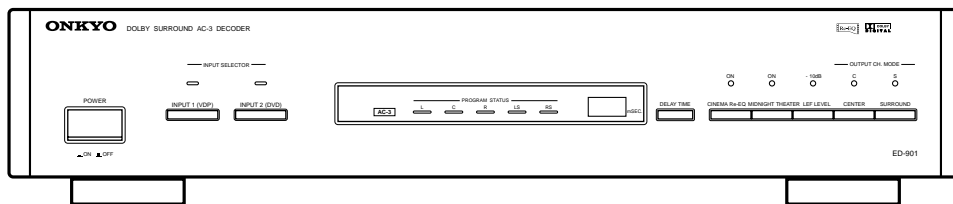


# ED-901

## Dolby surround AC-3 Decoder Instruction Manual



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# Thank you

for your purchase of the ONKYO ED-901 Dolby Surround AC-3 Decoder. Please read this manual thoroughly before making connections and plugging in the AC power cord. Following the instructions in this manual will enable you to obtain optimum performance and maximum listening enjoyment from your new ED-901. Please retain this manual for future reference.

## Features

- AC-3 Decoder with Lucas Film Cinema Re-EQ
- LFE (Low Frequency Effects) Level Control (0dB or -10dB)
- Midnight Theater for late night listening at low volume
- 2-Input (VDP/DVD)

### FOR CANADIAN MODEL: (POUR LE MODELE CANADIEN)

- For models having a power cord with a polarized plug **CAUTION** :TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TOWIDE SLOT, FULLY INSERT.
- THIS DIGITAL APPARATUS DOES NOT EXCEED THE CLASS B LIMITS FOR RADIO NOISE EMISSION FROM DIGITAL APPARATUS SET OUT IN THE RADIOINTERFERENCE REGULATIONS OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

- Sur les modèles dont la fiche est polarisée.

**ATTENTION:** POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

- L'INTERFERENCE, RADIO ELECTRIQUE GENEREE PAR CET APPAREIL NUMERIQUE DE TYPE B NE DEPASSE PAS LES LIMITES ENONCEES DANS LE REGLEMENT SUL LES PERTURBATIONS RADIO ELECTRIQUES, SECTION APPAREIL NUMERIQUE, DU MINISTERE DES COMMUNICATIONS.

### ATTENTION FOR BRITISH MODEL

- Replacement and mounting of an AC plug on the power supply cord of this unit should be performed only by qualified service personnel.
- **IMPORTANT:** The wires in the mains lead are coloured in accordance with the following code:  
Blue: Neutral  
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

## Declaration of Conformity

We, ONKYO EUROPE  
ELECTRONICS GMBH  
INDUSTRIESTRASSE 18/20  
82110 GERMERING,  
GERMANY



declare in own responsibility, that the ONKYO product described in this instruction manual is in compliance with the corresponding technical standards such as EN55013, EN55020, EN60555-2, -3 and EN60065

GERMERING,GERMANY

H. YAMAZOE

ONKYO EUROPE ELECTRONICS GMBH

### FOR U.S.A. MODEL:

#### FCC INFORMATION FOR USER

##### CAUTION:

Changes or modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

##### 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 generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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.



- The lightning flash with arrowhead symbol, within an 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 to persons.
- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### WARNING

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

### CAUTION

"TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL."



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



# Important Safeguards

---

1. **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
  2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
  3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
  4. **Follow Instructions** — All operating and use instructions should be followed.
  5. **Water and Moisture** — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement; or near a swimming pool, and the like.
  6. **Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surface may cause the appliance and cart combination to overturn.

PORTABLE CART WARNING



7. **Wall or Ceiling Mounting** — The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or if placed in a built-in installation, such as a book case or cabinet that may impede the flow of air through the ventilation openings, there should be free space of at least 20 cm (8 in.) and open up behind the appliance.
9. **Heat** — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Polarization** — The polarization of the plug is a safety feature. The polarized plug will only fit the outlet one way. If the plug does not fit fully into the outlet, try reversing it. If there is still trouble, the user should seek the services of a qualified electrician. Under no circumstances should the user attempt to defeat the polarization of the plug.
12. **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** — The appliance should be cleaned only as recommended by the manufacturer.
14. **Nonuse Periods** — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. **Damage Requiring Service** — The appliance should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the appliance; or
  - C. The appliance has been exposed to rain; or
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - E. The appliance has been dropped, or the enclosure damaged.
17. **Servicing** — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

# Precautions

---

## 1. Warranty card

The serial number is written on the rear panel of the unit. Write the serial number and model number on your warranty card and keep it in a safe place.

## 2. Recording Copyright

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

## 3. AC fuse

The fuse is located inside the chassis and is not user serviceable. If power does not come on, contact your ONKYO service center.

## 4. Care

From time to time you should wipe off the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out, and wipe away the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these may damage the finish or remove the panel lettering.

## 5. Power

### WARNING

**BEFORE PLUGGING IN THE UNIT FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.**

- Some models are designed for use only with the power supply voltage of the region where they are sold.  
European model: AC 230 V, 50 Hz  
U.S.A. and Canadian models: AC 120 V, 60 Hz

# Introduction

---

Onkyo's ED-901 Dolby Surround AC-3 Decoder brings your home the excitement of Dolby Surround AC-3 sound effects from your LaserDiscs, etc. that employ the latest Dolby AC-3 technology. The ED-901 consists of an AC-3RF demodulator, an AC-3 decoder, and a Cinema Re-EQ circuit.

