

# Accuphase

A/V CONTROL CENTER

## VX-700

● Decoders for latest audio formats ● 32bit high speed floating point DSP ● MDS Plus type D/A converters for all 8 channels ● Auto level adjustment for each speaker ● Large 40 character x 2 line display for smooth function control ● Lip-sync function ● Total separation of audio and video sections ● Optional line doubler and quadrupler



\* Licenses for the various audio decoding formats pending.



**The Home Theater Reference — Experience a sound stage of overwhelming realism. Build a true high-end home theater with this superb A/V Control Center. 32bit floating point processors operating at high speed perform all DSP functions. Analog output in 8 channels is created by MDS Plus type D/A converters. 40 character × 2 line display shows settings and allows quick access. Automatic speaker level adjustment assures highly accurate results.**

The VX-700 is an A/V Control Center designed specifically for true high-end home theater applications. It handles both sound and video with the same unwavering dedication to quality. Super advanced digital audio technology developed by Accuphase is of course in full evidence, and picture quality also is honed to the highest level. Enjoy home theater ambience and realism as never experienced before.

The VX-700 incorporates two high speed 32bit DSP devices operating with software specially developed by Accuphase to decode a multitude of audio formats. Internal digital-to-analog conversion is performed by MDS Plus type D/A converters in all eight channels. The resulting sound quality is on a par with the best of high-end pure audio components. A versatile array of digital inputs and outputs allows connection of external components (such as the DF-35 or DG-28/DG-38) after DSP processing. The supplied microphone serves to automatically adjust speaker levels. Other functions accessible through a set of layered menus include accurate lip-sync adjustment and a memory for seven audio setting patterns. The large display makes navigating the menus easy and intuitive. The VX-700 is also well equipped to handle video signals from advanced sources with ever improving quality. The audio and video sections of the unit are kept completely separate to prevent interference and unwanted interaction. This applies not only to the electrical circuitry and the power supply but also to physical construction and rear panel design.

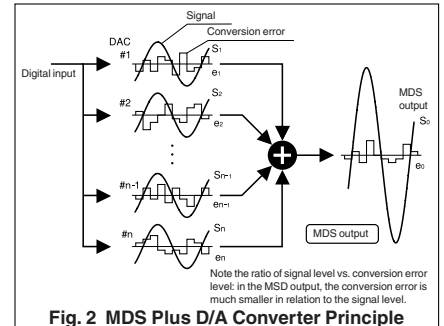
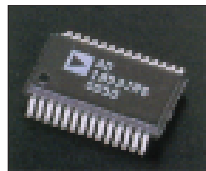
### 32bit high speed floating point DSPs

All audio signals input to the VX-700 are processed in the digital domain using highly advanced DSP (Digital Signal Processor) technology. Two ultra fast SHARC processors from Analog Devices provide the muscle to handle very large amounts of data with utmost precision. There is no need to eliminate any signal data, so that even the finest details can be faithfully preserved.



### MDS Plus type D/A converters in all eight channels

To create the analog audio output signals, the VX-700 harnesses the best D/A converter technology available. Called MDS Plus, this revolutionary converter principle employs multiple Delta-Sigma converters mounted in a parallel configuration. When the output signals of the converters are combined, even minute conversion imprecisions are canceled out, resulting in a drastic improvement of all major performance aspects, such as conversion accuracy, S/N ratio, dynamic range, linearity, and freedom from distortion.



### Superb picture quality

The VX-700 offers six video inputs including facilities for component and S-Video signals. The video switcher uses a high-performance wide-band amplifier with a range extending beyond 100 MHz, allowing it to handle even the doubler component of high-definition broadcast satellite signals.



### Intelligent operation modes let you enjoy surround sound straight away

After connecting input and output devices and the loudspeakers, you can start enjoying surround sound with the default settings simply by operating the input selector and volume control. This is made possible by modes for a 2-channel systems (using SRS TruSurround) and a 5.1-channel system.

### Useful lip-sync function

Because the video signal and audio signal pass through different digital circuits, a time lag can occur between the mouth movements of the actors and the soundtrack heard over the speakers. This is compensated for by delaying the audio signal timing in relation to the video signal. The lip-sync function gives you control over this process by providing an adjustment range of 20.0 frames in 0.1-frame steps. The adjustment can be made while watching actual program material, for utmost flexibility.

### Seven audio setting patterns can be stored in memory, for quick recall, check, or editing.

Total separation (internal construction and rear panel) of audio and video sections prevents any possibility of mutual interference.

