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THANK YOU FOR YOUR PURCHASE OF THE GMRS-V1. THIS GMRS RADIO WILL DELIVER YOU SECURE INSTANT RELIABLE

COMMUNICATION.

**PLEASE READ THIS MANUAL CAREFULLY BEFORE USE**

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# Part I. Getting started

*Part one covers the basic setup and use of your hand-held two-way transceiver.*

CHAPTER 1 INITIAL SETUP
CHAPTER 2 GETTING TO KNOW YOUR RADIO
CHAPTER 3 BASIC USE
CHAPTER 4 GMRS INFORMATION AND FCC DECLARATION

# Chapter 1. - Initial setup

## Safety Information

**The following safety precautions should always be observed during operation, service and repair of this equipment.**

- Qualified technicians shall service this equipment only.
- Do not modify the radio for any reason.
- Use only BTECH supplied or approved batteries and chargers.
- Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.
- Turn off your radio prior to entering any area with explosive and flammable materials.
- Do not charge your battery in a location with explosive and flammable materials.
- To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any area where posted notices instruct you to do so.
- Turn off your radio before boarding an aircraft; any use of a radio must be in accordance with airline regulations or crew instructions.
- Turn off your radio before entering a blasting area.
- For vehicles with an air bag, do not place a radio in the area over an air bag or in the air bag deployment area.

- Do not expose the radio to direct sunlight over a long time, nor place it close to heating source.
- When transmitting with a portable radio, hold the radio in a vertical position with the microphone 3 to 4 centimeters away from your lips.

# Exposure To Radio Frequency Energy

Your BTECH radio is designed to comply with the following national and international standards and guidelines regarding exposure of human being to radio frequency electromagnetic energy:

- United States Federal Communications Commission, Code of Federal Regulations: 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI)/Institute of Electrical & Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineer (IEEE) C95. 1-1999 Edition
- National Council on Radiation Protection and Measurements (NCRP) of the United States, Report 86, 1986
- International Commission on Non-lonizing Radiation Protection (ICNIRP) 1998

To control your exposure and ensure sompliance with the occupational or controlled environment exposure limits, transmit no more than 50% of the time. The radio generates measurable RF energy exposure only when transmitting.

# Features and Functions

- GMRS Transceiver
- High Capacity Lithium-Ion battery
-
- Alarm function.
- High low power, selectable.
- Function beep on the keyboard.
-
- Battery saving function
-
-
- PC programmable.
-
- DTMF encoder.
- Broadcast FM receiver 65-108 MHz
- VOX (voice activated transmit).
- Up to 128 named memory channels.
- Tri Color Display
- Dual watch / Dual reception.
- Transmission time-out timer.
- Busy channel lock out
- LED flashlight.
- Ten (10) levels of Squelch adjustment.
- “Roger Beep”.
- Keypad lock

# What's in the box

This transceiver comes shipped with the following items in the box:

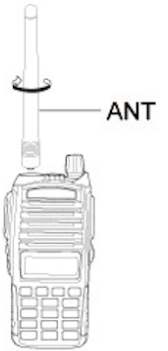
- GMRS-V1 Radio Body
- 1800mAh Lithium-Ion battery pack
- Antenna
- Desk charger (With wall-wart)
- Optional belt clip
- Optional wrist-strap
- Dual PTT Earpiece

# Assembly

Before the radio is ready for use we need to attach the antenna and battery pack, as well as charge the battery.

## Antenna

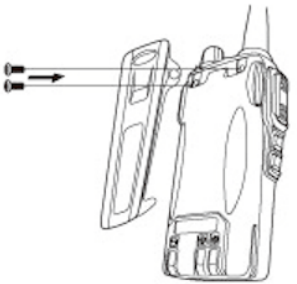
This transceiver is fitted with a Male SMA connector. To mount your antenna (Female SMA connector), align the two connectors and turn clockwise until it stops.




- Do not over-tighten your antenna to avoid damage to the connectors.
- When installing the antenna, don't grip it by the top. Grip by the base and turn.
- If you use an external antenna, make sure the *SWR* is about 1.5:1 or lower to avoid damage to the transceiver.
- Do not hold the antenna with your hand while transmitting.
- Never transmit without an antenna.

## Belt clip

At the back of the radio there are two parallel screws mounted above the battery, remove these and thread them through the holes on the belt clip as you screw them back into the radio body.



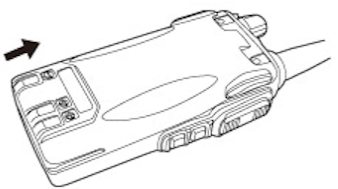
*Do not use any form of glue to fix the screws on the battery clip. The solvents in the glue may cause damage to the battery casing.*

## Battery

Before attaching or removing the battery make sure your radio is turned off by turning the power/volume knob all the way counter-clockwise.

