

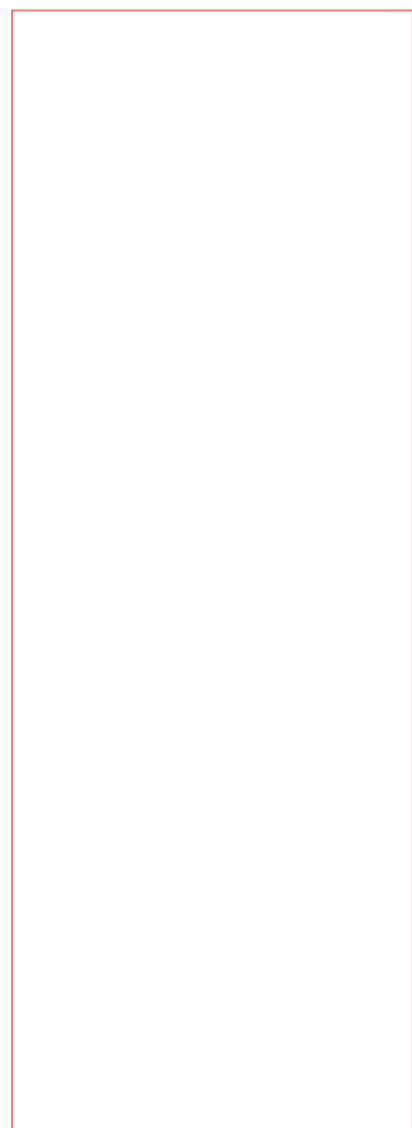




381R20S-A

WARNING:
TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

 <small>THE LIGHTNING FLASH AND ARROWHEAD WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF "DANGEROUS VOLTAGE" INSIDE THE RADIO.</small>	<p>CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN</p> <small>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE BACK, NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</small>	 <small>THE EXCLAMATION POINT WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF IMPORTANT INSTRUCTIONS ACCOMPANYING THIS RADIO.</small>
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SANGEAN

HD Radio®

HDT-1/HDT-1X

HD Radio™ Component Tuner

User Manual



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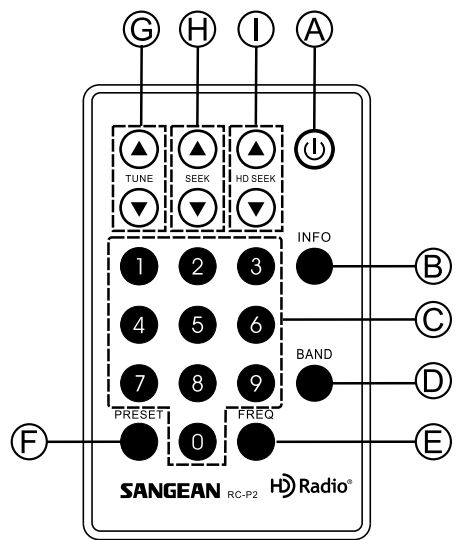
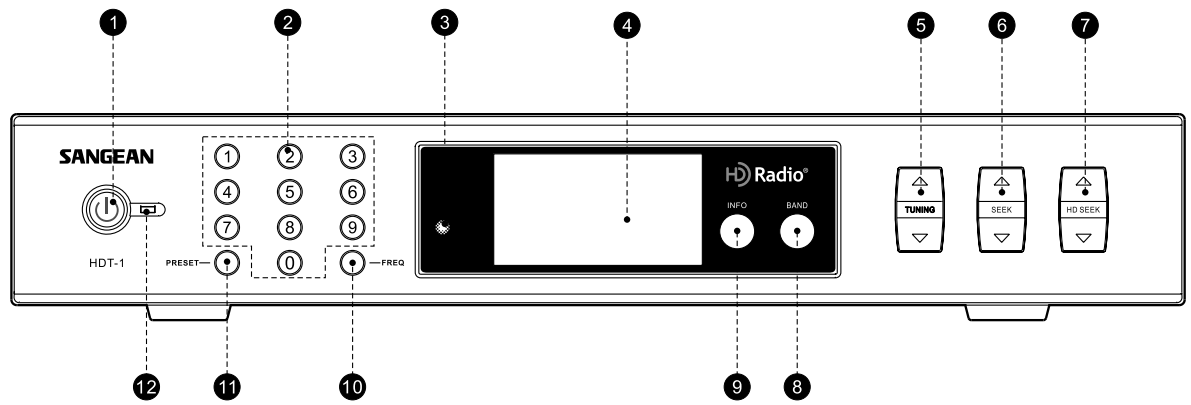
Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
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. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service 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, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. To reduce the Risk of Fire or Electric Shock. Do not expose this appliance to rain or moisture.
15. The Shock Hazard marking and Associated Graphical Symbol is provided on the rear panel of unit.
16. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, shall not be placed on the apparatus.

