

# Owner's Manual

## MP3 PLAYER/DIGITAL TUNER MODULE



## WARNING

1. Read these instructions - All the safety and operating instructions should be read before this product is operated.
2. Retain these instructions - The safety and operating instructions should be retained for future reference.
3. Heed all warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow all instructions - All operating and use instructions should be followed.
5. Do not use this apparatus near water - The appliance should not be used near water or moisture - for example, in a wet basement or near a swimming pool, and the like.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding plug. A polarized plug has two blades with one wider than the other. A grounding plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart or rack is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug the apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified personnel. Servicing is required when



- the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Please keep the unit in a good ventilation environment.
  16. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall not be placed on apparatus.
  17. **WARNING:** The mains plug or appliance inlet is used as a disconnect device, the disconnect device shall remain readily operable.
  18. **Power Sources** - This product should be operated only from the type of power source indicated on the rating label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer the operating instructions.
  19. **Safety Check** - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
  20. Don't touch conductive parts of output terminals to prevent hazardous electrical shock. The external wiring connected to the terminals requires installation by an instructed person or the used of ready-made leads or cords.
  21. This equipment is for commercial & professional use only.
  22. This product is in compliance with EU WEEE regulations. Disposal of end of life product should not be treated as municipal waste. Please refer to your local regulations for instructions on proper disposal of this product.
  23. To prevent hazardous electrical shock, do not touch the conductive parts of the output terminals. The external wiring connected to the terminals requires installation by an qualified technician or the use of ready-made leads or cords.
  24. Please locate the apparatus at places nearby power socket for quick power disconnection in emergency.



Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.



This lightning flash is intended to alert the user to the presence of non-insulated "dangerous voltage" on the output terminals that may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the used of ready-made leads or cords.



### CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION:** To reduce the risk of electric shock, do not remove any cover. No user-serviceable parts inside. Refer servicing to qualified service personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.

**CAUTION:** To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

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## Introduction

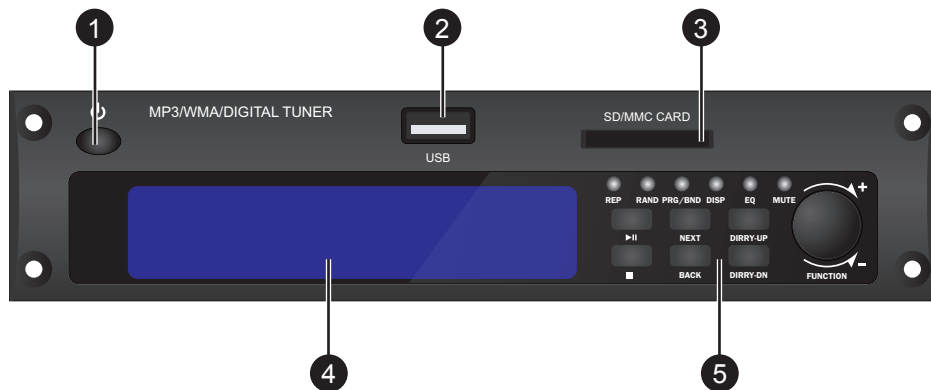
This MP3 Player / Digital tuner module is fully designed for MP3/WMA player with multi-audio decoder SoC including MP3/WMA decoding function and USB/SD/MMC card interface.

## Features

- MPEG 1/2/2.5 Layer2/3(MP3), WMA9 L1/L2 decoder with USB host and SD/MMC controller.
- Built in 64K NOR flash memory for program code storage.
- Built in 32 steps electronic volume control.
- Preset EQ ( Classic / Pop / Jazz / Rock ) with LOUD function.
- Recognition file and folder up to 2,000 files and 200 folders.
- Available ID3 tag up to 32 characters(File name->Title->Artist->Album).

## Controls

### FRONT PANELS



[ Figure 1.1 Front panel diagram ]

1. Power Switch.
2. Universal Serial Bus(USB) Interface Jack.
3. SD/MMC Card Slot.
4. LCD Display.
5. Function Switches. 1 23

# Operations

## Key function description

KEY	Description
Power	Power ON or OFF the system.
Function	Change function mode cyclically. TUNER(option)->USB->SD/MMC Card->iPOD(option)->AUX(option).
Play / pause	Start playing, and change mode between play and pause.
Stop	Stop playing track / files in USB / SD mode. Exit mode during program / repeat /random/intro. Exit to normal mode from the search mode.
Next /FF	Skip current file to next file.
Back / FB	Skip current file to previous file.
Folder up	Go to next folder (mp3/wma only). In the folder search mode, used to select next folder.
Folder down	Go to previous folder (mp3/wma only). In the folder search mode, used to select previous folder.
Volume up	Volume control : the volume is increased.
Volume down	Volume control : the volume is decreased.
Random	To set or release random play mode.
Intro	To set or release the intro scan mode.
Repeat	Cyclically select the repeat play mode: Repeat 1 track 1 folder all tracks Repeat Off.
Mute	To set or release the mute mode.
EQ	Press key to change EQ mode cyclically. Flat Classic Pop Jazz Rock Flat.
DBBS	To set or release the DBBS mode.
Display	IN MP3/WMA mode, if key is pressed, display mode is toggled between time display and File information scrolling as follows. File name -> Title -> Artist -> Album display.

## System operation

### 1. Volume control

Turn the jog dial allows to adjust output signal level with 32 steps as min, 1~30 and max.  
Volume display mode is continues 2 second after key off.

**VOL 13**

### 2. EQ / DBBS control

When [EQ] key is pressed, LCD panel show current EQ status for 2 second.  
Also [EQ] key allows to change as follows  
FLAT->CLASSIS->POP->JAZZ->ROCK  
DBBS mode is toggled when the key is pressed.

