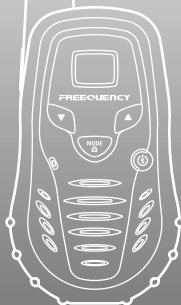


PMR-121TX

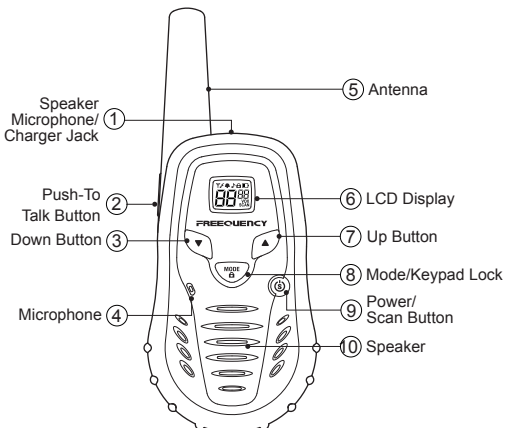
PMR-121TX / PMR-121TX-2CH



PMR 446 TRANSCEIVER INSTRUCTION MANUAL



www.ttikorea.co.kr



Thank you for purchasing this Freequency radio.

All our products are built to offer excellent value for money by combining advanced features, great design and manufacturing quality.

To ensure you are familiar with the operation and features of your radio and in order to obtain the best performance, please read this manual carefully before operation.

1. Contents

1. Contents	3
2. CAUTION	4
3. LCD Display	5
4. Equipment and Accessories Supplied	5
5. Powering the transceiver	5
6. Installing the batteries	6
7. Charge Information	6
8. Control Buttons	7
(1) Power on-off button	7
(2) Push-To-Talk (PTT) button	7
(3) Up button	7
(4) Down button	7
9. Operating Modes and Features	7
(1) PMR Operation	7
(2) Channel Selection	8
(3) CTCSS Mode Selection	8
(4) VOX Mode Selection	8
(5) Roger Beep Tone	9
(6) Button Beep (Keytone)	9
(7) Call Ringer	9
(8) Keypad Lock	10
(9) Channel Scan Operation	10
(10) Battery Alert	10
(11) Backlighting	10
10. Note for Good Communication	11
11. Warning	11
12. Troubleshooting	12
13. Technical Specifications	12
14. Main Channel Frequency Table	12
15. CTCSS Tone Subcode Table	12
16. CE Declaration	13
17. Safety Requirement	13

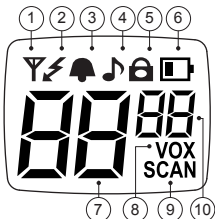
2. CAUTION

NEVER ATTEMPT TO CHARGE ALKALINE OR DRYCELL BATTERIES, AS BATTERIES MAY BURST CAUSING PERSONAL INJURY AND DAMAGE TO THE PRODUCT. WHEN RECHARGING NICKEL METAL HYDRIDE (Ni-MH) BATTERIES WITH THE SUPPLIED TTI CHARGER AND WALL ADAPTOR, USE ONLY TTI-APPROVED RECHARGEABLE BATTERIES. USE OF THE TTI CHARGER WITH OTHER BRANDS OF BATTERIES IS NOT RECOMMENDED, AS BATTERY CHARGING TIMES WILL VARY WITH DIFFERENT BRANDS. AVOID PLACING THE PMR-121TX RADIO TRANSCEIVER FOR PROLONGED PERIODS OF TIME IN DIRECT SUNLIGHT OR TEMPERATURES BELOW -20°C OR ABOVE 60°C.

KEEP THE ANTENNA AT 1 INCH (2.5cm) AWAY FROM YOUR HEAD AND BODY. DO NOT USE YOUR PMR-121TX RADIO TRANSCEIVER WITH A DAMAGED ANTENNA.

PLACE THE RUBBER COVERS ON JACKS WHEN NOT IN USE.

