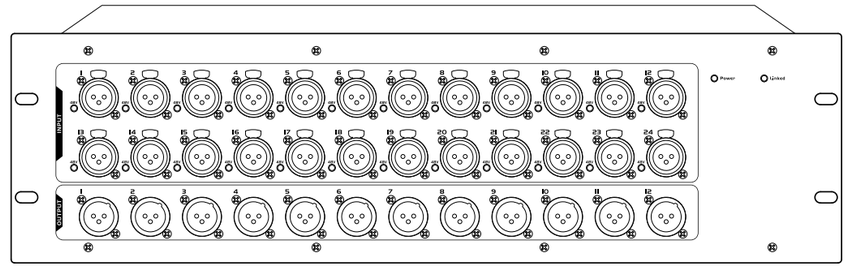
User's Manual

DIGITAL SNAKE SYSTEM



NF05521-1.0

Important Safety Instructions

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT.
THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

This symbol, wherever used, alerts you to the resence of un-insulated and dangerous voltages in the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.

Protective Ground Terminal

~ AC mains (Alternating Current)

Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

CAUTION
Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.
2. Keep this Manual in a safe place.
3. Be aware of all wamings reported with this symbol.
4. Keep this Equipment away from water and moisture.
5. Clean it only with dry doth. Do not use solvent or other chemicals.
6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufacturer's instructions.
7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electrician. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do ot place heavy objects on the power. This could cause electric shodk or fire.
8. Unplug this equipment when unused for long periods of time or during a storm.
9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instructions contained within the User's Manual.
10. To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder.

WARNING
To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.

Dispose of this product should not be placed in municipal waste and should be separate collection.

Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart / equipment combination to avoid possible injury from tip-over.

12. Permanent hearing loss may be caused by exposure to extremely high noise levels.
The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level.
These are shown in the following chart:

Hours x day	SPL	Example
8	90	Small gig
6	92	Train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1.5	102	
1	105	
0.5	110	
0.25 or less	115	Rock Concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of heat. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

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These product are for professional use. They can be used in following electromagnetic environment: residential, commercial and light industrial, urban outdoors. They are intended for rack mounting. When under the EM disturbance, the ratio of signal-noise may be changed above 3dB.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Statement:
"This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1 Introduction

Thank you for purchasing the Digital Snake System. The transmission distance of the unit reaches 100 meters using CAT5cable and over 1000 meters using fiber cable. It delivers uncompressed digital audio in high quality, extra low noise and real time through a standard Ethernet network. The audio transmitting setting can be set by professional software and saved in the unit for using independently which makes them more flexible and economical. All of the signals are sent through Ethernet network in digital which overcomes the disadvantage of distorting the audio which caused by sending signals in analog signal. It reduces the system installation and maintenance fee as the unit is suitable for any situation and transmits signal through Ethernet network. The unit also can be remote controlled through unit discovery software.

We suggest that you use this manual to familiarize yourself with the features applications and correct connection procedures for your Digital Snake System before using. This will help you avoid problems during installation and setup.
We are confident that you will enjoy your unit.

2 Features

- 24 MIC analog inputs / 12 XLR analog outputs
- 0dB～50dB input digital gain control
- Independent digital control 48V phantom power light display
- 100～240V wide voltage switching power supply
- T-DANTE maximum 24 input / 12 output network real-time transmission of digital signals & multiple extensions
- ID setting manually or automatically.

3 Usefull Data

Please write your serial number here for future reference.

