

# KENWOOD

HD Radio™ TUNER UNIT

## KTC-HR300

### INSTRUCTION MANUAL

Kenwood Corporation



**Take the time to read through this instruction manual.**

**Familiarity with installation and operation procedures will help you obtain the best performance from your new HD Radio tuner unit.**

**For your records**

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call upon your Kenwood dealer for information or service on the product.

Model KTC-HR300 Serial number \_\_\_\_\_

***US Residence Only***

**Register Online**

Register your Kenwood product at  
**[www.Kenwoodusa.com](http://www.Kenwoodusa.com)**

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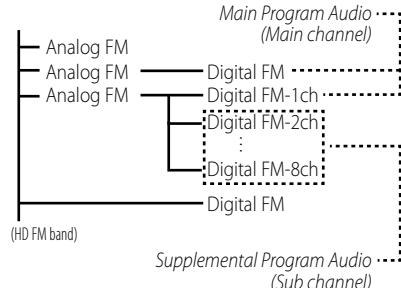
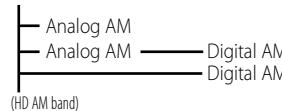
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## What is HD Radio Technology?

HD Radio technology enables broadcasters to transmit a digital signal with its analog signal using existing frequency allocations for FM and AM stations. Quality of broadcast is improved to the level of music CD in digital FM and that of analog FM in digital AM. Moreover, if receiving condition is good, you can listen to programs in stereo with the digital AM broadcast. Digital FM of Supplemental Audio Services can send up to 7 channels of the Supplemental Program Audio other than the Main Program Audio.



- Main Program Audio (hereafter called Main channel)
- Supplemental Program Audio (hereafter called Sub channel)



Digital broadcasting can send other information than audio, so you can display data such as title of music.

HD Radio™ Technology Manufactured Under License  
From iBiquity Digital Corp. U.S. and Foreign Patents.  
HD Radio™ and the HD Radio logo are proprietary  
trademarks of iBiquity Digital Corp.

iTunes is a trademark of Apple Inc.

## Before use

### ⚠WARNING

#### To prevent injury or fire, take the following precautions:

- To prevent a short circuit, never put or leave any metallic objects (such as coins or metal tools) inside the unit.

### Cleaning the Unit

If the faceplate of this unit is stained, wipe it with a dry soft cloth such as a silicon cloth.

If the faceplate is stained badly, wipe the stain off with a cloth moistened with neutral cleaner, then wipe it again with a clean soft dry cloth.

### Notes

- If you experience problems during installation, consult your Kenwood dealer.
- The illustrations of the display and the panel appearing in this manual are examples used to explain more clearly how the controls are used. Therefore, what appears on the display in the illustrations may differ from what appears on the display on the actual equipment, and some of the illustrations on the display may be inapplicable.

### Control Units that can be Connected

For the models to which this unit can be connected, consult your Kenwood dealer.

Note that the following restrictions may occur depending on a control unit to be used.

- The HD Radio cannot be selected as a dual zone source.

### How to operate the this unit

Operations of this unit are described in the instruction manual of your control unit.

For those not described in it, refer to the following <Operations> section.

- CD Receiver:  
Refer to <Operations –CD Receiver-> page 4
  - KVT-512, DDX512, DNX5120, DNX512EX, DDX812, DDX712, DNX8120, DNX7120:  
Refer to <Operations –DVD monitor-> page 8
- 
- Following models are Multi key system models. Operations different from those of a standard model may be described in the <Operations –CD Receiver-> section.  
*KDC-MP728, KDC-MP828, KDC-X789, KDC-X889*
  - The display of the capital and small letters may be differed depending on the model.

### iTunes Tagging (HD Radio Tagging)

Using an iTunes Tagging enabled HD Radio you can tag your music.

When you hear a song you enjoy on your local HD Radio station.

The song's information will then be saved on this unit. The saved songs will then show up in a playlist called "Purchased" in iTunes the very next time you sync your iPod to your computer. So then you just need to click and then easily buy and download the song you were tagging directly from the Apple iTunes Music Store.



- To use the iTunes Tagging (HD Radio Tagging) function, a compatible control unit is required. The tag registration method is described in the instruction manual of the control unit.

# Operations -CD Receiver-

## Tuning

Selecting the station.

### 1 Select HD Radio source

Press the [SRC] button.

Select the "HD Radio"/"HD RADIO" display.

### 2 Select the HD FM band

Press the [FM] button.

Each time the [FM] button is pressed it switches between the HF1, HF2, and HF3 bands.

