

DIGITAL VOICING EQUALIZER

DG-68

● Fully digital signal processing Voicing Equalizer ● Separate sound field compensation and equalizer functions ● Smooth Voicing feature prevents excessive correction based on the low frequency reproduction capability of the speakers ● High-speed 40-bit floating point DSP ● High-accuracy A / D and D / A conversion circuitry ● Intuitive and highly readable menu screens make operation easy ● Freely programmable 30 pattern memory ● Analog and digital inputs and outputs provided as standard





Creating the ideal acoustic environment — With this fifth-generation Digital Voicing Equalizer featuring ultra-advanced digital technology.

The high-resolution, high-definition color IPS LCD panel allows the use of a stylus pen to directly draw any desired response curve. Intuitive operation and a full complement of sophisticated display functions make sound field compensation swift and easy while giving the user full control. Setting data as well as display screenshots can be saved on a USB flash drive for quick recall at any time. The DG-68 brings out unknown possibilities in music reproduction by controlling the sound field and tone exactly in accordance with the user's preferences.

In 1997, Accuphase introduced a product which revolutionized the concept of the graphic equalizer and made headlines in the audio world: the Digital Voicing Equalizer DG-28. Follow-up models in the DG series brought further improvements which garnered more praise and led to the recognition of the Voicing Equalizer as an indispensable component of the ultimate audio system.

■ What is a "Voicing Equalizer"?

The Voicing Equalizer from Accuphase brings together two major functions, namely sound field compensation for optimizing the acoustic properties of the listening room, and a graphic equalizer for adjusting individual frequency bands and thereby controlling the tonal quality of the music being played. A supplied precision microphone is used to measure the acoustics of the listening room and enable the automatic creation of the sound field as desired by the user. The graphic equalizer function then enables further fine tuning and flexible tonal adjustments. As the word "Voicing" also has the meaning of "tuning", the product was named with the idea of tuning the listening room.

■ DG-68

The fifth generation DG-68 is the result of a major redesign of the operational aspects of the Voicing Equalizer, making it even easier to explore its highly sophisticated capabilities. The dedicated DSP chip employs latest signal processing technology to effortlessly handle the input from both analog and high-resolution digital sources. A wide complement of digital and analog input and output connectors provides unprecedented versatility for various connection types, and the highly advanced A/D and D/A converters ensure dramatically improved sound quality and performance both on the analog input and output side.

Advanced Features

- **Separate sound field compensation and equalizer functions**
- **Further evolved automatic sound field compensation**
 - Smooth Voicing feature prevents excessive correction based on the low frequency reproduction capability of the speakers.
 - Further improved measurement accuracy enhances the effectiveness of sound field compensation
- **Intuitive and highly readable menu screens for easy operation**
- **Freely programmable 30 pattern memory**
- **Setting data and display screenshots can be saved on a USB flash drive for easy recall**
- **Thick aluminum top plate with exquisite hairline finish**
- **Elegant side panels with natural wood grain finish**
- **Sound field measurement microphone AM-68 included**