Serial Number:
Date of Purchase:
Purchased at:

Notes

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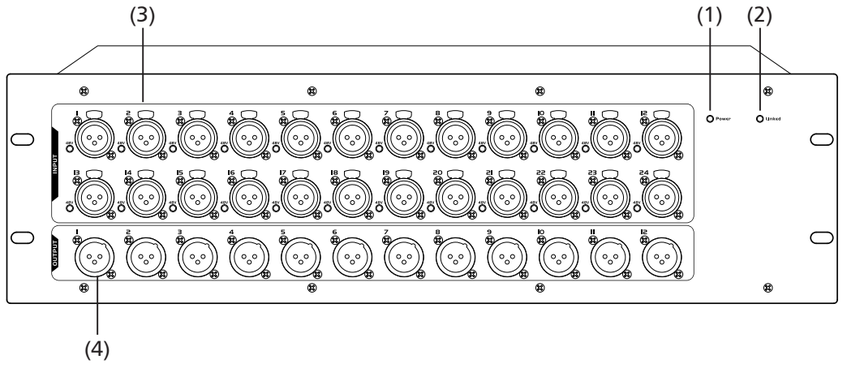
Controls 4

FRONT PANEL



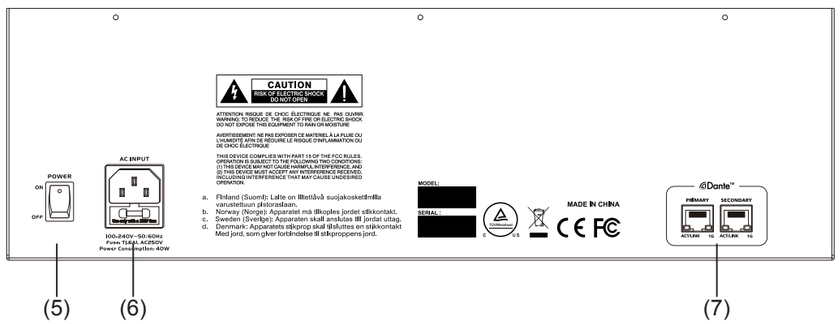
1. Power LED
The indicator lights up when the power is turned on.

2. Link LED
In Dante mode, two machines need to be connected. This LED indicator indicates whether the Dante connection is successful or not. If the connection is successful, the indicator lights up.

3. MIC Input Jack
The Digital Snake System equips 24 microphone preamplifiers for use with all types of microphones. The preamplifier has a Class A input buffer which followed by a dual-servo gain stage. This arrangement will bring ultra-low noise and wide gain control which help to boost signals without increasing unwanted background noise.