### Select the HD AM band

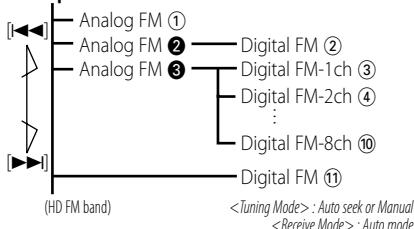
Press the [AM] button.

### 3 Tune up or down program

Press the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] button.

If the sub channel is available in Digital FM broadcast when <Tuning Mode> is set to Auto seek or Manual, the channel can be switched.

#### Example:



- During the reception of ①, tune up: ②→③→④...
- During the reception of ⑪, tune down: ⑪→⑩...



- Using <Receive Mode> the modes can be switched to digital broadcast automatic switching, analog broadcast only, or digital broadcast only.
- When "Digital" has been set with <Receive Mode>, the seek time will be longer to allow a check of whether the transmission is a digital broadcast.
- It will take a few seconds to receive the digital broadcasting after selecting the frequency.
- When Tune up button is pressed, it will switch to the next frequency if it is switched before receiving the Digital broadcasting. (②→③)
- When Tune down button is pressed, it will be received from Analog broadcasting if the Digital broadcasting has never been received. (⑪→③)
- When <Tuning Mode> is set to "Manual", the frequency will be switched while pressing [ $\blacktriangleleft$ ] or [ $\triangleright$ ] buttons.
- Some of the models have the following displays when the Main channel and Sub channel are switched.
  - "Main"/"Primary"/"PRI": When it is switched to the Main channel

- "Sub"/"Secondary"/"SEC": When it is switched to Sub channel

## Tuning Mode

Sets the tuning mode.

Press the [AUTO] button.

Each time the button is pressed the Tuning mode switches as shown below.

Tuning mode	Display	Operation
Auto seek	"Auto1"	Automatic search for a station.
Preset station seek	"Auto2"	Search in order of the stations in the Preset memory.
Manual	"Manual"/"MANU"	Normal manual tuning control.

## Receive Mode

Sets the receive mode.

### 1 Select menu mode using the control unit.

Select the menu item.

Select the "Receive Mode"/ "HDR mode" display.

### 2 Open Receive mode

Press the setting button of the menu items in the control unit for at least 1 second.

### 3 Set the Receive mode

Switching the setting of menu items.

Each time the button is pressed the Receive mode switches as shown below.

Receive mode	Display	Operation
Auto mode	"Auto"	Automatically tunes to analog broadcast when receiving the digital broadcast is impossible.
Digital	"Digital"	Digital broadcasts only.
Analog	"Analog"	Analog broadcasts only.

### 4 Exit Receive mode

Press the [MENU] button.

### 5 Exit Menu mode

## **Preset Memory**

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Putting the frequency and channel in the memory.

### **1 Select the band**

Press the [FM] or [AM] button.

### **2 Select the frequency and channel to put in the memory**

Press the [ $\blacktriangleleft\blacktriangleright$ ] or [ $\blacktriangleright\blacktriangleright$ ] button.

### **3 Put the frequency and channel in the memory**

Press the desired [1] — [6] button for at least 2 seconds.

The preset number display blinks 1 time.

On each band, 1 station can be put in the memory on each [1] — [6] button.

## **Auto Memory Entry**

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Putting a station with good reception in the memory automatically.

### **1 Select the band for Auto Memory Entry**

Press the [FM] or [AM] button.

### **2 Open Auto Memory Entry**

Press the [AME] button for at least 2 seconds.

Save 6 stations with the best reception in the memory and close Auto Memory Entry.



- Sub channel of Digital FM cannot be registered.

## **Preset Tuning**

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Calling up the frequency and channel in the memory.

### **1 Select the band**

Press the [FM] or [AM] button.

### **2 Call up the frequency and channel**

Press the desired [1] — [6] button.



- "Linking" will be displayed for few seconds until it is received.
- When <Receive Mode> (page 4) is set to Digital or Analog, it cannot be received if the setting is differed from the preset.

# Operations -CD Receiver-

## Switching Display

When you are listening to an HD Radio station, you can switch over the display information as follows.

For operations, see the <Switching Display>/<Display Mode Switching>/<Text Display Switching> page of the instruction manual of your control unit.



- What is displayed may partly depend on control unit to be connected.