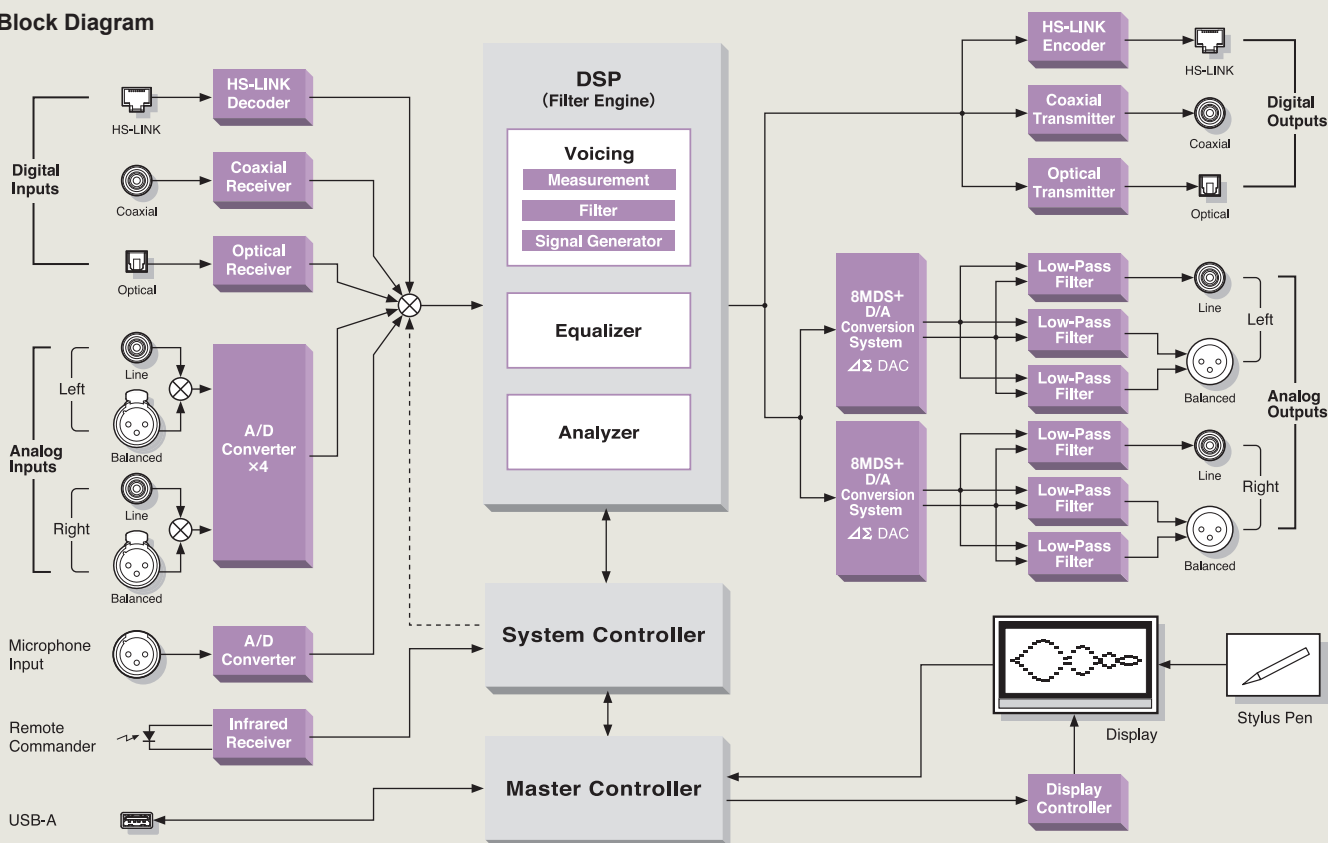


Aluminum top plate with hairline finish



Sound field measurement microphone AM-68

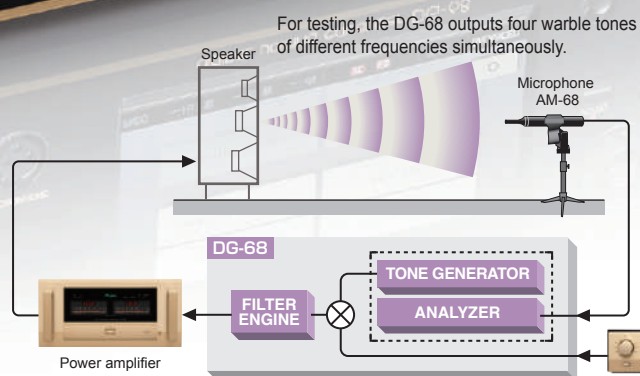
■ Block Diagram





Supplied remote commander RC-330

Enables remote operation of Voicing on / off, input switching, memory save and load, cursor movement etc.