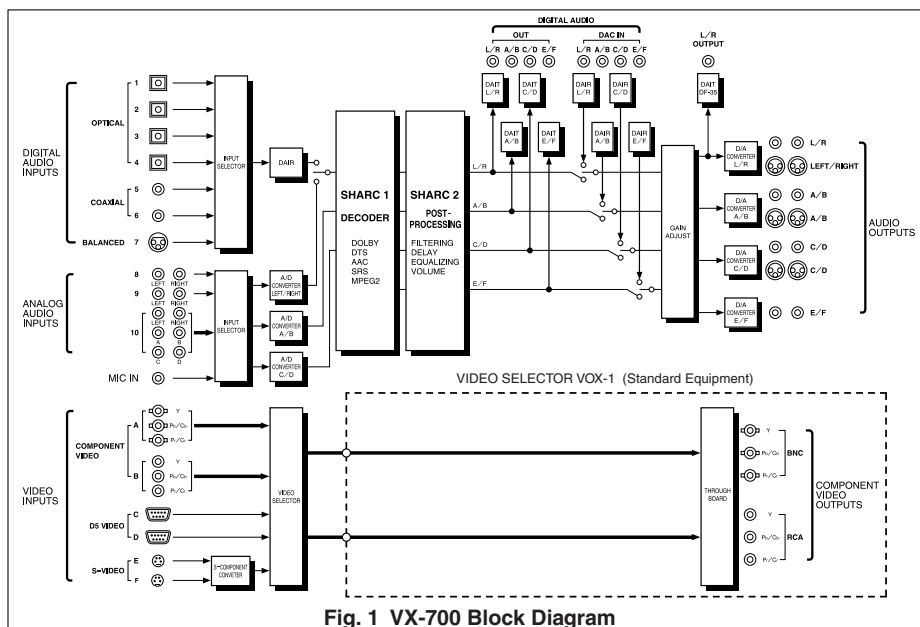


Fig. 1 VX-700 Block Diagram



**Logical menu structure and large 40-character by 2 line display makes operation a breeze**

All settings of the VX-700 can be accessed through a system of layered menus that appear on the amplified display panel. This lets you quickly establish any desired setting.

- Controls used for making settings are arranged on a folding panel that retracts into the unit.
- Three rotary jog dial type knobs are assigned to top-level, medium-level, and low-level items, with corresponding dialog-type menus.



- Setup has the following four modes to ensure smooth and quick operation.

**[CONFIG]**  
 1 IN-1 2 OPTICAL 1 3 AUDIO MEMORY 4 MEMORY1  
 [CONFIG] mode: Basic input environment and general settings

**[AUDIO SETUP]**  
 1 EFFECT MODE 2 SRS TruSurround  
 [AUDIO] mode: Audio related settings

**[VIDEO SETUP]**  
 1 LIP SYNC 2 0.0 FRAME  
 [VIDEO] mode: Video related settings

**[QUICK]**  
 1 CHANGE AUDIO MEMORY 2 MEMORY1  
 [QUICK] mode: On-the-fly settings during playback

**Versatile additional functions and features**

- Optimized speaker settings with automatic adjustment function
- Adjustable delay for all channels up to 20 m in 1-cm steps
- "Small" settings for speakers and subwoofer  
 Cut-off frequency: 25 settings from 10 - 355 Hz  
 Cut-off slope: 12/18/24/48 dB/octave, selectable
- Display brightness adjustable in five steps
- Selectable volume display units: linear or dB
- Attenuator level: -6/-20/-30 dB or Mute
- Safety lock for all settings
- Editable memory and input position names
- A/D converter for analog inputs with selectable sampling frequency: 48/96 kHz
- Center speaker allows adjustment of dialog position height
- Center level adjustment possible during playback
- Subwoofer level adjustment possible during playback
- 6-channel level balance adjustment for analog inputs
- Analog "F" output setting: optimized for 2 subwoofers or 2 surround rear speakers
- Speaker equalizer characteristics compensation: 2 bands for L/R front speakers and 6 bands for center/surround/surround rear speakers allow detailed adjustment

**Ready for future version upgrades**

With the VX-700, you are not "locked in" when it comes to compatibility and features. When new functions or support for new audio formats

