

## *Two-Way Radio Buyer's Guide* written by ***Keith Sutton***

During deer season, I hunt with my sons Matt and Zach in an area that encompasses tens of thousands of acres of bottomland hardwood forest. The three of us keep in touch on our stands using [two-way radios](#). This provides several benefits, as we sometimes hunt a half-mile or more apart. For example, we know when someone has killed a deer and needs help field-dressing it or dragging it out. At appointed times, we can check in with one another to share information on what we've seen or not seen. We can arrange to meet for lunch or to walk out of the woods when the hunt ends, and I worry less about my sons when I know I can reach them immediately with just the press of a button. (Note: some states do not allow the use of two-way radios for deer hunting).

Today's two-way radios are souped-up versions of the walkie-talkies many of us used in years past. They're invaluable communication tools in the woods, on the water, on the road and in the city. In fact, any time you need to stay in touch with friends or family within a range of 2 to 10 miles. They work much like the CB radios commonly used by truck drivers. You and other members of your group decide on a channel to use and then you broadcast over it. These handheld radios are compact and lightweight, they operate anywhere (unlike cell phones), and there are no service fees.

### **Two-Way Types**

Two-way radios are available in two basic types: those that operate on Family Radio Service (FRS) bands and those that also operate on General Mobile Radio Service (GMRS) bands. You can typically choose from FRS-only or FRS/GMRS hybrid radios.

FRS was created in 1996 when the Federal Communications Commission (FCC) reserved a portion of the broadcasting spectrum for radios having a maximum power output of 1/2 watt (500 milliwatts) and integral (non-detachable) antennas. If conditions are favorable, FRS radios can transmit to a maximum range of about 2 miles. They usually are less expensive than GMRS radios.

GMRS was originally allocated for commercial use back in the 1940s. GMRS radios transmit at higher power levels (1 to 5 watts) and may have detachable antennas. They tend to be more expensive than FRS radios, but under ideal conditions, they will transmit over greater distances -- up to 10 miles in some cases, but usually out to a maximum of 5 miles.

If you operate a radio that has been approved exclusively under the rules that apply to FRS, you are not required to have a license. But if you operate a radio under the rules that apply to GMRS, you must have a GMRS license. The current (2006) fee for a five-year renewable GMRS license is \$80. You can apply online through the FCC's Universal Licensing System (<http://wireless.fcc.gov/uls/>) or manually file FCC Form 605. No test is required to obtain a GMRS license as with some other radio types.



*When purchasing multiple radios for your group, it's usually best to buy the same models optional features such as privacy codes won't always work between brands.*

It's worth noting as well that FRS offers 14 channels and GMRS offers 23 channels. Quality FRS-only radios often support all 14 channels in their frequency band, but some models have fewer available channels. FRS/GMRS radios typically support a combination of channels from each band for a total of 15 or more channels. In general, the more channels a radio offers, the higher its price. But with more channels, it's easier to find a clear frequency (one not being used by people outside your party) on which to communicate. This factor becomes especially important in crowded areas such as cities, but is less likely to be a problem in remote areas with less busy airwaves.

To summarize, FRS-only radios are generally less expensive, do not require a license and may be perfectly suitable for your needs if you'll be transmitting over relatively short distances. If you need greater range, however, or want the added benefit of additional channels, it may be best to obtain a license and use an FRS/GMRS radio, despite additional costs you may incur.

## Features

Many different two-way radios are on the market, each with different features. Consider these options when deciding which radio is best for you.

**Privacy Codes** -- Two-way radios often give the user the option of using privacy codes (also called CTCSS or squelch codes) to help filter out broadcasts from other radio users. This increases the chance of enjoying quiet conversations with the rest of your party. When using radios with this option, you pick a predetermined channel and code, and you only can communicate with someone using the exact same channel and code. This does not guarantee privacy. Anyone else tuned to your channel with their privacy-code feature turned off will still be able to hear your communications. In addition, anyone who has chosen the same channel and code as you can still transmit to your radio. Nevertheless, having this option increases your odds of finding a chatter-free frequency.

**Eavesdrop Reducer** -- This feature, which is available in some higher-priced radios, uses voice-inversion technology to scramble transmissions between people using the same channel and code on FRS radios. You and your partners pick the same channel, privacy code and eavesdrop reducer setting, and you can keep other FRS radios from eavesdropping on your conversations.

**Call Alerts** -- Some manufacturers make radios that provide a choice of different call alerts, or tones, to notify users of an incoming message. If you use your radio when hunting, for example, you may want a radio with a vibrate alert. When you're aiming at your buck of a lifetime, you don't want anyone buzzing in and spooking your quarry.

**Battery Type** -- Two-way radios are designed for portability, so all have an internal battery source. Most are powered by AA or AAA alkaline batteries. However, if you use your radio a lot, battery replacement can become expensive and you may prefer a radio that operates using rechargeable Nickel Metal Hydride (NiMH) or Nickel Cadmium (NiCad) batteries. Depending on radio model and available accessories, you then can use either a 120-volt power source at home, or a 12-volt power source, to recharge your radio's batteries so you won't lose touch due to loss of power.

**VOX** -- Many two-way radios have a button you push first in order to talk. Models with a voice-activated, or VOX, feature begin broadcasting automatically when you speak in the direction of the radio. This feature allows hands-free operation when your attention must remain on the task at hand, such as driving a vehicle.



*Some radios have additional features such as GPS capabilities.*

**Weather Channels** -- Some two-way radios include channels where you can obtain the latest weather information from NOAA (the National Oceanic Atmospheric Administration).

**Additional Features** -- Many higher-end radios have additional features ideal for outdoor users, including such things as digital compasses, thermometers, barometers, altimeters, alarms, stopwatches, AM/FM radio tuners and even GPS units. Other options include:

- A lock key to ensure you stay on your channel even when moving around
- Auto squelch to keep your radio silent except when a signal is received
- A last channel recall feature, much like the redial button on your phone
- A backlit LCD that makes seeing the display easy, even after dark
- Auto channel scan that automatically scans all channels and sub-channels for signals
- Optional jacks for additional speakers and microphones

Accessories that make your radio even more user-friendly include protective or waterproof cases, headsets, ear pieces, shoulder and belt holsters and various charging units.

### **Two Final Considerations**

When purchasing multiple radios for your group, it's usually best to buy the same models from the same manufacturer because optional features such as privacy codes won't always work between brands. Any two radios that broadcast on the same frequency band (FRS or GMRS) and support the same channels will function together. But to get full use of a radio's features, you need another radio with the same features.

And finally, take the range claims of two-way radio manufacturers with a grain of salt. FRS radios are purported to reach 2 miles and GMRS much more, but walls, hills, trees, people, poor weather and almost anything else can reduce that range. Only under ideal conditions (flat, open ground with blue skies above) are you likely to talk to another user at maximum range.