

TELSON INFORMATION & COMMUNICATION CO., LTD.

TEL : 82-2-851-2780 ~ 5(EXT210)  
FAX : 82-2-857-9583

## **RANGER-Plus**

### **USER MANUAL**

**0.5 WATT FAMILY RADIO SERVICE**

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**RANGER-Plus**

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## USER'S MANUAL

### 1. FRS PRODUCT DESCRIPTION

The Family Radio Service ( FRS ) is the newest generation in personal two - way communications. FRS radios operate in a license - free band, on one of 14 license - free channels.

The RANGER-Plus is a lightweight, palmsized two - way radio that you can carry almost anywhere - use it at shopping malls, sporting events, amusement parks, or any other activity where communications are needed for convenience or safety.

The radio provides about a 2miles range of communications - allowing you to keep in touch with family, friends or a neighborhood watch group.

The RANGER-Plus is 14 channels model. You can talk to another person using any FRS radio, provided that you can on the same frequency with button.

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### 2. CONTROLS AND FUNCTIONS

**PTT button** – It means Push to talk or Press to transmission.

**Monitor button** – allow you to listen the channel in transmission state or for weak signals.

**Power button** - Used to turn the radio on/off

**Volume up/down button** – Used to adjust the listening volume

**Call button** – Used to send a call signal for paging someone or in emergency condition

**Menu button** – for multiple purpose of volume up/down button to select other channel and tone.

**Scan button** – Used to scan the receiving channels and CTCSS Tone.

**Lamp button** – Used to light the back-light LED for illumination LCD panel.

**Red L.E.D** – Lights up in transmission

**Green L.E.D** – Lights up in receiving

**LCD Panel** – displays channel number, battery capacity, tone number, scan, key lock, external PTT and volume.

**Antenna** – The last terminal for transmission or receiving the signal in the radio.

**Belt Clip** - Used to secure the radio to a belt, pocket, or any other convenient location.

**Battery Compartment** – Houses 4 AAA size batteries which provide power to the unit.  
(Located on back of unit)

**Battery cover** – Secures the battery cover in place.

**Up ( ▲ ) and Down ( ▼ ) buttons** – Used for adjusting the volume level and changing the channel and CTCSS tone.

**Lamp button** – Used for lighting LCD Back Light Lamp.

**MIC /CHG/SP Jack** – Connect to a wall charger or speaker mic.

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### 3. OPERATING INSTRUCTION

#### Power On

The radio begins operation with beep tone by pressing and holding button for 1000msec and LED back-light is illuminated for 5 seconds simultaneously and the LCD displays all ICONs to check the screen for 100 msec.

#### Power OFF

Press and hold the power button for 2000msec. Then the unit is off with long audible Beep (800Hz).

#### PTT(Press to Talk)

PTT Button execute the following function ;  
get user to talk by the button.  
return to basic mode from Programmable CH/Tone change mode.

#### External PTT

The set could transmit by External PTT key or VOX operation. The LCD displays head-phone ICON

#### PTT Transmission

Press the PTT key for transmission, speak slowly and clearly in a normal voice about 2 ~ 3 inchs away from microphone the radio transmits the signal and TX LED(RED) is ON at the moment. If release the PTT key, it stops transmitting and returns to stand-by condition in order to receive signal.

#### Call

Press and release call button to transmit audible call tone. The unit rings for 1200ms. The unit automatically returns to receive stand-by mode when call transmission is over.

#### Receive

The unit begins message reception with speaker open when correct signal is received, the unit displays the channel number and RX icon(busy).

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## Channel Select

Channel digits are firstly blinking when menu button is pressed once. Then Press up or down key to a desired channel, while in channel selection mode back-light is on and channel digits keep blinking.

The release of channel selecting mode is operated by one of following key operation.  
1.mode button 2.PTT 3. call 4.time out(4sec) 5. Lamp/Key Lock. LED back-light is on in channel select mode, then it return to stand-by condition.

The selected channel is retained and recalled when the unit is turned off and on even battery is replaced. Pressing Up/Down key for 200msec, it checks existence of carrier as repeat mode.

## Channel List

Channel	Frequency	Channel	Frequency
1	462.5625MHz	8	467.5625MHz
2	462.5875MHz	9	467.5775MHz
3	462.6125MHz	10	467.6125MHz
4	462.6375MHz	11	467.6375MHz
5	462.6625MHz	12	467.6625MHz
6	462.6875MHz	13	467.6875MHz
7	462.7125MHz	14	467.7125MHz

## Tone Select

Press the Menu button two times. The tone icon is blinking and then press up and down key to a wanted tone. The release of tone selecting mode is to press one of following 1.mode button 2.PTT 3. call 4.time out(4sec) 5. Lamp/Key Lock. LED back-light is on in channel select mode, then it returns to stand-by condition. When the radio is power off and on again, the selected tone is recalled. If press and held Up/Down key for 200msec, tone changes upward or downward repeatedly.

