 is scanning or monitoring objects and is stopped on an active object while scanning without locking out or skipping the object. When browsing objects, the ◀ key scrolls down through the Scanlists. When using menus or the Library, the ◀ navigates backward, or out, to the previous menu or Library listing or level. In Playback mode, the ◀ key moves five seconds back in the recorded file being played.

ATT Key

The Attenuator ATT key provides front panel control of the radio's attenuator function. Pressing the ATT key cycles between Per-Object attenuation mode, Global attenuation mode, and Global attenuation on.

WX Key

When pressed, the WX Ⓢ key provides instant access to NOAA Weather Radio broadcasts, and is used to access Dedicated SAME Weather Alert Receiver mode, which allows the PSR-800 to remain silent while monitoring for severe weather conditions in the area you specify by entering NOAA SAME codes. Pressing the Ⓢ key a second time selects the SKYWARN Scanlist for monitoring and temporarily disables all other Scanlists.

Other Switches and Controls

Battery Type Selection

The PSR-800 is equipped with a Battery Type Selection switch which is located inside of the battery compartment. The Battery Type Selection switch is used to select standard disposable alkaline batteries or rechargeable NiMH batteries. Setting the Battery Type Selection switch to the correct option for the batteries you are using selects the appropriate low battery detection threshold for the type of batteries in use and enables in-radio charging for rechargeable NiMH batteries.



WARNING: *ALKALINE BATTERIES CANNOT BE RECHARGED. Never operate PSR-800 with alkaline batteries if the Battery Type Selection switch is set to the NiMH position. Doing so may result in battery leakage or other damage to your scanner if the scanner is connected to an external power source.*

Squelch

The PSR-800 is equipped with a top mounted squelch control. The squelch control acts as a gate for the transmissions that PSR-800 receives. When the squelch control is rotated fully clockwise, only stronger signals will pass through the squelch gate, and weaker signals may not be received. When the squelch is rotated fully counterclockwise, the squelch gate will be open even when no signal is present, causing PSR-800 to operate slowly or to stop on objects where no transmission is present, playing noise only. The PSR-800 works best when the gate is set so that it is closed when no transmissions are present, but able to open when a desired transmission occurs.

The ideal setting for the squelch control is between 10 and 11 o'clock.

Recommended squelch setting



Figure 3 - Squelch setting

If you find that you are missing some transmissions, try setting the squelch control further counterclockwise. If you find that the PSR-800 seems to be scanning very slowly or stopping on frequencies with noise only, rotate the squelch control clockwise until normal scanning resumes.

Understanding the Display

Your PSR-800 features a high contrast, backlit Liquid Crystal Display (LCD) to provide you with information about the status of the PSR-800 while you are using it. A menu-driven user interface provides access to the settings that control what the PSR-800 monitors. Figure 4 shows an example of an PSR-800 menu.

```

  -Main Menu-  [Battery Icon]
Scan
Browse objects  [Right Arrow]
Scanlists
Scan Sets
Search

```

Figure 4 - PSR-800 Main Menu

A “Scan” display shows a scrolling list of enabled Scanlists while the PSR-800 is scanning, and displays attenuator and trunking control channel status. Figure 5 provides an example of the PSR-800’s Scanning display.

```

Scan  [T] [G] [Right Arrow] [Battery Icon]
Fire
County Police
Sheriff
City Police
State Police

```

Figure 5 - PSR-800 Scanning display

Individual object displays are shown when the scanner is monitoring activity on an enabled object. The LCD includes a row of icons at the top that provides information about the status of the PSR-800 while monitoring an object. The amount of information displayed is configured using the Simple Display option in the Settings menu. For example, with Simple Display set to “on”, following data is displayed for trunking talkgroups:

```

Icons
Scanlist
Object type and “psDr” status
Trunking system
Scanlist

```

Figure 6 provides an example of an individual object display with Simple Display set to “on”.

S G
 County Police
 Group: psDR
 Police North
 Public Safety

Figure 6 - PSR-800 Channel Object display showing reception of a trunking talkgroup with Simple Display set to “on”

With Simple Display set to “off”, additional data is displayed on the screen. The amount and type of data displayed can be customized using the Show options in the Settings menu. For example, Figure 7 shows the same object displayed with Simple Display set to “off” and Show Radio ID set to “on”:

Icons
 Scanlist
 Object type and “psDr” status
 Object name
 Trunking system
 Radio ID

S G
 County Police
 TGRP psDR
 Police North
 Public Safety
 Radio ID: 18249

Figure 7 - PSR-800 Channel Object display showing reception of a trunking talkgroup with Simple Display set to “on” and Show Radio ID enabled.

There are many combinations of data that can be shown on the Object display using the Show options in the Settings menu. You can learn more about these options in the Settings Menu section of the manual.

“psDr” Indicators

In the Individual Object displays there are four characters on the right hand side of the display that indicate the status of priority, skip/lockout, delay and recording for the selected or active object. The following indicators are possible:

F=priority off, **F**=priority on


S=skip off, **S**=skip on, **L**=lockout on



d=delay off, **D**=delay on

r=recording off, **R**=recording on

Display Icons

In the Individual Object displays, a row of icons at the top of the display provides status information about the scanner. The top row of icons are defined as follows:

- S** PSR-800's squelch circuit (or "gate") is open.
-  Signal meter indicating strength of the received signal.
- IF** The radio's IF (discriminator) output mode is active.
- T** The scanner is currently receiving trunking control channel data, or, when monitoring a voice channel, flashes to indicate reception of embedded low-speed trunking data from the voice channel.
- G** When present, the attenuator is set for Global mode.
- A** When present, the attenuator is active.
- GA** When present, Global attenuator is on, and the attenuator is active.
- AM** AM mode is active.
- FM** FM mode is active
- NF** Narrow FM mode is active
- DG** The radio is receiving P25 digital audio with AGC.
- Dg** The radio is receiving P25 digital audio without AGC.
- E** Encrypted digital traffic detected.

- ▶ PSR-800 is in Scan mode (scanning)
- || PSR-800 is in Pause mode (monitoring a single object)
- Audio is being recorded on the active or selected object
- Ⓡ Audio recording is enabled but recording is suspended. The MicroSD card is almost out of space. Delete or archive older audio files to make room for new recordings.
-  Battery status indicator. All black indicates battery is fully charged. When Battery Type Selection switch is set to NiMH and radio is connected to external power, an animated icon is displayed to indicate that battery is being charged.
-  External power indicator. Indicates that the PSR-800 is being powered by an external source. Present when the PSR-800 is connected to external power and Battery Type Selection switch is set to ALK, or, when the PSR-800 is connected to external power and Battery Type Selection switch is set to NiMH and the charge cycle has completed.

Getting Started

Unpacking the PSR-800

Unpack your PSR-800 carefully. Your PSR-800 is supplied with the following items:

- PSR-800 Main Unit
- 2GB MicroSD Card
- Rubber antenna
- Rotatable belt clip
- USB cable
- CD containing Owner's Manual, PC software and Database

Save all documentation and packing materials in case it is necessary to return your scanner for repair.



WARNING: *Always protect the PSR-800 from exposure to extreme heat or cold temperatures.*



WARNING: *The PSR-800 is not waterproof. Do not expose it to rain, excessive humidity or moisture.*

Inserting the batteries

Remove the door covering the battery compartment by pressing gently where the door is marked **OPEN** and sliding the door downwards until it stops, approximately 1/4". Lift the door away from the radio.

Set the battery type selector switch to ALK for non-rechargeable alkaline batteries or NiMH for rechargeable NiMH batteries. Insert four size AA batteries, taking care to ensure that the batteries are inserted according to the polarity diagram shown inside of the battery compartment. Replace the battery compartment door by placing it back over the batteries and sliding it upward gently until it locks in place.



WARNING: *Never operate the PSR-800 with alkaline batteries if the Battery Type Selection switch is set to the NiMH position. Intentionally or accidentally recharging non-rechargeable batteries will cause them to overheat, leak or explode. Dispose of alkaline batteries promptly and properly. Do not burn or bury them. Dispose of rechargeable batteries properly by taking them to an approved battery recycling facility. Many*

communities offer battery recycling services - check with your local solid waste management agency.



WARNING: *Always remove old or weak batteries. Batteries can leak chemicals that destroy electronic circuits. Always turn off the scanner when not in use to prevent deep discharge and possible battery leakage. Do not mix old and new batteries, different types of batteries (alkaline, or rechargeable), batteries of different capacities or rechargeable batteries with different charge states. If you do not plan to use the scanner with batteries for a month or longer, remove the batteries.*

Charging rechargeable batteries

The PSR-800 features a built-in battery charging circuit that will charge NiCad and NiMH batteries. The charger provides a slow rate charge that will fully charge a set of typical NiMH AA batteries in approximately 16 hours. The charger is active when the radio is connected to an external USB power source and the radio is powered off. When connected to an external USB power source and powered on, the radio operates using the external power source but does not charge the batteries. Charging is controlled by a timer. Your PSR-800 provides an indication when the internal battery charge circuit is active. An animated battery icon indicates that the PSR-800 is connected to external power and the internal battery charger circuit is active.



WARNING: *The external DC power input is designed to accept external power from the USB data cable and from USB power adapters. Turn the PSR-800 off prior to connecting or disconnecting external power.*



WARNING: *Discontinue use of any battery that exhibits leakage, swelling or abnormal generation of heat. When you charge rechargeable batteries, do not over charge them. Overcharging shortens battery life and may cause battery failure.*

Using AC Power

You can power the scanner using an optional AC USB power adaptor and the supplied USB cable.

To power the scanner using an AC USB power adaptor, connect the USB of the supplied USB cable to the AC USB power adapter, and connect the scanner end of the supplied USB cable to the scanner's USB jack. To prevent corruption of MicroSD Card data, always power the PSR-800 off using the front panel

Ⓟ button before connecting or disconnecting external power sources.



HINT: A PC or laptop computer equipped with a USB connector can also be used to charge the PSR-800.



NOTE: Some external USB power supplies or computers may generate RF noise that can interfere with the PSR-800's reception. If interference occurs, try disconnecting the PSR-800 from the external power source and move the radio away from the PC.


To access the USB connector, use your fingernail or a miniature screwdriver to open the USB connector cover at the bottom of the cover as shown in Figure 8. To close the cover, press it down against the housing until it snaps into place.



Figure 8 - USB connector cover

Using Vehicle Battery Power

You can power the scanner using an optional car USB power adaptor and the supplied USB cable.

To power the scanner using a car USB power adaptor, connect the USB plug end of the supplied USB cable to the car USB power adaptor, and connect the scanner data plug end of the supplied USB cable to the scanner's USB jack. To prevent corruption of MicroSD Card data, always power the PSR-800 off using the front panel  button before connecting or disconnecting external power sources.



NOTE: *If you use a cigarette-lighter USB power cable and your vehicle's engine is running, you might hear electrical noise from the engine while scanning. This is normal. Some external USB power supplies may generate RF noise that can interfere with the PSR-800's reception.*

Attaching the antenna

Remove the antenna from its protective plastic wrapper. Align the slots on the antenna's BNC male connector with the posts on the PSR-800's BNC female connector and slide the antenna in place, then rotate the antenna's BNC connector 1/4 turn clockwise until it snaps in place.




NOTE: *If desired, you may also connect a mobile or base station antenna equipped with a BNC male connector to the antenna connector, or use tuned antennas for better performance on specific frequency ranges.*

Attaching the belt clip

Align the belt clip to the belt clip receptacle on the rear of the radio. Slide the belt clip downward until it snaps into place. Ensure that the locking clip on the belt clip assembly is fully engaged with the lock tab on the rear of the radio. To remove the belt clip, squeeze the locking clip on the belt clip assembly to disengage it from the lock tab on the rear of the radio, and slide the belt clip assembly upward.

Turning the PSR-800 on

Press the  button on the front panel to turn the PSR-800 on. Set the SQUELCH knob to the 10-11 o'clock position. Refer to Figure 9 for the recommended squelch setting range.

Recommended squelch setting



Figure 9 - Recommended squelch setting range.

The first time you turn on the scanner, you will be prompted to set the date and time of the scanner's internal real time clock. You can also set the clock over the USB connection using the PSR-800 PC application.

