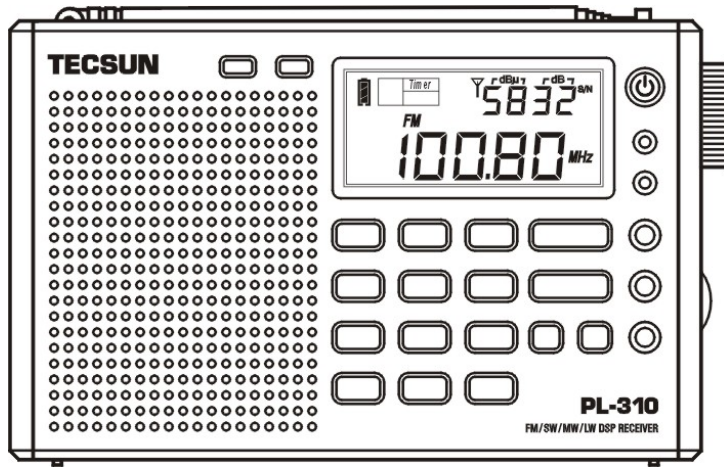# TECSUN

## PL-380

FM stereo / SW / MW / LW DSP RECEIVER



OPERATION MANUAL

PL-380 Functional Block Diagram

PL-380 is using DSP si4734 Microchips (from Silicon Labs in USA) to digitalize the analog AM/FM broadcasting signal base on the modern software technology and radio principles. It can highly improve on radio's sensitivity, selectivity, S/N ratio and anti-interference.
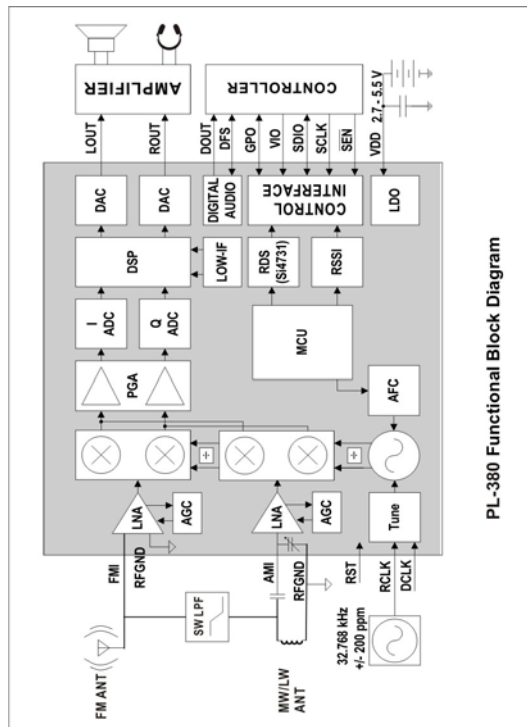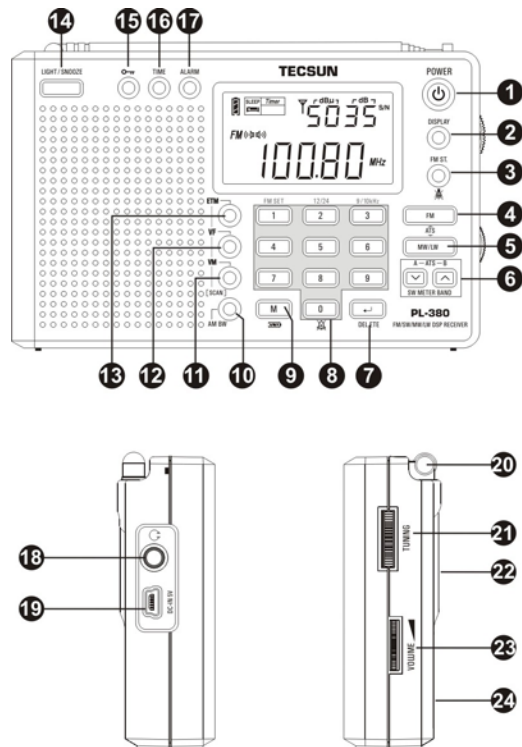


PL-380 Functional Block Diagram

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# CONTROL LOCATIONS



1. Power button
2. Display & Lock button
3. FM ST. button
4. FM / ATS button (FM band selector and Auto Tuning Storage)
5. MW / LW button ( MW / LW band selector & Auto Tuning Storage)
6. SW/ ATS button (SW meter band selector & Auto Tuning Storage)
7. ENTER / DELETE button
8. 0-9 NUMBER keys (Numeric keys)
9. MEMORY button (Storing radio stations) / BATTERIES TYPE selector
10. AM / BW button (Band width)
11. VM (View Memory) & SCAN button
12. VF (View Frequency) & SCAN button
13. ETM (Easy Tuning Mode) button
14. LIGHT / SNOOZE
15. LOCK button
16. TIME button   (Time settings)
17. ALARM button   (Alarm settings)
18. EARPHONE JACK
19. USB 5V DC-JACK
20. FM & SW TELESCOPIC ANTENNA
21. MULTIFUNCTIONAL TUNING KNOW
22. BACK STAND
23. VOLUME KNOB
24. BATTERY COMPARTMENT

