

# Accuphase

*SUPER AUDIO CD PLAYER*

## *DP-85*

- Totally separate SCAD/CD transport and processor sections
- Single lens/twin pickup high-speed access mechanism
- Digital processor ready for new-generation source formats
- MDS type D/A converter with extraordinary conversion precision
- Transport section outputs and digital inputs
- Option board slots for added versatility





**Integrated SACD/CD player with HS-Link. Ready for new-generation formats such as 2.8224 MHz/1 bit and 192 kHz/24 bits. Revolutionary MDS (Multiple Delta Sigma) converter. Transport section with dedicated DSP for digital servo control and single lens/twin pickup high-speed access mechanism. Entirely separate construction of transport and processor sections, with HS-Link and coaxial transport output and digital inputs.**

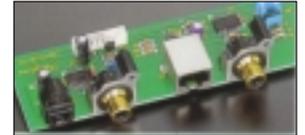
The Super Audio CD (SACD) is now the pinnacle format of pure audio. Based on the expertise gained with the separate type SACD/CD player combo DP-100 and DC-101, Accuphase developed the DP-85 using the latest advances in digital technology. The result is an integrated SACD/CD player of the highest quality. The DP-85 lets you fully enjoy the amazing dynamic range of SACD/CD sources. The superb sound quality is sure to capture the heart of any audiophile.

The transport section of the DP-85 features a dedicated DSP for the digital servo circuitry and a single lens/twin pickup high-speed mechanism for totally accurate signal readout and almost instantaneous access time. The processor section is ready for the latest word in quality such as 2.8224 MHz/1-bit and 192 kHz/24-bit sources. The MDS (Multiple Delta Sigma) D/A converter employs multiple strictly selected delta sigma units in a parallel configuration, assuring unprecedented conversion precision.

Although housed in one enclosure, the SACD/CD transport section and the processor section of the DP-85 can be used entirely independent of each other, thanks to the HS-Link and coaxial outputs and the digital inputs. Slots for option boards are provided as well, resulting in unsurpassed versatility for no-compromise reproduction of music. The DP-85 represents digital audio at its best, allowing the audio connoisseur to rediscover what music is all about.

### [SACD/CD Transport Section] Features and Functions

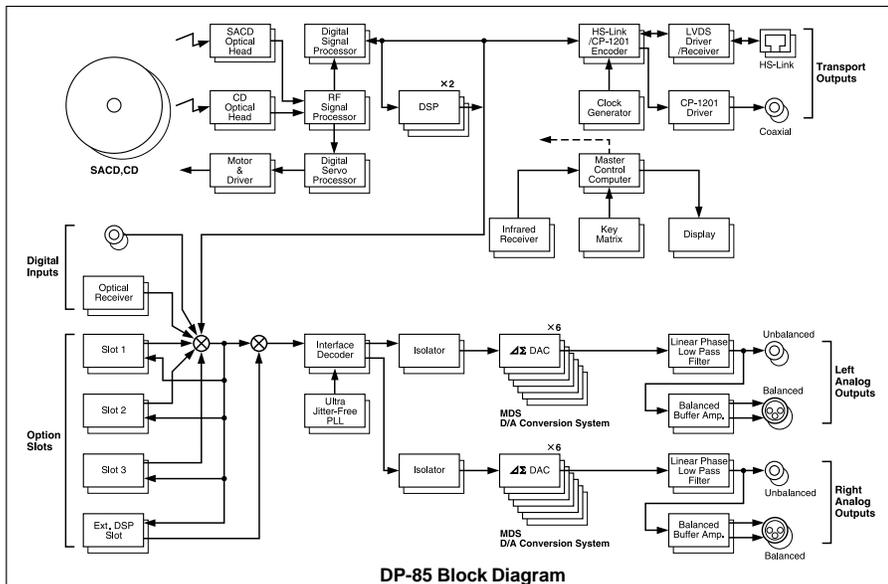
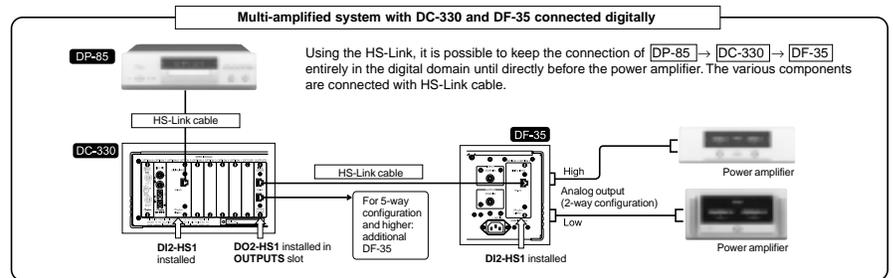
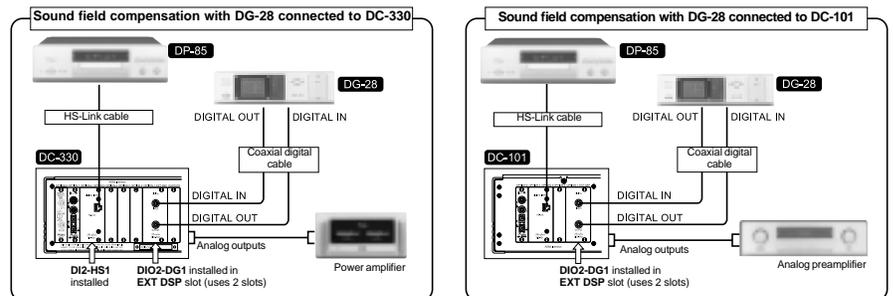
- Digital servo with dedicated DSP assures highly accurate signal pickup for SACD and CD
- Plays also regular CDs with impressive quality
- Single lens/twin pickup mechanism minimizes access time and SACD/CD switching time
- Compatible with super high quality digital audio interface HS-Link developed by Accuphase; one RJ-45 HS-Link output connector built in
- Dedicated coaxial connector for CD signal output
- Text data display shows disc and title name, artist name, and other information
- Strong 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