Main Unit Controls

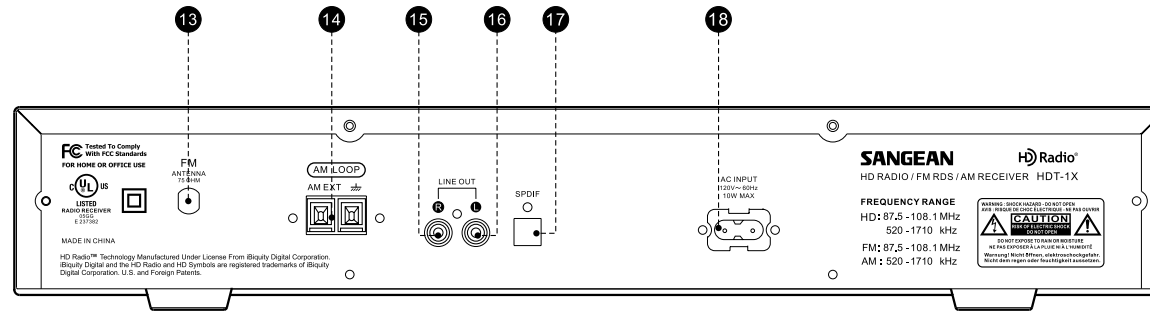
(Front & Remote Control)

Unit Button	Remote Button	Action/Combination	Function
1	A	Turns unit on/off	
2	C	10 Digit Keypad	Programs Memory Presets
		FREQ	Allows Direct Entry of Channel Frequency
		Preset	Allows recall of memory presets
		Clock Set	Allows Direct Time Entry for Clock
3	N/A	Remote Sensor	
4	N/A	LCDDisplay	
5	G	Tuning	Step Tunes Up/Down
		Advanced Menu Options	Activates/Deactivates Settings
6	H	Seek Tuning	Seeks to next detectable frequency
7	I	HD Seek Tuning	Seeks to next detectable HD Radio Broadcast Signal
8	D	BAND	Selects AM/FM Bands
9	B	INFO	Toggles through Display Modes
		2 sec. hold	Provides Access to Advanced Menu Options
10	E	FREQ	Prepares Tuner for Direct Frequency Entry Using #2, Remote Keys "C"
11	F	PRESET	Prepares Tuner to Recall Memory Presets Using #2, Remote Keys "C"
12	N/A	Standby LED Indicator	Indicates if Unit is On or Off



Main Unit Controls

(Rear)

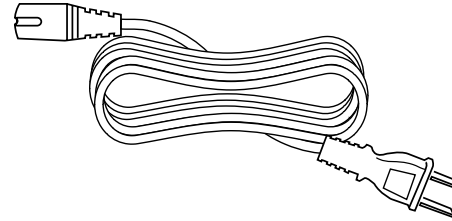


- 13. External FM antenna socket
- 14. External AM loop antenna socket
- 15. 16. Line Out socket

