

148.5mm

105mm

# Nakamichi

## FDSK630A

### User Manual



## DIGITAL SOUND PROCESSOR

nakamichicaradio.com nakamichi.global nakamichi.caraudio

整张纸A3大小，127g铜版纸，双面彩色印刷。先风琴折，再上下对折

黑色边框线为折线，不印刷

### PRODUCT FEATURES

- 8 in 10 out high power HI-RES DSP
- Maximum power of the machine: 1300W
- Support high level input gain adjustment
- Supports digital music: mobile OTG playback
- Supports USB lossless music playback
- Supports Bluetooth music playback
- Super wide frequency range: 20Hz-40KHz
- Support silent or reduced volume when reversing
- Supports steering wheel button control
- 2CH low level inputs
- 8CH high level inputs
- 8CH high level outputs
- 10CH low level outputs
- Supports optical fiber and coaxial input
- Supports external LCD controller
- Supports external APTX HD lossless Bluetooth
- Rated power 6x50W+2x100W
- Supports bridging 200W and directly pushing the subwoofer

### CHARACTERISTICS

General Specifications		Technical Parameter	
Working voltage	DC 9V-16V	Output Gain	-60 to 6dB, resolution 0.1dB
Operating temperature	-20°C~+60°C	EQ band	31 Band /12 CH, preset EQ:6 groups
Maximum current	50A	EQ Gain	-12 to +12dB, resolution 0.1dB
Standby current	55mA	Q value range	0.3 to 50dB, resolution 0.1dB
Product size	210x188x48mm	Frequency range	20Hz-40KHz, resolution 1Hz
Product weight	Approx. 2.1kg	Channel delay	0-25 ms   0-850 cm   0-334.65 inch
Bluetooth version	V5.1	Delay accuracy	0.01 ms   0.34 cm   0.13 inch
Bluetooth music support		Turn on delay	0 to 10,000 ms, with a step of 1ms
Bluetooth distance	5M	input range	Low level: 0-8 Vpp; High level: 0-56Vpp
Digital input	Coaxial, optic	Filter type	Butterworth   Bessel   Link-R
Input Channel	2CH L-Level, 8CH H-Level	High and low pass type	OFF-48dB/Oct, resolution 6dB
Output channel	10CH L-Level, 8CH H-Level	Harmonic distortion	≤0.05%
Power on control	High level CH1/CH2 or ACC	Signal-to-noise ratio	≥98dB

### Power amplifier parameters

CH	Rated power 14.4V 4Ω	MAX power 14.4V 4Ω	Bridge power 14.4V 4Ω	4Ω Speaker	2Ω Speaker
CH1-CH6	50W	100W	/	Support	Not supported
CH7-CH8	100W	200W	200W	Support	Support

### Supported formats

1. Supported audio formats: MP2,MP3,WMA,APE,FLAC,AAC,MP4,M4A,WAV,AIF,AIFC
2. Supported audio sampling rate: 8KHz,11.0225KHz,16KHz,22.05KHz,24KHz,32KHz,44.1KHz,48KHz
3. Supported USB flash drive formats :FAT32 | NTFS | exFAT
4. Maximum supported capacity of USB flash drives: 256GB