LCD DISPLAY
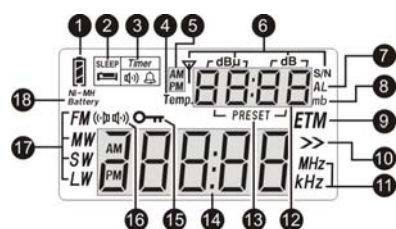


1.  Battery consumption indicator / Charging indicator
2.  SLEEP TIMER ON INDICATOR
3.  ALARM ON / OFF INDICATOR

    " ◀» " alarm on by radio

    " ♤ " alarm on by buzzer
4.  Temperature (Temp.)
5.  AM, PM indicator for 12-hour format clock
6.  Signal indicators

    dBu: signal strength unit

    dB : Signal to Noise Ratio (S/N) unit
7.  ALARM TIME INDICATOR
8.  SW Meter band indicator
9.  ETM   indicator
10. Tuning speed

    " > " Slow Tuning

    " > > " Fast Tuning
11. kHz:   frequency unit for MW, LW & SW

    MHz: frequency unit for FM
12. Digital Number display (4 Digits)

    With radio off: alarm time, temperature

    With radio on: strength units of signals / SNR, alarm time, temperature, local time, memory address, meter band.
13. Preset Memory address.
14. Digital Number Display

    With radio off: local time, system settings

    With radio on: frequency of radio
15. LOCK indicator
16. FM stereo status indicator.
17. Band indicator
18. Rechargeable batteries status indicator.

**QUICK START GUIDE**

**Time settings**

1. Long press [TIME] button until "hour" is flashing in the display. Rotate the [TUNING] knob to adjust the correct "hour".
2. Short press [TIME] button again, rotate the [TUNING] knob to adjust "minute".
3. Press the [TIME] button again to confirm your time setting.

**Alarm Settings**

1. Long press [ALARM] button. Rotate the [TUNING] knob when "hour" is flashing in the display.
2. Short press [ALARM] button again, the "minute" flashing. Rotate the [TUNING] knob to adjust the "minute".
3. Short press [ALARM] button again to select 1 ~ 90 minutes for the Alarm's duration and to be powered off afterwards.
4. Finally, short press [ALARM] button again to confirm.
5. To activate the alarm, short press [ALARM] button to select in between alarm by radio or buzzer.

**Note:** In ALARM section, [ 🔊 ] means ALARM is set to radio-on; [ 🔔 ] means ALARM is set to buzzer, or if the display remains blank, which means the alarm is off.

**Listen to the radio**

1. Short press [POWER] button to turn on your radio.
2. Select FM by pressing the [FM] button, MW or LW by pressing the [MW/LW] button, SW by pressing the [ ⌄ ] or [ ⌃ ] button sequentially until you have selected the desired meter band.
3. Turn the TUNING knob to your desired radio station.
4. You can also direct key-in the frequency numbers by pressing the numeric keys.
5. Adjust the volume level by turning the VOLUME knob up & down.

**Note:**

Be sure to fully extend the telescopic antenna when listening to SW and FM and adjusting the volume you want.

**ETM (Easy Tuning Mode)**

1. Turn on the radio.
2. Select your band.
3. Short press [ETM] button to switch to ETM status.
4. Long press on [ETM] button to scan the frequency of radio stations within present frequency band. You find frequency number is running on the display. All the available stations will be selected. It will stop when it is done.
5. Then use the [TUNING] knob to tune around for those scanned stations.

**Special note:** 1.) Press & release [VF] button or [VM] button to exit the ETM status.
　　　　　　　　2.) Those scanned stations will not be stored in the regular memories, but it will remain in the ETM temporary storage until next ETM scanning.

**Auto search & stored radio stations**

1.) After radio is on, then fully extended the FM / SW antenna. Press the [FM] button to

select the FM frequency.

2.) Press & hold [FM] button until digital number is running, this radio would search & stored the available radio stations automatically.

**3.)** After finished the ATS operation, turn the [TUNING] knob to select the radio station

MW, LW or SW ATS are same as the FM ATS.

**Special note:** There are mode A & mode B for ATS in SW.

Mode A : Auto-searching & storing all the radio stations within all meter bands.

Mode B: Auto-searching & storing all the radio stations within present meter band only.

.

**Special note:**

During ATS process in FM / MW / LW & SW mode A, pre-stored radio stations will be deleted & covered automatically by the new searched stations.   If ATS is interrupted or being turned off during process, for those radio stations without deleted & covered by ATS would still be kept.

