Accuphase

COMPACT DISC PLAYER

DP-67

● MDS++ D/A converter achieves minimum distortion and superb S/N ratio ● Jitter-free high-performance digital demodulator ● 3-pole analog filter with outstanding phase characteristics ● EXT DSP input/output connectors ● Two sets of digital inputs/outputs ● Fully digital control of CD mechanism ● Balanced drive circuitry for servo motors

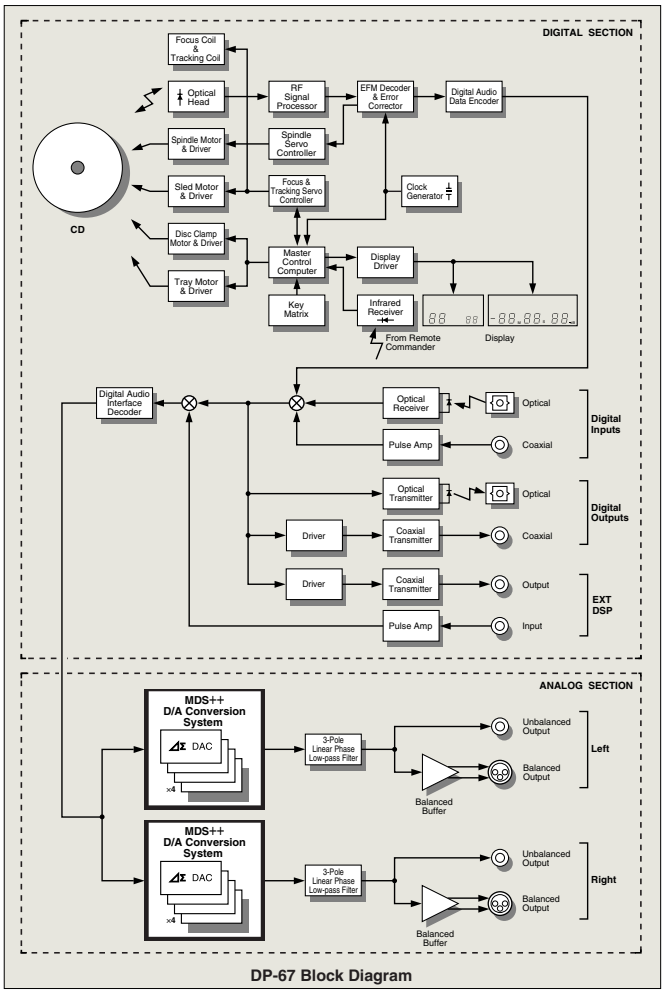
Witness the ultimate high-end integrated type CD player – MDS++ type D/A converter makes a good thing even better. Fully independent transport and processor sections and EXT DSP connectors allow use of DG-38 for sound field compensation. Optical and coaxial digital inputs and outputs provide added flexibility. Fully digital control of CD mechanism achieves optimization of servo parameters in real time.

The DP-67 is an integrated player dedicated to Compact Disc playback with superb sound quality. It has inherited many technological features originally developed for reproduction of new-generation formats such as SACD. The DP-67 has been refined through extensive listening tests and can also serve as a stand-alone digital processor. It lets you discover untold riches of musical detail even in CDs with which you are thoroughly familiar.

The processor section features an ultra-precise 24-bit D/A converter using a newly developed MDS++ converter. This takes the MDS (Multiple Delta Sigma) principle pioneered by Accuphase to new heights. It features minimal distortion, excellent S/N ratio, superb linearity at low signal levels, and outstanding performance in all other aspects. Since the DP-67 provides access to this converter via a set of two digital inputs (optical and coaxial), its sound quality and performance can be utilized also by external components capable of supplying a digital signal. The benefits of super-accurate D/A conversion will let any digital signal sound its very best. A set of digital outputs (optical and coaxial) is also provided, allowing connection of a digital recorder for formats such as CD-R, DAT, or MD. This lets you record either the signal from the internal CD transport or from an external source. In addition, the EXT DSP connectors are convenient when wishing to use the Digital Voicing Equalizer DG-28/DG-38 for sound field compensation in the digital domain.