3. LCD Display



1. Transmit Icon
2. Receive Icon
3. Key Tone Icon
4. Roger Beep Icon
5. Keypad Lock Icon
6. Low Battery Level Icon
7. Channel Number Display
8. Voice Activated Transmission Icon (VOX)
9. Channel Scan Icon
10. CTCSS Subcode Icon

4. Equipment and Accessories Supplied

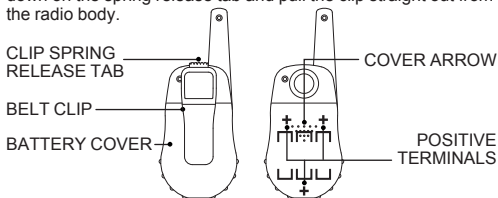
1. PMR-121TX
 - 1) Radio (1)
 - 2) Instruction Manual (1)
2. PMR-121TX-2CH
 - 1) Radio (2)
 - 2) Instruction Manual (1)
3. PMR-121TX-2CH
 - 1) Radio (2)
 - 2) Instruction Manual (1)
 - 3) Rechargeable Batteries (6)
 - 4) Dual Desk-Top Charger (1)
 - 5) Power Adaptor (1)
 - 6) Earset(2)

5. Powering the transceiver

Your PMR-121TX Radio transceiver operates on three AAA batteries. Alkaline batteries will provide slightly better performance than rechargeable batteries. When using rechargeable batteries, battery charging time is typically 12-15 hours.

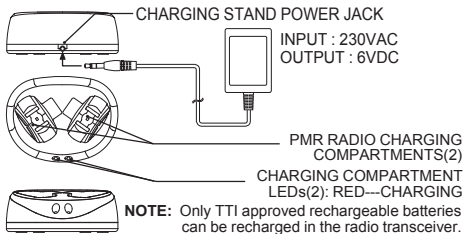
6. Installing the batteries

Battery installation is made more convenient when the belt clip is either rotated left or right to the horizontal position, or is removed. simply rotate the clip in either direction to the horizontal position. Be careful not to use excessive force. To remove the clip, press down on the spring release tab and pull the clip straight out from the radio body.



1. Using thumb, press down on battery cover at arrow and slide cover down.
2. Then lift cover at bottom to open. Remove cover.
3. Insert three AAA batteries (positive (+) end toward the top beginning at left side and alternating positive terminals as shown).

7. Charge Information (For PMR-121TX-2CH)



DESKTOP CHARGING STAND

8. Control Buttons



(1) Power on-off Button



Press and hold the POWER on/off button for at least 2 seconds. You will hear a confirming melody to indicate the unit is on. To turn the unit off, press and hold the button for at least 2 seconds.

(2) Push-To-Talk (PTT) Button



Pressing and holding this button will allow you to speak to any transceiver that is set to the same channel and privacy code setting as yours. Hold the transceiver approximately 2 to 3 inches from your mouth as you speak into the built in microphone. After you have finished speaking, release the PTT Button to allow reception of incoming signals. Whenever the button is pressed, the transmit icon () will appear. When receiving an incoming signal, the Receive () icon will appear. The PTT button can also be used as a two-way call ringer. Pressing the button twice quickly will call another party on the same channel.

(3) Up Button



In the standby mode, pressing this button will increase the listening volume. The current volume is indicated (1-7). When in function edit mode this button will be used to adjust the unit's settings.

(4) Down Button





In the standby mode, pressing this button will decrease the listening volume. When in function edit mode this button will be used to adjust the unit's settings.

9. Operating Modes and Features

(1) PMR Operation

- Press and hold the POWER On/Off button for 2 seconds to turn on power.
- Press the MODE button so the channel number flashes.
- Select the desired channel with the Up and Down Buttons.

- The Recieve icon () appears to indicate an incoming call.
- Press and hold the PTT button to transmit, then speak into the microphone clearly and slowly. The transmit icon () appears on the display while the button is pressed.
 - Release PTT button to receive.
 - Communication can only be accomplished when the channel and CTCSS tone frequency of at least two parties are the same .
 - The CTCSS subcode (**01-38**) will be displayed on the LCD panel if the CTCSS tone frequency function is enabled (not **oF**).

(2) Channel Selection

- From standby mode, press the MODE button once; the channel number flashes.
- Press the Up or down button briefly to move to the desired channel number.
- Press the PTT button momentarily to confirm selection.

(3) CTCSS Mode (Sub-Code) Selection

- From standby mode,press the MODE Button twice; a flashing **oF** or sub-code number is displayed.
- Press the Up or Down button to select the desired sub-code for use (**01-38**).
- Press the PTT button to confirm selection.
- The CTCSS mode can be turned off by selecting **oF** as the setting.

