Fidek®

FCQA-9631

16-Channel Digital
Cinema Sound Processor

Fidek **FCQA-9631** 16-Channel Digital Cinema Sound Processor

Standby

Test Mic Nonsync Digital Sync Digital Analog CD/DVD

Volume

MIN MAX Mute

USB ▶

Storage Card ▼

USER'S MANUAL

Thank you very much for your choice of Fidek product.

FCQA-9631 is a professional 16-channel digital cinema sound processor which Fidek launches after FCQA-8631. According to the characteristics of digital cinema and from a professional standpoint, the system adopts DSP processing technology to decode the output audio signal of digital cinema server, and then through DSP audio processing to change to 16-channel outputs which digital cinema stereo sound need. The system adopts humanized computer operation interface, has convenient operation, concise interface, excellent performance and so on advantages. Simple and easy to use, through the software it easily accomplishes the settings and processing to audio signal.

Before you start installation, please read full contents of this user manual so as to know well each function and operation of the unit.

TABLE OF CONTENTS

FCQA-9631 is a professional digital cinema processor in high quality and with excellentperformance.

FEATURES:

-Brand new appearance and software design, simpler operation, more convenient to use and more
  stable working.
-Simple and concise operation interface to make the debugging works much easier.
-Adopt DSP processing technology to process the audio signal instead of old type analog audio
  processing.
-Adopt high-speed DSP chip, 48KHz sampling rate, 24bit high performance low noise A/D, D/A
  conversion.
-Support 25pins D type analog audio inputs.
-Support 1.3K and 2K digital cinema server 16 channels digital audio signal input.
-Bypass, Two-way, Three-way working models meet different needs of big, middle and small size
  cinema projects.
-All digital audio processing minimizes the noise.
-All digital and analog input signal adopt ground isolation technology to minimize the working noise
  of system.
-Professional digital cinema decoding module.
-16 channels separate two-way, three-way, bypass three type crossover status working modes.
-16 channels 31 bands figure scale is convenient for compensation for architectural acoustics defects.
-16 channels separate treble, midrange, bass delay control and surround delay control.
-Support loudspeaker parameters reset.
-16 channels all with separate pink noise signal generator is convenient for installation and debugging.
-Support multiple audio signal input, convenient for user to choose for different audio signal.
-Support one channel optical and one channel coaxial digital audio input.
-Support Crossover, EQ, Gain adjustments, has powerful processing ability to digital signal.
-Built in the technical parameters of Fidek cinema loudspeaker FD / FDM series and simplifies the
  whole debugging processes. The standard program, testing signal and testing microphone functions
  are very helpful for precise debugging for the sound reinforced equipments of a cinema.
-Through the network in a cinema, in the machine room it can be for user to achieve centralized
  debugging, monitoring and controlling management to many cinema rooms connected.
-Supplied with data backup card, one unit has one card, insert card for back-up & refreshing.
-Engineering debugging data can be recorded, encrypted and used again at any time.

CHECK LIST

It includes the following things in the package:

Name	Quantity
FCQA-931	1PC
Power cord	1PC
USB cable	1PC
25 pins D type connector (male)	6PC
IC backup card	1(optional)
Net cable-2M	1PC
User Manual	1PC
25 pins D type connector (female)	1PC
Test microphone	1(optional)

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart,stand,tripod, bracket, or table specified by the manufacturer,or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

    Portable Cart Warning
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel.Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
16. The MAINS plug is used as the disconnect device, which shall remain readily operable
17. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

FUNCTION INSTRUCTIONS AND OPERATION WAYS

Front Panel

1 **2 3 4 5 6 7** **8 11** **9 10**
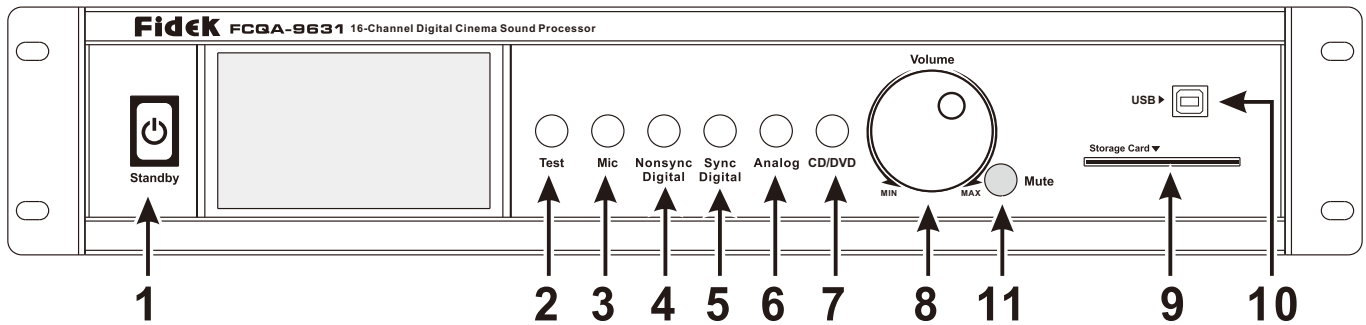
❶ **Standby Button**

Press the Standby button, its back light will be lighted, the unit will enter standby mode. When the unit is in standby mode, press this button or through network software can send working order to the unit.

❷ **Test Button**

loudspeaker system and the sequence is as following:

L→LC→C→RC→R→RS→RN→RSR→LSR→LN→LS→LST→RST→SW→LB→RB

❸ **Mic. Button**

Press the Mic. button to select microphone input, its back light will be lighted, now if without connection with compute software, it just can open the conference microphone and signal just will be sent to Left, Center and Right channels.

But in the software interface in computer connected, to choose the Mic. button, the unit will enter microphone testing & tuning mode available for cinema sound system tuning according to internal standard signal.

❹ **Nonsync Digital Button**

Press the Nonsync Digital button to select nonsync digital input, its back light will be lighted and the input will be in optical / coaxial input. Optical / coaxial input is just available for one audio source input at one time and the unit will automatically recognize signal input.

❺ **Sync Digital Button**

Press the Sync Digital button to switch to digital cinema signal input. But before, the 8 channel outputs of the digital cinema server need to be well connected to the corresponding input ports at the back panel of this processor, and then the sync digital cinema audio signal can be input.

❻ **Analog Button**

Press the Analog button to switch to analog cinema signal input. And the analog input port supports the analog audio signal output from CP750 or decoded analog audio signal from DVD.

FUNCTION INSTRUCTIONS AND OPERATION WAYS

Front Panel
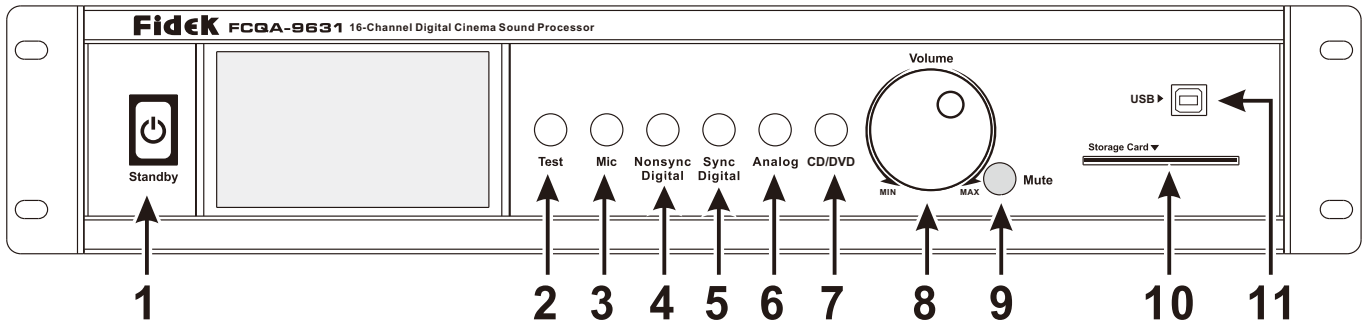
7 CD/DVD Button

Press the CD/DVD button to switch to CD/DVD input, and the corresponding ports are 8 channels RCA input jacks, they are 8 channels non balance analog audio signal inputs.