### HD Radio mode

Information	Display
Station Name (8)	"Station Name" / "NAME"/ "ST NAME"
Song title/ Artist name/ Album name/ Genre/ Detailed station name (128)	"Title" / "TITLE"
Receive Frequency	"Frequency" / "FREQ"

The number in the ( ) indicates the maximum number of displayed characters.

When a current receiving station dose not send text information, the frequency is displayed.

The Station name or Song title during reception of the Digital FM broadcasting displays the channel information as follows.

- ①Digital AM      "(Station name) HD"  
                        "(Song title/ Artist name /...)"
  - ①Digital FM      "(Station name) HD"  
                        "(Song title/ Artist name /...)"
  - | ②Digital FM-1    "(Station name) HD1"  
                        "(Song title/ Artist name /...)"
  - | ③Digital FM-2    "(Station name) HD2"  
                        "(Song title/ Artist name /...)"  
      :
- ①: When the Main channel is received
  - ②: The sub channel is available in Main channel which is received.
  - ③: When the Sub channel is received
  - When listening by the Analog sound, "HD" display switches to "FM" or "AM".



- In HD Radio mode, the display of Station Name or Song title should be set up. The channel information cannot be displayed in the Frequency display.
- Though some models have two or more lines in the display, you cannot display the same information in both the Upper Part and the Lower Part.
- In the control unit with M/S, P/S indicator, the indicator will be turned ON or OFF as described below.
  - ①: M/S, P/S indicator is OFF.
  - ②: M/S, P/S indicator is ON.
  - ③: M/S, P/S indicator blinks.

## Text Scroll

Scrolls the display title.

For operations, see the CD features of <Text Scroll> in the instruction manual of your control unit.

*Function of remote*

## **In HD Radio Source**

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### **[FM] button**

Select the HD FM band.

Each time the [FM] button is pressed, it switches between the HF1, HF2, and HF3 bands.

### **[AM] button**

Select the HD AM band.

### **[◀◀]/[▶▶] buttons**

Tune up or down program.

### **[0] — [9] buttons**

Press buttons [1] — [6] to recall preset stations.

## Operations -DVD monitor-

### Functions While Displaying the Control Screen

Switches to the source control screen to use various functions.

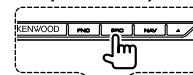
**KVT-512, DDX512, DNX5120, DNX512EX**



[HD Radio] button on the "Source Select" screen



**DDX812, DDX712, DNX8120, DNX7120**



**[HD FM]** Switches to the HD FM1/2/3 band.

**[HD AM]** Switches to the HD AM band.

**[◀◀], [▶▶]** Tunes in a station.

Use the [SEEK] to change the frequency switching.

**[CH DOWN], [CH UP]** Selects a channel (program).

**[AME]** Selects the Auto Memory mode. See <Auto Memory> (page 10).

**[SEEK]** Switches the Seek mode.

The mode is switched in the following order each time you touch the button.

Display	Setting
"AUTO1"	Tunes in a station with good reception automatically.
"AUTO2"	Tunes in stations in memory one after another.
"MANU"	Switches to the next frequency manually.

**[4Line]/[2Line]** Switches the number of lines displayed in the Information Display.

**[P1] – [P6]** When [P1] to [P6] buttons appear, you can recall the stations on memory.

For memory of broadcasting stations, see <Auto Memory> (page 10) or <Manual Memory> (page 10).

**[RCV]** The Receive mode switches in the following order. See <Receive mode> (page 9).

**[TTL]** Displays the tuned in music information.

**①** Band display

**②** Preset number

**③** Frequency display

**④** Radio station information display.

DDX812, DDX712, DNX8120, DNX7120

Selects the Call Letter (8), Title (32), Artist (32), Album (32), Genre (32), or Station Name (32).

KVT-512, DDX512, DNX5120, DNX512EX

Changes the display Call letter (8), Station Name (94), Song Title (80), Artist Name (80), Album Name (80), to Genre Name (32).

The number in the ( ) indicates the maximum number of displayed characters.

## Receive mode

Sets the radio broadcasts receive mode.

### 1 Display the source control screen



### 2 Display the Receive mode screen

Touch the [RCV] button.

### 3 Select the receive mode



**[◀], [▶]** The Receive mode switches in the following order.

Display	Setting
"Auto"	Automatically tunes to analog broadcast when receiving the digital broadcast is impossible.
"Digital"	Digital broadcasts only.
"Analog"	Analog broadcasts only.

### 4 Exit Receive mode

Touch the [ ] button.

## Operations -DVD monitor-

### Auto Memory

Stores stations with good reception in memory automatically.