NOTE : To communicate with other PMR units, they must be switched to the same channel and CTCSS subcode. To communicate with other PMR units that do not have subcodes, switch your unit to the same channel with the subcode set to **oF**. The CTCSS subcodes do not prevent others from hearing you transmission.This will only allow you to ignore all traffic on a given channel not using the same subcode.

(4) VOX Mode Selection

When your voice or signal is detected using the internal microphone/headset (purchased separately for PMR-121TX), the radio transmits automatically without the need to press the PTT button.

To enable the VOX operation:

- From standby mode, press the MODE button 3 times until the VOX icon (VOX) appears with **on** or **oF**.
- Press the Up or Down button to select the VOX **on** or **oF** as desired.
- When enabled, the VOX icon (VOX) appears.
- Press the PTT button momentarily to confirm selection.

(5) Rogrer Beep Tone

The Roger Beep is a tone which is automatically transmitted whenever the PTT button is released.

To enable and disable the Roger Beep tone:

- From standby mode, press the MODE Button 4 times until the flashing Roger Beep icon (🎵) appears with **on** or **oF**.
- Press the Up or Down Button to select the tone on or off as desired.
- When enabled, the Roger beep icon (🎵) appears.
- Press the PTT button momentarily to confirm selection.

(6) Button Beep (keytone)

This feature allows the transceiver to sound a confirmation tone whenever the following keys are pressed: Power On/Off/Scan Button, Up/Down Buttons and MODE Button.

To enable and disable the keytone:

- From standby mode, press the MODE Button 5 times until the flashing keytone icon (🔊) appears with **on** or **oF**.
- Press the Up or Down Button to select the tone on or off as desired.
- When enabled, the keytone icon (🔊) appears.
- Press the PTT button momentarily to confirm selection.

(7) Call Ringer

The transceiver provides a transmit call ring melody to alert other users of an incoming call. From standby mode, pressing the PTT button twice in quick succession will transmit the call ringer melody.

To select the call ringer tone :

- From standby mode, press the MODE Button 6 times until the Call Ringer tone number flashes.
- Press the Up or Down Button to select the one tone out of 3 tones.
- Press the PTT button momentarily to confirm selection.

(8) Keypad Lock

The lock function is to avoid the accidental changes of radio settings. The POWER On/Off, PTT and Volume Up/Down button will supercede the lock function.

To set the keypad lock operation :

- From standby mode, press and hold the MODE button for 2 seconds or until the lock icon (🔒) appears on the display.
- To disable the lock operation, press and hold the MODE button for at least 2 seconds ; the lock icon (🔒) will disappear.

(9) Channel Scan Operation

This feature allows you to monitor all channels automatically for valid signals. While scanning, you can transmit and receive. When a signal is received, the scan is interrupted and will return to scan mode approximately 5 seconds after the interruption.

Note: while the **SCAN** mode is active, the MODE button is inoperative. In addition, the SCAN mode will reduce the overall battery life since the battery save function is overridden.

To enable the channel scan mode:

- From standby mode, momentarily press the Power On/Off Button; **SCAN** will appear on the LCD display.
- The radio will automatically display each channel (1-8) in ascending order to find an active main channel.
- When the unit doesn't find any signals and you want to transmit, press the PTT Button to return to primary channel operation. The transceiver will automatically resume scanning approximately 15 seconds after the communication is completed.
- If there is no activity and you want to leave the scan mode, press the Power On/Off button momentarily and the unit will return to normal operation; the **SCAN** icon (**SCAN**) will disappear from the LCD display.

(10) Battery Alert

When the low battery icon (🔋) blinks steadily on the LCD panel, recharge the unit or install fresh batteries.

(11) Backlighting

By pressing any buttons, the LCD backlight is turned on the LCD backlight will be turned off automatically in about 5 seconds after any final button is pressed.

10. Notes for Good Communication

1. The PMR-121TX channels are shared on a 'take turns' basis. This means other groups may be talking on any of the channels. A common code of courtesy is to switch to another vacant channel and not to attempt to talk over someone who is already using the channel you first selected.
2. The PMR-121TX has been designed to maximize performance and improve transmission range in the field. To avoid interference, it is recommended that you do not use the units closer than 5 feet apart.
3. To increase battery life, use the SCAN feature sparingly. This feature will reduce operating time considerably.

