

PJ2
GPS
RADIO
Manual

Important Notice

- FCC 96-926, Guidelines for Evaluating the Environmental Effects of Radio-Frequency Radiation.
- FCC OET Bulletin 65 Edition 97-01 (1997) Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- ANSI/IEEE C95.1-1992, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
- ANSI/IEEE C95.3-1992, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave.
- When transmitting, hold the radio in a vertical position with its microphone 1 to 2 inches (2.5 to 5 cm) away from your mouth and keep the antenna at least 1 inch (2.5 cm) away from your head and body.
- The radio must be used with a maximum operating duty cycle not exceeding 50%, in typical Push-to-Talk configurations. DO NOT transmit for more than 50% of total radio use time (50% duty cycle). The radio is transmitting when TX is displayed on the screen.
- Always use Sporty's authorized accessories.

Warnings:

- 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.
- Caution: 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 A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Quick Start Guide

1. Using the battery packs:

The PJ2 GPS comes with a rechargeable battery pack and an alkaline battery pack.

To use the rechargeable battery pack:

- a. Be sure to fully charge the rechargeable battery pack prior to use.
- b. The rechargeable battery pack charges while it is connected to the radio and the radio is plugged in using the included cable and wall adapter.

To use the alkaline battery pack:

- a. Remove the battery cover
- b. Insert 6 AA batteries into the battery pack
- c. Replace the battery cover

2. Slide battery pack onto the radio

3. Twist the BNC antenna on

4. Turn the radio on (rotate volume knob clockwise)

Note: Six digits may be required to select certain frequencies

5. Use the keypad to enter the desired frequency

6. Press the push-to-talk button on the side to transmit

Helpful Tips

- Adjust the squelch to help reduce static.
- An alternate way to power your PJ2 GPS is to use the included USB Type C cable to connect to an external power source.
- Using night mode may also improve readability in bright sunlight
- The PJ2 GPS requires an initial location fix, which may take several minutes. This process must be done outdoors to ensure a clear view of satellites. Once successful, the screen will display "COM/GPS" in the upper left corner. Subsequent startup times for location finding will be much shorter.
- The GPS function remains active in the background by default. To save battery life, you can disable the GPS by holding the GPS Button for three seconds until the unit beeps. Pressing the GPS button again will re-enable the function.
- When the GPS is active, the screen's upper left corner will show "COM/GPS." When the GPS is disabled, the "/GPS" portion will be absent.
- Intercom will only operate with headsets physically plugged into the PJ2 GPS radio. It doesn't work when a Bluetooth headset is connected.

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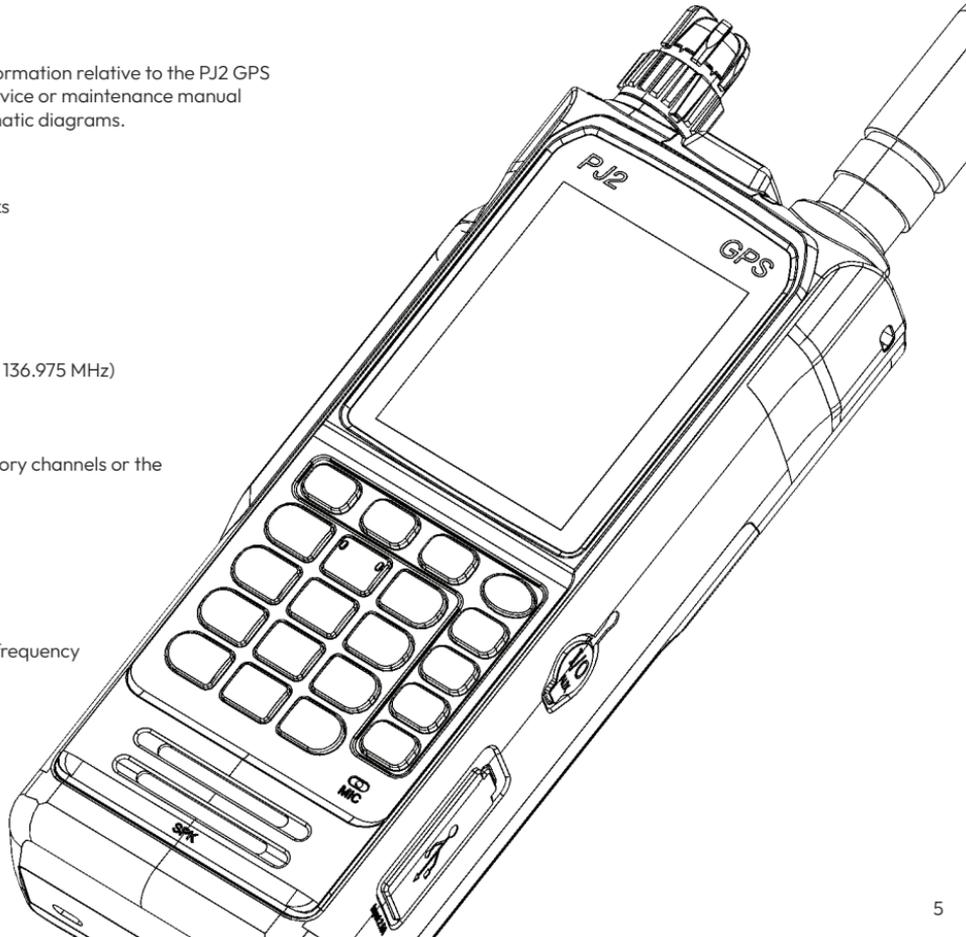
General Information

Introduction

This manual contains only operational information relative to the PJ2 GPS radio. This manual is not intended as a service or maintenance manual and does not contain any theory or schematic diagrams.

Features

- Standard twin plug aviation headset jacks
- Bluetooth audio
- GPS
- BLE GPS data output
- Built in intercom
- 3.5mm earbud/headset jack
- Accepts USB-C power (2.4 amps)
- 760 COMM frequencies (118.000 MHz to 136.975 MHz)
- 6 watts (PEP) transmit power
- Auto-Lit keypad and screen
- Automatic noise limiting (ANL)
- Full feature scanner—Scan the 100 memory channels or the entire frequency range
- Key lock
- Large 2.4" Color LCD screen
- Low battery indicator
- NOAA weather band
- External power and antenna options
- 121.5 emergency frequency button
- Last frequency function with visible last frequency
- Sidetone
- Adjustable LCD screen
- Night mode
- Easy to use



Warranty

If, during the first year, your PJ2 GPS transceiver fails due to defective workmanship or parts under normal use, we will replace it or repair it.

The warranty does not apply to units subject to misuse, battery leakage, neglect or accidents. Nor does the warranty apply to units damaged by lightning, excess current, moisture, units repaired or altered outside the factory, units with altered or removed serial numbers, or units used with accessories other than those approved by the factory.

To have your unit serviced under this warranty, return it postage paid with proof of purchase to:

Sporty's Pilot Shop
Clermont County/Sporty's Airport
2001 Sportys Drive
Batavia, Ohio 45103-9719

If your PJ2 GPS is no longer under warranty, you may still have it serviced at Sporty's. See above for return address instructions.

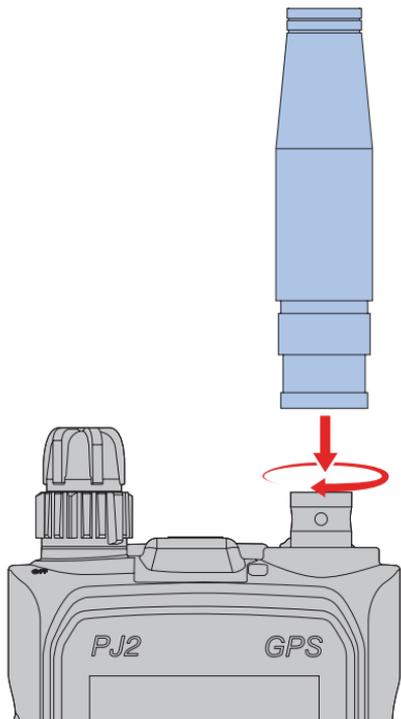
Cautions

- Keep the battery pack clean and free from dirt or debris.
- Use a dry cloth to clean the unit if needed.
- Do not use the battery pack if it has become damaged or deformed. This can be signs of a failing battery pack. Pack may be hot to the touch and result in burned fingers when handling. Wait at least one hour after switching off before handling parts.
- If the transceiver is not going to be used for a long period of time, turn it off and remove the battery pack and if using the alkaline battery pack remove the batteries.
- Obey all laws and regulations associated with transmission of airband signals in the country you are located.
- Avoid making very long transmissions when possible. Longer transmission can result in excess heat build up inside the unit.
- Using the transceiver as a wheel chock is prohibited.
- Do not attempt to open any of the rechargeable Lithium-ion packs, as personal injury or damage to the Lithium-ion pack could occur if a cell or cells become accidentally short-circuited. Risk of fire or explosion if the battery is replaced by an incorrect type.
- To avoid risk of explosion and injury, PJ2 GPS battery packs should only be removed, charged or recharged in non-hazardous environments.
- **DO NOT INCINERATE:** Do not dispose of any battery in a fire or incinerator. The heat of fire may cause battery cells to explode and/or release dangerous gases.
- Li-ION batteries must be collected, recycled or disposed of in and environmentally sound manner.
- Contact your local waste management officials for other information regarding the environmentally sound collection, recycling and disposal of Li-ion batteries.
- Do not hold the transceiver so that the antenna is less than 2.5cm or touching exposed parts of the body while transmitting.