**[CONFIG]**  
 UPDATE SYSTEM 2 UPDATE IN PROGRESS...

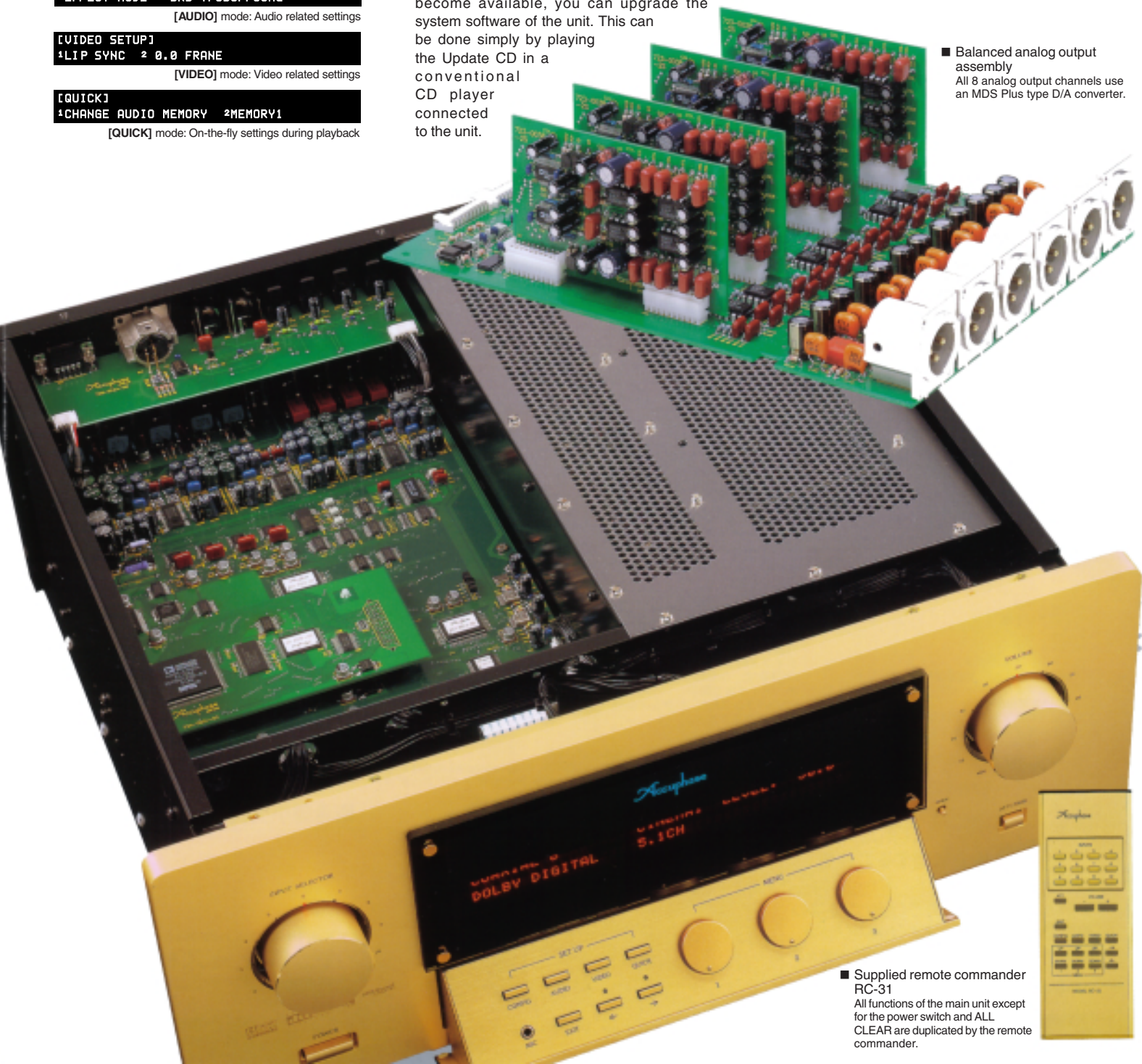
become available, you can upgrade the system software of the unit. This can be done simply by playing the Update CD in a conventional CD player connected to the unit.

**RS-232 connector for external control**

The built-in RS-232 interface makes the VX-700 compatible with integrated control systems for the home such as AMX.



- Balanced analog output assembly  
 All 8 analog output channels use an MDS Plus type D/A converter.

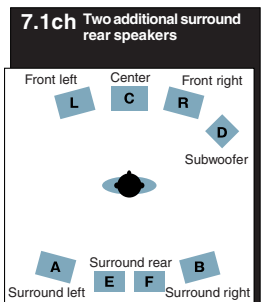
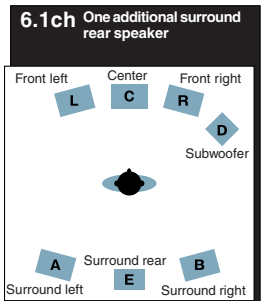
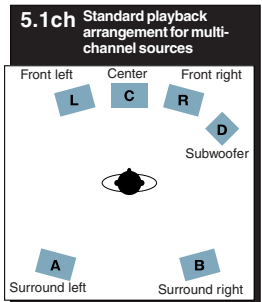
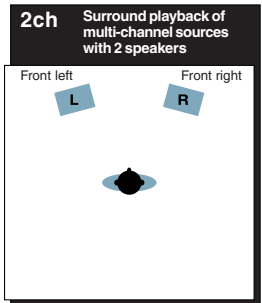
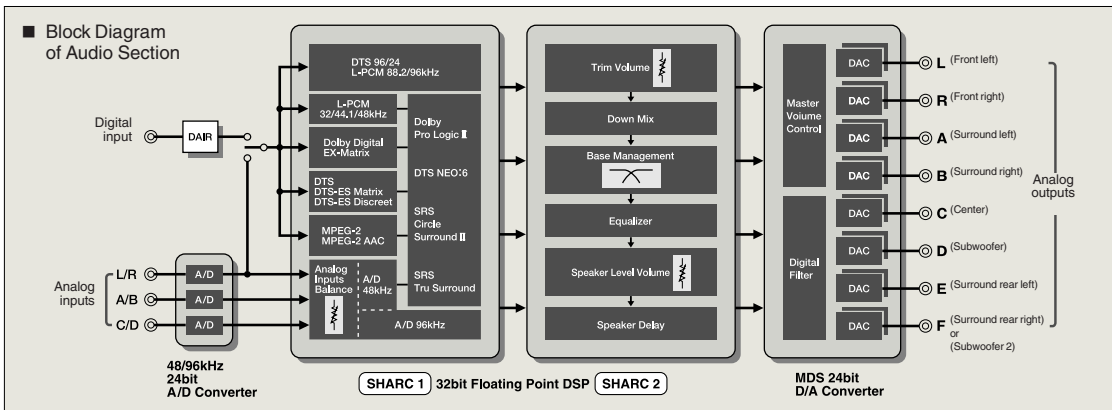