With ATS in SW   mode B, those existing memories will not be deleted & covered; all the newly found radio stations would be stored in the blank memories addresses.

**Storing frequencies into memory**

1. Turn on your radio, and tune into your favorite station.

2. Short press [M] button, with the memory address is flashing in the display, press [M] button again to confirm.

**Listen to stations in the memory**

1. Turn on the radio, press and release the [VM] button with notice that the PRESET stations show in the display's upper right corner.

2. Turn the [TUNING] knob to selected stored stations.

**Delete memory**

1. Turn on the radio and press the [VM] button, causing PRESET stations to appear in the display's upper right corner.

2. Use the [TUNING] knob to select the memory that you want to delete.

3. Long press [DELETE] button. " DEL "   is flashing in the display, press [DELETE] button again to confirm it.

**Auto browse stations**

1. Turn on the radio and press the [VF] button with notice that Frequency flashes.

2. Long press [FM] button to search for those available stations. Auto search will stop on each available station for 5 seconds before it goes on searching for the next available station.

3. To stop auto search function, simply press [VF] button again.

**Auto browse memory**

1. Turn on the radio, press the [VM] button to switch to memory address status.

2. Long press [VM] button and it will search all the stations within the memory, and stop on each station for 5 seconds.



Auto-scan memory with
pre-listening

3. To stop auto search memory, simply press [VM] button.


**TURN THE RADIO ON OR OFF**

**1. Installing batteries**

   The battery compartment is located on the back of the PL-380. To remove the battery compartment cover, apply thumb pressure and slide it towards the bottom of the radio. Install 3 AA alkaline batteries into the battery compartment, observing the battery polarity diagram on the back of the radio.   Display screen would show battery capacity, time, etc.
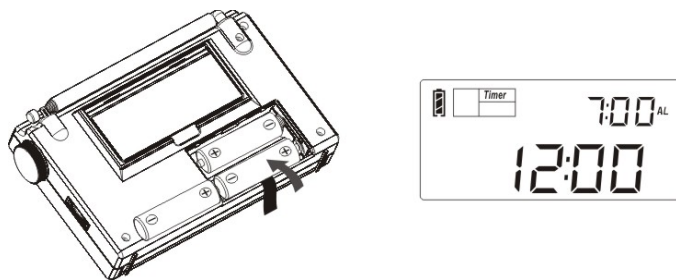


2. Short press on [POWER] button to turn the radio on or off.
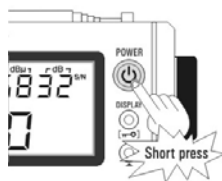


**Note:**  If the radio is not able to be turned on.  Please check if the batteries were installed correctly, battery capacity is sufficient or the lock function had been applied with symbol "key" displayed on screen.


**Listen to the radio**

Short press [POWER] button to turn on your radio, and select your band by short press on [FM]、[MW/LW]、SW[ ∨ ] or [ ∧ ] button.   In case of receiving FM/ SW, telescopic antenna should be pulled out as long as possible and adjust the volume level. Now, turn in your favorite station with either one of the following methods:


**Method 1:   Using the ETM (Easy Tuning Mode) to listen radio**

1.) Press & release the [ETM] button with 1 beep sound followed to switch into ETM status.
2.) Press & hold [ETM] button with 1 "B" sound followed.   It means frequencies of radio stations in this band would be selected.   The ETM operation would be finished with 1 long "B" sound followed.


**Important descriptions for ETM (Easy Tuning Mode) :**

1.) If ETM (Easy Tuning Mode) is used, you could easy adjust to your favorite radio from the prior selected radio frequency.

2.) Using prior selected radio stations

    FM : Since the ETM has been processed to prior select radio stations, you could directly turn the [TUNING] knob to select radio stations.   If receiving location is changed, it is suggested to perform the ETM once again.

    MW: At night with more radio stations broadcasting, you may need to perform ETM function once more..

    SW: The transmitting signals of SW is so unstable to receive that the number of radio stations would be great different between day time & night time.   Moreover, the spread of of radio stations is very wide. Please perform the ETM scanning once more.

3.) ETM can store up to 100 radio stations each in FM / MW / LW and up to 250 stations in SW.

## Method 2: Manual tuning

Power on radio and press & release [VF] button, with 2 beep sounds to switch into frequency status.   Rotate the [TUNING] knob to select your station.

FAST/SLOW tuning is shown in the chart below for each band.

| step / band | ▶ slow tuning mode Slow turning | ▶▶ Fast tuning mode Fast turning |
|---|---|---|
| FM | 0.01 MHz | 0.1 MHz |
| MW | 1kHz | 9 /10kHz |
| LW | 1 kHz | 9 kHz |
| SW | 1 kHz | 5 kHz |

## Method 3: Auto browse stations

1. Short press [VF] button with a "BB" sound.

2. Long press [VF] button with a "B" sound to activate the Auto-browse function.   Auto search will stop on each available station for 5 seconds before it goes on searching for the next available station.

