

# **REDSUN PF2100 PLL RADIO**

## **OPERATING MANUAL**

TRANSLATED BY LIYPN – © ALL RIGHTS RESERVED – JUNE 2006

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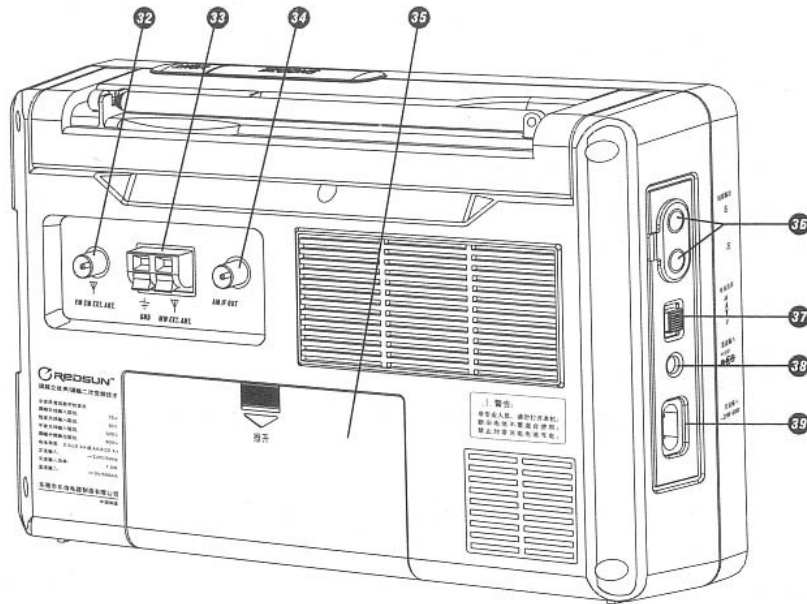
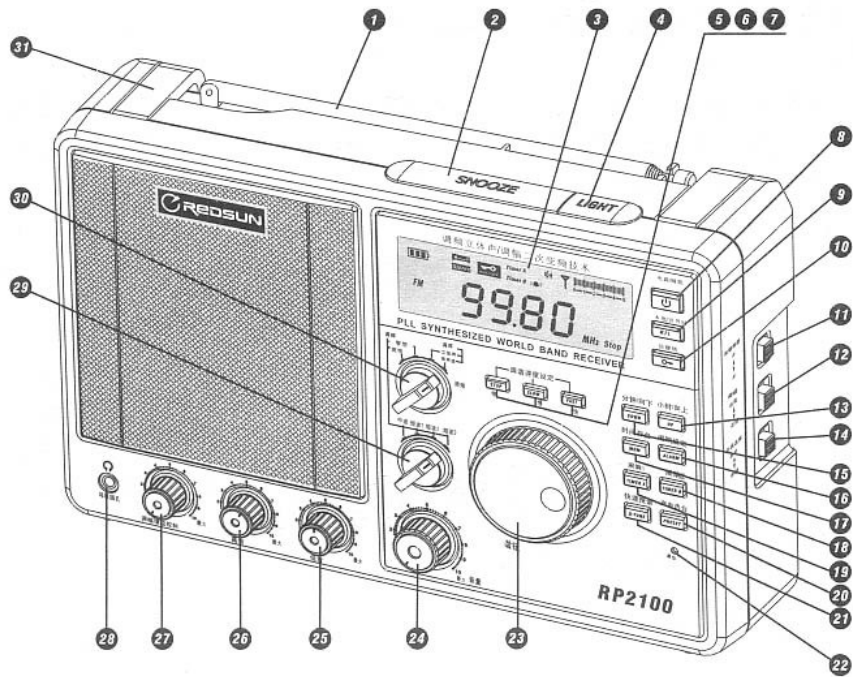
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## A. ILLUSTRATIONS






