VIS-CATC-B Camera Auto tracking controller
User Manual
V2.3

VISSONIC ELECTRONICS LIMITE

The meaning of symbols

■ Safety instructions

For your safe and correct use of equipment, we use a lot of symbols on the equipment and in the manuals, demonstrating the risk of body hurt or possible damage to property for the user or others. Indications and their meanings are as follow. Please make sure to correctly understand these instructions before reading the manual.

	This is A level product, which may cause radio interference in the living environment. In this case, users may need to take the feasible measures to get around the interference.
	Remind users that the dangerous voltage without insulation occurring within the equipment may cause people suffer from shock.
	CE certification means that the product has reached the directive safety requirements defined by the European Union. Users can be assured about the use of it.
	SGS certification means that the product has reached the quality inspection standards proposed by the world's largest SGS.
	This product passed the ISO9001 international quality certification (certification body: TU Rheinland, Germany).
	Warning: in order to avoid electrical shock, do not open the machine cover, nor is the useless part allowed to be placed in the box. Please contact the qualified service personne

■ General information instructions

	It lists the factors leading to the unsuccessful operation or set and the relevant information to pay attention.

Important note

Warning

In order to ensure the reliable performance of the equipment and the safety of the user, please observe the following matters during the process of installation, use and maintenance:

The matters needing attention of installation

- Please do not use this product in the following places: the place of dust, soot and electric conductivity dust, corrosive gas, combustible gas; the place exposed to high temperature, condensation, wind and rain; the occasion of vibration and impact . Electric shock, fire, wrong operation can lead to damage and deterioration to the product, either;
- In processing the screw holes and wiring, make sure that metal scraps and wire head will not fall into the shaft of controller, as it could cause a fire, fault, or incorrect operation;
- When the installation work is over, it should be assured there is nothing on the ventilated face, including packaging items like dust paper. Otherwise this may cause a fire, fault, incorrect operation for the cooling is not free;
- Should avoid wiring and inserting cable plug in charged state, otherwise it is easy to cause the shock, or electrical damage;
- The installation and wiring should be strong and reliable, contact undesirable may lead to false action;
- For a serious interference in applications, should choose shield cable as the high frequency signal input or output cable, so as to improve the anti-jamming ability of the system.

Attention in the wiring

- Only after cutting down all external power source, can install, wiring operation begin, or it may cause electric shock or equipment damage;
- This product grounds by the grounding wires .To avoid electric shocks, grounding wires and the earth must be linked together. Before the connection of input or output terminal, please make sure this product is correctly grounded;
- Immediately remove all other things after the wiring installation. Please cover the terminals of the products cover before electrification so as to avoid cause electric shock.

Matters needing attention during operation and maintenance

- Please do not touch terminals in a current state, or it may cause a shock, incorrect operation;
- Please do cleaning and terminal tighten work after turning off the power supply. These operations can lead to electric shock in a current state;
- Please do the connection or dismantle work of the communication signal cable , the expansion module cable or control unit cable after turning off the power supply, or it may cause damage to the equipment, incorrect operation;
- Please do not dismantle the equipment, avoid damaging the internal electrical component;
- Should be sure to read the manual, fully confirm the safety, only after that can do program changes, commissioning, start and stop operation.

Matters needing attention in discarding product

- Electrolytic explosion: the burning of electrolytic capacitor on circuit boards may lead to explosion;
- Please collect and process according to the classification, do not put into life garbage;
- Please process it as industrial waste, or according to the local environmental protection regulations.

Preface

This manual mainly describes the use, performance parameters and troubleshooting of VISSONIC Full Digital Network DSP Conference System - including desktop, embedded, array unit and 5G WiFi wireless conference system.

If the technical parameters and system usage in this manual are changed, the manufacturer will update the version of the manual. Please use the latest user manual.