Antenna Requirements

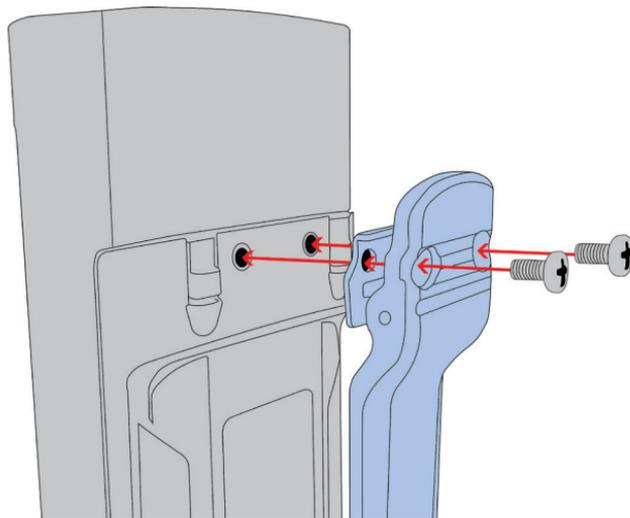
Included with the PJ2 GPS is a flexible rubber antenna (Rubber Duck). However, an external antenna may be needed if operating inside an aircraft (must be properly installed by an aircraft radio shop), automobile or other metal enclosure.

On top of the PJ2 GPS is a BNC connector, which is standard for use on aircraft radios. Therefore, little difficulty should be encountered in connecting an existing aircraft radio antenna to the PJ2 GPS.



Belt Clip

A spring loaded belt clip is included with the PJ2 GPS radio. This belt clip is optional and does not need to be attached to the radio for normal operation. To attach the belt clip, align the clip with the two holes on the battery pack of the PJ2 GPS radio. Use the included screws to attach the belt clip to the battery pack. Additional belt clips are available online at sportys.com.



Power

Alkaline Battery Pack

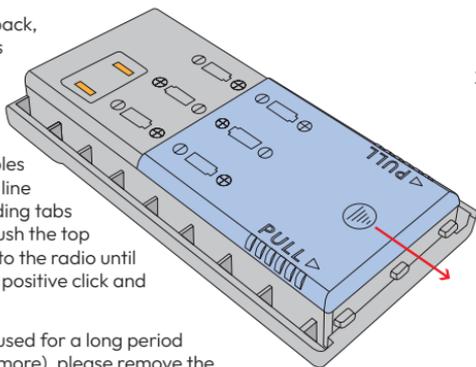
An alkaline battery pack is provided with the PJ2 GPS. Alkaline batteries are a good power source for a backup radio because they have excellent storage life and no maintenance is required. The alkaline battery pack is NOT rechargeable. The batteries must be replaced. To replace the batteries, turn the power OFF and then remove the battery pack from the unit by pushing down on the two release latches on the back of the unit. The top of the battery will tip out from the PJ2 GPS.

Remove the battery cover by pulling it in the direction of the arrow. Six 1.5 volt AA alkaline batteries are required and are sold separately. Energizer batteries are the recommended battery for the PJ2 GPS. Results may vary when using off brand batteries.

Replace the batteries by following the positive (+) and negative (-) terminal markings on the case. When the batteries are replaced, replace the battery cover and attach the battery pack to the radio.

To attach the battery pack, make sure the power is OFF. Put the bottom of the battery pack on the ledge at the bottom of the radio. Note that the holes on the metal ledge will line up with the corresponding tabs on the battery pack. Push the top of the battery pack onto the radio until both latches provide a positive click and are fully seated.

If the radio will not be used for a long period of time (six months or more), please remove the batteries from the battery pack. This will help prevent the batteries from corroding the battery pack.



Lithium-ion Rechargeable Battery Pack

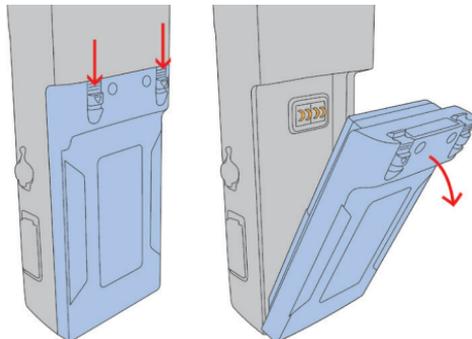
A lithium-ion rechargeable battery pack is provided with the PJ2 GPS radio. This provides a way to power the radio without alkaline batteries or external power. The rechargeable battery pack attaches in the same method as the alkaline battery pack. The lithium-ion batteries inside the pack are not replaceable nor serviceable. Life span of the rechargeable battery pack will vary with environmental conditions and use cases.

Charging the battery pack can be done in two ways:

1. The most common way to charge the battery is the USB-C power port on the radio. With the rechargeable battery installed on the back of the PJ2 GPS, simply plug in the included USB-C cable to the side of the radio. Use the wall plug included with the radio to get the optimal power to the radio. Other wall plugs may be used, but can vary in output levels. Be sure to use a plug providing power delivery of at least 15 watts of power.

When using the USB-C power port for charging the lithium-ion battery pack, an indicator light next to the port will provide the charging status. A green light indicates a fully charged battery. Note that having the radio on while charging may prevent the battery from reading fully charged.

2. An optional desktop cradle (sold separately) can be used for convenient charging of the lithium-ion battery. This can be ideal for FBOs, dispatchers, and line personnel.



External Power

The PJ2 GPS includes a wall adapter and a USB-C power cable. The wall adapter is dual voltage and can be used in ~100-240V electrical systems. The USB-C port on the wall adapter provides the needed power to properly power the PJ2 GPS. If less than 2.4 amps is provided, the PJ2 GPS will receive transmissions, but it won't have enough power to transmit. If attempting to transmit on less than 2.4 amps, the PJ2 GPS screen will flash intermittently and beep. To remedy this issue, change the power source to provide the needed 2.4 amps, or use the alkaline or rechargeable battery pack.

The PJ2 GPS has power delivery capability. Power should only be provided from a source that can provide power delivery of at least 2.7 amps. Another option for external power is to use a backup battery pack (sold separately). Be sure to use a battery pack that provides at least 2.4 amps of power.

Battery Indicator

The PJ2 GPS battery indicator will give you a quick reference on how much charge is left when using the lithium-ion battery (does not work when using alkaline batteries). When green, the battery is sufficiently charged (above 50%), yellow means you have 50% or less battery charge left and you should think about charging the battery soon. When the indicator turns red and blinks you should charge or replace batteries immediately. The PJ2 GPS will beep prior to shutdown due to lack of battery power.

You also have the option to plug in the PJ2 GPS with the included USB-C cable. It will charge the battery and it will power the PJ2 GPS without it using additional battery (if provided with more than 2.4 amps).

	100%	Full battery
	75%	Sufficient battery
	50%	Partial battery
	25%	Low battery
	<5%	Very low (flashes and radio will beep)

- A fully-charged lithium-ion battery will last for approximately 8-10 hours.
- New alkaline batteries will vary depending upon brand but we recommend Energizers for approximately 6-8 hours of use.

Controls

(A) On/Off and Volume Control

Turn the knob clockwise from the off position to turn the unit on and to increase volume. Turn the knob counterclockwise to decrease volume and to turn the unit off.

(B) Squelch

Rotate clockwise to increase squelch and counterclockwise to decrease squelch.

(C) Color Screen

This LCD displays the current frequency, last frequency, and other information to the operator.

(D) Keypad

All operational keys plus numeric keypad.