- Supplied remote commander RC-31  
 All functions of the main unit except for the power switch and ALL CLEAR are duplicated by the remote commander.



# Built-in decoding capability for the latest audio formats

The VX-700 is designed to derive optimum performance from the latest audiovisual sources in all program genres. Full support for a wide range of audio formats and versatile channel configurations for various speaker arrangements let you enjoy surround sound at its best.



## Automatic selection of input signal format (when effect mode is set to "Direct")

### Dolby Digital

#### DTS

Digital discrete principle with 5.1 entirely separate channels: front L/R, center, surround L/R, and subwoofer (0.1 channel). Excellent channel separation assures a realistic sound stage with good depth, movement definition, and source positioning.

COAXIAL 5	MEMORY1	LEVEL: 50.0
DOLBY DIGITAL	5.1CH	
DTS	5.1CH	

### DTS-ES

This format adds a surround rear channel to the DTS 5.1ch format, resulting in 6.1 channels. Spatial definition in a 360-degree arc is possible.

#### Matrix 6.1

The surround rear channel information is matrix encoded in the surround channels. During playback, a matrix processor extracts the surround rear signal for 6.1ch output.

**DTS-ES MATRIX 6.1CH**

#### Discrete 6.1

The three surround channels are recorded as fully discrete full-range signals. During playback, discrete 6.1ch output is available.

**DTS-ES DISCREET 6.1CH**

### Linear PCM

A format for 2-channel digital sources with sampling frequencies up to 96 kHz.

**L-PCM 44.1kHz 2.0CH**

### Dolby Digital EX

This format adds one or two surround rear channels to the Dolby 5.1ch format, resulting in 6.1 channels (single surround rear speaker) or 7.1 channels (two surround rear speakers). Spatial definition and positioning are improved, and sound rotation or sound that seems to pass above the listener's head is possible, for heightened realism.

**DOLBY DIGITAL EX MATRIX**

### DTS 96/24

DTS 96/24 is the latest surround sound format developed by Digital Theater Systems, Inc. It combines high picture quality with high-quality surround sound. Sophisticated compression technology ensures a frequency range that is equal to 96 kHz/24bit PCM recording, resulting in surround channels that rival high-end audio only sources.

**DTS 96/24 5.1CH**

### MPEG2 AAC

This format has been adopted in Japan as audio compression format for digital broadcast satellite programs. Its implementation as "AAC 5.1ch" provides 5.1 multi-channel sound for video and music sources from satellite.

**MPEG-2 AAC 5.1CH**

### Analog signal input

2-channel or 6-channel analog signals are converted by A/D converters for internal processing and playback.

**ANALOG-10 MEMORY5 LEVEL: 50.0**  
**ANALOG IN 96kHz 5.1CH**

## Effect mode settings for optimum surround playback

### 2.1ch - 5.1ch surround sources ⇒ 2ch virtual surround

Even with only two L/R speakers, this mode makes it possible to enjoy Dolby Digital, DTS, MPEG-2 AAC or other multi-channel surround sources having from 2.1 to 5.1 channels. This is suitable for example for high-end audio systems which have only two large high-quality speakers, or for occasions where space restraints make it difficult to install a large number of speakers.

#### SRS TruSurround: Default setting

DOLBY DIGITAL	5.1CH	SRS TruSurround
DTS	5.1CH	SRS TruSurround

### 2ch audio signal ⇒ 4.0/5.0ch or 6.1ch surround playback

This mode lets you enjoy high-quality surround sound from 2-channel input sources, such as Dolby Surround, DTS, linear PCM, or from a CD player or another digital or analog source. Playback can use either 4.0/5.0 or 6.1 channels.