8 Volume Control Knob

It is the master volume control of the 8 channels, volume display maximum is 10 and minimum is 0, the step is 0.1, the volume slope and the corresponding figures are as following:

9 MUTE

Press the Mute/Test button, its back light will be lighted, the unit will mute the audio output to all channels without disturbing the current setting. Press it again to resume. Hold pressing this button for 3 seconds the unit will start automatic testing of
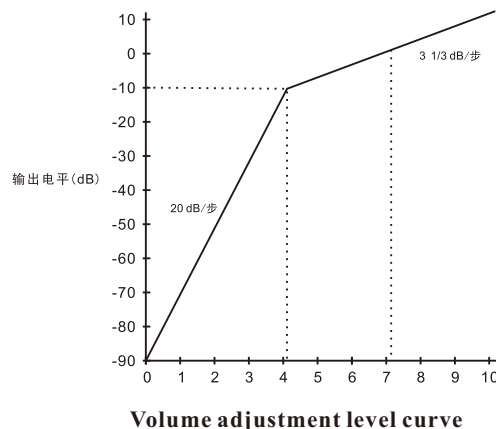
10 Backup IC Card Port

Insert the backup IC card to the port to save data of the unit. On the debugging interface, it is available for card read-writing through the corresponding menu.

It is required management password before read-writing card. The card need be initialized and written into identification code before usage.

If without connection with computer software, after the unit is turn on and then insert the card it will automatically update the data and IP address of the unit.
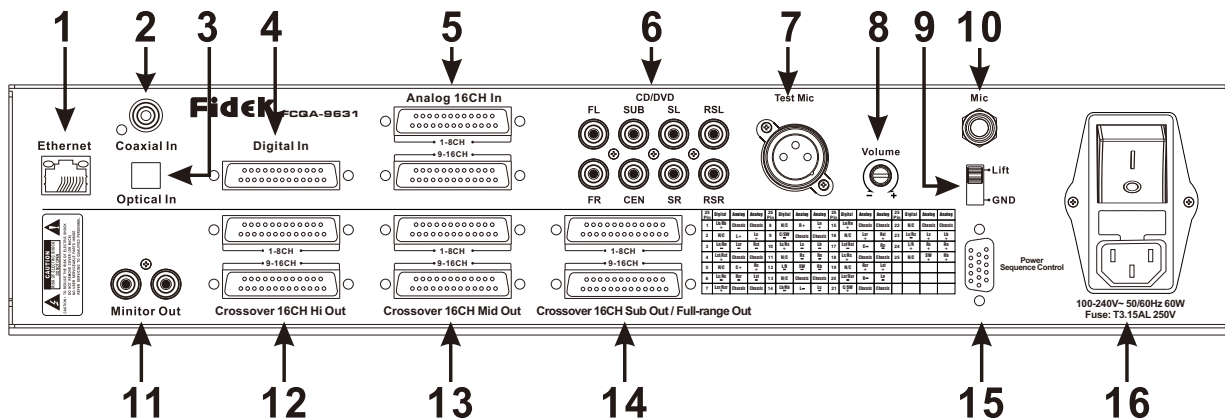
11 USB Port

User can use the supplied USB cable to connect with computer, and through debugging interface to debug the various parameter configurations.

Volume adjustment level curve

Back Panel

1 2 3 4 5 6 7 8 9 10

Fidek FCQA-9631

Analog 16CH In

CD/DVD
FL SUB SL RSL

Test Mic

Mic

Ethernet Coaxial In Digital In 1-8CH 9-16CH

Optical In

FR CEN SR RSR

Volume

Lift
GND

1-8CH 9-16CH 1-8CH 9-16CH 1-8CH 9-16CH

Minitor Out Crossover 16CH Hi Out Crossover 16CH Mid Out Crossover 16CH Sub Out / Full-range Out

Power Sequence Control

100-240V~ 50/60Hz 60W
Fuse: T3.15AL 250V

11 12 13 14 15 16

① **Ethernet Port**
RJ45 port is for remote control through digital cinema network to the single unit or to make network management and control to multi cinemas.

② **Coaxial In Jack**
Coaxial S/PDIF input connector

③ **Optical In Jack**
Optical S/PDIF input connector.

④ **Digital In Port**
It supports 8 channels AES-EBU digital film signal input from 1.3K and 2K digital film server.
For the corresponding pins connection please refer to the attached list Table 1 on page 7.

⑤ **Analog In Port**
It supports 1 channel DB-25 port analog film signal input. For the corresponding pins connection please refer to the attached list Table 3 on page 7.

⑥ **CD/DVD Audio Input Jacks**
8 channels non-balance input ports support 8 channel analog signal input.

⑦ **Test Mic. Jack**
Microphone jack for connection with specialized microphone for testing the duly sound parameters of the cinema and through modify EQ to correct the sound system defects to meet the sound effect requirements of cinema.

⑧ **Mic. Volume Control**
It is the volume control for conference microphone.

⑨ **Lift/GND Switch**
This switch is available to choose lift or grounding if noise caused from grounding.

⑩ **Conference Mic. Jack**
There is conference microphone jack for connection with microphone for public address or emergency call.

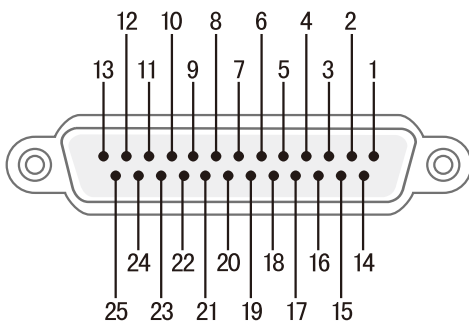# FUNCTION INSTRUCTIONS AND OPERATION WAYS

Back Panel

Pins connections of digital signal input

25 Pin	Digital
1	CH9/10 + Lb/Rb +
2	CH9/10 GND
3	CH15/16 − Ln/Rn −
4	CH13/14 + Lst/Rst +
5	CH13/14 GND
6	CH11/12 − Lc/Rc −
7	CH7/8 + Lsr/Rsr +
8	CH7/8 GND
9	CH3/4 − C/SW −
10	CH5/6 + Ls/Rs +
11	CH5/6 GND
12	CH1/2 − L/R −
13	NO CON
14	CH9/10 − Lb/Rb −
15	CH15/16 + Ln/Rn +
16	CH15/16 GND
17	CH13/14 − Lst/Rst −
18	CH11/12 + Lc/Rc +
19	CH11/12 GND
20	CH7/8 − Lsr/Rsr −
21	CH3/4 + C/SW +
22	CH3/4 GND
23	CH5/CH6 − Ls/Rs −
24	CH1/2 + L/R +
25	CH1/2 GND

Pins connections of analog signal input

25 Pin	Analog(1-8Channel)	Analog(9-16Channel)
1	Chassis	Chassis
2	L +	Lc +
3	Lsr −	Rst −
4	Chassis	Chassis
5	C +	RC +
6	Rsr −	Lst −
7	Chassis	Chassis
8	R +	Ln +
9	Chassis	Chassis
10	Ls −	Lb −
11	Rs −	Rn −
12	SW −	Rb −
13	Chassis	Chassis
14	L −	Lc −
15	Chassis	Chassis
16	Lsr +	Rst +
17	C −	Rc −
18	Chassis	Chassis
19	Rsr +	Lst +
20	R −	Ln −
21	Chassis	Chassis
22	Chassis	Chassis
23	Ls +	Lb +
24	Rs +	Rn +
25	SW +	Rb +

Female

Table 1

Male

Table 2

Back Panel

1   2 3   4   5   6   7   8 9 10

Ethernet   Coaxial In   Digital In   Analog 16CH In   CD/DVD   Test Mic   Volume   Mic

Optical In   FL SUB SL RSL   FR CEN SR RSR   Lift   GND

Minitor Out   Crossover 16CH Hi Out   Crossover 16CH Mid Out   Crossover 16CH Sub Out / Full-range Out   Power Sequence Control

100-240V~ 50/60Hz 60W
Fuse: T3.15AL 250V

1-8CH / 9-16CH

11   12   13   14   15   16

⑪ Mointor Out RCA Jacks

It is composite output for monitoring the left, right and center channels sound.