(E) Built-In Speaker

The built-in speaker is disabled when a headset is plugged into the PJ2 GPS.

(F) Headphone Jack

Fits a standard headphone PJ plug. The internal speaker is disabled when this jack is used.

(G) Microphone Jack

Fits a standard microphone PJ plug. The internal microphone is disabled when this jack is used.

(H) Antenna Connector

The flexible rubber antenna or an external antenna may be attached to this BNC connector.

(I) Wrist Strap Attachment Point

A wrist strap can attach to this location.

(J) Battery Pack

Used to power the PJ2 GPS.

(K) 3.5mm Jack

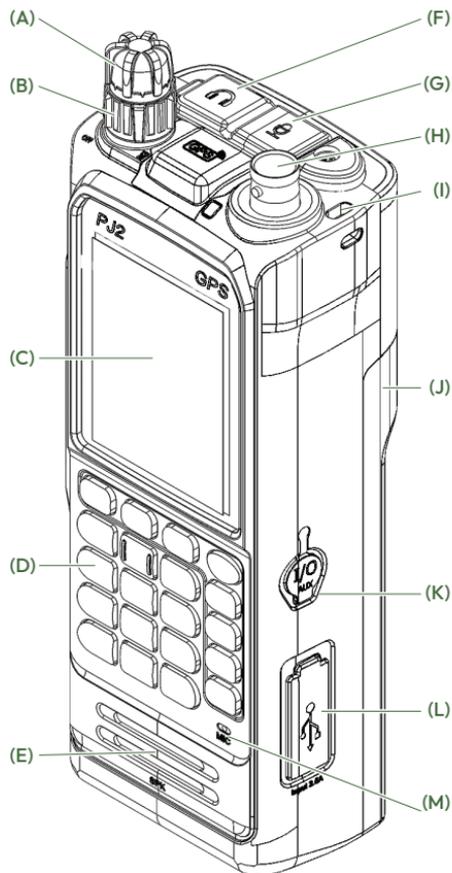
An ear bud or compatible headset can be plugged in here. The internal microphone and speaker are disabled when the jack is used.

(L) External USB-C Power Port

The PJ2 GPS may be powered externally, with or without a battery pack attached by plugging it into a power source with at least 2.4 amps. When using a wall plug, please use the one included in the box. An indicator light is located next to the USB-C plug to provide charging status.

(M) Built-In Microphone

Speak here when utilizing the built-in microphone. This microphone is disabled when a headset is plugged into the unit.



Keypad

(N) GPS Key

This key displays the GPS data on screen.

(O) Back/Clear

This key is used to clear erroneous key entries and to exit functions such as search, scan, and memory storage and recall.

(P) Enter Key

Used to confirm a selection in a menu, advance the cursor to the right, or confirm your entry.

(Q) Menu Key

This key is used to access the menu. Memory, GPS, and additional settings can be found in the menu.

(R) (2) 121.5 Emergency

This key is used to activate emergency mode. Hold down the 2 key for three seconds to activate emergency mode.

(S) (5) Key Lock

Hold key for 3 seconds to lock out all inputs to the keypad. Repeat to unlock keypad.

(T) Numeric Keypad

These keys are used whenever the PJ2 GPS requires a numeric input such as setting the frequency.

(U) Up Key

This key is used to select the next higher frequency, or to initiate search and scan functions.

(V) Down Key

This key is used to select the next lower frequency.

(W) Scan Key

This key is used to scan frequencies. When used while in Recall Mode, the PJ2 GPS will scan frequencies that are saved in the memory.

(X) Bluetooth Key

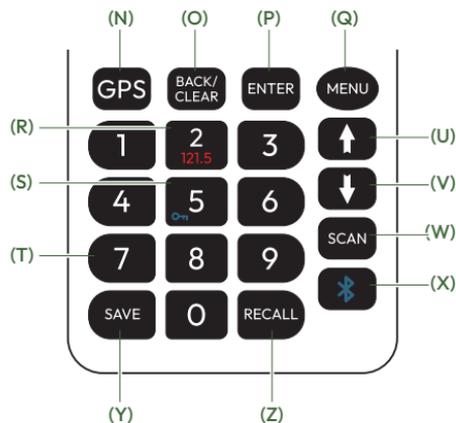
This key is a shortcut to the Bluetooth menu.

(Y) Save Key

This key is used while storing frequencies in one of the 100 memory channels.

(Z) Recall Key

This key is used to recall stored frequencies from the 100 memory channels.



Side

(AA) Flip/Flop Button

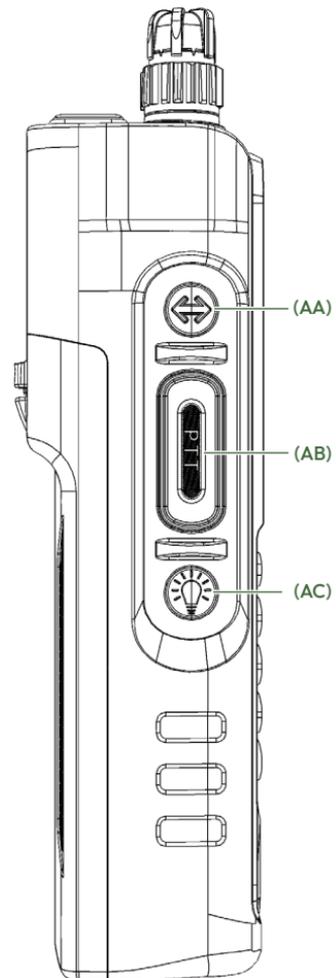
This button is used to flip flop between your current and last frequency.

(AB) Push-To-Talk Button

This button activates the internal microphone or an external microphone when using a compatible headset.

(AC) Light Button

This button activates the back lighting for the screen and keypad.



Screen

1. The PJ2 GPS can operate in several different modes. This area of the screen confirms what mode you are in.

COM

When COM is displayed, the PJ2 GPS is in COM only mode.

COM/GPS

Once the PJ2 GPS has acquired the GPS signal and has good signal strength the screen will display COM/GPS. When BLE GPS output is on,  will appear directly to the right of COM/GPS.

WEATHER

While accessing the **NOAA Weather** menu, WEATHER will be displayed on the screen.

2. **Key Lock**

Pressing and holding the 5 key while on the home screen will lock out keypad inputs. You can use key lock to prevent the accidental changing of frequencies. When in key lock, KEY.L will be displayed at the top of the screen.

3. **Intercom**

The intercom mode will allow users to hear themselves talk when not transmitting. This is especially useful when using an adapter to plug two headsets into the top of the unit (adapter sold separately).

4. **Automatic Noise Limiting (ANL)**

This setting is on by default. It is displayed by a capital A in a square. You can turn this off inside the **Settings** menu. Leaving it on helps limit the amount of static and noise interference. Most pilots will always leave this on.

5. **Bluetooth**

The Bluetooth icon will appear when connected to a Bluetooth device. The symbol will blink when in pairing mode. It will disappear when the Bluetooth is turned off.

6. **Battery Indicator**

This indication provides the approximate battery life. This symbol will be replaced by an icon that looks like a USB plug when the PJ2 GPS is getting power through the USB-C port.

7. **Active Channel**

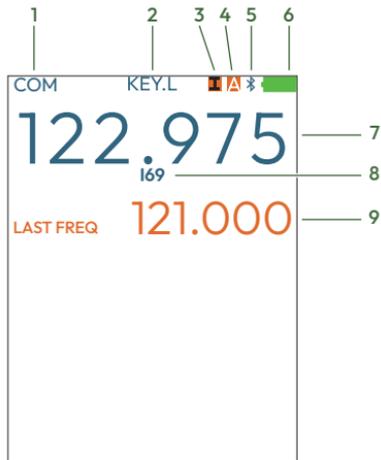
This is the frequency that the PJ2 GPS is currently on.

8. **Active Channel Name**

If you are on a frequency that has been stored in memory and you have named that channel, the channel name will display here.

9. **Last Frequency**

For your convenience, the last frequency you used is stored here. Pressing the FLIP/FLOP button will put this frequency into the active channel position.



Basic Operations

The PJ2 GPS functions primarily as a user-friendly COM radio. This section details its basic communication operations.

Manual Frequency Selection

The PJ2 GPS will receive and transmit on the 760 COM frequencies (118.00 MHz to 136.975 MHz) with 0.025 spacing. This spacing is the default setting for the PJ2 GPS radio. 0.025 MHz is equal to 25 kHz and is commonly referred to as quarter spacing. This is the commonly used standard in the USA.