1. Whip Antenna – for FM and Short Wave
2. SNOOZE Button
3. LCD Display
4. LIGHT Button – press this button shortly the backlight will be on for 8 seconds; press this button for a longer while the backlight will be on always; press again to turn off the backlight
5. STOP Button – locks the tuning knob from tuning frequencies
6. SLOW Button – FM 10 KHz., MW and Short Wave 1 KHz.
7. FAST Button – FM 100 KHz., SW 5 KHz., MW 9 or 10 KHz.
8. POWER / SLEEP Button
9. LOCAL / WORLD TIME Button – press this button for 5 seconds will change the display clock from local time to world time
10. LOCK Button – Press this button shortly will enable the lock function, all buttons will not function except the LIGHT Button; press this button for a longer time will disable the lock function
11. BUTTON LIGHTS Switch – When this switch is on (up position), all buttons will be lighted up for 8 seconds when any button is touched
12. DX / LOCAL Switch – Up position for DX, down position for local
13. UP Button – When the radio is being turned off, press this button for 5 seconds will change the 12 / 24 hours time mode; When adjusting the clock, this button adjusts the hour; When the radio is being turned on, press this button shortly will manually increase the frequency; When pressing this key for a longer time, the radio will auto search for stations; When saving memory pre-set, this button will save to the selected address
14. INT. / EXT. ANTENNA Switch – Up position for internal, down position for external antenna;
15. DOWN Button - When adjusting the clock, this button adjusts the second; When the radio is being turned on, press this button shortly will manually decrease the frequency; When pressing this key for a longer time, the radio will auto search for stations; When saving memory pre-set, this button will save to the selected address
16. ALARM MODE Button – Sets the alarm modes of the Timer A and Timer B
17. MEM Button – When the radio is being turned off, press this key for a longer period to adjust the time clock; When the radio is being turned off, press this key to store memory pre-sets

18. TIMER B Button – When the radio is being turned off, press this key to set the Timer B; Press this key again to display the settings of the Timer B
19. TIMER A Button – When the radio is being turned off, press this key to set the Timer B; Press this key again to display the settings of the Timer A
20. PRESET Button – When the radio is being turned off, press this button to recharge the batteries inside the battery compartment; When the radio is being turned on, press this button to select the memory pre-sets
21. Q. TUNE Button – Press this button for 1000 KHz. Steps in FM, 100 KHz. Steps for MW, and for band selections in short wave
22. RESET – Use a sharp object to press this hidden button to reset the radio when the radio is not working properly
23. TUNING Knob – For tuning frequencies, and for adjusting time
24. VOLUME Knob
25. BASS Knob
26. TREBLE Knob
27. RF GAIN Control knob for MW and short wave
28. HEADPHONE Socket – Use a stereo headphone for FM listening
29. MW / SW1 / SW2 / SW3 BAND SELECTION SWITCH
30. AM / FM MODE Switch – (from left to right) AM wide, AM narrow, FM mono, FM stereo
31. HANDLE
32. EXT. ANTENNA Socket – for FM and SW
33. EXT. ANTENNA Sockets – for MW
34. AM IF OUT Socket
35. BATTERY COMPARTMENT
36. LINE OUT – Upper is for right, lower for left
37. BATTERY TYPE Switch – To select AA or D size battery inside the battery compartment
38. EXT. DC POWER Socket – 6 to 9 volts
39. EXT. AC POWER Socket – 220 volts

## **B. POWER SUPPLY**


### **1. USING BATTERY**

- AA size or D size batteries can be used with this radio. After inserting 4 pcs. of battery into the battery compartment (35), set the BATTERY TYPE switch (37) to the appropriate position
- The display panel will show the full battery strength sign  if you are using new batteries
- If a flashing battery sign  is displayed, the battery will soon be exhausted. The radio will be turned off automatically.
- You should replace new batteries as soon as possible. The  sign will appear. Avoid mixing new and used batteries for use with the radio. Remove all batteries from the battery compartment if you will not use the radio for a long time.
- After replacing the batteries, there is no need to set the radio time again as the clock will last for some time even the radio is not connected to the batteries or power supply.

