



Nakamichi NDSR660A Digital Signal Processor User Manual

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Nakamichi

NDSR660A

User Manual



DIGITAL SIGNAL PROCESSOR

INTRODUCTION AND TROUBLESHOOTING

Thank you for your purchase and welcome to the world of Nakamichi! Please keep your original proof of purchase or invoice in a safe place in case of any warranty claims. Do also mail or register your warranty With the official Nakamichi service centers and/or agents to ensure that you are provided with the relevant technical support if required.

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NOTICE

1. To prevent short circuit, please keep the device away from water or damp places.
2. If water or any other liquid enters the device, cut off the power immediately, and inform the nearest Nakamichi Service Center or Agent to inspect the product.
3. Users are not recommended to disassemble the device as there are no user serviceable parts inside, please contact the nearest Nakamichi Service Center if necessary.

TROUBLESHOOTING

Ensure all cables and parts are securely connected before turning on the power. Shown below is the basic troubleshooting procedure that you should follow.



Troubleshooting method:

No.	Malfunction	Reason and Solution
1	No Power	<ul style="list-style-type: none"> • Check the power connection and make sure it's secure. • Check the ACC connection and make sure it's secure.
2	No Sound	<ul style="list-style-type: none"> • Double check if the unit is in MUTE mode. • Check if you have choose the correct input channel.
3	Unable to connect through USB	<ul style="list-style-type: none"> • Check the USB connection and make sure it's secure. • Check if the driver " HID-compliant device " has been properly installed in your PC.

WHAT'S IN THE BOX

NDSR660A	1pc
User Manual	2Pcs (1Chinese,1English)
USB2.0 Cable(1.5m)	1pc
Mechanical flat head screws(PM3x6mm)	8pc
Self-Tapping Oval Head Screws(PA4x20mm)	4pc
Mounting brackets	4Pcs
Velcro(160x20mm)	2Prs
8P high level input signal line(18cm)	1pc
16p Speaker cable(18cm)/8p Speaker cable(18cm)	2pc (1Pc 16p,1Pc 8p)
24P high level input and speaker cable(18cm)	1pc
6p power cable(18cm)	1pc
35A FUSE	1pc