The PJ2 GPS will also receive and transmit on 8.33 kHz spacing commonly used in Europe. To switch to 8.33 kHz, press the MENU key and press the DOWN key until the **Settings** category is highlighted and press ENTER. Use UP or DOWN keys to highlight **8.33/25 kHz Spacing** and press ENTER. Select 25 kHz or 8.33 kHz and press ENTER. Exit the menu by pressing the BACK/CLEAR key.

The active frequency is displayed at the top of the PJ2 GPS screen and the last frequency is displayed underneath the current frequency.

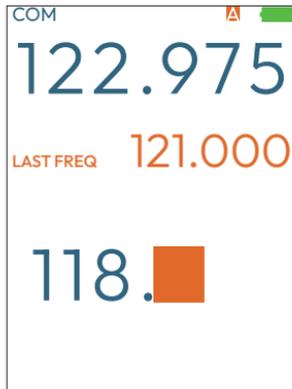


From the example above, the PJ2 GPS is receiving 122.975 MHz with the last frequency being 121.000 MHz. To manually enter a desired frequency such as 118.700 MHz, enter 118700 using the keypad. As each digit is entered, the flashing cursor moves to the next digit. Six digits may be required to enter a frequency.

The PJ2 GPS will return to the previous frequency if there is a pause of five seconds between key entries while entering a new frequency. The BACK/CLEAR key may be pressed at any time prior to entering all the digits to clear the digits entered and return to the previous frequency.

Any frequency outside of the range listed above will not be accepted. The PJ2 GPS will beep when such a digit is entered. For example, starting any frequency selection with a number other than 1 or attempting to place a 5, 6, 7, 8 or 9 as the second digit will result in a beep.

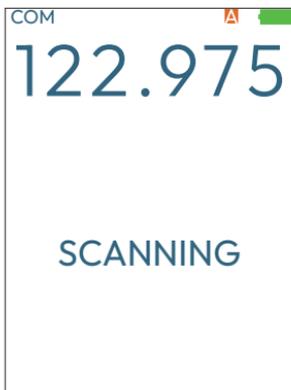
The PJ2 GPS can flip/flop between the current frequency and the last frequency by pressing the FLIP/FLOP button which is located above the PTT button on the right side of the radio.



Frequency Search/Scan

To manually search through the frequency range, the UP or DOWN keys may be pressed at any time to select the next higher or lower frequency. The UP and DOWN keys may be pressed repeatedly to continue changing the selected frequency. Holding the UP or DOWN key will result in the radio quickly advancing through the frequencies. The radio is not scanning when you do this, it is only advancing quickly until the key is released.

To automatically search the entire frequency range for a broadcasting signal, press the SCAN key for one second. The screen will display **SCANNING** as seen below.



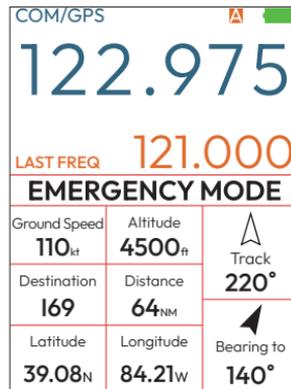
When a broadcasting signal is found, the word **SCANNING** will flash. The PJ2 GPS will stop temporarily on that frequency. If the broadcasting signal is cut off for more than two seconds, the search will resume until another signal is found. When 136.975 MHz is reached during a scan, the scan automatically continues at 118.000 MHz. The scan may be canceled at any time by pressing the BACK/CLEAR key. It is very important that the squelch be properly adjusted prior to initiating a search. The background static received with the squelch off may be strong enough to disrupt a search. If a search gets "stuck" on a frequency with too much background noise, increase the squelch or press and hold the UP key for one second to skip that frequency and resume searching.

Emergency Mode

Press and hold the 121.5 key (2 key) for three seconds to put the PJ2 GPS into emergency mode. The screen will display **EMERGENCY MODE** and switch the active frequency to 121.5. GPS data will be displayed on the screen in an easy to understand format. The lat/long is displayed on the screen so you can communicate that to search and rescue if needed. Your preprogrammed HOME destination is automatically inserted as your destination.

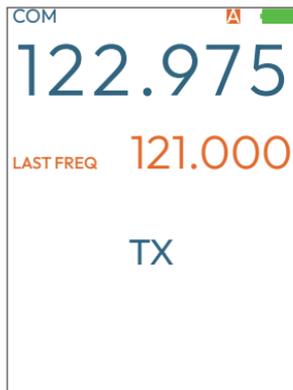
The track to your destination is provided as well as the bearing to that destination. Turning the aircraft until the track is the same as the bearing will put you in the right direction to home. Utilize the distance readout to help recognize when you arrive.

You may still operate the radio as you would outside of emergency mode. To exit emergency mode, press the GPS or Menu Button, or hold the 2 key for three seconds.



Transmitting

Press the push-to-talk button (PTT) at any time while tuned to a COM frequency to broadcast over the selected frequency. While the PTT is pressed the screen will display “TX” beneath the frequency to verify the PJ2 GPS is broadcasting.



Release the PTT to end the transmission and the PJ2 GPS will once again receive the selected COM frequency. If a headset is being used, the PJ2 GPS's internal microphone will be deactivated and the microphone on the headset may be activated by either pressing the PJ2 GPS's PTT or pressing an inline remote PTT.

The PJ2 GPS will transmit at 6 watts (PEP) when using the alkaline battery pack or lithium-ion battery pack. If you are using the USB-C power port, the PJ2 GPS will transmit at 5 watts (PEP).

Using A Headset

The PJ2 GPS radio can be used with a standard twin PJ plug style headset. The jacks are located on the top of the radio underneath a protective cover. This cover can be rotated out of the way. One jack fits the microphone and one jack fits the headphone. The protective cover has icons to identify the correct jack.

An adapter can be used to plug two PJ plug style headsets in at the same time (sold separately). Using more than two headsets may degrade the audio signal.

The 3.5mm jack is located on the side of the radio and can be used to output audio to a compatible headset. The jack is a four pole jack providing sound to both channels and microphone capabilities (left, right, ground, mic). The push-to-talk (PTT) button on the PJ2 GPS radio can be pressed to initiate transmissions when using the 3.5mm jack. A remote PTT will not work when using the 3.5mm jack. The 3.5mm jack can also be used as an aux output to connect external speakers.

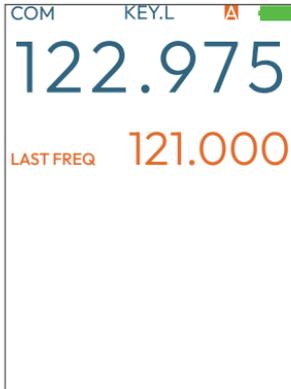
A compatible headset can be connected to the PJ2 GPS via the wireless Bluetooth(BT) connection. Do this by pressing the **Menu** key, use the arrow keys to highlight **Bluetooth** and press ENTER. This will bring up the Bluetooth menu. This menu can also be accessed by pressing the BLUETOOTH key.

When using pairing mode to pair your headset, note that the name of your headset might be a combination of numbers and letters. You can rename the device if you would like to.

When turning on the radio and initiating Bluetooth, the most recently paired headset should automatically connect to the PJ2 GPS.

Key Lock

Inputs from the keypad may be locked out at any time by holding the 5 key for three seconds. When key lock is active, **KEY.L** is displayed at the top of the screen as shown below.

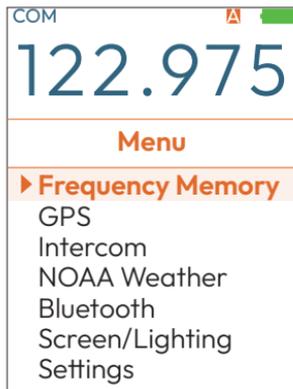


Key lock is deactivated by holding the 5 key for three seconds. Key lock only locks out the PJ2 GPS's keypad. The FLIP/FLOP, PTT and Light functions are not affected.

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Menu

Press the MENU key to open the **Menu** at any time. Use UP and DOWN keys to navigate the **Menu** and press ENTER to select and BACK/CLEAR to return to **Menu** or home screen.