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### Volume Control

The volume of radio is controlled by Up/down button on normal mode.

The Up button increases the volume from level 1 to Level 16 and Down Button decreases from Level 16 to Level 1. Other functions of the volume button is following ;

Pressing the Up/down button for 200msec more, it operates as Repeat mode.

The volume level is recalled even after replacing battery.

### Monitor/Light Key function

The Monitor Key operates as followings.

turns the monitor On/Off

Continuous monitor mode On

### Normal Monitor Mode

Pressing Monitor Key, the channel status is checked and audio is always open whether existence of carrier or not. To release the Key, audio is muted and it returns to stand-by mode.

### Continuous Monitor Mode

Pressing Monitor Button for 3 seconds, the set begins to be continuous monitor mode with Single Beep. Pressing monitor button again or call/PTT key releases continuous monitor mode.

### Back Light On/Off

Pressing Light/Key lock Button for 3sec, the Back-Light is on for 5sec and then turn off automatically. It turn to Off(On) in On(Off) status.

### Key Lock On/Off

If press Light/Key lock Button above 3sec, Key icon on LCD is displayed and set up Lock key On Option. And if press Light/Key lock Button above 3sec, Key icon on LCD is disappeared and set up Lock key On Option. It is stored also in replacing Battery.

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### Channel Scan

Channel icon is blinking as a result of pressing the Menu Button one time, then if press Scan button, channel scan is set up. It is released by pressing Scan in that situation.

#### Channel Scan function

1. Check the receiving carrier at intervals of 200ms with the increase of channel.
2. Tone is not operated in Scanning.
3. As receive the channel, Bar is blinking in 500msec steps.
4. As soon as completion receiving, go back to 1<sup>st</sup> item after waiting for 4sec.
5. Pressing PTT while operating 1<sup>st</sup> item, The channel, which set up before scan option, transmit. After waiting the transmitted channel for 4sec, go back to 1<sup>st</sup> item.
6. If transmit within 4sec after completion receiving, the received channel is transmitted and Channel Scan Option is released.

### Tone Scan

Tone icon is blinking by pressing the Menu Button two times, then if press Scan button, Tone scan is set up. It is released by pressing Tone Status in that situation.

#### Tone Scan function

1. Check the receiving carrier at intervals of 200ms with the increase of Tone.
2. As receive the channel, Bar is blinking in 500msec intervals.
3. As soon as completion receiving, go back to 1<sup>st</sup> item after waiting for 4sec.
4. Pressing PTT while operating 1<sup>st</sup> item, The tone, which set up scan option, transmit before. After waiting the transmitted Tone for 4sec, go back to 1<sup>st</sup> item.
5. If transmit within 4sec after completion receiving, the received tone is transmitted and Tone Scan Option is released.

### Low Battery Detect

RANGER PLUS is displaying the level after reading the battery status regularly in operating. When indicate Low-battery, limit the part of operation with warning beep simultaneously and turn to emergency mode like following contents.

prohibit the transmission in case of LEVEL 1. Battery icon is blinking in 0.5sec steps, but even then it is possible to receive

LEVEL 0 : below 4.0V be to transmit after Blinking & Beep

LEVEL 2: 6-4.8V

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### **Power Saving**

So as to maximize battery life, Power Saving Mode is automatically activated in 3sec after every transmission and reception like following operation

The beginning of power saving is following.

The 3sec process of Power On

The 3sec process of stopping transmission.

The 3sec process of stopping receiving

The release of Power Saving is following

Transmission

Receiving(Carrier Detect)

Monitor Operation

### **Error Indication**

If it should occur error situation which impossible of TX/RX, the radio make beep tone of 1sec intervals.

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## 4. GENERAL SPECIFICATIONS

## ◆ TEST CONDITION

1.TEMPERATURE RANGE	-20°C ~ +50°C
2.FREQUENCY ERROR	±2.5ppm
3.VOLTAGE RANGE	6V±15%
4.CHANNEL SPACING	12.5 kHz
5.MAX DEVIATION	±2.5kHz

## ◆ SPECIFICATIONS

## TRANSMITTER

1.OUTPUT POWER	MAX 0.5W(ERP)
2.AUDIO DISTORTION	10%
3.CURRENT	350mA
4.HUM & NOISE	34dB
5.AUDIO RESPONSE	6dB OCTAVE Pre-emphasis

## RECEIVER

1.SENSITIVITY	0.316 $\mu$ V below
2.AUDIO DISTORTION	10%
3.HUM & NOISE	34dB
4.AUDIO OUTPUT	0.25W at 10% THD
5.STAND-BY CURRENT	30mA
6.SQ SENSITIVITY	10dB SINAD