Low Battery Warning

Your scanner will provide an audible low battery warning every 30 seconds when the batteries are nearly depleted. The radio will shut down automatically to prevent corrupted MicroSD Card data when the battery level is critically low.



NOTE: Actual timing of low battery warnings and shutdown will depend on the age and condition of the batteries you are using.

Connecting an Optional External Antenna

The BNC antenna connector on the PSR-800 makes it easy to use the scanner with a variety of antennas, such as an external mobile antenna or outdoor base station antenna.

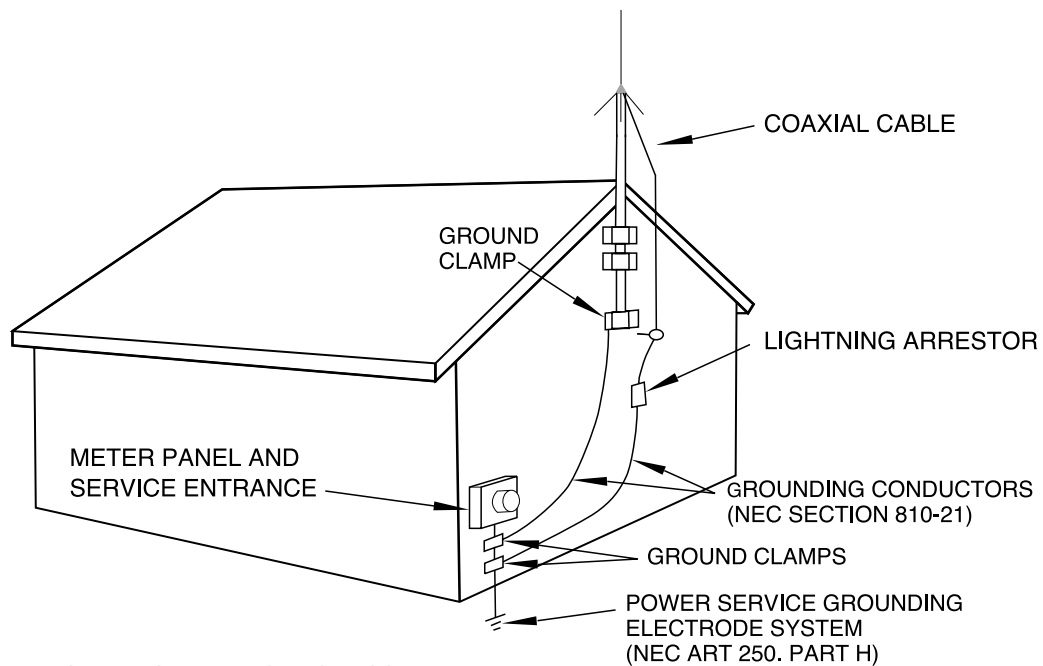
Always use 50-ohm coaxial cable, such as RG-58 or RG-8 low-loss dielectric coaxial cable. If your antenna's cable does not have a BNC connector, you will also need a BNC adapter. Follow the installation instructions supplied with the antenna, route the antenna cable to the scanner, then connect it to the antenna jack.



WARNING: Use extreme caution when installing or removing an outdoor antenna. If the antenna starts to fall, let it go! It could contact overhead power lines. If the antenna touches a power line, touching the antenna, mast, cable, or guy wires can cause electrocution and death. Call the power company to remove the antenna. DO NOT attempt to do so yourself.



WARNING: Outdoor antennas must be properly grounded to prevent static buildup and lightning damage. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information about proper grounding of the antenna mast, connection of coaxial cable to a lightning arrestor, size of grounding conductors, location of the lightning arrestor and connection of grounding conductors to grounding electrodes. Additionally, you may wish to disconnect your radio from the outdoor antenna during electrical storm activity to prevent damage. The diagram below provides an example of a proper antenna grounding system.



NEC - NATIONAL ELECTRICAL CODE

Figure 10 - External antenna installation and grounding requirements

Connecting an Earphone or Headphones

For private listening, you can plug an 1/8-inch (3.5 mm) mini-plug earphone or headphones (not supplied) in the HEADPHONE jack on top of the PSR-800. This automatically disconnects the internal speaker.

To protect your hearing, follow these guidelines when you use headphones.

- Prior to wearing the headphones, insert the headphone plug into the HEADPHONE jack and set the volume to zero. With the headphones on, adjust the volume to a comfortable level.
- Avoid increasing the volume once you set it. Over time, your sensitivity to a volume level decreases, so volume levels that do not cause discomfort might damage your hearing.
- Avoid or limit listening at high volume levels. Prolonged exposure to high volume levels can cause permanent hearing loss.

Traffic Safety

Wearing headphones while operating a motor vehicle or riding a bicycle is very dangerous and illegal. Do not operate any vehicle while listening to the PSR-800 with headphones or earphones.

Connecting an External Speaker

In a noisy area, an amplified speaker (not supplied) might provide more comfortable listening. Plug the speaker cable's 1/8-inch (3.5 mm) mini-plug into the PSR-800's HEADPHONE jack.

Browsing the Library, Picking Objects and Importing to Scanlists

Overview

Programming the PSR-800 consists of three basic steps, and you'll follow these steps each time you want to transfer new objects from the Library to the PSR-800's Scanlists. The three steps are as follows:

Browse the Library

Much like a real library, you'll browse the PSR-800's Library to find objects that you want to monitor. The PSR-800's Library is organized primarily by US States or Canadian Provinces, then by Agencies, Counties/Independent Cities or Systems. You can keep your scanner's Library current by using the Check for Library Update option in the PSR-800 PC application.

Pick objects from the Library





When you find an object or group of objects that you want to monitor, you “pick” them by selecting them, which marks them for the Import objects to Scanlists step.




Import objects to Scanlists




Finally, when you have picked the objects you want to import, you complete the operation by selecting one or more Scanlists where you would like the selected objects to be imported. The PSR-800 will map your objects to the Scanlists you have selected.

Basic Step by Step Programming Instructions


Browsing the Library


Press and hold the  button for one second to turn the PSR-800 on. The PSR-800 will display the Main Menu, or resume operations in the last mode that was used when the radio was turned off. If necessary, press the MENU key until the Main Menu appears. Use the  and  keys to scroll to the Browse Library menu item, then press the  key to advance to the next step, Select Country.

Use the  and  keys to scroll to your desired country, then press the  key to advance to the next step.

Use the  and  keys to scroll to your desired state/province, then press the  key to advance to the next step.

At this point there will typically be three options to choose from, Agencies, Counties/Cities and Systems.

RadioReference uses Agencies under the State level to group agencies with statewide responsibilities, such as state troopers or highway patrol agencies, state emergency management agencies, highway departments, state parks and departments of forestry, etc. If you wish to explore Agencies for these types of users, scroll to Agencies and press the  key to proceed to the next step.

RadioReference uses Counties/Cities to group radio systems that are used in a local county or independent city. If you wish to explore the radio systems used in counties and independent cities, scroll to Counties/Cities and press the  key to proceed to the next step.

RadioReference uses Systems under the state level to group trunked radio systems that provide statewide coverage, such as consolidated statewide trunked radio systems for use by multiple state agencies, and in some cases, local agency use as well. Many states have consolidated their communications systems to a single statewide trunked radio system, which allows radio users from multiple agencies to share a single sophisticated radio system that provides coverage throughout the entire state. If you wish to explore statewide trunked radio systems, scroll to Systems and press the ▶ to proceed to the next step.



NOTE: When selecting objects below the Systems level from either States or Cities/Counties, keep in mind that one or more Sites must be also be selected along with any individual talkgroup objects that you pick from a System. When in doubt about which Site should be selected, you can select all sites, or even the entire System, and the PSR-800 will automatically find and use the best available site. For more information about Systems, see the Conventional Frequencies and Trunking Talkgroups section below.

More often than not, you'll probably want to explore counties and independent cities for radio systems and users in your immediate area, so for this step by step process, we'll use Counties/Cities as our example.

Scroll to Counties/Cities and press the ▶ key to proceed. You'll be presented with a list of counties and independent cities for your state, with the counties appearing first at the top of the list. Now, scroll to your county or independent city and press the ▶ key to proceed to the next step.



HINT: You can also press the ◀ key anytime to navigate backward through the Library menu system.

For counties and independent cities, there will typically be three options to choose from: Agencies, Categories and Systems. The association of objects with each of these groups depends a lot on how the RadioReference volunteers decide to group the information they submitted to the RadioReference database. You'll likely find businesses, airports, attractions, authorities and other non-governmental entities under the Agencies group. Government and public safety entities will likely be found under Categories, or, if the county or city operates a trunked radio system, under the Systems grouping.

The PSR-800 makes it easy for you to explore all of these groups. Just use the ◀ and ▶ keys to “drill in” and “drill out” of the Library’s menu system.

Picking Objects from the Library

As you continue to drill in to each Library grouping using the ▶ key, you’ll eventually see empty checkboxes next to the listings that appear. You can continue to drill in deeper by pressing the ▶ key, or, if desired, press the ▶/II/SEL key to pick all of the objects associated with the grouping. A checkmark will appear instead the empty checkbox to indicate that the object or group of objects is selected for importing. Press the ▶/II/SEL key again to unselected selected objects or groupings.

Keep in mind that picking an entire grouping for importing may result in a very large number of objects being imported to the PSR-800’s Scanlists. The PSR-800’s capacity for objects is limited only by the size of the MicroSD Card memory, meaning that a massive number of objects can potentially be imported and saved in Scanlists. We caution that the PSR-800 can only monitor one transmission at a time, and trying to scan too many objects may be frustrating if they are all busy all the time! We suggest that you drill into each grouping that you want to import to see the objects that are beneath it, and only select the entire grouping if you know that you want to monitor everything that it contains.



NOTE: As you browse the Library and pick objects for importing into Scanlists, keep in mind that all selected objects will be imported into the same Scanlist or group of Scanlists that you select when you execute the import operation.

You can continue to browse the Library and pick as many objects for importing to Scanlists as you like. We suggest that first time users start out with small groups of picked objects for importing. This will ultimately help keep your setup manageable and easy to use.

Database Checkbox Codes

Database checkbox codes are displayed instead of a checkbox to indicate when systems or frequencies are not compatible with the PSR-800. When one of these codes is shown instead of a checkbox, it is not possible to select the checkbox.

A “**D**” in place of a checkbox indicates that the object or system uses an unsupported digital modulation mode and cannot be scanned by the PSR-800.

An “**S**” in place of a checkbox indicates that the system type is not supported and cannot be scanned by the PSR-800.

An “**F**” in place of a checkbox indicates that there are no sites or frequencies in the RadioReference database for the system or category.

Importing Objects to Scanlists

This last step in the process is very important, as it determines how the objects you’ve picked from the Library will grouped into the PSR-800’s 201 Scanlists. Scanlists are your way of organizing your picked objects, so you should give some thought as to how you want to your PSR-800 organized. At first, you may want to start with a small and simple group of picked objects and import them all to a single Scanlist. As you become more familiar with how the PSR-800 and its Scanlists work, you can decide what strategies you want to use for grouping objects into Scanlists. You may wish to group your objects into Scanlists according to the type of use, for example, Police, Fire, Racing, etc. Or, you may wish to group objects by into Scanlists according to geographical area, such as separate Scanlists for different counties or cities, or even separate Scanlists for different police and fire districts inside of a given county or city. You can even do both - use a Scanlist to turn the police and fire channels for an entire county on, and use other Scanlists to select only the districts of interest within the county for special situations.

To import your picked objects into one or more Scanlists, press the MENU key while browsing the Library to access the Library’s special menu. Scroll to Import Selected and press the ►/II/SEL key. The PSR-800 will display a list of Scanlists. Use the ▲ ▼ and ►/II/SEL keys to place checkmarks next to each Scanlist that you wish to import the selected objects into. After you have marked each desired destination Scanlist, press the ◀ key to begin importing your picked objects into the selected Scanlists. The PSR-800 will begin the importing process, which may take several minutes depending on the number of objects you have picked.