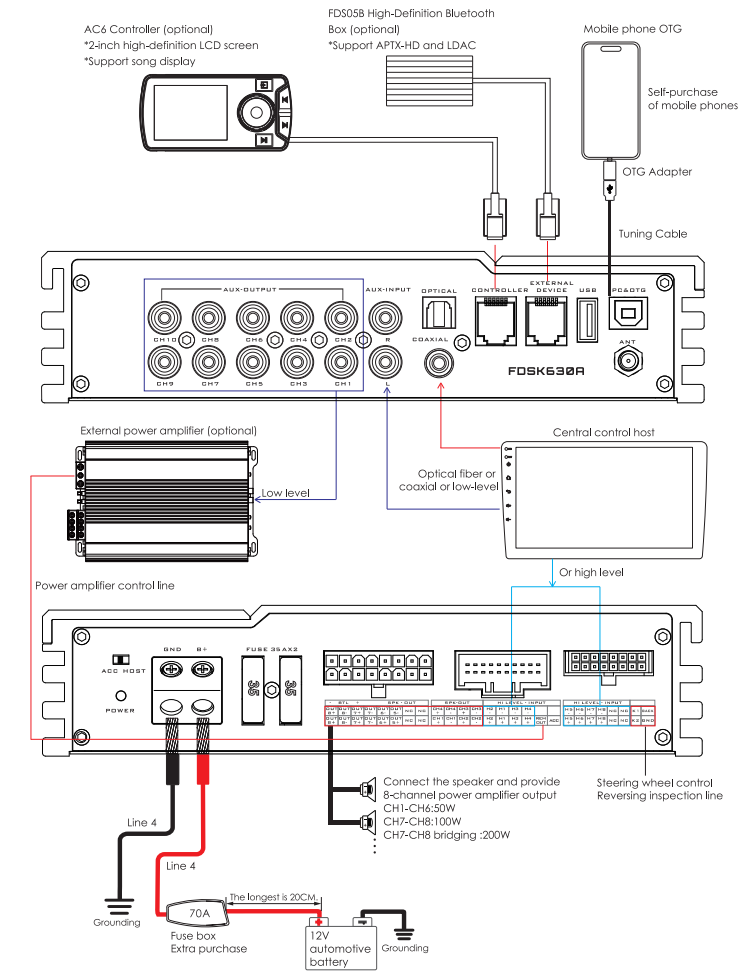
### PRODUCT LIST

DSP power amplifier x1	20P DSP cable x1	16P high input cable x1
16P speaker cable x1	OTG connector x2	Computer tuning cable x1
Fuse x2	Installation bracket x2	Instruction Manual x1
screws 4x20mm x2	screws 3x8mm x4	Bluetooth Antenna x1

### PRECAUTIONS

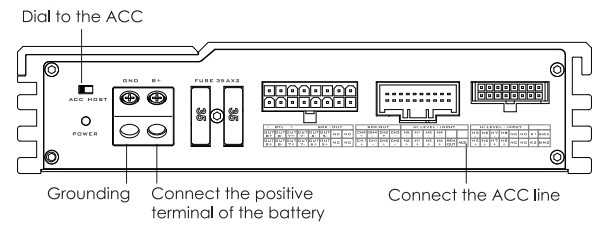
- Please install it on models with a 12V power supply. If installed in a vehicle with a 24V power supply, it may cause damage to the machine and lead to combustion.
- Please install in a well-ventilated location. If installed in a fully enclosed environment, excessively high temperatures may cause the machine to enter a protective state after working for a period of time. The sound can only return to normal after the temperature drops.
- Please have professionals install it. If it is not done by professionals for tuning and installation, when the wiring or Settings are incorrect, it may cause damage to the speaker or the machine.
- Please ensure that you use wires that match the machine's current. If you use wires that do not match the machine's current or have poor grounding, it may cause the machine to make intermittent sounds if it is silent after being played intermittently or for a period of time.

### SYSTEM MATCHING DIAGRAM

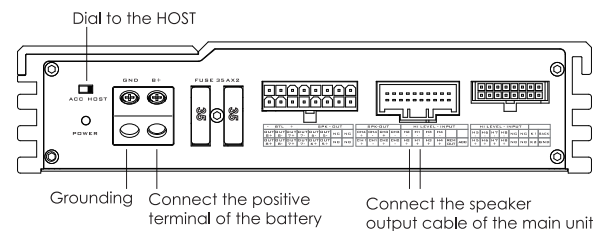


### WIRING DIAGRAM

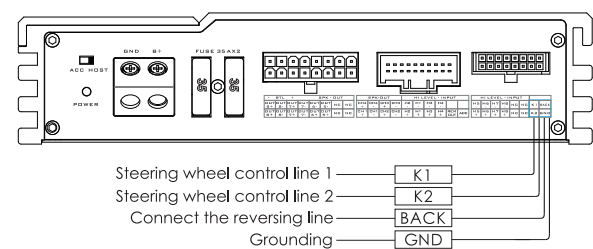
ACC starts up and turns on (that is, the DSP turns on when the car starts)