An ideal AC-3 home theater system may include either an Onkyo TX-SV919THX or TX-SV828THX surround receiver. These receivers can be connected to the ED-901 through the DB-25 connector.

## What is Dolby Surround AC-3?

- Dolby Surround AC-3 is a new-generation digital audio format for multi-channel surround audio. With this digital audio format, you can create a five full-range channel system called a "3/2" channel surround system (left, center, right, and two surround channels), which is a developed version of the conventional "3/1" channel surround system (left, center, right, and only one surround channel).
- Adding to its five full range channels, Dolby Surround AC-3 supports an LFE (low frequency effect) channel, which is used solely for low frequency sounds independent of the other channels. Dolby Surround AC-3 is sometimes referred to as a "5.1" channel format since this LFE channel is indicated as 0.1.
- This fully discrete 5.1 channel Dolby Surround AC-3 can reproduce sound of wide and dynamic range, changing your room into a home theater.
- Currently, LaserDisc is the only medium that employs the Dolby Surround AC-3 technology. In the near future, however, Dolby Surround AC-3 will be implemented in such media as DVD (Digital Video Disc), CATV (Cable Television), DBS (Direct Broadcasting), and HDTV (High Definition Television).

## Dolby Surround AC-3

Manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby", "AC-3", and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Copyright 1992 Dolby Laboratories, Inc. All rights reserved.

# Speaker Placement

## Speaker Placement

We recommend that you use the ED-901 in conjunction with the Onkyo TX-SV919THX or TX-SV828THX surround receiver. If you have a complete THX speaker system that is connected to either of these receivers, the addition of new speakers or arrangement of the current speaker configuration is unnecessary.

### If you do not have a complete THX speaker system...

The highest quality Dolby Surround AC-3 sound can be reproduced when the ED-901 is connected to five full range THX speakers and one or more subwoofers. To get the most out of the ED-901, it is strongly recommended that you set-up a complete THX speaker system.

### To use ED-901 without a complete THX speaker system...

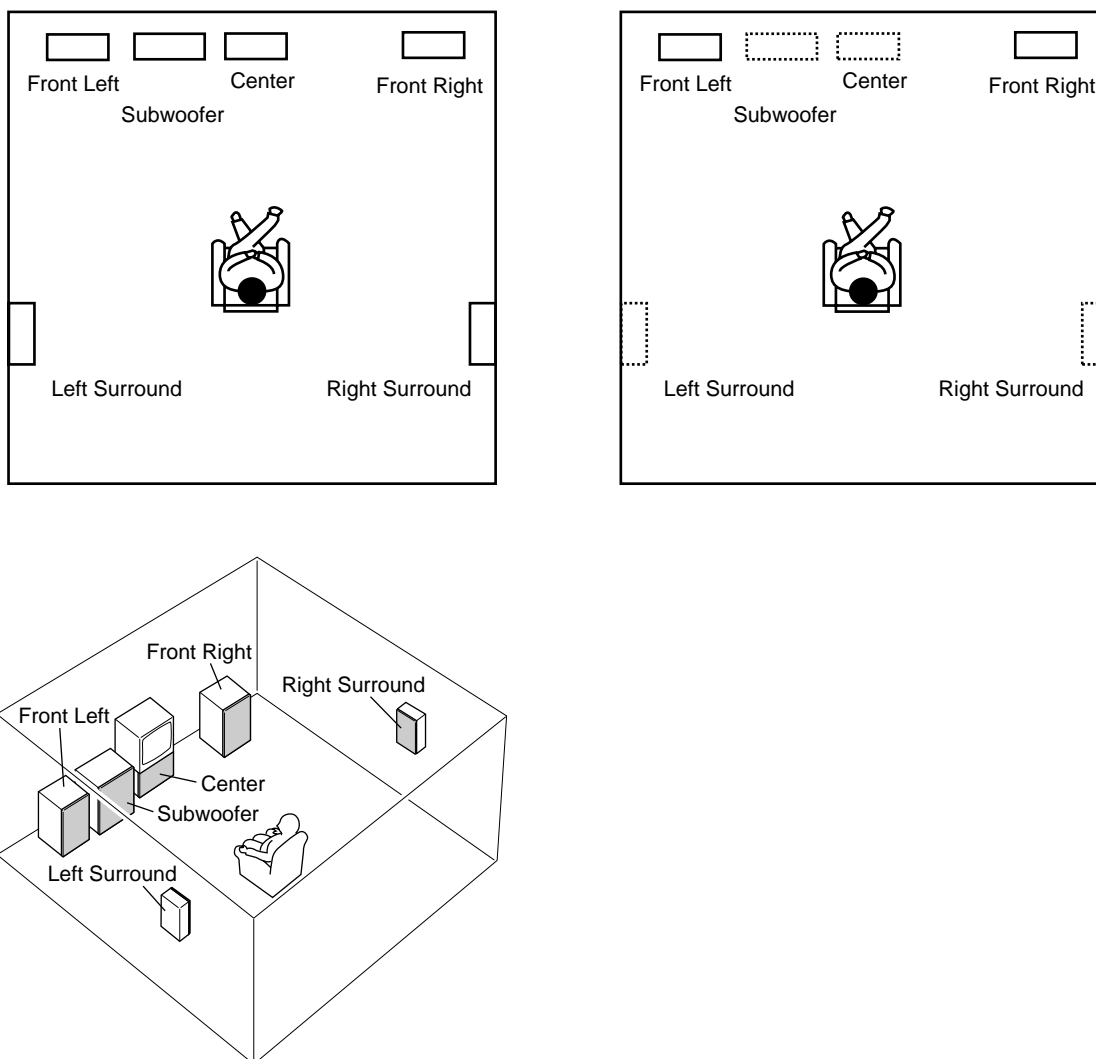
If no Center speaker or Surround speaker is connected to your system, the sound to the unused channel can be properly distributed to other channels.