3. To stop auto search function, simply press [VF] button.

**Note:   When the radio search & stop to a station, just press [M] button once to store it.**

## Method 4: Direct frequency entry

  1.) Press & release [VF] button with 2 "B" sound followed, and switching into the memory address status.

  2.) Press & release the numeric keys [0]-[9] to enter the frequency directly.

## Note:

1.) No need to enter decimal point for FM band when input the frequency numbers.
For example, FM 89.0 MHz, Just ENTER 8 9 0 .

2.) If the entered frequency rate is not within the covering area, the display would display "Err" error symbol.

**Method 5:** Direct memory access (see page 9 )
**Method 6**: Manual memory search (see page 9)
**Method 7:** Auto-browse memory (see page 9)

**TO STORE STATION**

There are total 550 preset memories within PL-380. For FM, MW, and LW, each band has 100 preset memories; and 250 preset memories for SW.

**1.) ATS (Auto Tuning Storage) on FM**
  1. Turn on the radio, and fully extend the antenna.
  2. Short press [FM] button to select FM band.
  3. Long press on [FM] button with a "B" sound and frequency is running on the display. All the available stations will be stored in the memory automatically. After the long "B" sound to be heard,   The ATS is completed and is in the status of memory address.
  4. Then use the [TUNING] knob to tune around for those stored stations.

2.) **ATS (Auto Tuning Storage) on MW / LW.**
    MW, LW or SW ATS is used in the procedure as same as the FM ATS is to be used..
      1. Press & release [MW / LW] button to select MW / LW.
      2. Press & hold [MW / LW] button and followed with 1 "B" sound and ATS starts to scan the radio stations in MW / LW.

**3.) ATS (Auto Tuning Storage) on SW.**
      1. Fully extended the antenna, then press and release SW[ ∨ ] or [ ∧ ] button to select SW.
      2. There are mode A & mode B for ATS in SW.
         Mode A : Auto-searching & storing all the radio stations within all meter bands.
         Mode B: Auto-searching & storing all the radio stations within present meter band only.

**Special note:**

1.) During ATS process in FM / MW / LW & SW mode A, pre-stored radio stations will be deleted & covered automatically by the new searched stations.   If ATS is interrupted or being turned off during process, for those radio stations without deleted & covered by ATS would still be kept.

With ATS in SW   mode B, those existing memories will not be deleted & covered; all the newly found radio stations would be stored in the blank memories addresses.

2.) If there is interference found in surroundings area and ATS is not function properly, lower down the telescopic antenna to restart the ATS again.   (For Turning the radio body around to other directions in order to receive better frequency in MW / LW).

**To store a station manually**

1. Turn on your radio, and tune into your favorite station.
2. Short press [M] button with a "B" sound.
3. Short press [M] button again to confirm with a long "B--" sound.

If [M] button is not to be pressed again within 3 seconds to confirm the storing, this radio would confirm it automatically by a long "B" sound.

**To store station with semi-auto storing function**
  **Function advantage:** Using " Auto-browse stations" function to store radio stations, storing time is shorter and also prevent to store undesired stations.

1. Short press the [VF] button with a "BB" sound into frequency status.
2. Long press [VF button with a "B" sound to activate the Auto-scan function.
3. If you want to store that station, simply press on the [M] button to store the station with a long "B--" sound. Keep store up your stations when auto search is activated unit it is done.

## LISTEN TO PRESET STATIONS

### Method 1:    Memory search manually
1. Short press the [VM] button with a "B" sound.

2. Rotate the [TUNING] knob for those stations in the memory.

### Method 2: Auto browse pre-stored stations
1. Short press the [VM] button with a "B" sound.

2. Long press the [VM] button with a "B" sound to activate the auto scan memory function. It will search all the stations within the memory, and stop on each station for 5 seconds.
3. To stop auto search memory, simply press [VM] button.

**Note:** If radio station has been searched & stopped for 5 seconds, press & release [DELETE] to delete the current station.

### Method 3: Direct key in the station address number
1. Short press the [VM] button with a "B" sound and are in station address status.
2. Use the numeric keypad to key in the memory number in 3 digits. For example, if the desired radio station is in memory number 006, just press 0, 0, 6, and it will go to memory        006.
### NOTE:
When " - - - - " appeared in the display with a "B" sound after you key in a number of the memory, means there is nothing stored.

## DELETE MEMORY
### Method 1:    Manual delete memory
1. Short press the [VM] button with a "B" sound.
2. Rotate the [TUNING] knob to the proposed stations to be deleted in the memory.
3. Long press the [DELETE] button with a "B" sound.
4. Short press [DELETE] button again to confirm with a long "B- -" sound.

### Note:
If "DEL" is flashing more than 3 seconds without confirmation, it will exit the delete function automatically.

### Method 2:    Semi auto-delete radio stations
   **Function advantage:** Using the auto-browsing functions to delete undesired pre-stored radio stations quickly.