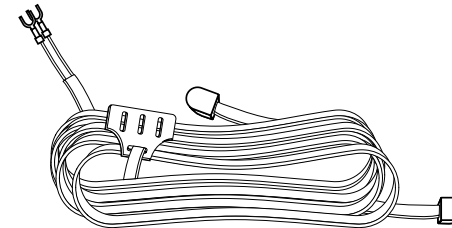
- 17. SPDIF Optical Connection (Optional on HDT-1X)
- 18. AC power cord socket

Accessories

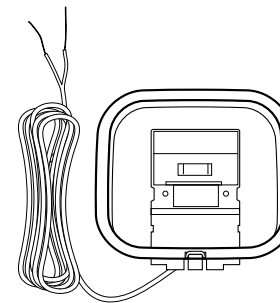
Detachable power Cord x 1



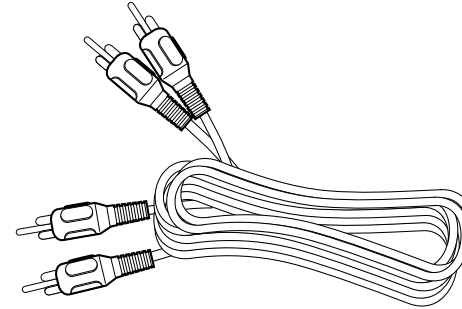
FM Dipole Antenna x 1



AM Loop antenna x 1



RCA type audio cable x 1

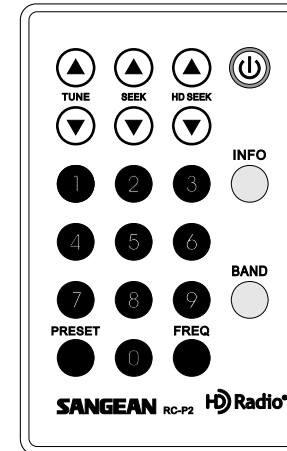


Remote control unit x 1

Instruction manual x 1

Warranty card

Seek Function
To seek to another clear station, use the SEEK toggle button . Press



Getting started

Step 1.

Inspect package to insure that all parts & accessories are included.

Step 2.

Find a proper location for your new HDT-1/HDT-1X HD Radio Tuner following the guidelines on table 1.1.

Step 3.

Connect the included or other external FM antenna to Figure 2, #13.

Step 4.

Connect the included or other external AM antenna to Figure 2, #14.

NOTE:

TO IMPROVE RECEPTION AND DECREASE INTERFERENCE FROM YOUR NEW HDT-1/HDT-1X PLACE THE AM LOOP ANTENNA AT LEAST 50MM AWAY FROM UNIT.

Step 5.

Connect your new HDT-1/HDT-1X to your AV system using either the RCA Connection or Optional SPDIF Connection (On HDT-1X Model Only). Always connect to your AV system first, then to your new HDT-1/HDT-1X Tuner.

NOTE WHICH INPUT YOU ARE USING WHEN CONNECTING THE HDT-1/HDT-1X TUNER TO YOUR AV SYSTEM FOR LATER REFERENCE.

a. Using RCA Cables

- i. Connect included or premium RCA cables to your AV system.
- ii. Connect opposite end of the included or premium RCA cables to your new HDT-1/HDT-1X HD Radio Tuner to Figure 2, #15 & #16.

b. Using Optional SPDIF connection (On HDT-1X only). Always prevent excessive bending of the optical cable as this may distort audio and/ or cause damage to your AV system or HDT-1/HDT-1X HD Radio Tuner.

- i. Connect optical cable to your AV system according to the cables manufacturers directions.
- ii. Connect opposite end of the optical cable to your new HDT-1/HDT-1X using connectors in Figure 2, #17

Step 6.


Connect the AC power cable to the HDT-1/HDT-1X using connector in Figure 2, #18. Connect the opposite end into an AC outlet located near the unit.

Navigating the Display

There are many display functions. This will help you understand what the display is telling you, making navigation and setup easier.

(A) Radiotext, (B) Time, (C) Signal quality, (D) Frequency, (E) and Audio spectrum.