### Installation

Make sure the battery is aligned in parallel with the radio body with the lower edge of the battery about 1-2cm below the edge of the radio.

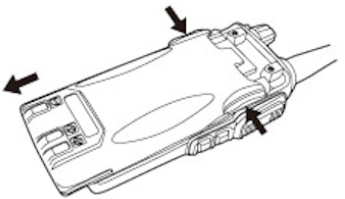


Once aligned with the guide-rails, slide the battery upward

until you hear a click as the battery locks in place.

## Removal

To remove the battery: press the battery releases on the sides of the battery pack as you slide the battery downward.



# Charging and battery maintenance

## Charging

*Battery should be fully charged before initial use. Optimum battery efficiency will be achieved after the three full battery charge and discharge cycles.*

Follow these steps to hook up and use the charger:

1. Plug the DC connector of the power adaptor into the charger base.
2. Plug the AC connector of the power adaptor into a main AC wall outlet.
3. Place the radio in the charging slot on the charger.
4. Make sure the radio is making contact with the charger. When the red LED comes on steady, your radio is charging.
5. The radio is fully charged once the charger's green status LED goes steady. Please remove the radio at that time to avoid over-charging your battery.

**Table 1.1. Charger LED codes**

| Red LED | Green LED | Status |
|---|---|---|
| Flashing | Flashing | **Standby** (charger empty) or charge complete |
| Steady | Off | Charging |
| Off | Steady | Charge complete. |

*The charger and battery are fitted with matching notches so that you can charge your battery on its own! Practical if you have two batteries. That way you can charge one battery while still using your radio.*

*Radio should be turned OFF during charge cycle*

## Battery Maintenance

The battery for your radio comes uncharged from the factory; please let it charge for at least four to five hours before you start using your radio.

- *Use only batteries approved by the original manufacturer.*
- *Never attempt to disassemble your battery pack.*
- *Do not expose your batteries to fire or intense heat*
- *Dispose of batteries in accordance with local recycling regulations. Batteries do not belong in your trashcan!*

### Prolonging the life of your battery

- Only charge batteries in normal room temperatures.
- When charging a battery attached to the radio, turn the radio off for a faster charge.
- Do not unplug the power to the charger or remove the battery and/or radio before it's finished charging.

- Never charge a wet battery.
- Batteries wear out over time. If you notice a considerably shorter operating time with your radio, please consider purchasing a new battery.
- Battery performance will be reduced in temperatures below freezing. When working in cold environments, keep a spare battery on you. Preferably inside your jacket or in a similar location in order to keep the battery warm.
- Dust can interfere with the contacts on the battery. If necessary wipe the contacts with a clean cloth to ensure proper contact with radio and charger.

*If your battery has become wet, remove it from the radio, wipe it dry with a towel and put it in a plastic bag with a handful of dry rice. Tie the bag up and let it sit over night. The rice will absorb any remaining moisture in the battery.*
*This method is only effective against minor splashes (light rain for instance). A soaked radio may very well be beyond repair.*

## Storage

Partially charge your battery before long-term storage in order to prevent damage from over-discharge. While lead acid must always be kept at full charge during storage, this radio uses a lithium-based battery and should be stored at around a 40 percent charge. This level minimizes age-related capacity loss while keeping the battery in operating condition and allowing self-

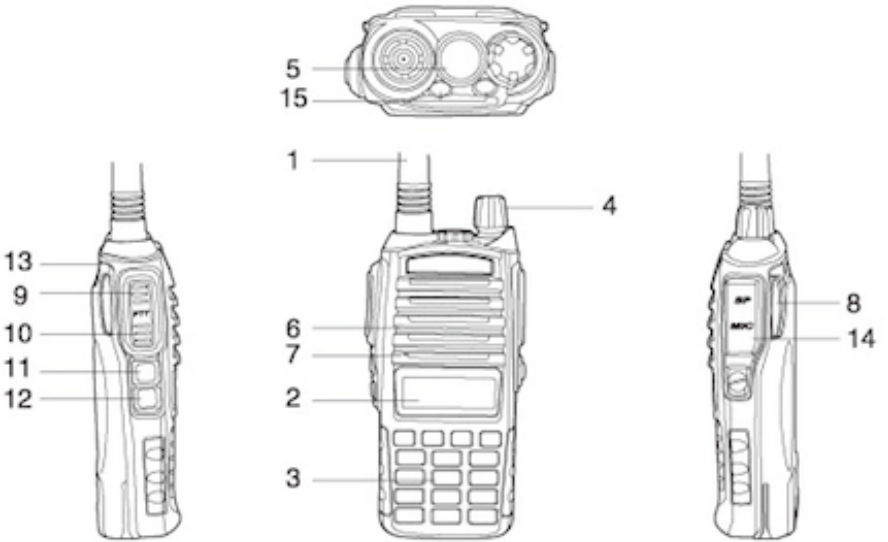
discharge.

