HD Color Video Camera

User Manual

Preface:

Thanks for using our HD color video conference camera.

The manual introduces the function, installation and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly

Warning

This product can be only used in specified range in order to avoid any damage or danger.

Don't expose the camera to rain or moisture place.
Don't remove the cover to reduce the risk of electric shock. Refer servicing to qualified personnel;

Never operate the camera under unqualified temperature, humidity and power supply.

Only use the replacement parts recommended by us.

Please use the soft cloth to clean the dome. Use neuter cleanser if bad smeared. No use the strong or corrosive cleanser avoiding scuffing.

Be careful of moving, never press the drive parts heavily avoiding camera trouble.

Notes

Electromagnetic fields at the specific frequency may affect the image quality.

# 【Contents】

Notes

Electric Safety

Installation and operation must accord with electric safety standard

Caution to transport

Avoid stress, vibration and soakage in transport , storage and installation .

Polarity of power supply

The power supply of the product is ±12V, the max electrical current is 2A .polarity of the power supply drawing.
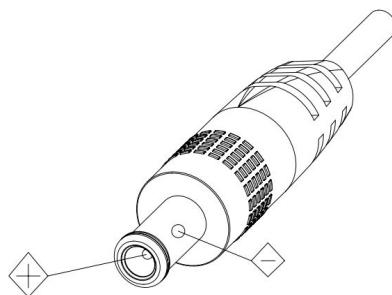
Careful of installation

Never move the camera by seizing the camera head . Don't rotate camera head by hand, otherwise, mechanical trouble will occur.

This series item must put on the smooth desk or platform , and it can not be installed slantways ;

If the camera is installed on TV or computer , the base can be fixed by three double-sided adhesive tray.

Don't apply in corrosive liquid , gas or solid environment to avoid the cover which is made up of organic material .

To make sure no obstacle in rotation range

Never power on before installation is not completed

Don't   dispatch discretionarily

We are not responsible for any unauthorized modification or dismantling .

Attention

   **Electromagnetic filed under certain rate may affect camera image!**

Supplied Accessories

When you unpack , check that all the supplied accessories are included :

Camera …………………………1

Power adaptor …………………1

Power cable……………………..1

RS232 cable……………………..1

Remote controller………………1

User manual ……………………1

Double-side glue shim …………4

Fast Installation

Please check the connection before turn on .
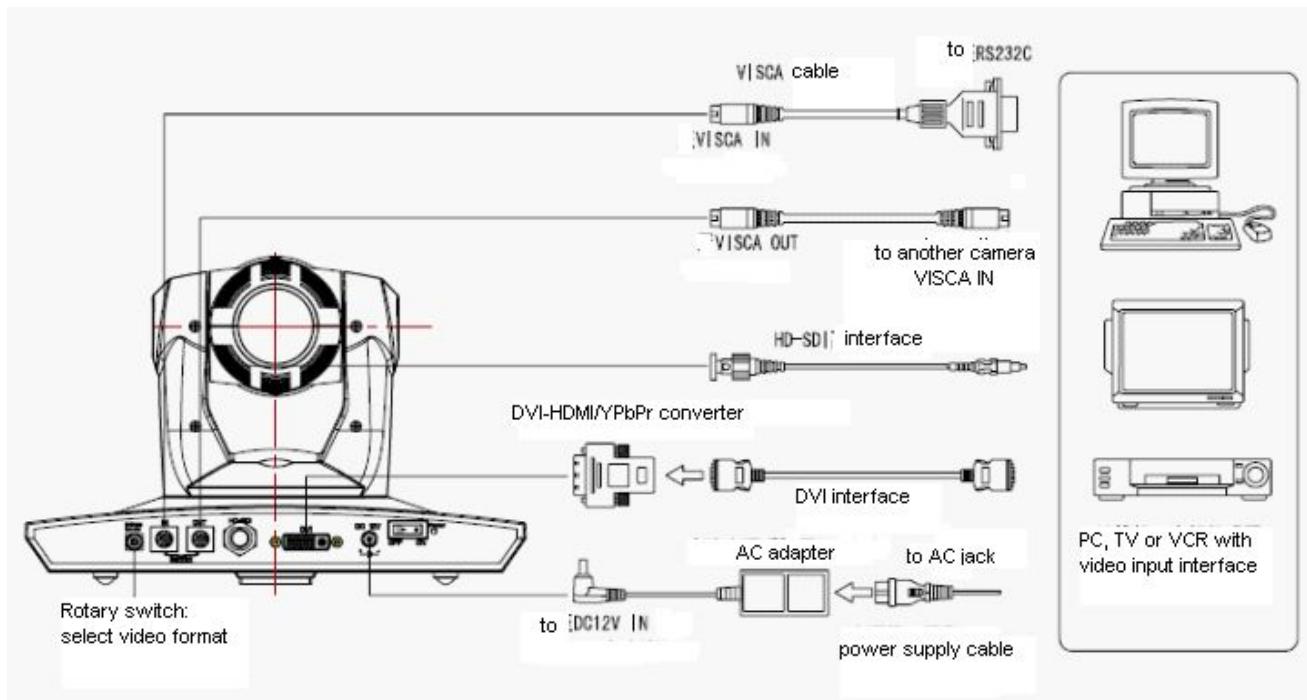
2, Bottom Dial Switch Setting