4. Analog output channel
XLR jack for outputting analog signal.

REAR PANEL



Controls

5. Power Switch
Push the top part of the switch to turn on and the bottom part to turn it off.

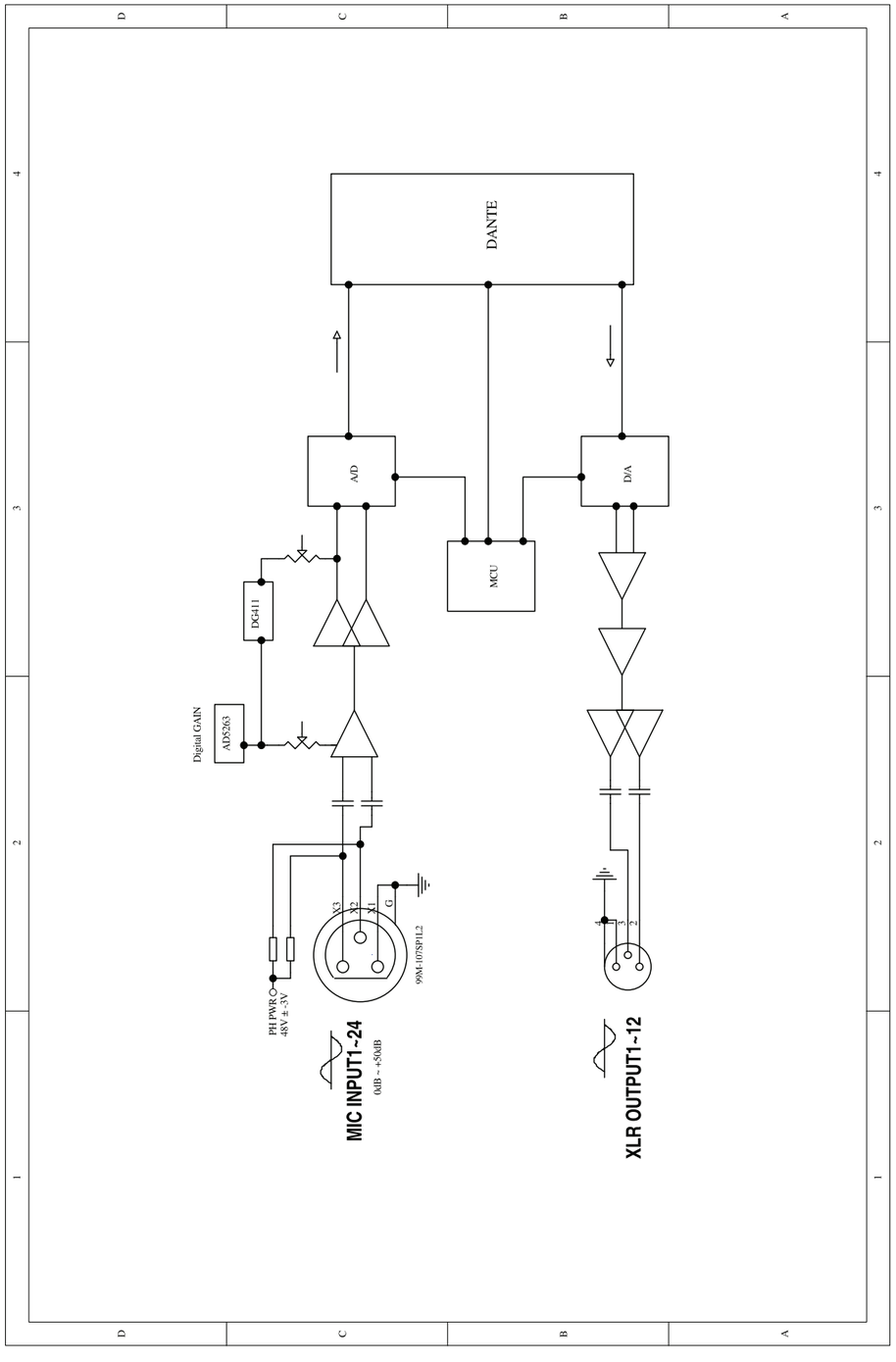
6. AC input
Used for AC input
Note: 100-240V-50/60Hz. Fuse: T1.6AL AC250V. Power consumption:40W

7. DANTE port
There are two DANTE ports labeled “primary" and "secondary". Only the primary Ethernet port needs to be connected ,but if both ports are connected they become a redundant fail safe. That is, if the primary port loses communication, the secondary port quickly takes over. Careful network design and topology which takes advantage of this feature can provide extremely high reliability in critical applications.
Each Ethernet port equips with two LEDS. The yellow LED of the Secondary Ethernet port will light to show you that the Ethernet port is able to use after power on the Digital Snake System. The green LED of the Ethernet port which connected will flash if there is data transmitting.

Troubleshooting

Problem	Possible Cause	Suggested Solution
Power light doesn’t on after the device powered on	The power outlet or power strip is not working	Try a different outlet or power strip
	Power cord is malfunctioning	Replace the Digital Snake System power cord
Ethernet green LED doesn’t work after plugging a Digital Snake System to a router	The router isn't powered on	Power on the router
	The Ethernet cable is broken	Try a different cable
	The port on the router not work	Try plugging the cable into a different port on the router
The Digital Snake System can’t be controlled by the Digital Snake System discovery software	There is no Network Interface Card (NIC) used to connect to the Cobra Net network	Select the card to severe as the network adapter used in the discovery process from the network Adapter.
The green LED of Ethernet port lights on but without output.	No signal route to the transmitter	Make sure the transmitter inputs signal
	The output channel of the receiver is not assigned signal	Make sure the output channel of the receiver has assigned signal
	The transmitter's TX bundle number and receiver's Rx bundle number are different	Make sure the bundle numbers of them are the same
	The sub-count number is less than the channel number of the receiver which you are using	Set the Sub-count number no less than the channel number which you want to use
	The value of mode Rate Control for the receiver and transmitter are different	Make sure the values of mode Rate Control of the receiver and transmitter are the same

9 Block Diagram



Application 5

About DANTE
This product uses the Dante digital audio network protocol to send and receive audio signals. The default configuration network audio protocol is 24 in 12 out DANTE network audio.