PRODUCT TECHNICAL DATA

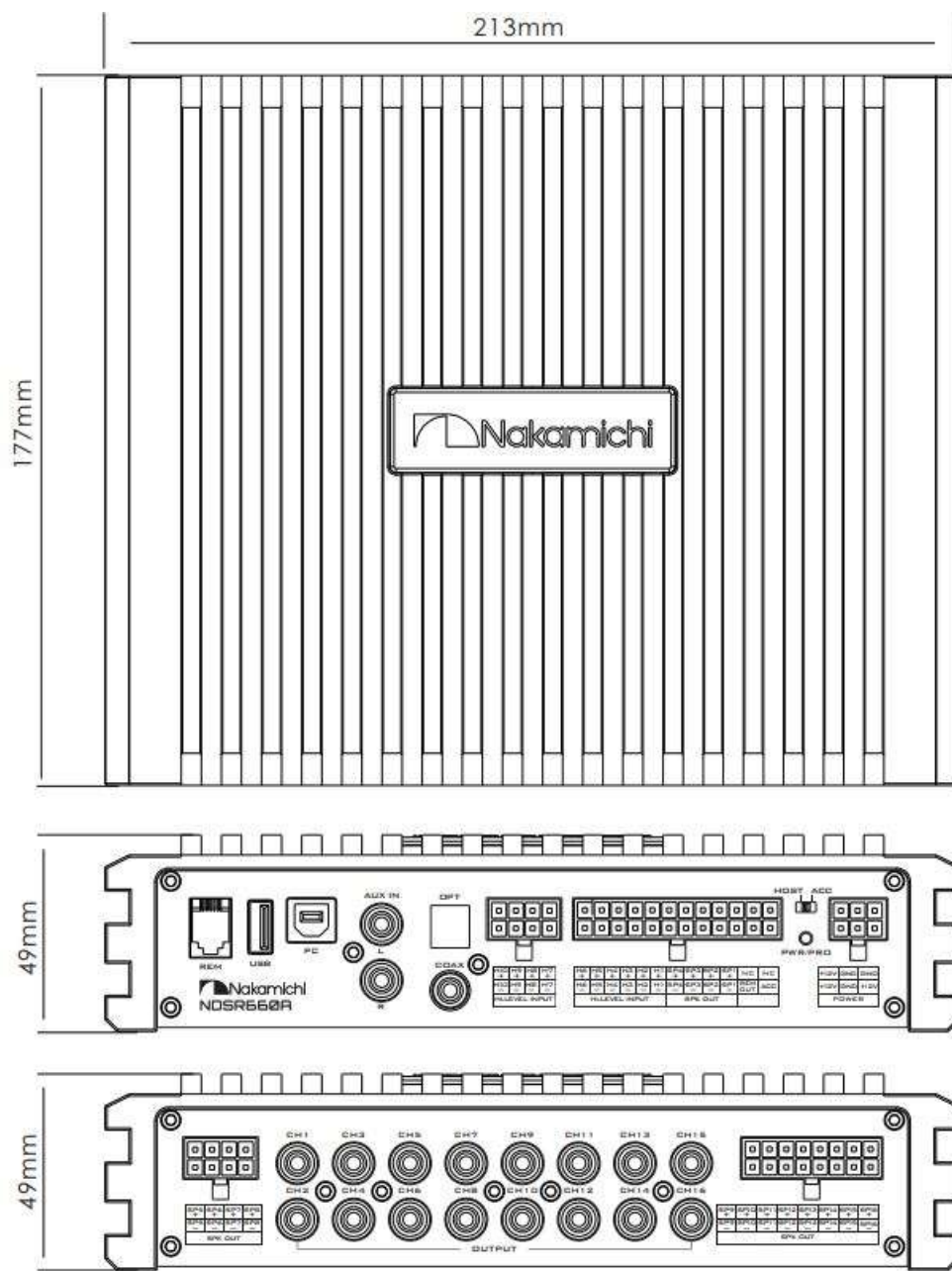
Product Data

Dynamic Range(RCA Input)	≥100dB
S/N(RCA Input)	≥98dB
THD	<0.5%
Frequency Response	20Hz~20KHz
Input Impedance	High Level: 51 Ω
Low Level Output Impedance	51Ω
Signal Input Range	RCA: 7.5Vpp; High Level: 26Vpp
Signal Output Range	RCA: 7.5Vpp; Amplifier Power: 16CHx25W
Working Temperature	-20 ~ 70°C
Power	DC 9V~15V
REM Input	High Level Input Signal: H1+/H1- or ACC control cable
REM Output	+12V Start up Voltage Output(250mA)
Standby Power	≤0.1W
Net Weight	Approx.1.78kg
Product Dimension	213(L)x177(W)x49(H)mm

Technical Sheet

Input Type	10 CH High Level, 2 CH Low Level, Built-in Bluetooth, U disk music , Optical/Coaxial
Output Type	16 Channels low Level, 16CHx25W Power
Output Gain	Gain Range: Mute,-59.9dB~6dB
Output Signal EQ	31 Band Equalizer Engine: 1. Frequency range: 20Hz~40KHz, 1Hz Accuracy 2.Q value (slope): 0.404~28.852 3.Gain: -20.0dB~ +20.0dB, 0.1dB Accuracy
Output Signal Crossover	Each output is equipped with multi-order high and low pass independent filters. 1. Filtering types: Link-Ril, Butter-W, Bessel 2. Filtering frequency division point: 20HZ~20KHz. Resolution 1Hz 3. Filter slope (slope) setting: 6dB/ Oct to 48dB /Oct and OFF
Output Phase and Time Alignment	Each output channel can be adjusted for phase and delay, parameter range: Phase: in-phase or reverse-phase (0° /180°) Delay: 0.000 to 20.000ms. 0 to 692 cm, 0 to 273 inch
Presets	6 Presets into the device