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

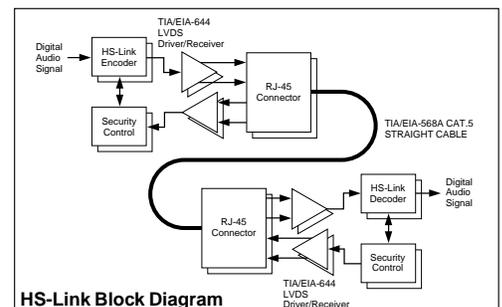
### Connection examples for effective use of SACD/CD transport

The HS-Link output of the transport section can be used to combine the unit with a DC-330, DC-101, DG-28, etc., using dedicated HS-Link cable. With the DC-330 → DF-35 combination, a multi-amplified system entirely in the digital domain can be constructed.



### New Generation 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 formats such as 2.8224 MHz/1 bit or 192 kHz/24 bits. Conventional digital formats are also supported. Because digital audio data are transmitted with utmost fidelity, the sound quality achieved by HS-Link is simply outstanding.



## [Digital Processor Section] Features and Functions

- Supports new generation formats with high sampling rates such as 2.8224 MHz/1 bit and 192 kHz/24 bits
- MDS type D/A converter achieves stunning performance and sound quality
- D/A converter with printed circuit boards made from Teflon (glass fluorocarbon resin) with low dielectric constant and low loss  
(\* Teflon is a registered trademark of DuPont USA.)
- Ultra jitter-free PLL circuit topology
- 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 an adjustment range of 0 dB to -60 dB
- Balanced and unbalanced analog outputs

### Further Improved MDS Type D/A Converter

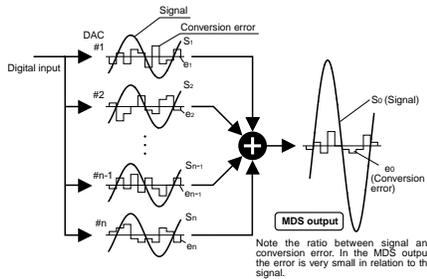
MDS (Multiple Delta Sigma) is a revolutionary design which employs several delta sigma type converters in a parallel configuration.

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.

For the DP-85, 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.



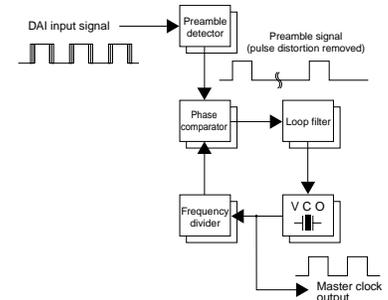
The DP-85 uses six delta sigma converters in parallel, which results in an overall performance improvement by a factor of 2.45 ( $=\sqrt{6}$ ).



MDS type D/A converter principle

### Ultra Jitter-Free PLL Circuit

For the purpose of synchronizing operation of the D/A converter with the digital audio interface (DAI), a phase-locked loop (PLL) circuit is used which generates a master clock to be used as system reference. As shown in the diagram, the Ultra Jitter-Free PLL Circuit of the DP-85 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



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

- MDS D/A converter and analog outputs assembly (with two Teflon PCBs for left & right channels, featuring low dielectric constant and low loss)



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

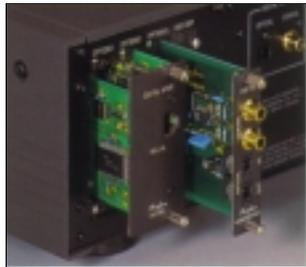
## Option Boards

A total of four option board slots are provided on the rear panel (three for input/output boards and one for EXT DSP). This makes it possible to utilize the high-quality digital processor to reproduce the signal from other digital components as well. A wide variety of boards are available to suit the requirements of any system.

- Install HS-Link Input Board for connection to DP-100
- Use EXT DSP option board slot for connection to Digital Voicing Equalizer DG-28
- \* For copyright reasons, the SACD signal from the DP-85 or a SACD/CD signal supplied via HS-Link does not appear at any other output (except HS-Link) and can therefore not be recorded digitally.
- \* Any option board can be installed in any slot.
- \* For details on board installation and usage, please refer to the instruction manual of the DP-85.
- \* The input connectors on each board serve as digital input to the processor section.