#### Dolby Pro Logic II

[Mode: Movie/Music (5.0ch), Pro Logic (4.0ch)]

DOLBY DIGITAL	2.0CH	DOLBY PLII MOVIE
L-PCM	44.1kHz 2.0CH	DOLBY PLII MUSIC
ANALOG IN	48kHz 2.0CH	DOLBY PRO LOGIC

#### DTS Neo:6

[Mode: Cinema/Music]

DTS	2.0CH	DTS NEO:6 CINEMA
L-PCM	48kHz 2.0CH	DTS NEO:6 MUSIC

#### SRS Circle Surround II

[Mode: Cinema/Music/Mono (6.1ch)]

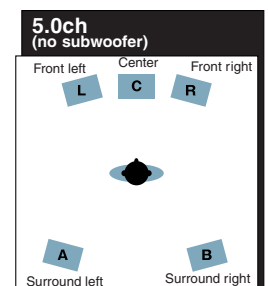
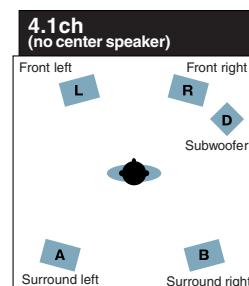
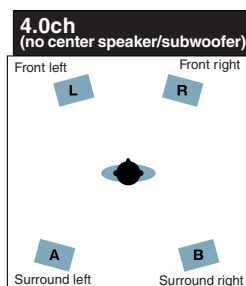
DOLBY DIGITAL	2.0CH	SRS CSII CINEMA
ANALOG IN	48kHz 2.0CH	SRS CSII MUSIC

## Downmix playback

In rooms where a center speaker is hard to install due to obstruction by the screen or other reasons, or in systems without a subwoofer, you can downmix the signal from 5.1 and higher channel sources to 4.0 channels (no center speaker and subwoofer), 4.1 channels (no center speaker), or 5.0 channels (no subwoofer).

The channel level of the center speaker and subwoofer (LFE) can be easily adjusted using the menus, to achieve optimum surround balance also when using the downmix mode.

- In the speaker menu, set the center channel or subwoofer channel to NONE (no speaker connected).
- The input signal in the center channel or subwoofer channel set to NONE will be mixed to the signal for the front L/R speakers.





# VX-700 playback connection examples

To make input and output connections for the VX-700, you first select the appropriate cables and connectors from the available choices for audio and video. Using the setup menus, you can then assign any audio input to any video input, so that the input selector will switch both audio and video at the same time. The VX-700 offers an amazing eight output channels (8 unbalanced, 6 balanced connectors), letting you drive amplifiers for as many as eight speakers. Enjoy surround sound with unsurpassed flexibility and impact.

■ **7 digital audio inputs with editable input names**

OPTICAL x 4, COAXIAL x 2, BALANCED

■ **2-channel/6-channel analog inputs**

Signals from these inputs are converted into digital form by 24bit A/D converters with 48/96 kHz sampling frequency.

■ **Maximum 8 analog output channels for no-holds-barred surround playback systems**