Optical input display example

Coaxial input display example



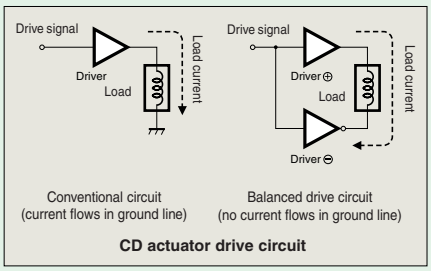
DP-67 Block Diagram

CD Transport Section Features and Functions

■ **Fully digital control of CD mechanism**
Control of the mechanism section is fully digital, allowing the use of adaptive circuits to optimize servo performance for each individual disc. This assures enhanced operation stability and a drastic reduction in error rate. Long-term reliability and performance uniformity are also improved, since fluctuations in ambient temperature can have no adverse influence.

■ **Laser pickup with integrated RF amplifier**
Since the output level of a laser pickup is very low, it is highly vulnerable to externally induced noise. To prevent such problems, the pickup used in the DP-67 employs an RF amplifier which is so compact that it can be directly integrated in the pickup assembly. This assures that the high-level output signal remains free from noise interference, which in turn reduces the error rate.

■ **Balanced drive circuitry for servo motors**
The motors and actuators which drive the disc tray, spindle, sled, and the focussing and tracking assembly require a rapidly fluctuating drive current, which can affect other circuit areas and cause sound quality degradation. In the DP-67, the drive current for each actuator is provided by two amplifiers arranged in a balanced configuration. Because there is no circuit flowing in the ground line, the operation of other circuits in the player remains entirely unaffected.



CD actuator drive circuit

■ **Tray lock prevents resonances**
If the disc tray which is used to slide the disc into the unit resonates due to vibrations generated in the rotating assembly while the disc is playing, signal quality can be degraded. In the DP-67, the tray is firmly secured during playback, to eliminate any possibility of harmful resonances.

■ **Power-on play and frame display**
"Power-on play" means that the DP-67 can start playback when power is turned on, allowing automatic playback in conjunction with an audio timer. For precise location of any spot on a disc, the player can display frame information (1 frame = 1/75 second), and functions such as repeat can be carried out in steps of individual frames.

Digital Processor Section Features and Functions

■ **MDS++ type D/A converter achieves stunning performance and sound quality**

■ **Jitter-free high-performance digital demodulator**

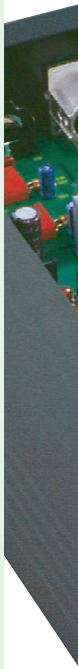
■ **3-pole linear phase analog filter with outstanding phase characteristics**