How Voicing works

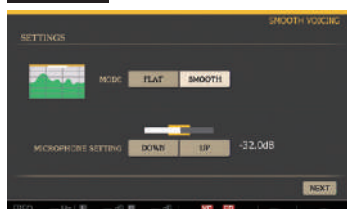
The internal test signal generator of the DG-68 produces warble tones which are used to drive the speakers via the power amplifier. The sound travels through the sound field and is picked up by the microphone for sound field measurement and compensation.

Smooth Voicing

Adjustment incorporating speaker and room characteristics

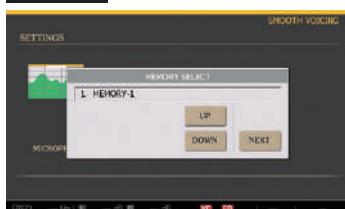
Smooth Voicing keeps frequency response differences between the left and right channels to an absolute minimum, creating a very smooth response curve.

Step 1



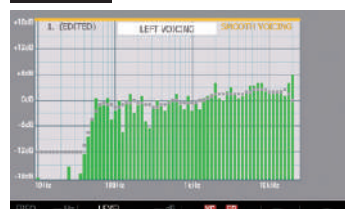
Set measurement signal level

Step 2



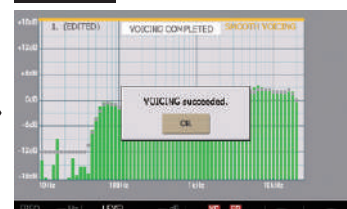
Select memory number for saving settings