NOTE: *The Default Scanlist is always pre-selected for your convenience. If you do not want to import your picked objects into the Default Scanlist, be sure to unselect it before importing. You can change the Default Scanlist in the Settings Menu or with the PSR-800 PC application.*



HINT: *You can change the names of the Scanlists using the “Scanlists” option under the Main Menu, or with the PSR-800 PC Application.*

Conventional Frequencies and Trunking Talkgroups

The types of objects that the PSR-800 monitors while scanning can either be **conventional frequencies** or **trunking talkgroups**. While the PSR-800 is designed so that you can use it without knowing the difference between a conventional frequency or a trunking talkgroup, you may find it helpful to know more about how these objects work and what you can do to optimize the PSR-800 for best performance.

A conventional frequency is nothing more than “plain old radio” consisting of a single radio frequency that is typically broadcast from a single radio tower or building rooftop radio site or directly from mobile or portable radios. When browsing the PSR-800’s library, you will most often find conventional frequencies in the Categories or Agencies sub levels beneath States or Cities/Counties. You’ll know you’ve browsed to a conventional frequency when you see the word “Frequencies” on the top line of the display while you are browsing the library. A conventional frequency stands alone in the radio - it has no dependencies on other Library elements. In other words, feel free to import conventional frequencies individually or as groups without worrying about dependencies.

Trunking talkgroups work differently and can potentially be more complicated to deal with. A trunking talkgroup is a part of a trunked radio system - a modern and complicated radio network that is managed by sophisticated special purpose computers. Trunking technology allows many different groups of radio users to share a relatively small number of radio channels. You’ll know you’ve browsed to a talkgroup when you see the word “Talkgroups” on the top line of the display while you are browsing the library. When browsing the PSR-800’s library, everything you find below the “Systems” level under States or Counties/Cities will be trunked radio systems and associated sites and talkgroups. Unlike conventional channels, trunking talkgroups

have dependencies - at least one site from the system must be selected in order for picked talkgroups to be imported to Scanlists.

There are many different manufacturers and flavors of trunked radio systems, each with their own special programming nuances. Fortunately, the PSR-800 takes the guesswork out of programming talkgroup objects. You simply browse the library to find what you want to hear, and regardless of whether it's a conventional channel or a trunking talkgroup, most of the time it's as simple as picking the objects you want and importing them to your desired Scanlists.

There is one key difference between trunking talkgroups and conventional channels. A conventional frequency typically operates from a single tower or building rooftop site. A few conventional systems may have more than one site, but they still use the same frequency, so there are no special considerations for programming these in the PSR-800.

On the other hand, trunked radio systems consist of one or more discrete **sites** strategically located throughout the service area of the system to provide the desired level of coverage. Each site has its own set of frequencies. One type of trunked radio system technology known as "simulcast" has multiple radio sites that all operate on the same set of frequencies - to the trunked system, a simulcast subsystem appears as a single site.

It's important to understand that at least one Site for a system must be selected when you are importing talkgroups from the Library to Scanlists. Many of the talkgroups you pick will be a part of systems that have only one site, and you need only ensure that this one site is also selected when you import.

In cases where there is more than one site to choose, you have a few options.

In every case, the easiest way to bring in a system's sites and talkgroups is to simply place a checkbox next to the system's name after you drill in from the Systems level of the library from either the States or Counties/Cities level. This selects every site in the system, and every talkgroup as well. For example:

- Access the Library from the Main Menu
- Scroll to Indiana and press the ▶ key
- Scroll down to Systems and press the ▶ key.

At this level you will see the one system in Indiana with statewide coverage, the Indiana Project Hoosier SAFE-T state public safety radio system. If you press the ►/II/SEL key, a check will be placed next to the system name, marking every site and talkgroup on the system for importing into the library (this will take a few minutes due to the number of sites and talkgroups in this large statewide system).

However, you may not want to listen to every single talkgroup on the system, or you may want to restrict operation of the radio on this system to only those sites you choose, which will give the PSR-800 less work to do and ultimately speed up its operation. To refine your selection:

- Press the ► key at the System name
- To view and pick sites, scroll to Sites and press the ► key. You can pick every site and let the PSR-800 do the work for you, finding the best site to use, or, you can speed things up by selecting the sites that are close to your location.
- To view and pick talkgroups, scroll to Categories and press the ► key, and either pick entire Categories to select every talkgroup in the category, or drill into a category to view and pick talkgroups that are grouped in the category.



NOTE: Remember, one or more Sites must be selected along with any talkgroup objects that you pick in a System in order for the talkgroups to be imported to Scanlists.

Setting Up Scanlists

Once you have imported some objects into the PSR-800's Scanlists, you are almost ready to begin monitoring. Before you use the PSR-800 to monitor your imported objects, you'll want to enable the Scanlists where your objects are stored, and you will also want to give your Scanlists names that describe the objects that you have stored in them.

Enabling/Disabling Scanlists

To enable and disable Scanlists for scanning, press the MENU key until you reach the Main Menu, which is indicated at the top of the LCD display. Use the ▲ and ▼ keys to scroll to Scanlists, then press the ▶ key to proceed to the list of Scanlists. Each Scanlist is preceded with a checkbox. To enable a Scanlist for scanning, press the ▶/II/SEL key to add a checkmark to the selected Scanlist. To disable a Scanlist for scanning, press ▶/II/SEL again to remove the checkmark.

Renaming Scanlists

Giving your Scanlists descriptive names makes programming and using the PSR-800 much easier. To name a Scanlist, navigate to the Scanlists menu as described above, and press the ▶ key to edit the name. Follow the on-screen instructions to change the Scanlist name. Alternatively, use the PSR-800 computer application to edit the Scanlist names.

Monitoring Imported Objects

Browsing Scanlists and Objects

You can easily browse the objects and Scanlists you have created in the PSR-800. Press the MENU key until the Main Menu is displayed. Scroll to the Browse Objects menu item and press the ▶ key. Use the ◀ ▶ keys to scroll through the Scanlists, and use the ▲ ▼ keys to review the objects in each Scanlist.

Scanning Objects

The PSR-800 allows you to scan the objects that you have stored in Scanlists. You can monitor a single object, or, you can scan all of the objects that you have stored in enabled Scanlists. You can also pause the PSR-800 on a single object while it is scanning.

Monitoring While Browsing

You can monitor objects while browsing objects and Scanlists. Follow the steps for Browsing Scanlists and Objects above and navigate to an object that you wish to monitor. Press the ▶/II/SEL

key to monitor the selected object. Press the ►/II/SEL key again to scan all objects in enabled Scanlists.

Scanning

To scan all active objects in enabled Scanlists, press the MENU key to display the Main Menu. Use the ▲ and ▼ keys to scroll to Scan, then press the ► or ►/II/SEL key to begin scanning. To enable or disable Scanlists, follow the instructions in the Enable/Disable Scanlists section above.

Pausing

To pause the PSR-800 on an active object, press the ►/II/SEL key while the PSR-800 is stopped on the object. To resume scanning, press the ►/II/SEL key again.

Skipping

While scanning, the PSR-800 can skip objects that you don't want to hear. When the PSR-800 stops on an object that you no longer wish to monitor, press the SKIP key. The PSR-800 will mark the object as skipped and you will not receive further transmissions on the object until it is un-skipped. You can un-skip all skipped objects by selecting Restore Skipped from the Main Menu, or you can review your skipped objects by browsing the objects in Scanlists and un-skip them one at a time by pressing the SKIP key again. An object's skip status is indicated by the "s" character on the right side of the object display in the "psDr" indicator. A lowercase "s" character in the "psDr" indicator indicates that the object is not skipped, and "S" indicates that the object is skipped.

You can also permanently lock skipped objects out so they will not be scanned even if the Restore Skip function is used, or you can delete them from the PSR-800's memory. Locked out objects are indicated by an "L" in the "psDr" indicator, e.g., the uppercase "L" in "pLDr" indicates that the object is locked out. See the PSR-800 Object Menu section under PSR-800 Menu Reference below.

Scan Resume

To resume scanning when the PSR-800 is stopped on an active object without skipping the object, press the ◀ or ▶ keys. The PSR-800 will interrupt the current transmission and begin scanning again, but will continue to receive further transmissions on the object.

Advanced Features

MicroSD Card


Your PSR-800 ships with a 2 GB MicroSD Card already formatted, installed and ready for use.

Connecting the PSR-800 to a computer with the supplied USB cable allows you to access the card with the PSR-800 PC Application and update the Library, edit the PSR-800's configuration and stored objects, optimize the card, and reformat the card if necessary. You can also purchase additional cards, format them for use with the PSR-800, then use them to store different configurations or backups.

Computer access to the MicroSD card over the USB cable is only enabled when the radio is connected to the PC and powered off. When powered on, the scanner must have sole access to the MicroSD card at all times. To prevent corrupted data, computer access to the MicroSD card is disabled when the radio is powered on and connected to the computer.

You can also connect the MicroSD Card to an external reader, which may provide faster data transfer rates when compared to accessing the card while it is in the radio.

Inserting and removing the MicroSD Card

To remove the MicroSD Card from the PSR-800, turn the radio off using the  button on the front of the radio.



WARNING: *To prevent corrupted data on the MicroSD Card, always turn PSR-800 off using the front panel power key before opening the battery compartment cover.*

Locate the side of the radio with the USB cable jack. Note the "MICRO SD" label on the side of the battery compartment cover. When the battery compartment cover is removed, the MicroSD Card can be found underneath of this label. Remove the battery compartment cover by pressing gently where the door is marked **OPEN** and sliding the door downwards until it stops, approximately 1/4". Lift the door away from the radio. Locate the MicroSD Card. Using your fingernail or a small screwdriver, carefully push the MicroSD Card inward until a click is felt, then

release to eject the MicroSD Card. Slide the MicroSD Card out of the slot to remove it from the radio.

To insert the MicroSD Card, position the MicroSD Card with the label facing the front of the radio and slide it into the slot. Press the MicroSD Card in gently until a click is heard to lock it in place. Replace the battery compartment door.



NOTE: Always use the PSR-800 PC Application to format the MicroSD Card to ensure that the card is properly formatted for best performance in the PSR-800.

MicroSD Card contents

The MicroSD Card comes formatted for the standard FAT file system with a cluster size of 32kB. (Note that this is not the same as the “FAT32” file system.)

The PSR-800 will work best if the supplied 2GB MicroSD Card is formatted for the standard FAT file system with a cluster size of 32kB, with a volume name of “EZSCAN”. Formatting the MicroSD Card for other file system types may cause the PSR-800 to malfunction.

When using other MicroSD Cards the following formatting guidelines should be used:

- Any card with 2GB or less capacity must be formatted using the FAT file system with a cluster size of 32kB.
- Any MicroSD Card with greater than 2GB of capacity must be formatted using the FAT32 file system with a cluster size of 32kB.

Whenever possible, use the PSR-800 PC Application’s “Prepare Scanner Memory/SD Card For Use” option under the “Scanner/SD Card” menu to format the MicroSD card. This will ensure that the correct formatting parameters are used every time.

For reference, here is the directory structure for the PSR-800’s MicroSD Card. You may wish to make a copy of the CDAT folder on your computer as a backup. Modifying these directories or their contents outside of the PSR-800 or the PSR-800 computer application is not recommended, and may cause the PSR-800 to malfunction.

BTMP

Contains various temporary files used by the PSR-800 while it is running

CDAT

Contains your PSR-800 programming

CDAT_VS.nnn

Contains PSR-800 programming for V-Scanner folder number nnn, where nnn may range from 001 to 200

DB

Contains the Library

MTMP

Contains various temporary files used by the PSR-800 while it is running

STMP

Contains various temporary files used by the PSR-800 while it is running

CURVS.DAT

Configuration information

CONFIG__.BIN

Configuration information

REC

Audio recordings



WARNING: *Modifying these files, directories or contents of directories is not recommended, and may cause the PSR-800 to malfunction, and may result in loss of programming data.*

Audio Recorder

Your PSR-800 features a powerful audio recording system that captures transmissions that occur on selected objects to the MicroSD card using the high quality, industry standard .AU audio file format. A 2GB MicroSD card with a very large PSR-800 scanning configuration (e.g., 500 MB) still leaves room for over 50 hours of recording time and thousands of recorded transmissions! Here are just a few of the things you can do with the audio recording system:

- Record all transmissions that occur on talkgroups or channels that are of interest to you for later review
- Perform attended or unattended searches for new frequencies, automatically storing audio with frequency information for all transmissions found while searching
- Record all transmissions that occur on ALL talkgroups or channels, providing an instant recall function to replay a prior transmission that was missed or unintelligible

Audio recording is not enabled by default. To enable audio recording, make sure that the Enable Record option in the Settings menu is checked, and set the Record flag in any objects that you wish to record. You may wish to record audio for all of your programmed objects, which provides the ability to instantly replay any transmission that the radio receives in cases where the traffic may be difficult to copy.

