



2000649 / PRO-649  
User's Guide

# HANDHELD RADIO SCANNER

Thank you for purchasing your Handheld Radio Scanner from RadioShack. Please read this user's guide before setting up and using your new scanner.



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# Package Contents

- Scanner
- Belt Clip
- Antenna
- User's Guide
- Quick Start Guide
- Alkaline Battery Holder
- Rechargeable Battery Holder

## 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, there are some transmissions you should never intentionally listen to. These include:

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

According to the Electronic Communications Privacy Act (ECPA), as amended, 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 is designed to prevent reception of illegal transmissions, in compliance with the law which requires that scanners be manufactured in such a way 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 not legal to listen to. Doing so could subject you to legal penalties.

In some areas, mobile use of this scanner is unlawful or requires a permit. Check the laws in your area. We encourage responsible, legal scanner use.

# Features

Your new PRO-649 Handheld Scanner lets you scan conventional transmissions, and is preprogrammed with search banks for convenience. By pressing a one touch search key, you can quickly search those frequencies most commonly used by public service and other agencies without tedious and complicated programming.

This scanner gives you direct access to over 25,000 exciting frequencies, including those used by ambulance services, aircraft, and amateur radio services, marine, civil air patrol, VHF and UHF business bands, government frequencies and some police and fire departments.

## **Your scanner also has these special features:**

**Signal Stalker II** – a powerful new tool for you to rapidly detect, monitor and store frequencies for nearby radio transmissions.

**One-Touch Service Search Banks** – Let you search preset frequencies in separate marine, fire/police, aircraft, ham and weather bands.

**Display Backlight** – Easy to read in low-light situations.

**Lockout Function** – Lets you skip specified channels or frequencies when scanning or searching.

**Ten Channel-Storage Banks** – You can store 20 channels in each bank (200 total channels), letting you group channels so you can more easily identify calls.

**SAME/FIPS Weather Alert** – Displays weather events for the county or counties that you choose.

**Memory Backup** – Keeps the frequencies stored in memory for an extended time.

**Scan Delay** – Delays scanning for about 2 seconds, so that you can hear replies on the same channel.

**Priority Channel** – Lets you set the scanner to check one channel every 2 seconds so that you do not miss transmissions on that channel.

**Data Cloning** – Lets you transfer the programmed data to another PRO-649 scanner.

# Scanner Basics

After you familiarize yourself with your scanner's features you can then set up your scanner.


## Frequencies

A frequency is the waveband of the transmitting signal (expressed in kHz or MHz). Your PRO-649 receives a range of analog frequencies; the best resource for your local frequencies is [www.radioreference.com](http://www.radioreference.com).

Also, you can use your scanner's search functions to find active frequencies in your area.

### Your PRO-649 scanner can receive these bands:

Frequency Range	Types of Transmissions
29–54 MHz	10-Meter Ham, VHF Lo, 6-Meter Ham
108–136.9875 MHz	Aircraft
137–174 MHz	Military Land Mobile, 2-Meter Ham, VHF Hi
380–512 MHz	UHF Aircraft, Federal Government, 70-cm Ham, UHF Standard, UHF "T"

 *Note: See "Specifications" on page 30 for more information about frequency steps.*

## Channels

Channels are storage areas for frequencies saved in your scanner's memory. Each saved frequency is assigned a channel.

## Banks

A bank is a storage area for a group of channels. Your scanner provides 10 banks (1 to 10) that can each store up to 20 channels, for a total of 200 channels. You can use the banks to group and organize frequencies.

For example, you could program the frequencies used by your local police department starting with Channel 1 (the first channel in bank 1) and program the fire department frequencies starting with Channel 21 (the first channel in bank 2).

# Setup

## Connecting the Antenna

To attach the supplied flexible antenna to the antenna jack on top of your scanner, align the slots around the antenna's connector with the tabs on the antenna jack. Press the antenna down over the jack and turn the antenna's base clockwise until it locks into place.



## Connecting an Outdoor Antenna

To connect an external antenna, follow the installation instructions supplied with the antenna. Use 50 Ohm coaxial cable, such as RG-58 or RG-8. For lengths over 50 feet, use RG-8 low-loss dielectric coaxial cable. If the antenna cable's connector does not have a BNC connector, you will also need a BNC adapter (available at your local **RadioShack** store).

**⚠ 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.

# Connecting a Speaker or Headphones

You can plug an amplified speaker or headphones (not supplied) with 1/8 inch (3.5 mm) mini-plug into the **HEADPHONE** jack on the top of the scanner. This automatically disconnects the internal speaker.

**Note:** Use an amplified speaker with this scanner. Non-amplified speakers do not provide sufficient volume for comfortable listening.

## Listening Safely

To protect your hearing, follow these guidelines:

- Do not listen at high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Set the volume to the lowest setting. Then turn on your audio device and adjust the volume to a comfortable level.
- Avoid increasing the volume. Your ears will adapt to the volume level, so a level that does not cause discomfort could still damage your hearing.