### **2. USING EXTERNAL AC POWER**

- When the external power cord is inserted to the EXT. AC POWER Socket (39), the radio will be powered by external AC power. If the external AC power supply is interrupted, the radio will be powered by the batteries inside the radio automatically.
- This radio is set for use with 220V. AC, if your AC power supply is 110V., you will need to use the 110V. input 220V. output power transformer between the AC 110V. mains and the radio.

### **3. USING EXTERNAL DC SUPPLY (optional accessory)**


- When the EXTERNAL DC POWER Socket is supplied with 6 – 9 V., the radio will be powered by the external DC power.
- The external DC power supply must be between 6 to 9 volts, output current > 500 m.a., and the polarity is  . If not, it would be dangerous and may also cause damage to the radio.

- If you also intend to use an External DC Supply for recharging the batteries inside the radio, the voltage of the External DC Supply should not be less than 8 volts.

Priority of power supply to the radio is (in order of priority): External DC Supply, External AC Supply, Battery.

## **C. BASIC OPERATION**

### **1. TURNING ON THE RADIO**

- Press the POWER / SLEEP Button (8) once, the LCD panel will display the “60” sign and the  sign, meaning the radio will be turned off automatically in 60 minutes time.
- If you wish to change the auto turn off time, press this button again until the desired time is reached.
- If the “ON” sign is displayed, the radio will be turned on without a time limit.

### **2. SELECTING THE FM BAND**

- If you are listening FM programs through the speaker of the radio, it is better to set the AM / FM / MODE Switch (30) to the FM mono position (second from right) for better sound to noise ratio.
- If you are using a headphone or an external amplifier, this switch (30) should be set to the FM stereo position (most right).

### **3. SELECTING AM BANDS**

- Normally, set the AM / FM / MODE Switch (30) to the AM Narrow position (second from left), then set the MW / SW1 / SW2 /SW3 BAND SELECTION Switch (29) to the desired AM band.
- If you feel that the signal of the station being received is strong enough, you may wish to set the AM / FM / MODE Switch (30) to the AM Wide position (most left) for better sound quality.

## **4. SEARCHING & SAVING RADIO STATIONS TO MEMORIES**

### **4.1 Manual Search**

- Use the TUNING Knob (23) to tune to a radio station either by slow or fast speed, or
- Use the UP (13) OR DOWN (15) button to search for a station.
- This radio uses the PLL mode, all frequencies will not drift.

### **4.2 Automatic Search**

When the radio is being turned on, press the UP (13) or DOWN (15) button for a longer period of time, the radio will search for the strong signal stations. When such a station is found, the automatic search will cease.

### **4.3 Selection of Memory Pre-Sets**

- This radio can store up to 50 memory pre-sets: 10 for each band.
- When the radio is being turned on, press the MEM button (17).
- The “PRESET” sign will flash and display on the LCD panel, the radio is not in the save memory mode.
- Press the UP (13) or DOWN (15) button to select a suitable address from 1 to 10.
- Press the MEM button (17) to save the frequency to the selected address.
- To retrieve the memory pre-sets, press MEM button (17) button followed by pressing the UP (13) or DOWN (15) button. The saved memory pre-sets can be retrieved in sequence.

## **5. TURNING OFF THE RADIO**

Press the POWER / SLEEP Button (8) when the radio is being turned on, the radio will be turned off and the digital time clock will appear on the LCD panel.



## **D. SPECIAL FUNCTIONS**

### **1. MW AND SW GAIN CONTROL**

- When listening to MW or SW stations, normally the RF GAIN Knob (27) should be set to full for best sensitivity.
- In case the station is of very strong signal, the signal may be overloaded resulting in distortion of sound quality, the RF GAIN Knob (27) should be turned counter-clockwise to eliminate the distortion.
- If the area where you use this radio is polluted with noise and interference, adjust this Knob (27) to lower the sensitivity may sometimes help to alleviate the interference.