To do so, turn off the indicator corresponding to the unused channel by pressing the CENTER button or SURROUND button on the front panel (see page 10).

#### Note:

You must make the similar setting on your TX-SV919THX or TX-SV828THX surround receiver. See the Receiver Instruction Manual.

<Fig. Speaker Placement>

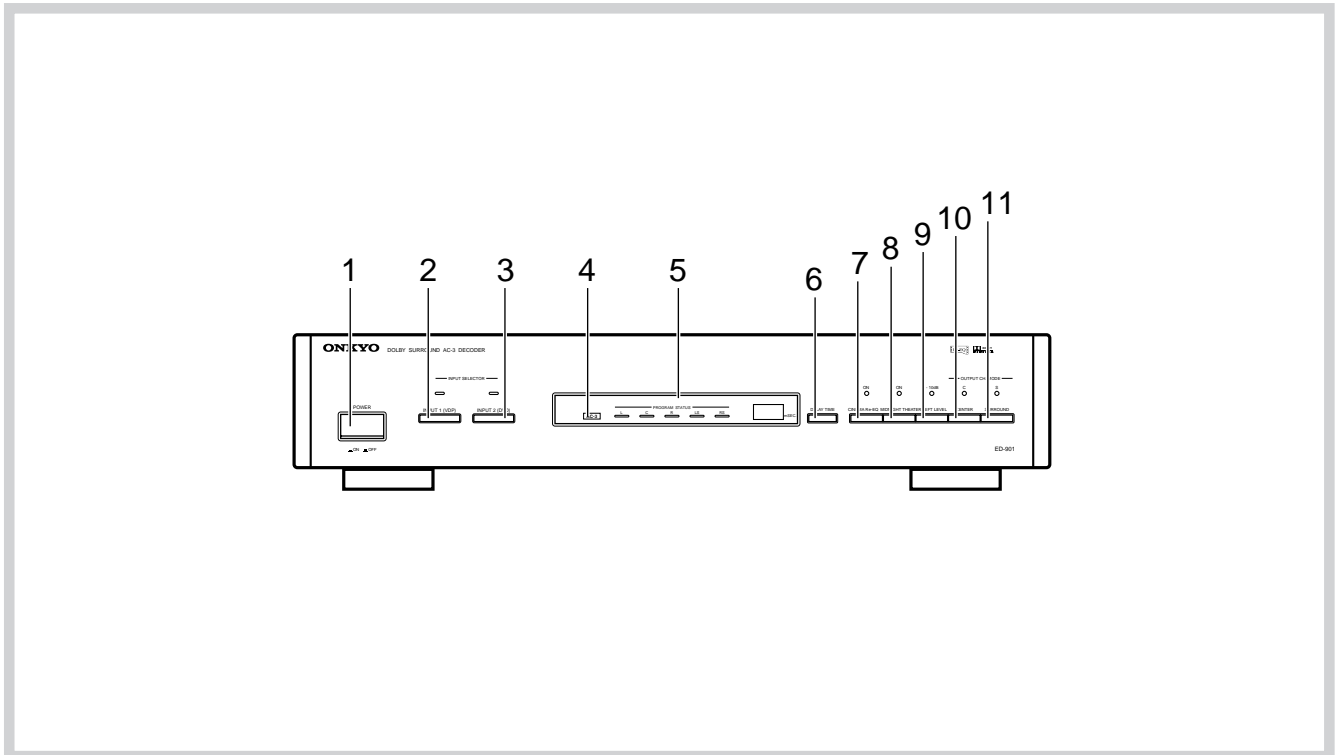


# Control Positions and Names

## NOTE:

If there is a protective film on the surface of the display, making it difficult to read the display, remove it.

For more information about the function of a particular button, please turn to the page listed in the brackets ([ ]) following each name.