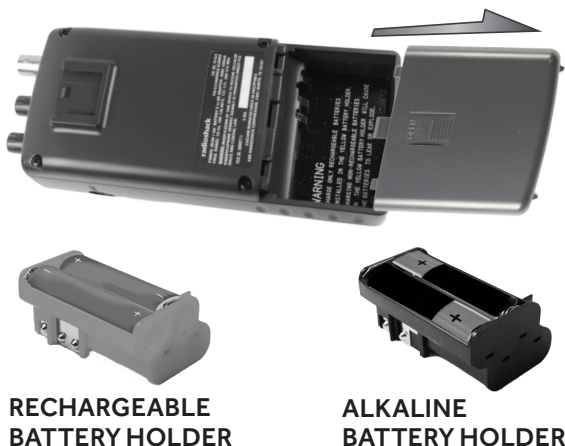
## Using the Belt Clip

You can use the belt clip attached to the back of the scanner for hands-free carrying when you are on the go. Slide the belt clip over your belt or waistband. To remove the belt clip, gently lift up the retaining catch at the top of the belt clip from the back of radio and slide the clip upward.

# Powering Your Scanner

## Using Batteries

Your scanner has a built-in charging circuit to maintain peak performance of your Nickel-Metal Hydride (Ni-MH) or Nickel Cadmium (Ni-CD) rechargeable batteries (not supplied) while they are in the scanner.



For the best performance, use alkaline batteries. For rechargeable battery holder, we recommend nickel-metal hydride (Ni-MH) batteries. You must charge rechargeable batteries before you use them the first time.

When battery power is low **B** appears and the scanner beeps continuously.

1. Open the battery compartment.
2. Place four AA batteries (not supplied) into one of the battery holders as indicated by the polarity symbols (+ and -). For non-rechargeable batteries, use the black holder; for rechargeable batteries, use the yellow holder.
3. Place the battery holder into the battery compartment and replace the cover.

**Warning:** Never install non-rechargeable batteries in the rechargeable yellow battery holder. Non-rechargeable batteries can get hot or explode if you try to recharge them.



## Cautions:

The battery holders fit only one way. Do not force them.

Use only fresh batteries of the required size and recommended type.

Remove old or weak batteries. Batteries can leak chemicals that destroy electronic circuits.

Dispose of old batteries promptly and properly. Do not burn or bury them.

Do not mix old and new batteries, different types of batteries (alkaline, or rechargeable), or rechargeable batteries of different capacities.

If you do not plan to use the scanner with batteries for a month or longer, remove the batteries. Batteries can leak chemicals that can destroy electronic parts.

## Using AC Power

Connect a compatible adapter to the scanner's **DC 9V** jack and a standard power outlet. To disconnect, unplug the adapter first.

**Caution:** You must use a Class 2 power source that supplies 9V DC and delivers at least 400mA. Its center tip must be set to positive and its plug must fit the scanner's **DC 9V** jack. Using an adapter that does not meet these specifications could damage the scanner or the adapter.

**Note:** If you use a cigarette-lighter power cable and your vehicle's engine is running, you might hear electrical noise from the engine while scanning. This is normal.

## Turning on the Scanner

1. Turn the **SQUELCH** all the way down before you turn on the scanner.
2. Turn the **VOLUME** knob to turn **ON** the radio. A welcome message appears. After about 3 seconds, adjust **VOLUME** to a comfortable level.
3. Turn **SQUELCH** clockwise, just until the hissing sound stops. If you always hear a hissing sound, the scanner will not scan or search properly.
  - To listen to a weak or distant station, turn **SQUELCH** counterclockwise.
  - If reception is poor, turn **SQUELCH** clockwise to cut out weak transmissions.

# Understanding the Keypad



## Turning Off the Key Tone

The scanner is preset to sound a tone each time you press one of its keys.

**To turn the key tone on and off:**

1. Turn on the scanner. *WELCOME SCANNING RECEIVER* appears.
2. While the welcome message is on the screen, press **1** to turn on the key tone or press **2** to turn it off.



– Signal Stalker II.

**PSE (Pause)** – Stop and restart a search or tune.



– Search the preprogrammed marine bank.



– Search the preprogrammed fire/police bank.



– Search the preprogrammed aircraft bank.



– Search the preprogrammed amateur radio bank.



– Search the preprogrammed weather bank, or hold to jump to the Skywarn® channel. (First, program your local Skywarn® frequency into channel 200).

**SCAN / MAN (Manual)** – Press to scan programmed channels. Press again to monitor a single channel.

▲ ▼ – Select the direction for searching and scanning.

**PRI / ALERT** – Set the priority feature, or set SAME standby mode when monitoring a weather channel.

**0–9** – Input numbers or select banks (**0** selects bank 10). The number range above the keys (1–20, 21–40, 41–60, etc.) indicates the channels stored in that bank.