When recording is enabled radio wide and for selected objects, you will see the ● icon flash in the display when the audio recorder is actively recording audio information.

When the MicroSD card is almost full, the Ⓡ icon will appear in the display to indicate that recording is suspended. Delete or archive old audio files to make room for new recordings.

To play back recorded audio files:

1. From the Main Menu, select Playback to enter the PSR-800's Playback System.
2. The Playback System will place you at the last audio file that was recorded by the radio. Press the ►/III/SEL key to play the file, or use the ▲ and ▼ keys to scroll to another file for playback.
3. While playing a file, the ▲ and ▼ keys set the playback volume, and the ◀ or ▶ keys move backward and forward in the file being played in five second increments. The SKIP key ends playback of the current file.
4. After scrolling to a file, you can press the MENU key for a list of playback options.

- **Main Menu** jumps to the Main Menu

- **Back** jumps back to the list of recorded files
- **Play From Here** plays the current recording and all recordings afterwards
- **Delete All** deletes all recorded audio files
- **Delete Earlier** deletes recorded audio files prior to the selected audio file
- **Delete Later** deletes the selected audio file and all recorded audio files after the selected file

The PSR-800 PC Application includes advanced audio file playback and management features in addition to the audio playback and management features in the radio.

V-Scanner II Storage System

The PSR-800 V-Scanner II (VS-II) system provides you with a way to store multiple configurations on your PSR-800. VS-II configurations are created, managed and copied to the MicroSD Card using the PSR-800 PC Application. You can load stored VS-II configurations by selecting the V-Scanner option from the Main Menu, then scrolling to the desired VS-II configuration using the ◀ or ▶ keys. Press the ►/III/SEL key to activate the selected VS-II configuration. Any changes that you have made to the current VS-II or default configuration will be automatically saved to the MicroSD Card before the selected VS-II configuration is loaded.

With the PSR-800, all V-Scanner folder creation and management is performed using the PSR-800 PC application. Data in your VS-II folders is updated automatically in the field as you use them. Unlike previous versions of the V-Scanner feature, It is not necessary to “save” and “load” the VS-II folders you are working with - just select the desired VS-II folder and the radio handles the rest automatically.



NOTE: *It is not possible to create or delete VS-II folders while in the field with the PSR-800. All VS-II folder management is accomplished using the PSR-800 PC application.*

Scanlists and Scan Sets

Scan Sets are an exciting new feature introduced with the PSR-800. Scan Sets work in conjunction with Scan Lists to provide additional scan object selection capability and flexibility.

With Scan Sets you can quickly select large groups of Scanlists to enable or disable, just by enabling or disabling the Scan Sets that contain the desired groups of Scan Lists, instead of individually editing the list of enabled Scanlists every time you want to change the group of Scanlists you wish to monitor.

As you import or program objects to be scanned, you map them to Scanlists to group them in any manner that you choose. Then, you enable Scanlists for scanning using the Scanlists item in the Main Menu. Simply place a check next to each Scanlist that you wish to scan, and the PSR-800 will scan all objects that are mapped to enabled Scanlists.

The first time you select the Scan Sets item from the Main Menu, you will notice that there are a total of twenty Scan Sets available. Each Scan Set contains a list of all 200 normal Scanlists plus the special Skywarn Scanlist, and any of these Scanlists can be checked to include them as members of the Scan Set. And, by default, Scan Set 01 has all of 201 Scanlists in the radio checked as members of Scan Set 01.

Here's how Scan Sets work. For the members of a Scanlist to be included in the objects that the radio scans when the ►/II/SEL key is pressed, the Scanlist must be enabled in the Main Menu's Scanlists setting, and, the Scanlist must be included in the enabled members of at least one enabled Scan Set. That's why by default Scan Set 01 is enabled, and every single Scanlist is set to be a member of Scan Set 01 - we assume that to start out, you'll enable and disable Scanlists primarily by using the Main Menu's Scanlists function. Enabling all of the Scanlists in Scan Set 01 allows you to control the selection of enabled Scanlists by simply changing the Scanlists that are enabled or disabled in the Main Menu's Scanlist function, since all of the radio's Scanlists are members of Scan Set 01, which is also enabled by default.

In summary, objects, Scanlists and Scan Sets follow this simple rule:

IF an object is mapped to an enabled Scan List, AND, that Scanlist is enabled, AND, that Scanlist is a member of an enabled Scan Set, THEN, that object will be scanned when the ►/II/SEL key is pressed.

Let's assume that, over time, as you've used the scanner more and more, you've developed a good system of grouping individual objects together for scanning using Scanlists, and, that you are beginning to find that you are frequently enabling and

disabling the same sets of Scanlists as you encounter different scanning situations - for example, scanning in different areas, or scanning different public safety departments or disciplines. Wouldn't it be nice to quickly enable and disable your Scanlists as groups (or "sets"), instead of scrolling to each Scanlist individually and enabling or disabling as required? Scan Sets allow you to do this.

When you are ready to start using Scan Sets, you'll probably want to set things up a little differently from the way the radio is configured by default.

We suggest that you keep Scan Set 01 as it is configured by default - all Scanlists in Scan Set 01 enabled. However, when you are ready to start using Scan Sets, disable Scan Set 01 by pressing the ►/II/SEL key to remove its checkmark. This will allow the Scan Sets that you define to control the scanner.

We also suggest that you go to the Scanlists function in the Main Menu and enable all Scanlists for scanning there by scrolling to each one and ensuring that a checkmark is present. If not, press the ►/II/SEL key to add the checkmark. Again, this allows the Scan Sets that you define to control the scanner.

In the Main Menu's Scan Sets function, scroll to a Scan Set that you wish to configure. Note that you can give the Scan Set a meaningful name by pressing the ► key, then following the on-screen instructions to change the Scan Set name. Press the ►/II/SEL key to save your changes.

Press the MENU key to configure the Scan Set members. Scroll through the Scanlists and use the ►/II/SEL key to add a checkmark next to each Scanlist that you want included as a member of the Scan Set. When finished, press the MENU key to return to the listing of Scan Sets. Repeat this process for each Scan Set you wish to define and use. To exit the list of Scan Sets, press the ◀ key.

To begin scanning with Scan Sets, simply use the Main Menu's Scan Sets function to scroll the list of Scan Sets and place checkmarks next to each Scan Set you wish to scan using the ►/II/SEL key. You can "stack" Scan Sets by checking more than one. You can remove an individual Scanlist from the set by disabling it in the Main Menu's Scanlists function, but remember, it will need to be re-enabled when you want to scan it again.

Always remember the simple Objects, Scanlists and Scan Sets rule above.

Use your imagination and see how many ways you can come up with to put Scan Sets to work for you.


Weather Modes

The PSR-800 is also a sophisticated and powerful NOAA weather radio receiver. You can monitor 24 hour NOAA weather radio broadcasts anytime, and, you can use the PSR-800 as a weather priority receiver while scanning to alert you to severe weather broadcasts as they occur, or you can activate Dedicated SAME Weather Alert Receiver mode, where your PSR-800 remains quiet until a warning for the specific geographic area(s) you define is received.



NOTE: Your scanner incorporates weather alert as one of its features and is an extremely sensitive high quality receiver on the weather frequencies. However, the included flex antenna is optimized for general purpose scanning. If you use this scanner as your only means for receiving weather alerts, please check to be sure you are receiving a clear signal on the flex antenna or switch to an external antenna that gives you clear reception of a local NOAA weather broadcast.

Weather Monitor

The PSR-800's Weather Monitor mode provides instant access to NOAA weather broadcasts in your area. To activate Weather Monitor mode, press the  key. Use the ◀ and ▶ keys to select the strongest NOAA transmitter for your area.

Weather Priority

Weather Priority mode samples the specified weather frequency periodically while scanning to see if the All Hazards 1050 Hz Warning Alert Tone (WAT) is present. If the WAT is present, the scanner will sound an alarm and tune to the specified weather frequency to monitor the nature of the alert.

To activate Weather Priority mode, follow the steps above listed above in Weather Monitor mode, and find the strongest weather radio transmitter for your area. Once the PSR-800 is tuned to the strongest weather radio transmitter for your location, note the weather channel number in the display (e.g., "WX7" is Channel

7). Press the MENU key. Scroll to Priority, and use the ◀ and ▶ keys to select the same NOAA weather radio channel number that you previously identified as having the best signal for your area. Press the MENU key to exit, following the on-screen instructions to save your changes.

When monitoring objects, the PSR-800 will check the specified weather frequency periodically for the 1050 Hz Warning Alert Tone (WAT). If WAT is found, the PSR-800 will sound an alarm and monitor the weather alert audio.

To disable Weather Priority mode, follow the steps to activate Weather Priority mode above, and select "OFF" as the Priority channel. Press the MENU key to exit, following the on-screen instructions to save your changes.

Dedicated SAME Weather Alert Receiver


Dedicated SAME Weather Alert Receiver mode monitors the specified weather frequency silently, waiting to receive a Specific Area Message Encoding (SAME) alert that corresponds with a SAME location code (also known as a FIPS code) that you have entered. If there is a match between a transmitted SAME location code and one that you have previously stored, the PSR-800 will sound an alarm, display the alert type, and monitor the alert. Up to 10 SAME FIPS location codes can be stored in the PSR-800.

To use Dedicated SAME Weather Alert Receiver mode, first you should program at least one SAME location code for your city, county or state. With the default factory setup, SAME mode will alert on any SAME message received if no SAME location codes are entered. A list of SAME location codes can be found online at this web site:

<http://www.nws.noaa.gov/nwr/indexnw.htm>

Entering SAME Location and Event Codes

The following steps are used to create a SAME entry that provides all weather alerts for a given location.

Press the  key to activate Weather Monitor mode, then press the MENU key. Use the ▲ and ▼ keys to scroll to the SAME 1 Tag parameter. Press the ▶/II/SEL key to enter a name for the SAME 1 location. Follow the on screen instructions to create and save the name and return to the Weather menu. For this example we will use DALLAS COUNTY.

Scroll down to the SAME 1 FIPS parameter and press the ►/II/SEL key to enter a FIPS code for SAME 1. The FIPS code for Dallas County is 048113, which is broken down as follows:

The first digit, 0, indicates that the geographical area consists of the entire county. The SAME specification can use the first digit to define a sub-area within a county, but this is generally not used.

The second two digits, 48, indicate the state is Texas.

The last three digits, 113, indicate that the County is Dallas.

The PSR-800 allows you to enter all or part of the FIPS code, and supports the use of the 0 (zero) character as a wildcard. For example, if you wanted to receive alerts for any location in Texas (provided that they are transmitted by the local NOAA transmitter), you can enter 048000 in the FIPS field. For now, just follow the on-screen instructions to enter the entire FIPS code for Dallas County (048113) and return to the Weather menu.

Scroll down to the SAME 1 Enable parameter. Use the ►/II/SEL key to toggle the Enabled status for the SAME 1 location.


Repeat the above process to enter additional SAME information for other areas if desired. When finished, press the MENU key and follow the on-screen instructions to save changes and exit.

Dedicated SAME Weather Alert Receiver Mode

After you have entered information for one or more SAME locations, press the Ⓞ key to activate Weather Monitor mode and select the strongest weather transmitter for your area. Press the SKIP key to toggle between SAME Standby and Normal Weather Monitor mode. When Standby mode is selected, the PSR-800 will monitor the selected weather channel for SAME alerts that match the locations you have programmed. If a matching alert is detected, the PSR-800 will sound an alarm, display the type of alert on its LCD screen and monitor the alert message.