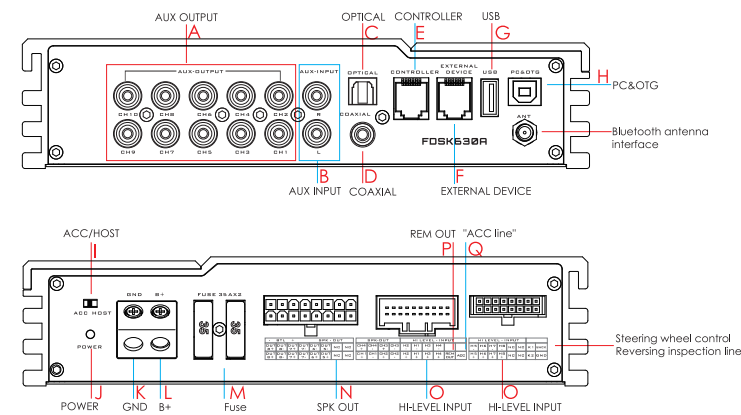
High-level startup (DSP startup when the I host is turned on)



The steering wheel control line and the reversing line are connected



### INTERFACE INTRODUCTION



### Interface description:

- A.AUX OUTPUT: Expandable external amplifier, connected to the RCA input of the amplifier.
- B.AUX INPUT: Connect to the L-level output of the host or the RCA output of other playback devices.
- C.OPTICAL: Connect the optical fiber output of the host or that of other playback devices.
- D.COAXIAL: Connect to the coaxial output of the host or the coaxial output of other playback devices.
- E.CONTROLLER: The line controller AC6 supports volume control and song display.
- G.USB: USB interface.
- F.EXTERNAL DEVICE: Connect to FDS05B, supporting APTX and LDAC high-definition music.
- H.PC&OTG: When playing OTG on a mobile phone, an OTG adapter needs to be connected.
- I.ACC/HOST: ACC: Turn on the car when it starts. HOST: Boot up when the host is turned on.
- J.POWER: Blue light: Powered on. Red light: Entered protection (will be activated after cooling down).
- K.GND: Connect to the negative terminal of the power supply. Please use Line 4 and ensure it is well grounded.
- L.B+: After passing through the fuse (optional), connect the positive terminal of the battery. Please use Wire 4.
- M.FUSE: Fuse. When the fuse blows, please be sure to use a fuse of the same specification.
- N.SPK OUT: Connect the speaker.
- O.HI-LEVEL INPUT: Connect to the high-level output of the main unit.
- P.REM OUT: Connect the REM OUT port of the power amplifier. When the DSP is turned on, the power amplifier is also turned on.
- Q.'ACC line': Connect to the car's ACC fuse box.

### PHONE APK INSTALLATION

#### Android Phone APK Installation

Method 1

1. Open phone browser, scan the QR code to enter the download
2. Find the FDSK, select Android for download and installation

Method 2

1. Enter the PC browser, enter nakamichicaradio.com
2. Click ENQUIRIES-Downloads-DSP software Download
3. Find FDSK, select Android for download and installation

#### iPhone APK Installation

Open the app store, Search Nakamichi FDSK for download and installation

#### Installation precautions

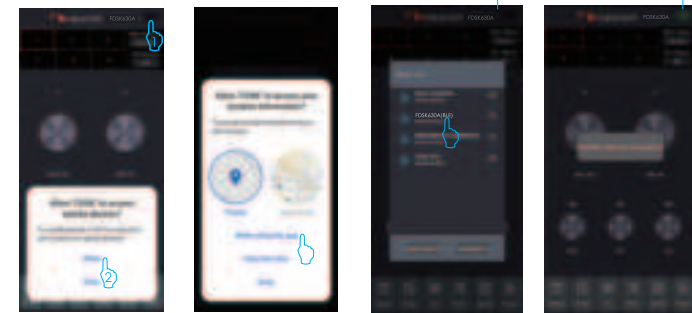
1. During the installation process, please turn off the antivirus software
2. Android phone: Download and unzip before installing
3. During the installation process, please click on allow this installation or authorize this installation based on known application risks.
4. Send APK via mobile phone, please send a compressed file, unzip it upon receipt, and then proceed with installation

#### APP Connection

Before operating the app, turn on your phone's Bluetooth first

1. Open the FDSK APP
2. Select FDSK630A, Click OK
3. Click on the top right corner
4. Turn on Bluetooth on your phone

When connecting for the first time, a pop-up box will appear. Please select 'Allow' If not allowed, Bluetooth cannot be searched.