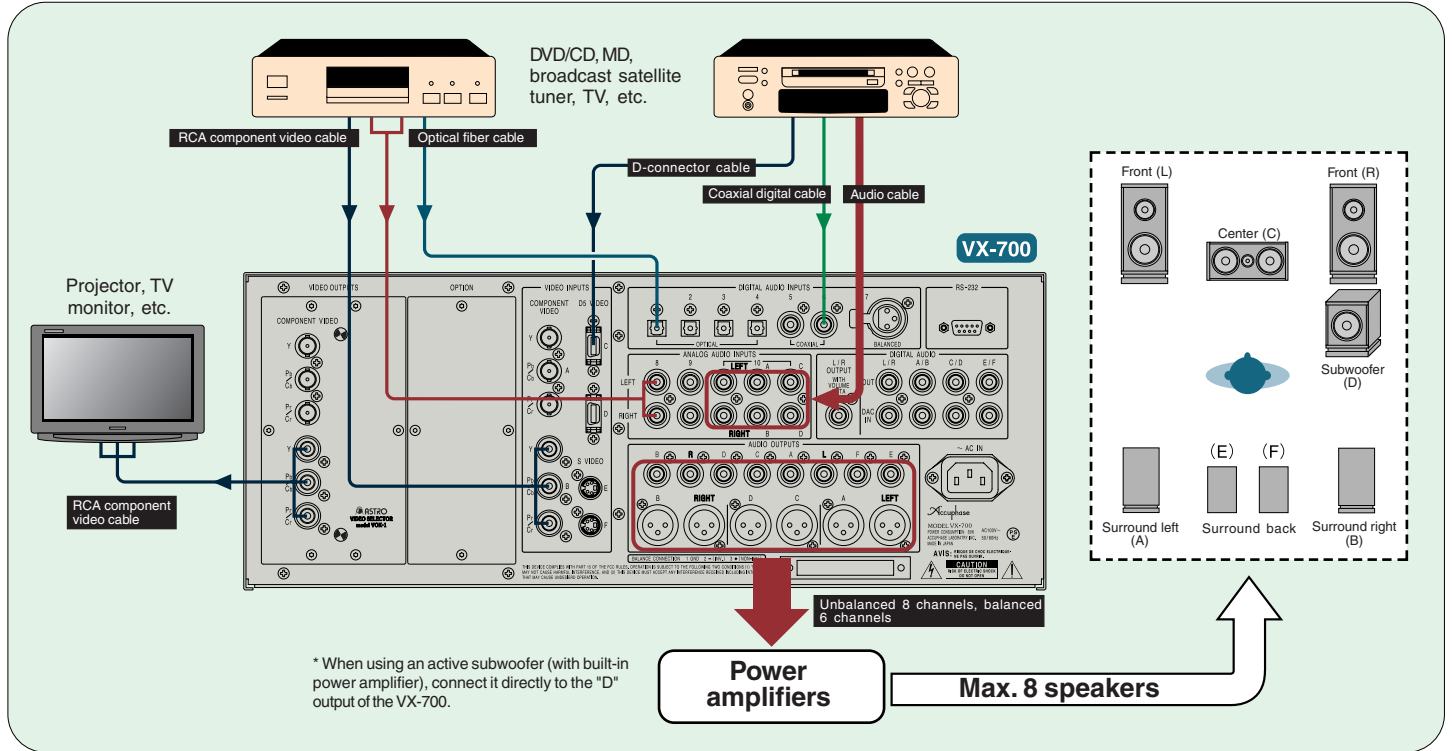
8 unbalanced and 6 balanced connectors are provided.

■ **Versatile video input configuration designed for high quality connections**

2 S-Video connectors and 4 component inputs (BNC x 1, RCA x 1, D5 x 2) are provided.

■ **Component video outputs as standard equipment**

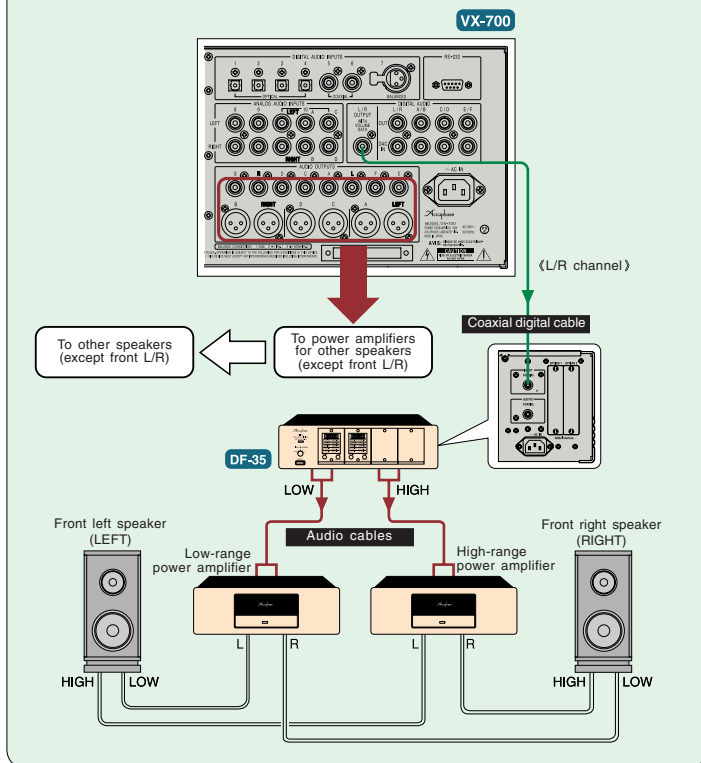
Two sets of component outputs (BNC and RCA) are provided. All video signals from the S-Video inputs are converted to component signals.