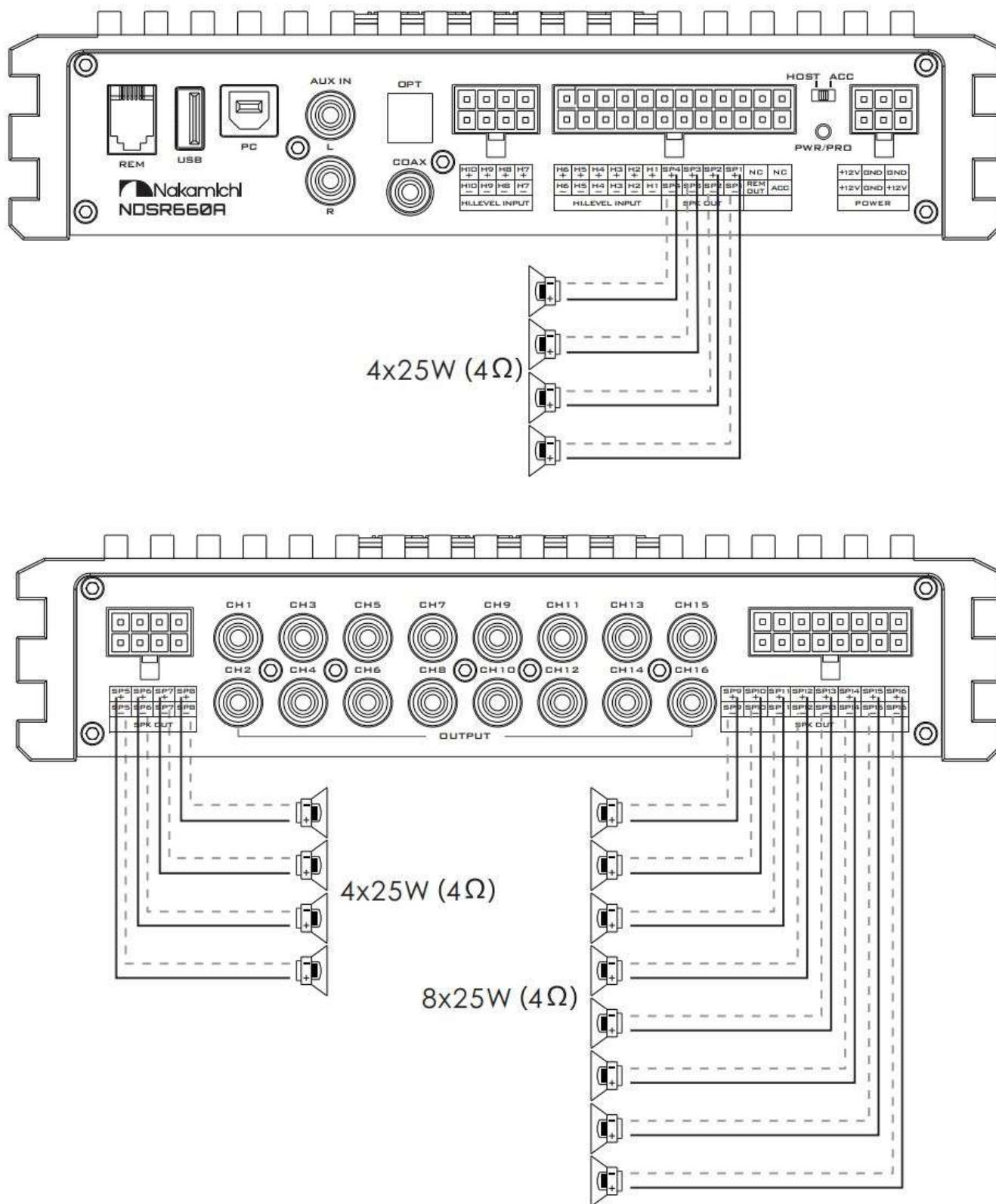
PRODUCT DIMENSIONS



INSTALLATION INSTRUCTIONS

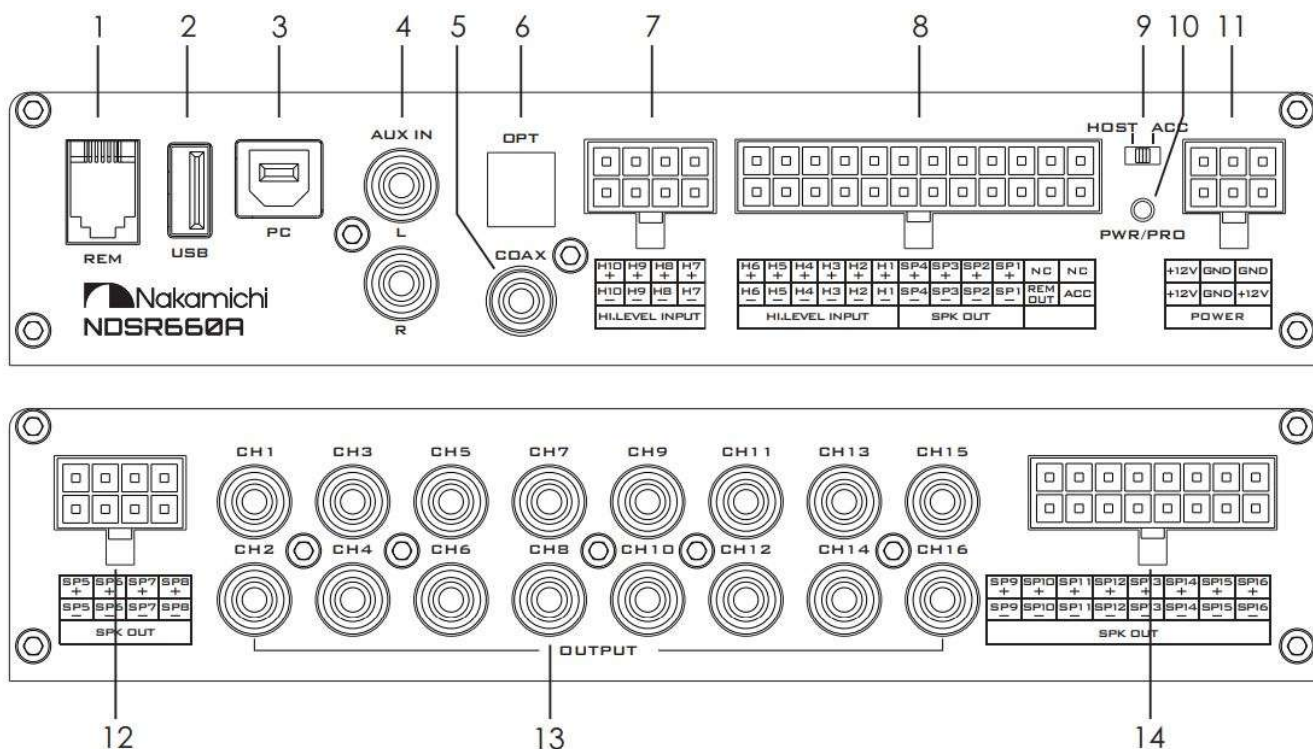


THE SPEAKER WIRING IN NORMAL MODE



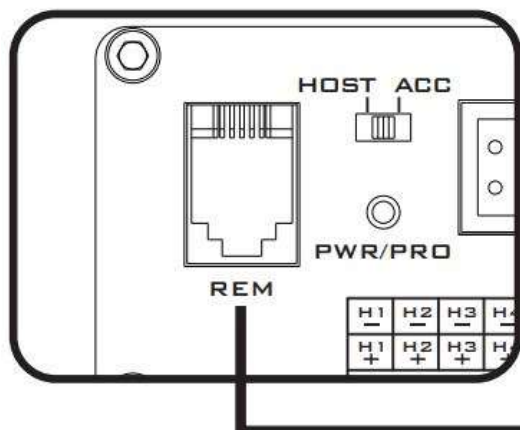
INTRODUCTION

The machine interface diagram is as follows:

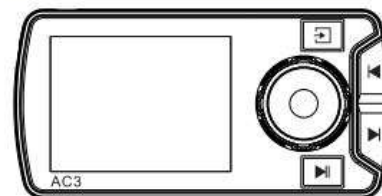


1. The controller port

Data call and total volume adjustment can be performed by the line controller.



AC3 (Optional wiring controller)



2. USB port Insert the USB ash drive and play the song in the USB ash drive under the player audio source.
3. USB2.0 Port, Connect to the computer tuning software No need to download the driver installation, connected to the computer sound software installed automatically.
4. Low level input port Connect up to 2 channels low level input.
5. Coaxial input port When the coaxial input cable of in-car CD or DVD player is connected, the sound source of the DSP is switched to digital input, and coaxial digital signals can be played.
6. Optical input port When the optical input cable of in-car CD or DVD player is connected, the sound source of the DSP is switched to digital input, and optical digital signals can be played.
7. High level input port

H10	H9	H8	H7
+	+	+	+
H10	H9	H8	H7
-	-	-	-
HI.LEVEL INPUT			

a. “+” is positive or positive;” – ” is negative or inverted (ground).

b. Before connecting the power supply, you must corm that the power supply meets the designed power

requirements and connect in strict accordance with the equipment instructions. Otherwise, the equipment may be damaged and may cause accidents such as re, electric shock, etc.

8. High level input port, High level output port

1~6 High level input, 1~4 power amplifier output.