#### 1 Display the source control screen



#### 2 Select a band you wish to store in memory

Touch the [HD FM] or [HD AM] button.

#### 3 Select the Auto Memory mode

Touch the [AME] button.

#### 4 Start Auto Memory

Touch the [ $\blacktriangleleft\blacktriangleright$ ] or [ $\blacktriangleright\blacktriangleright$ ] button.

Save six stations with the best reception in the memory and close Auto Memory Entry.

### Manual Memory

Stores the current receiving station in memory.

#### 1 Display the source control screen



#### 2 Select a station you wish to store in memory

Touch the [HD FM] or [HD AM] button.

Touch the [ $\blacktriangleleft\blacktriangleright$ ] or [ $\blacktriangleright\blacktriangleright$ ] button.

#### 3 Store in memory

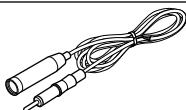
Touch the [P1] – [P6] button for at least 2 seconds.

Continue to touch until the memory number appears.

# Accessories/ Installation Procedure

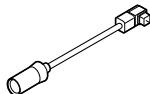
## Accessories

①



.....1

②



.....1

③



.....2

## Installation Procedure

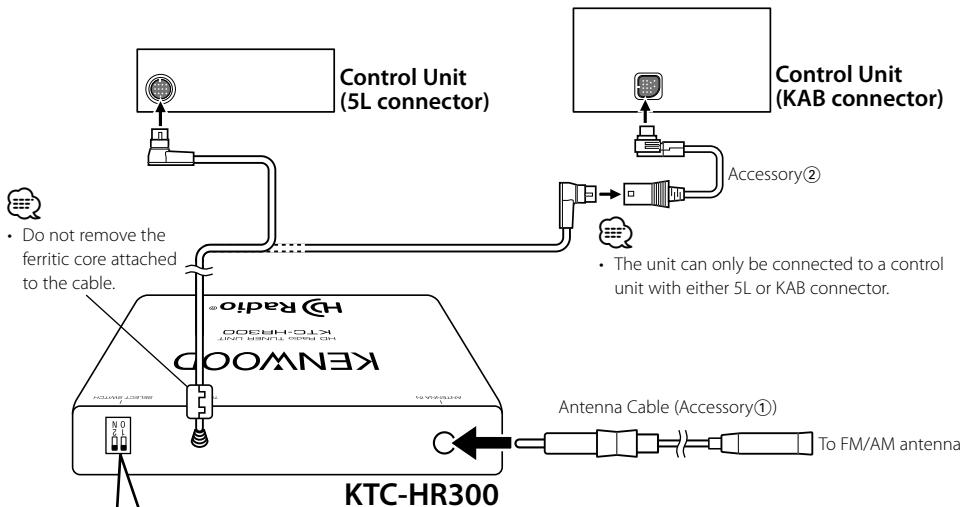
1. To prevent short circuits, remove the key from the ignition and disconnect the  $\ominus$  terminal of the battery.
2. Install the FM/AM antenna and connect the antenna wire to the HD Radio tuner.
3. Connect the HD Radio tuner and the control unit using the provided connection wire.
4. Make the proper input and output wire connections for each unit.
5. Install the unit in your car.
6. Reconnect the  $\ominus$  terminal of the battery.
7. Press the reset button on the control unit.



- Mounting and wiring this product requires skills and experience. For safety's sake, leave the mounting and wiring work to professionals.
- Do not install the unit in a spot exposed to direct sunlight or excessive heat or humidity. Also avoid places with too much dust or the possibility of water splashing.
- Do not use your own screws. Use only the screws provided. If you use the wrong screws, you could damage the unit.
- After the unit is installed, check whether the brake lamps, blinkers, wipers, etc. on the car are working properly.

# Installation

## Connecting Wires to Terminals



### SELECT SWITCH



**KAB**  
↑  
↓  
**5L**

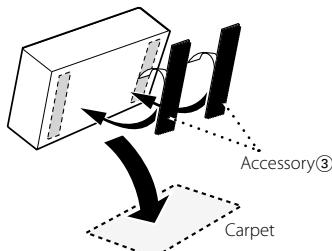
Set "SELECT SWITCH" 1 depending on a connector type of a control unit to be used.

When connecting to the control unit with 5L connector, set this switch down, and when KAB connector set the switch up (ON).