Step 3



Start automatic measurement and compensation

Step 4

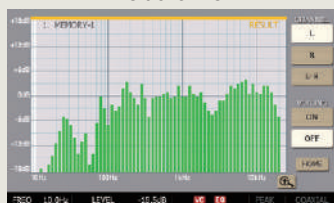


Compensation completed

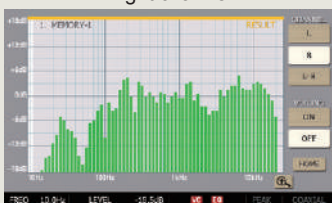
Smooth voicing measurement results

Before compensation

Left channel

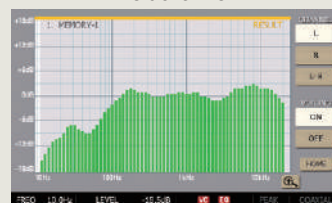


Right channel

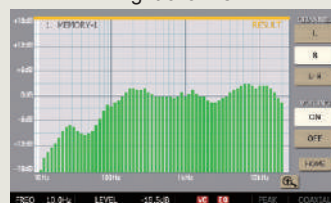


After compensation

Left channel

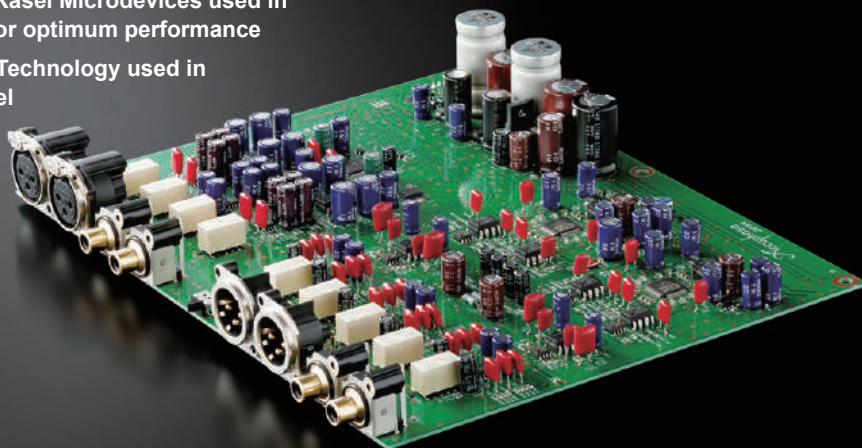


Right channel



Technology development ahead of the curve

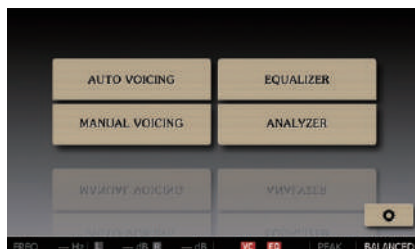
- **40-bit floating-point DSP chip ADSP-21489** from Analog Devices realizes super-accurate fully digital signal processing
- **32-bit A / D converter chip AK5578EN** from Asahi Kasei Microdevices used in a fourfold parallel configuration in each channel for optimum performance
- **32-bit D / A converter chip ES9028PRO** from ESS Technology used in an eight-fold parallel configuration in each channel for optimum performance
- **ANCC (Accuphase Noise and Distortion Cancelling Circuit) technology** in A / D and D / A converter circuitry minimizes noise and distortion
- **BALANCED and LINE level analog inputs and outputs plus three types of digital inputs and outputs (HS-LINK Ver. 2 / COAXIAL / OPTICAL)**



DG-68 Triple Functionality: VOICING / EQUALIZER / ANALYZER

The DG-68 incorporates three complementary functions. The desired function can be selected easily with one of the four large buttons on the HOME screen (there are two choices for Voicing).

The various buttons and graph displays that are shown for each function can be directly manipulated with the supplied stylus pen. For fine-tuning adjustments, the up / down / left / right cursor buttons at the right side of the front panel will also come in handy during input.

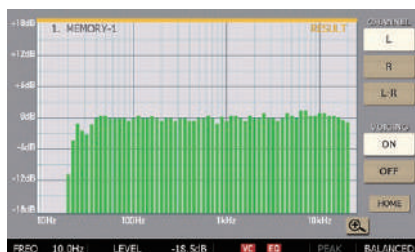


HOME screen

Sound field compensation: VOICING

The Voicing function involves measuring the acoustic characteristics of the room using a microphone and then providing compensation to achieve ideal music reproduction conditions.

The user can choose between two adjustment methods for Voicing. With AUTO VOICING, the entire process is performed automatically for superior operation convenience. MANUAL VOICING gives the user full control over each item, enabling manual adjustment while checking the results.



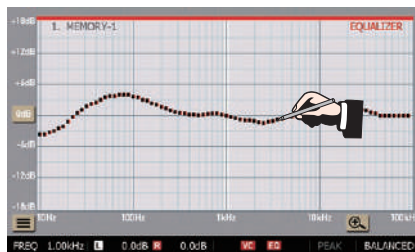
VOICING measurement result screen

Equalizing function: EQUALIZER

The Equalizer allows adjusting the tonal result by selectively boosting or attenuating the level of the music signal in specific frequency bands.

The DG-68 offers an amazing 80 bands covering the frequency range up to 100 kHz. By controlling the level in these bands, any desired frequency response can be created.

While listening to actual music, use the stylus pen to draw a response curve. Being able to make adjustments visually while checking the audible result makes all the difference.

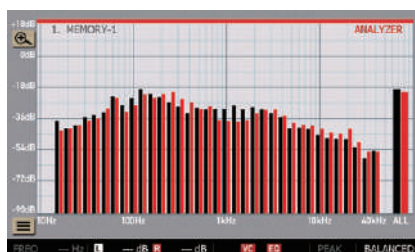


EQUALIZER screen

Spectrum analyzer function: ANALYZER

A spectrum analyzer makes it possible to display the actual frequency components of the music being played. The DG-68 divides the frequency spectrum into 35 bands, reaching up to 50 kHz. The level of each band is analyzed and shown on screen.

When using the Equalizer, the Analyzer lets the user first check the spectral frequency distribution of the music, to determine where adjustments will be most effective.