Menu Tree

The PJ2 GPS has a simple menu to navigate for settings. The menu items are:

Frequency Memory

- Save Frequency
- Recall Frequency
- Name Frequency
- Clear Frequency
- Reset All Memory

GPS

- Current Lat/Long
- Save Waypoints
 - Current Location
 - Lat/Long Input
 - Delete Waypoint
- Set Home Waypoint
- Name Waypoint
- Satellite Strength
- Navigate to Waypoint
- Input Magnetic Vari

Intercom

NOAA Weather

Bluetooth

- On/Off
- Pairing Mode
- Name Device
- Disconnect Device
- Delete Device
- Output GPS Data

Screen Lighting

- Backlight Levels
 - Backlight High
 - Backlight Low
- Backlit Keys
 - Always Off
 - On for 5 Secomds
 - On for 1 Minute
 - Always On
- Night Mode On/Off

Settings

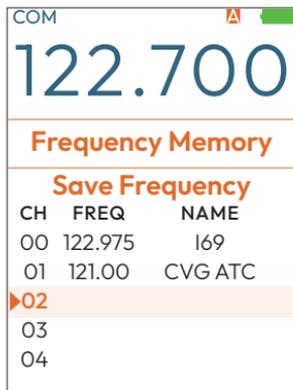
- 08.33/25 kHz Spacing
- Sidetone Volume
- ANL
- Beep Volume
- Reset to Default

Frequency Memory

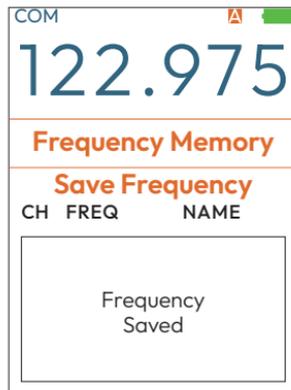
The PJ2 GPS has 100 visual memory channels numbered 00 to 99. Through this menu you can Save, Recall, Name, or Clear a frequency. You can also Reset all Memory from here.

Save Frequency

Saving those frequencies used most often will save you time in the future. Begin by selecting your desired frequency, such as 122.700, to be stored by using either manual frequency selection or frequency search. To store this frequency, press the SAVE key. The following screen will appear.



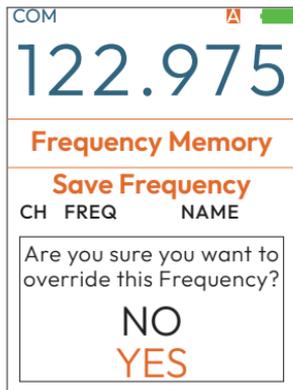
The first available memory channel will be highlighted. In this example, memory channel 02 is the first available location. To store the frequency, press the ENTER or SAVE key. The screen will now display the following for one second to verify 122.700 has been stored in memory channel 02, see below.



You may also overwrite an existing memory channel or select an available memory channel other than the first one displayed.

Once again, select the desired frequency and then press the SAVE key. The first available memory channel will be highlighted. Now press either the UP or DOWN key to scroll through the 100 memory channels. If a memory channel is already storing a frequency, the stored frequency will be displayed next to the memory channel number on the screen.

Once the desired memory channel is highlighted, press the SAVE key and the frequency will be stored. Remember, if a channel was selected that was already storing a frequency, you will be asked if you want to override the original frequency. A popup will display on the screen to ask if you are sure. Use the arrow keys to select YES and then press ENTER.

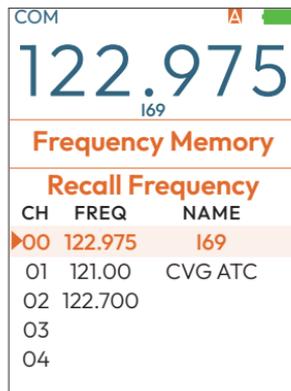


You may exit the memory function by pressing the BACK/CLEAR key any time prior to saving the frequency.

You can also save a frequency by using the **Menu**. Start by having the frequency you want displayed as the active frequency. Press the MENU key, confirm **Frequency Memory** is highlighted and press ENTER. Use the DOWN key to scroll down to **Save Frequency** and press ENTER. The first available memory channel will be highlighted. Now press either the UP or DOWN key to scroll to the desired location within the 100 memory channels. Press ENTER or SAVE to save the frequency. Use the BACK/CLEAR key to return to the home screen.

Memory Recall

To recall a frequency stored in a memory channel, press the RECALL key. You can also get to the **Recall Frequency** menu by pressing the MENU key, confirm **Frequency Memory** is highlighted and press ENTER. Use the DOWN key to scroll down to **Recall Frequency** and press ENTER. The first 5 memory channel numbers and their corresponding frequencies will be displayed. In this example, memory channel 00 is listed first.



At this point you may select any stored memory channel by either pressing the UP or DOWN key to scroll through the stored frequencies or by using the numeric keypad. For example, to recall memory channel 08 you may either:

1. Press the RECALL key followed by the UP or DOWN key to scroll to 08 Or
2. Press the RECALL key followed by 0 8

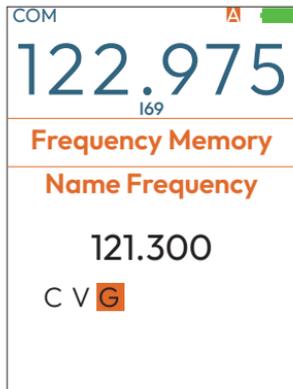
After the desired frequency is highlighted, it becomes the active frequency. You can exit recall mode at any time by pressing the BACK/CLEAR key or the ENTER key.

While in the Recall function the only entries accepted are numeric entries between 00 and 99, the UP or DOWN key, the BACK/CLEAR key, or the ENTER key. All other inputs cause the PJ2 GPS to beep. Remember, you may press the BACK/CLEAR key at any time to exit the Recall function.

Name Frequency

Saved frequencies can be named for quick reference. This feature allows you to put up to 8 alphanumeric characters next to each memory channel.

To name a saved frequency, press the MENU key, confirm **Frequency Memory** is highlighted and press ENTER. Use the DOWN key to scroll down to **Name Frequency** and press ENTER. You are now in naming mode and saved frequencies will be displayed. Use the arrow keys to select the frequency you want to name and press ENTER.

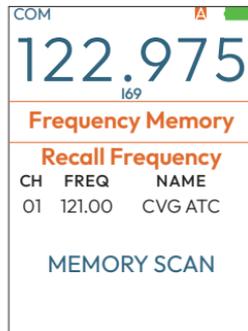


The arrow keys change the character displayed. Use the ENTER key to advance to the right and the BACK/CLEAR key to go to the left. Once you have the desired name entered, press the SAVE key to save the name. The screen will momentarily say Name Saved. You are still in naming mode, so you can continue to name other frequencies using the instructions above, or exit out using the BACK/CLEAR key.

Note: Pausing for more than 20 seconds while naming a frequency will result in the PJ2 GPS canceling out the naming action and it will return to the **Name Frequency** menu.

Memory Scan

The Memory Scan function is very similar to the Search function, except it only scans those frequencies stored in the memory channels. To scan the memory channels, press the RECALL key to enter the recall function. Then press and hold the SCAN key for one second to initiate the search. The words **MEMORY SCAN** will appear on the screen. If a transmission interrupts the scan, the memory channel number and frequency will be displayed on the top line of the screen.



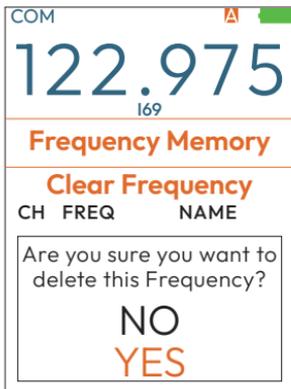
When a broadcasting signal is found, the word MEMORY SCAN will flash and the PJ2 GPS will stop temporarily on that frequency. If the broadcasting signal is cut off for more than two seconds, the scan will resume until another signal is found.

The scan may be canceled at any time by pressing the BACK/CLEAR key. Once you have pressed the BACK/CLEAR key to exit a scan, you are still in the recall function. Press the BACK/CLEAR key again to exit the recall function. The PJ2 GPS will remain on the last frequency received.

It is very important that the squelch be properly adjusted prior to initiating a scan. The background static received with the squelch off may be strong enough to disrupt a scan. If a scan gets "stuck" on a frequency with too much background noise, increase the squelch or press and hold the UP key for one second to skip that frequency and resume scanning. Please note, since ATIS broadcasts continually, a scan will always stop on an ATIS frequency if it is included in the scan.

Clear Frequency

To clear or erase a memory channel, press the MENU key, confirm **Frequency Memory** is highlighted and press ENTER. Use the DOWN key to scroll down to **Clear Frequency** and press ENTER. You are now in Frequency Clear Mode. Select the frequency you wish to delete and press ENTER. A popup will display on the screen to ask if you are sure. Use the arrow keys to select **YES** and then press ENTER. To exit out of the menu press the BACK/CLEAR key.