## Using the digital audio inputs and outputs

### Connection of DF-35 for front speaker multi-amping

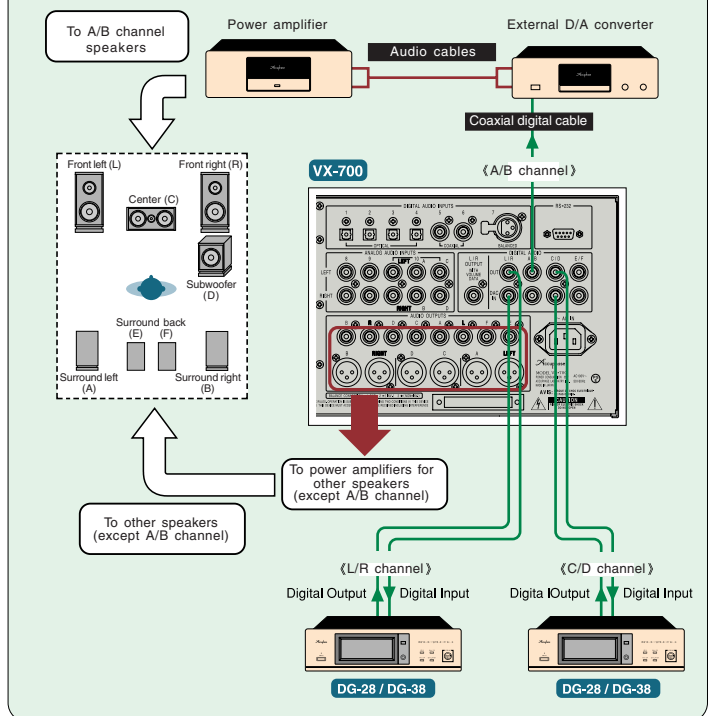
The VX-700 provides a digital output comprising volume data for front left and right. This lets you connect the Digital Channel Divider DF-35 for multi-amping of the front speakers.



### Connection of external DAC or DG-28/DG-38 for sound field compensation in a specific channel

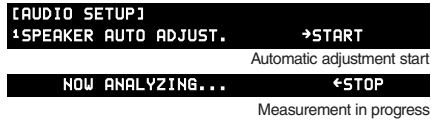
**Connection examples**

- Connect DG-28/DG-38 for sound field compensation in front (L/R), center (C) and subwoofer (D) channels
- Connect external DAC for surround channels A/B



## Automatic speaker adjustment function with supplied microphone

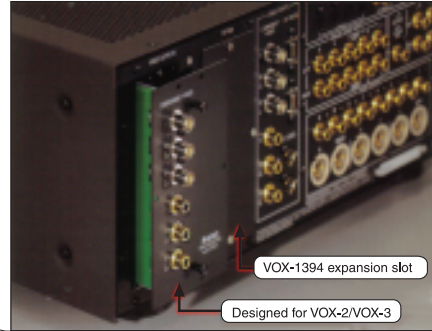
For optimum surround sound playback, it is very important to carefully adjust the level of each speaker to fit the listening position. This can be an arduous process, but the VX-700 makes it easy. Simply set up the provided measurement microphone in the intended seating position and activate the test tone output for highly precise, fully automatic adjustment.



## Option boards

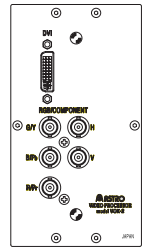
The VX-700 incorporates a video switcher using a high-performance amplifier with a frequency response extending beyond 100 MHz. In the factory default configuration, the video output section incorporates the VOX-1 module, but future expansion options such as VOX-2 and VOX-3 will make it possible to push the quality level up even further. Introduction of the VOX-1394 featuring a digital link conforming to IEEE 1394 is also planned.

- Expansion options can be easily installed in dedicated rear panel slots.



### VOX-2 Line Doubler

- Compatible with High Definition NTSC
- 525i → 525p
- 1125i → 1125p
- 2-3/2-2 pulldown
- Integrated adjustment test pattern



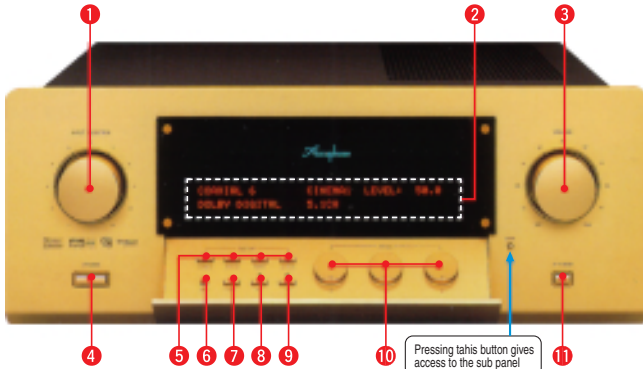
### VOX-3 Line Quadrupler

- Line doubler + scaler compatible with High Definition video
- 525i → 525p
- 1125i → 1125p
- VGA/SVGA/XGA/SXGA/quadrupler (1280 × 960)
- 2-3/2-2 pulldown
- Integrated adjustment test pattern