⑫⑬⑭

Channels Output Ports

There are 3 ports for 8 channel output: left, center, right, left surround, right surround, rear left surround, rear right surround and subwoofer.

When the unit crossover is set to full range status, the sound signal will be output through port of Crossover Sub Out/Full-range Out.

When the unit crossover is set to two-frequency-division status, the sound signal high frequency will be output through port of Crossover Hi Out, midrange no output of Crossover Mid Out, low frequency will be output through port of Crossover Sub Out/Full-range Out.

When the unit crossover is set to three-frequency-division status, the sound signal high frequency will be output through port of Crossover Hi Out, midrange will be output through port of Crossover Mid Out, low frequency will be output through port of Crossover Sub Out/Full-range Out.

Please refer to the following table for output under different crossover status:

	Crossover Hi Out	Crossover Mid Out	Crossover Sub Out/Full-range Out
Full range			Full range
Two-frequency-division	High frequency		Low frequency
Three-frequency-division	High frequency	Midrange	Low frequency

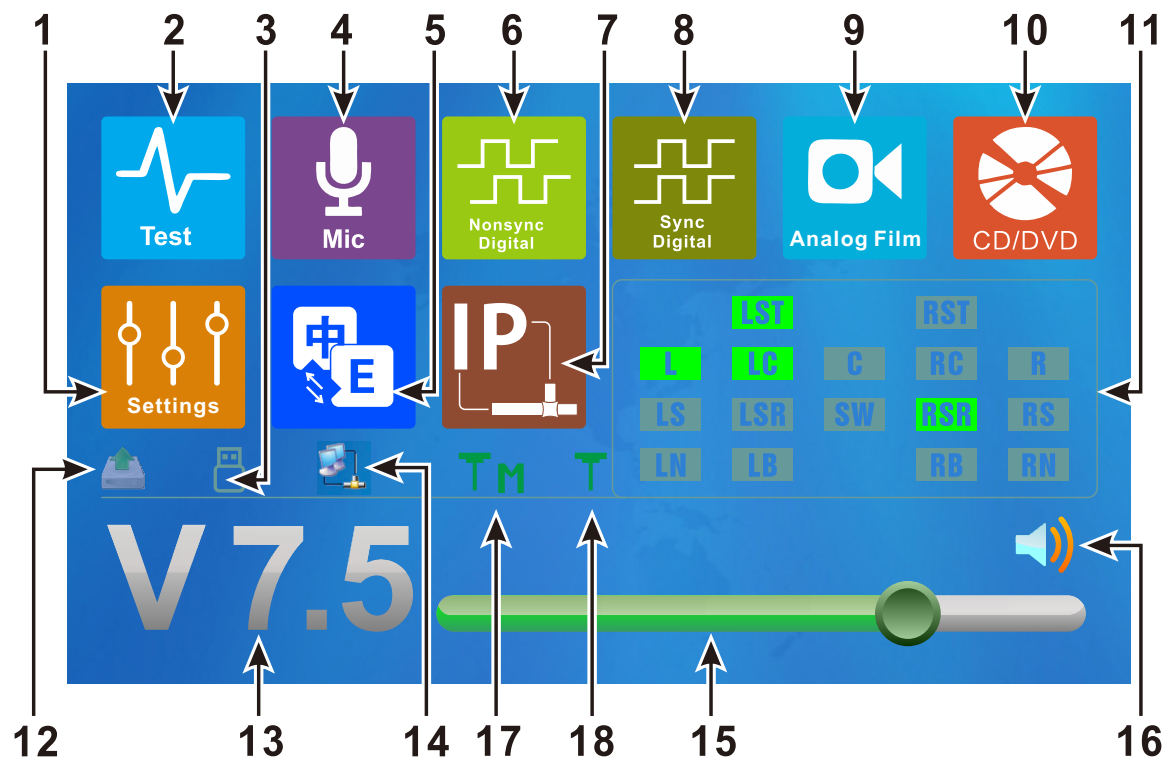*Note: for pins connections of these output ports, please refer to Table 2 on page 7.*

⑮ Power Sequence Control Port

Through the port the unit is available to control on / off of the power sequence to control the power source of the equipments connected.

⑯ AC Power Socket with Fuse

This unit can be used on voltage 110-240V~, and fuse T1AL 250V.

INTERFACE OPERATION INTRODUCTION

1. Setting menu
2. Test
3. Connection status of USB debugging port
4. Microphone
5. Chinese & English switch
6. Nonsync Digital
7. IP address
8. Sync Digital
9. Analog Film

10. CD/DVD
11. Channel output status
12. IC card read & write status
13. Volume
14. Connection status of net cable debugging port
15. Volume adjustment
16. Mute / Non-mute
17. Master of multiple machines linkage
18. Subordinate of multiple machines linkage

INTERFACE OPERATION INTRODUCTION

一、Press IP key to enter IP address menu interface

IP Status: 192.168.0.1

⌂ HOME
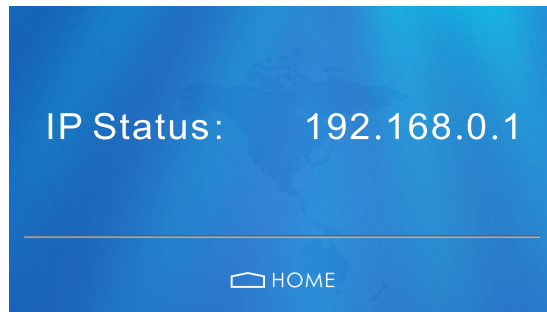
二、Press Settings key to enter Brightness adjustment & Touch Sounds selection menu interface

Brightness

Touch sounds

Cancel   OK

Brightness

Touch sounds

Cancel   OK
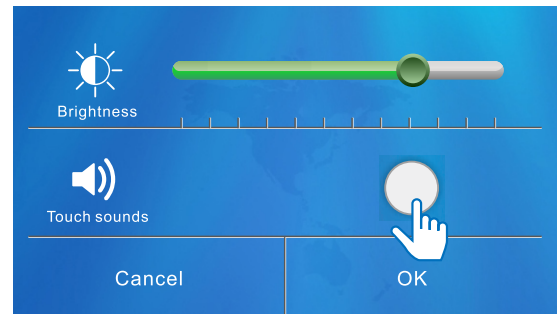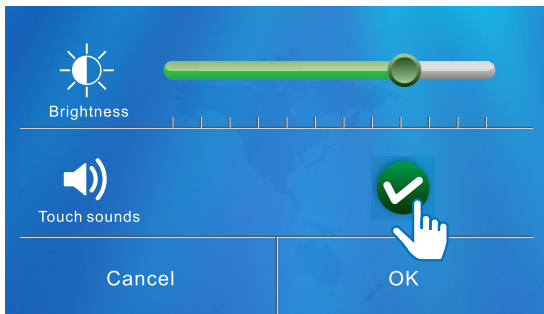
三、Press Channel output status key to display the locked Channel output status interface, if in one minute no operation it will be locked automatically, if in three minutes no operation it will become dark. The locked interface is as below, slide to unlock.