HD : HD RADIO Indicator

 : Signal Indicator

WXYZ-2 : Station Name-MulticastSetIndex

iBiquity : Artist

Sas one : Title

TOP 40 : Program Type

 : Stereoi Indicator(For HDT-1X only)

RDS : RDS Indicator

U. H. B. N : Program Station



Soft Rock : Program Type

KZWX : Callsign

This is a radio test : Radio Text

A

Status: HD-Radio

107.5 FM1  
WXYZ-2
 iBiquity
 Sas one
 TOP 40

B

107.5 FM1
9:45 AM


C

107.5 FM1
SSI 7


D

107.5 FM1
107.5 MHz

E

107.5 FM1


Setting up and Programming your HDT-1/HDT-1X

Setting the clock

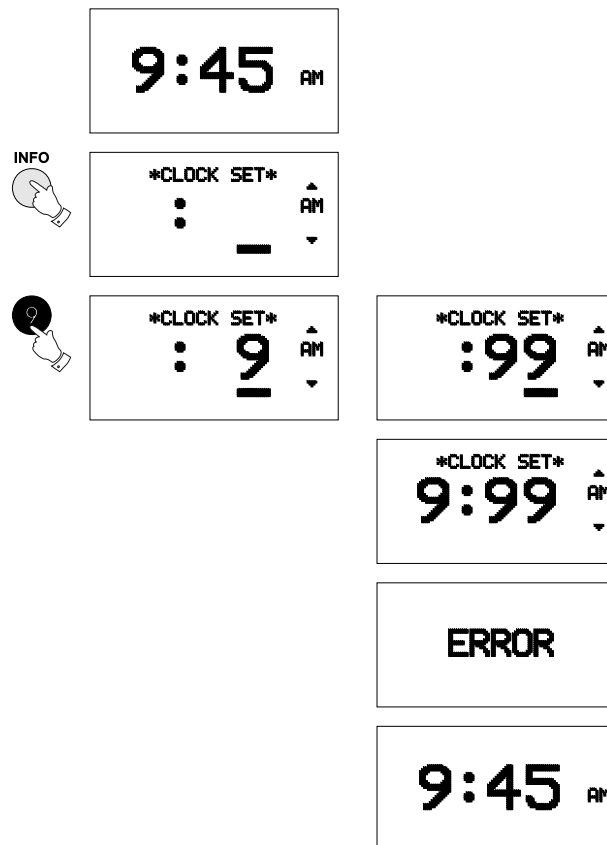
Clock setting can be done when the tuner is in Standby (power off)

1. Press and hold "INFO" button for approx. 2 seconds until display flashes "clock set" to enter Clock Set mode.
2. Press Tuning UP or Down button to select AM or PM.
3. Press number keys to set required clock time.
4. Press INFO button again to complete clock time set.

e.g. to set 9.45 AM

- a. Press INFO to enter clock set mode.
- b. Press Tuning UP to get AM.
- c. Press 0,9,4,5.
- d. Press INFO again to complete clock time set.

Display will appear ERROR if the input is incorrect.

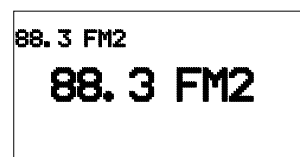
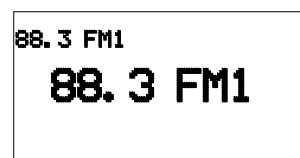
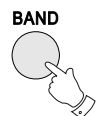


Radio Controls

To turn the radio on, press the Standby button. Pressing the Standby button again will put the unit into standby. In standby, the tuner will display the time, dim the backlight and standby LED will be on.

Selecting the radio band

Press the BAND button to select the appropriate band . At each press of the BAND button, the band switches from AM1⇒AM2⇒FM1⇒FM2. When you switch from one band to another, the radio will return to the last tuned station used in the band.