■ **Digital level control with adjustment range 0 dB to –40 dB**

■ **Balanced and unbalanced analog outputs**


Delta Sigma D/A converter


Digital demodulator IC

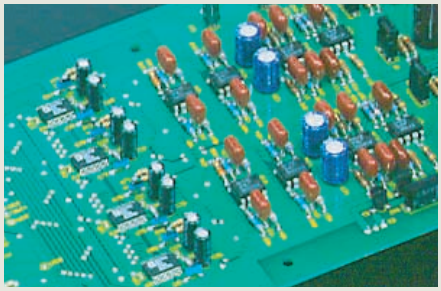


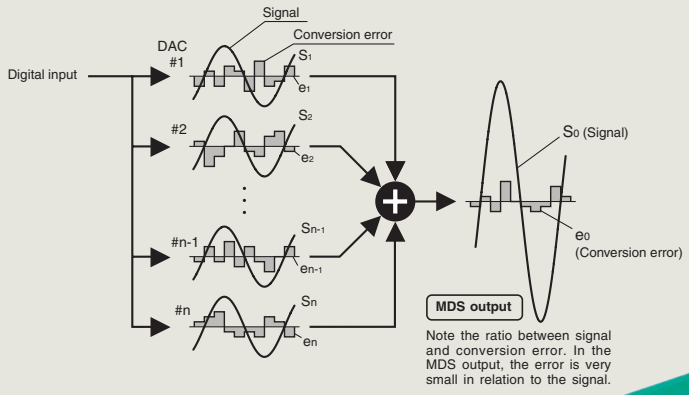
MDS++ D/A converter moves another step ahead

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.

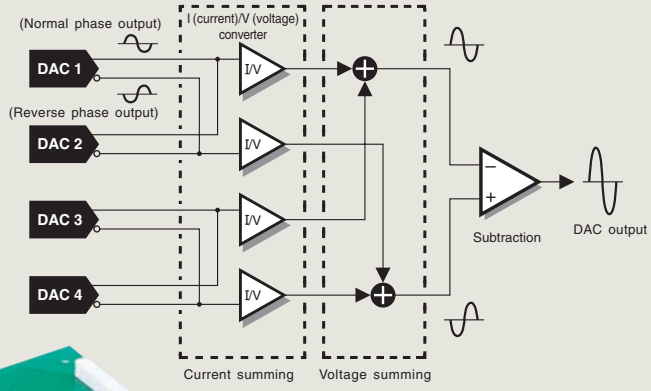
In the DP-67, four delta sigma type AD1955 converters made by Analog Devices are driven in parallel. This results in an overall performance improvement by a factor of 2 (= $\sqrt{4}$).

As shown in the diagram, the MDS++ features an enhanced current-to-voltage (I/V) converter for processing the D/A converter output current. A combination of current summing and voltage summing is used, resulting in even better stability and top-notch performance. When listening to a CD with this system, the music emerges from a totally silent background. Breathtaking detail resolution and a highly accurate sound stage are immediately apparent characteristics.

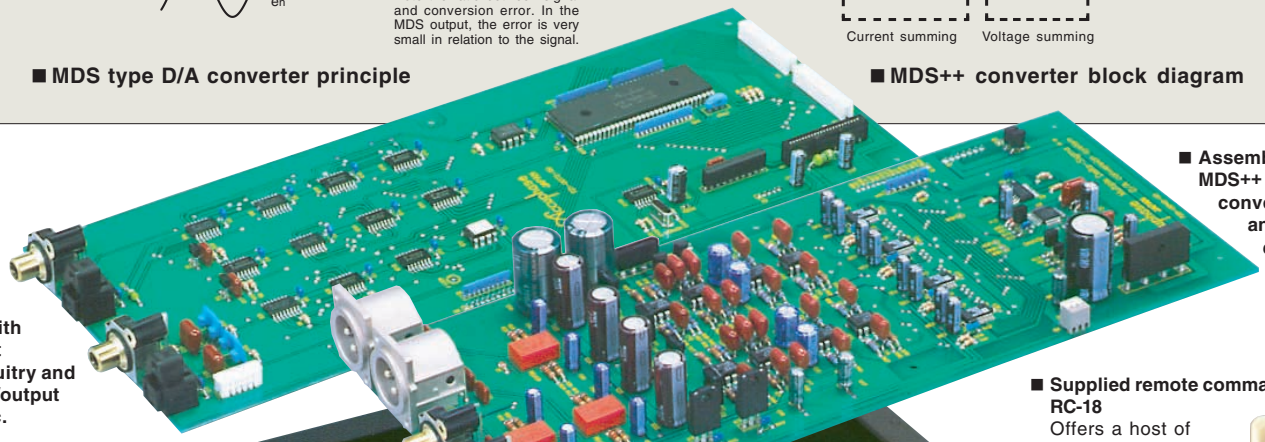




■ MDS type D/A converter principle



■ MDS++ converter block diagram



■ Assembly with MDS++ D/A converter and analog output circuitry etc.