Version	Update	Date
1.0	Publish	2018.12.28
2.0	Update interfaces and functions	2021.12.07
2.1	Update screen split function	2022.05.07
2.2	Update screen split function and camera tracking	2022.08.01
2.3	Update network control protocol	2023.11.23

Content

1. Overview

1.1. Function

This device mainly has 4-channel high-definition SDI input, 2-channel high-definition HDMI input, 1-channel RCA audio input, 2-channel high-definition HDMI output, 1-channel USB output, which can realize seamless switching, screen splitting and audio switching, convenient operation, and support buttons, RS232 control and Ethernet control.

1.2. Main Specifications

The main technical indicators of the camera tracking controller are as follows:

Video input port: 4-channel SDI HD interface; (SDI supports 3G-SDI and HD-SDI; supports digital audio input)
Video input port: 2-channel HDMI HD interface; (HDMI supports 1080P60Hz downward compatibility; supports digital audio input)
Video input port: 1-channel RCA audio interface;(analog audio)

Video output port: 2-channel HDMI HD interface; (HDMI supports 1080P60Hz downward compatibility; supports up to four screen splits output; supports audio output)
Video output port: 1-channel USB interface; (The USB port supports 1080P30Hz, and the USB can be output to the computer, which is equivalent to the function of the capture card. It mainly captures the signal synthesized by the RCA input and the SDI or HDMI video signal; supports up to four-screen split output)
Input impedance: **75Ω;**

a) **Remote control interface:** 2-way RS232 serial port; 1-way RJ45 Ethernet interface;(Support web control)
b) **Local control interface:** support local button control (buttons are deployed on the front panel);
c) **Power interface:** 1 AC power interface;
d) **Power supply:** rated AC100 ~ 240V;
e) **Dimensions:** 19-inch rack cabinet, height 1U, depth 260mm (without panel);
f) **Color spray:** black;
g) **Weight:** ≤ 3.5kg;
h) **Power consumption:** ≤8W.

1.3. VIS-CATC-B camera tracking seamless switching controller front and rear panel function description

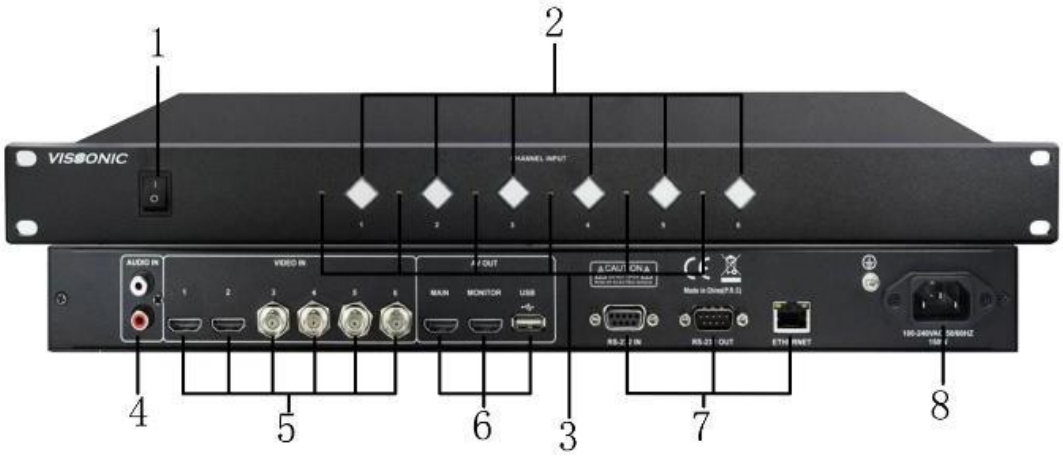


Figure 1.3 VIS-CATC-B the front and rear panels

The front panel of camera tracking includes:

- **Power switch** - turn the power of the camera tracking controller on or off
- **Control button** - 1 - 6 button corresponds to 1 - 6 HDMI and SDI input channels, can switch any 1 HDMI or SDI input signal to HDMI output
- **Input signal indicator** - 1 - 6 indicator corresponds to 1 - 6 HDMI and SDI input channels
- **Audio input port** - support 1 RCA interface balance audio input
- **Input port** - support 2 channels of high-definition HDMI and 4 channels of high-definition SDI signal input
- **Output por**t - support 2 channels of high-definition HDMI signal synchronization output and 1 channel USB signal output
- **Control port** - RS-232 female, RS-232 male and RJ45 Ethernet is used to connect the full digital network DSP conference controller for video switching control of camera tracking or connect the computer for control
- **Power input port** - connect the camera tracking controller to the power sequencer or plug-in with the power cable to supply power to the camera tracking controller

*(HDMI and SDI input interface supports digital audio input, HDMI and USB output interface supports analog and digital audio simultaneous output)

1.4. Installation

1.4.1. 19-inch installation cabinet

The main unit can be installed in a 19-inch standard cabinet with standard mounting screw holes.

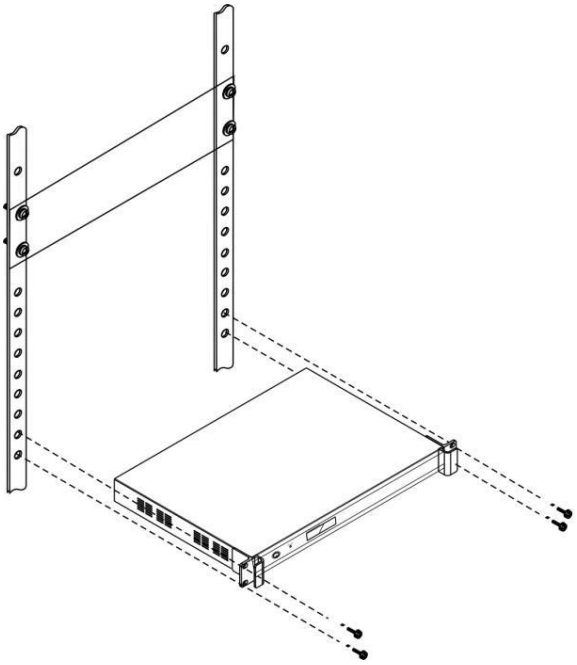


Figure 1.4.1

1.5. Connection

1.5.1. Power supply

Connect the main unit to an external power outlet using the supplied power cord.

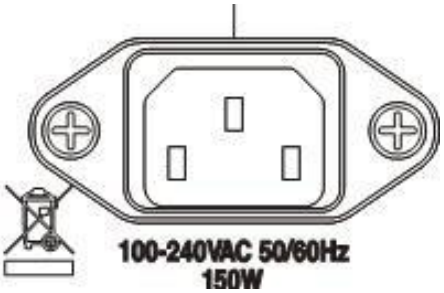


Figure 1.5.1

Warning: The controller power supply needs to be well grounded to avoid causing fatal accidents.

1.5.2. RS-232 control interface

Figure 1.5.2 RS232 female

It is used to connect the digital network DSP conference main unit for video switching control of camera tracking or connect the computer for control.

Pin	Signal	Description	Pin	Signal	Description
1	-	Null	6	-	Null
2	TXD	Send data	7	-	Null
3	RXD	Receive data	8	-	Null
4	-	Null	9	-	Null
5	GND	Signal ground			

The COM port pins are defined as follows:

Figure 1.5.3 RS232 male

The COM port pins are defined as follows:

Pin	Signal	Description	Pin	Signal	Description
1	-	Null	6	-	Null
2	RXD	Receive data	7	-	Null
3	TXD	Send data	8	-	Null
4	-	Null	9	-	Null
5	GND	Signal ground			

Serial port default settings:
Baud rate: 9600bps, Parity: 8, Stop: 1 Serial control command table:

Instruction	Function	Return Information	Remark
[x]V[y].	[x] input to [y] output, video switching	V:[x] -> [y]	

<#Splice_mode[x]>	Multiple image mode selection	<Splice_mode[x]>	[x]:0--11
<#Audio_chn[x]>	Audio channel selection	<Audio_chn[x]>	
FREEZE[x].	Set the screen freeze time to x seconds	FREEZE[x].	[x]:Unit: second
SetFreeze.	Perform screen freeze		
<^NET>	Query network parameters	<SPORT80> <SIPR[X1].[X2].[X3].[X4]>	
		<GAR[X1].[X2].[X3].[X4]> <SUBR[X1].[X2].[X3].[X4]> <SHAR[x1]:[x2]:[x3]:[x4]:[x5]:[x6]>	
<#SIPR[x1].[x2].[x3].[x4]>	Set IP address	<SIPR:[x1].[x2].[x3].[x4]>	
<#GAR[x1].[x2].[x3].[x4]>	Set gateway	<GAR:[x1].[x2].[x3].[x4]>	
<#SUBR[x1].[x2].[x3].[x4]>	Set subnet mask	<SUBR:[x1].[x2].[x3].[x4]>	
<#SHAR[x1]:[x2]:[x3]:[x4]:[x5]:[x6]>	Set hardware address(hex)	<SHAR:[x1]:[x2]:[x3]:[x4]:[x5]:[x6]>	
<#NETDEFAULT>	Network restore factory settings		

1.6. Network control protocol

Default IP: 192.168.10.189 Port: 80 Using TCP Connection

Pin	Menu item	Send parameter	Return parameter	Description
1	Version	{param=version}-	{“version”： ” X” }	X:vierson number
2	Toggle Status	{param=status}	{“out1”:X1, “out2”:X2, “out3”:X3, “out4”:X4, “audio”:X1,“mode”:X1 }	
3	Input Signal Status	{param=inputinfo}	{“HDMI-1”:true/false, “HDMI-2”:true/false, “SDI-1”:true/false, “SDI-2”: true/false, “SDI-3”: true/false,“SDI-4”: true/false }	
4	Settings -> Query Network Parameters	{param=netInfo}	{“ip”:”X”,”gateway”:”Y”,”subnet”:”A”,”mac”:”B” }	
5	Settings -> Set Network Parameters	{param=&ip,ip=%d.%d.%d.%d,gateway=%d.%d.%d.%d,subnet=%d.%d.%d.%d,mac=%x:%x:%x:%x:%x:%x}	Null	
6	Settings -> Mode Selection	{param=modeX}	Null	X: 0-11 (Corresponding to Modes 0 to 11)
7	Video Source Switching	{param=XVY}	Null	X: Input, Y: Output
8	Audio Switching	{param=audioX}	Null	X: Input Audio (0-6)

1.7. Web Control

Network port default settings:
IP: 192.168.10.189
Connect your PC to the Ethernet port of the camera tracking controller via a CAT5 cable.
Please set your computer to the following IP range