H6 +	H5 +	H4 +	H3 +	H2 +	H1 +	SP4 +	SP3 +	SP2 +	SP1 +	NC	NC
H6 -	H5 -	H4 -	H3 -	H2 -	H1 -	SP4 -	SP3 -	SP2 -	SP1 -	REM OUT	ACC
HI.LEVEL INPUT						SPK OUT					

9. Machine start mode switch When the switch is turned to the “ACC” terminal, the machine is started by ACC, and when it is turned to the “HOST” terminal, the machine is started by the high level H1+/H1- input signal.

10. Power indicator light/Protection indicator light

11. Power port

+12V	GND	GND
+12V	GND	+12V
POWER		

12. High level output port 5~8 power amplifier output.

SP5 +	SP6 +	SP7 +	SP8 +
SP5 -	SP6 -	SP7 -	SP8 -
SPK OUT			

13. Low level output port Connect up to 16 channels low level output.

14. High level output port 9~16 power amplifier output.

SP9 +	SP10 +	SP11 +	SP12 +	SP13 +	SP14 +	SP15 +	SP16 +
SP9 -	SP10 -	SP11 -	SP12 -	SP13 -	SP14 -	SP15 -	SP16 -
SPK OUT							

SOFTWARE INTRODUCTION

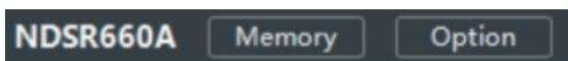
PC Software Operation Introduction

(PC can be downloaded from the official website (<http://www.nakamichicaraudio.com>, CONTACT, downloads))

Computer Conjuration Requirements: Screen resolution higher than1280 x 768, otherwise the software UI is incomplete, only suitable for windows operation system laptop, desktop and pads.

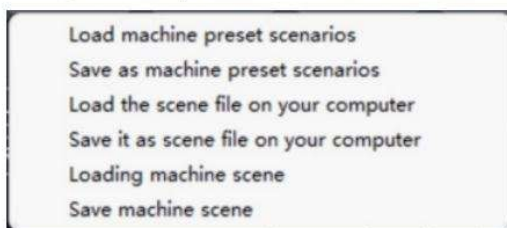


1. Menu editing area



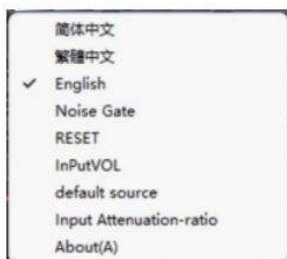
Main functions: File, options operation.

- Click the "File" pop-up window, and select to load the scene on you computer, save it as scene on you computer, load the whole machine scene or save the whole machine scene.



Note: If you need to share tuning parameters, please connect the machine, and "save machine scene" to the personal computer to share this "machine scene".

- Click on "Option" to select Chinese and English switching, Noise Gate, RESET, InPutVOL, default source Input Attenuation-ratio and About(A)



2. Function editing area



Main functions: scene, master source, mixer source, channel type, link, mixer and mode settings.

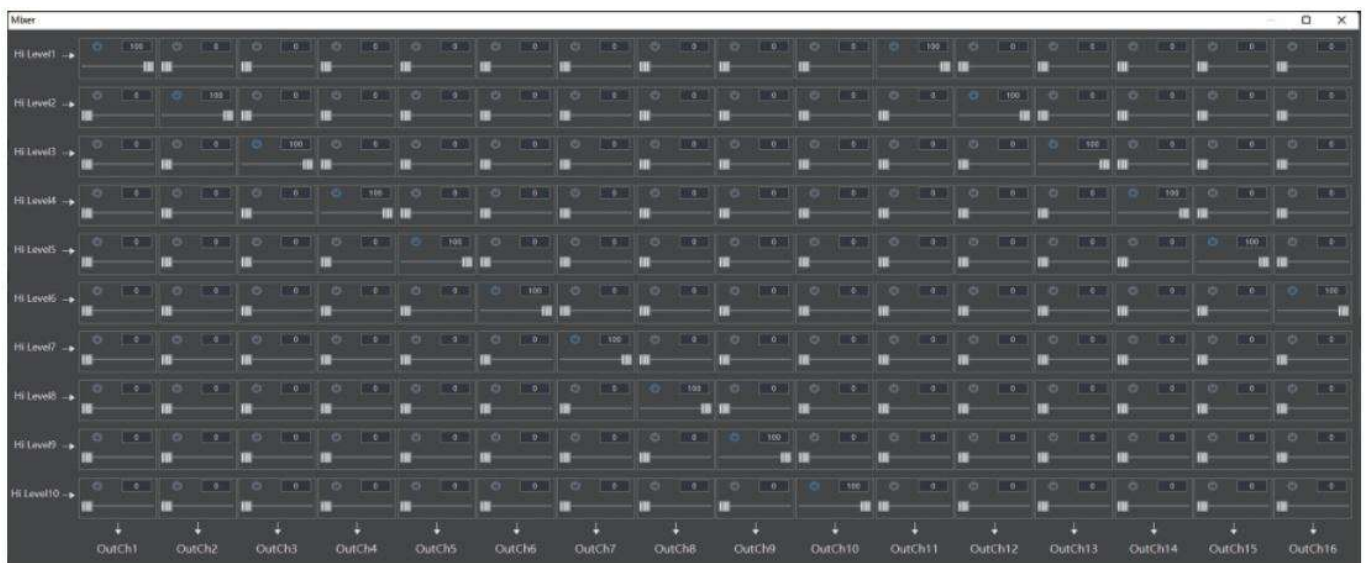
a. Scene: 6 sets of scene data can be recalled or stored.