LST   RST

L   LC   C   RC   R

LS   LSR   SW   RSR   RS

LN   LB   RB   RN

>>> Slide To Unlock
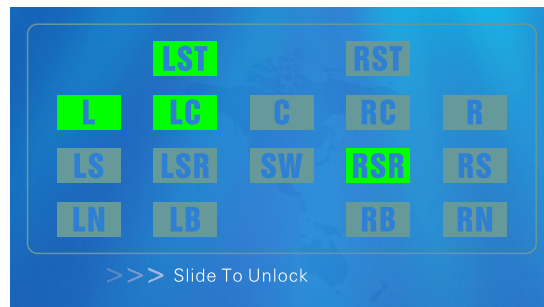
The locked interface

SOFTWARE INSTALLATION PROCEDURES

Please follow the following processes for setup of FCQA-9631 digital cinema processor software to your computer:

1. It is recommended that you close all other applications before continuing. Click Next to continue, or Cancel to exit Setup.
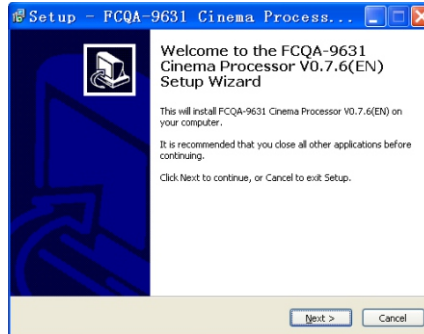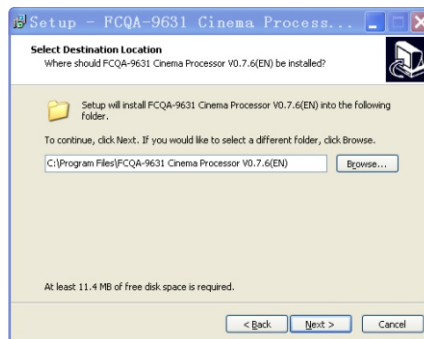
2. Select Destination Location
   Where should FCQA-9631 cinema processor software be installed?
   Setup will install FCQA-9631 cinema software into the following folder.
   To continue, click Next. If you would like to select a different folder, click Browse.
   Note: at least 7.0MB of free disk space is required.

3. Select Start Menu Folder
   Where should Setup place the program's shortcuts?
   Setup will create the program's shortcuts in the following Start Menu folder.
   To continue, click Next. If you would like to select a different folder, click Browse.
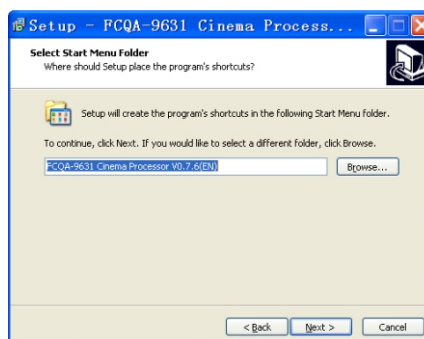
SOFTWARE INSTALLATION PROCEDURES

4. Select Additional Tasks

   Which additional tasks should be performed?

   Select the additional tasks you would like to Setup to perform while installing FCQA-9631 cinema processor software, then click Next.

   Additional Icons

   -Create a desktop icon   -Create a Quick launch icon   -Ready to Install

   Setup is now ready to begin installing FCQA-9631 cinema processor software on your computer.

   Click Install to continue with the installation, or click Back if you want to review or change any settings.

   Review following settings you selected in the previous steps:

   -Destination location   -Start Menu folder   -Additional tasks   -Additional icons
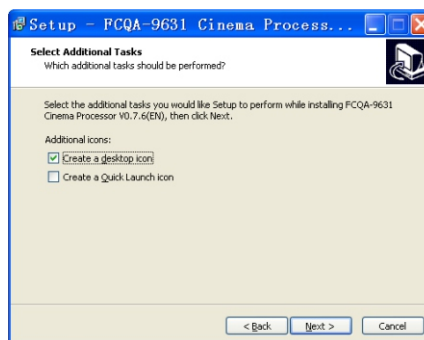
5. Intalling

   Please wait while Setup installs FCQA-9631 cinema processor software on your computer.
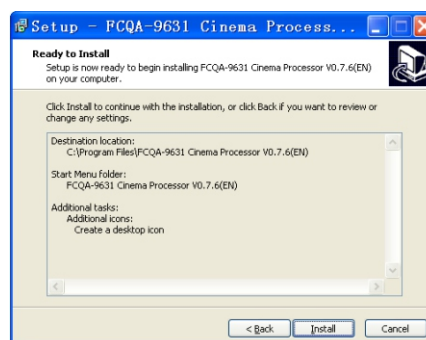
SOFTWARE INSTALLATION PROCEDURES

6. Completing the FCQA-9631 Cinema Processor Software Setup To complete the installation of
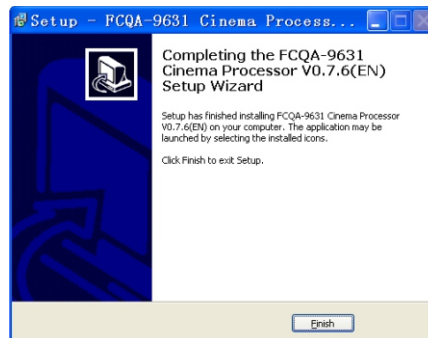   FCQA-9631 cinema software setup must restart your computer.
   Would you like to restart now?
   -Yes, restart the computer now
   -No, I will restart the computer later
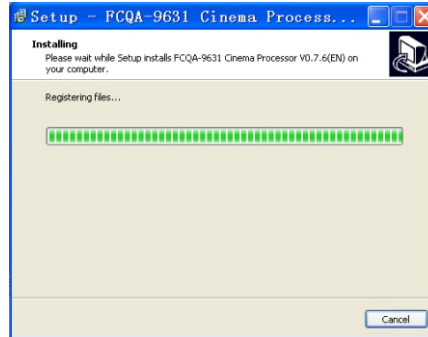
7. Click Finish to exit Setup.

SYSTEM CONNECTION

一、**Turn on FCQA-8631 Cinema Processor**

Plug the power cord to the unit and get through AC power source (100V-250V~) and then turn on the power switch on the rear panel of unit, the unit will be in Standby mode, now press the Standby button on the front panel, or through network connection with computer on the application interface it click Standby button icon then the unit will enter working mode.

1. Install FCQA-9631 cinema processor application software & USB driver to your computer.
2. Through USB cable to connect FCQA-9631 with computer, there is a USB port for connection on the front panel of FCQA-9631.
3. Check the assignment number of the USB port, because many notebook computers may have different assignment number due to ever connected with different USB equipments, please follow the following processes to make changes.

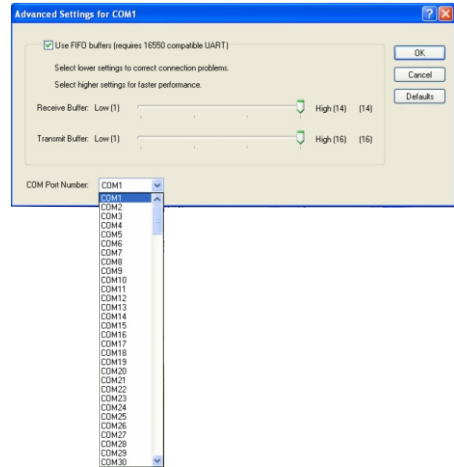A. Right click Communications Port (COM1), click Properties.
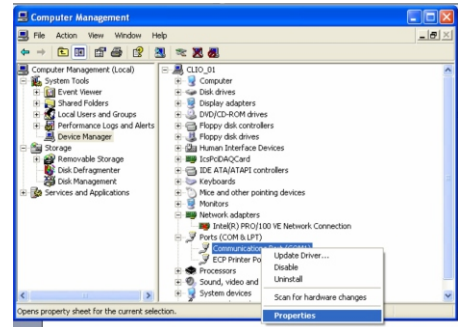
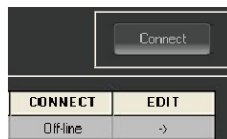B. Click Port Settings.
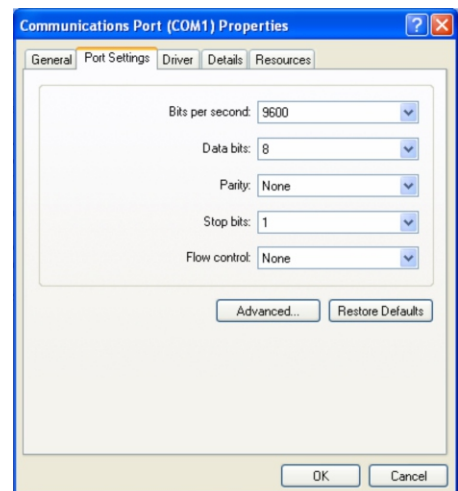
SYSTEM CONNECTION

C. Click Advance Settings for COM1.

4. Open software interface, on Selection Communication of the submenu Network/Log, select USB communication.

5. Click Connect to complete communication. Each new unit need to pull out USB cable and insert again, then communication.