To avoid severe capacity degradation of your battery while in long-term storage, please cycle the battery at least every six (6) months.

Store your batteries in a cool and dry place, never above normal room temperatures.

# Chapter 2. - Getting to know your radio

**Figure 2.1. BTECH GMRS-V1, overview**



1. Antenna, see the section called “Assembly” for details.
2. Two-line LCD
3. Keypad
4. Power / Volume knob, usage discussed in the section called “Power and volume”.
5. LED flashlight - See the section called “Side key 2 - MONI (Monitor and Flashlight)” for more information.
6. Speaker
7. Microphone
8. Battery release latch
9. PTT A key, usage discussed in the section called “Dual Push-to-Talk”.
10. PTT B key, usage discussed in the section called “Dual Push-to-Talk”.
11. Side Key 1 / [F]
12. Side Key 2 / [M]
13. Strap Buckle
14. Accessory jack
15. Status LEDs

## Battery Level Indicator

When the battery level indicator reads the battery is depleted. At this point the radio will start beeping periodically as well as flash the backlight of the display and when voice prompts are enabled, a "Low Voltage" announcement will be heard, indicating that you need to change your battery or put your radio in the charger.

To get an Accurate Voltage reading you Press and Hold 0SQL button (for about 2 seconds), the display will show the current voltage capacity of the battery

# Status LED

The status LED has a very simple and traditional design. When you receive a signal it turns green, when you transmit it turns red, and it's off in standby.

# Side key 1 / [F]

Press [F] momentarily to start the broadcast FM receiver. Another momentary press turns the broadcast FM receiver off. If a signal is received on the active frequency or channel while you are listening to the broadcast FM, the receiver will open squelch to that frequency (as if

scanning) and remain there until the signal goes away; it will then switch back to broadcast FM.

Press and hold [F] to activate the alarm function. Press [F] (a short press) again to turn it off. To send out a tone (more details in the section called “Tone-burst”.) Press the [F] key while holding down the PTT.

# Side key 2 / [M]

Press [M] momentarily to turn on the LED flashlight. Another momentary press will flash the LED. Another momentary press turns the flashlight off.

Press and hold [M] to monitor the signal. This will open up the squelch so you can listen to the unfiltered signal.

.

MENU

# Dual Push-To-Talk

The GMRS-V1 includes a Dual PTT Key/ Rocker Switch. You can communicate with other parties effortlessly by pressing the PTT rocker key upwards to transmit on Channel A (the upper display), or by pressing the PTT rocker key downwards to transmit on Channel B (the lower display).

The GMRS-V1 allows syncing the rocker switch as a single push-to-talk button (refer to Menu Option ？ for more details).

# Numeric keypad

The BTECH GMRS-V1 hand-held transceiver comes standard with a full numeric keypad.

**Figure 2.3. BTECH GMRS-V1, keypad**

The numeric keys have their secondary function printed on them (in reality it's rather menu short-cuts, more on that in Chapter 4, *Working the menu system*).

The *SCAN, #, and 0SQL keys also serve as scan, keypad lock, and Voltage display respectively.

## Pound # Key

In channel mode, # also acts as a transmit power shift key. While in channel mode, momentarily press # to change between High and Low transmit power. Do note that this is does not alter the transmit power stored to memory for that channel; it only affects the current session. Switching to another channel or another operating mode (including broadcast FM) will reset transmit power to what's stored in channel memory.

## Keypad Lock

The BTECH GMRS-V1 features a keypad lock that locks out all keys except for the three side keys.

To enable or disable the keypad lock, press and hold the # key for about two seconds.

You can also enable so that the radio automatically locks the keypad after ten seconds from the menu, see Chapter 5, *Working the menu system*

## Star * Key

A short momentary press of the key enables the reverse function.

When listening to broadcast FM a momentary press will start the scanning. Scanning in broadcast FM will stop as soon as an active station is found, regardless of scanner resume method.

To enable the scanner, press and hold the *SCAN key for about two seconds. See Chapter 6, *Scanning* for details.

## Zero 0 Key

The BTECH GMRS-V1 features a battery voltage meter that the current voltage of the battery on the display

To see the voltage displayed, press and hold the 0SQL key for about two seconds.

## Menu and function keys

The MENU key, used to enter the menu and confirm menu options.