Dante is a protocol developed by Audinate that is designed to deliver multichannel audio signals
at various sampling and bit rates, as well as device control signals over a Gigabit Ethernet network. For information about Dante, please visit the Audinate
website:http://www.audinate.com/

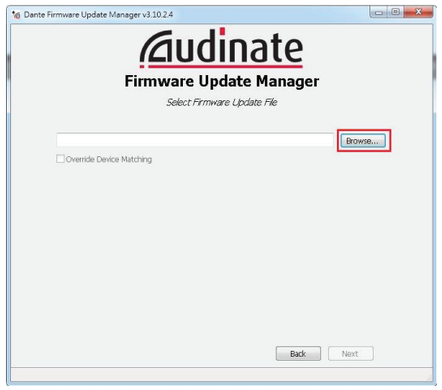
1. Firmware upgrade
The module firmware is upgradable over the network. Firmware upgrades are performed by uploading the upgrade file via either the device web interface or via the provided firmware upgrade tool. Software and firmware version information can be obtained via the device web interface or the Dante Controller.
Please download the DANTE Firmware Update Manager from: www.seikaku.hk and install it. Then follow the instructions to update.

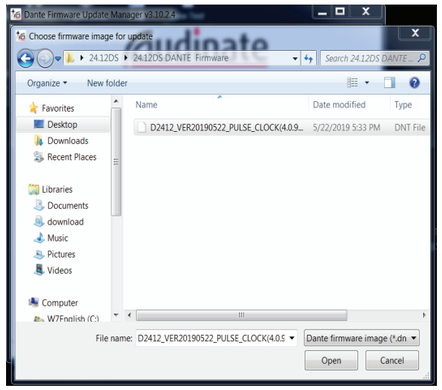
(1) After installation, please find and double click the DANTE Firmware Update Manager on your computer. Click "Next" button, you can see the following interface.

(2) Then click "Update Dante Firmware" button.

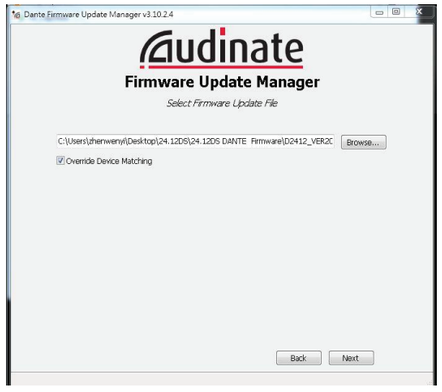
Application

(3) Click "browse" to find the update file path and select which you want, then go "next".





(4) Click "Override Device Matching", then go "NEXT".



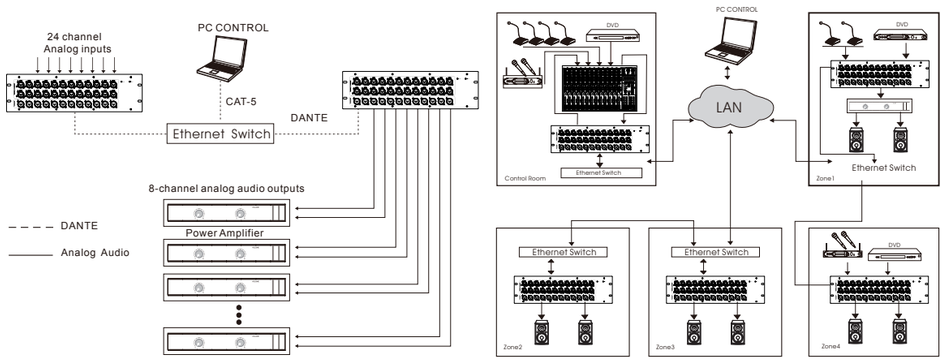
(5) Select "Yes" to start searching for Dante devices.