**ROCK**

LOUD

### 3. MUTE control

The [MUTE] key allows muting or releasing.  
LCD shows blinking 'MUTE' on mute status.

**ARTIST**

MUTE

MP3

### 4. Input source(USB/SD Card) selection

You can choice input source USB or SD Card by [FUNCTION] key. Also,  
LCD shows available input source for 2 sec.

**USB**

### 5. Memory checking

If this unit can't find MP3/WMA file from memory  
'NO FILE' is displayed on the LCD.

If this unit find out any available file from memory  
LCD shows total number of folder and total number of files.

And then, this unit ready for playing.

Example shows that the memory has 199 folders  
And 999 files.

USB

**NO FILE**

USB

**199~0999**

## System operation

### 6. Play, Pause and Stop

Press [PLAY] key to start play MP3/WMA file. LCD show file, folder number and playback time. During playback, press [PLAY] key to pause. Press [STOP] key to stop playing MP3/WMA file.



7. Forward Press [NEXT] key, then next file will be played.



8. Backward Press [BACK] key, current file will be played again from beginning.



Press again [BACK] key within 1 second from beginning, previous file will be played.



### 9. File name / ID3 display

Press [DISPLAY] key at the play mode, then file name is scroll displayed.

Press again [DISPLAY] key, go into ID3 tag information mode and scrolled as follow.

TITLE -> ALBUM -> ARTIST

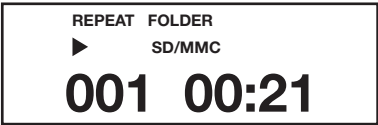
This ID3 tag information support up to 32 characters for each display unit.



# System operation

10. Repeat and Random play Press [REPEAT] key to select repeat type. The sequence is same as follow. repeat one file -> repeat folder -> repeat all

In the stop or play mode, press [RANDOM] to activate or deactivate the random mode.



11. Folder up and down These keys allow you easy to search folder in the USB/SD card memory.



# Specifications

Performance	
Signal to Noise Ratio	Less than 70dB
Frequency Response	20Hz ~ 20kHz
Total Harmonic Distortion(THD)	Less than 0.1%
Supply Voltage	DC 12 Volts
Maximum Current Consumption	500mA
Operating Temperature/Humidity at non-condensing	0°~40°C at 95% humidity

Necessary modifications are carried out without notice

NO	TEST ITEMS	TEST CONDITION		T.P.	T.L.	MOD.	SPECIFICATION			UNIT
				kHz	dBu	%	MIN	TYP	MAX	
1	FREQUENCY RANGE	LOW HIGH		-- --	-- --	-- --		522 1620		kHz
2	IF FREQUENCY	-----		--	--	--	448	450	452	kHz
3	USABLE SENS.	at S/N=20dB9		594 999 1404	--	30	--	55	60	dBu
4	IF REJECTION	at usable sens.		594	--	30	40	50	--	dB
5	IMAGE REJECTION	at usable sens.		1404	--	30	25	28	--	dB
6	1 SIGNAL SELECTIVITY	± 9kHz		990 1008	--	30	15	20	--	dB
7	DISTORTION	-----		999	74 100	30 80	-- --	2.0 3.0	3.0 5.0	%
8	S/N RATIO	-----		999	74	30	35	40	--	dB
9	TWEET	-----		900	74	30	--	--	10	%
10	AF OUTPUT LEVEL	47kΩ LOAD		999	74	80	400	500	600	mV
11	AUTO STOP LEVEL	AM-SDDSS0=0,DSS1=1,DSS2 =1DSS3=0,DSS4=0,(HEX:6)		999	--	30	40	55	70	dBu
12	AUDIO RESPONSE (400Hz=0dB)	-6dB	Low High	999	74	30	-- 1.8	-- 2.0	90 --	Hz kHz

NO	TEST ITEMS	TEST CONDITION	T.P.	T.L.	MOD.	SPECIFICATION			UNIT
			MHz	dBu	kHz	MIN	TYP	MAX	
1	FREQUENCY RANGE	LOW HIGH	-- --	-- --	-- --		87.5 108.0		MHz
2	IF FREQUENCY	-----	--	--	--	10.5	10.7	10.9	MHz
3	USABLE SENS.	USABLE SENS.	90.1 98.1 106.1	--	40	--	12	15	dBu
4	IF REJECTION	at usable sens.	90.1	--	40	70	75	--	dB
5	IMAGE REJECTION	at usable sens.	106.1	--	40	70	75	--	dB
6	S/N RATIO	IHF-A FILTER	98.1	60	40	55	60	--	dB
7	AM SUPPRESSION	at AM 30% 1kHz	98.1	60	40	40	45	--	dB
8	DISTORTION	MONO	98.1	60	40	--	0.7	1.2	%
9	STEREO DISTORTION	EXT 19kHz FILTER (L=R)	98.1	60	40	--	0.8	1.5	%
10	STEREO SEPARATION MAIN 53.5%, PILOT 10% EXT 19kHz FILTER	100 Hz 1 kHz 10 kHz	98.1	60		25 25 20	28 28 25	--	dB
11	AUTO STOP LEVEL	FM-SD DSS0=1,DSS1=0,DSS2=0 DSS3=1,DSS4=0,(HEX:9)	98.1	--	40	16	23	30	dBu
12	AUDIO RESPONSE (1kHz=0dB)	De-emphasis/50usLow ( ±3dB )High	98.1	60	40	-- 10	-- 12	60 --	Hz kHz
13	AF OUTPUT LEVEL	47kΩ LOAD	98.1	60	75	400	500	600	mV