**• / DELAY** – Input a decimal point or set a channel delay.

**ENT (Enter)** – Complete the entry of a frequency.

**L/O / L/O RVW** – Lock-out selected channels or frequencies. Review locked-out frequencies.

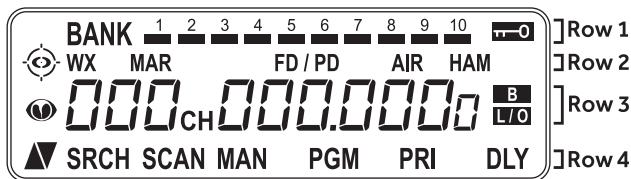
**TUNE / CLEAR** – Enter Tune search. Clear an incorrect entry.

**PGM** – Program frequencies into channels.



– Locks (and unlocks) the keypad to prevent accidental entries; turns the backlight on and off.

# Understanding the Display



## Row 1

 – Signal Stalker II search is active.

**BANK** – Appears with numbers (1-10) to indicate the scan bank. The bar under the bank number shows banks that are turned on for scanning.

 – Keypad locked.

## Row 2

**WX** – Searching weather channels.

**MAR** – Searching the marine bank.

**FD/PD** – Searching the fire/police bank.

**AIR** – Searching the aircraft bank.

**HAM** – Searching the amateur radio bank.

## Row 3

 – Skywarn® channel active.

**000** – Channel number the scanner is tuned to.

**CH** – Appears with channel number (1–200) or *P* (priority channel).

**000.0000** – Frequency the scanner is tuned to.

 – Batteries are low.

 – A locked out channel/frequency is manually selected or reviewed.

## Row 4

**ed (Up/Down)** – Search or scan direction.

**SRCH** – Searching a service bank.

**SCAN** – Scan mode.

**MAN** – Manual mode.

**PGM** – Program mode.

**PRI** – Priority feature is active.

**DLY** – Two-second delay is active.

## Display Messages

*ALL CH L-out* – All channels locked out during scan or marine band search.

*b X Ch-FULL* – All displayed bank channels are full.

*b X StorE* – Frequency programmed into displayed bank's channel.

*CLOnE* – Clone mode.

*-dUPL-* – Frequency is already stored in another channel.

*Error* – Entry error.

*FLo ALL-CL* – All the locked-out frequencies removed during a FD/PD, AIRCRAFT, or HAM bank search.

*L-r* – Review the locked-out frequencies.

*L-D Fr-FULL* – Maximum of 50 frequencies already locked out.

*oFF tonE* – Key tone deactivated.

*On tonE* – Key tone activated.

*P* – Scanner is tuned to the priority channel.

*-t-* – Tune mode.

## Sub Bank Messages

*Lo VHF* – Sub-bank 1 of the fire/police bank.

*Hi VHF* – Sub-bank 2 of the fire/police bank.

*UHF* – Sub-bank 3 of the fire/police bank.

*10 M* – Sub-bank 1 of the HAM bank.

*6 M* – Sub-bank 2 of the HAM bank.

*2 M* – Sub-bank 3 of the HAM bank.

*70CM* – Sub-bank 4 of the HAM bank.

# Configuring Your Scanner

## Preprogrammed Frequencies

Your scanner includes 153 preprogrammed frequencies, which you can load into Channels 1 to 153. For a list of these frequencies, see "Preprogrammed Frequency List" on page 26.

### To load the preprogrammed frequencies:

1. Turn off the scanner and then turn it on again.
2. While **WELCOME** message appears, press **PGM**.
3. **Load -Fr-** appears, then **YES--Ent** and **No--CLEAR** appear alternately.
4. Press **ENT** to load frequencies or **CLEAR** to cancel.

## Programming Channels

If you do not have a list of frequencies in your area, refer to an online resource such as [www.radioreference.com](http://www.radioreference.com).

1. Press **PGM**. **PGM** appears.
2. Enter the channel number (1–200) where you want to store a frequency,
3. Press **PGM** again.
4. Use the number keys to enter the frequency.
5. Press **ENT**.
6. To program the next channel in sequence, press **PGM** and repeat Steps 4 and 5.



- Your scanner automatically rounds down to the closest valid frequency. For example, if you enter 151.473, your scanner rounds it to 151.470.
- If **Error** appears and the scanner beeps three times when you press **ENT**, start again from Step 2.
- If the frequency is already stored in another channel, the scanner beeps three times and displays **•DUPL•** (duplicate) and the lowest channel number where the frequency is already stored. Press **TUNE/CLEAR** to cancel. Press **ENT** if you still want to store the frequency.

# Programming with a Computer

You can upload or download programmed data to or from a PC using a USB cable available from your local RadioShack store or [www.RadioShack.com](http://www.RadioShack.com).