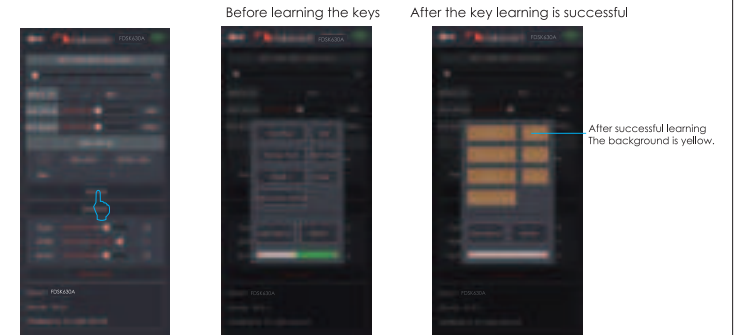


### BASIC OPERATIONS

The following operations need to be performed after the APP is installed and connected.

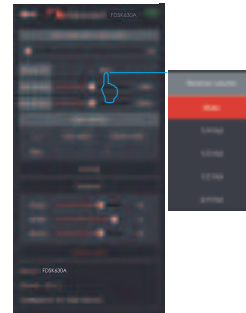
#### LEARNING OF STEERING WHEEL BUTTONS

1. Click on [System] and select [Control learning]
2. Click on the key function you want to learn on the screen
3. Please press the key you want to operate on the steering wheel within 10 seconds. When the bottom of the key turns yellow, it indicates that the learning is successful
4. For other key learning, repeat the operations in steps 2 and 3
5. After completing all the learning, click [Save Result] When the key learning is incorrect, you need to relearn. Press [Start Again].



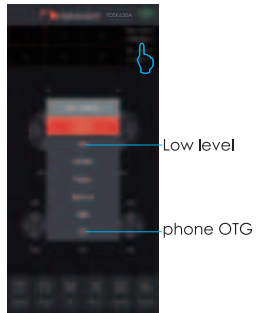
#### Reversing volume setting

Click [System] and select [Reversing Volume]



#### Signal source selection

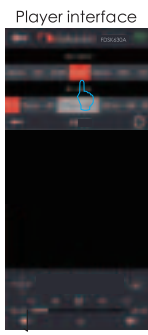
Click on the main audio source to select the signal source





## USB PLAYBACK

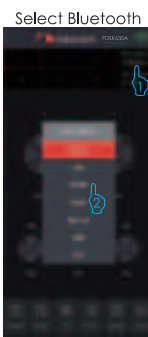
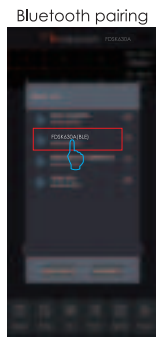
- When a USB flash drive is inserted, the DSP will jump to USB playback.
- Click on [Player] to enter the player interface. Click on [Player] to enter the player control interface. When in other states and you need to switch to USB playback, click on the audio source and select [Player].



- Update the list of tracks
- Random play | Sequential play
- The previous song
- Play/Pause
- The next piece
- Single repeat | All repeat
- Reduce the volume
- Volume up

## BLUETOOTH MUSIC PLAYBACK

- When playing music via Bluetooth for the first time, pairing is required first
- Turn on your phone's Bluetooth and search for available devices: FDSK630A.
  - After successful pairing, when playing Bluetooth music, the DSP will automatically switch to Bluetooth mode. When in other states and you need to switch to Bluetooth mode, click on the audio source and select [Bluetooth/Devices].
  - Click on FDSK630A to pair.

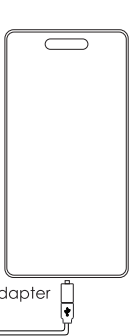
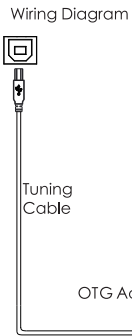


8

## MOBILE PHONE OTG MUSIC PLAYBACK

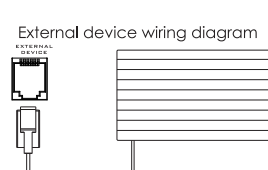
Mobile phone OTG: It refers to the process of transmitting mobile phone music to the DSP in a high-fidelity digital format, where the DSP performs hard decoding to achieve high-fidelity lossless audio quality.

