KENWOOD

ProTalk DIGITAL

NX-P500

UHF DIGITAL TRANSCEIVER

USER GUIDE

JVCKENWOOD Corporation

B5A-2554-00 (K,P)

THANK YOU

We are grateful you have chosen **KENWOOD** for your Digital Transceiver applications.

This User guide covers only the basic operations of your radio. For a detailed instruction manual, refer to the following URL or QR code.

http://manual.kenwood.com/files/B5K-0516-00.pdf

Firmware Copyrights

The title to and ownership of copyrights for firmware embedded in KENWOOD product memories are reserved for JVC KENWOOD Corporation.

FEATURES

- Lightweight compact design using a lithium-ion battery pack, with a sturdy, polycarbonate body.
- LED with 7-selectable colors enables transceiver identification at start-up.
- Digital Encryption / Analog Scrambling masks voice messages for privacy.
- Battery saver function improves battery life.
- Button Lock / Super Lock prevent accidental changes to transceiver settings.
- Equipped with Mixed Mode allowing for simple migration from analog to digital communications.
- Audio accessory connector conforms to IP54/55/67.

COMMUNICATION DISTANCE

Open locations (no obstructions)	Up to 5.6 miles (9 km)
Residential areas (near buildings)	Up to 0.6 miles (1 km)

Note:

◆ The listed ranges are based on field testing and may vary with your operating conditions.

PRECAUTIONS

Observe the following precautions to prevent fire, personal injury, and transceiver damage.

- Do not charge the transceiver and battery pack when they are wet.
- Ensure that there are no metallic items located between the transceiver and the battery pack.
- Do not use options not specified by **KENWOOD**.
- If the die-cast chassis or other transceiver part is damaged, do not touch the damaged parts.
- If a headset or headphone is connected to the transceiver, reduce the transceiver volume. Pay attention to the volume level when turning the squelch off.
- Do not place the microphone cable around your neck while near machinery that may catch the cable.
- Do not place the transceiver on unstable surfaces.
- Ensure that the end of the antenna does not touch your eyes.
- When the transceiver is used for transmission for many hours, the radiator and chassis will become hot. Do not touch these locations when replacing the battery pack.
- Always switch the transceiver power off before installing optional accessories.
- The charger is the device that disconnects the unit from the AC mains line. The AC plug should be readily accessible.
- To dispose of batteries, be sure to comply with the laws and regulations in your country or region.

WARNING

Turn the transceiver power off before entering the following locations:

- Near explosives or blasting sites.
- In aircraft. (Any use of the transceiver must follow the instructions and regulations provided by the airline crew.)
- Where restrictions or warnings are posted regarding the use of radio devices, including but not limited to medical facilities.
- Near persons wearing pacemakers.
- In explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.).
- While pumping fuel or while parked at gasoline service stations.

CAUTION

- Do not disassemble or modify the transceiver for any reason.
- Do not place the transceiver on or near airbag equipment while the vehicle is running. When the airbag inflates, the transceiver may be ejected and strike the driver or passengers.
- Do not transmit while touching the antenna terminal or if any metallic parts are exposed from the antenna covering. Transmitting at such a time may result in a high-frequency burn.
- If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, remove the battery pack from the transceiver, and contact your **KENWOOD** dealer.
- Use of the transceiver while you are driving may be against traffic laws. Please check and observe the vehicle regulations in your area.
- Do not expose the transceiver to extremely hot or cold conditions.
- Do not carry the battery pack (or battery case) with metal objects, as they may short the battery terminals.
- Danger of explosion if the battery is incorrectly replaced; replace only with the same type.

INFORMATION CONCERNING THE BATTERY PACK

The battery pack includes flammable objects such as organic solvent. Mishandling may cause the battery to rupture producing flames or extreme heat, deteriorate, or cause other forms of damage to the battery. Please observe the following prohibitive matters.