The application software is available online. Use a search engine to find "scanner programming software." Follow instructions in the software package to upload and download data.

## Cloning Programmed Data

You can transfer the programmed data to and from a PRO-649 scanner using an optional connecting cable with 1/8-inch (3.5mm) stereo phone plugs on both ends (available from your local *RadioShack* store or [www.RadioShack.com](http://www.RadioShack.com)).

1. Turn on both scanners.
2. Connect the connecting cable to each scanner's **PC/IF** jack. *CLOnE* and *UP to SEnd* appears.
3. Press **e** on the host scanner.
4. *SEndInG* appears at the host scanner.

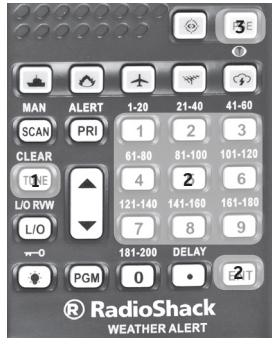
To exit clone mode after the data transfer is complete, remove the cable.

*No ConnEct* appears if you try to connect to another model scanner. The PRO-649 does not clone with other scanner models.

# Searching for Frequencies

During a tune search, the scanner tunes up or down starting from a frequency you specify.

1. Press **TUNE**. The display alternates between *PSE* and *-t-*.
2. If you want to change the starting frequency, enter a new frequency and press **ENT**.
3. Press **PSE** to start tune search. *-t-* appears on the display.
4. To change the tuning direction, press ▲ or ▼.



## Service Bank Search

Your scanner contains groups of preset frequencies called Service Banks. You can search for marine, fire/police, aircraft, ham, and weather transmissions even if you do not know the specific frequencies that are used in your area.

Then you can store the frequencies you find into the scanner's channels (except for weather and marine banks, which are already stored as channels). To start the search, press the button for the Service Bank you would like to search (Marine, Fire/Police, Air, Ham, or Weather).

### Search Commands

- Press **PSE** to pause searching. Press **PSE** again to resume.
- Press **•/Delay** to turn the two-second delay feature on and off.
- Press **L/O** to lock-out a frequency (except Weather band).
- To reverse the search direction at any time, press ▲ or ▼.
- If necessary, you can select search groups using the number keys.



# Storing Found Frequencies

You can save frequencies in channel-storage banks.

1. Press **ENT** when you find a frequency. The bank number and **Store** appear.
2. To change banks, enter the new bank number.
3. Press **ENT**. The channel and frequency flash twice. To cancel the operation, press **TUNE/CLEAR**.



- The frequency is automatically stored in the first empty channel of the selected bank.
- If the scanner displays **•dUPL•**, the frequency is already stored in another channel. Press **ENT** to continue. Press **TUNE/CLEAR** to cancel.
- If there are no empty channels in the bank, **Ch-FULL** appears. Clear a channel or select another bank (see **“Clearing a Stored Channel”** on page 21).
- If the scanner displays **•dUPL•** or **Ch-FULL**, you can store another channel location by pressing **PGM**. The channel number flashes and **000.0000** (or previous frequency) appears. Press the desired channel number then press **ENT**. Repeat if needed. Press **ENT** again when an empty channel is found.

## Birdie Frequencies

All scanners have birdie frequencies, which are signals created inside a scanner that can cause interference.

### To find the birdies in your scanner:

1. Disconnect the antenna, and make sure that no other nearby radio or TV sets are turned on near the scanner.
2. Search every frequency range from its lowest frequency to the highest. Occasionally, the searching will stop as if it has found a signal, often without any sound. This is a birdie.
3. Make a list of all the birdies in your scanner for future reference.

# Scanning and Monitoring

Press **SCAN/MAN** until *SCAN* appears to continuously scan through all channels with stored frequencies. If the scanner finds an active frequency, it pauses until the transmission ends.

Press ▲ or ▼ to change the scanning direction.

To monitor a channel, press **SCAN/MAN** so that *MAN* appears.

The scanner does not scan channels in banks that are turned off. To turn a channel-storage bank on or off, press the bank's number key (**1–0**, using **0** for bank 10) during scanning. The channel-storage banks that are ON have a bar underneath them.

- *You cannot turn off all banks; there must be at least one active bank.*
- *You can manually select any channel in a bank, even if the bank is turned off.*

## Setting Delay

To avoid missing a reply in conversations, a two-second delay is automatically set for each channel. The scanner stops for two seconds after a transmission ends before it resumes scanning or searching. *DLY* appears on the display when the delay function is active.

### To turn delay on:

- If the scanner is scanning and stops on an active channel, quickly press **•/DELAY** before it resumes.
- If the desired channel is not selected, manually select the channel, then press **•/DELAY**.
- If the scanner is searching, press **•/DELAY**. *DLY* appears and the scanner adds a two-second delay to every transmission it stops on in that bank.