6 After communication successfully, the below icon will become orange.

change to

3. Through USB communication to read and change the IP address
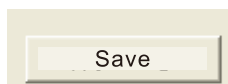
A. First complete USB communication successfully.

B. Click Discard Change button icon, input general password FCQA-9631 to read the IP address of current unit.

C. Change the IP address.

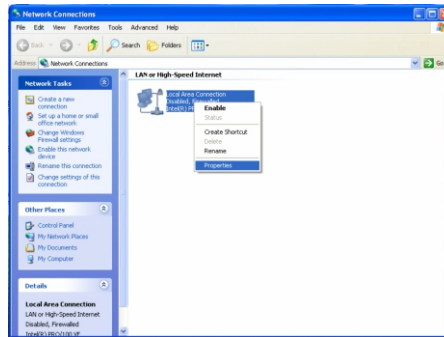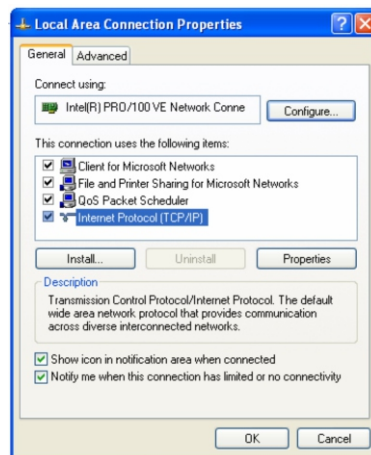D. Click Save button icon to apply the changes of IP address.

SYSTEM CONNECTION
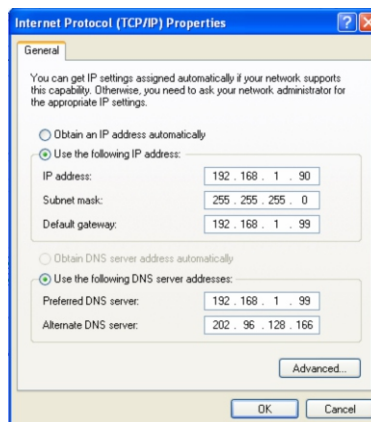
4. Through Network to complete communication

A. Right click Local Area Connection and click Properties.

B. Double click Internet Protocol (TCP/IP).

C. Enter its Property submenu and select Use below IP Address and DNS Server Address.

D. Set the addresses same as those of current FCQA-9631 connected and make sure FCQA-9631 and computer connected are in the same domain addresses.
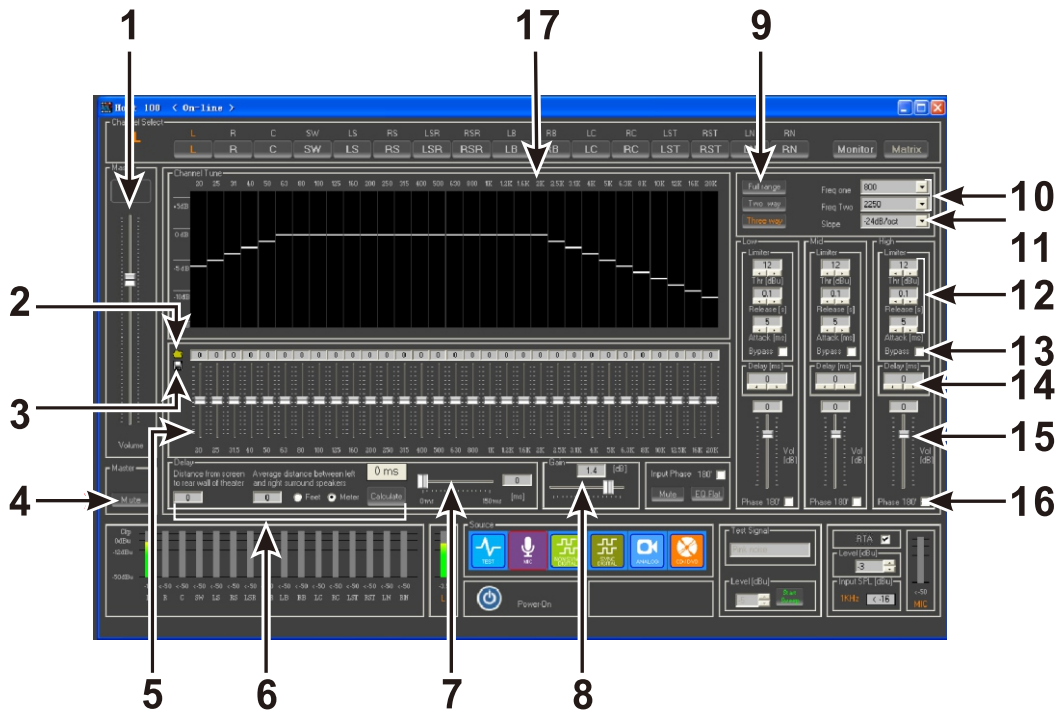
SOFTWARE INSTRUCTION

1. Channel test mode interface

2. Alignment interface

1.Master volume

2.Call the effect parameters

3.Save the effect parameters

4.Channel master mute

5.31 bands EQ adjustment

6.Channel elay calculation

7.Channel delay adjustment

8.Channel gain adjustment

9.Crossover selection (full-range / two-way / three-way)

10.Crossover point setting

11.Crossover slope selection

12.Limit setting

13.Bypass selection

14.Channel delay adjustment after crossover

15.Channel volume adjustment after crossover

16.Channel phase selection after crossover

17.Actual analysis spectrum display

SOFTWARE INSTRUCTION

3. Matrix signal control interface
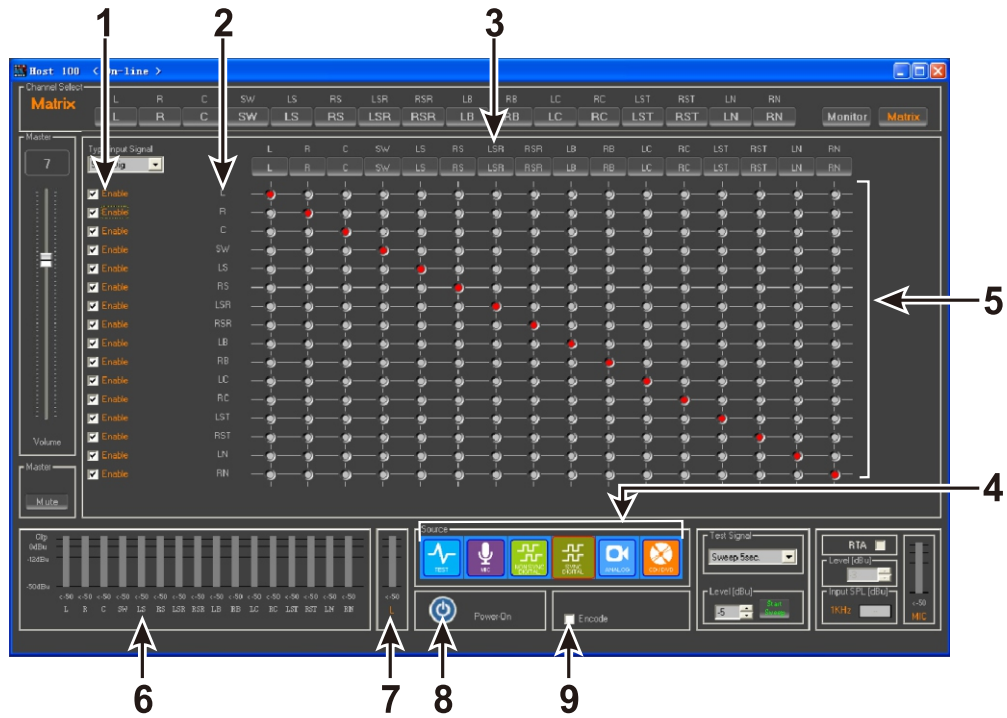
1. Channel inactive selection
2. Input signal channel
3. Output signal channel
4. Channel selection
5. Matrix signal channel selection