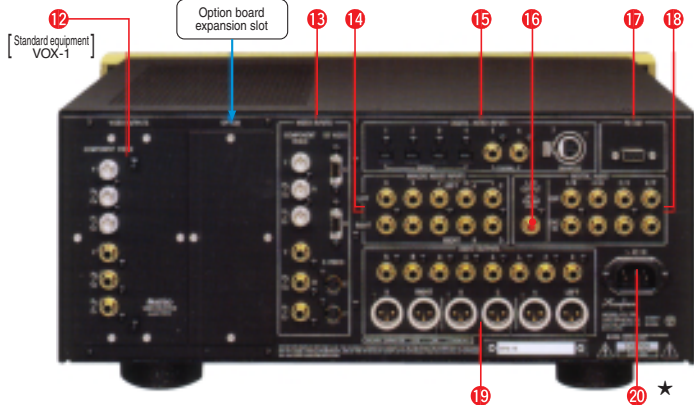
### VOX-1394 Digital Input Board

- IEEE 1394 digital link

## Front panel



## Rear panel



- |   |   |
|---|---|
| 1 Input selector  | 11 Attenuator button  |
| 2 Display   | 12 Video outputs  |
| 3 Volume control  | (Standard equipment: VOX-1)   |
| 4 Power switch  | 13 Video inputs   |
| 5 Setup mode selector buttons<br>CONFIG AUDIO VIDEO QUICK | 14 Analog audio inputs  |
| 6 Microphone jack   | 15 Digital audio inputs   |
| 7 EXIT button   | 16 Digital audio outputs (for DF-35)                                    |
| 8 Menu level back (←) button                              | 17 External control connector (RS-232)                                  |
| 9 Menu level forward (→) button                           | 18 Digital input/output connectors<br>(for external DAC or DG-28/DG-38) |
| 10 Menu setting knobs<br>MENU 1 MENU 2 MENU 3             | 19 Audio outputs (unbalanced x 8, balanced x 6)                         |
|   | 20 AC inlet*  |

- Manufactured under license from Dolby Laboratories.
- "Dolby", "Pro Logic", "Surround EX" and the Double-D Symbol are trademarks of Dolby Laboratories.
- "DTS", "DTS Digital Surround", "DTS-ES Extended Surround" and "Neo6" are trademarks of Digital Theater Systems, Inc.
- "Circle Surround II", "TruSurround" and "SRS Sound" are trademarks of SRS Labs, Inc.
- The "AAC" logo is a trademark of Dolby Laboratories.
- ASTRO is a registered trademark of ASTRODESIGN, Inc.

### Remarks

- \* This product is available in versions for 120/230 V AC. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area.
- \* The shape of the AC inlet and plug of the supplied power cord depends on the voltage rating and destination country.

## VX-700 Guaranteed Specifications

[Guaranteed specifications measured according to EIA standard RS-490]

### Audio section

- Digital inputs** OPTICAL format: EIAJ CP-1201 compliant  
COAXIAL format: EIAJ CP-1201/AES 3 compliant  
BALANCED format: EIAJ CP-1201/AES 3 compliant  
Sampling frequencies  
32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz  
(16 to 24 bits, 2-channel PCM)
- Analog inputs** A/D converter: sampling frequency 48/96 kHz, 24bit
- Digital output** COAXIAL format: EIAJ CP-1201/AES 3 compliant
- Frequency response** 0.5–50,000 Hz +0, –3.0 dB
- D/A converter** 24bit, MDS principle
- Total harmonic distortion** 0.001% (20–20,000 Hz)
- Signal-to-noise ratio** 113 dB
- Dynamic range** 100 dB
- Channel separation** 90 dB (20–20,000 Hz)
- Output voltage and impedance** BALANCED/UNBALANCED:  
2.4 V (0 dB), 9.4 V (Maximum), 50 ohms
- Volume control** dB mode: Minimum, –120.0 dB to +12.0 dB, Maximum  
Linear mode: Minimum, 0.5 to 99.5 (0.5-unit steps), Maximum  
Speed-sensing rotary control

### Video section

- S-Video connectors** Input level/impedance Y signal: 1 Vp-p/75 ohms  
C signal: 0.286 Vp-p/75 ohms  
Frequency response 5 Hz - 10 MHz +0, –0.3 dB
- Component video connectors** Input/output level/impedance  
Y signal: 1 Vp-p/75 ohms  
Pb/Cb, Pr/Cr signal: 0.7 Vp-p/75 ohms  
Frequency response DC - 100 MHz +0, –0.3 dB
- Maximum allowable input level** At least 1.5 Vp-p

### General

- Power requirements** AC 120 V / 230 V, 50 / 60 Hz  
(Voltage as indicated on rear panel)
- Power Consumption** 55 W
- Maximum Dimensions** Width: 475 mm (18-7/10")  
Height: 195 mm (7-7/10")  
Depth: 452 mm (17-8/10")
- Weight** 20.1 kg kg (44.3 lbs) net  
26.0 kg (57.3 lbs) in shipping carton

- Supplied accessories:
- Microphone AM-28
  - Microphone cable
  - Microphone holder
  - Audio cable with plugs (1 m)
  - AC power cord
  - Remote commander RC-31