### To turn delay off:

Press **•/DELAY** while the scanner is monitoring a channel or frequency. *DLY* disappears.

## Using the Priority Channel

The priority feature sets the scanner to check one specific channel every two seconds while scanning. You can only program one frequency into the priority channel.

1. Press **PGM**.
2. Press **PRI/ALERT.PCH** and **000.000<sup>a</sup>** (or the previously stored frequency) appear.
3. Enter the frequency you want stored in the priority channel, then press **ENT**.
4. To turn on the priority feature, press **PRI/ALERT** during scanning or searching. **PRI** appears.



The scanner checks the priority channel every two seconds and stays on the channel if there is activity.


To turn off the priority feature, press **PRI/ALERT**. **PRI** disappears.

## Signal Stalker II

Signal Stalker II allows you to sweep a range of frequencies to detect, monitor and store frequencies for nearby radio transmissions.

The Signal Stalker II feature is more sensitive than portable frequency counters and detects transmissions at greater distances.

The Signal Stalker II can be set to watch for activity on all bands, or on Police/Fire, Aircraft, or Ham frequencies exclusively.

When the scanner is in manual, scan or tune mode, press  to watch for activity on all bands.

To watch for activity on Police/Fire, Aircraft, or Ham frequencies exclusively, press the button for the desired service bank and then press .

**NOTE:** Priority mode is not available while using the Signal Stalker II.

# Locking Out Channels

You can increase the scanning or search speed by locking out channels or frequencies that have a continuous transmission, such as control channels, weather channels, or birdie frequencies.

Press **L/O** when the scanner stops on a channel or frequency while scanning or searching. The scanner locks out the channel/frequency and continues scanning/searching.

To manually lock-out a channel, select the channel then press **L/O**. **L/O** appears in the display.

- *Your scanner automatically locks out empty channels.*
- *You can still manually select locked-out channels.*
- *You can lock-out a maximum of 50 frequencies during a search. If you try to lock-out more, **L-O Fr-FULL** appears.*

## Managing Lock-outs

1. Set the scanner to manual by pressing **SCAN/MAN** until MAN appears
2. Hold down **L/O/L/O RVW** for about two seconds. The scanner pulls up a locked out channel.
3. Press and hold **L/O/L/O RVW** to show the next locked out channel. If an error beep sounds, there are no locked out channels.
4. To remove the lock-out, press **L/O/L/O RVW** until **L/O** disappears.

## Managing Service Bank Lock-outs

1. Hold down **L/O/L/O RVW** for about two seconds during a Service Bank search.
2. Press **▲** or **▼** repeatedly to scroll through the list of locked-out frequencies. **L-r** and **L/O** appear in the display.
3. Press **L/O/L/O RVW** to remove the lock-out. The list scrolls to the next locked-out frequency.
  - *When you reach the highest locked-out frequency, the scanner beeps twice and rolls to the lowest locked-out frequency.*
  - *If the Service Bank has no locked-out frequencies, **EMPTy** appears.*

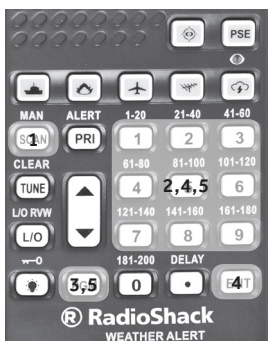
## Unlocking All Service Bank Frequencies

1. Hold down **L/O/L/O RVW** for about two seconds during a Service Bank search. **L-r** appears.
2. While holding down **TUNE/CLEAR**, press **L/O/L/O RVW**. **FLo ALL-CL** appears for about two seconds. Then the display alternates with **YES --- Ent** and **No --CLEAR**.
3. Press **ENT**. **L-r EMPty** appears. The scanner clears lock-outs from all frequencies in the Service Bank.

## Clearing a Stored Channel

To remove a frequency stored in a channel.

1. Press **SCAN/MAN** to stop scanning.
2. Press the number keys to enter the channel number (1–200).
3. Press **PGM**. **PGM** appears.
4. Press **0** then **ENT**. The frequency number changes to **000.0000** to indicate the channel is cleared.
5. To clear another channel, use the number keys to enter that channel number then press **PGM** again. Or, repeatedly press **PGM** until the desired channel number appears. Repeat Step 4.



# Weather Features

The NOAA and your local weather reporting agency broadcast local forecast and regional weather information on one or more channels allocated for use by weather reporting agencies.

Your scanner is an extremely sensitive high-quality receiver on the weather frequencies. However, the included antenna is optimized for general purpose scanning. To receive weather alerts, please make sure you are receiving a clear signal or switch to an external antenna.

Press  to hear your local forecast and regional weather information. *WEAtHr* appears for about two seconds, then the scanner starts searching the weather bank.

Press **PSE** to stop searching the channels. *SRCH* disappears and *MAN* appears. To change the channel manually, press ▲ or ▼.