Skywarn

The PSR-800's Skywarn Scanlist is useful for storing objects that may be useful to monitor during times of severe weather, such as amateur radio repeaters used to provide Skywarn storm spotter reports to local National Weather Service offices. By monitoring Skywarn repeaters, you'll hear about severe weather conditions




before they are reported by local radio and television media. The Skywarn Scanlist works like any other the PSR-800 Scanlist. It can be enabled and disabled for scanning along with the 200 regular Scanlists. The Skywarn Scanlist can also be accessed quickly by pressing the  key while the PSR-800 is in Weather Monitor mode. When activated from Weather Monitor mode, all other Scanlists are temporarily disabled, and only objects mapped to the Skywarn Scanlist will be monitored.

Searching

Your PSR-800 features several search modes to help you find more frequencies to listen to. When the PSR-800's search modes find a new active frequency, you have the option to store it to the default Scanlist, where you can include stored search hits for normal scanning or review them later on using the PSR-800 PC Application.

Spectrum Sweeper

Your PSR-800 features GRE's innovative Spectrum Sweeper technology, which can rapidly sweep through a range of frequencies and find transmissions from nearby sources.

To use Spectrum Sweeper, press the MENU key to access the Main Menu, then use the  key to scroll down to the Search option. Press the  key to proceed to the Search menu. Scroll to the Spectrum Sweeper option and press the  key to proceed to the next menu. Select All Bands to perform a Spectrum Sweeper search on all common land mobile radio bands, or select Public Safety to perform a faster Spectrum Sweeper search on frequency ranges commonly used for public safety communications. The PSR-800 will immediately begin to sweep the frequency ranges you have selected. To block reception of undesired signals found while using Spectrum Sweeper, press the SKIP key.

To change the Spectrum Sweeper options, press the MENU key while Spectrum Sweeper is active. The following options are available:

Main Menu

Navigates to the PSR-800's Main Menu

Sweeper Menu

Navigates to the Spectrum Sweeper Menu

Cancel Changes

Exits the Spectrum Sweeper Menu without saving any changes

Save Changes

Saves your changes and exits the Spectrum Sweeper Menu

Attenuator

When checked, attenuation is enabled when using Spectrum Sweeper. Attenuation limits the effective range of Spectrum Sweeper and may help reduce interference from strong local transmitters. Use the ►/II/SEL key to toggle Attenuator status.

Zeromatic

Enables or disables the PSR-800's Zeromatic circuit. Zeromatic helps the PSR-800 tune to exact frequencies when searching. Use the ►/II/SEL key to toggle Zeromatic enabled/disabled status.

Delay

Enables or disables delay when using the Spectrum Sweeper feature. When delay is enabled, the PSR-800 waits for two seconds after a transmission to receive reply traffic before resuming search. Use the ►/II/SEL key to toggle delay enabled/disabled status.

Special Mode

Spectrum Sweeper sweeps through frequency ranges in 1 MHz blocks, looking for transmissions from nearby strong signal sources. When Special Mode is enabled, Spectrum Sweeper will skip any 1 MHz block where you have skipped five or more frequencies using the SKIP key. Special Mode is useful when you are close to many high power transmitters that are close together in frequency. Use the ►/II/SEL key to toggle Special Mode enabled/disabled status.

Frequency Ranges

The frequency ranges that Spectrum Sweeper sweeps are controlled by enabling or disabling them here. Disabling frequency ranges that are not of interest helps speed Spectrum Sweeper up, helping you to find nearby activity faster. Use the ►/II/SEL key to enable or disable frequency ranges.

For the "All Bands" Spectrum Sweeper mode, the following frequency ranges can be controlled:

25-54 MHz	VHF Low Band
108-137 MHz	VHF Aircraft Band
137-174 MHz	VHF High Band
216-300 MHz	220 MHz Commercial/Amateur Band
300-406 MHz	UHF Military Air Band
406-470 MHz	UHF Band
470-512 MHz	UHF-T Band
764-782 MHz	700 MHz Band
791-797 MHz	700 MHz Band
806-869 MHz	800 MHz Band
894-1300 MHz	900 MHz Band, 23 cm Amateur Band

For the “Public Safety” Spectrum Sweeper mode, the following frequency ranges can be controlled:

33.4-46.5 MHz	VHF Low Band
151-170 MHz	VHF High Band
453-467 MHz	UHF Band
764-782 MHz	700 MHz Band
791-797 MHz	700 MHz Band
806-869 MHz	800 MHz Band

Service Search

Your PSR-800 features a powerful Service Search capability, which searches through the frequencies used by different radio services. Service Search is a good way for you to receive activity on local frequencies.

To use Service Search, press the MENU key to access the Main Menu, then use the ▼ key to scroll down to the Search option. Press the ►/II/SEL key to proceed to the Search menu. Scroll to the Service Search and press the ►/II/SEL key to proceed and select the type of Service Search you wish to perform. To block reception of undesired signals found while using Service Search, press the SKIP key.

To change the Service Search options, press the MENU key while Service Search is active. The following Service Search options are available:

Public Safety - Searches commonly used public safety frequencies. Groups are as follows:

33.4-46.5 MHz	VHF Low Band
151-170 MHz	VHF High Band

453-467 MHz	UHF Band
764-782 MHz	700 MHz Band
791-797 MHz	700 MHz Band
851-869 MHz	800 MHz Band

Aircraft - Searches civilian and military air frequencies. Groups are as follows:

- 108-118 MHz Navigation
- 118-137 MHz Civilian Voice
- 138-150 MHz Military Voice (excludes 2m Amateur)
- 225-400 MHz Military Voice

Railroad - searches the Association of American Railroads (AAR) VHF railroad frequencies used in the US and Canada

Amateur - Searches amateur radio frequencies. Groups are as follows:

28.0-29.7 MHz	10m Band
50-54 MHz	6m Band
144-148 MHz	2m Band
222-225 MHz	1.25cm Band
420-450 MHz	70cm Band
902-928 MHz	33cm Band
1240-1300 MHz	23cm Band

CB - Searches the Citizens Band radio frequencies

Marine - Searches the VHF-FM marine radio band

FRS/GMRS/MURS/ - Searches the FRS, GMRS, MURS, DOT and STAR radio frequencies

The MENU key can be used while any Service Search is active to set the following parameters;

Main Menu

Navigates to the PSR-800's Main Menu

Srvc Srch Menu

Navigates to the top Service Search Menu

Cancel Changes

Exits the Service Search Menu without saving any changes

Save Changes

Saves your changes and exits the Service Search Menu

Attenuator

When checked, attenuation is enabled when using Service Search. Attenuation limits the effective range of Service Search and may help reduce interference from strong local transmitters. Use the ►/II/SEL key to toggle Attenuator status.

Zeromatic

Enables or disables the PSR-800's Zeromatic circuit. Zeromatic helps the PSR-800 tune to exact frequencies when searching. Use the ►/II/SEL key to toggle Zeromatic enabled/disabled status. Zeromatic does not have any effect in channel-based searches such as CB, Marine and FRS/GMRS/MURS bands.

Delay

Enables or disables delay when using the Service Search feature. When delay is enabled, the PSR-800 waits for two seconds after a transmission to receive reply traffic before resuming search. Use the ►/II/SEL key to toggle delay enabled/disabled status.

Frequency Ranges

For Service Searches that utilize frequency ranges, this option allows you to control which ranges are searched. The Frequency Ranges option is available in the Public Safety, Aircraft and Amateur Radio Service Searches. Use the ►/II/SEL key to enable or disable frequency ranges.

Limit Search

Your PSR-800's Limit Search feature allows you to configure a customized search between lower and upper frequencies that you choose.

To use Limit Search, press the MENU key to access the Main Menu, then use the ▼ key to scroll down to the Search option. Press the ►/II/SEL key to proceed to the Search menu. Scroll to the Limit Search option and press the ►/II/SEL key to start the Limit Search. To block reception of undesired signals found while using Limit Search, press the SKIP key.

To change the Limit Search options, press the MENU key while Limit Search is active. The following Limit Search options are available:

Main Menu

Navigates to the PSR-800's Main Menu

Search Menu

Navigates to the Search Menu

Cancel Changes

Exits the Limit Search Menu without saving any changes

Save Changes

Saves your changes and exits the Limit Search Menu

Attenuator

When checked, attenuation is enabled when using Limit Search. Attenuation limits the effective range of Limit Search and may help reduce interference from strong local transmitters. Use the ►/II/SEL key to toggle Attenuator status.

Zeromatic

Enables or disables the PSR-800's Zeromatic circuit. Zeromatic helps the PSR-800 tune to exact frequencies when searching. Use the ►/II/SEL key to toggle Zeromatic enabled/disabled status.

Delay

Enables or disables delay when using the Limit Search feature. When delay is enabled, the PSR-800 waits for two seconds after a transmission to receive reply traffic before resuming search. Use the ►/II/SEL key to toggle delay enabled/disabled status.

Lo

Sets the lower frequency for the Limit Search frequency range. Press the ►/II/SEL key, then follow the on-screen instructions to edit and save the lower frequency.

Hi

Sets the upper frequency for the Limit Search frequency range. Press the ►/II/SEL key, then follow the on-screen instructions to edit and save the upper frequency.

Storing found CTCSS or DCS codes

Your PSR-800 is able to quickly identify the CTCSS or DCS subaudible squelch code used on many conventional radio channels in cases where the squelch code is not included in the RadioReference database, or is not known by you.

When importing objects from the Library, CTCSS and DCS code information from the RadioReference database is automatically imported with the conventional channel information. When the code is unknown, the radio will be programmed to automatically search for and identify the CTCSS or DCS code if one is present on the conventional channel.

When a conventional channel is programmed for CTCSS or DCS search mode, and a CTCSS or DCS code is found to be in use, the code is displayed on the bottom line of the LCD display, preceded by an “S” character, which indicates that the CTCSS/DCS search mode has successfully found a valid CTCSS or DCS code, e.g.:

CTCSS 127.3 S

To store the found code with the record for the conventional channel, press the MENU key. When a CTCSS or DCS code is found by the search feature,

Store sq code

appears as the top menu item. Selecting this menu item stores the found CTCSS or DCS code in the record for the conventional channel, and once the code is stored, the scanner will only stop on transmissions that have a matching CTCSS or DCS squelch code present.



NOTE: *The Settings menu (Main Menu > Settings) “Simple Display” menu item must be unchecked in order to display and store found CTCSS and DCS codes.*

Updating your programmed data to latest data from Library

Your PSR-800 can automatically update the objects that you have programmed with the most current Library data, to ensure that any changes made to the RadioReference database by its users are carried over to your scanner’s programming. Examples of these types of changes may include the following:

- Updates made to the RadioReference database to provide more descriptive names for the talkgroups on a trunked radio system
- Updates made to the RadioReference database to incorporate changes CTCSS programming for a conventional channel by a radio system operator

You should use the PSR-800 PC Application to download the latest Library data and move it to your radio's MicroSD Card on a routine basis to ensure that you have the latest RadioReference data in your Library. As you browse and pick new objects for your programming, you can be confident that your programming will be based on current Library data.

Additionally, the Update from Library command in the Main Menu can be used to automatically updated the objects you have already programmed to the latest version of the Library data, so you never have to worry about missing changes that may be made in the RadioReference data from time to time.

To use this feature, first connect your PSR-800 to an external power supply. The PSR-800 will not begin the Update from Library process unless the radio is connected to an external power source. Once the radio is connected to an external power source, select the Update from Library command from the Main Menu. The PSR-800 will update all programmed objects with the latest data from the Library.

Note that the Update from Library operation can take a long time to complete. Interrupting the update process before it is finished may result in corrupted data.

Using the IF Output

Your PSR-800 can provide its IF/discriminator output signal to the headphone jack. The IF/discriminator output is unquelled and unfiltered, making it ideal for third party signal analysis and decoding software and hardware, such as Unitrunker, Trunk88 and Treport.

To activate IF Output mode, scroll to the IF Out setting in the Settings Menu, and press the **▶** key to scroll through the available options. "HP" routes the IF/discriminator signal to the headphone jack. "HP/SP" routes the IF/discriminator signal to the headphone jack and the speaker. "Off" disables the IF output function.