### **2. DX / LOCAL SWITCH**

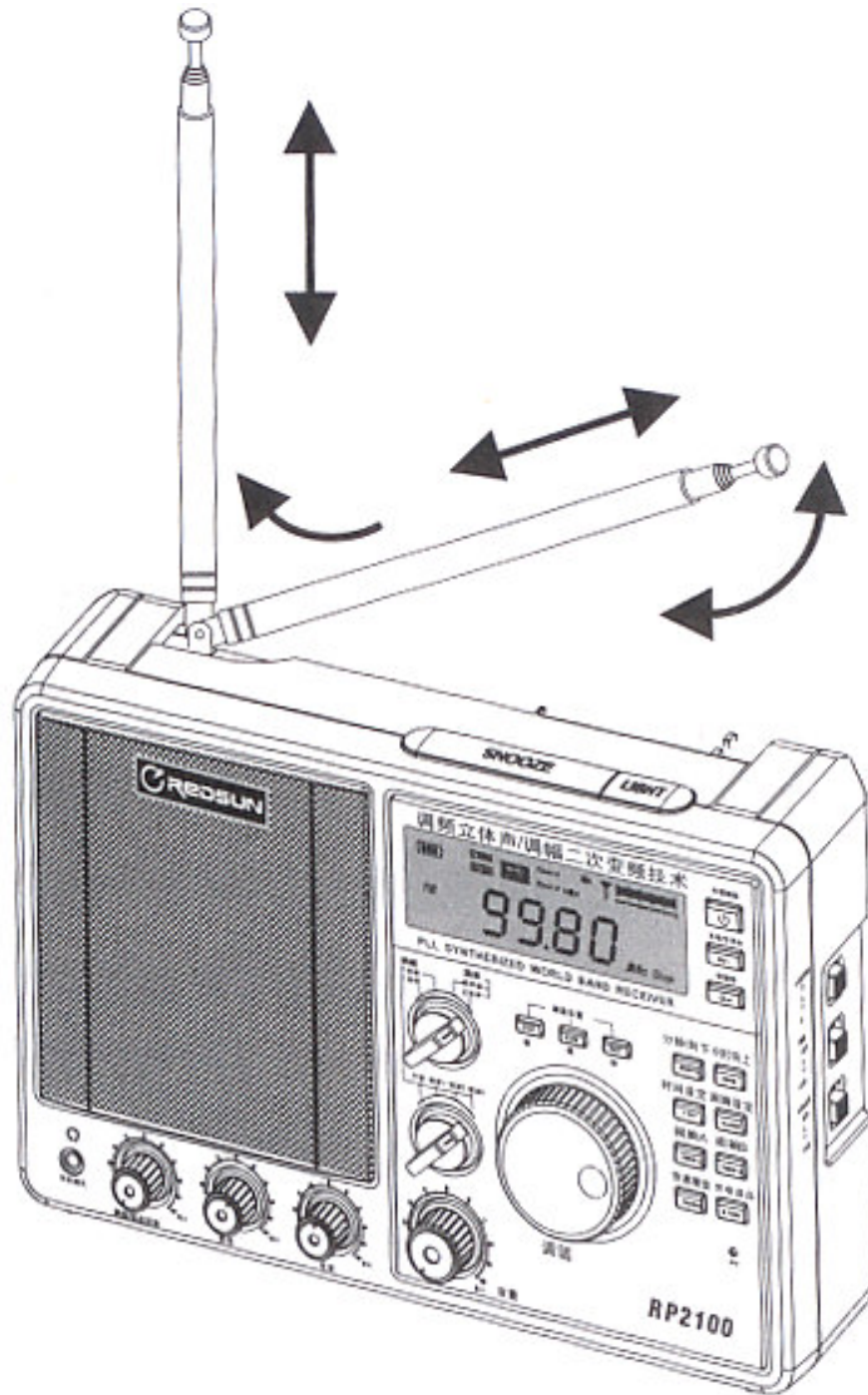
- The DX / LOCAL Switch (12) on this radio may be used to overcome interference of strong signals in the SW and MW bands.
- Normally, the DX / LOCAL Switch (12) should be set to DX. When there is strong RF, VHF or BP signal intruding into the MW or SW bands, set this switch (12) to LOCAL may help to suppress such RF interferences.