## Receiving All Weather Alerts

To program the scanner to search for weather alerts every two seconds, set a weather channel as the priority channel. See “**Using the Priority Channel**” on page 19.

If the scanner detects a 1050 Hz weather alert tone on the programmed channel, the scanner sounds the alert tone and *ALert* flashes. Press any key to turn off the alarm.

## Receiving Alerts for Specific Areas



The National Weather Service precedes each weather alert with a digitally encoded SAME (Specific Area Message Encoding) signal, then a 1050 Hz tone. The SAME signal includes a FIPS (Federal Information Processing Standard) code and an event code.

A current list of FIPS codes is located at [www.NWS.NOAA.gov/NWR](http://www.NWS.NOAA.gov/NWR).

## SAME Standby Mode

In SAME Standby mode, your scanner monitors weather channels for SAME alerts for up to seven areas you specify by entering the FIPS codes.

To program your scanner for SAME Standby mode:

1. Press .
2. Press **PGM** to access the FIPS code entry mode.
3. Use **▲** or **▼** to select the desired FIPS code storage location.
4. Use the number keys to enter the FIPS code, then press **ENT** to store the code.
5. Repeat steps 3-4 for all the FIPS codes that you wish to store.
6. Press  to exit FIPS code entry mode. The scanner displays **F** showing that FIPS codes are enabled.
7. To initiate SAME Standby mode Press **PSE** to pause the search. MAN appears. Then Press **PRI/ALERT**. The scanner displays **F [1-7]CH StAndby**.



The scanner will monitor weather channels for alerts with matching FIPS codes. To exit SAME Standby mode, press **PRI/ALERT** again.

- Press **L/O** during step 4 to lock-out FIPS entries; **L/O** appears in the display. Press **L/O** again to enable FIPS entries; **L/O** disappears.
- If you do not enter any FIPS codes, or if your FIPS codes are locked out, when you enter SAME Standby mode the scanner receives alerts and warning messages for all receivable areas.
- The scanner sounds an alert when it receives the SAME code. To stop the alert and ready the scanner to receive a new alert signal, press any key.
- If you do not stop the alert within five minutes, the alert stops and the scanner beeps every ten seconds. If the scanner receives a new weather alert after five minutes, it sounds the new alert.

## Testing the Weather Alert and Beep Tone

1. To test the weather alert, press and hold **ENT** for more than 2 seconds while **F [1-7]CH StAndby** appears on the display.


The display indicates the type of message, and the scanner sounds an alert or series of beeps. The beeps automatically change every 3 seconds.

2. Press any key to stop testing.

## Skywarn®

Many areas of the country have amateur radio repeaters that have been designated as "Skywarn®" repeaters. During times of severe weather, these repeaters relay reports of severe weather directly to the local National Weather Service forecast office. Your scanner can easily jump to your local Skywarn® frequency and monitor these reports.

Before using this feature, you must program the Skywarn® frequency into channel 200. Refer to [www.radioreference.com](http://www.radioreference.com) to find Skyarn® frequencies in your area.

To activate Skywarn®, press and hold  for about two seconds. The scanner jumps to channel 200 to monitor the Skywarn® frequency. If no frequency is programmed in the Skywarn® channel, **No Prog** appears.



# Additional Information

## Care

Your scanner is not waterproof. Do not expose it to rain, moisture, or extremely high humidity. 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.

## Initializing the Scanner

If the scanner's display locks up or does not work properly after you connect a power source, you might need to initialize the scanner.

**Important:** This procedure clears all information you stored in the scanner's memory. Only initialize the scanner when you are sure the scanner is not working properly.

**Important:** Do not turn off the scanner until the initialization is complete. When the initialization is complete, *1CH 000.0000* appears on the display.

1. Turn off the scanner, then turn it on again. *WELCOME SCAnning rECEIVEr* appears.
2. Press **0**, then press **1** while the welcome message is on the screen. *INITIAL* appears for about two seconds, then *YES —Ent* and *No —CLEAR* appear alternately.
3. Press **ENT**. *WAIt* appears for about two seconds.

## Service and Repair

If your scanner is not performing as it should, take it to your local RadioShack store for assistance. To locate your nearest RadioShack, use the store locator feature at [www.radioshack.com](http://www.radioshack.com), or call 1-800-843-7422 and follow the menu options. 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.