■ Assembly with CD transport control circuitry and digital input/output circuitry etc.

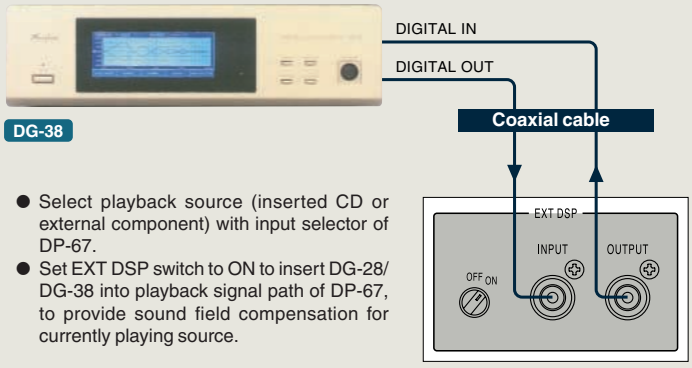
■ Supplied remote commander RC-18

Offers a host of functions such as input switching, direct play, program play, repeat, etc.

EXT DSP input/output allows insertion of external component (DG-28/DG-38) into playback signal path

The coaxial EXT DSP input and output connectors and ON/OFF switch make it easy to use the Digital Voicing Equalizer DG-28 or DG-38 via a coaxial cable link. This allows sound field compensation in the digital domain.

DG-28/DG-38 connection example

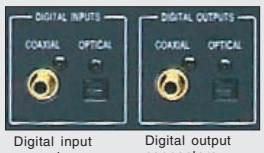


- Select playback source (inserted CD or external component) with input selector of DP-67.
- Set EXT DSP switch to ON to insert DG-28/DG-38 into playback signal path of DP-67, to provide sound field compensation for currently playing source.

✻ Factory default position of EXT DSP switch: OFF

DP-67

- **Independent processor section. Coaxial and optical digital input connectors accept signals with sampling frequency up to 96 kHz and resolution up to 24 bits.**
- **Direct copying of digital signal possible, thanks to coaxial and optical digital output connectors.**
- **"High Carbon" cast iron insulator feet with superior damping characteristics further enhance sound quality**

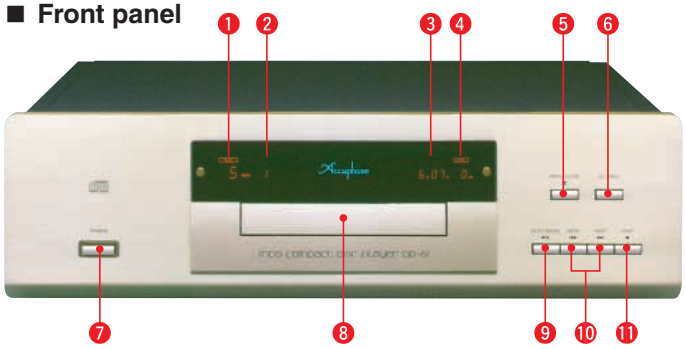


Digital input connectors | Digital output connectors

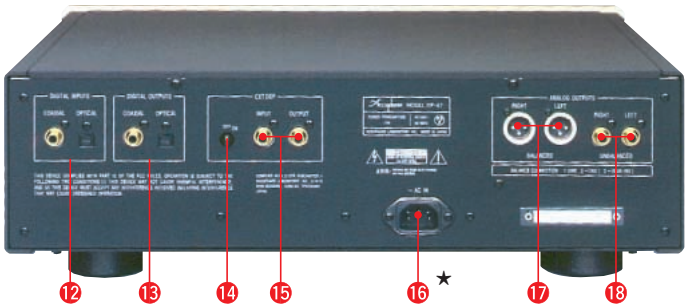
NOTE

- **Proper playback of CCCDs is not assured.**
  - Copy Control CDs (CCCDs) and other types of discs implementing some form of copyright protection may not play properly on Accuphase CD players, because such discs may not conform to existing CD standards. No assurances are made regarding playback and sound quality when using such discs.
  - For detailed information regarding CCCDs, please contact the disc manufacturer.
- **Only discs conforming to existing CD standards can be played on this player. Check the label on the disc before attempting to use it in this player.**