The ▲ and ▼ keys are used to navigate through the menu as well as select channels and step up or down in frequency (depending on operating mode).

The EXIT key is used to exit menus and cancel menu options.
The EXIT key also switches between A (upper) and B (lower) displays. The frequency or channel on the selected display becomes the active listening and transmit frequency or channel.

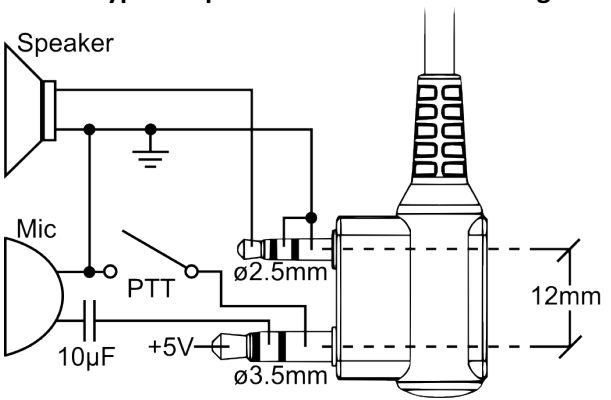
When listening to broadcast FM, the EXIT key switches between 65-75 MHz and 76-108 MHz bands.

For a more in-depth explanation on how to work the menu see Chapter 5, *Working the menu system*.

# Accessory jack

The accessory jack on the BTECH GMRS-V1 is a Kenwood compatible two (2)-pin design.

**Figure 2.4. Typical 2 pin Kenwood headset configuration.**




- *To attach accessories such as headsets, speaker-mics or programming cables, align the connectors and push in fully.*
- *The fit isn't always perfect on cheap or clone cables and connectors and may require a bit of force to wiggle them in completely.*
- *Make sure the radio is off before attaching any accessories.*

# Chapter 3. - Basic Use

## Power and volume

Before we turn the power on, make sure you have attached the battery and antenna as described in Chapter 1, *Initial setup*.

### Turning the unit on

To turn the unit on, simply rotate the volume/power knob clockwise until you hear a "click". If your radio powers on correctly there should be an audible double beep after about one second and the display will show a message or flash the LCD depending on settings for about one second (see “38 PONMSG - Power On Message” in Appendix B, Menu definitions). Then it will display a frequency or channel. If the Voice prompt is enabled, the voice will announce "frequency mode" or "channel mode".

*You can get additional information about your radio by holding down miscellaneous keys as you turn it on.*

## Turning the unit off

Turn the volume/power knob counter-clockwise until you hear a "click". The unit is now off.

## Adjusting the volume

To turn up the volume, turn the volume/power knob clockwise.
To turn the volume down, turn the volume/power knob counter-clockwise. Be careful not to turn it too far, as you may inadvertently turn your radio off.

*By using the monitor function, enabled from the Side key [M]; you can more easily adjust your volume by adjusting it to the un-squelched static.*

# Making a call

Press and hold the PTT button on the side of the radio body to transmit (upwards for CHANNEL A; downwards for CHANNEL B). While transmitting, speak approximately 3-5cm from the microphone. When you release the PTT your transceiver will go back to receive mode.

the preprogrammed GMRS channels, as well as modifying the privacy tones (CTCSS and DCS) and power levels of the channels. To find out more on how to program additional scanner channels see Chapter 11, *Programming*.

# FCC LICENSE REQUIRED FOR GMRS OPERATION

The GMRS-V1 operates on GMRS (General Mobile Radio Service) frequencies, which require an FCC (Federal Communications Commission) license. You must be licensed prior to transmitting on all channels, which comprise of GMRS channels. Serious penalties could result for unlicensed use of GMRS channels, in violation of FCC rules, as stipulated in the Communications Act's Sections 501 and 502 (amended).

You will be issued a call sign by the FCC, which should be used for station identification when operating the radio on GMRS channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of their transmission time.

To obtain a license or ask questions about the license application, contact the FCC at 1-888-CALL FCC or go to the FCC's website: http://www.fcc.gov and request form 605.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, 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.

—Consult the dealer or an experienced radio/TV technician for help.

**RF Exposure Compliance and Control Guidelines and Operating Instructions**

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits always adhere to the following procedures.

Guidelines:

Do not remove the RF Exposure Label from the device.

User awareness instructions should accompany device when transferred to other users.

Do not use this device if the operational requirements described herein are not met.

Operating Instructions:

Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. Transmitting 50% of the time, orless, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance). Hold the radio in a vertical position in front of face with the microphone (and the other parts of the radio, including the antenna) at least one inch (2.5 cm) away from the nose. Keeping the radio at the proper distance is important because RF exposures decrease with distance from the antenna. Antenna should be kept away from eyes.