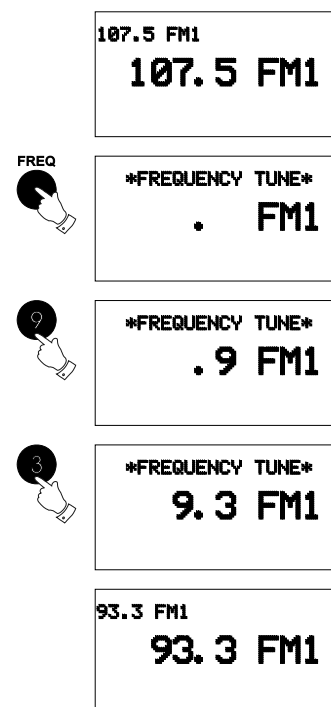


Manual Tuning

Press the TUNING rocker switch UP or DOWN to tune up or down to select a radio station. Tuning step per press for AM band is 10 kHz and 100 kHz for FM band.

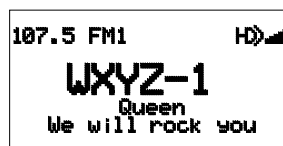
Direct Tuning

By using numbered key pad, you can directly tune to a radio station. For example, to tune to station 93.30 FM, press BAND button to select FM band followed by pressing FREQ button and numbered buttons 9-3-3. To tune to 1120 AM, press BAND button to select AM band, followed by pressing FREQ button and buttons 1-1-2-0. Display will appear ERROR if the input frequency is incorrect or out of coverage.



Receiving HD radio stations

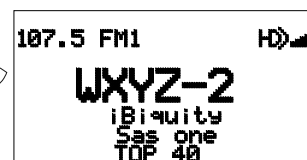
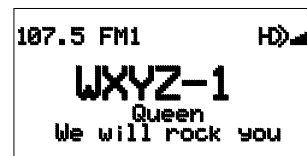
When the radio is tuned to a station broadcasting HD radio signal, the LCD will display a blinking "HD" logo. Once the tuner acquires the HD radio signal, the "HD" logo will stay on and a Signal Strength indication will appear in the top right hand corner.



 : HD RADIO Indicator

Receiving Multicast Stations

When the radio is tuned to an HD radio compatible station and it determines that one or more Multicast stations are available, the Frequency or the Call Letters will be followed by a "-1" designator, indicating that there is at least one Multicast station available. The TUNE UP button will tune up from a station's Main Program Service Station to the Multicasting programs.



Seek Function

To seek to another clear station, use the SEEK toggle button. Press and release the SEEK UP or DOWN will go to the next available station with good signal. Press any key to stop SEEK function.

HD SEEK function

Using the HD SEEK button, the tuner will seek to the next available HD station. This function will also scan to the Multicast program if available. Press and release HD SEEK UP or DOWN will go to the next available HD station with good signal. Press any key to stop HD SEEK function.

Using AM and FM presets

Preset stations

There are 20 preset stations for FM (10 x FM1, 10 x FM2) and 20 preset stations for AM (10 x AM1, 10 x AM2). First select the AM/FM using the band selection button (AM1, AM2, FM1, FM2) , then press and hold for 3 seconds for the number 0-9 of where you would like to store this station until display indicating the station is stored.

For HDT-1 only:

Note:

If presets are full, the display will appear FULL. Press and hold the number key for more than 5 seconds, the current station will replace the previous memorized station. And the display will show PRESET – X stored.



Recall preset stations

To recall preset stations, select required band by pressing BAND selection button. Press PRESET button to enter PRESET recall mode. Display will show "GO TO PRESET". Then followed by using one of the following methods to recall the stations.

1. Press and release the number station you like to recall.
2. Press TUNING UP or DOWN button to select required preset station.

Note:

If the preset station you like to recall has no preset station, display will show EMPTY.