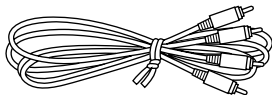


## Front panel

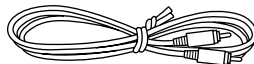
- 1. POWER button [9]**
- 2. INPUT1 (VDP) Input Selector [9]**
- 3. INPUT2 (DVD) Input Selector [9]**
- 4. AC-3 indicator**  
This LED lights if you play AC-3 compatible software.
- 5. PROGRAM STATUS indicators**  
These LEDs indicate which output channels the software uses.
- 6. DELAY TIME button and indicator [11]**
- 7. CINEMA Re-EQ button and indicator [12]**
- 8. MIDNIGHT THEATER button and indicator [12]**
- 9. LFE LEVEL button and indicator [12]**
- 10. CENTER button and indicator [10]**
- 11. SURROUND button and indicator [10]**

## Supplied accessories

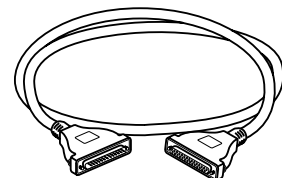
Audio connection cable (1)



Video/Digital (Coaxial) connection cable (2)



DB-25 cord (1)



# Connections

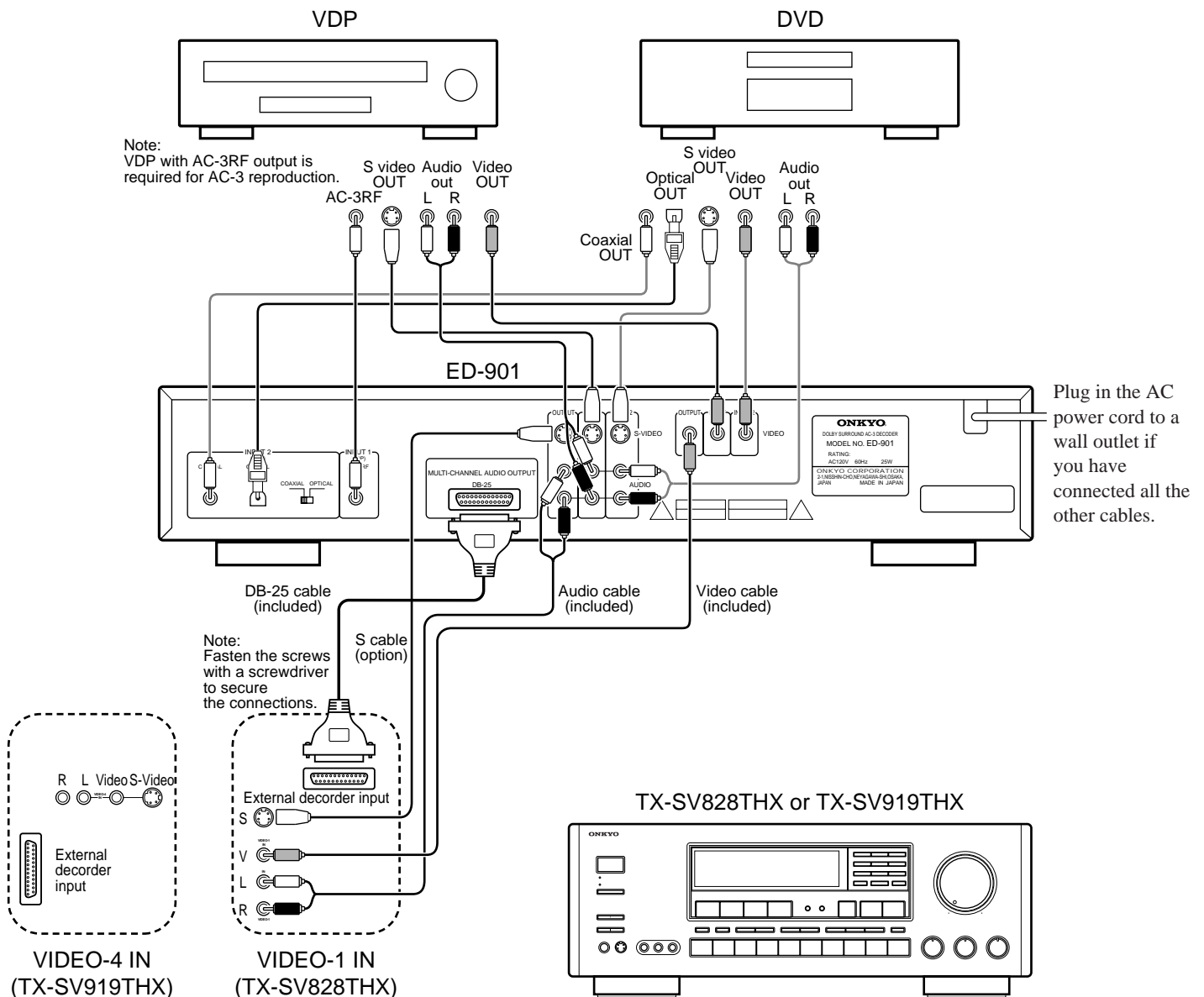
- Do not plug in the power cord until all connections have been made.
- Before connecting the ED-901 to the receiver, make sure that the POWER switches on both the ED-901 and the receiver are in the OFF position.
- On each pair of input jacks, the lower jack (marked R: Red) corresponds to the right channel and the upper jack (marked L: White) to the left channel.
- Be sure to read the Receiver Instruction Manual in addition to this manual.