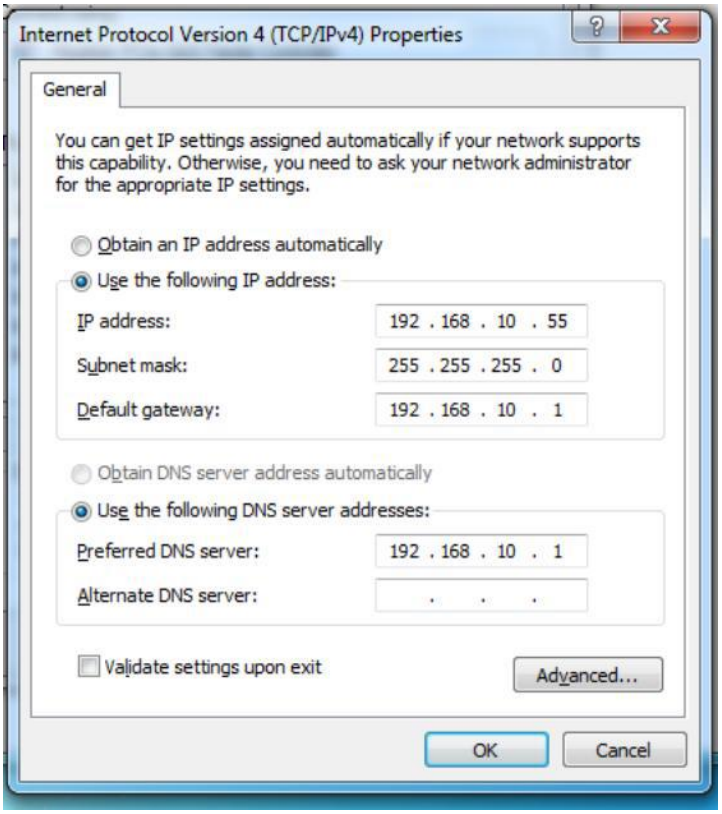


Figure 1.7.1 PC network segment

Log in to the web page, enter the IP address 192.168.10.189, and if you can log in to the interface as shown in Figure 6.2, it means that the connection is successful. Click Video and Audio to control the screen segmentation and audio switching of the camera tracking controller.

Screen split: as shown below:

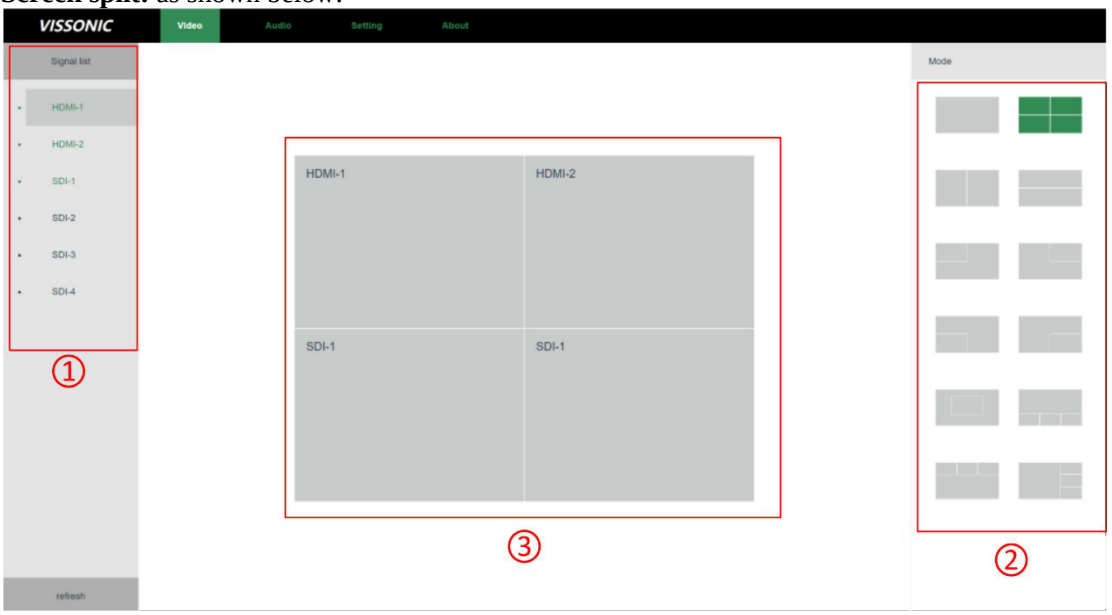


Figure 1.7.2 Screen split

① **Signal list** - the video input signal of the camera controller

② **Multi-image mode** - supports up to 12 screen split modes

③ **Display window** - After selecting the desired multi-image mode, you can drag and drop various video signals directly on the display window

Audio switching: as shown below:

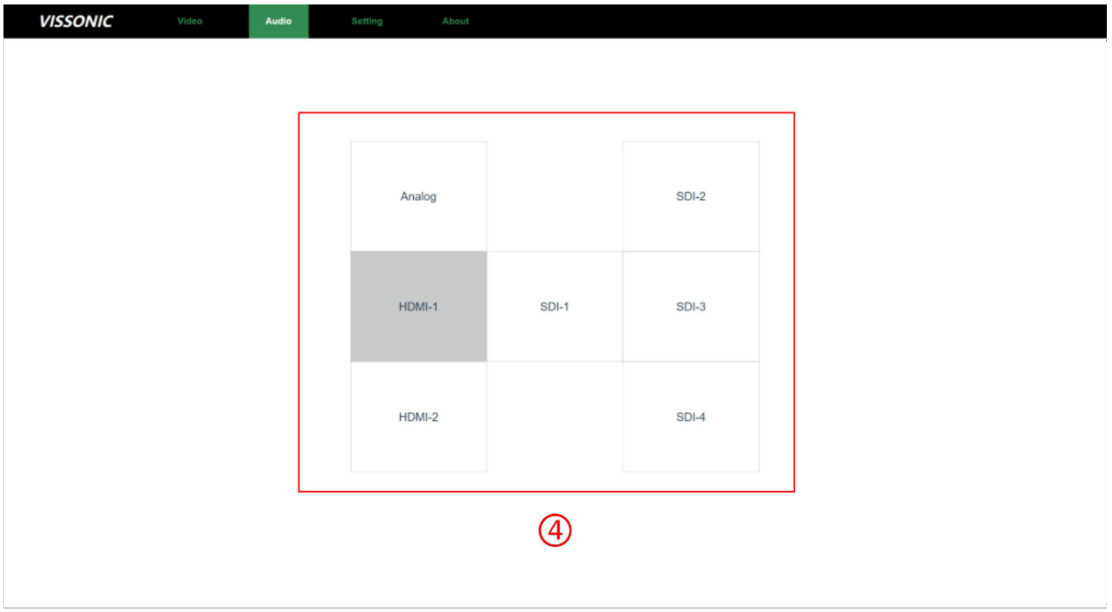


Figure 1.7.3 Audio switch

④ **Audio switching -** 1-channel analog audio and 6-channel digital audio input can be switched to output arbitrarily

Network settings: as shown below:

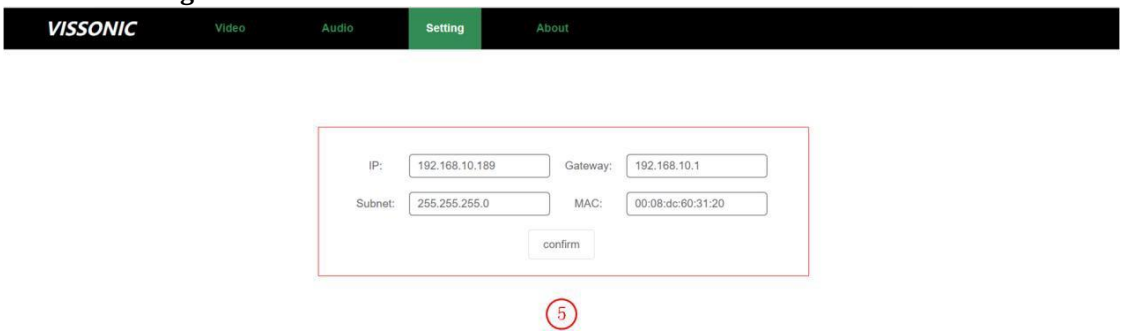


Figure 1.7.4 Network settings

⑤ **IP Settings**- Modify IP, gateway, subnet mask and MAC

View version: as shown below:

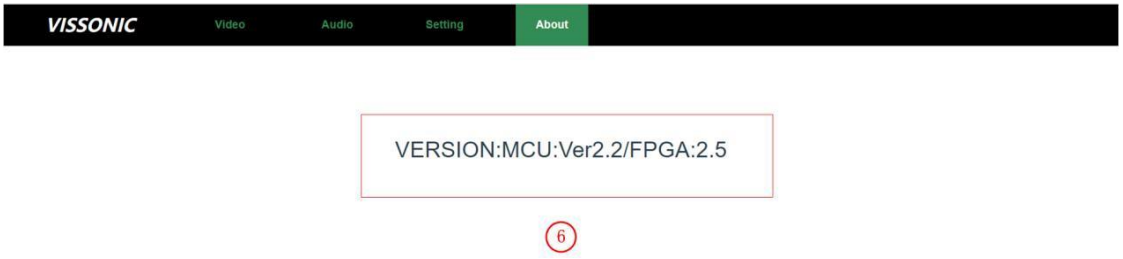
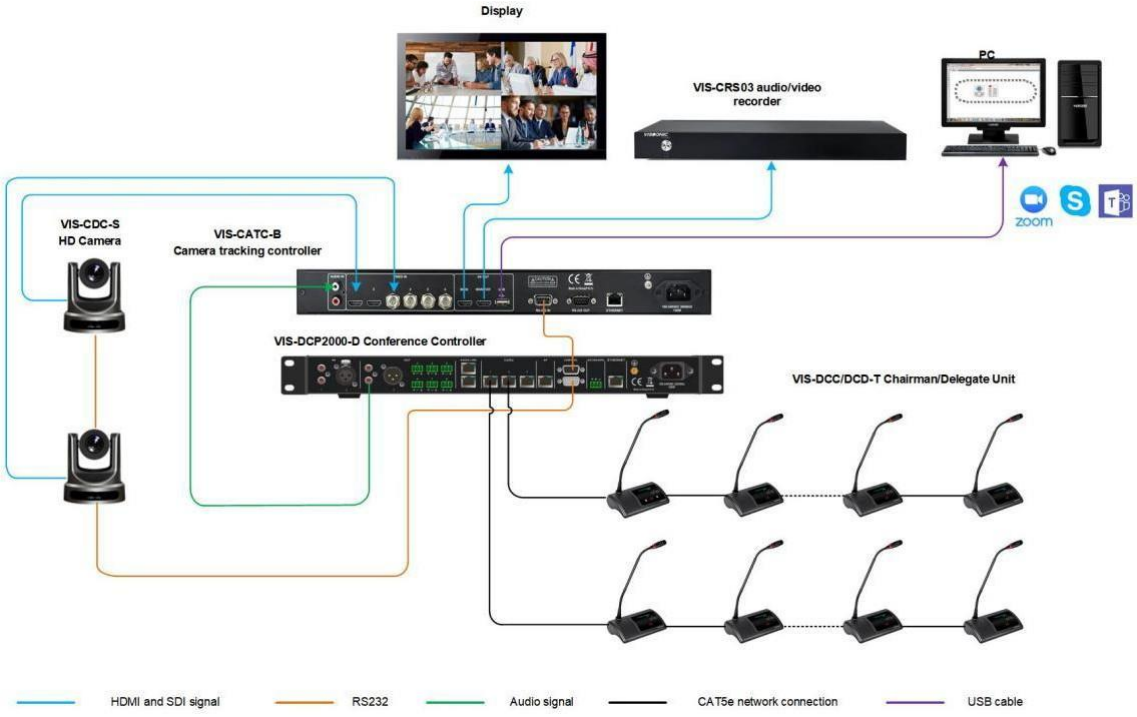