Exchange preset stations position

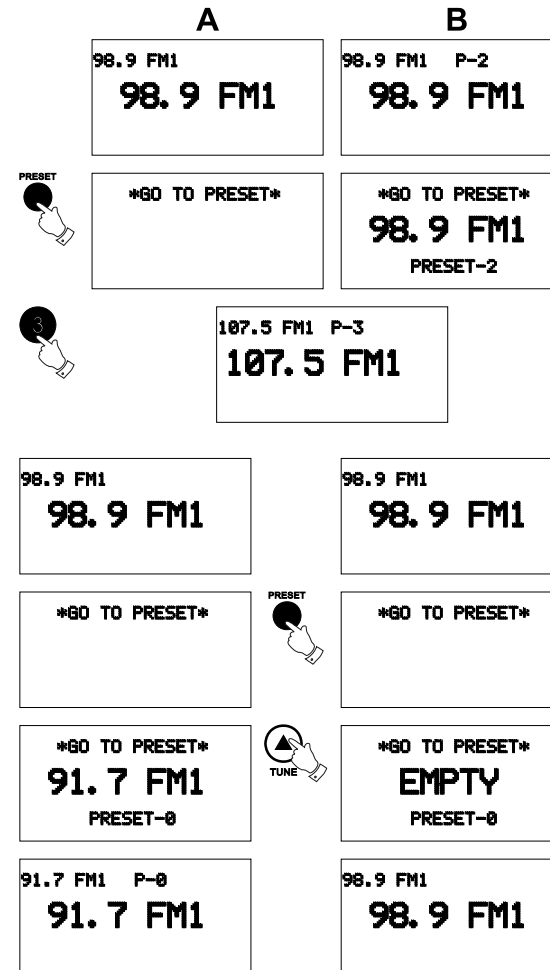
You may use the Presets exchange function to change the position of the preset stations.

E.g. preset 1: 93.10 MHz and preset 2: 100.70 MHz

If you like to exchange preset 1 to be preset 2. First to recall Preset 1 station, then long press number button 2 for more than 2 seconds until display indicating the new preset has been stored.

For HDT-1 only:

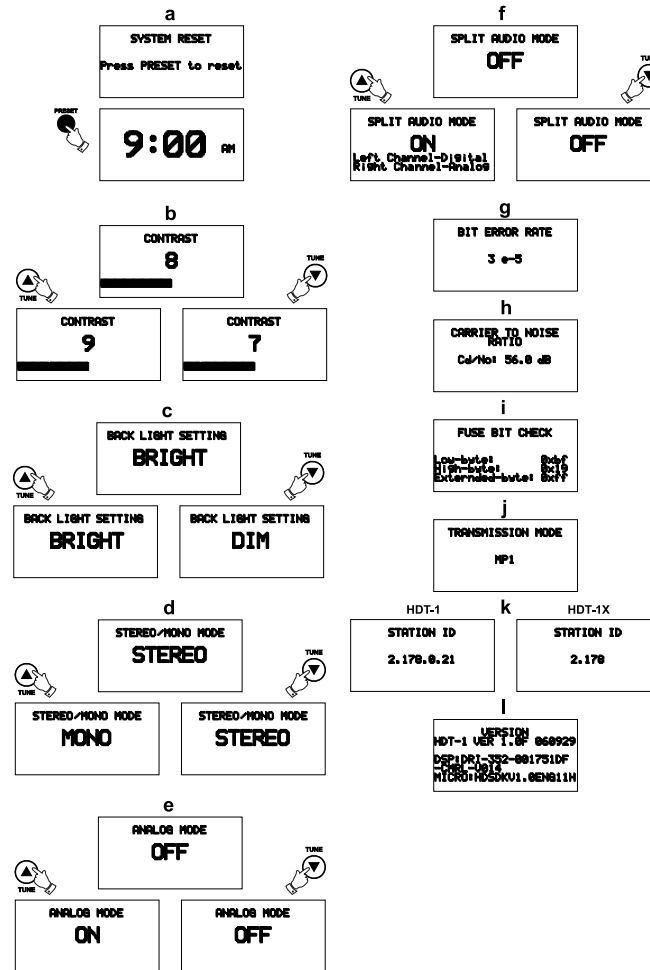
Note: If memory is full during preset station exchange, display will appear FULL, then press number button 2 for more than 5 seconds until display indicating the new preset has been stored.