- Connect the OTG cable of your mobile phone and play music
- Enter the mobile APP, click on the main audio source, and select [OTG]



## EXTERNAL DEVICE PLAYBACK

- Connect the FDS05B to the EXTERNAL DEVICE port.
  - Turn on the Bluetooth on your mobile phone and search for available devices: FDS05B.
  - Click FDS05B to pair.
- When the FDS05B is connected, the built-in Bluetooth music of the original machine will not be playable.



\*The FDS05B adopts a Qualcomm Bluetooth chip and supports APTX HD and LDAC high-definition Bluetooth lossless music.



9

## OPERATION OF MOBILE PHONE APP

**Main interface**

- Tuning archive
- Main volume adjustment: -60dB to 6dB
- Treble adjustment: -60dB to 6dB
- Channel
- Mute & Turn on the volume
- Phase adjustment

**Main audio source selection interface**

- Bluetooth is connected.
- Main audio source selection
- Selection of remix audio sources
- Subwoofer volume adjustment: -6dB to 6dB
- Bass adjustment: -6dB to 6dB
- Mid-range adjustment: -6dB to 6dB
- Low level
- Mobile phone OTG

**Output channel Settings**

- Selection of speaker type
- Current channel gain
- Channel gain adjustment: -60dB to 6dB
- EQ Settings

**Output joint debugging**

- When conducting joint debugging, two are in one group

**EQ Settings**

- Channel selection
- EQ curve
- Up and down selection
- Numerical adjustment
- Gain adjustment: -12dB to +12dB
- Q value adjustment: 0.3 to 50
- Selection of high and low pass types: Butterworth | Bessel | Link-Ril
- Selection of high and low pass slopes: OFF to 48dB/Oct
- The high and low pass switching frequencies are set from 20Hz to 40KHz

## OPERATION OF MOBILE PHONE APP

**Delayed interface**

- Mute 1/4 1/3 1/2 1/4 volume
- Delay adjustment: 0-25 ms, 0-850 cm, 0-334.65 inch
- Delay unit switching: ms | cm | inch

**Setting interface**

- Attenuation adjustment of the main sound source: -60dB to -120dB, 0 to 10,000 ms
- Enter the Fongkong learning interface
- Player volume setting
- Bluetooth volume setting
- Optical fiber volume setting

**Delayed interface**

- Selected mix Sound channel
- Selection of mixing channels
- Mixing ratio selection
- It indicates that mixing is not supported

**Player interface**

- Main audio source selection
- Selection of remix audio sources
- List of songs on a USB flash drive
- Song manipulation

11

## PC TUNING SOFTWARE DOWNLOAD

- Solution 1: (Mobile Download)
- Enter the browser and scan the QR code to enter.
  - Click FDSK series and select PC download.
  - After downloading, send to the computer.

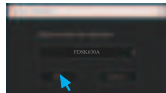


## Solution 2: (PC Download)

- Enter the browser and type nakamichicarudio.com.
- Click ENQUIRIES—Downloads—DSP Software Download.
- Click FDSK series and select PC download.

## PC TUNING SOFTWARE INSTALLATION

- Double-click FDSK to install it. \*Files sent via mobile phone need to be unzipped.
- Click [Finish], PC tuning software installed successfully.
- Click [FDSK630A], click [OK] to enter the tuning interface.
- Connect the PC and DSP with a tuning data cable.



## Installation precautions:

- Please turn off the anti-virus software when downloading files or installing software.
- When you need to extend the tuning data cable, please purchase a good quality one.

12

## BASIC OPERATIONS OF COMPUTER TUNING

**The original password is empty**

- Save the current debugging data
- Bring up the current debugging data
- Save the scene file
- Bring up the scene file

**Firmware upgrade**

- All Settings will be restored Restore to the factory Settings

**Enter the modified password**

- \*After setting the password, you need to enter it when reconnecting.