### **3. AUDIO LINE OUT**

- You can connect radio to an external amplifier via the LINE OUT Socket for more powerful and better sound quality.
- Set the AM / FM MODE Switch to the FM Stereo position when listening to FM stereo programs. The sign "STEREO" will display on the LCD panel.
- The VOLUME (24) control knob would not change the sound level of the LINE OUT function.

## E. ANTENNA

### 1. LISTENING TO FM

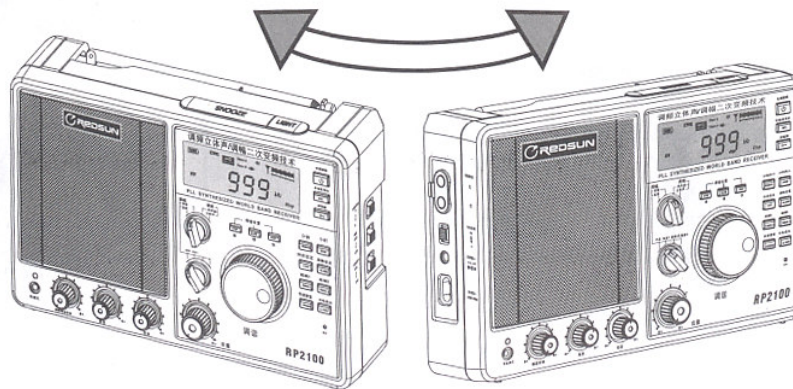


- Pull out the whip antenna, rotate the radio or the antenna to the best direction to listen to FM.
- Sometimes, shortening the whip antenna may also help to improve adjacent frequency interference when frequencies of the FM stations are too close together.

## 2. LISTENING TO SHORTWAVE

Use the whip antenna on the radio to listen to short wave. Pull out the antenna fully and keep it vertical to get the best result.

## 3. LISTENING TO MEDIUM WAVE



This radio uses internal ferrite rod antenna for receiving MW stations. This type of antenna is highly directional. Therefore, when listening to MW stations, you should rotate the radio body to find the direction that the radio can receive the strongest signal in order to improve reception.

## 4. EXTERNAL ANTENNA FOR FM / SW

- External antenna for FM (75 ohm) or external antenna for SW (50 ohm) can be connected to the EXT. ANTENNA Socket for FM and SW (32) for better position and FM-DX.
- The INT. / EXT. ANTENNA Switch (14) on the side of the radio should be set to external antenna (lower position).

## 5. EXTERNAL ANTENNA FOR MW

- The EXT. ANTENNA Sockets for MW (33) on this radio is for

connection of a long wire antenna (red socket) and to the ground (black socket).





- When there is a thunderstorm, please disconnect the external antenna from the radio and place it in a safe place.

## 6. AM IF OUT





This radio has an AM IF OUT socket (34) that is for extended functions, such as SSB, DRM, SSTV, etc. (Please read other related materials re these topics),

## F. TIMER FUNCTIONS

### 1. Setting the Timers

- Press the TIMER A button (19) will display the alarm time of the Timer A and the sign of “TIMER A” will flash; press the ALARM MODE button (16) to select between  buzzer or  radio mode.
- Press the TIMER B button (18) will display the alarm time of the Timer A and the sign of “TIMER A” will flash; press the ALARM MODE button (16) to select between  buzzer or  radio mode.

### 2. Using the Timers

- When the buzzer timer is enabled, the  sign appears on the LCD display; when the set time is reached, the buzzer will sound for 3 minutes continuously.
- When the radio timer is enabled, the  sign appears on the LCD display; when the set time is reached, the radio will be turned on for 60 minutes continuously.
- When the radio is turned on by the timer, the respective  sign or  sign will flash on the LCD display.
- Press the POWER / SLEEP button (8) to disable the timer function


and turn off the radio, the  sign or  sign will no longer flash.

- If the radio is set to local time, the timer settings will work according to the local time; If the radio is set to world time, the timer settings will work according to the world time.