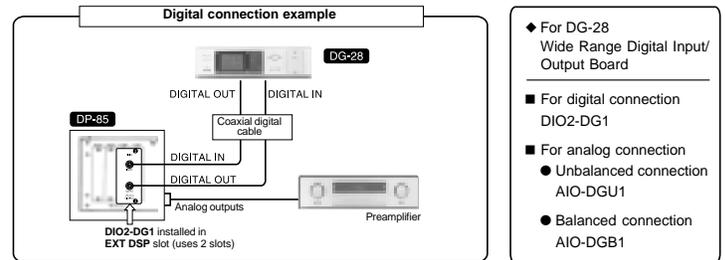
Display example with HS-Link connection



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 Input Board	DI2-HS1

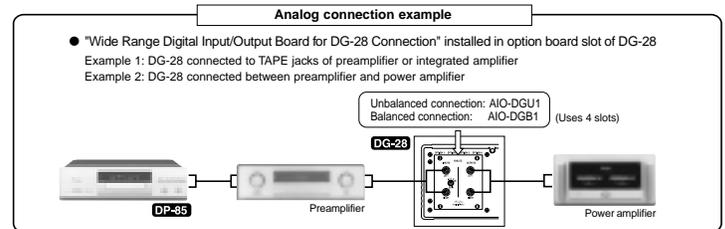
## Connection example for sound field compensation using DG-28 together with DP-85

The DG-28 can handle 48-kHz/24-bit signals and perform equalization up to a threshold of 24 kHz. For high sampling frequency signals exceeding 48 kHz such as from SACD, the "Wide Range Digital Input/Output Board for DG-28 Connection" DIO2-DG1 or "Wide Range Analog Input/Output Board for DG-28" AIO-DGU1 or AIO-DGB1 are used.



◆ For DG-28 Wide Range Digital Input/Output Board

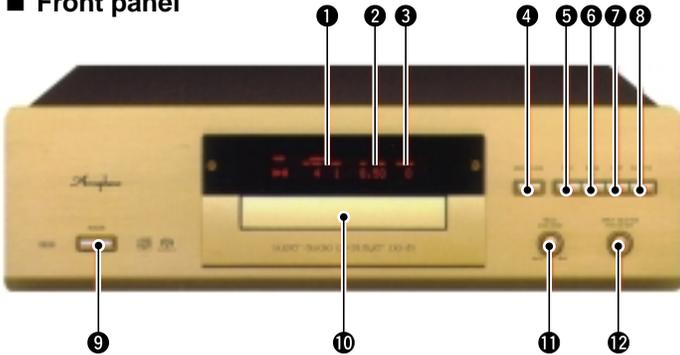
- For digital connection DIO2-DG1
- For analog connection
  - Unbalanced connection AIO-DGU1
  - Balanced connection AIO-DGB1



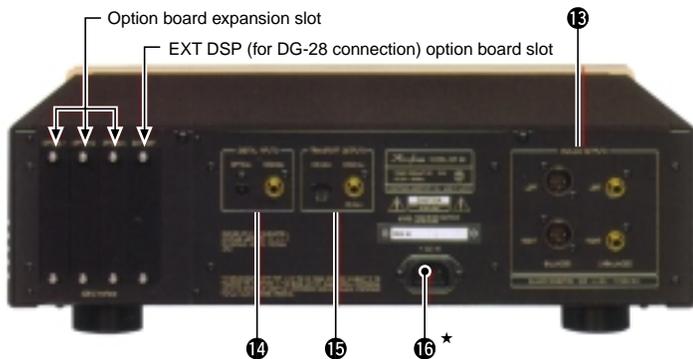
- "Wide Range Digital Input/Output Board for DG-28 Connection" installed in option board slot of DG-28
- Example 1: DG-28 connected to TAPE jacks of preamplifier or integrated amplifier
- Example 2: DG-28 connected between preamplifier and power amplifier

Unbalanced connection: AIO-DGU1  
Balanced connection: AIO-DGB1 (Uses 4 slots)

## Front panel



## Rear panel



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

### 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 depend on the voltage rating and destination country.

Supplied accessories: ● AC power cord  
● Remote commander RC-28  
● Audio cable with plugs SL-10G

## 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 HS-Link Connector type : RJ-45  
Suitable cable : Dedicated HS-Link cable  
COAXIAL Format : EIAJ CP-1201

### [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 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 116 dB
- Dynamic range 112 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 in 1-dB steps (digital)

### [General]

- Power requirements AC120 V/230 V (Voltage as indicated on rear panel) 50/60 Hz
- Power consumption 25 W
- Maximum dimensions Width 475 mm (18-11/16") x Height 150 mm (5-7/8") x Depth 397 mm (15-5/8")
- Weight 19.2 kg (42.3 lbs) net, 25.0 kg (55.0 lbs) in shipping carton

### Optional Cables

- HS-Link cable HDL-15 (1.5 m)
- Toslink optical fiber cable LG-10 (1 m)
- HPC balanced cables HLC-10 (1 m)
- HPC optical fiber cable (ST) HLG-10 (1 m)

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



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