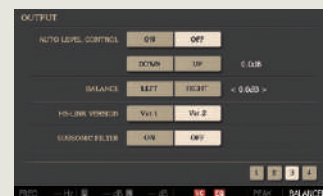


ANALYZER screen

Other functions and features

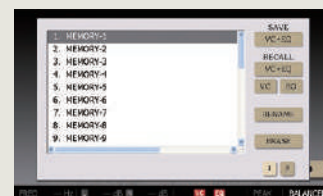
■ Full control over system environment settings

- Enable / disable Voicing and Equalizer functions
- Adjust analog input sampling frequency and gain settings
- Adjust output level automatically or manually
- Adjust left / right balance
- Select HS-LINK output version
- Turn subsonic filter on or off
- Adjust display brightness or turn display off



■ Memory functions

The unit provides 30 memory slots for saving Voicing and Equalizer results and settings. Each memory slot is assigned an editable name, and memory data can be backed up onto a USB flash drive. Deleting data that are no longer required is also possible.



■ Large, easy-to-read text display improves usability

The buttons and alphanumeric information are shown in a large, easy-to-read format that improves usability. This is illustrated here by the sample screens for MEMORY operation and the keyboard.



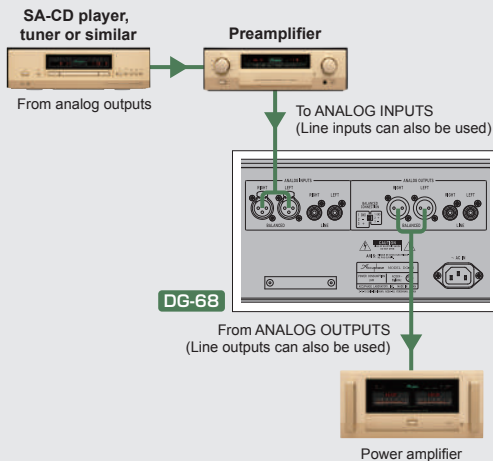
Connection Examples

Integrating the DG-68 into your existing audio system will enable you to create the ideal environment for enjoying music as deeply as never before. Because the DG-68 is equipped with balanced and line (unbalanced) analog inputs / outputs as well as with digital inputs / outputs including HS-LINK, it can be connected to all types of other equipment, either digital or analog.

Analog connection examples

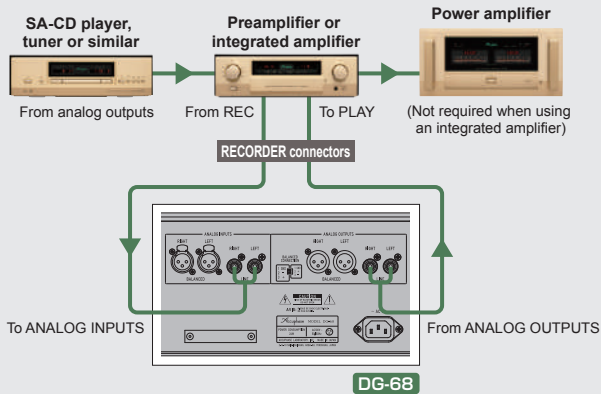
■ Connection of DG-68 between preamplifier and power amplifier

This is an example for a conventional analog connection, inserting the DG-68 between the preamplifier and power amplifier. The connection can be made either with balanced or line (unbalanced) cables.



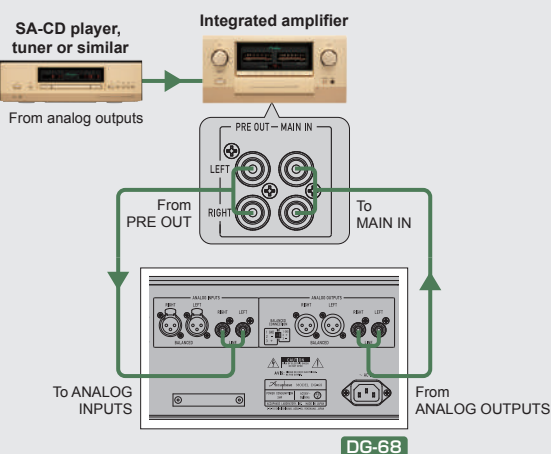
■ Connection of DG-68 in RECORDER loop of preamplifier or integrated amplifier

This is an example for inserting the DG-68 in the RECORDER loop (using the PLAY / REC connectors) of a preamplifier or integrated amplifier.