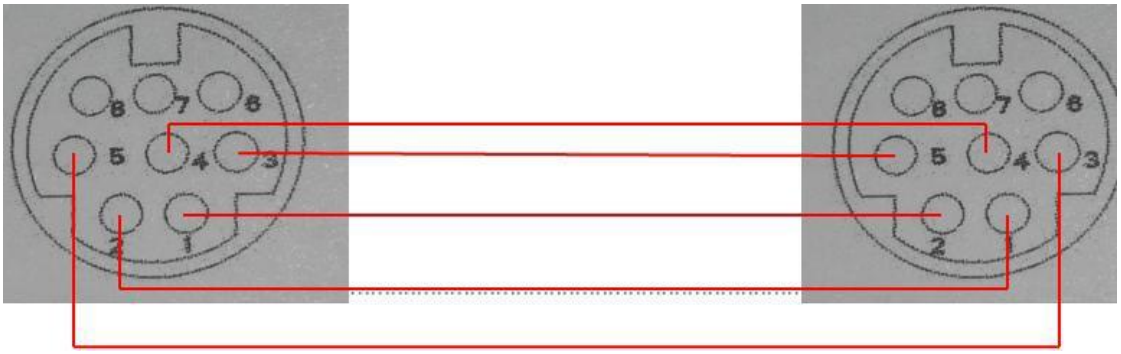
Figure 1.7.5 Version

⑥ **Version**- Click About to enter the following interface to view version information

2. System connection diagram



2.1. Camera RS232 cascade control line connection method



PIN1……DTR;PIN2……DSR;PIN3……TXD;PIN4……GND;PIN5……RXD;PIN6……GND ;PIN7……IROUT; PIN8……NC

2.2. Full Digital Network DSP Conference Controller CAMERA Menu--Camera Tracking Settings

Enter the menu 'CAMERA' to set the parameters of the camera tracking.

Menu Item	Parameter	Parameter value	Description
Protocol	-	SAMSUNG, PELCO-D, VISCA, CUSTOM, VCA-UDP	Select the protocol according to the camera model, When the camera tracking controller VIS-CATC-B is used and the protocol needs to be set to 'custom', the camera tracking is processed by VIS-CATC-B without setting the submenus' camera map 'and' start set '
Camera map (Note: If you use the cameras using SAMSUNG or PELCO-D protocol need to set this menu. Use VISCA protocol, no need to set this menu)	Camera select Camera addr. Video channel UDP addr	001 to 016 Off,001to 255 Off,001 to 255 Off,001 to 255	**Camera select**--select the camera to setup, there totally support 16 cameras. **Camera addr.**--set the camera address for the camera selected on submenu 'Camera select'. SAMSUNG and PELCO-D protocols need to set the address, and VISCA protocol is set to off. **Video channel**--Bind the camera (which set on submenu 'camera select') to the video channel number of video switcher. (There is no video switcher connected to the main unit for camera tracking by RS232, just set as Off.) **Note:** To set next camera, we just repeat the same steps: 'Camera Select->'Camera addr' ->'Video channel' The main unit will record every time of setup for each camera. **UDP addr**--Bind the IP of the network camera, if you choose VCA-UDP protocol control, you need to set the camera IP.
Freeze Time	-	01 to 30	The camera tracking host switching screen delay time can be set to 00 seconds to 30 seconds.
Video Mode	-	Normal/Recorder	When using the camera tracking controller or video matrix as the video switching device, select "Normal", and when the recorder is the video switching device, select "Recorder".

Example:
Here we have to set up two cameras, using the VISCA, SAMSUNG/PELCO-D or CUSTOM protocol, and using a video switcher or camera tracking controller.
Step 1: The lower control port of the CONTROL connected to the conference processor is connected to the camera.

Camera using the VISCA protocol.

Camera using SAMSUNG/ PELCO-D

Step 2: The upper control port of the conference processor CONTROL is connected with the RS232 port of the camera tracking controller VIS-CATC-B.

Step 3: Use the front panel of the conference processor and the camera remote control, keyboard or CLEACON software to set the camera tracking preset position and input the camera information according to the following steps.