- KAB Connector units  
DDX5034, DDX5034BT, DDX512, DDX514, DDX712, DDX812, DNX5120, DNX512EX, DNX5140, DNX6000EX, DNX6140, DNX7120, DNX8120, KVT-512, KVT-514  
(As of January, 2009)

# Installation



Remove the backing from the velcro strips (Accessory③) and attach it to the bottom of the unit. Install the switching unit on the carpet.



- Please do not install the unit near the dashboard, the rear tray, or other important components. Doing so could lead to injury or accident should the unit come off due to a shock and strike a person or an important component.



- Do not stick the velcro tape over the serial number.

# Troubleshooting Guide

What might appear to be a malfunction in your unit may just be the result of slight misoperation or miswiring. Before calling service, first check the following table for possible problems.

## ?

### The HD Radio mode cannot be selected.

- ✓ The connection wire is not connected.
  - ☞ Use the connection wire to connect the control unit and the HD Radio tuner.

## ?

### Nothing happens when the buttons are pressed.

- ✓ The computer chip in the unit is not functioning normally.
  - ☞ Press the reset button on the Control/Controller unit.

## ?

### No sound can be heard, or the volume is low.

- ✓ The input/output wires or wiring harness are connected incorrectly.
  - ☞ Reconnect the input/output wires and/or the wiring harness correctly. See the section on <Connecting Wires to Terminals>.
- ✓ The preset broadcast station is not transmitting in the mode that was set with <Receive Mode>.
  - ☞ Please set <Receive Mode> to "Auto".
- ✓ It switches between the Digital broadcasting and Analog broadcasting too often.
  - ☞ If the receiving condition is bad, <Receive Mode> should be set to "Analog".
- ✓ In digital AM broadcasting, receive mode switches between stereo and monaural too often.
  - ☞ Receiving condition is bad or unstable. Stereo is chosen when receiving condition is good, and it switches to monaural when the condition becomes bad.
- ✓ The source mode was changed or the power switch was turned on.
  - ☞ The monaural signals are received several seconds after power-on or after FM tuning to an HD Radio station.

## ?

### Radio reception is poor.

- ✓ The car antenna is not extended.
  - ☞ Pull the antenna out all the way.
- ✓ The antenna control wire is not connected.
  - ☞ Connect the wire correctly, referring to the section on <Connecting Wires to Terminals>.

## ?

### The tuner cannot be used by the Dual Zone System.

- ✓ The HD Radio source cannot be selected by the Dual Zone System.
  - ☞ An internal source other than Tuner can be selected.

## The messages shown below display your systems condition.

Linking:      Although the Sub channel was selected, it is under reading or has not been received.

HD# Off/ #CH Off/ OFF:

- The Sub channel, which cannot be used, was selected.
- <Receive Mode> is set to "Analog"; therefore, the channel cannot be used.
- Set <Receive Mode> (page 4/ 9) to "Auto" or "Digital".



In HD Radio mode, the display of Station Name or Song title should be set up. The channel information cannot be displayed in the Frequency display. (page 6/ 9)

# Specifications

## Analog FM tuner section

Frequency range (200 kHz space)  
: 87.9 MHz – 107.9 MHz  
Usable sensitivity (S/N: 30 dB)  
: 11.2 dBf (1.0  $\mu$ V/75  $\Omega$ )  
Selectivity ( $\pm$ 400 kHz)  
: 65 dB  
Quieting Sensitivity (S/N: 50 dB)  
: 16.3 dBf (1.8  $\mu$ V/75  $\Omega$ )  
Frequency response  
: 40 Hz – 15 kHz  
Stereo separation (1 kHz)  
: 40 dB

## Digital FM tuner section

Frequency range (200 kHz space)  
: 87.9 MHz – 107.9 MHz  
Frequency response  
: 20 Hz – 20 kHz

## Analog AM tuner section

Frequency range (10 kHz space)  
: 530 kHz – 1700 kHz  
Usable sensitivity (S/N: 20dB)  
: 20  $\mu$ V

## Digital AM tuner section

Frequency range (10 kHz space)  
: 530 kHz – 1700 kHz  
Frequency response  
: 30 Hz – 15 kHz

## General

Operating voltage  
: 14.4 V (11 – 16 V allowable)  
Current consumption  
: 500 mA  
Operating Environment  
: 0 °C – +40 °C  
Installation size (W x H x D)  
: 164 x 34 x 109 mm  
6-1/2 x 1-3/8 x 4-5/16 inch  
Weight  
: 1.1 lbs (500 g)

## FCC WARNING

This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

## NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment may cause harmful interference to radio communications, if it is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Specifications subject to change without notice.