Bottom Dial Switch to be set as both OFF, means camera is working under normal mode.
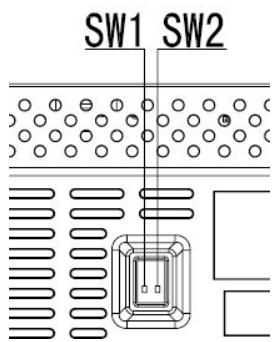
	SW-1	SW-2	Explanation
1	x	OFF	Updating mode (Software update mode)
2	x	OFF	Updating mode (Software update mode)
3	OFF	ON	Debugging mode (Factory debug mode)
4	ON	ON	Working mode (Normal working mode)

3、The Rotary Switch Setting

the video format setting selections:

Dial Switch	M		
0	--------		
1	--------		
2	1080I60		
3	1080I50		
4	720P60		
5	720P50		
6	1080P30		
7	1080P25		

8	--------		
9	--------		
A	--------		
B	--------		
C	--------		
D	--------		
E	--------		
F	Display in setted video format		

Note: Please restart the camera after shift the video format

4, When Power supply switch is "on" ,the indicator light is open(red color)

5, Camera initializes after 5 sec: Rotate to the right limit, move to the down limit; Then turn left, motor stops when horizontal and vertical rotation is in middle, camera lens will move to the wide angle position. Initialization finishes . (Note : camera will move to the preset position no.0 if saved 0 preset)

6、Factory Default : entry into the OSD menu by press the menu key , 【MENU】-> 【SETTINGS】-> 【Restore】, moving the left/right key to press 【Yes】 , then confirm by 【HOME】key .

```
                        Default
        ========================

            System parameters default
            Camera parameters default
            Pan/Tilt parameters default
            Complete default




            Return / M E N U

```
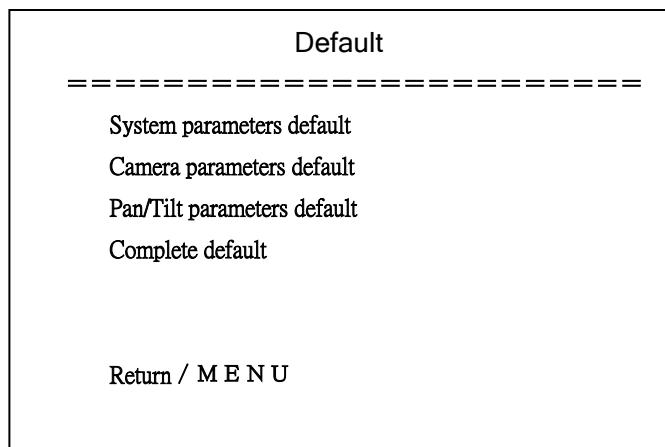
Camera highlights

1、3x optical zoom, 90 degrees wide angle

2、Completed Interfaces, providing both DVI interface (including both YPbPr and HDMI signal) and CVBS interface (optional)

3、IR remote controller signal transparent transmission function : camera can receive both its own remote controller signal and the controller signal of terminal equipment by converting to serial signal then executing .

Camera Specifications :

1、Vdeo format : 1080P30/25、1080I60/50、720P60/50

2、Output Interface : DVI（YPbPr、HDMI）、HD-SDI、CVBS(optional)

3、Image Sensor : 1/2.8 inch 3.2M pixels high quality HD CMOS sensor

4、Focal : 3.0mm ~ 9.0 mm(3X)，F1.2 - 2.1，angle of pan view：90°~ 32°(1080) / 60°~21°(720)

5、The Rotation range：pan：±100°；pan：-30°~+30°，support in-ceiling installation

6、The Control speed：pan：0.1°-50°/s；pan：0.1°-45°/s

7、Presets No.：10（it can reach to 32 preset position by COM command）, precision error：0.2°