## For connection to the Onkyo TX-SV919THX surround receiver...

- Connect the other end of the video cable (supplied) to the VIDEO-4 IN terminal of the TX-SV919THX.
  - On the TX-SV919THX, set the External Decoder mode to "ON".
- See the "Setting External Decoder Parameter" section (page 55) of the TX-SV919THX Manual and set the parameters set by "Level Calibration (TEST TONE)..." (page 33), because External decoder parameters are able to be set independently from THX mode parameters.

## For connection to the Onkyo TX-SV828THX surround receiver...

- Connect the other end of the video cable (supplied) to the VIDEO-1 IN terminal of the TX-SV828THX.
- Read "AC-3 decoder connection" in the "Optical pre-amplifier connections" section of the TX-SV828THX Manual.
- On the TX-SV828THX, select "External Decoder" in the Surround Setup menu. See Fig. 4 in the "Operating Surround" section (page 42) of the TX-SV828THX Manual.

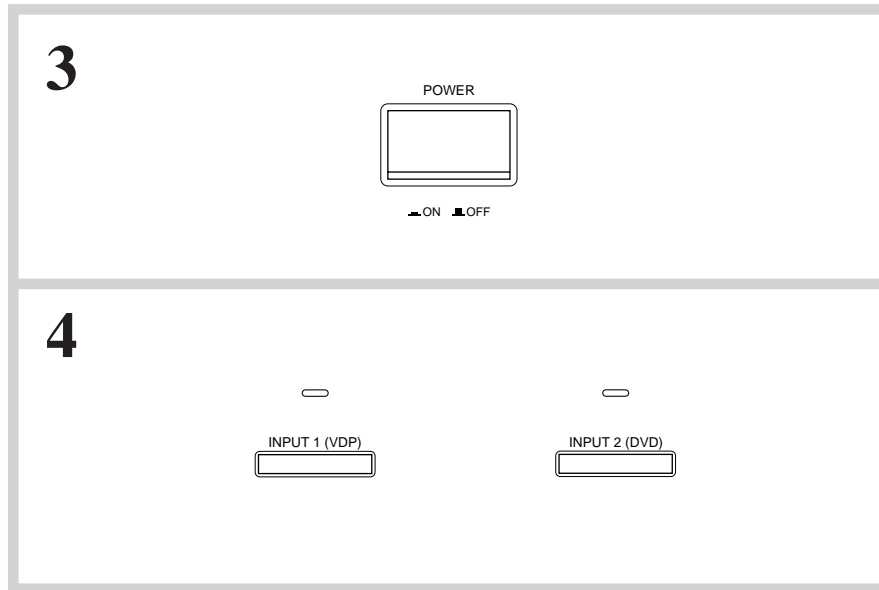
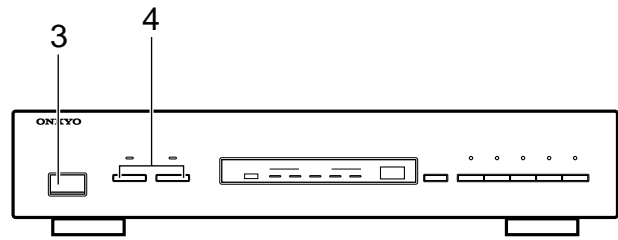




# Operation

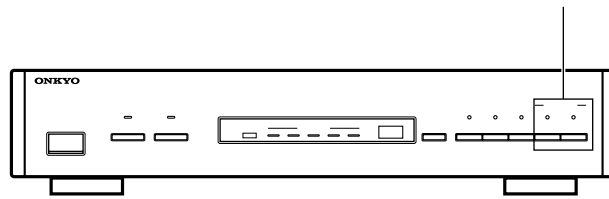
## Note:

- Before performing the following procedure, make sure that the ED-901 is properly connected to the surround receiver.
- **To play Dolby Pro Logic sound sources...**  
The ED-901 is not equipped with a Dolby Pro Logic decoder. To play Dolby Pro Logic sound sources, connect the ED-901 to your receiver by audio cables and set the receiver's Input Selector to Analog Input ("VIDEO-4" for the TX-SV919THX and "VIDEO-1" for the TX-SV828THX).



- 1. Turn on the power of the surround receiver.**  
Perform the necessary settings, such as adjusting output level of each channel, on the surround receiver. See the instruction manual of your surround receiver for details.
- 2. Set the surround receiver's Input Selector as follows:**  
TX-SV919THX: "VIDEO-4"  
TX-SV828THX: "VIDEO-1"  
Then, select the External Decoder mode on the surround receiver. (See also "For connection to the Onkyo TX-SV919THX/TX-SV828THX surround receiver..." on page 8.)
- 3. Press the POWER button on the ED-901 to turn it on.**
- 4. Press the INPUT 1 (VDP) or INPUT 2 (DVD) input selector button.**  
The LED for the selected input source will light.
- 5. Play the AC-3 sound source.**  
The PROGRAM STATUS indicator will appear on the display.

## Output Channel Mode



### Setting the Output Channel Mode (OUTPUT CH. MODE)

- The highest quality Dolby Surround AC-3 sound can be reproduced when the ED-901 is connected to five full-range THX speakers and one or more subwoofers. To get the most out of the ED-901, it is strongly recommended that you set-up a complete THX speaker system.
- If no Center speaker or Surround speaker is connected to your system, the sound to the unused channel can be properly distributed to other channels:

#### If Center speaker is not connected...

Turn off the C indicator by pressing the CENTER button.