Internal Clock/Calendar

Your PSR-800 includes a real time clock/calendar that is used to correctly date and time stamp recorded audio files.

The first time you power on your PSR-800, you will be prompted to set the time and date.

If batteries are allowed to fully discharge, or if they are removed from the PSR-800 for more than a few minutes, the date and time will need to be set again.

You can also set the date and time over the USB connection using the PSR-800 PC application, or using the Set Clock function in the Main Menu.

PSR-800 Menu Reference

PSR-800 Main Menu

The heart of the PSR-800's user interface is the Main Menu, where all of the major functions are controlled. The following options are available in the Main Menu:

Scan

Begins scanning of imported objects in enabled Scanlists. Use the **▶** or **▶/II/SEL** keys to activate Scan mode.

Browse Objects

Enters Scanlist Browse mode, which allows you to browse the objects that you have imported into Scanlists. Use the **▶** or **▶/II/SEL** keys to activate Scanlist Browse mode.

Scanlists

Accesses the Scanlists utility to enable, disable or rename Scanlists. Use the **▶** or **▶/II/SEL** keys to proceed to the next step, then use the **▲** and **▼** keys to scroll select a Scanlist to modify. Press the **▶/II/SEL** key to toggle enabled/disabled status, or press the **▶** and follow the on-screen instructions to rename.

Scan Sets

Accesses the Scan Sets utility to configure, enable, disable or rename Scan Sets. Use the **▶** or **▶/II/SEL** keys to proceed to the next step, then use the **▲** and **▼** keys to scroll select a Scan Set to modify. Press the **▶/II/SEL** key to toggle enabled/disabled status, or press the **▶** and follow the on-screen instructions to rename. Press the **MENU** key to configure the Scan Set. Use the **◀** key to exit the Scan Set utility. See the Scan Sets section of the manual for more information.

Search

Accesses the PSR-800's Spectrum Sweeper, Service Search and Limit Search modes. See the Search section of this manual for more information.

Browse Library

Accesses the Library, where you can browse and pick objects to import into Scanlists.

Update from Library

Applies current Library data from the MicroSD Card to all of the programmed objects.

Restore Skipped

Restores all skipped objects so they will be scanned again in Scan mode.

Settings

Accesses the Settings menu. Settings Menu reference below for more information.

V-Scanner

Accesses the V-Scanner menu to select different VS-II configurations. See the V-Scanner section of this manual for more information.

Set Clock

Sets the date and time. Use the ◀ ▶ ▲ ▼ keys to set the correct date and time. Use the ▶/II/SEL key to accept the updated settings, or the SKIP key to exit without saving changes.

Set Password

Sets a user defined power-on password to restrict access to the radio. Use the ◀ ▶ ▲ ▼ keys to set the password. Use the ▶/II/SEL key to accept the updated settings, or the MENU key to exit without saving changes. Note that the power-on password can be reset by anyone using the PSR-800 PC Application and accordingly provides only limited protection from immediate unauthorized use.

Playback

Accesses the Playback utility to replay and manage audio files. Use the ▲ and ▼ keys to scroll through recorded audio files. Use the ▶/II/SEL key to play the selected audio file. During playback, use the ▲ and ▼ keys to control the volume, and the ◀ and ▶ keys to move back and forth in the file being played back in five second increments. Press the MENU key for more options or to exit. See the Playback section of the manual for more information.

PSR-800 Object Menu

From time to time you may find it necessary to edit the objects that you have imported from the library into your Scanlists. This can be accomplished using the PSR-800 itself, or you can use the PSR-800 PC Application.

To edit objects using the PSR-800, follow the instructions above for Browsing Scanlists and Objects to select the object you wish to edit, then press the MENU key to activate the Object Menu. Alternatively, you may press the MENU key when the PSR-800 stops on an active object while scanning to edit that object.

To change an option use the ▲ and ▼ keys to scroll to the option you wish to change, then press the ▶ key to toggle values or proceed to the next step.

The following options are available in the Object Menu:

Store SQ code

Only appears when the MENU key is pressed while monitoring a conventional channel that is set for CTCSS or DCS search mode. Selecting “Store SQ code” stores the value of the found CTCSS or DCS code into the record for the conventional channel, and subsequent transmissions must have a matching CTCSS or DCS squelch code value to be monitored by the PSR-800.

Main Menu

Navigates to the PSR-800’s Main Menu

Cancel Changes

Exits the Object Menu without saving any changes

Save Changes

Saves your changes and exits the Object Menu

Alpha Tag

Allows you to change the name of the selected object. Follow the on-screen instructions and use the ◀ ▶ ▲ ▼ keys to change the object name.

Set Scanlists

Allows you to change the Scanlists that the selected object is a member of. Use the ▶/II/SEL key to change Scanlist membership by adding or removing checkmarks to Scanlists.

Locked Out

When checked, the selected object is Locked Out and will not be scanned. Locked Out status is not changed when the Main Menu’s Restore Skipped utility is used. Use the ▶/II/SEL key to toggle Locked Out status. Lockout status is indicated in the

object display's "psDr" indicator. "L" in the second position indicates that the object is Locked Out.

Skipped

When checked, the selected object is Skipped and will not be scanned. Skipped status is restored when the Main Menu's Restore Skipped utility is used. Use the ►/II/SEL or ► keys to toggle Skipped status. Skipped status is indicated in the object display's "psDr" indicator. "s" indicates that Skip is not enabled for the object, and "S" indicates that Skip is enabled for the object.

Priority

When checked, Priority is enabled for the selected object. When enabled, Priority causes the scanner to check for activity more frequently on objects with Priority enabled. Priority Mode must be enabled from the Main Menu to use the Priority feature. Use the ►/II/SEL or ► keys to toggle Priority status. Priority status is indicated in the object display's "psDr" indicator. "p" indicates that Priority is not enabled for the object, and "P" indicates that Priority is enabled for the object.

Delay

Enables or disables delay for the selected object. When delay is enabled, the PSR-800 waits for two seconds after a transmission to receive reply traffic before resuming scanning. Delay status is indicated in the object display's "psDr" indicator. "d" indicates that Delay is not enabled for the object, and "D" indicates that Delay is enabled for the object.

Attenuate

When checked, attenuation is enabled for the selected object. Attenuation may help reduce interference from strong local transmitters. Use the ►/II/SEL or ► keys to toggle Attenuate status. Attenuate is not available in the Object Menu for trunked talkgroups.

AGC

When checked, digital AGC is enabled for the selected object. Digital AGC may help equalize volume levels from different radios and users on P25 transmissions. Use the ►/II/SEL or ► keys to toggle AGC status.

Alarm

Defines an audible alarm that is heard whenever there is activity on the object. Use the ◀ or ▶ keys to select the desired alarm sound.

Light

Defines backlight behavior for the selected object. Use the ◀ or ▶ keys to select the desired light behavior. Options are Leave (use default backlight settings), On (turn the backlight on) or Flash (flash the backlight according to the Flash Pattern setting).

Flash Pattern, On Time, Off Time

Flash Pattern defines the pattern that is used for this object when the Light mode is set to Flash. Flash Pattern also defines the flash pattern that is used by the Alert LED if it is enabled. Each object uses a 32 step Flash Pattern. Each step in the 32 step flash pattern defines whether the backlight is on or off for the durations specified in the On Time and Off Time settings below. The 32 step Flash Pattern consists of eight blocks with four steps for each block. The Flash Pattern within a four step block is defined using the characters 0-9 and A-F. Figure 11 illustrates the 16 flash patterns for each four step block.

0:	○	○	○	○
1:	○	○	○	●
2:	○	○	●	○
3:	○	○	●	●
4:	○	●	○	○
5:	○	●	○	●
6:	○	●	●	○
7:	○	●	●	●
8:	●	○	○	○
9:	●	○	○	●
A:	●	○	●	○
B:	●	○	●	●
C:	●	●	○	○
D:	●	●	○	●
E:	●	●	●	○
F:	●	●	●	●

● =ON, ○=OFF

Figure 11 - Four step block flash patterns

The flash pattern is set for each block by specifying the number or letter associated with the desired flash pattern. Using this technique it is possible to define simple or complex flash patterns that you can use to identify an active object at a glance from across the room.

On Time and Off Time control the backlight on and backlight off duration for each of the 32 steps in the Flash Pattern. On Time and Off Time are specified in 10 millisecond increments, e.g., an On Time of 50 means the light will come on for 500 milliseconds (or one half second) for each Flash Pattern step where the light is set to come on.

There are many different possible Flash Patterns possible with this feature. Here are just a few that you can use to get started:

Flash Pattern: 55555555, On Time: 50, Off Time: 50

These are the default values for Flash Pattern, On Time and Off Time. The “off/on/off/on” pattern defined by Pattern 5 is used in all eight steps. When the object is active, the LED backlight (or Alert LED) will flash on and off at a rate of one flash per second, with each flash lasting half a second.

Flash Pattern: 88888888, On Time: 50, Off Time: 50

This combination causes the LED backlight (or Alert LED) to come on for a half second every two seconds.

Flash Pattern: A8A8A8A8, On Time: 1, Off Time: 5

This combination creates an interesting “strobe light” effect similar to the emergency lights on a public safety vehicle.

Many more combinations are possible - just experiment to find the ones that work for you. For more information on programming flash patterns, please see Appendix A - Alert LED Programming Examples.

To set the Flash Pattern, use the ▲ and ▼ keys to scroll to Flash Pattern, then press the ▶ key to set the pattern value. Follow the on-screen instructions to set the value of the flash pattern, using Figure 11 above as your guide.

To set On Time and Off Time, use the ▲ and ▼ keys to scroll to On Time or Off Time, then press the ▶ key to set the value. Follow the on-screen instructions to set the value for On Time and Off Time.

LED Enable

When checked, illuminates the PSR-800's tri-color Alert LED when a transmission is received on the object. The LED color is determined by the Color 1 RGB setting below.

LED Flash

When checked in conjunction with LED Enable, causes the PSR-800's tri-color Alert LED to flash according to the Flash Pattern setting above.

Color Count

Sets the number of colors (up to four) that will be displayed as the Alert LED flashes, defined by Colors 1-4 below. Each new "on" in a Flash Pattern will show the next color in the sequence.

Color 1-4

Defines up to four separate RGB colors for the Alert LED. Color 1 is the only color necessary if the Alert LED is simply set to come on when the object is active. Colors 1-4 are sequenced when the Alert LED is set to flash when the object is active. The RGB color settings control the brightness of the red, green and blue elements in the tri-color LED. There are 256 brightness steps possible for each color, represented in hexadecimal 00-FF. (Note that some colors exhibit little or no perceptible change in intensity once the higher ranges are reached.) Mixing the RGB color values produces colors other than the primary red, green and blue colors. For example:

Red	FF0000
Green	00FF00
Blue	0000FF
Yellow	FFFF00
Magenta	FF00FF
Cyan	00FFFF
White	FFFFFF

For more information on programming Alert LED colors and flash patterns, please see Appendix A - Alert LED Programming Examples.

Record

When checked, enables the Record function to capture all transmissions on the object. Enable Record must be checked in the Settings Menu.

Delete Object

Selecting Delete Object removes the object from the PSR-800's working memory configuration. The Library data is never altered in any way, so if necessary, the object can be imported to the PSR-800's Scanlists again.

To delete the current object, use the ▲ and ▼ keys to scroll to Delete Object, then press the ► key to proceed with the deletion. Follow the on-screen instructions to confirm Delete Object.

PSR-800 Settings Menu

The PSR-800's Settings Menu includes the basic and expert settings you can use to customize the operation of your PSR-800.

The PSR-800's factory default settings should be adequate for most users. You can use the Settings menu to customize these settings to suit your individual needs.

To access the Settings menu, press the MENU key until the Main Menu appears, then scroll to the Settings menu item and press the ► key to access the Settings menu.

Main Menu

Jumps to the Main Menu

Back

Jumps back (typically to the Main Menu)

Save Changes

Saves the changes you've made to the Settings options.

Default Vals

Restores radio settings to factory defaults without affecting programming data.