b. Master source: Click the input audio source drop-down list to select the input audio source. AUX, BT, HI Level, OPT, COAX and USB. Click the auxiliary audio source drop-down list to select the input audio source. AUX, BT, HI Level, OPT, COAX, USB and OFF.



c. Reset: Click Reset to clear the channel type or restore the default channel type. d. Link: Click the Link to set the Link synchronization mode: copy from left to right or copy from right to left.

e. Click "Mixer" to enter the mixing interface, the interface is as shown below.



f. Click "Audio" to switch Sound mode.

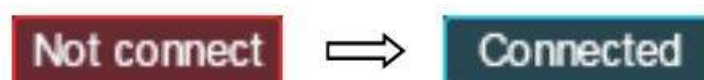
3. Main volume and software connection editing area



Main functions: master volume and computer software connection settings.

a. Main volume adjustment range: off, -59.9~6dB. Click the speaker button to mute the main volume.

b. Click the "Not Connected" button to connect the host with a PC.

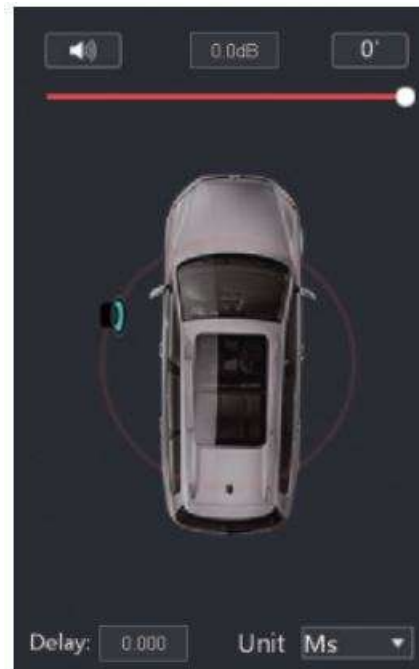


4. Output channel type editing area

CH1 FL-Full ▾	CH3 RL-Full ▾	CH5 Null ▾	CH7 Null ▾	CH9 Null ▾	CH11 Null ▾	CH13 Null ▾	CH15 L-Subwoofer ▾
CH2 FR-Full ▾	CH4 RR-Full ▾	CH6 Null ▾	CH8 Null ▾	CH10 Null ▾	CH12 Null ▾	CH14 Null ▾	CH16 R-Subwoofer ▾

Main function: configure the type of output channel.

5. Channel delay, volume, phase editing area



- a. Push the fader left or right to adjust the sound size, or enter a value or roll the mouse wheel in the volume input box to adjust the sound size. Click the speaker button to switch mute.
- b. Positive phase adjustment: Click 0° or 180° to switch between positive phase and reverse phase.
- c. Delay: set the delay value by scrolling the mouse wheel in the delay input box, or enter the value to set the delay value.
- d. Delay Unit button: Click the drop-down list to select milliseconds, centimeters, and inches.