Technical Information

Microphone input	Electronically balanced
Frequency Response to Main Output	20Hz～20KHz at 0dBu ±1dB
Distortion(THD&N) to Main Output	<0.03% at 0dBu 1KHz
SNR(Signal to Noise Ratio)	108dB
Maximum Input Level	+20dBu
Phantom Power(+/-3V)	+48VDC
EIN(Input noise)	125dB
XLR outputs	
Maximum Output Level	+20dBu
System Crosstalk Adjacent Channels	
Input to Output(at +20dBu 1KHz)	-70dBu
Noise(Bus noise)	-91dBu
Digital Audio	
ADC Dynamic Range	114dB
DAC Dynamic Range	114dB
Internal Processor	32-bit , floating point
ADC,DAC bit depth	32bit
Impedances	
Microphone input	6.8KΩ
output	240Ω
operating free-air temperature range	0～40℃
storage temperature range	-20℃ ～60℃

Hardware Requirements

HOOKUP



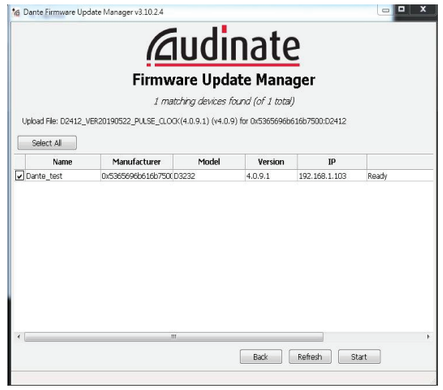
To use the Dante Controller, the following items are required:
- You must have access to a computer running Microsoft Windows XP (Service Pack 3 or higher), Vista (Service Pack 1 or higher), or Windows 7. The computer must also have an Ethernet port, which you use to connect the computer to the Digital Snake System device via an Ethernet network through a shielded CAT 5 (e) cable. This connection is necessary for using the DANTE Controller software to load configuration information into the device and also for monitoring detialed status information. Note that some status information is visible on the hardware itself.

Minimum requirements for running DANTE Controller
- Windows XP (32-Bit) or Vista SP1 (32 or 64 bit), 7 (32 or 64 bit)
- PC with 1.6 Ghz single Core Processor
- 1GB RAM
- 1GB available hard disk space
- Display Resolution: 1024*768
- Ethernet adapter: 100baseT

Recommendations for Best Performance
- Windows7 (32 or 64 bit)
- PC with mid-level processor @ 2 GHZ multi-core or better (for example, Intel i3, AMD Athlon II)
- 2 GB RAM
- 2 GB available hard disk space
- Display Resolution: 1152*864
- Ethernet adapter: Gigabit

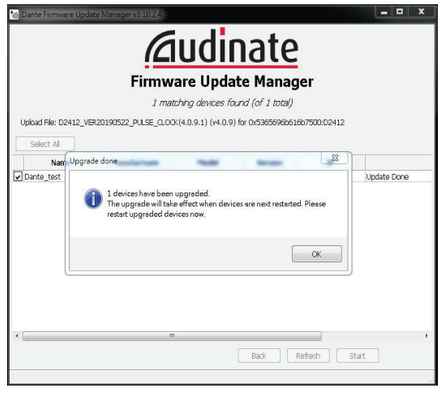
Application

(6) Select the device that needs to be updated, then click START to start the update.



(7) Cick OK and wait for the update to complete.

(8) Click OK, then the update is successful.

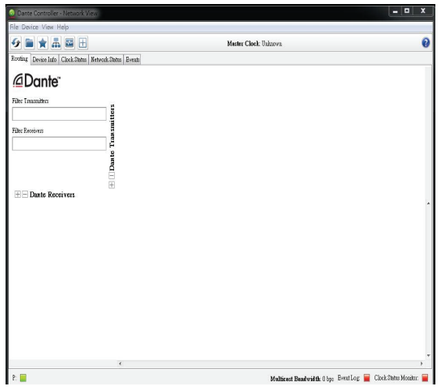


(9)The machine needs to be restarted when the power is off.