■ Connection of DG-68 between preamplifier section and power amplifier section of integrated amplifier

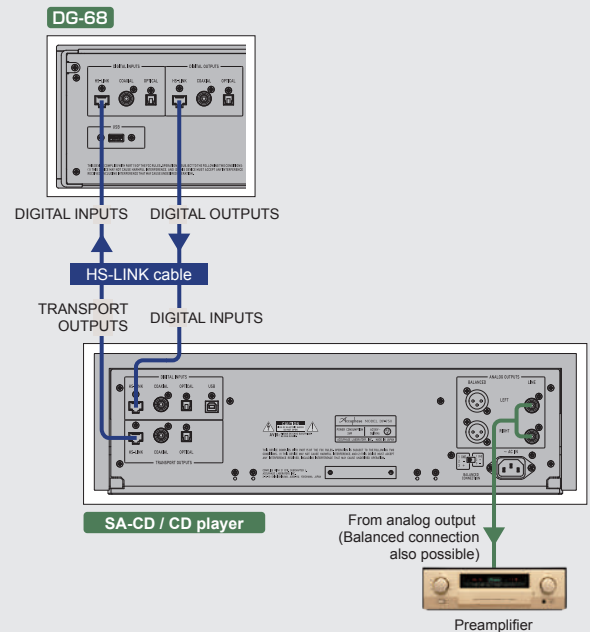
This is an example for connecting the DG-68 to an integrated amplifier that allows separation of the preamplifier and power amplifier sections.



Digital signal connection examples

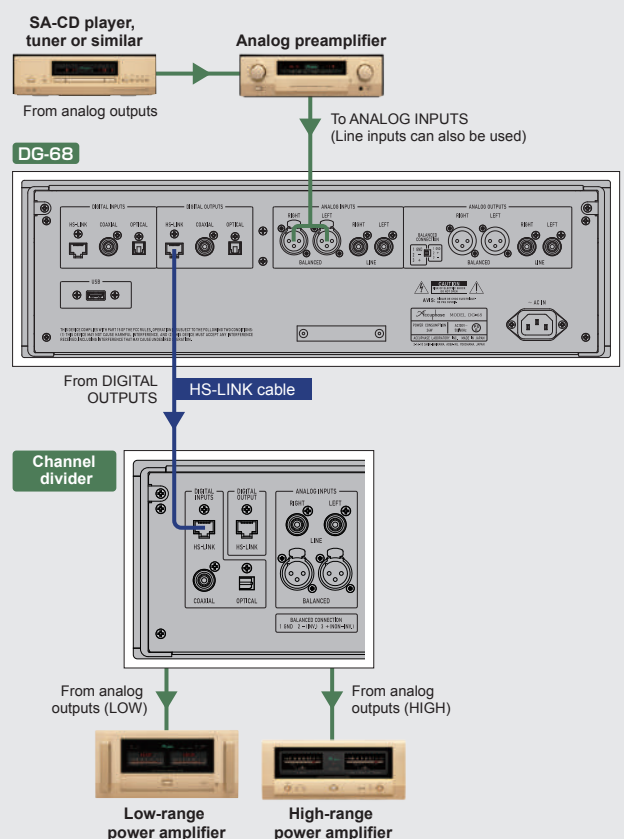
■ Direct digital connection of SA-CD / CD player and DG-68

The transport section output of an SA-CD / CD player can be used to directly process the signal in the digital domain for sound field compensation.