8、Support auto/ manual white balance , auto/manual exposure (iris , shuttle) , auto/OnePush

mode

9、Support WDR technical : performance ≥100dB,

10、Control Signal interface : 8 pin mini DIN,RS232，VISCA/Pelco-D/Pelco-P

11、Power interface : HEC3800 power jack , Power supply adapter: DC12V/1.5A

12、Max. consumption：12W

13、Working temperature：-5 ~ 45℃

14、Storage temperature：-20 ~ 60℃

15、Weight：1.3kg

Camera Interface Explanation
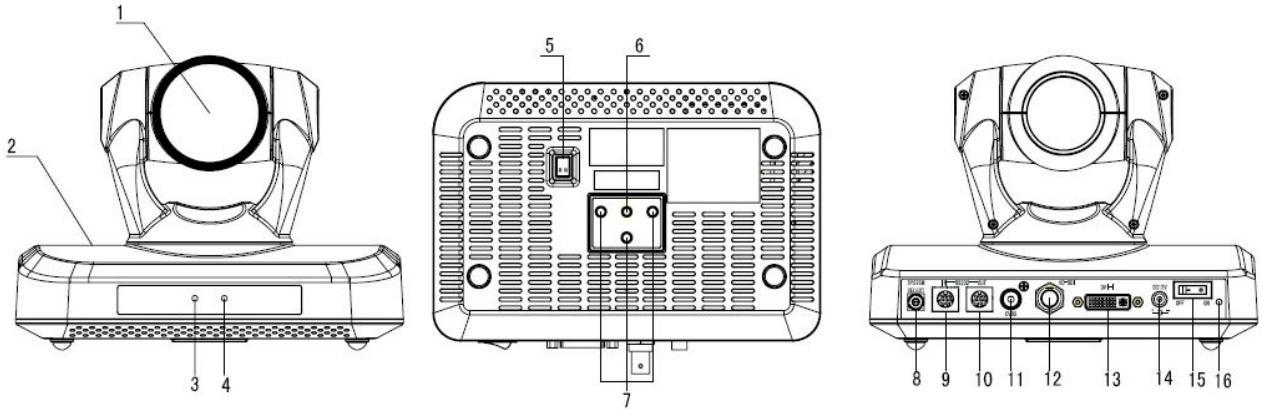
1. Lens	9. RS232 controller interface(IN)
2. Main Camera Base	10. RS232 controller interface(OUT)
3. Power indicator	11. CVBS interface (for options)
4. Remote Controller Receiver indicator	12. HD-SDI interface
5. Bottom dial Switch	13. DVI-I interface(YPbPr,HDMI)
6. Tripod screw hole	14. DC12V input power supply jack
7. Installation fixing hole	15. Power switch
8. Rotary switch:video format selection	16. Power indicator (Red)

Dimension

6
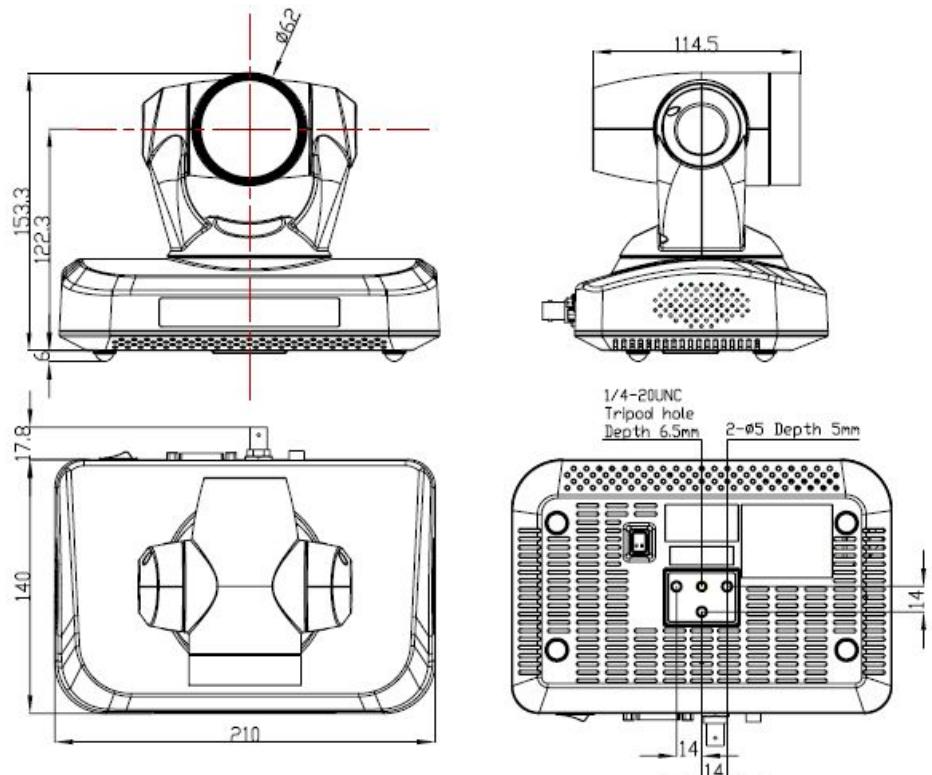
Remote Controller:
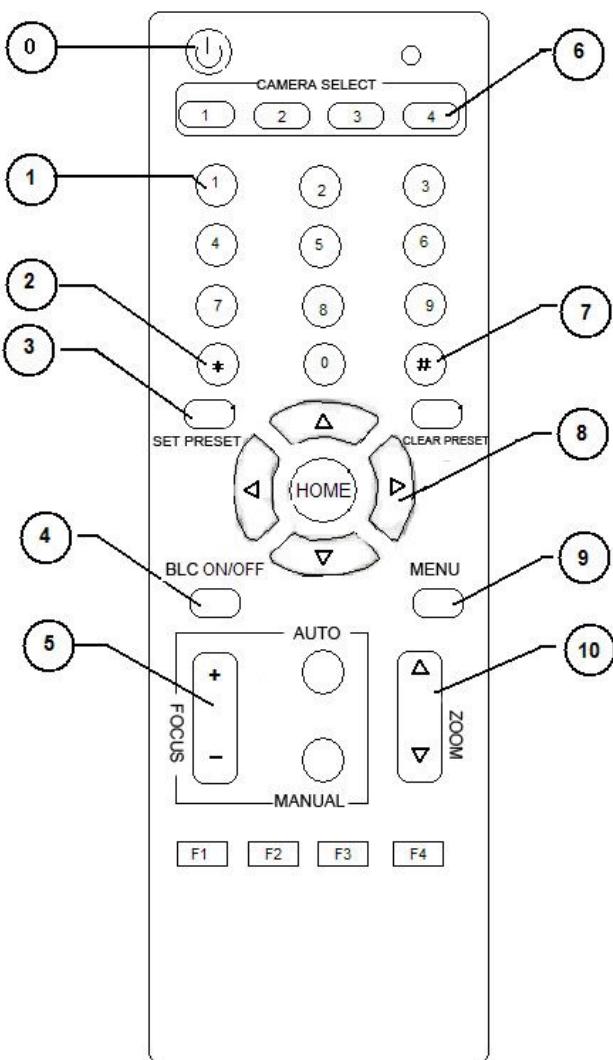
0、Standby key