DANGER

- **Do not disassemble or reconstruct battery.**
- **Do not short-circuit the battery.**
- **Do not incinerate or apply heat to the battery.**
- **Do not leave the battery near fires, stoves, or other heat generators (areas reaching over 80°C/ 176°F).**
- **Do not immerse the battery in water or get it wet by other means.**
- **Do not charge the battery near fires or under direct sunlight.**
- **Use only the specified charger and observe charging requirements.**
- **Do not pierce the battery with any object, strike it with an instrument, or step on it.**
- **Do not jar or throw the battery.**
- **Do not use the battery pack if it is damaged in any way.**
- **Do not solder directly onto the battery.**
- **Do not reverse the battery polarity (and terminals).**
- **Do not reverse-charge or reverse-connect the battery.**
- **Do not touch a ruptured and leaking battery.**
  If the electrolyte liquid from the battery gets into your eyes, wash your eyes out with fresh water as soon as possible, without rubbing your eyes. Go to the hospital immediately. If left untreated, it may cause eye-problems.

WARNING

- **Do not charge the battery for longer than the specified time.**
- **Do not place the battery pack into a microwave or high pressure container.**
- **Keep ruptured and leaking battery packs away from fire.**
- **Do not use an abnormal battery.**
- **Do not change or charge the battery in hazardous locations.**

UNPACKING AND CHECKING EQUIPMENT

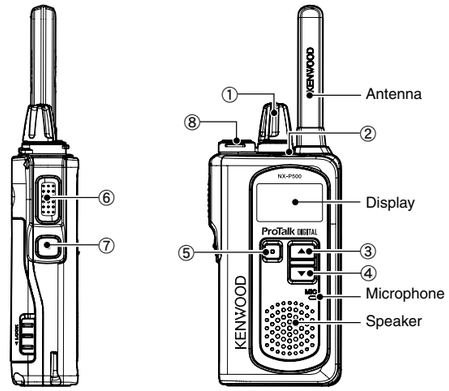
Carefully unpack the transceiver. We recommend that you identify the items listed in the following list before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

When not using an optional speaker/ microphone or headset, to keep the transceiver water resistant, you must cover the speaker/ microphone jack with the cap.

SUPPLIED ACCESSORIES

- Charger Pocket.....1
- AC adapter.....1
- Li-ion Battery pack.....1
- Beltclip Holster.....1
- Warranty card.....1
- User guide.....1

ORIENTATION



① **Power switch/ Volume control**
Turn clockwise to switch ON the transceiver. To switch OFF the transceiver, turn counterclockwise until a click sounds. Rotate to adjust the volume level.

② **LED indicator**
Indicates the transceiver status.

③ **▲ (UP) button**
Press to change the operating channel, to select a menu in Setting Mode, and to perform other functions.

④ **▼ (DOWN) button**
Press to change the operating channel, to select a menu in Setting Mode, and to perform other functions.

⑤ **MENU button**
Select the various functions. Press and hold while switching the power ON to enter Setting Mode and to perform other functions.

⑥ **PTT (Push to Talk) switch**
Press and hold, then speak into the microphone to transmit.

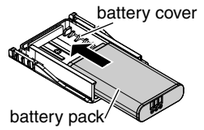
⑦ **SIDE button**
Press before making a call to alert the other party members, or press to select a unit ID to make a call and to perform other functions.

⑧ **SP/MIC jack**
Insert the speaker/ microphone or headset plug into this jack.

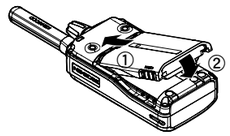
INSTALLING THE BATTERY PACK

CAUTION

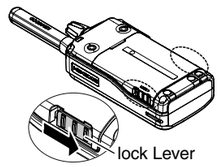
- Do not short the battery terminals or dispose of the battery by fire.
- Never attempt to remove the casing from the battery pack.



