

# Accuphase

*SUPER AUDIO CD PLAYER*

## *DP-77*

- High-grade playback not only of SACDs but also of conventional CDs
- Single lens/twin pickup high-speed access mechanism
- Digital processor ready for 2.8224 MHz/1 bit and 192 kHz/24-bit source formats
- MDS Plus type D/A converter with ultimate conversion precision
- Transport section outputs and digital inputs
- HS-Link capability via option board





**Rediscover what the Compact Disc is all about — Integrated SACD/CD player with MDS Plus type D/A converter. Transport section features single lens/twin pickup high-speed access mechanism. Processor handles latest formats such as 2.8224 MHz/1-bit and 192 kHz/24-bit. Separate construction of transport and processor sections and respective connectors allow independent use. HS-Link input/output board available as option.**

The integrated SACD/CD player DP-77 is based on the superior know-how gained through the development of the separate type player combo DP-100 and DC-101, using the latest advances in digital technology. This player lets you fully enjoy the wide frequency range and amazing dynamics of the SACD format. But the DP-77 also brings out hidden musical qualities inherent in conventional CDs, letting you hear even familiar recordings like you've never heard them before. The transport section of the DP-77 features a dedicated DSP for the digital servo circuitry, assuring highly precise processing of the digital

SACD signal recorded according to the DSD principle. The highly critical laser pickup section features a single lens/twin pickup high-speed access mechanism to achieve totally accurate signal readout. The processor section uses the latest in sophisticated digital technology to provide support also for 2.8224 MHz/1-bit and 192 kHz/24-bit sources. The D/A converter section which has a crucial effect on sound quality employs the MDS Plus principle, with multiple strictly selected Delta Sigma converters in a parallel configuration, assuring unprecedented conversion precision. The SACD/CD transport section and the

processor section of the DP-77 are kept entirely independent of each other, to achieve optimum performance in each regard. This manifests itself in utterly authoritative sound. Thanks to transport outputs and digital processor inputs, the two sections can be used separately as well. An optional HS-Link Board is available for combination with the DC-330/DP-100 or for high-quality sound field compensation with the DG-28/DG-38, including wide-range sources. Even multi-amping with the DF-35 is possible, opening up a whole world of high-class audio possibilities.

### «SACD/CD Transport Section» Features and Functions

- Digital servo with dedicated DSP assures highly accurate signal pickup for SACD and CD
- Plays also regular CDs with impressive quality
- Single lens/twin pickup mechanism minimizes access time
- Strong, precision-machined chassis with resonance and vibration resistant construction
- "High Carbon" cast iron insulator feet with superior damping characteristics further enhance sound quality
- Multi-function remote commander RC-28 supplied as standard equipment
- Optional HS-Link output board for SACD/CD transport section
- Dedicated coaxial and optical connector for CD signal output



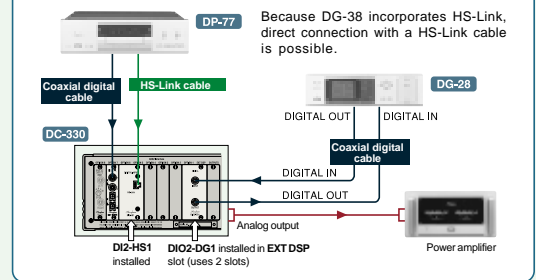
Assembly with transport outputs and digital inputs (optical, coaxial)

The DP-77 provides output facilities of the SACD/CD transport section to allow flexible combinations. By installing an HS-Link option board, the unit can be used with a DC-330 for SACD/CD playback. From the DC-330, the digital signal can be further routed to the Voicing Equalizer DG-28/DG-38, the Channel Divider DF-35, etc. This offers a host of possibilities for creating a multi-amplified system entirely in the digital domain.