COM

122.975
169

Frequency Memory

Clear Frequency

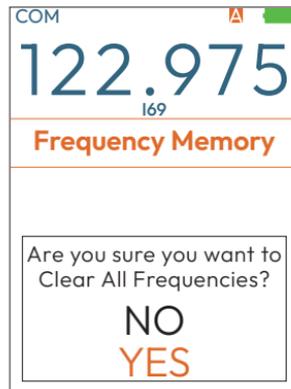
CH FREQ NAME

Are you sure you want to delete this Frequency?

NO
YES

Reset all Memory

To clear every memory channel, press the MENU key, confirm **Frequency Memory** is highlighted and press ENTER. Use the DOWN key to scroll down to **Reset all Memory** and press ENTER. A popup will display on the screen asking if you are sure you want to Clear All Frequencies. Use the arrow keys to select **YES** and then press ENTER.



COM

122.975
169

Frequency Memory

Are you sure you want to Clear All Frequencies?

NO
YES

GPS Operation

The GPS on the PJ2 GPS provides data and simplified navigation to a specified waypoint. GPS Data is displayed on screen, and the location data can be used by a compatible app. There is no moving map on the PJ2 GPS screen.

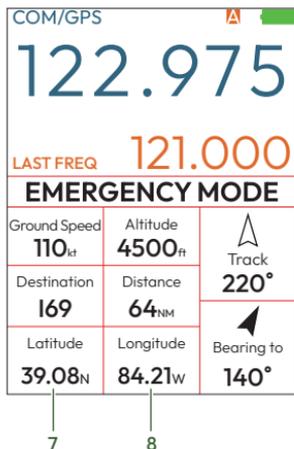
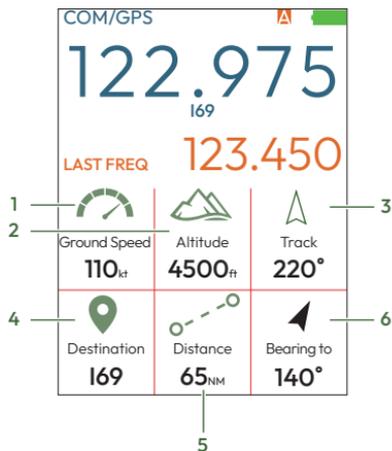
The PJ2 GPS requires an initial location fix, which may take several minutes. This process must be done outdoors to ensure a clear view of satellites. Once successful, the screen will display "COM/GPS" in the upper left corner. Subsequent startup times for location finding will be much shorter.

The GPS function remains active in the background by default. To save battery life, you can disable the GPS by holding the GPS Button for three seconds until the unit beeps. Pressing the GPS button again will re-enable the function. When the GPS is active, the screen's upper left corner will show "COM/GPS." When the GPS is disabled, the "/GPS" portion will be absent.

The following GPS data will be displayed on the screen:

- 1. Groundspeed**
Current groundspeed is displayed in nautical miles per hours (kts).
- 2. GPS Altitude**
Non corrected height above sea level is displayed as the GPS Altitude.
- 3. Track**
GPS driven track over the ground.
- 4. Destination/Lat/Long**
When navigating to a named GPS waypoint, the saved name will appear in this box. If the waypoint is not named, the lat/long will be displayed here.
- 5. Distance**
The distance from your location to the destination waypoint is displayed here in nautical miles.
- 6. Bearing**
The bearing to the saved waypoint is shown here. By turning your aircraft as such the track and bearing are the same, you will be flying in the direction of the saved waypoint.

You can initiate Emergency Mode by pressing and holding the 121.5 key (2 key) for three seconds. This will bring up a simplified GPS screen with the lat/long displayed in dedicated spots.
- 7. Latitude**
Displays the Latitude to the nearest hundredth.
- 8. Longitude**
Displays the Longitude to the nearest hundredth.

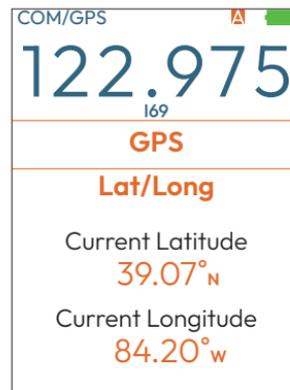


From the **GPS** menu you can view your current lat/long, Save a Waypoint, Set your Home Waypoint, Name a Waypoint, see the Strength of current Satellites in the area and Navigate to a Waypoint. The most important waypoint is your home waypoint. This is the waypoint that the PJ2 GPS will navigate to when in emergency mode.

To get to the **GPS** menu, press the MENU key and press ENTER with **GPS** highlighted. Press ENTER and you'll find the following settings:

Current Lat/Long

Displays current lat/long. You can also save this as a waypoint by pressing the SAVE key.



Note: Latitudes use numbers from 00.01 to 90.00 and longitudes use numbers from 00.01 to 180.00. Entering a value outside of those numbers will result in an invalid entry. The PJ2 GPS will beep and not allow you to save the invalid entry. The PJ2 GPS does not display a negative sign. Latitudes are N for North and S for South. Longitudes are E for East and W for West.

Save Waypoint

The PJ2 GPS can save up to 100 Waypoints. These waypoints can be recalled and navigated to. Once a waypoint is saved you can set it as your home waypoint. There are two ways to save a waypoint, **Current Location** or **Lat/Long Input**. You can also **Delete Waypoint** from this menu.

Current Location

This is the quickest and easiest way to set a waypoint. Upon pressing ENTER your current coordinates are saved in the first available GPS memory slot. You can access it through the **Set Home Waypoint** or **Name Waypoint** or **Navigate to Waypoint** menus.

Lat/Long Input

Input is done in decimal format followed by the direction (N/S or E/W). Once selected you will enter in the coordinates to the nearest hundredth, one digit at a time using the numeric keypad. You can also use the arrow keys to change the digits, use the ENTER key to advance the cursor to the right and the BACK/CLEAR key to the left. After you enter the Latitude coordinates you will select a direction, N for north, S for south. Pressing ENTER after you have selected the direction will move the cursor to the Longitude. After entering the Longitude coordinates and direction (E for east and W for west), press SAVE or ENTER to bring up the waypoint menu. Use the arrow keys to select a slot. Press SAVE or ENTER to insert those coordinates into that numbered memory location.

COM/GPS
122.975 169
GPS
Save Waypoint
Latitude 00.00°N
Longitude 000.00°W

COM/GPS
122.975 169
GPS
Save Waypoint
SAVE LAT LONG
00 38.84°N 82.85°W
01 CQA
02 45.45°N 101.01°W
03 51.50°N 10.12°W
▶04

Delete Waypoint

To delete a waypoint, press the MENU key, and use the DOWN key to highlight **GPS** and press ENTER. Use the DOWN key to scroll down to **Save Waypoint** and press ENTER. You are now in Delete Waypoint Mode. Select the waypoint you wish to delete and press ENTER. A popup will display on the screen to ask if you are sure. Use the arrow keys to select **YES** and then press ENTER. To exit out of the menu press the BACK/CLEAR key.

COM/GPS
122.975 169
GPS
Delete Waypoint
SAVE LAT LONG
Are you sure you want to delete this Waypoint?
NO
YES

Set Home Waypoint

Setting your home waypoint will provide the PJ2 GPS a location to navigate to when in emergency mode. You can only set a home waypoint from an already saved waypoint. From the **Set Home Waypoint** screen, all of your saved waypoints are shown. Use the arrow keys to highlight the desired waypoint and press the SAVE or ENTER key.

Note: Once a Waypoint is set as your Home Waypoint it will appear as green in the list.

COM/GPS		
122.975		
169		
GPS		
Set Home Waypoint		
SAVE	LAT	LONG
▶00	38.84°N	82.85°W
01	CQA	
02	45.45°N	101.01°W
03	51.50°N	10.12°W
04	39.07°N	84.20°W

Name Waypoint

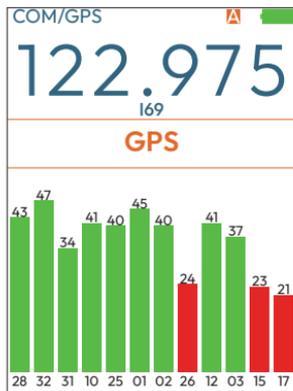
Saved waypoints can be named for quick reference. This feature allows you to put up to 3 alphanumeric characters for each waypoint. Use the arrow keys to select the waypoint you want to name and press ENTER.