1 Insert the battery pack into the battery cover.
- Pay attention to the position of notch of the battery pack.



2 Align the battery cover with the groove on the back of the transceiver.



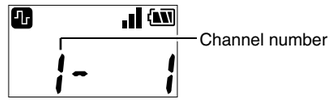
3 Slide the Lock lever (both side) to lock it.
- Slide the lock lever to the position where the red seal will not be visible. (There will be feedback in the form of a click.)

BASIC OPERATION

Switch the Power ON

Switch the transceiver power ON by turning the **Power** switch/ **Volume** control clockwise.

- A confirmation tone sounds, the LCD lights up momentarily, then the current channel number is displayed.



To switch the transceiver power OFF, turn the **Power** switch/ **Volume** control fully counterclockwise, until a click sounds.

Adjust the Volume

Set your desired volume level by rotating the **Power** switch/ **Volume** control.

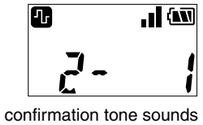
- Clockwise increases the volume and counterclockwise decreases the volume.

Note:

◆ To adjust the volume using background noise as a reference, use the Squelch off Function.

Select a Channel

Select a channel by pressing the ▲ or ▼ button.

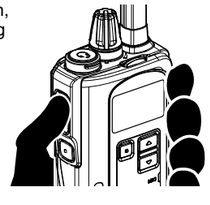


- A confirmation tone sounds each time you press the ▲ or ▼ button.

Make a Call

1 To make a call, press and hold the **PTT** switch, then speak around the microphone area using your normal speaking voice.
- Hold the microphone approximately 1.5 inches (3 to 4 cm) from your lips.

2 Release the **PTT** switch to receive.



RADIO FREQUENCY ENERGY SAFETY INFORMATION

This **KENWOOD** transceiver has been tested and complies with the standards listed below, in regards to Radio Frequency (RF) energy and electromagnetic energy (EME) generated by the transceiver.

- FCC RF exposure limits for Occupational Use Only. RF Exposure limits adopted by the FCC are generally based on recommendations from the National Council on Radiation Protection and Measurements, & the American National Standards Institute.
- FCC OET Bulletin 65 Edition 97-01 Supplement C
- American National Standards Institute (C95.1 – 1992)
- American National Standards Institute (C95.3 – 1992)

WARNING

This **KENWOOD** transceiver generates RF EME while transmitting. RF EME (Radio Frequency Electric & Magnetic Energy) has the potential to cause slight thermal, or heating effects to any part of your body less than the recommended distance from this radio transmitter's antenna. RF energy exposure is determined primarily by the distance to and the power of the transmitting device. In general, RF exposure is minimized when the lowest possible power is used or transmission time is kept to the minimum required for consistent communications, and the greatest distance possible from the antenna to the body is maintained. The transceiver has been designed for and is classified for Occupational Use Only. Occupational/ controlled exposure limits are applicable to situations in which persons are exposed to RF energy as a consequence of their employment, and such persons have been made aware of the potential for exposure and can exercise control over their exposure. This means you can use the transceiver only if you are aware of the potential hazards of operating a transceiver and are familiar in ways to minimize these hazards. This transceiver is not intended for use by the general public in uncontrolled environments. Uncontrolled environment exposure limits are applicable to situations in which the general public may be exposed to RF energy, or in which the persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

The following list provides you with the information required to ensure that you are aware of RF exposure and of how to operate this transceiver so that the FCC RF exposure limitations are not exceeded.

- While transmitting (holding the PTT switch or speaking with VOX enabled), always keep the antenna and the radio at least 3 cm (1 3/16 inches) from your body or face, as well as from any bystanders. A LED on the top of the radio shows red when the transmitter is operating in both PTT and VOX modes.
- Do not transmit for more than 50% of the total transceiver use time; transmitting over 50% of the total use time may exceed the limits in accordance to the FCC RF exposure requirements. Nominal transceiver operation is 5% transmission time, 5% reception time, and 90% stand-by time.
- Use only the specified antenna for this transceiver; this may be either the antenna provided with the transceiver or another antenna authorized by **KENWOOD**.