#### If Surround speakers are not connected...

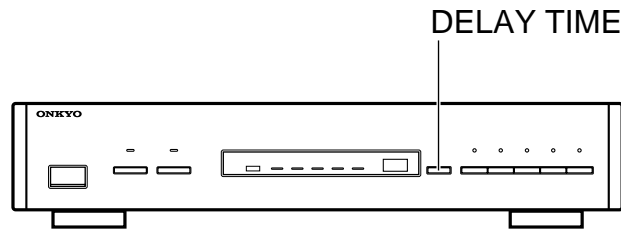
Turn off the S indicator by pressing the SURROUND button.

#### Note:

Setting the Output Channel mode on the ED-901 does not change the Speaker Mode setting of the surround receiver (TX-SV919THX or TX-SV828THX). Be sure to set the surround receiver properly according to the instructions in the Receiver Instruction Manual.

C  
○ — turn off  
CENTER

S  
○ — turn off  
SURROUND



## Setting the Surround Delay

For Dolby Surround AC-3, as opposed to the conventional Dolby Pro Logic technology, it is unnecessary to set the time delay between front speakers and surround speakers. The only thing you should consider is the difference between the front speaker-listener distance and surround speaker-listener distance.

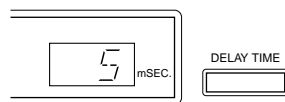
1. Press the **DELAY TIME** button repeatedly until the desired delay time is displayed.

The factory-set default is 5 ms (milliseconds). Each time the DELAY TIME button is pressed, the time increases by 1 ms. You can set a delay time within the range of 0 to 15 ms.

A rule of thumb is that it takes 1 ms for sound to travel one foot. For example, if the front speakers and the surround speakers are located the same distance from the listening position, you should set the delay time as "0"; If the front speaker-listener distance is one foot longer, set the delay time to "1 ms" and so on.

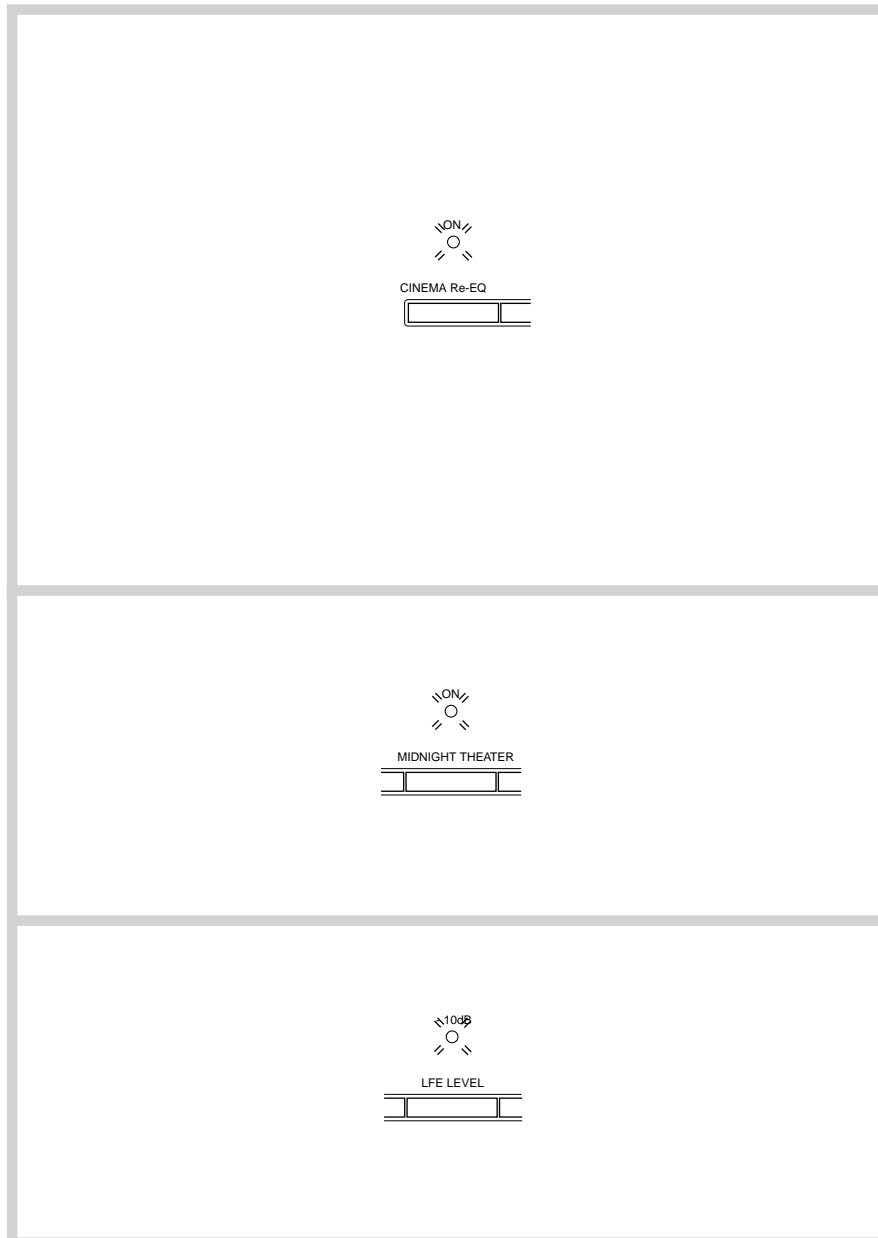
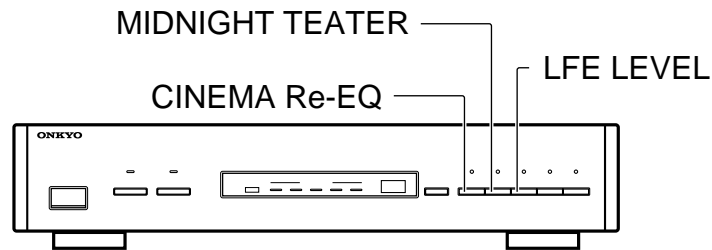
### Note:

- If your surround receiver's delay time has been accurately set for Dolby Pro Logic Surround play, make the ED-901's delay time 15 ms shorter than that time.
- If you have changed the speaker arrangement, change the speaker output setting as appropriate both on the ED-901 and on the surround receiver. The settings of these two are independent of each other.



# Operation

Re-EQ is licensed from Lucasfilm, Ltd. U.S. patent numbers 5,043,970; 5,189,703; 5,222,059. Foreign patents pending. Lucasfilm and Re-EQ are trademarks of Lucasfilm Ltd.



## Using the Cinema Re-EQ, Midnight Theater and LFE Modes

### Using the Cinema Re-EQ Mode

Press the CINEMA Re-EQ button. The LED indicator (ON) immediately above this button will light to indicate that you are in the CINEMA Re-EQ mode.

- Use the Cinema Re-EQ mode if your system is placed in a small room. Motion pictures are produced on the assumption that they will be shown at a large cinema. If they are shown in a small room, however, high-frequency range sound will be raised, resulting in uncomfortable sound. In the Cinema Re-EQ mode, however, the ED-901 compensates this and reproduces optimal sound for the home theater system.

### Using the Midnight Theater Mode

Press the MIDNIGHT THEATER button. The LED indicator (ON) immediately above this button will light to indicate that you are in the Midnight Theater mode.

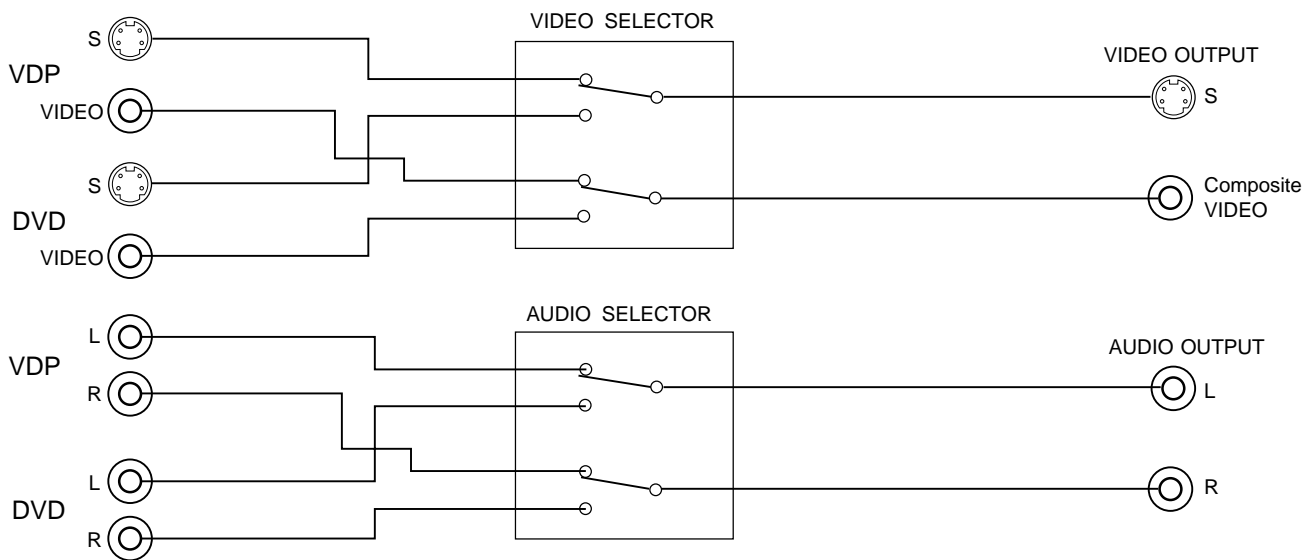
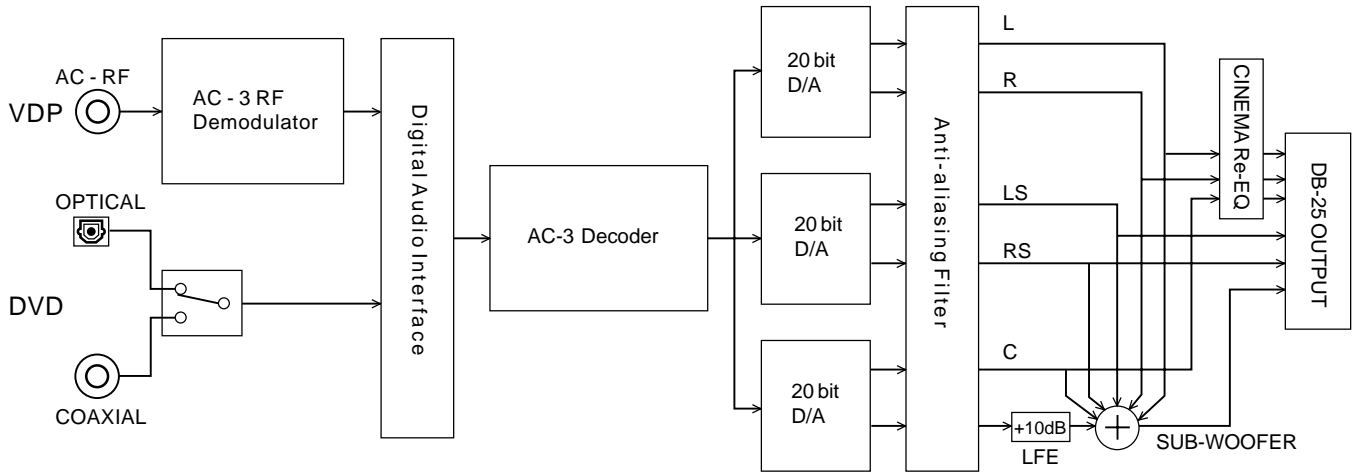
- Use the Midnight Theater mode if you must play a movie at low sound volume at night. In the Midnight Theater mode, the ED-901 makes the dynamic range of the reproduced sound narrower for easy-to-hear sound.