6. Channel divider editing area

High-pass	Low-pass
Freq: 20Hz	Freq: 20000Hz
Type: Butter_w ▾	Type: Butter_w ▾
Oct: 24dB/Oct ▾	Oct: 24dB/Oct ▾

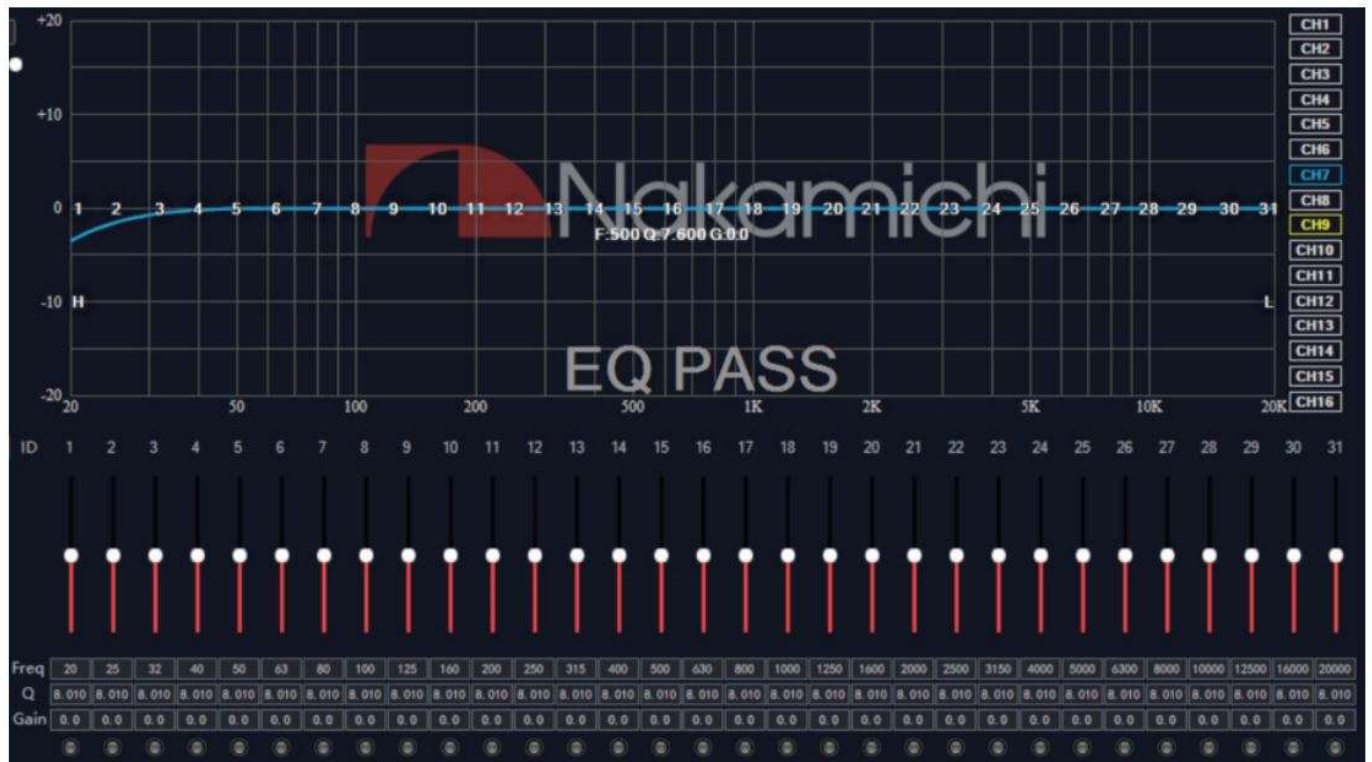
Main Function Setup: Channel High & Low Pass Filter Setup. Adjustable: Filter Type, Frequency point and Q Value (Gradient or Slope).

7. Equalizer editing area

GEQ	Reset EQ	Restore EQ
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- a. Reset EQ: It is used to restore the parameters of the all equalizer to the original pass-through mode (the frequency of the equalizer, the Q value and the gain are restored to the initial value).
- b. Restore EQ: Switch between the currently designed equalizer state parameters and the pass-through mode (the gain of all equalization points is restored to 0 dB, the frequency and value are unchanged).
- c. Click PEQ Mode to switch GEQ Mode. The Q value and frequency cannot be adjusted in the PEQ Mode interface.

8. Channel EQ editing area



Main function conjugation: Equilibrium design of current output channel, 31-band equalization adjustable: frequency, Q value (response bandwidth) and gain (increasing or decreasing the frequency response amplitude near the frequency point).

SOFTWARE INTRODUCTION(SMARTPHONE)

Smart-phone Software Operation Instruction

(APP can be downloaded from the official website(<http://www.nakamichicaraudio.com>, CONTACT, Downloads))



Home



Delay



Output

1. Home interface

It can restore factory settings, share sound effects, save sound effects, turn on local sound effects, check the model and version number of the unit, and exit the software operation; volume, master source, storage and recall of 6 sets of preset scenes.