# Preprogrammed Frequency List

## Channel .....Frequency (MHz)

### Bank 1

1.....	40.5000
2.....	52.5250
3.....	121.5000
4.....	122.0000
5.....	122.2000
6.....	122.7000
7.....	122.7500
8.....	122.8000
9.....	122.9000
10.....	122.9500
11.....	123.0000
12.....	123.1000
13.....	123.4500
14.....	131.4500
15.....	131.6750
16.....	146.5200
17.....	146.7600
18.....	146.8800
19.....	146.9400
20.....	148.1500

### Bank 2

21.....	151.6250
22.....	151.8200
23.....	151.8800
24.....	151.9400
25.....	151.9550
26.....	154.0100
27.....	154.0700
28.....	154.1300
29.....	154.1450
30.....	154.1600
31.....	154.1750
32.....	154.1900
33.....	154.2050
34.....	154.2200
35.....	154.2350
36.....	154.2500
37.....	154.2650
38.....	154.2800
39.....	154.2950
40.....	154.3100

### Bank 3

41.....	154.3250
42.....	154.3400
43.....	154.3550
44.....	154.3700
45.....	154.3850
46.....	154.4000
47.....	154.4150
48.....	154.4300
49.....	154.4450
50.....	154.5700
51.....	154.6000
52.....	155.1600
53.....	155.1750
54.....	155.2050
55.....	155.2200
56.....	155.2350
57.....	155.2650
58.....	155.2800
59.....	155.2950
60.....	155.3250

### Bank 4

61.....	155.3400
62.....	155.3550
63.....	155.3700
64.....	155.3850
65.....	155.4000
66.....	155.4750
67.....	156.4250
68.....	156.4500
69.....	156.4750
70.....	156.5750
71.....	156.6250
72.....	156.8000
73.....	156.9250
74.....	157.0500
75.....	157.1000
76.....	157.1250
77.....	157.4250
78.....	162.3000
79.....	163.2000
80.....	415.2000

**Bank 5**

81.....	415.7000
82.....	446.0000
83.....	450.8000
84.....	454.0000
85.....	460.0250
86.....	460.0500
87.....	460.0750
88.....	460.1000
89.....	460.1250
90.....	460.1500
91.....	460.1750
92.....	460.2000
93.....	460.2250
94.....	460.2500
95.....	460.2750
96.....	460.3000
97.....	460.3250
98.....	460.3500
99.....	460.3750
100.....	460.4000

**Bank 6**

101.....	460.4250
102.....	460.4500
103.....	460.4750
104.....	460.5000
105.....	460.5250
106.....	460.5500
107.....	460.5750
108.....	460.6000
109.....	460.6250
110.....	460.6500
111.....	460.7000
112.....	460.7500
113.....	460.8000
114.....	460.8500
115.....	460.9000
116.....	460.9250
117.....	460.9500
118.....	460.9750
119.....	462.5500
120.....	462.5625

**Bank 7**

121.....	462.5750
122.....	462.5875
123.....	462.6000
124.....	462.6125
125.....	462.6250
126.....	462.6375
127.....	462.6500
128.....	462.6625
129.....	462.6750
130.....	462.6875
131.....	462.7000
132.....	462.7125
133.....	462.7250
134.....	462.9500
135.....	462.9750
136.....	464.5000
137.....	464.5500
138.....	464.8750
139.....	467.0625
140.....	467.5625

**Bank 8**

141.....	467.5875
142.....	467.6125
143.....	467.6375
144.....	467.6625
145.....	467.6875
146.....	467.7125
147.....	467.7625
148.....	467.8125
149.....	467.8500
150.....	467.8750
151.....	467.9000
152.....	469.5000
153.....	469.5500

# Service Banks

The scanner is preprogrammed with the frequencies allocated to marine, fire/police, aircraft, ham radio broadcast and weather services. This is handy for quickly finding active frequencies instead of searching through an entire bank (see “**Service Bank Search**” on page 16).

## Fire/Police

### Group 1

Frequency Range (MHz)	Step (kHz)
33.420-33.980	20
37.020-37.420	20
39.020-39.980	20
42.020-42.940	20
44.620-45.860	40
45.880	
45.900-46.060	40
46.080-46.500	20

### Group 2

153.770-154.130	60
154.145-154.445	15
154.650-154.950	15
155.010-155.370	60
155.415-155.700	15
155.730-156.210	60
158.730-159.210	60
166.250	
170.150	

### Group 3

453.0375-453.9625	12.5
458.0375-458.9625	12.5
460.0125-460.6375	12.5
465.0125-465.6375	12.5

## Aircraft

Group 1 – 108.000-118.000	12.5
Group 2 – 118.0125-136.9875	12.5

## Amateur Radio

Group 1 – 29.000-29.700	5
Group 2 – 50.000-54.000	5
Group 3 – 144.000-148.000	5
Group 4 – 420.000-450.000	12.5

## Weather

Channel	Frequency (MHz)
1	162.400
2	162.425
3	162.450
4	162.475
5	162.500
6	162.525
7	162.550