### 3. Using the Snooze Function

- When the timer is activated, press the SNOOZE button (2) once will temporarily turned off the buzzer or the radio, the snooze function is now enabled.
- Five minutes later, the timer will be in active mode again.
- If there is no further manual intervention, the buzzer will sound for 3 minutes or the radio will be turned on for 60 minutes, then the radio will be turned off automatically.
- This Snooze function can be repeated 4 times.
- When the SNOOZE button (2) is pressed for the 5<sup>th</sup> time, the timer function will be disabled.

### 4. Adjusting the Sleep Time

- Press the POWER / SLEEP button (8) once, the LCD panel will display the “60” and the  signs, representing that the radio will be turned off in 60 minutes time.
- If you wish to change the sleep time, press the POWER / SLEEP button (8) again before it disappears, the figures on the LCD panel will change as follows:

**90 -> 60 -> 45 -> 30 -> 15 -> 5 -> 1 -> on -> (back to 90)**

- If you stop at 30, the radio will be turned off automatically within 30 minutes.
- If you stop at “on”, the radio will be turned on until further manual intervention, the  will not appear on the LCD panel.

## **G. SETTING THE CLOCK**

### **1. SELECTING LOCAL / WORLD TIME**

- This radio can display the local time or world time.
- Press the LOCAL / WORLD TIME button (9) will display local time or world time.
- Press the LOCAL / WORLD TIME button (9) for 5 minutes to change the Local / World time mode.

### **2. SETTING LOCAL TIME**

- Press the LOCAL / WORLD TIME button (9) to select local time.
- Press the MEM button (17) until the time flashes on the LCD panel.
- Press the UP button (13) to select adjustment for hour; press the UP button (13) for a longer while to increase the hour, or rotate the TUNING knob (23) to increase or decrease the hour.
- Press the DOWN button (15) to select adjustment for hour; press the DOWN button (15) for a longer while to increase the hour, or rotate the TUNING knob (23) to increase or decrease the hour.
- When the desired time reading is reached, press the MEM button (17) again to confirm, the clock is now set.

### **3. SETTING WORLD TIME**

- Press the LOCAL / WORLD TIME button (9) to select world time.
- The other steps are the same as setting local time, as items 2 – 5 above.

### **4. 12 / 24 HOUR MODE**

- Press the UP button (13) for 5 seconds to change the 12 / 24 hour mode.
- When the 12-hour mode is selected, “AM” or “PM” will be displayed on the LCD panel.

## 5. DISPLAYING THE TIMERS

- Press the TIMER A button (19) will display the set time of the Timer A, the “TIMER A” sign will also flash on the LCD panel.
- Press the TIMER B button (18) will display the set time of the Timer B, the “TIMER B” sign will also flash on the LCD panel.

## 6. SETTING THE TIMERS

### Timer A

1. Press the TIMER A button (19) until the “TIMER A” sign flashes.
2. Press the UP button (13) to select adjustment for hour; press the UP button (13) for a longer while to increase the hour, or rotate the TUNING knob (23) to increase or decrease the hour.
3. Press the DOWN button (15) to select adjustment for hour; press the DOWN button (15) for a longer while to increase the hour, or rotate the TUNING knob (23) to increase or decrease the hour.
4. When the desired time reading is reached, press the TIMER A button (19) again to confirm, the clock is now set.

### Timer B

- Press the TIMER B button (18) until the “TIMER A” sign flashes.
- The other steps as the same as for Timer A, items 2 – 4 above.

## H. OTHER FUNCTIONS


### 1. BACKLIGHT FOR LCD PANEL

- Press the LIGHT button (4) once, the backlight for the LCD panel will be on for 8 seconds.
- Press the LIGHT button (4) for 2 seconds or longer, the backlight for the LCD panel will be on always, until the LIGHT button (4) is pressed again.

## 2. BACKLIGHTS FOR BUTTONS

- Set the BUTTON LIGHTS switch (11) to the “ON” (upper) position, the backlights for buttons will be on for 8 seconds when any buttons are pressed.
- If you are using battery, it is suggested that this switch be set to the “OFF” (lower) position in order to save energy unless you are using the radio in complete darkness.