Connection example for use of DG-68 in a multi-amped system with a channel divider

In this example of a 2-way multi-amped system, the analog preamplifier output is sent to the DG-68 for sound field compensation and then supplied (from the DIGITAL OUTPUTS) in digital form to the channel divider.

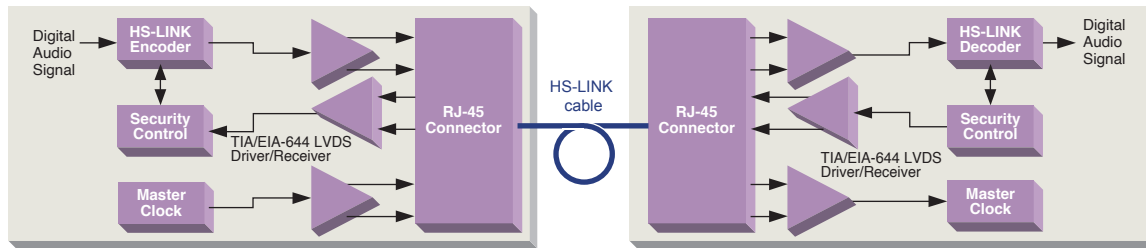


About HS-LINK Ver. 2

HS-LINK Version 2 is a further enhanced version of the Accuphase HS-LINK interface, providing expanded sampling frequency and quantization support.

- The DG-68 supports both HS-LINK Ver. 1 and HS-LINK Ver. 2 signal transmission.

Input	Format (2-channel)	Sampling frequencies	Number of bits
HS-LINK Ver. 1	DSD	2.8 MHz	1
	PCM	32 / 44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz	16 to 24
HS-LINK Ver. 2	DSD	2.8 MHz / 5.6 MHz	1
	PCM	32 / 44.1 / 48 / 88.2 / 96 / 176.4 / 192 / 352.8 / 384 kHz	16 to 32



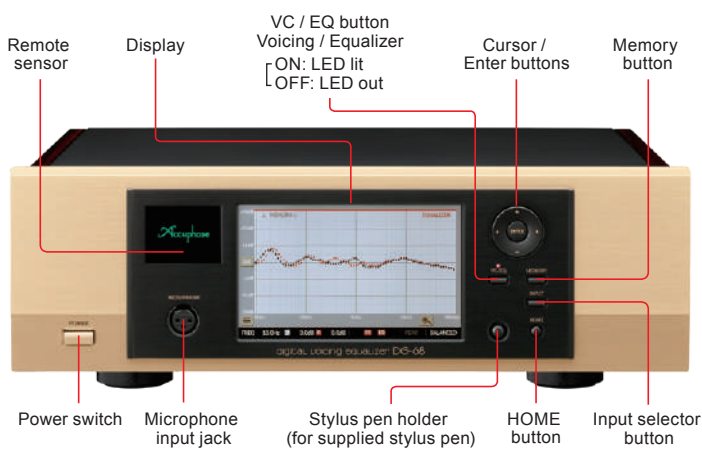
HS-LINK Ver. 2 Signal Transmission Block Diagram

*HS-LINK cable can be used both for HS-LINK Ver. 1 and HS-LINK Ver. 2 signal transmission.

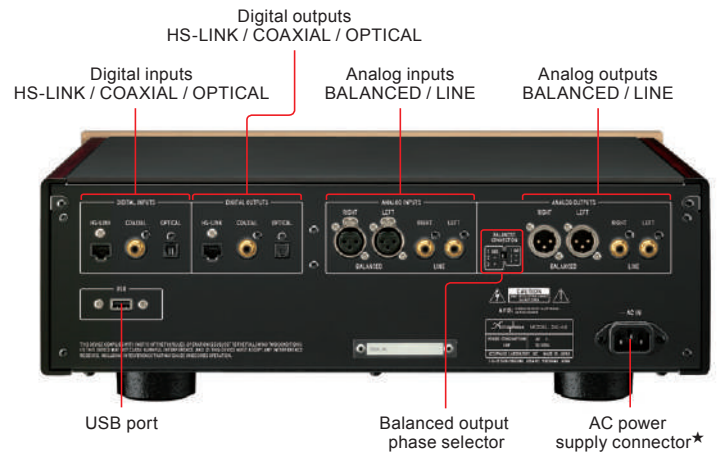
*With HS-LINK Ver.2, the data and clock signal are transmitted separately, and high sampling frequencies up to 5.6 MHz 1-bit DSD and 384 kHz 32-bit PCM are supported.