6. Level indication of output channel
7. Level indication of current channel input
8. Standby switch
9. Encode selection

4. Encode signal control interface
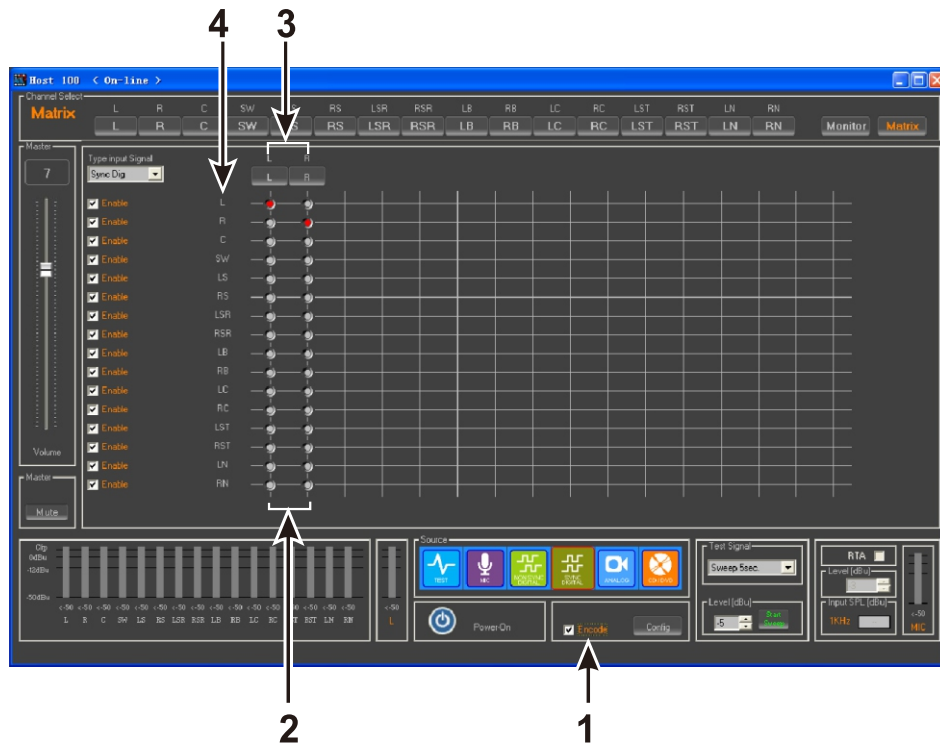
1. Encode selection
2. Encode matrix signal selection

3. Encode channel
4. Encode input channel

SOFTWARE INSTRUCTION

5. Monitor signal control interface

1. Volume adjustment of left monitor channel
2. Master volume of left monitor
3. Mute of left monitor
4. Channel selection of left monitor

5. Volume adjustment of right monitor channel
6. Master volume of right monitor
7. Mute of right monitor
8. Channel selection of right monitor

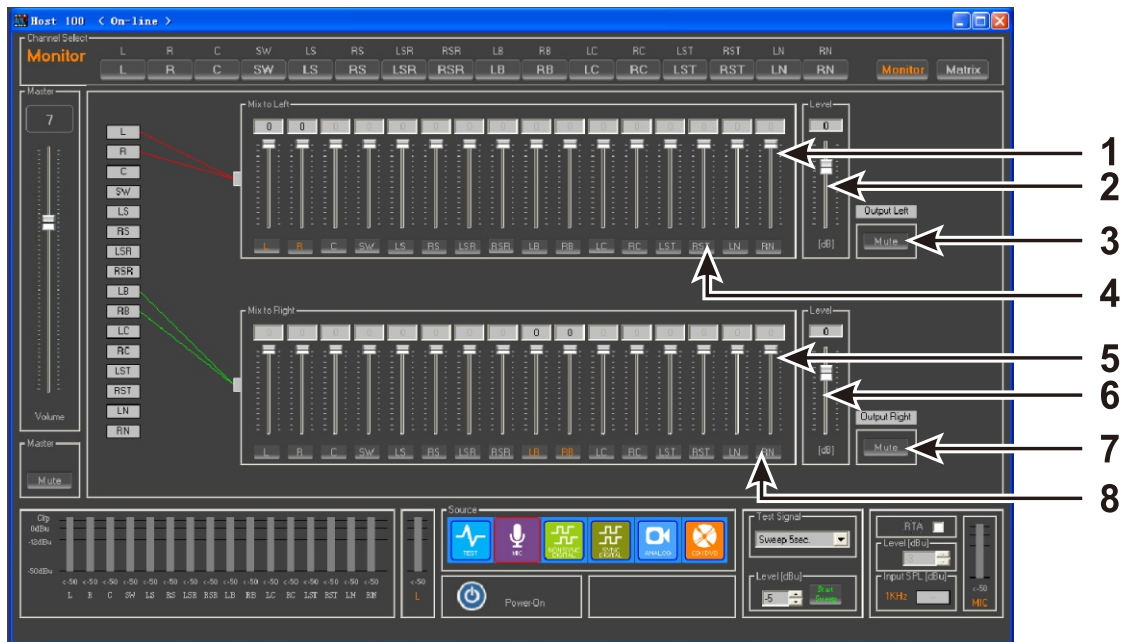# SYSTEM INTERFACE INSTRUCTION

1. Interface analog panel functions instructions

In communication status, first click Stand By to start the software and at the same time turn on the unit, wait for about 3~5 seconds, after the normal starting of unit the analog panel functions on interface are same at those on the panel of the real unit.

Note: when communication it is just available to operate through the buttons on the analog panel on the interface.

2. Alignment Interface

A. Enter Alignment interface, the password is FCQA-9631.
B. Click on the Power/Sandby icon to activate the interface.
C. Choose Mic input channel.
D. Connect test microphone through cable to the Test Mic. Connector on the rear of unit.
   The test microhone need to be placed at the 2/3 position from the back wall to the screen in the cinema room, also at the center between left and right walls.
   Turn amplifier volume to the maximum and turn processor volume to a reasonable level.
   This microphone test is to get the actual sound pressure level of each channels so as to know how much need to adjust at the EQ to get the standard optimized levels.

Interface sample as below:
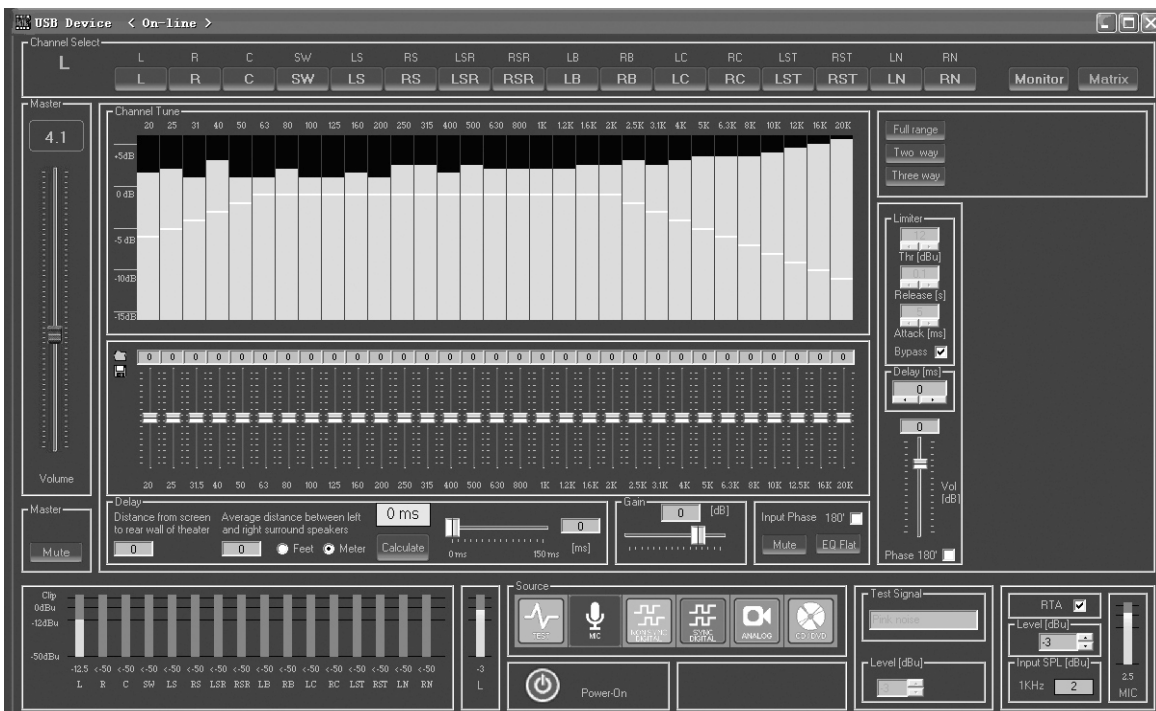
SYSTEM INTERFACE INSTRUCTION