A. Connection Status:

Red means not connected, green means connected.

B. Menu:

You can restore factory settings, share sound effects, save sound effects, turn on local sound effects, view the model and version number of the machine, and exit the software operation.

C. Sound source:

Master source: AUX / Bluetooth / Hi.level / OPT/Optical / USB to choose from. Auxiliary source: AUX / Bluetooth / Hi.level / OPT/Optical / USB /OFF to choose from.

D. Volume adjustment:

Press and hold the volume scale clockwise or counterclockwise to adjust the volume. The main volume range is 0~66, The subwoofer range is 0~60, The medium, high and low volume range is -12dB~ +12dB.

E. Scene preset: There are 1~6 presets to choose from.

F. Advanced settings: Click [Advanced Settings] to enter the settings of the delay interface, channel interface, EQ interface and mixing.

2. Delay interface Sound eld positioning output delay adjustment.

G. Unit switching: Switch between milliseconds, centimeters, and inches.

H. Delay setting: Click setting window of the corresponding channel. Slide the dots left and right to set the delay value. Delay settings can be made for CH1~ CH16 speakers. Delay range: millisecond range: 0.000~ 20.000; cm range: 0~692; inch range: 0~273.

3. Channel interface

Channel high-low-pass crossover setting with high-low-pass independent ltering.



EQ



Mixer

Adjustable: Filter type, frequency and Q value (slope or slope).

I. Output channel selection: Sixteen channels are available.

J. Output channel volume setting: You can adjust the volume by sliding left and right. The volume range is 0~60. Click the speaker button to mute. Conjurable output channel type, forward and reverse switching.

K. Channel divider selection: Channel type: Choose from Link-Rill, Butter-W and Bessel. Frequency Range: 20HZ~20KHz. Slope selection: 6dB/Oct, 12dB/Oct, 18dB/Oct, 24dB/Oct, 30dB/Oct, 36dB/Oct, 42dB/Oct, 48dB/Oct and OFF can be selected.

L. Joint tuning and channel type settings: Click [Reset] to reset the output channel type so that the output type can be customized. Click [Stereo] to switch between stereo mode and bridge mode. Click[link] the joint debugging window will pop up, and select the joint debugging method.

4. EQ interface Corresponding to the adjustment of the output channel EQ curve (gain, Q value and frequency); reset equalization, pass-through equalization or parametric equalization operation settings.

M. EQ display: Edit the display area.

N. Output EQ gain, Q value and frequency settings:

Output EQ gain setting: A total of 31 EQ. left and right sliding screen can select EQ, you can drag the slider up and down. Select the rst line value, and drag the slider bar left and right in the pop-up dialog box to adjust the adjustment range: -20dB ~ +20dB. Q value: Click the second line value, and drag the slider bar left and right in the pop-up dialog box to adjust, the adjustment range is 0.404 ~ 28.852. Frequency setting: Click the third line value, and drag the slider bar left and right in the pop-up dialog box to adjust it. The adjustment range is 20Hz ~ 20KHz.

O. Reset equalization, restore equalization, pass-through equalization settings:

Click [Reset EQ] to restore the parameters of the 31-band equalizer to the original pass-through mode (the equalizer frequency, Q value and gain are restored to their initial values). When there is channel adjustment, display [straight-through equalization], click [straight-through equalization], click [OK], all values (frequency, Q value and gain) will return to the initial value. At this time, the [straight-through equalization] button will become [recovery

equalization]. Press the button and click [Resume Equilibrium], all values (frequency, Q value and gain) will be

restored to the value before the pass-through. Click [P.EQ Mode], click [OK] to switch to Graphic Equalization, click [G.EQ Mode], click [OK] to switch to Parametric Equalization.

5. Mixing interface

Six sound source modes can be selected. It includes the mixing selection and adjustment of 10 groups of high-level, Bluetooth left and right channels, optical ber left and right channels, coaxial ber left and right channels and aux left and right channels. The adjustment range is 0-100.



<http://www.nakamichicaraudio.com>

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Documents / Resources

	<p>Nakamichi NDSR660A Digital Signal Processor [pdf] User Manual NDSR660A, Digital Signal Processor, Signal Processor, Digital Processor, NDSR660A, Processor</p>
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References

- [Nakamichi Mobile Audio Systems – Nakamichi Car Audio](#)