The arrow keys change the character displayed. Use the ENTER key to advance to the right and the BACK/CLEAR key to move to the left. Once you have the desired characters entered, press the SAVE key to save the name. The screen will momentarily say WAYPOINT NAME SAVED. You are still in naming mode, so you can continue to name other waypoints using the instructions above, or exit out using the BACK/CLEAR key. If no activity is detected for 3 seconds it will automatically back out of the naming screen.

COM/GPS		
122.975		
169		
GPS		
Name Waypoint		
04	39.07°N	84.20°W
6		

Display Satellite Strength

Display the current visible satellites with corresponding strength of signals. You can get to this screen by pressing the MENU key and use the DOWN key to highlight **GPS** and press ENTER. Use the DOWN key to scroll down to **Satellite Strength** and press ENTER. To exit out of the menu press the BACK/CLEAR key.



Navigate to Waypoint

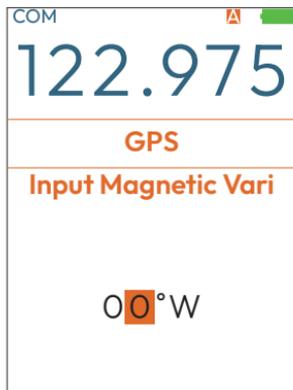
The PJ2 GPS can navigate to a saved location through the **Navigate to Waypoint** menu. You can get to this menu by pressing the MENU key and use the DOWN key to highlight **GPS** and press ENTER. Use the DOWN key to scroll down to **Navigate to Waypoint** and press ENTER.

Use the arrow keys to scroll through the saved waypoints until you find the desired waypoint to navigate to. Press ENTER and that waypoint will be set as the destination for your GPS. Distance, track, and bearing are calculated using this destination.

SAVE	LAT	LONG
▶00	38.84°N	82.85°W
01	CQA	
02	45.45°N	101.01°W
03	51.50°N	10.12°W
04	169	

Input Magnetic Variation

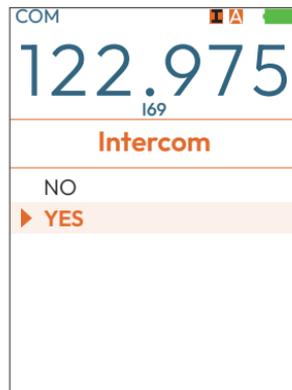
The PJ2 GPS uses true north for bearing and track calculations. To incorporate magnetic variation into these calculations, use the **Input Magnetic Vari** menu. Once selected, use the keypad to enter the magnetic variation. The input requires two digits followed by an “E” for East or a “W” for West. Use the up or down arrow keys to switch between “E” and “W.” The magnetic variation for your location is available on aviation charts or in airport facility directories. The entered magnetic variation will be retained until you change it or reset the unit to its factory default of 0.



Intercom

The PJ2 GPS has a built-in intercom. When plugged in with a headset, the intercom allows you to hear yourself when you speak. This is especially useful when two headsets are plugged into the PJ2 GPS while using an optional adapter (sold separately).

By default, the PJ2 GPS intercom function is set to off. To activate the intercom press the MENU key, use the arrow keys to highlight **Intercom** and press ENTER. Use the arrow keys to highlight **YES** and press ENTER again. The Intercom icon will appear at the top of the screen.



NOAA Weather Band

There are a total of 9 stored NOAA weather frequencies stored on the PJ2 GPS. To access the stored NOAA weather frequencies press the MENU key, use the arrow keys to highlight **NOAA Weather** and press ENTER. You can scroll through the channels by using the UP or DOWN keys. After a channel is highlighted, it becomes the active frequency. Once you highlight your desired channel you can exit by pressing the BACK/CLEAR key or the ENTER key.

Note: Once in the Weather Band function “WEATHER” will replace “COM” in the upper left corner of the screen.



NOAA Weather	
▶ WX1	162.550
WX2	162.400
WX3	162.475
WX4	162.425
WX5	162.450
WX6	162.500

Bluetooth Operations

The PJ2 GPS can connect to a Bluetooth enabled device. To turn Bluetooth on, press the BLUETOOTH key. This will open the **Bluetooth** menu. Note that the same menu can be found by pressing the MENU key and use the DOWN key to highlight **Bluetooth** and press ENTER.

From the **Bluetooth** menu, confirm **On/Off** is highlighted and press ENTER. When Bluetooth is enabled, a Bluetooth Icon will appear on the screen of the PJ2 GPS. A blinking icon indicates that the Bluetooth is on but not paired. A solid icon indicates that the PJ2 GPS is paired with another Bluetooth enabled device.

Pairing Mode

To put the PJ2 GPS in pairing mode, select **Pairing Mode** from the **Bluetooth** menu. The screen will display pairing mode and the PJ2 will search for Bluetooth devices.



Name Device

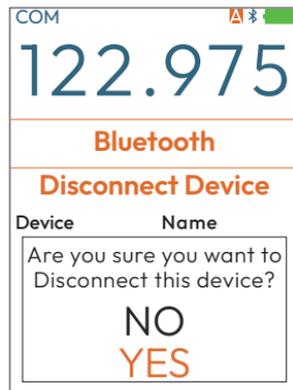
Naming a Bluetooth device can be done to help you identify previously paired items. To change the name, select **Naming Device** from the **Bluetooth** menu. A list of previously paired devices will be displayed on the screen. Use the arrow keys to highlight the device you wish to rename and press ENTER. The arrow keys change the character displayed. Use the ENTER key to advance to the right and the BACK/CLEAR key to go to the left. Press the SAVE key to save when you are done. You are still in naming mode, so you can continue to name other devices using the instructions above, or exit out using the BACK/CLEAR key.



Disconnect Device

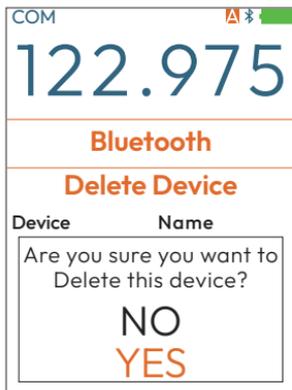
Note that turning off the PJ2 GPS will automatically disconnect any paired device. You can also turn Bluetooth off by pressing the BLUETOOTH key, select **On/Off**, and press ENTER.

When you wish to disconnect a paired device while keeping Bluetooth on, press the BLUETOOTH key to access the **Bluetooth** menu. Use the DOWN key to scroll down to **Disconnect Device** and press ENTER. Use the arrow keys to highlight the device you wish to disconnect and press ENTER. A popup will display on the screen asking "Are you sure you want to disconnect this device?". Use the arrow keys to select **YES** and then press ENTER.



Delete Device

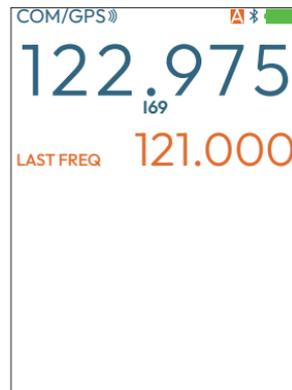
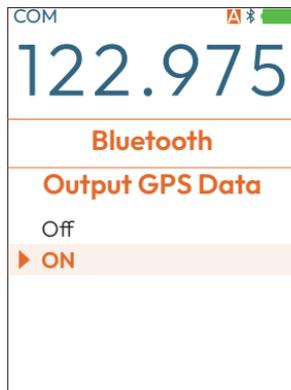
You may want to delete previously paired devices from memory. To delete a device, press the BLUETOOTH key to access the **Bluetooth** menu. Use the DOWN key to scroll down to **Delete Device** and press ENTER. Use the arrow keys to select the device you want to delete and press ENTER. A popup will display on the screen asking “Are you sure you want to delete this device?”. Use the arrow keys to select **YES** and then press ENTER. That device will be deleted from memory.



Output GPS Data

The PJ2 GPS can output the GPS location for use by compatible applications. Start by pressing the BLUETOOTH key to access the **Bluetooth** menu. Use the DOWN key to scroll down to **Output GPS Data** and press ENTER. Then use the arrow keys to select **On**. This will put the PJ2 GPS in a specific pairing mode that allows compatible apps to utilize the GPS position. With the PJ2 GPS in this special pairing mode, open up the Bluetooth settings app on compatible iOS devices and pair to the PJ2 GPS.

Note: Devices paired for GPS data will not receive audio from the PJ2 GPS. Location data is transmitted over Bluetooth Low Energy (BLE) to compatible devices. App compatibility will be dependent upon the developer of the application you are using.