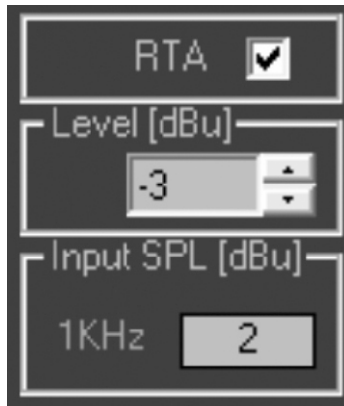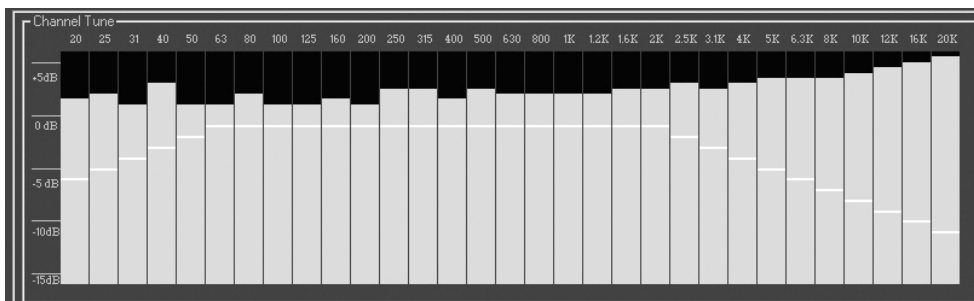E. Select the channel you need to test and adjust.

F. Select the signal mode for test, normally to choose pink noise signal.
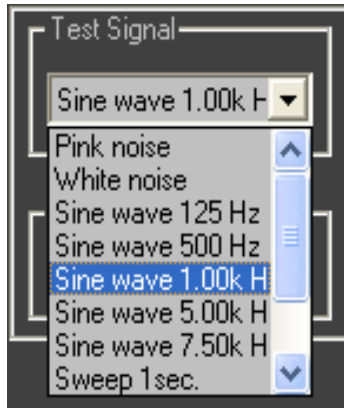
G. Choose RTA to activate the test.

H. Then it will display the actual timely tested levels, such as below:

I. According to the parameters of selected speakers, choose the crossover status and crossover point, such as crossover status is two way and crossover point is 800Hz.

SYSTEM INTERFACE INSTRUCTION

J. Through analysis of the timely tested 2969 level curve, adjust the below 31 band EQ to make it compliant with the 2969 standard curve requirement.

K. Left、Left Center、Center、Right Center、Right、Right Surround、Left Surround、Left Surround Rear、Right Surround Rear、Left Corner、Right Corner、Left Top Surround、Right Top Surround these thirteen full range channels、their each timely display of compliance with 2969 curve requirement is as below:

L. The same processes must be done to each of these seven channels for tuning to meet the requirements.

M. Subwoofer channel timely tested levels for example as below:

N. Through two-way crossover and select 113Hz crossover point to process, 24dB slope, afer EQ tuning to correct to meet standard requirements as below:

Remark:Because of limit of the DSP resource, so if to tune one channel, the software will automatically close pink noise of previous channel tuned. So it means each channel's tuning must be separately processed but with same steps.
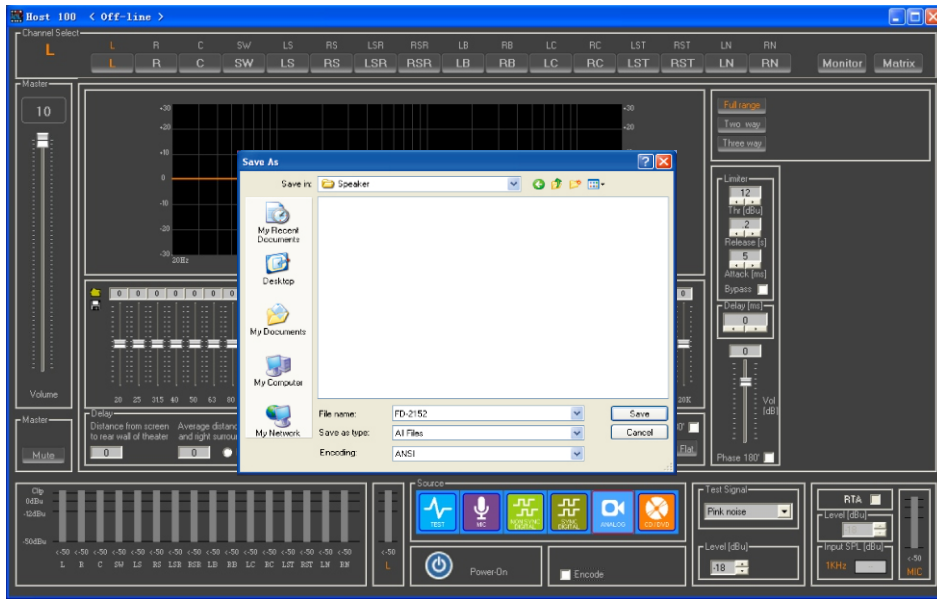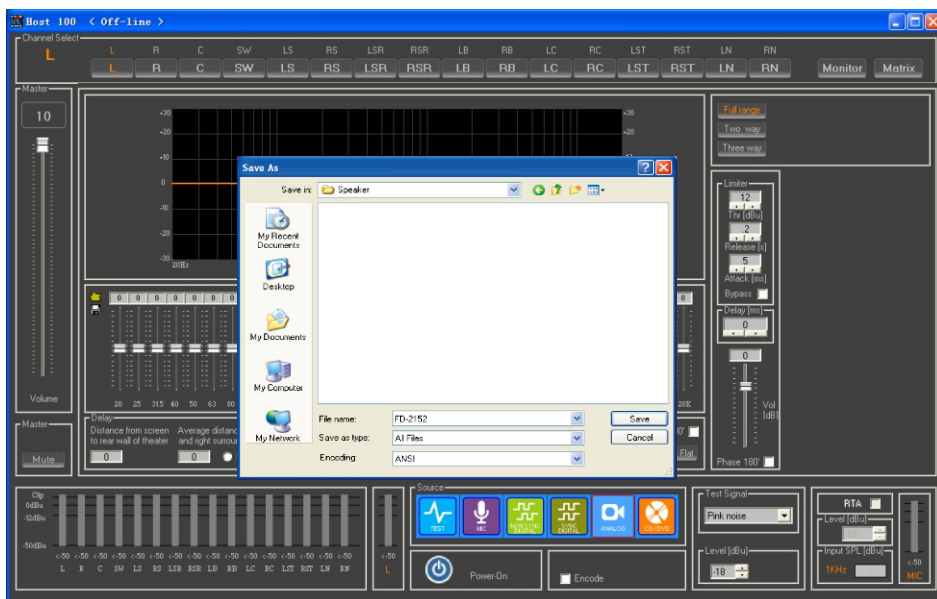
SYSTEM INTERFACE INSTRUCTION

3. Crossover Setting

According to the parameters of speakers used in the cinema, first set the left, center and right channels speakers to be two-frequency-division or three-frequency-division, and select reasonable crossover point.

4. Software can save the system setting alignment, click Save Alignment to save, as below figure.

5. Software can open the system setting alignment which already previously saved, click Open Alignment to call it out, as below figure.