Simple Display

By default, the PSR-800 operates with a simplified display that only shows object and Scanlist names. To see more information about objects, disable this option. This option must be unchecked to view detailed frequency, talkgroup ID, Radio ID or CTCSS and DCS squelch code information.

Default SL

Sets the Default Scanlist. Objects imported from the Library, and new frequencies found with the Search modes or the Spectrum Sweeper are automatically mapped to the Default Scanlist.

Priority Mode

Enables Priority Mode. Objects that are with Priority enabled in the Object Menu will be checked more frequently for activity, giving them priority over objects that do not have Priority enabled.

Priority Time

Controls how frequently conventional channel priority objects are checked.

Enable Record

Turns on the Record feature. To record transmissions, the Record flag must be set in one or more objects, and Enable Record here must be checked.

Search Record

When checked, records transmissions found while searching.

G Atten Mode

Enables or disables Global Attenuator mode. When Global Attenuator is enabled, the PSR-800 applies attenuation to every object and search regardless of individual object attenuation settings when Global Attenuation is turned on.

G Atten On

Activates the Global Attenuation.

Search Dg AGC

When checked, applies Digital AGC to digital transmissions received while searching.

G AGC Mode

When checked, sets Global AGC Mode on. With Global AGC on, digital AGC is controlled by the G AGC On setting below, instead

of the per-object AGC setting. With G AGC Mode off, Digital AGC is controlled by the per object settings.

G AGC On

When checked, and when G AGC Mode is enabled, activates AGC for all incoming digital transmissions regardless of per-object setting. When unchecked, and when G AGC Mode is enabled, deactivates AGC for all incoming digital transmissions regardless of per-object setting.

Sounds

Controls all beep and alert sounds used by the radio. When set to On, the radio will play all sounds as defined by their individual settings. When set to Stealth, the radio will not play any alerts or key beep sounds.

Alerts

Controls audible and visual alerts. When set to Both, the radio will produce audible and visual alerts as defined by individual settings. When set to Audio, only audio alerts will be produced. When set to Visual, only visual alerts will be produced. When set to Off, no audio or visual alerts will be produced.

Key Beeps

Enables or disables Key Beep sounds.

Beep Volume

Controls the volume of Key Beep sounds.

Alert Volume

Controls the volume of object alert sounds.

Contrast

Sets the contrast of the LCD display.

LModeBAT

Sets the backlight mode to On, Stealth, Normal, Key, or Ignore when operating under battery power.

LModeEXT

Sets the backlight mode to On, Stealth, Normal, Key, or Ignore when operating under external power.

LiteArea

Controls whether the LCD, keypad or both should be illuminated when the backlight is active.

LiteTime

Controls the amount of time the backlight stays on.

LiteLevel

Controls the brightness of the backlight and the Alert LED

Welcome Text 1-5

Sets the text displayed on five lines of the display when the PSR-800 is first turned on.

Blink Time 1-2

For alternating display elements, controls the amount of time each item is displayed.

Show Radio ID

When enabled, displays the individual Radio ID if it is available for trunk radio systems that use the Radio ID feature. Simple Display must be unchecked.

Use RID Alert

When enabled, displays and/or plays the visual and audible alert settings associated with a specific Radio ID when that Radio ID becomes involved in a call.

Show VC/CC

When enabled, displays the voice channel and control channel frequencies on the LCD display. Simple Display must be unchecked. Show Radio ID will override Show VC/CC if a Radio ID is available.

Show TGID

When enabled, shows the Talkgroup ID with talkgroup calls. Simple Display must be unchecked.

Show Site Name

When enabled, shows the Site Name for the trunking site being used for the current talkgroup call. Simple Display must be unchecked. Site Name is only displayed if there are two or more sites programmed for the trunking system.

CONV TGID

When enabled, shows the Talkgroup ID for P25 Conventional Talkgroup calls. Simple Display must be unchecked.

CONV Radio ID

When enabled, shows the Radio ID for P25 conventional calls. Simple Display must be unchecked.

PC/IF CCDump

When enabled, streams ASCII Control Channel Dump data over the USB interface when the radio is tuned to a trunking control channel.

Low Batt Time

Sets the interval for the audible low battery warning.

Charge Time

Sets the charge time for the built-in radio charger.

TG Disp

Sets the display format for talkgroup IDs.

M36 Status Bits

When enabled, the radio will track Motorola 3600 baud trunking talkgroup calls using status bits. When disabled, status bits are ignored.

Bandplan

Selects USA or Canada search frequency steps in VHF and UHF bands. Imported frequencies will use the bandplan obtained from the Library.

EncMode

Selects how the radio treats encrypted voice calls. "Noise" plays the random undecoded encryption noise. "Silent" plays no audio during the call. "Tone" plays a soft tone for the duration of the call.

EncLevel

Selects the tone level for tones played during encrypted calls.

IF Out

When enabled, routes the IF (discriminator) signal to the radio's headphone connector for use by external decoding software applications. When HP is selected, the IF signal will be present

at the headphone jack. When HP/SP is selected, the IF signal will also be present at the speaker.

DSPLevelAdapt

Controls how fast the DSP adjusts to varying P25 levels. The default value is 64. Lower values correspond to slower rates, and higher values correspond to faster rates. Use of the default value is recommended unless otherwise directed by GRE Support.

DSPADCGain

Controls input signal to CODEC. The default value is +0dB. Use of the default value is recommended unless otherwise directed by GRE Support.

DSPDACGain

Sets output signal from CODEC, varying the audio level of decoded digital signals. The default value is +0dB. Use of the default value is recommended unless otherwise directed by GRE Support.

PSR-800 Playback Menu

To access the Playback menu, select Playback from the Main Menu, then press the Menu key.

Main Menu

Jumps to the Main Menu

Back

Jumps back to the recording list

Play From Here

Plays the current recording and all recordings after it.

Delete All

Deletes all recorded audio files.

Delete Earlier

Deletes recorded audio files prior to the selected audio file. Before selecting this option, ensure that you have selected the desired audio file to use as a marker for the Delete Earlier function.

Delete Later

Deletes the selected audio file and all recorded files after. Before selecting this option, ensure that you have selected the desired audio file to use as a marker for the Delete Later function.

Troubleshooting

Should you experience difficulty with the PSR-800, please refer to the following troubleshooting guide for assistance. If you are unable to restore the PSR-800 to normal operation after following these steps, contact your dealer or GRE America for assistance.

The scanner does not function

- Ensure that the PSR-800 is equipped with fresh batteries. If powering the PSR-800 from external power, make certain that the USB power plug is fully inserted into the PSR-800's USB jack.

Low battery warning beeps and message on LCD display

- Recharge rechargeable batteries or replace alkaline batteries. Ensure that the battery type selection switch in the battery compartment is set to the correct battery type.

Poor or no reception

- Weak signals from distant stations. Reposition for best reception.
- Attenuator in use on weak signals. Check performance with and without attenuator activated, use setting with best reception.
- Strong signal overload from nearby transmitter. Check performance with and without attenuator activated, use setting with best reception.
- Loose or defective antenna. Inspect antenna and connectors and correct any problems found.
- Incorrect modulation mode selected. Ensure that proper modulation mode is selected for the type of system being monitored. If necessary, use the PSR-800 PC Application to change modulation mode.

“Scanning not available” shown in display

- The batteries are low and all functions that write data to the MicroSD Card (including scanning) are disabled to prevent data corruption. Recharge or replace the batteries.

The scanner is on but does not scan

- The squelch may not be adjusted correctly. Turn the squelch control counterclockwise.

The scanner does not recognize the MicroSD Card

- The MicroSD Card is not properly formatted. Use the PSR-800 PC Application to reformat the card. If using Windows to format the card, the card format must be FAT or FAT32 with 32kB clusters.
- The MicroSD Card may not be inserted fully. Press the MicroSD Card into the slot until a click is heard and the card is fully inserted in the slot.
- The MicroSD Card may be defective. Replace with a new MicroSD Card.

“Init SD Card” appears when the scanner is turned on

- The MicroSD Card is not properly formatted. Use the PSR-800 PC Application to reformat the card.
- The MicroSD Card may not be inserted fully. Press the MicroSD Card into the slot until a click is heard and the card is fully inserted in the slot.

MicroSD Card error messages

The PSR-800’s MicroSD Card must be formatted correctly for proper operation. If the MicroSD Card is corrupted, defective, improperly formatted or missing, or if essential files or directories are not present on the card, the PSR-800 display an error message. If you experience an error message while using your PSR-800 in the field, take a moment to ensure that the MicroSD card is fully inserted in the slot. If this does not correct the problem, refer to the following table for the meanings of the various error codes and steps you can take to correct the problem:

Code	Meaning	Corrective Action
01-00	General heap error	Contact GRE Support and provide error code information
01-01	Unable to allocate from heap	Contact GRE Support and provide error code information
02-00	Unknown object type in data	Use PC Application to delete any corrupted objects or create a new configuration
02-01	Unknown TSYS type in data	Use PC Application to delete any corrupted TSYS objects or create a new configuration

Code	Meaning	Corrective Action
03-00	No MicroSD Card inserted	Ensure that a properly formatted MicroSD card is fully inserted and locked in the MicroSD slot.
03-01	General error initializing file system	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
03-02	Cluster size bad	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
03-03	Error reading MicroSD card	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
03-04	Error writing MicroSD card	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
03-05	MicroSD Card is full	Reduce size of configuration, remove unnecessary audio recordings or switch to a MicroSD card with more capacity.
03-06	MicroSD Card is write protected	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
03-07	Mass storage mode is active	Under normal conditions this error should not appear. Mass storage device mode is disabled when the scanner is connected to a computer and scanning. Disconnect the radio from the computer, wait a few seconds, then reconnect. Contact GRE Support if the problem persists.
03-08	Unknown MicroSD card read/write error	Reinsert the MicroSD card to ensure it is fully inserted in locked in the MicroSD slot. If necessary, reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.

Code	Meaning	Corrective Action
04-00	Initialization error	Contact GRE Support and provide error code information
04-01	Initialization error	Contact GRE Support and provide error code information
04-02	Firmware load error	Contact GRE Support and provide error code information
05-00	Unable to load CONFIG__.BIN	Reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
05-01	CONFIG__.BIN file error	Reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
05-02	CONFIG__.BIN file error	Reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.
05-03	CONFIG__.BIN file error	Reformat the MicroSD card using the PC Application "Prepare SD Card for use" option. Replace the MicroSD card if the problem persists.

Birdie Frequencies

Every scanner has birdie frequencies. Birdies are signals created inside the scanner's receiver, and sometimes may interfere with transmissions on the same frequencies.

If you program a frequency and hear only noise on that frequency, it may be a birdie. If the interference is not severe, you might be able to turn Squelch clockwise to omit the birdie.

Your scanner may have a few birdies that are so strong, rotating the Squelch control clockwise will not solve the birdie problem.

If you suspect that a frequency you have programmed is being affected by a birdie, try removing the antenna. Removing the antenna will help determine if the interfering signal is a birdie signal being generated inside of the scanner, or the result of an external interference source. If the noise on a frequency is not affected when the antenna is removed, it is almost certainly the result of a birdie. If the noise disappears when the antenna is removed, the noise is most likely coming from an external source. Moving the scanner may reduce or solve the issue.

Care

Your scanner is not waterproof. Keep the scanner dry and away from water. Do not wash the scanner with a wet cloth or pour fluid into the scanner. If the scanner gets wet, wipe it dry immediately. Use and store the scanner only in normal temperature environments. Handle the scanner carefully; do not drop it. Keep the scanner away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

Service and Repair

If your scanner is not performing as it should, contact your dealer or GRE America for assistance.

Modifying or tampering with the scanner's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it.

The radio design of the tuning, control and filtering circuitry on the receiver is controlled by the serial data from the firmware code in the microprocessor, which is built-in to the microprocessor as a part of its internal design. Since the microprocessor information is inaccessible to the user, any attempts to modify the radio's circuitry to change these characteristics of the radio's design will cause the radio to fail.