11. Warning

- Remove the batteries from the transceiver if it is not expected to be used for long periods. This will eliminate the possibility of chemicals leaking from the batteries and corroding the transceiver.
- Avoid exposing the transceiver to water or extremes of temperature.
- Do not use this device in or near a mining facility, which uses remotely triggered explosives or in areas labeled "Blasting Area".
- Do not attempt to modify or in any way increase the output of this transceiver. Its output is designed to meet the legal limits.
- Do not use this device or charge its batteries in potentially explosive atmospheres.
Turn your transceiver off wherever posted notices restrict the use of radios or cellular telephones.
- Facilities such as hospitals may use equipment that is sensitive to RF energy.
- Turn your transceiver off on board aircraft when requested to do so.
- Do not place your radio in front of a vehicle's air-bag. If the air-bag deploys, it could propel the transceiver like a projectile causing bodily injury.

12. Troubleshooting

If you have problems with your PMR-121TX, reset your unit by turning it off and removing the batteries. And re-insert the batteries and turn the unit on again. Check the battery power level since in many cases low batteries cause problems such as no transmission, weak receiving signal and low sound.

13. Technical Specifications

Operating frequency 446.00625 to 446.09375 MHz
Channel capacity eight channels
Channel spacing 12.5KHz
Power source 3 X 1.5 V ' AAA' battery

14. Main Channel Frequency Table

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	446.00625	5	446.05625
2	446.01875	6	446.06875
3	446.03125	7	446.08125
4	446.04375	8	446.09375

15. CTCSS Tone Subcode Table

No.	Freq.	No.	Freq.	No.	Freq.	No.	Freq.
1	67.0	11	97.4	21	136.5	31	192.8
2	71.9	12	100.0	22	141.3	32	203.5
3	74.4	13	103.5	23	146.2	33	210.7
4	77.0	14	107.2	24	151.4	34	218.1
5	79.7	15	110.9	25	156.7	35	225.7
6	82.5	16	114.8	26	162.2	36	233.6
7	85.4	17	118.8	27	167.9	37	241.8
8	88.5	18	123.0	28	173.8	38	250.3
9	91.5	19	127.3	29	179.9	OF	0
10	94.8	20	131.8	30	186.2		

16. CE Declaration



CE version of the PMR-121TX which displays the "CE" symbol on the product label, complies with the essential requirements of the European Radio and Telecommunication Terminal Directive 1999/5/CE.



This warning symbol indicates that this equipment operates in non-harmonised frequency bands and / or may be subject to licensing conditions in the country of use. Be sure to check that you have the correct version of this radio or the correct programming of this radio, to comply with national licensing requirement.

This radio can be used without license and charges in; Austria, Belgium, Bulgaria, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and U.K.

17. Safety Requirement

For charging the rechargeable batteries, only CE-approved AC adaptor must be used in compliance with the following specifications:

* INPUT : AC 230V 50Hz 30mA

* OUTPUT : DC 6V 200mA



DECLARATION OF CONFORMITY

We, TTI Tech Co., Ltd. (TTI house, 163-4, Poi-dong, Gangnam-gu, Seoul, Korea), declare on our sole responsibility that this equipment complies with the essential requirements of the Radio and Telecommunications Terminal Equipment Directive, 1999/5/EC, and that any applicable Essential Test Suite measurements have been performed.

Kind of equipment: PRIVATE MOBILE RADIO

Type-designation: PMR-121TX

Version (where applicable):

This compliance is based on conformity with the following harmonized standards, specifications or documents:

EN 300 296-1	V1.1.1(03-2001)
EN 300 296-2	V1.1.1(03-2001)
EN 301 489-1	V1.4.1(08-2002)
EN 301 489-5	V1.3.1(08-2002)
EN 60950	2000



Seoul, OCT . 1 , 2007

Place and date of issue

H. J. Lee
Senior Manager

Signature

COMMAX PL

46 Koniecznego Str.
32-040 Swiatniki Gorne
Poland
T. +48 12 256 50 25
F. +48 12 270 56 96

Authorized representative

PMR-121TX

TTI TECH CO., LTD.