1. Short press the [VM] button with a "B" sound.

2. Long press the [VM] button with a "B" sound to activate the Auto scan memory function.

3. When it stops into the unwanted stations, simply press [DELETE] button with a long "B--" sound.    Afterwards, it restart to browse again from next radio station.

**Method 3:   To delete all memories**

1. Short press the [VM] button with a "B" sound.

2. Long press [DELETE] button for 3 seconds or longer until a "BB" sound to be heard

3. Press & release [DELETE] button to confirm deletion with a long "B" sound followed .
   All the stored radio stations in that meter band were deleted from memory.

**Note:**

If "DEL" is flashing more than 3 seconds without confirmation, it will exit the delete function automatically.

**SLEEP FUNCTION**

With sleep function, you can adjust the length of time for the radio to turn off automatically. The default setting for the auto-turn off time is 30 minutes since radio being turned on. You could change it in accordance with your requirements.

Long press the [POWER] button until a long "B- -" sound or [SLEEP] sign appears on the left hand top corner, rotate the [TUNING] knob to select time from 1 ~ 120 minutes for sleep timer within 3 seconds.

(select " ON " to turn on the radio permanently)

**CLOCK SETTING**

**Method 1:**

1. Long press [TIME] button with a "B" sound until you see the "hour" flashing. Rotate the [TUNING] knob to adjust the correct "hour".

2. Short press [TIME] button again with a "BB" sound, the "minute" flashing. Rotate the [TUNING] knob to adjust "minute".

3. Short press [TIME] button with a long "B- -" sound to confirm your time setting.

**Method 2:**

1. Long press [TIME] button with a "B" sound until you see the "hour" flashing.

2. Enter "hour" and "minute" with numbers directly by pressing numeric keys.   (For example, 14:50pm, just enter 1 4 5 0)

Note: If [TIME] button is pressed again within 3 seconds for confirming time, it will auto confirm the present display time and following a long "B" sound.

**ALARM SETTING**

1. Long press [ALARM] button with a "B" sound.   Rotate the [TUNING] knob when "hour" is flashing in the display.

2. Short press [ALARM] button again with a "BB" sound, the "minute" flashing. Rotate the [TUNING] knob to adjust the "minute" .

3. Short press [ALARM] button again with another "BB" sound and notice the alarm's

duration flashing. Rotate the [TUNING] knob to select 1 ~ 90 minutes of the alarm's duration.

4. Finally, short press [ALARM] button again with a long "B--" sound to confirm.

Note: If [ALARM] button not to be pressed again within 3 seconds for confirmation, it will auto confirm the present display time and following with a long "B" sound.

**Auto alarm on / off function**

There are two kinds of alarm sounds (buzzer & radio) for selection.   You could also select the time for auto turn off from 1 – 90 minutes once the alarm has been activated.

Select the alarm by radio "◖◗" or by buzzer "⌂"

1.  To activate the alarm by radio, short press [ALARM] button with a "B" sound and notice that the "◖◗" symbol shows up in the Timer display section.
2.  To activate the alarm by buzzer, short press [ALARM] button again with a "BB" sound and notice that the "⌂" symbol appears in the Timer display section.
3.  Short press [ALARM] button again with a long "B--" sound and notice nothing appears in the Timer display section to turn off the alarm.

**Set the alarm by radio**

1. Turn on the radio, tune into your favorite alarm radio station. Please set the volume at the noticeable level.
2. Short press [M] button with a "B" sound and short press [ALARM] button at once with a "B" sound while "◖◗" symbol is flashing for couple seconds. Now this alarm radio station is set.

**Special Note :**

**1.)  The selected radio station for alarm is still being stored in memory, even if the ATS process completed.   It is only to be removed by setting alarm with another radio station again.**
**2.)  In case of alarm being activated during your listening of the radio, it will switch to the radio station which was set for alarm function.**
**3.)  Please check the volume is at the right level after alarm is set.**

**Set alarm by buzzer**

**If you don't know the broadcasting time & frequency of domestic radio stations well, you are suggested to set buzzer as alarm soun**d.

1. Short press [ALARM] button until   "⌂" appears on the top left corner.   2 "B" sound is heard and the buzzer is already set to be alarm sound.
2. When the alarm is activated, "BB" sound will continuously alarmed. It will turn off automatically according to your setting.

**Snooze**

After alarm was activated with buzzer or radio broadcasting, press & release [LIGHT / SNOOZE] with 1 "B" sound.   Then Radio would be turned off temporary, it will start to

alarm again 5 minutes later.

**To turn off the alarm**
When the radio is turned on by the alarm function with radio, you can short press [POWER] button to continue listening radio afterwards.
Short press [POWER] again to turn off the radio.

When the radio is on by alarm functions with buzzer, you can short press [POWER] button to turn off the alarm.