Appendix A - Alert LED Programming Examples

GRE's exclusive Alert LED has been enhanced for the PSR-800. These enhancements provide powerful new capabilities for customizing the Alert LED, giving you even more flexibility for setting the Alert LED up to show unique colors and flash patterns when transmissions are received on important talkgroups and channels. GRE's designers have provided some of their favorite settings here. Use these as examples of how you can configure the Alert LED to produce unique and noticeable effects and colors.

On Solid - Single Color

Flash Pattern	n/a
On Time	n/a
Off Time	n/a
LED Enable	Checked
LED Flash	Unchecked
Color Count	1
Color 1	FF0000 (red)
Color 2	n/a
Color 3	n/a
Color 4	n/a

These settings will illuminate the LED with a single color, solid, no flashing when the object is receiving traffic.

Slow Flash - Single Color

Flash Pattern	55555555
On Time	50
Off Time	50
LED Enable	Checked
LED Flash	Checked
Color Count	1
Color 1	FF0000 (red)
Color 2	n/a
Color 3	n/a
Color 4	n/a

These settings will illuminate the LED with a single color, flashing on and off at the rate of one cycle per second.

Slow Flash - Two Color

Flash Pattern	55555555
On Time	50
Off Time	50
LED Enable	Checked
LED Flash	Checked
Color Count	2
Color 1	FF0000 (red)
Color 2	0000FF (blue)
Color 3	n/a
Color 4	n/a

The settings shown above will illuminate the LED with a two colors, flashing on and off at the rate of one cycle per second. The LED will be illuminated for 1/2 second and off for 1/2 second each period and will alternate colors each flash.

“Highway Department 1” Strobe Effect

Flash Pattern	A8A8A8A8
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	1
Color 1	FFFF00 (yellow)
Color 2	n/a
Color 3	n/a
Color 4	n/a

These settings produce a rapid yellow pulsing strobe effect.

“Highway Department 2” Strobe Effect

Flash Pattern	A8A8A8A8
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	2
Color 1	FFFF00 (yellow)
Color 2	FFFFFF (white)
Color 3	n/a
Color 4	n/a

The settings produce a rapid yellow and white strobe effect.

“Police Department 1” Strobe Effect

Flash Pattern	A8A8A8A8
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	1
Color 1	0000FF (blue)
Color 2	n/a
Color 3	n/a
Color 4	n/a

These settings produce a rapid blue pulsing strobe effect.

“Police Department 2” Strobe Effect

Flash Pattern	AAAAAAAA
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	1
Color 1	0000FF (blue)
Color 2	n/a
Color 3	n/a
Color 4	n/a

The settings produce a rapid blue continuous strobe effect.

“Police Department 3” Strobe Effect

Flash Pattern	AAAAAAAA
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	2
Color 1	0000FF (blue)
Color 2	FF0000 (red)
Color 3	n/a
Color 4	n/a

These settings produce an alternating blue/red strobe effect.

“Fire/EMS 1” Flasher Effect

Flash Pattern	AFAFAFAF
On Time	5
Off Time	1
LED Enable	Checked
LED Flash	Checked
Color Count	2
Color 1	FF0000 (red)
Color 2	FFFFFF (white)
Color 3	n/a
Color 4	n/a

The settings produce an intense red/white strobe effect.

“Fire/EMS 2” Strobe Effect

Flash Pattern	AAAAAAAA
On Time	5
Off Time	9
LED Enable	Checked
LED Flash	Checked
Color Count	2
Color 1	0000FF (blue)
Color 2	FF0000 (red)
Color 3	n/a
Color 4	n/a

These settings produce a rapid red/white strobe effect.

“Christmas Tree” Flasher Effect

Flash Pattern	FFFFFFFF
On Time	50
Off Time	1
LED Enable	Checked
LED Flash	Checked
Color Count	4
Color 1	FF0000 (red)
Color 2	FFFFFF (white)
Color 3	00FF00 (green)
Color 4	FFFFFF (white)

Just for fun.

Specifications

FREQUENCY RANGE

	<u>Freq.Step</u>	<u>Mode (Default)</u>
25.0000 – 26.9600 MHz	10 kHz AM	
26.9650 – 27.4050 MHz	10 kHz AM	
27.4100 – 29.5050 MHz	5 kHz AM	
29.5100 – 29.7000 MHz	5 kHz	FM
29.7100 – 49.8300 MHz	10 kHz	FM
49.8350 – 54.0000 MHz	5 kHz	FM
108.000 – 136.9916 MHz	8.33 kHz AM	
137.000 – 137.995 MHz	5 kHz	FM
138.000 – 143.9875 MHz	12.5 kHz AM	
144.000 – 147.9950 MHz	5 kHz	FM
148.000 – 150.7875 MHz	12.5 kHz	FM
150.800 – 150.8450 MHz	5 kHz	FM
150.8525 – 154.4975 MHz	7.5 kHz	FM
154.5150 – 154.6400 MHz	5 kHz	FM
154.6500 – 156.2550 MHz	7.5 kHz	FM
156.2750 – 157.4500 MHz	25 kHz	FM
157.4700 – 161.5725 MHz	7.5 kHz	FM
161.6000 – 161.9750 MHz	5 kHz	FM
162.0000 – 174.0000 MHz	12.5 kHz	FM
216.0025 – 219.9975 MHz	5 kHz	FM
220.0000 – 224.9950 MHz	5 kHz	FM
225.0000 – 379.999375 MHz	6.25 kHz AM	
380.0000 – 419.987500 MHz	12.5 kHz	FM
420.0000 – 450.000000 MHz	5 kHz	FM
450.00625 – 469.99375 MHz	6.25 kHz	FM
470.00000 – 512.00000 MHz	6.25 kHz	FM
764.00000 – 781.996875 MHz	3.125 kHz	FM
791.00000 – 796.996875 MHz	3.125 kHz	FM
806.00000 – 823.987500 MHz	12.5 kHz	FM
849.00000 – 868.987500 MHz	12.5 kHz	FM
894.00000 – 939.987500 MHz	12.5 kHz	FM
940.00000 – 960.000000 MHz	6.25 kHz	FM
1240.0000 – 1300.00000 MHz	6.25 kHz	FM
137.0000 – 174.0000 MHz	5 kHz	FM (Canada)
380.00000 – 512.00000 MHz	12.5 kHz	FM (Canada)

PROGRAMMABLE MEMORIES AND SEARCHES

Object capacity (Nominal, with 2 GB MicroSD Card): > 10 million, varies depending on user configuration
 200 regular Scanlists, 1 Skywarn Scanlist
 20 Scan Sets
 Service searches:
 Programmable limit search
 Conventional and trunked priority

7 preprogrammed WX frequencies with WX priority and SAME
10 SAME memory locations
200 V-Scanner II Configurations

RECEIVING MODES

AM, FM, FM-MOT (Motorola), LTR (EF Johnson), EDACS wide/narrow
(GE/Ericsson/HARRIS), CTCSS and DCS

RECEIVING SYSTEM

Triple conversion PLL super heterodyne

SERVICE BAND SEARCH

Marine
CB
FRS/GRMS/MURS
Public safety
Aircraft
Amateur (Ham)
Railroad

WX FREQUENCIES

162.400, 162.425, 162.450, 162.475, 162.500, 162.525, 162.550 MHz

DISPLAY

Full dot matrix bitmap LCD(132x65 dots)

SENSITIVITY (12 dB SINAD UNLESS OTHERWISE NOTED)

VHF Low	0.2 μ V
VHF Aircraft	0.4 μ V
VHF High 137-174 MHz	0.3 μ V
VHF High 216-300 MHz	0.4 μ V
UHF Low 300 - 406MHz	0.8 μ V
UHF/UHF-T 406 - 512 MHz	0.4 μ V
UHF High 764 - 960 MHz	0.5 μ V
1240 - 1300 MHz	0.5 μ V

SQUELCH SENSITIVITY (BAND CENTER)

Threshold: AM/FM 0.5 μ V
Tight: (S+N)/N: AM 20 dB, FM 25 dB

SPURIOUS REJECTION

VHF High at 154.1 MHz: 40 dB
(Except Primary image)

SIGNAL TO NOISE RATIO (100 μ V INPUT SIGNAL)

35-40 dB typical

SCANNING RATE WITHOUT TRUNKING

138 – 147.9 MHz: 70ch/second (in 100 kHz Intervals)

SEARCH RATE

162.25 – 167.25 MHz: 80 steps/sec.

SCAN AND SEARCH DELAY TIME

2 seconds

AUDIO MAX. POWER RF INPUT: 100 μ V AT 154.1 MHZ (DEV:3KHZ AT1KHZ)

8 Ohms Resistor Load at speaker terminal (BTL): 500 m Watts

INTERMEDIATE FREQUENCY

1st 380.8 MHz

2nd 21.4 MHz

3rd 455 kHz

CURRENT DRAIN (BACK LIGHT OFF/WITH OUT CHARGING)

8 Ohm internal speaker at 154.1 MHz, 5.5VDC Ext Power, Squelched:
170mA nominal

ANTENNA IMPEDANCE

50 Ohms

TEMPERATURE RANGE

Operate (Need not meet spec.): -10°C – +60°C

SPEAKER

Built-in 36 mm 8 Ohms dynamic speaker

OPERATING VOLTAGE

DC 4.8 Volts ("AA" cell x 4 pcs. Ni-MH Batteries)

DC 6.0 Volts ("AA" cell x 4 pcs. ALKALINE Batteries)

EXT. POWER AND CHARGE VOLTAGE

USB Power (DC 5V 500mA)

DIMENSIONS

Approximately 5 5/16 x 2 1/8" x 1 1/16" (135 x 67 x 28 mm) (HWD)

WEIGHT

Approximately 7.4 oz. (210g) without accessories and batteries

PC APPLICATION SOFTWARE

Requires Windows 2000, Windows XP, Windows Vista or Windows 7

Limited Warranty

Limited Warranty

General

GRE America, Inc. warrants all parts of each new product to be of sound design, good material and workmanship, and will repair or exchange any parts proven to be defective under normal use at no charge for a period of 12 months from the date of sale to the end user.

GRE America will correct defects. There will be no charge for labor for a period of 12 months from the date of original sale, except as provided below. Overtime premiums and/or expedited handling and shipping costs must be paid by the owner.

An enclosed Warranty Card is included with each unit of purchase. We request the Warranty card be filled and return back to GRE America to validate the Warranty of your purchase along with Proof-of-purchase or you may also register online using the link below.

Online Product Registration is also available at <http://www.greamerica.com/register>

Warranty Limitations

This warranty does not apply to equipment or parts that have been subject to accident, abuse, incorrect service, alterations, service by non-authorized service personal, misuse.

A copy of the purchase receipt must be supplied or validated Warranty Registration must be on GRE database either by mail or through online when requesting for service.

Equipment must be sent to GRE America at the owner or dealer's expense and will be returned via surface carrier at no cost to the owner.

This warranty is strictly limited to the terms indicated herein, and no other warranties or remedies thereunder, express or implied, shall be binding on GRE America.

Warranty Returns

RETURN DEFECTIVE PRODUCTS TO YOUR DEALER OR CALL GRE AMERICA FOR A RETURN AUTHORIZATION NUMBER (RMA). YOU SHOULD HAVE A COPY OF YOUR ORIGINAL RECEIPT TO VERIFY DATE PURCHASE. UNIT IN WHICH THE WARRANTY HAS EXPIRED MAY BE SERVICED AT A FIXED RATE + PARTS FOR FACTORY REPAIRS. RETURN SHIPPING FOR UNITS UNDER WARRANTY WILL BE PAID BY GRE AMERICA. SHIPPING FOR UNITS OUT OF WARRANTY WILL BE PAID BY THE SENDER IN BOTH DIRECTIONS. AN RMA# OUTSIDE THE BOX NEXT TO THE SHIPPING ADDRESS MUST BE ACCOMPANIED WITH ALL UNITS BEING RETURN BACK TO GRE AMERICA. RETURNS WITHOUT RMA# WILL DELAY IN PROCESSING YOUR WARRANTY OR NON-WARRANTY REPAIRS.

GRE America, Inc.

425 Harbor Blvd.

Belmont, CA 94002 U.S.A

Ph: (650) 591-1400 . Fax: (650) 591-2001

Website: <http://www.greamerica.com>

Online Registration: <http://www.greamerica.com/register>