Advanced Information

Long press INFO button for 2 seconds to enter Advanced Information. Press and release INFO button will cycle through information of RESET, LCD Contrast Adjust, Backlight Brightness Control, (For HDT-1X: Stereo/Mono Mode, Analog Mode, Split Audio Mode), Bit Error Rate, The carrier to noise ratio, FUSE Bit Check , Transmission Mode, Station ID and Software version.

- a. RESET –
 - in RESET mode, press PRESET button to RESET the tuner.
 - The tuner setting will be reset to its initialized factory setting.
- b. LCD Contrast –
 - pressing TUNING UP or DOWN button to adjust LCD contrast.
- c. Back Light Setting –
 - pressing TUNING UP or DOWN button to adjust Back Light. (for HDT-1X only)
- d. Stereo/Mono Mode –
 - pressing TUNING UP or DOWN button to adjust Stereo/mono. (only for HDT-1X)
- e. Analog Mode –
 - pressing TUNING UP or DOWN button to turn on/off HD. (for HDT-1X only)
- f. Split Audio Mode –
 - pressing TUNING UP or DOWN button to split audio on/off. (for HDT-1X only)
- g. Bit Error Rate
- h. The carrier to noise ratio
- i. Fuse Bit Check
- j. Transmission Mode ,
- k. Station ID and HDT-1/HDT-1X
- l. Software version are for factory and after sales service reference.



Advanced Menu Options

Menu Option	Function	Controls
Backlight	Controls Backlight Brightness	
Mono/Stereo Mode	Mono/Stereo switch	Tuning Up to activate option Tuning Down to deactivate
Analog Mode (HD OFF)	Eliminated HD Radio Signal Tuning	Tuning Up to activate option Tuning Down to deactivate
Split Audio Mode	Provides Digital Signal in Left Audio Channel Provides Analog Signal in Right Audio Channel	Tuning Up to activate option Tuning Down to deactivate
Bit Error Rate	The number of bits incorrectly received to the total number of bits sent during a specified time interval	
Carrier to Noise Ratio	A measure of the received carrier strength relative to the strength of the received noise	
Fuse Bit Check	Used for Diagnostic Purposes Only	
Transmission Mode	This indicates the digital mode being used to transmit the audio	
Station ID	Used for Diagnostic Purposes Only	
Software Version	Used for Diagnostic Purposes Only	

Troubleshooting

Issue	Possible Causes	Possible Solutions
Power Won't Turn On	AC Power Cable is not properly connected	Check AC power cord connection
	AC Outlet power not turned on	Check circuit breakers/fuses
	Defective/Malfunctioning Unit	Call Sangean Service Department at 888-SANGEAN
Remote Doesn't Work	Remote Battery Not Activated	Remove plastic piece located at bottom of remote
	Battery is Dead	Replace battery
	IR Sensor Obstructed	Check the area of the IR sensor and ensure there are no obstructions and the area surrounding it is clean by using a glass or all purpose cleaner
	IR Sensor Malfunctioning	Call Sangean Service Department at 888-SANGEAN
	Remote is Defective	Call Sangean Service Department at 888-SANGEAN
I don't hear any audio	Power is not on	Check "Power won't turn on"
I only hear audio in one speaker	Audio cables are not properly connected	Check to make sure audio cables are properly connected. Make sure Left is Left, and Right is Right. If using optical, make sure cable is not bent or kinked.
	AV Receiver is not powered on	Check to make sure power is connected and retry
	AV Receiver is not set to proper input	Make sure to set your AV Receiver to corresponding inputs used during installation
	Speakers improperly connected	Check speakers to make sure that they are all properly connected
I only hear static	Antenna not connected properly	Check all antennas to ensure proper connection
	Tuner not tuned to a station	Check to see that you are on a frequency that is broadcasting in your area
	Station is temporarily not broadcasting	Call station engineer, or try another station
Poor audio quality	Bad/Improper Connections	Check to make sure you are using the proper cables for the inputs you chose. Check to verify that all connections are to same format (RCA is to RCA, Coaxial is to Coaxial, Antenna to Antenna input, etc.)