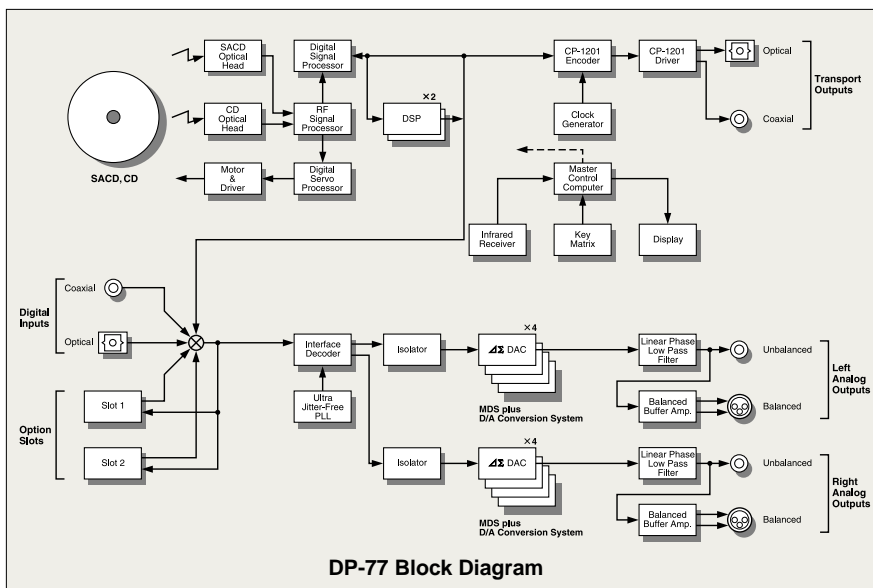
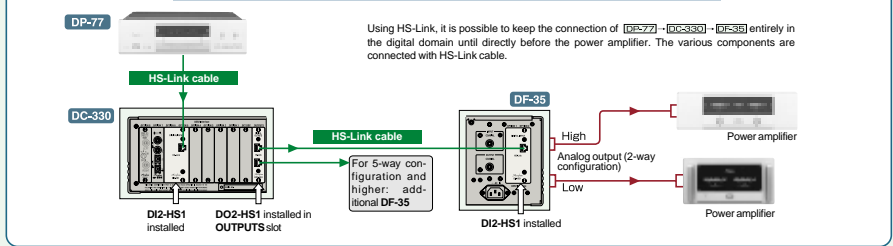
HS-Link Output Board DO2-HS1 installed in DP-77

#### Connection examples for effective use of SACD/CD transport

##### Connection to DC-300 for SACD/CD playback and digital connection to DG-28 for sound field compensation

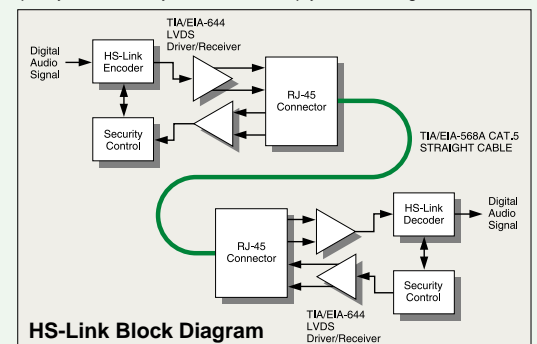


##### Digital connection to DC-330, DF-35 for multi-amped system



#### ~Accuphase Original Digital Interface~ HS-Link: High Speed Link

HS-Link is an ultra high-quality digital audio interface developed by Accuphase using latest digital signal transmission technology. It supports send/receive verification for copyright protection. The LVDS (Low Voltage Differential Signaling) principle allows a single dedicated HS-Link cable to transmit signals using advanced digital audio formats such as 2.8224 MHz/1-bit or 192 kHz/24-bit. Because digital audio data are transmitted with utmost fidelity, the sound quality achieved by HS-Link is simply outstanding.





■ Supplied remote commander RC-28  
 Functions include input switching, output level adjustment, direct play, repeat, program, shuffle, etc.

■ Assembly with master clock generator, DAI encoder/decoder, ultra jitter-free PLL circuit, and other digital signal processing circuits

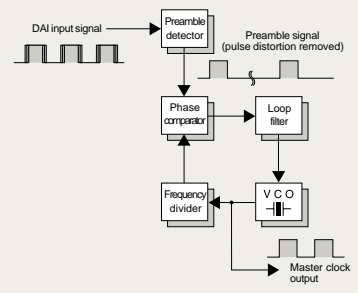
《Digital Processor Section》Features and Functions

- Digital processor supports new generation formats with high sampling rates such as 2.8224 MHz/1-bit and 192 kHz/24-bit
- MDS Plus type D/A converter achieves stunning performance and sound quality
- Ultra jitter-free PLL circuit topology totally eliminates pulse distortion
- Fully separate processor section with coaxial and optical digital inputs
- Ultra high-speed digital coupler ensures effective separation between digital and analog sections
- Digital level control with adjustment range 0 dB to -60 dB
- Balanced and unbalanced analog outputs

Ultra Jitter-Free PLL Circuit

This original Accuphase development employs a phase-locked loop (PLL) circuit to extract a highly precise master clock from the input signal to be used as reference for D/A conversion.