**DISPLAY MODE**
OFF status: Short press [DISPLAY] button to view on Temperature, Alarm time.
ON status: Short press [DISPLAY] button to view on Alarm time, Temperature, Local time, signal strength/ SNR.

**USING THE LOCK BUTTON**
Long press [🔑] button with a long "B- -" sound and the "🔑" symbol appears in the display to lock up all keys / buttons.
Long press [🔑] button again with a "B" sound to unlock it.

**USING THE LIGHT BUTTON**
Short press [LIGHT] button with a "B" sound, LCD backlight illuminates for 3 seconds.
Long press [LIGHT] button with a long "B- -" sound, LCD illuminates permanently.
Short press [LIGHT] button again with a "BB" sound to turn off it.

**FM ST. (FM STEREO) BUTTON**
Short press [FM ST.] button when in the FM band to turn the radio on or off of stereo mode. When it's in stereo mode, "((📻 📢))" appears over the left side of the frequency in the display once it receives the FM stereo station.  As long as you are not using headphones or earphones, it can be left in mono mode.

**AM BW (BANDWIDTH) BUTTON**
Short press [AM BW] button to choose 6, 4, 3, 2, 1 kHz bandwidth. This may help to reduce interference on some frequencies.  Using WIDE usually results in better audio fidelity, while using narrow limits the audio fidelity is somewhat dull in sound.  You can use it in MW, LW and SW band.

**SYSTEM SETTING**
**Frequency range setting for FM**
Turn off the radio, long press [FM SET] button, until 87.5-108MHz, 64-108MHz, 76-108MHz, or 87-108MHz appears in the display. Quickly keep pressing on the [FM SET] button to select suitable frequency range for your local FM.

**Changing the clock format**
Turn off the radio, long press [12/24] button, until " 12 "or " 24 " appears in the display. If " 12" appears in the display, which means the clock system will be in the 12 hour format.

**MW(AM) step setting**

Turn off the radio, long press [9/10kHz] button until "9kHz" or "10kHz" appear in the display.   By long pressing again, the alternative band step would be shown.   The temperature is also shown on screen at the same time.

In general practice, the frequency step of 10kHz is to be used for broadcasting MW(AM) as well as the temperature in the degree of Fahrenheit (℉) to be used in the North America.

In order to provide convenience to the end users, the "10kHz" of frequency step is default to be displayed with temperature in the degree of Fahrenheit (℉) together as well as "9kHz" to be displayed with temperature in the degree of Centigrade (℃) together.

If the display shows "10kHz" with degree of Fahrenheit (℉), which means this

radio is set to 10 kHz step for MW(AM) with temperature in Fahrenheit (℉) which is for the North America region..

**Turn LW on/off**

Turn off the radio. Press and hold the [MW/LW] button until "LW ON" or "LW OFF" appears in the display，If " LW OFF" appears in the display, which means LW is turned off.   If :LW ON" appears in the display, which means LW is turned on.

**Turn off the "Bi" sound**

Turn off the radio, press and hold the [🔔] button until "OFF" or "ON" appears in the display; If " OFF" appears in the display, which means "Bi" sound is turned off.

**Turn on / off intelligent lighting function**

This radio bears the intelligent lighting function which backlight would be on for 3 seconds during tuning or any key to be pressed.

With radio is off, press & hold [🔔] key, then symbol "OFF" being displayed and means this intelligent lighting function is off.   By pressing & hold [🔔] key again, symbol "ON" is displayed and means the intelligent lighting function is on now.

**Special note:**   After shutting off the intelligent lighting function, the [LIGHT/SNOOZE] key is still workable for turning on or off the backlight.

**Turning on / off the charging function**

Press & hold [▭] key , symbol of "𝐶𝐻𝐴 𝑂𝑛" & "$^{Ni-MH}_{Battery}$" to be shown and means rechargeable batteries to be used and the charging to be started at the same time.

Press & hold [▭] key , symbol of "𝐶𝐻𝐴 𝑂𝐹𝐹" & "$^{Ni-MH}_{Battery}$" to be lost on screen and means regular batteries to be used and charging function to be turned off..

**Special note:** This radio is default to use regular batteries for supplying power,.   In case of using rechargeable batteries, you should switch radio to the status of rechargeable batteries being used.   The correct power capacity of rechargeable batteries would be shown.

**APPLYING THE INTELLIGENT CHARGING FUNCTION** (Rechargeable batteries & external power connectors are sold separately.

1.   Under radio being in the powered off status, installing 3 x UM3 (AA) rechargeable batteries , press & hold [▭] key to display symbol "𝐶𝐻𝐴 𝑂𝑛" & "$^{Ni-MH}_{Battery}$" , this means the charging function is on.

2. Using any USB 5v external DC power sources to connect this radio, symbol "🔋" will advance from the bottom to top during power charging. It stops when batteries are fully charged.