■ Front panel



■ Rear panel



1. Play track indicator
   [Processor operation: digital input indicator]
2. Track/index indicator
   [Processor operation: sampling frequency indicator]
3. Time indicator
4. Output level indicator
5. Disc tray open/close button
6. CD transport/processor selector button
7. Power switch
8. Disc tray
9. Play/pause button
10. Track search buttons
    [Processor operation: external input selector buttons]
11. Stop button
12. Digital input connectors (coaxial, optical)
13. Digital output connectors (coaxial, optical)
14. EXT DSP ON/OFF switch
15. EXT DSP (external component) input/output connectors
16. AC power connector★
17. Balanced output connectors (analog)
    ① Ground ② Inverted (–)
    ③ Non-inverted (+)
18. Unbalanced output connectors (analog)

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.*

DP-67 GUARANTEED SPECIFICATIONS

[Guaranteed specifications are measured according to the EIA standard CP-2402.]
[Measurement disc: CP-2403]

CD Transport

Format:	Format:	Standard CD format
	Quantization:	16 bits
	Sampling frequency:	44.1 kHz
	Error correction principle:	CIRC
	Number of channels:	2
	Revolution speed:	500 - 200 rpm (constant linear velocity)
	Scan velocity:	1.2 - 1.4 m/s, constant
Data read principle	Non-contact optical pickup (semiconductor laser)	
Laser type	GaAlAs (double heterodyne diode)	

Digital Processor

Input format	EIAJ CP-1201 compatible	
	Quantization:	16 - 24 bits, linear
	Sampling frequency:	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
Digital input level (EIAJ CP-1201)	OPTICAL:	Input –27 to –15 dBm
	COAXIAL:	0.5 Vp-p, 75 ohms
Digital output level (EIAJ CP-1201)	OPTICAL:	Output –21 to –15 dBm Wavelength 660 nm
	COAXIAL:	0.5 Vp-p, 75 ohms
D/A converter	MDS++ type, 24 bits	Digital deemphasis
Frequency response	4.0 to 20,000 Hz ±0.3 dB	
Total harmonic distortion	Max. 0.001% (20 - 20,000 Hz, 24-bit input)	
Signal-to-noise ratio	114 dB or better	
Dynamic range	110 dB or better (24-bit input)	
Channel separation	110 dB or better	
Output voltage and impedance	BALANCED:	2.5 V into 50 ohms, balanced XLR type
	UNBALANCED:	2.5 V into 50 ohms, RCA-type phono jacks
Output level control	0 to –40 dB in 1-dB steps (digital)	

General

Power requirements	AC 120 V/230 V, 50/60 Hz (Voltage as indicated on rear panel)	
Power consumption	17 W	
Dimensions	Width	475 mm (19-11/16")
	Height	150 mm (5-7/8")
	Depth	396 mm (15-9/16")
Weight	16.5 kg (36.4 lbs) net 21.0 kg (46.3 lbs) in shipping carton	

Supplied Remote Commander RC-18

Remote control principle:	Infrared pulse
Power requirements:	3 V DC, IEC R6 (size AA) batteries × 2
Dimensions:	55 mm × 194 mm × 18 mm
Weight:	100 g (including batteries)

■ Supplied accessories:
- AC power cord
- Audio cable with plugs (1 m)
- Remote Commander RC-18

• Specifications and design subject to change without notice for improvements.

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http://www.accuphase.com/
G0305Y PRINTED IN JAPAN 851-0133-00 (AD1)