As shown in the diagram, the circuit consists of a preamble detector and a voltage-controlled oscillator (VCO) using a quartz crystal element. The master clock produced by this PLL circuit is totally free from the effects of pulse distortion and jitter.



Principle of ultra jitter-free PLL circuit

[MDS Plus Type] D/A Converter

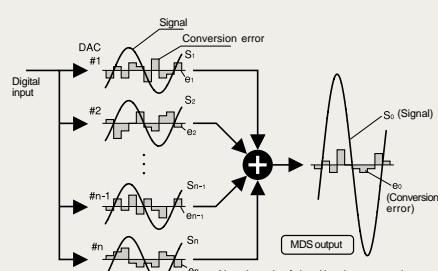
MDS (Multiple Delta Sigma) is a revolutionary design which employs several delta sigma type converters in a parallel configuration. In the combined output of these multiple converters, conversion errors cancel each other out, resulting in a drastic improvement in all relevant aspects of converter performance: accuracy, S/N ratio, dynamic range, linearity, THD, etc.

In the MDS Plus type converter employed in the DP-77, this principle has been further refined by enhancing the current-to-voltage converter in the signal adder section for even better stability and top-notch performance.

The DP-77 uses four delta sigma converters in

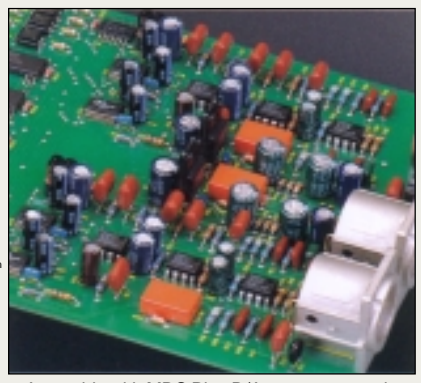


parallel, which results in an overall performance improvement by a factor of 2 ( $= \sqrt{4}$ )



Note the ratio of signal level vs. conversion error level: in the MSD output, the conversion error is much smaller in relation to the signal level.

MDS Plus type D/A converter principle



■ Assembly with MDS Plus D/A converter, analog outputs, etc.

## Option Boards

The DP-77 allows separate use of its SACD/CD transport section and digital processor section, for connection to other digital components. Besides the digital input and output provided as standard equipment, there are also two option board slots on the rear panel which accept various kinds of boards.

\* For copyright reasons, the SACD signal does not appear at any other output except HS-Link and can therefore not be recorded digitally.



Option board type	
HPC Coaxial (BNC) Input Board	DI-BNC1
Digital Input/Output Board	DIO-OC1
HPC Coaxial (ST) Input Board	DIO-ST1
AES/EBU Input/Output Board	DIO-PRO1
HS-Link Output Board	DO2-HS1
HS-Link Input Board	DI2-HS1

## Example for analog connection of DP-77 and sound field compensation with DG-38

You can install option boards in the DG-38 and perform sound field compensation for the analog signal from SACD/CD sources played in the DP-77.

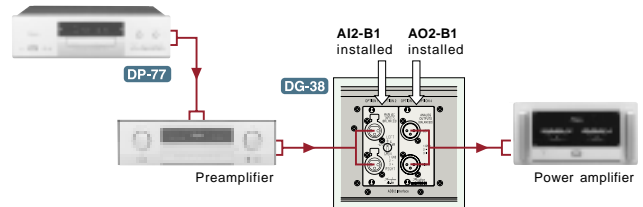
\* To use the DG-28 instead of the DG-38 is possible in the same way, by installing one of the Wide Range Digital Input/Output Boards listed below.

- For unbalanced connection: AIO-DGU1
- For balanced connection: AIO-DGB1

### DG-38 connection example

- Line Input Board and Line Output Board installed in option board slots of DG-38.

Example 1: DG-38 connected to TAPE jacks of preamplifier or integrated amplifier  
Example 2: DG-38 connected between preamplifier and power amplifier



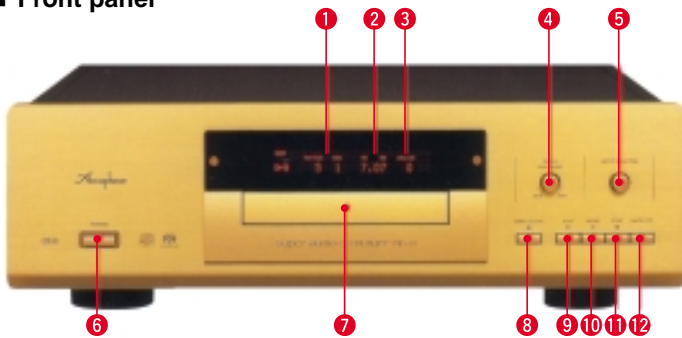
#### Line Input Boards

- For unbalanced connection: AI2-U1 (1 slot)
- For balanced connection: AI2-B1 (2 slots)