Screen Lighting

Backlight Levels

To get to the **Backlight Levels** menu, press the MENU key and use the DOWN key to highlight **Screen Lighting** and press ENTER. Confirm **Backlight Levels** is highlighted and press ENTER. Inside this menu are the following controls:

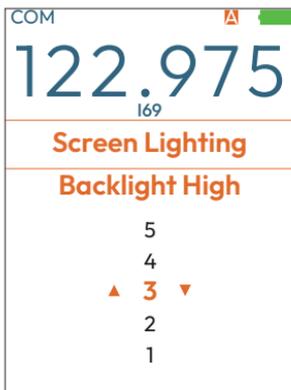
Backlight High

This is the light setting found when operating the radio. Use the arrow keys to select a value from 1 (low) to 10 (high). Once you have the desired setting selected, press the ENTER or SAVE key to return to the previous menu.

Backlight Low

This is the light setting that the radio uses after 5 seconds of not being used. Use the arrow keys to select a value from 0 (high) to 9 (low). Once you have the desired setting selected, press the ENTER or SAVE key to return to the previous menu.

Note: Setting Backlight High and Backlight low to the same value will result in the backlight always being at the same level.



Backlit Keys

The PJ2 GPS's default backlit key setting is **On for 5 Seconds**. This keeps the keys illuminated for 5 seconds after a keypress. It then turns off to preserve battery life. The PJ2 GPS backlit key settings can be changed to:

Always Off

On for 5 Seconds

On for 1 Minute

Always On



Night Mode

Night mode reverses the type on the screen of the PJ2 GPS. The background turns to black and the characters are white. This can help preserve night vision. This can be toggled on and off by pressing ENTER while **Night Mode On/Off** is highlighted in the **Screen Lighting** menu.

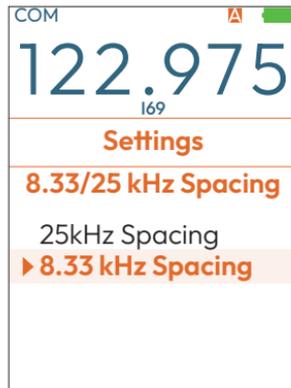


Settings

The PJ2 GPS setting menu is where you can find some less frequently used items. This allows the user to customize the PJ2 GPS to their own personal preferences.

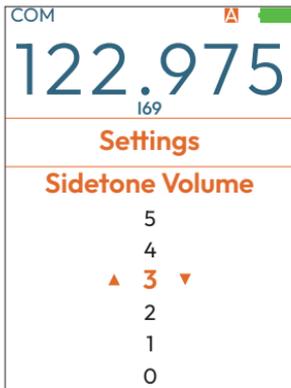
8.33/25 kHz Spacing

The PJ2 GPS can be used with 25 kHz spacing (USA) or 8.33 kHz spacing (Europe). By default, the PJ2 GPS is set for 25 kHz spacing. This makes frequency search much quicker. To change to 8.33 kHz spacing press the MENU key, use the DOWN key to highlight **Settings** and press ENTER. confirm **8.33/25 kHz Spacing** is highlighted and press ENTER. Use the DOWN key to highlight **8.33 kHz Spacing** and press ENTER.



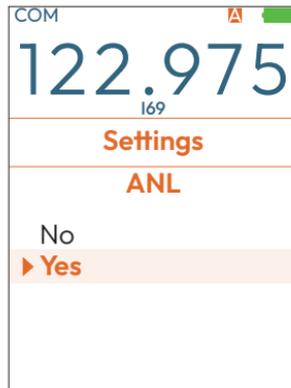
Sidetone Volume

Sidetone allows you to hear yourself when you press the push-to-talk (PTT) switch. By default, sidetone is on. You can adjust the volume or disable it altogether. To get to the **Sidetone Volume** menu, press the MENU key, use the DOWN key to highlight **Settings** and press ENTER. Use the DOWN key to scroll down to **Sidetone Volume** and press ENTER. From here you can select 0 (off) to 10 (loudest), pressing ENTER to confirm your selection.



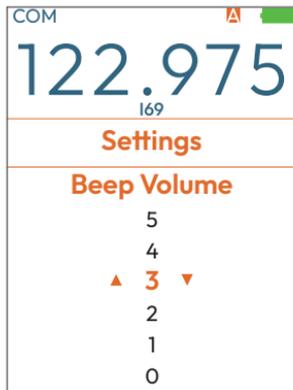
Automatic Noise Limiting (ANL)

Variations in aircraft radio transmissions as well as interference from electronic sources can lead to spikes in the amplitude of receptions. The PJ2 GPS audio output level is attenuated at 6dB when the ANL is enabled. By default, ANL is enabled. To turn off the ANL function press the MENU key, use the DOWN key to highlight **Settings** and press ENTER. Use the DOWN key to scroll down to **ANL** and press ENTER. Use the arrow keys to select **Off** and then press ENTER. When enabled, an (A) icon will be displayed at the top of the screen as shown below.



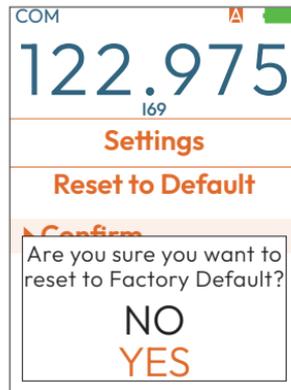
Beep Volume

The PJ2 GPS will beep when you press a key. The beep can be turned off or the volume can be adjusted. Press the MENU key, use the DOWN key to highlight **Settings** and press ENTER. Use the DOWN key to scroll down to **Beep Volume** and press ENTER. From here you can select 0 (off) to 9 (loudest), pressing ENTER to confirm your selection.



Factory Reset

Doing a factory reset on the PJ2 GPS radio is an easy way to clear all memory items, including frequencies, GPS waypoints, and previously paired Bluetooth devices. Press the MENU key, use the DOWN key to highlight **Settings** and press ENTER. Use the DOWN key to scroll down to **Reset to Default** and press ENTER. A popup will display on the screen asking if you are sure you want to reset the radio to factory settings. Use the arrow keys to select **YES** and then press ENTER. The PJ2 GPS will clear all menus and reset the radio to factory settings.



Specifications

General

Communication Frequencies:

760 Frequencies from 118.000 MHz to 136.975 MHz

Memory Channels

100 channels numbered 00 to 99

NOAA Weather Band

10 channels numbered 0 to 9

Weight with Alkaline Battery Pack (including antenna)

1.18 lb. (533 grams)

Weight with Lithium-ion Battery Pack (including antenna)

1.07 lb. (486 grams)

Weight without Battery Pack (including antenna)

.76 lb. (346 grams)

Dimensions with battery pack

Height 6.9 in. (174 mm)

Width 2.5 in. (62.5 mm)

Depth 1.8 in. (45 mm)

Operating Temperature Range

-22°F to 122°F (-30°C to 50°C)

Frequency Stability

± 0.003%

Battery Pack Power:

Alkaline Battery Pack

9.0 VDC (6 AA batteries x 1.5 VDC each)

Lithium-Ion Battery Pack

7.4 VDC/2500 mAh

Receiver

Audio Output

350 mW into 8 Ohms, 10%

Sensitivity

2.0 uV @ 1 kHz, Modulation 30%

Bandwidth

± 25 KHz at 60 dB down (FCC/CE)

± 8.33 KHz at 60 dB down (CE)

Transmitter

Transmitter Power

1.8 Watts ± 20%, 6 Watt (PEP) at 85% modulation

Spurious Radiation

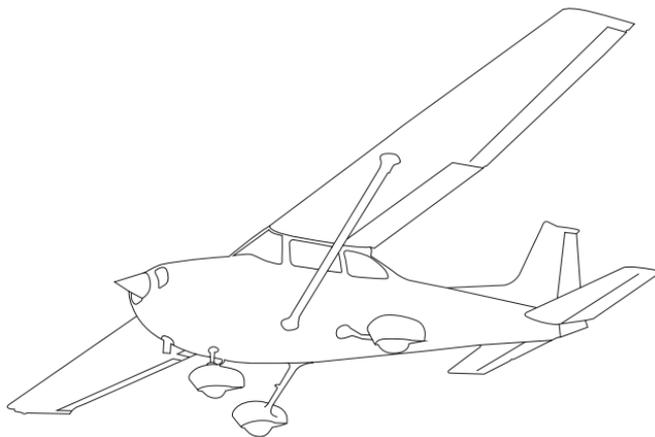
-60 dB below carrier

Power Consumption

1 A (max)

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