**Connect USB 5V to external power sources**

**Special note:** Using the USB 5V cord to connect the external power sources for supplying power to play this radio
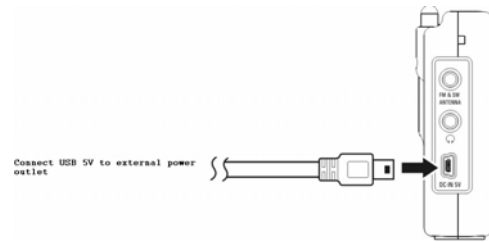


**Notes for charging power:**
1. Insisting to use up all power with batteries before charging again, this could extend the life time of battery and keeping them in good conditions.
2. 3 pcs of batteries to be used as a group and don't separate them to other usage. Also don't mix to use batteries with different power capacity

**Caution:** Don't charge on any non-rechargeable batteries in the radio, this will cause an hazard or damage to your radio.

**IMPORTANT MATTERS FOR USING BATTERIES**
1. If no battery has been installed inside the radio for long time, the clock of radio would stop. However, pre-stored frequencies are still kept. Clock would work again after new batteries being installed again, and simply adjust the correct time for the clock.
2. This radio has AUTO-OFF for INSUFFICIENT POWER function. When the batteries are going to run out, the radio function would turn off automatically with flashing symbol "▯" to alert you for changing new batteries.
3. Mix using of old & new batteries would cause damage of radio and also cause incorrect display on capacity of power.
4. In case of radio not being used for a long period, it is suggested to draw out the batteries for preventing liquid leakage and damaging the parts of radio.

**USING THE EXTERNAL ANTENNA**
The external antenna, which was come with is radio, is used to improve shortwave or FM performance. Clipping one end of the external antenna on the extendable antenna of this radio, then clipping another end of external antenna at the window. This could improve the receiving effect of FM.

**Caution: Don't install external FM/ AM antenna in the frequent thunder area.**
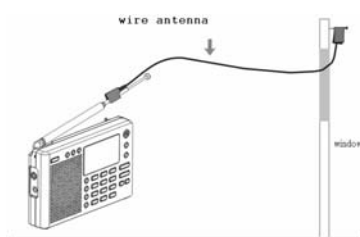


Notice: Do not install any external antenna at the area with thunder & lighting.

**TROUBLE SHOOTING**

| QUESTIONS | ANSWERS | SOLUTIONS |
| --- | --- | --- |
| Can not turn on the radio. | -no power with the batteries<br>-didn't install the batteries properly<br><br>-power button is locked | -replace the new batteries<br>-according to "+" or "-" sign to install the batteries again<br>-press [⊷] button to unlocked |
| Radio goes off when you are listening | -no power with the batteries<br>-sleep timer is activated | -replace the batteries<br><br>-turn on the radio again |
| Can not store some stations using ATS<br>Some station store with noise using ATS | -frequency of stations are too weak<br>-there are interference near by your area | -search the station manually<br>- low down the antenna or move to other location and try again |
| Only limited FM stations can be received in Japan | -FM frequency is 76~90MHz for Japan | -turn the radio off and long press on the [FM SET] button，short press [FM SET] button again to select 76~108MHz |
| Received very poor AM in USA | -Because USA is using 10kHz step for AM | -turn off the radio press the [9/10kHz] button to select 10kHz |
| When the alarm activated (alarm by radio), there is only noise with the broadcast | -Did not set the proper radio station for the alarm<br><br>-Or there are no broadcasting at that radio station<br>-Or you have travelled to other city where does not have a radio station for your preset frequency. | -Preset your alarm station properly (see the above setting)<br>-Make sure it has radio broadcast in your location.<br>-Or set the alarm by buzzer. |
| radio malfunction | This may caused by interference, and the computer microchip not function properly. | Remove the battery, then you can reload. If it is still not able to work, please contact your nearest dealer |