### Setting the LFE Mode

Press the LFE LEVEL button. The LED indicator (-10dB) immediately above this button will light to indicate that the LFE (Low Frequency Effect) circuit is enabled.

- Use the LFE mode if the bass reproduced is too loud. In the LFE mode, the ED-901 decreases the reproduced sound in the low-frequency channel by 10 dB.

# Block Diagram



# Troubleshooting Guide

---

- **No power.**

*Cause:* Power cord is not plugged in or is not completely inserted.

*Remedy:* Firmly plug in the power cord.

- **No Sound.**

*Cause:* Incorrect cord connections.

*Remedy:* Connect the cord properly.

*Cause:* Wrong input selector.

*Remedy:* Select the proper input.

*Cause:* Wrong position of coaxial/optical selector.

*Remedy:* Select the proper position.

*Cause:* Wrong input mode selection on the receiver.

*Remedy:* Select the proper mode on the receiver.

- **No Sound from Center or Surround Speakers.**

*Cause:* Wrong OUTPUT CH. MODE selection.

*Remedy:* Put on the OUTPUT CH. MODE indicator for the speaker.

- **No Sound from Subwoofer.**

*Cause:* No Subwoofer is selected on the receiver.

*Remedy:* Select Subwoofer on the receiver.

- **Low Frequency Noise, Hum.**

*Cause:* Incorrect audio cord connection.

*Remedy:* Firmly connect audio cords.

- **Poor Bass Sound.**

*Cause:* LFE LEVEL setting is -10dB.

*Remedy:* Put off the LFE LEVEL indicator.

- **The Difference of Sound Level between Channels.**

*Cause:* Incorrect volume level adjustment on the receiver.

*Remedy:* Adjust volume level for each Channel properly.

- **Noise from/to nearby TV or Tuner.**

*Cause:* This unit is too close to the affected equipment.

*Remedy:* Move this unit or the affected equipment far from each other.

# Specifications

---

Input Seneitivity: and Impedance	INPUT-1,2 analog audio: 50k $\Omega$ INPUT-1 AC-3RF: 75 $\Omega$ INPUT-2digital (coaxial): 75 $\Omega$ INPUT-1,2video: 1Vp-p/75 $\Omega$ S-video Y: 1Vp-p/75 $\Omega$ S-video C: 0.28Vp-p/75 $\Omega$
Output Level: and Impedance	D-SUB25 5.1CH OUTPUT LEFT, RIGHT, CENTER, LEFT SURROUND, RIGHT SURROUND (SUB WOOFER) : 0.2V/470 $\Omega$
Frequency response:	Dolby AC-3 5CH out 20 Hz - 20 kHz+0/-3dB
Distortion:	L/C/R/LS/RS: 0.05%/1kHz SUBWOOFER: 0.05%/50Hz
Signal to noise ratio:	98dB (Output=2v)(IHF-A)
Power consumption:	25 watts
Power supply rating:	USA and Canadian models: AC 120 V, 60 Hz European model: AC 230 V, 50 Hz
Dimensions (W $\times$ H $\times$ D):	455 $\times$ 90 $\times$ 320 mm (17-15/16" $\times$ 3-9/16" $\times$ 12-5/8")
Weight:	4.3 kg, (9.5 lbs.)

Specifications and external appearance are subject to change without notice because of product improvements.

---

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