Poor audio quality (Cont.)	Antenna not correctly installed or oriented	Using the signal strength indicator or the Carrier to Noise indicator, try different positions and orientations of the antenna
	Radio station is broadcasting poor signal	Contact radio broadcaster to inquire about poor audio quality
HD Signal Keeps Fading in and Out	Antenna not correctly installed or oriented	See above
	Poor environmental conditions	There are certain environmental factors that will effect radio reception. You should always try your tuner in a different location, alter the orientation of the antenna, and check all connections.
		If all else fails, in the advanced menu on the HDT-1X, adjust turn "Force Analog" setting to "ON"
Stange sound when radio is off	Malfunctioning component	If the HDT-1/HDT-1X is making a stange but detectable when the unit is on and off disconnect power immediately and contact Sangean Service Department at 888-SANGEAN



Specifications

Power:

Mains: AC 120 Volts 60 Hz only, 10 Watt maximum

Battery (remote control): 3.0V CR 2025

Frequency coverage:

FM 87.50 - 108.10 MHz

AM 520 - 1710 kHz

HD FM 87.50 - 108.10 MHz

HD AM 520 - 1710 kHz

Antenna System:

FM - Dipole type (supplied)

AM - Loop type (supplied)

Dimension (W x H x D): 430x70x256 mm

Weight: 2.6 kg.

HDT-1/HDT-1X Brief User Interface:

UI KEY function

NO	Button	Action	Function Status	Function	Note
1	standby	short	StandBy / PowerOn	PowerOn / StandBy toggle	recall the last station on last band
2	Band	short	PWR ON	FM1→FM2→AM1→AM2	
3	Info	short	PWR ON	RT→CT→SSI→Freq→Spectrum	
		long 2s (To use info key to jump next status)	PWR ON	System Reset→Contrast → Bit Error Rate→Carrier To Noise Ratio→ Fuse Bit Check→Transmission Mode→ Station ID→SW version & DSP version & SDK version	for HDT-1 only
		long 2s (To use info key to jump next status)	PWR ON	System Reset→Contrast → Back Light Setting→Stereo/Mono Mode →Analog Mode→Split Audio Mode→ Bit Error Rate→Carrier To Noise Ratio→ Fuse Bit Check→Transmission Mode→ Station ID→SW version & DSP version & SDK version	for HDT-1X only
		short(To use number key and tune ↑ ↓ select clock time, then to press Info button finish setting)	PWR OFF	To modify clock time	
4	Info	long 2s(To use info key to jump next status,when the status is RESET, to press Preset button reset)	PWR ON	Reset system	
5	Info	long 2s(To use info key to jump next status, when the status is LCD Contrast Adjust, to press tune ↑ ↓ adjust contrast)	PWR ON	LCD Contrast Adjust	

6	Preset	1.To press preset button then to press number button finish setting	PWR ON	Recall Preset 0~9	FM1 ·BFM2
		2.To press number button long 2s store channel		Recall Preset 0~9	AM1 ·BAM2
		3.When preset memory is full. To press number button long 5s store channel		Store to Preset 0~9	FM1 ·BFM2
7	Tune ↑ ↓	short	PWR ON	"Tune up/down" for services up/down	
		short	PWR ON	Turn up or down to next Freq	
		Push and Hold	PWR ON	"Tune up/down" for services up/down	
		Push and Hold	PWR ON	Fast tuning up or down, 8 steps per sec	
8	Seek ↑ ↓	short	PWR ON	Auto scan to next strongest station	
9	HD Seek ↑ ↓	short	PWR ON	Auto scan to next HD station	
10	Freq	To press Freqt button then to press number button select frequency	PWR ON	Frequency tune	