## 3. RE-CHARGING BATTERIES

- Use re-chargeable batteries only, do not re-charge normal batteries.
- Both the AC 220V. input or the DC 9V. input can recharge the batteries inside the battery compartment.
- When using the DC input to re-charge batteries, make sure that the voltage should maintain at 9V., and in any case not lower than 8V., other the re-charge function may not work.
- When the radio is being turned off, pres the PRESET button (20) to enter the re-charge mode, the battery  sign will flash on the LCD panel.
- When the batteries are fully charged or the recharge time has reached 12 hours, the recharge function will cease automatically.
- When the radio is being turned on, the re-charge function will not work.

## 4. CHANGING MW STEPS

- There is a MW step switch to choose 9 KHz. steps or 10 KHz. Step inside the battery compartment.
- The frequency range for 10 KHz. Step is 520 – 1710 KHz., for 9 KHz. Is 522 – 1620 KHz.
- Use a sharp object to press the RESET button (22) after the MW step is changed, otherwise the change may not be effective.

## 5. USING THE RE-SET FUNCTION



- This radio uses computer software that may enter to an unending loop due to outside interference or static, use a sharp object to press the RESET button (22) if the radio is not working properly.

## **I. SPECIAL NOTES**

### **1. WIDE / NARROW BANDS SELECTION FOR AM**

- The wide band is +/- 6 KHz., the narrow band is +/- 3 KHz.
- When receiving strong signal stations of MW and SW, set to wide band for better sound quality.
- When you find adjacent stations are intruding into the station that you receive, set the radio to the narrow band.

### **2. MW / SW RF GAIN**

- Since AM signal (especially in the SW bands) sometimes fades greatly and is beyond the AGC (automatic gain control) scope, you can use the RF gain to manually adjust the radio for better listening effect.

### **3. DX / LOCAL SWITCH FOR MW /SW**

- If you find distorted FM radio stations or TV sound signals intruding to the MW or SW band, you should set this DX / LOCAL switch (12) to the local position to eliminate the interference.
- If you do not have such interference, you should set this switch to the DX position.

### **4. FM MONO OR FM STEREO**

- If you are using the speaker on the radio to listen to FM programs, always use set the AM / FM MODE switch (30) to the FM mono position for better sound to noise ratio and the least interference.
- Set this switch to FM stereo mode when you are using headphone to listen to stereo FM stereo programs.

## **SPECIFICATIONS**

### **FREQUENCY RANGE**

FM: 87.00 – 108.00 MHz.  
MW: 522 – 1620 KHz. (9 KHz. Step)  
520 – 1710 KHz. (10 KHz. Step)  
SW1: 1711 – 10010 KHz.  
SW2: 9990 – 20010 KHz.  
SW3: 19990 – 29999 KHz.

### **ACCURACY**

FM: 10 KHz.  
AM: 1 KHz.

### **SENSITIVITY**

FM > 5 uv  
MW > 0.2mV/m  
SW > 20 uv

### **SELECTIVITY**

Wide: > 40 db (100x)  
Narrow: > 60 db (1000x)

### **IMAGE INTERFERENCE CONTROL**

FM: > 46 db (200x)  
MW: > 60 db (1000x)  
SW: > 40 (100x)

### **MEMORY PRE-SETS**

10 for each band – Total 50

**AM IF OUTPUT**

For expansion of CW, SSB, DRM, SSTV, etc.

**DUAL CONVERSION**

First IF: 55.845 MHz.

Second IF: 455 KHz.

**AUDIO POWER OUTPUT (USING AC)**

> 2500 mW

**POWER SUPPLY**

Battery: 4 x D cells or 4 x AA cells

DC: 6 – 9 V. (center is negative)

AC: 220V. / 50 Hz.

**SPEAKER**

8-OHM 5W

**EXTERNAL HEADPHONE**

3.5 mm - 32 ohm

**DIMENSIONS**

290 X 185 X 70 mm

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