**Channel clear output configuration**

- Silent when reversing
- Reduce the volume to 1/4 when reversing
- Reduce the volume to 1/3 when reversing
- Reduce the volume to 1/2 when reversing
- Reduce the volume to 3/4 when reversing

## COMPUTER TUNING OPERATION

**Mixed audio source selection interface**

- Gain adjustment of the mixing channel
- Optional channel
- Selected Channel
- Attenuation ratio
- Optional remix
- Dark grey indicates this communication channel does not support mixing
- Remix has been selected
- Main volume adjustment

**Mixed audio source selection interface**

- Gain adjustment of the mixing channel
- Optional channel
- Selected Channel
- Attenuation ratio
- Optional remix
- Dark grey indicates this communication channel does not support mixing
- Remix has been selected
- Main volume adjustment

**Mixing interface**

- Channel clear output configuration
- When conducting joint debugging, two are in one group

**Delayed interface**

- Mute or turn on the volume

\* Default output | Clear output | Restore factory Settings: Please operate with caution. Before operation, be sure to make relevant backups (such as tuning data)

13

## COMPUTER TUNING OPERATION

**Quick tuning**

- Channel definition
- Curve graph
- EQ adjustment

**preset saving**

- Channel definition
- Curve graph
- EQ adjustment

**preset loading**

- Channel definition
- Curve graph
- EQ adjustment

**Qualcomm low-pass setting**

- Channel definition
- Curve graph
- EQ adjustment

**Selected channel**

- Channel mute | Turn on the volume
- Open and close Channel curve
- The curve has been opened
- Closed curve
- EQ band

**Channel gain adjustment**

- Save the preset
- Channel gain value
- Qualcomm type
- Noise gate setting
- Reset the EQ to the factory state

**Calling preset**

- Phase setting
- Low-pass frequency
- Phase setting
- Low-pass type
- "EQ Direct"
- Startup delay setting

14

## SIMPLE FAULT HANDLING

When encountering abnormalities, please check if the following phenomena occur and eliminate them. If the abnormality persists, please call for consultation.

No electricity	The fuse has blown	Replace the correct fuse
	Choosing "ACC   HOST" for startup and shutdown is incorrect	1. When ACC is selected, please connect the ACC cable 2. When "HOST" is selected, connect the high-level input
	Poor contact of the power card	Reconnect the power card
The sent APK file or PC tuning file cannot be found	Some channels have been deleted or isolated by antivirus or security software without any sound	1. Find the isolated files 2. Turn off the antivirus or security software and resend
	What the mobile phone sends is not a compressed file. Yes, APK file	1. Use a computer to convert FDSK.apk.1 to FDSK.apk, compress it and then send it to a mobile phone for installation 2. Ask the other party to send a compressed file for installation
The APP cannot be installed.	No selection was allowed during the installation process	Reinstall the APK and select Allow
	Location and access are not allowed	Set the FDS location information to allowed in the mobile phone Settings Reinstall the APK and select Allow
The computer cannot be connected to the Internet or the computer tuning often disconnects	Poor USB contact	Please replace it with another USB port
	Software problem	Please uninstall and reinstall
	The software has encountered a BUG.	Please close the software and then reopen it to reconnect
	The system is too old.	Please replace your computer with one running Windows 7 or above
The USB playback has sound but becomes silent or intermittent after playing for a period of time	An Apple computer is used	The system compatibility is poor. Please use a WINDOWS computer
	The purchased data cable is of poor quality	Please change the data cable of a good brand and quality
	The machine enters the protection state when the temperature is too high	Please move the machine to a well-ventilated position or install a fan
The Bluetooth music cannot play	The high-level input does not match	Add a detection resistor to the wire
	The Bluetooth is not connected or disconnected	Reconnect Bluetooth
The Bluetooth music is intermittent or silent when it's a little farther away	Bluetooth is isolated by metal	Remove the metal or change the installation position of the machine
	The Bluetooth antenna is not installed or has fallen off	Install the Bluetooth antenna properly
The bottom noise is relatively large	RCA line interference	Please replace the RCA wire with a good quality one
	The noise at the bottom of the main unit is high	Adjust the noise gate value or replace the main unit
The sound of the optical fiber is too soft or intermittent	The output amplitude of the optical fiber is relatively small	Replace it with a high or low level input to the DSP
	Some vehicles come with power amplifiers, and some channels have a large wattage	Set the high-level input gain adjustment