*HS-LINK is a registered trademark of Accuphase Laboratory, Inc.

Front Panel



Rear Panel



DG-68 Guaranteed Specifications [Guaranteed Specifications measured according to JEITA standard CP-2150]

Voicing	1 / 6 octave, 67 bands, IIR filter	
	Adjustment range	±12 dB
Equalizer	1 / 6 octave, 80 bands, IIR filter	
	Adjustment range	±12 dB
Measurement signal	Warble tones	
Frequency response curve input methods	Direct drawing with stylus pen, input with cursor keypad	
Spectrum analyzer	1 / 3 octave, 35 bands, real-time analyzer	
	Display level	+18 dB to -90 dB (6 ranges, selectable)
Frequency response	0.5 to 50,000 Hz +0 -3.0 dB	
THD + Noise	Analog input → Analog output 20 to 20,000 Hz	0.0007%
Gain	+12 to -90 dB, variable	
Analog input maximum level	GAIN +6 dB	0.89 V
	GAIN 0 dB	1.78 V
	GAIN -6 dB	3.55 V
A / D converter	Method	4-parallel delta-sigma modulation
	Sampling frequencies	44.1 kHz, 88.2 kHz, 176.4 kHz, 352.8 kHz
	Resolution	32-bit
D / A converter	Method	8 MDS+
	Sampling frequencies	32 kHz to 384 kHz
	Resolution	32-bit

Digital inputs / outputs	HS-LINK	Connector type		RJ-45	
		Suitable cable		Dedicated HS-LINK cable	
	COAXIAL	Format		IEC 60958 compliant	
	OPTICAL	Format		JEITA CP-1212 compliant	
Sampling frequencies	HS-LINK	Ver. 1	DSD	2.8 MHz (*1)	1-bit
			PCM	32 to 192 kHz	16 to 24-bit
		Ver. 2	DSD	2.8 / 5.6 MHz (*1)	1-bit
			PCM	32 to 384 kHz	16 to 32-bit
	COAXIAL	PCM	32 to 192 kHz	16 to 24-bit	
	OPTICAL	PCM	32 to 96 kHz	16 to 24-bit	
USB port	USB 2.0 / 3.0, for USB flash drive (up to 128 GB) Cannot be used for connection to a computer				
Power requirements	120 V, 220 V, 230 V AC (voltage as indicated on rear panel), 50 / 60 Hz				
Power consumption	24 W				
Maximum dimensions	Width 465 mm (18.31") x Height 161 mm (6.34") x Depth 396 mm (15.59")				
Mass	Net		14.9 kg (32.8 lbs)		
	In shipping carton		22 kg (49 lbs)		

*1 Digital input only

Remarks

- ★ This product is available in versions for 120/220/230 V AC. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area.
- ★ 230 V version has an Eco Mode that switches power off after 120 minutes of inactivity.
- ★ The shape of the plug of the supplied AC power cord depends on the voltage rating and destination country.

Supplied accessories

- Stylus pen
- Microphone cable (5 m)
- Audio cable with plugs ASL-10B
- Remote Commander RC-330
- Microphone AM-68
- Microphone holder
- AC power cord
- Cleaning cloth



ACCUPHASE LABORATORY, INC.

• The specifications and appearance of this product are subject to change without notice.
http://www.accuphase.com

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