|  |  | for customer service. |
| --- | --- | --- |

## "B" SOUND VIA FUNCTIONS

| Function | Button | Status | Sound | Display |
|---|---|---|---|---|
| Radio on or off | POWER | Radio on | B | |
| | | Radio permanently | B---(long) | "On" display |
| | | Radio off | BB | "OFF" display |
| Adjust auto-off time | POWER button & TUNING knob | Rotate at 30, 60, 90, 120 mins. | B | Display the time for auto-off |
| | | Radio permanently | BB | "On" display |
| FM stereo | FM ST. | STEREO | B | (⠶ ⠶)" display |
| | | MONO | BB | (⠶ ⠶)" disappear |
| FM | FM | FM | B | "FM" in the display |
| MW / LW | MW / LW | MW | BB | "MW" in display |
| | | LW | B---(long) | "LM" in display |
| SW band / meter band | ∨ or ∧ | SW | B | "SM" & SW frequency |
| | | Meter band | B | Meter band display on the top right hand corner shortly |
| ATS(Auto Tuning Storage) | FM, MW/LW, SW ∨ or ∧ | ATS on | B | Freq. & memory address running |
| | | ATS off | B---(long) | Display 01 memory address and frequency. |
| ETM | ETM | ETM on | B | "ETM" display |
| Frequency Scanning | VF | Frequency mode | BB | Radio freq. numbers flashing. |
| Memory Scanning | VM | Memory mode | B | Memory address on the top right corner |
| Auto browsing (Scanning) | VF | Frequency mode | B | Radio freq. running |
| | VM | Memory mode | B | Memory address running |
| AM band width | AM BW | 1kHz, 2kHz, 3kHz, 4kHz, 6kHz | B | Display equivalent band width |
| Store memory | M | On | B | Memory address flashing on the top right corner |
| | | Confirmed / Auto confirm | B---(long) | Stop flashing |
| Delete memory | DELETE | Delete single memory | B | Memory address and "dEL" flashing |
| | | Delete all memory | BB | "ALL" & "dEL" are flashing |
| | | Confirmed | B---(long) | Back to freq. display |
| Backlight | LIGHT / SNOOZE | Illuminate short time | B | Backlight for 3 seconds |
| | | Illuminate permanently | B---(long) | Backlight on |
| | | Turn off | BB | Backlight off |
| SNOOZE | LIGHT / SNOOZE | Temporary off | B | "⠶)" or"⌂" and the auto turn-on time are flashing |
| LOCK | ⊙┰ | Lock | B | "⊙┰" display |
| | | Unlock | BB | "⊙┰" disappear |
| Time setting | TIME | Hour setting | B | "hour" flashing |
| | | Minute setting | BB | "minute" flashing |
| | | Confirm or Auto confirm | B---(long) | Flashing stop. |

| Function | Button | Status | Sound | Display |
|---|---|---|---|---|
| Auto radio on / off function | ALARM | Hour setting | B | "hour" flashing |
| | | Minute setting | BB | "minute" flashing |
| | | Adjust time for auto-off | BB | Time of auto-off, "📢" or "🔔" or "SLEEP" |
| | | Confirm / Auto confirm | B---(long) | Display time |
| | | Activate auto-on by radio | B | Display "📢" |
| | | Activate alarm by buzzer | BB | Display "🔔" |
| | | Close alarm function | B---(long) | "📢" & "🔔" disppeared |
| In/out SW meter band | TUNING | Inside SW meter band | B | Meter band number shows on top right cormer |
| | | Out of SW meter band | B | Meter band number disappeared |
| FM freq. range | FM SET | Select FM freq. | B | 87.5-108mHz,64-108mHz, 76-108mHz or 87-108mHz |
| 12/24 format | 12/24 | Select 12 format | B | "12H" display |
| | | Select 24 format | B | "24H" display |
| MW(AM) step | 9/10kHz | Select 9kHz step | B | "9kHz" &" ℃" in display |
| | | Select 10kHz step | BB | "10kHz" &" ℉" in display |
| Charge on / off | 🔋 | On | B | "CHR On"&" Ni-MH Battery" in display |
| | | Off | BB | " CHR OFF "in display & "Ni-MH Battery"disappeared |
| "B" sound on / off | 🔕 | Off | BB | "OFF" display |
| | | On | B | "On" display |
| On/off intelligent lighting | 💡 | Off | BB | "OFF" display |
| | | On | B | "On" display |
| LW on / off | MW / LW | Off | BB | "LW OFF" display |
| | | On | B | "LW On" display |

SPECIFICATIONS

1. Frequency range

| | | |
|---|---|---|
| FM | | 87~108　MHz |
| | | Russia　64~108MHz |
| | | Japan 76~108 MHz |
| | | China, USA 87.5~108 MHz |
| MW | | 522~1620 (USA 520~1710)　kHz |
| LW | | 153~513 kHz |
| SW | | 2300~21950 kHz |

2. Sensitivity

| | |
|---|---|
| FM　(S/N=30dB) | 3μV |
| MW (S/N=26dB) | 1mV/m |
| LW (S/N=26dB) | 10mV/m |
| SW (S/N=26dB) | 20μV |

3. Selectivity

| | |
|---|---|
| FM | ＞60 dB |
| MW | ＞60 dB |
| LW | ＞60 dB |
| MW | ＞60 dB |

| | |
|---|---|
| 4. FM Stereo crosstalk | 35 dB |
| 5. Memory | 550 |
| 6. Output | 350 mW |
| 7. Power | UM3 or AA X 3 |
| | USB 5V DC |
| 8. Speaker | Φ50mm,　500mW/16 Ohm |
| 9. Earphone Jack | Φ3.5mm, 32 Ohm, Stereo type |
| 10. Dimensions Approx. | 135(W) X 86(H) X 26(D) mm |
| 11. Weight | 200g　(Batteries not included) |