Application

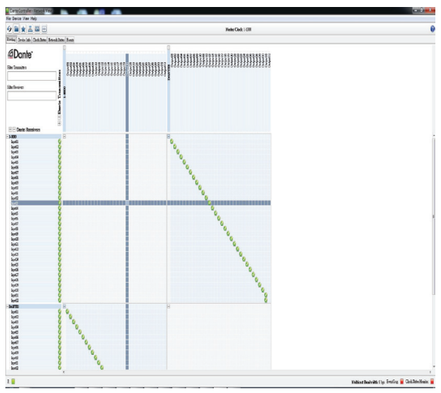
2. DANTE Controller

Find DANTE Controller on your computer, double-click to enter the interface, click the refresh button to identify devices, or click P/S in the lower right corner, as the following interface, then choose Ethernet and click OK.



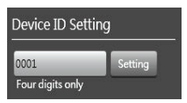
The matrix is divided into transmitter and receiver two parts. The devices (two or more) connected to the same routing appear both in the transmitter and receiver end, you can select the signal sending through the matrix.

Receiver: signal input, you can send signals to the receiver of any other device, but it is the only one sending.



DSP Control

2. System interface



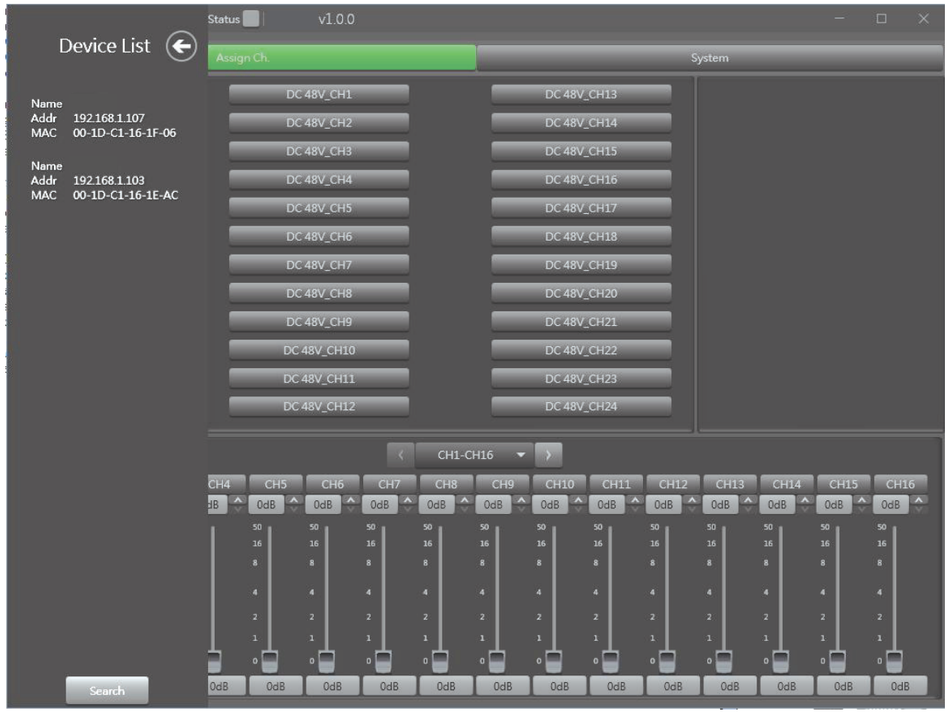
Device ID modification function:
Device ID defaults to 0001. If you do not modify the Device ID, APP will control the same device with the same Device ID.

This button can be used for dante naming, touch this button, enter your favorite name, click on the settings to complete the naming, this naming will help you distinguish from other types of machines.

Default Settting：Touch this control to restore all settings to the default factory settings.

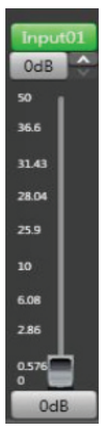
Save: Used to save the current settings .
Load: used to load presets .
By pressing this button to achieve the switching of save and load.