Use only **KENWOOD** authorized accessories (antennas, battery packs, belt clips, Speaker/ Mics or headsets etc.): When worn on the body, always place the radio in a **KENWOOD** recommended clip or carrying case meant for this product. The use of other than recommended or approved body-worn accessories may result in RF exposure levels which exceed the FCC's occupational/ controlled environment RF exposure limits.

CAUTION

To ensure that your exposure to RF EME is within the FCC limits for occupational use, you must observe and adhere to the above points.

Electromagnetic Interference Compatibility

Electronic devices are susceptible to electromagnetic interference (EMI) if they are not adequately shielded or designed for electromagnetic compatibility. Because this transceiver generates RF energy, it can cause interference to such equipment.

- Turn OFF your transceiver where signs are posted to do so. Hospitals and health care facilities use equipment that is sensitive to electromagnetic radiation.
- Turn OFF your transceiver while on board an aircraft when so instructed. Use of the transceiver must be in accordance with airline regulations and/or crew instructions.

NOTICES TO THE USER

◆ Refer service to qualified technicians only.

Safety: It is important that the operator is aware of, and understands, hazards common to the operation of any transceiver.

One or more of the following statements may be applicable:

FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved by the party responsible/ JVC KENWOOD. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

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 generate 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 the 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 to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

FCC LICENSE INFORMATION

Your **KENWOOD** transceiver operates on communications frequencies which are subject to FCC (Federal Communications Commission) Rules & Regulations. FCC Rules require that all operators using Private Land Mobile radio frequencies obtain a radio license before operating their equipment. Application for license must be made on FCC form 601, schedules D and H, and Remittance form 159.

FAX: Forms can be obtained by fax from the FCC Fax-On-Demand system. Call 1-202-418-0177 from your fax machine and request document number 000601 for the form, schedules, and instructions.

MAIL: Forms can be ordered by telephone, and will be sent to you by first class mail. Call the FCC Forms Hotline at 1-800-418-FORM (1-800-418-3676).

INTERNET: Form 601 and instructions can be downloaded from the FCC Forms website at
http://www.fcc.gov/formpage.html

Before filling out your Form 601 application Technical Data section, you must decide on which frequencies you will operate. See the frequency charts on the USER MANUAL.

QUESTIONS? Call the FCC for license application questions at 1-888-CALL-FCC (1-888-225-5322).

The RBRC Recycle seal found on **KENWOOD** lithium-ion (Li-ion) battery packs indicates **KENWOOD**'s voluntary participation in an industry program to collect and recycle Li-ion batteries after their operating life has expired. The RBRC program is an alternative to disposing Li-ion batteries with your regular refuse or in municipal waste streams, which is illegal in some areas.

For information on Li-ion battery recycling in your area, call (toll free) 1-800-8-BATTERY (1-800-822-8837).

KENWOOD's involvement in this program is part of our commitment to preserve our environment and conserve our natural resources.

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to extract, remove, decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form. U.S. Patent Nos. #8,315,860, #8,595,002, #6,912,495, #8,200,497, #7,970,606, and #8,359,197.

TERMINAL DESCRIPTIONS

Speaker/ Microphone Jack

It is possible to use a resin-based cover for the Speaker/ Microphone jack.

No.	Name	Description	Specification	I/O
1	EXT_MICI	External MIC Input	Impedance: 1.8 kΩ	I
2	SPO	External Audio Output	Impedance: 8 Ω	O
3	PTT/PF	PTT/Programmable Function Button Input	Low: ON	I
	RXD/TXD	Serial Data Input	Impedance: 10 kΩ Baud rate: 230,400 bps max	I/O
		Serial Data Output		
4	E	GND	GND	
5	NC	No connection	–	–
6	OPTDET	Option Detect (for EXT Option)	–	–
7	GND	GND	GND	

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