## Marine

Channel .....	Frequency (MHz)
01.....	156.0500
05.....	156.2500
06.....	156.3000
07.....	156.3500
08.....	156.4000
09.....	156.4500
10.....	156.5000
11.....	156.5500
12.....	156.6000
13.....	156.6500
14.....	156.7000
15.....	156.7500
16.....	156.8000
17.....	156.8500
18.....	156.9000
19.....	156.9500
20.....	157.0000 / 161.6000
21.....	157.0500
22.....	157.1000
23.....	157.1500
24.....	157.2000 / 161.8000
25.....	157.2500 / 161.8500
26.....	157.3000 / 161.9000
27.....	157.3500 / 161.9500
28.....	157.4000 / 162.0000
63.....	156.1750
64.....	156.2250 / 160.8250
65.....	156.2750
66.....	156.3250
67.....	156.3750
68.....	156.4250
69.....	156.4750
70.....	156.5250
71.....	156.5750
72.....	156.6250
73.....	156.6750
74.....	156.7250
77.....	156.8750
78.....	156.9250
79.....	156.9750
80.....	157.0250
81.....	157.0750
82.....	157.1250
83.....	157.1750
84.....	157.2250 / 161.8250
85.....	157.2750 / 161.8750
86.....	157.3250 / 161.9250
87.....	157.3750 / 161.9750
88.....	157.4250

**NOTE:** Both frequencies (transmission and reception) are shown for marine channels used for duplex transmission.

**NOTE:** The frequencies in the scanner's one-touch service bands are preset. You cannot change them.

# Specifications

## Frequency Coverage

29-54 MHz	(5 kHz steps)/FM
108-136.9875 MHz	(12.5 kHz steps)/AM
137-144 MHz	(12.5 kHz steps)/FM
144-148 MHz	(5 kHz steps)/FM
148-150.8 MHz	(12.5 kHz steps)/FM
150.8-162 MHz	(5 kHz steps)/FM
162-174 MHz	(12.5 kHz steps)/FM
380-512 MHz	(12.5 kHz steps)/FM

## Sensitivity (S+N)/N 20 dB

29-54 MHz	0.5 $\mu$ V
108-136.9875 MHz	1.0 $\mu$ V
137-174 MHz	0.5 $\mu$ V
380-512 MHz	0.7 $\mu$ V
Spurious Rejection (FM @154 MHz)	50 dB

## Selectivity

$\pm 8$ kHz/ $\pm 17$ kHz (FM/AM)	-6dB/-50dB
Search Speed	Up to 80 Steps/Sec
Scan Speed	Up to 40 Channels/Sec
Delay Time	2 Seconds

## IF Frequencies

1st IF	10.7 MHz
2nd IF	455 kHz
IF Interference Ratio (10.7 MHz)	70 dB at 154 MHz

## Squelch Sensitivity

Threshold (FM/AM)	Less than 0.5 $\mu$ V
Tight (FM)	(S + N)/N 25 dB
Tight (AM)	(S+N)/N 20 dB
Antenna Impedance	50 Ohms
Audio Output Power (10% THD)	180mW Nominal
Built-In Speaker	1.37 Inches (36 mm), 8 Ohms
Operating Temperature	14° to 140°F (-10° to 60°C)
Power Requirements	9V AC Adapter (not supplied)
	9V DC Adapter (not supplied)
	4 AA Batteries (not included)
Dimensions (HWD)	5.68 x 2.37 x 1.56 In
	(145 x 63 x 40 mm)
Weight (without antenna)	7.8 oz (220 g)

Specifications and depictions are subject to change and improvement without notice. Actual product may vary from the images found in this document.

# FCC Notice

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.

However, 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Limited Warranty

General Wireless Operations Inc., doing business as RadioShack (hereafter "RadioShack") warrants this product against defects in materials and workmanship under normal use by the original purchaser for **one (1) year** after the date of purchase from a RadioShack-owned store or an authorized RadioShack franchisee or dealer. **RADIOSHACK MAKES NO OTHER EXPRESS WARRANTIES.**

This warranty does not cover: (a) damage or failure caused by or attributable to abuse, misuse, failure to follow instructions, improper installation or maintenance, alteration, accident, Acts of God (such as floods or lightning), or excess voltage or current; (b) improper or incorrectly performed repairs by persons who are not a RadioShack-authorized service facility; (c) consumables such as fuses or batteries; (d) ordinary wear and tear or cosmetic damage; (e) transportation, shipping or insurance costs; (f) costs of product removal, installation, set-up service, adjustment or reinstallation; and (g) claims by persons other than the original purchaser.

Should a problem occur that is covered by this warranty, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store in the U.S. RadioShack will, at its option, unless otherwise provided by law (a) replace the product with the same or a comparable product, or (b) refund the purchase price. All replaced products, and products on which a refund is made, become the property of RadioShack.

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THAT MAY BE IMPOSED BY LAW, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND, IF APPLICABLE, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, SHALL EXPIRE ON THE EXPIRATION OF THE STATED WARRANTY PERIOD.

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Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Contact General Wireless Operations Inc. at:

RadioShack Customer Relations  
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Fort Worth, TX 76102

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[www.radioshack.com](http://www.radioshack.com)