SYSTEM INTERFACE INSTRUCTION

6. Multi-Cinema Room Management

Through network router or network switch, multi-FCQA-9631 can be used to complete management of multi-room. Though network, up to 16 cinema rooms can be monitored and managed, such as open and close the speaker system, switch to different audio source input.

Note: each time just can manage the unit in the corresponding TCP/IP cinema room.

See below figure.
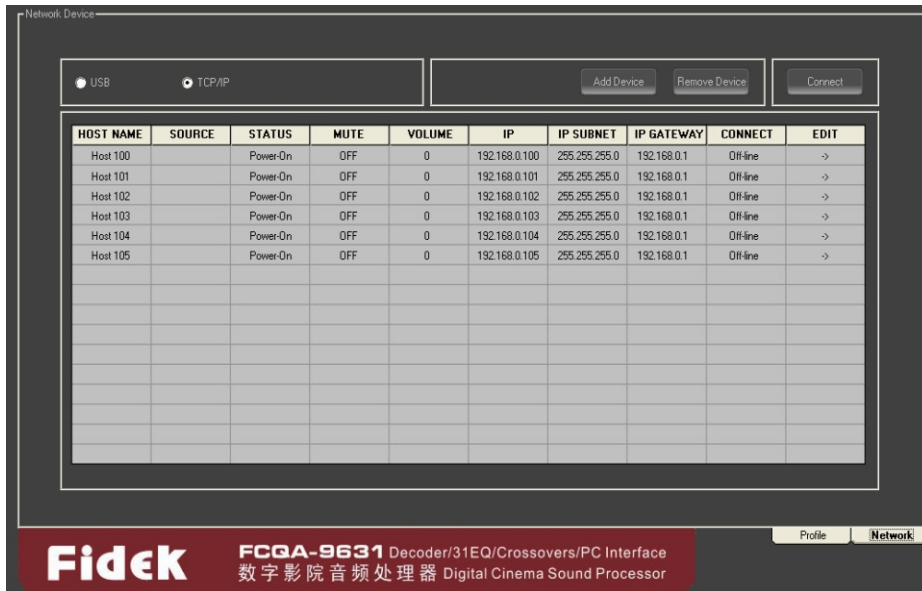
7. Password Modification

Click New Password, select Modify Password and click, below submenu will come out, through this it is available to modify the password.


Note: universal password is fcqa9631, and all are capital letter.

PRODUCT SYSTEM CONNECTION

FCQA-9631 supports the following three type ports connection audio signal inputs:
1. Analog film audio signal output from CP750 25 pins D type port.
2. Digital film audio signal output from 1.3K & 2K digital film server.
3. 8 channel analog audio signal output from other film player or DVD.

System connection is as below figure.
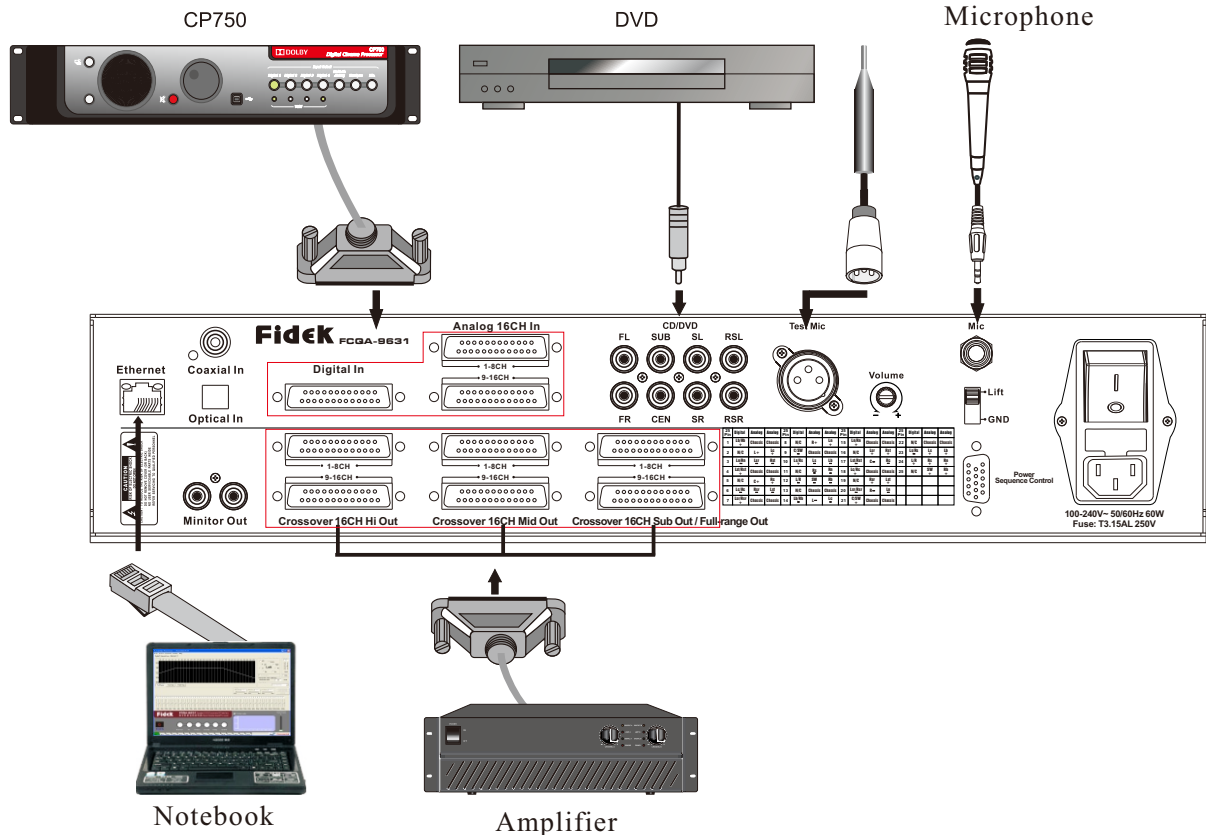
Usage Instructions
1. Connect the film audio source with the FCQA-9631 and select the right input channel.
2. Connect with 8 channel speakers and the 8 channel speakers can be full-range, 2 two-way or three-way speakers. And then check and insure the cable connection of each channel speakers is correct and tight, check and insure the cable connection of high, mid, low frequency speakers is correct and tight.
3. Connect with computer through USB or network TCP/IP, get through communication, correctly select the right port and then process debugging to the system parameter settings.
4. After all the parameters are well set to meet requirements, please save the setting data and save into the data backup card, well label the card and keep it for future maintenance if needed.
5. Remove the computer, the system will work separately. If next time need to modify and then just connect with computer again. And keep well the password to avoid any inconvenience to your job due to lost of password.
6. When communication with computer, the panel of the unit will be locked and all buttons will become invalid.
7. After turn on the unit, insert the backup card, the unit will use the data on card for refreshing, so if the data backup card is not used, please keep it well by special person and clearly labeled.

TECHNICAL SPECIFICATIONS

Analog/Line Input(Analog,CD/DVD)	
S/N RATIO	≥100dB（A-weighted）
Max input level	12dBu
Max output level	12dBu
Frequency response	20Hz~20kHz ±0.5dB
THD	≤0.1%
Digital Input (Syncdigit, NonSync)	
S/N RATIO	≥100dB（A-weighted）
Max output level	Syncdigi 12dBu, NonSync 12dBu
Frequency response	20Hz~20kHz ±0.5dB
THD	≤0.1%
Microphone Input(MIC)	
S/N RATIO	≥100dB(A-weighted)
Max input level	-13.5dBu output: 18dB (tested under human voice input volume at maximum)
Frequency response	20Hz~20kHz ±0.5dB
THD	≤0.1%
EQ	31 bands EQ±12dB(±0. 1dB）
Slope	-12dB/oct -24dB/oct
Delay after crossover	HF, MF, LF 0-10ms, step is 0.1ms
Surround sound delay	0-150ms, step is 1ms
Power source	AC 100V-240V~ 50/60Hz
Size	482x367x95mm(WxDxH)
Weight	6.9kg

Specifications and features are subject to change without notice.

Fidek ®