DSP Control



Touch this icon to switch channels and enter corresponding channel, in which you can adjust channels' basis function and rename the channel, etc.

The symbol displays the current channel in real time. Double-click this button and a virtual keyboard will appear on the screen. Please enter your preferred name on this keyboard.



When an input channel is selected, then push rod on the screen can be slid to change its input level. The 24 main inputs can be assigned to any or all of the outputs. At the same time, touch this button to adjust the volume.

Application

About CAT 5
Category 5 cable (Cat 5) is a twisted pair cable for carrying signals. This type of cable is used in structured cabling for computer networks such as Ethernet. The cable standard provides performance of up to 100 MHz and is suitable for 10BASE-T, 100BASE-TX (Fast Ethernet), 1000BAST-T (Gigabit Ethernet). Cat 5 is also used to carry other signals such as telephony and video. The cables is commonly connected using punch down blocks and modular connectors. Most Category 5 cables are unshielded, relying on the twisted pair design and differential signaling for noise rejection. Category 5 has been superseded by the Category 5e (enhanced) specification.

1. Cable standard
The specification for Category 5 cable was defined in ANSI/TIA/EIA-568-A, with clarification in TSB-95. These documents specify performance characteristics and test requirements for frequencies of up to 100 MHz. Cable types and connector types and cabling topologies are defined by TIA/EIA-568-B. Nearly always, 8P8C modular connectors, often referred to as RJ45, are used for connecting category 5 cable. The cable is terminated in either the T568A scheme or the T568B scheme. The two schemes work equally well and may be mixed in an installation so long as the same scheme is used on both ends of each cable.

Each of the four pairs in a Cat 5 cable has differing precise number of twists per meter to minimize cross talk between the pairs. Although cable assemblies containing 4 pairs are common, Category 5 is not limited to 4 pairs. Backbone applications involve using up to 100 pairs. This use of balanced lines helps preserve a high signal-to-noise ratio despite interference from both external sources and cross talk from other pairs.

The cable is available in both stranded and solid conductor forms. The stranded form is more flexible and withstands more bending without breaking. Permanent wiring (for example, the wiring inside the wall that connects a wall socket to a central patch panel) is solid core, while patch cables (for example, the movable cable that plugs into the wall socket on one end and a computer on the other) are stranded.

2. Maximum cable segment length
According to the ANSI/TIA/EIA standard for category 5e copper cable (TIA/EIA 568-5-A), the maximum length for a cable segment is 100 meters (330 ft). If longer runs are required, the use of active hardware such as a repeater or switch is necessary. The specifications for 10BASE-T of solid -core permanent wiring, two connectors and two stranded patch cables of 5 meters, one at each end.

3. Category 5 vs. 5e
The category 5 specification improves upon the category 5 specification by tightening some cross talk specification and introducing new cross talk specifications that were not present in the original category 5 specification. the bandwidth of category 5 and 5e is the same -100 MHz.

4. Applications
This type of cable is used in structured cabling for computer networks such as Ethernet over twisted pair. The cable standard provides performance of up to 100 MHz and is suitable for 10BASe-T, 100BASE-TX (Fast Ethernet), and 1000BASE-T (Gigable Ethernet). 10BASE-T and 100 BASE-TX Ethernet connections require two cable pairs. 1000BASE-T Ethernet connections require four cable pairs. Through the use of power over Ethernet, up to 25 watts of power can be carried over the cable in addition to Ethernet data.

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Application

Cat 5 is also used to carry other signals such as telephony and video. In some cases, multiple signals can be carried on a signal cable; Cat 5 can carry two conventional telephone lines as well as 100BASE-TX in a single cable. The USOC/RJ-61 standard is used in multi-line telephone connections.
Various schemes exist for transporting both analog and digital video over the cable. HD BASE-T is one such scheme.

Any cable that contains air spaces can breathe in moisture, especially if the cable runs between indoor and outdoor spaces. Warm moist air can cause condensation inside the colder parts of the cable outdoors. It may be necessary to take precautions such as sealing the ends of the cables. Some cables are suitable for "direct burial", but this usually requires that the cable be get filled in order to hinder moisture migration into the cable.