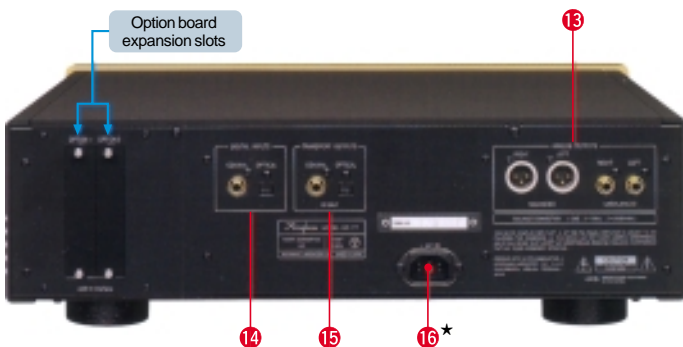
#### Line Output Boards

- For unbalanced connection: AO2-U1 (2 slots)
- For balanced connection: AO2-B1 (2 slots)

## Front panel



## Rear panel



- |                               |  |
|-------------------------------|--|
| ① Track/index indicator       | ⑨ Play button                                    |
| ② Time indicator              | ⑩ Pause button                                   |
| ③ Output level indicator      | ⑪ Stop button                                    |
| ④ Track search knob           | ⑫ SACD/CD selector button                        |
| ⑤ Input selector              | ⑬ Analog output connectors (unbalanced/balanced) |
| ⑥ Power switch                | ⑭ Digital input connectors (coaxial, optical)    |
| ⑦ Disc tray                   | ⑮ Transport output connectors (coaxial, optical) |
| ⑧ Disc tray open/close button | ⑯ AC inlet*                                      |

#### Supplied accessories:

- AC power cord
- Remote commander RC-28
- Audio cable with plugs (1 m)

#### Optional cables

- HS-Link cable HDL-15 (1.5 m)
- Toslink cable LG-10 (1 m)
- HPC balanced cable HLC-10 (1 m)

\* The HDL-15 is also available in 3 m, 5 m, 7.5 m, and 10 m lengths.  
\* The LG-10 and HLC-10 are also available in 2 m, 3 m, and 5 m lengths.

## Guaranteed Specifications

[Guaranteed specifications measured according to EIAJ standard CP-2402]  
\* Measurement disc: PHILIPS 3122-783-00632

#### Transport Section

- **Compatible disc formats** 2-channel Super Audio CD  
CD
- **Data read principle** Non-contact optical pickup
- **Laser diode wavelength** SACD: 650 nm  
CD: 780 nm
- **Digital outputs** Format: EIAJ CP-1201 compliant  
COAXIAL: 0.5 Vp-p, 75 ohms  
OPTICAL: -21 to -15 dBm, wavelength 660 nm

#### Digital Processor Section

- **Digital inputs** COAXIAL Format: EIAJ CP-1201/AES-3 compliant  
OPTICAL Format: EIAJ CP-1201 compliant  
Sampling frequencies  
32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz  
(16 to 24 bits, 2-channel PCM)  
[Implemented by option board:]  
176.4 kHz, 192 kHz (24 bits, 2-channel PCM)  
2.8224 MHz (1 bit, 2-channel DSD)
- **D/A converter** 24-bit MDS Plus converter
- **Frequency response** 0.5 ~ 50,000 Hz +0, -3 dB
- **Total harmonic distortion** 0.0008% (20 to 20,000 Hz)
- **Signal-to-noise ratio** 114 dB
- **Dynamic range** 110 dB (24-bit input, low-pass filter off)
- **Channel separation** 108 dB (20 to 20,000 Hz)
- **Output voltage and impedance** BALANCED: 2.5 V at 50 ohms, balanced XLR type  
UNBALANCED: 2.5 V at 50 ohms, RCA phono jack
- **Output level control** 0 to -60 dB, 1-dB steps (digital)

#### General

- **Power requirements** AC 120V/230V, 50/60 Hz  
(Voltage as indicated on rear panel)
- **Power consumption** 24 W
- **Maximum dimensions** Width 475 mm (18-7/16")  
Height 151 mm (5-15/16")  
Depth 397 mm (15-5/8")
- **Weight** 17.7 kg (39.0 lbs) net  
23.0 kg (51.0 lbs) in shipping carton

#### 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.



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