When using a cable for a tower, attention must be given to vertical cable runs that may channel water into sensitive indoor equipment. This can often be solved by adding a drip-loop at the bottom of the run of cable.
Plenum-rated cables are slower to burn and produce less smoke than cables using a mantle of materials like PVC. This also affects legal requirements for a fire sprinkler system. That is if a plenum-ralated cable is used, sprinkler requirement may be eliminated.

Shielded cables (FTP/S TP) are useful for environments where proximity to RF equpment may introduce electromagnetic interference, and can also be used where eavesdropping likehihood should be minizied.

DSP Control

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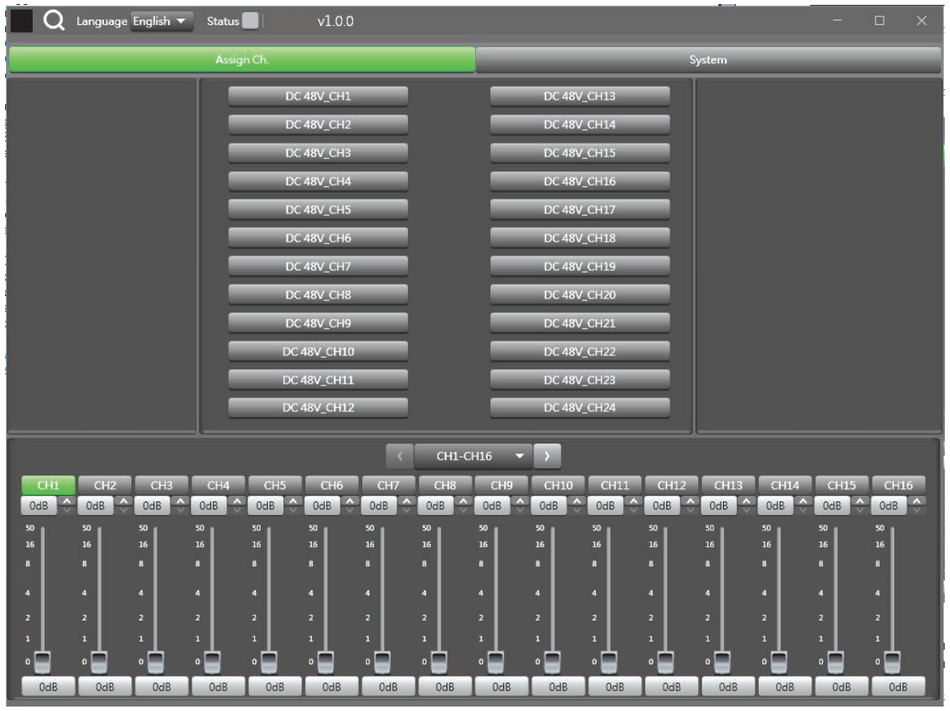
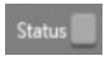
This digital Digital Snake System not only can be controlled directly on the machine, but also can be operated remotely through APP, which greatly facilitates the user's use.

1. Assign interface
All 24 input channels can be assigned to 12 output channels in a point-to-point matrix.



Click on the "Search icon" in the upper left corner to pop up the "Device List" list, click "Search" to search for the current online machine, and then choose to control the machine.



Here is the information about device name and communication status. If connect status icon is green, means communication is right, while off means communication is fault.

Touch this icon to switch channels and enter corresponding channel.

SEIKAKU TECHNICAL GROUP LIMITED

客　　户	
料　　號	NF05521
品　　名	說明書-英文
規　　格	24.12DS 兩無_V1.0
公司機種(客戶機種)成品料號	24.12DS
重　量/ 基　數	0.015KG/1
材　　質	銅板紙
紙張展開性質	**A3**　A4　A5　其它
紙張展開數量	6pcs

核 准		審 核		校 稿		製 稿	研發部 2019.08.14 馮斌

產品文件編號:

陽片數量: 12 張