Press one time,camera enter into standby mode, press one more time,camera goes back to the mode before standby.(**Note**:power consumption under standy mode is half of normal mode)

1、Number key

Set or run presets

2、*key

3. Set preset key:

Set preset：

Set preset key + 0-9 number key：

Clear preset key：

Clear preset key + 0-9 number key

or：＃＋＃＋＃：clear all the presets

4、BLC control key

BLC ON：open black light compensation（only work when exposure mode setting is Auto）

BLC OFF：close black light compensation（Only available in the exposure mode effective for Auto）

5、Focus control key

Focus＋：focus length far from near

Focus－：focus length near from far

Auto focus：invalid

Manual focus：the camera focus mode is manual

6、Camera address selection

Select the camera which want to be controlled

7、 # key

Key combination use

8、pan/tilt control key

Press ▲key ：up

Press ▼key ：down

Press ◀key ：left

Press ▶key：right

"HOME" key: Return to the middle position

9、Menu setting

Open or close the OSD menu

10、Zoom Control key

zoom＋：lens near

zoom－：lens far

11.controlling camera address selection

【*】+【＃】+【F1】：Camera Address No.1

【*】+【＃】+【F2】：Camera Address No. 2

【*】+【＃】+【F3】：Camera Address No. 3

【*】+【＃】+【F4】：Camera Address No. 4

IR Remote Control

When the camera is working, users can control the pan/tilt/zoom, setting and taking preset positions via remote controller.

Instruction：

1、In this instruction, "press the key" means a click rather than a long-press, and a special note will be given if a long-press for more than one second is required.

2、When a key-combination is required, do it in sequence. For example, " *+#+F1"means press"*"first and then press"#" and press"F1"at last.

1.Pan/Tilt Control
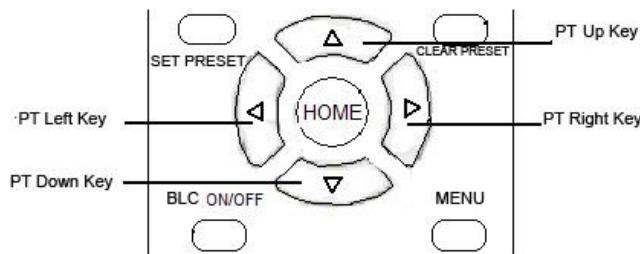
Up:　　　press ▲

Down:　press ▼

Left:　　press ◀

Right:　　press ▶

Back to middle position：press"HOME"

Press and hold the up/down/left/right key, the pan/tilt will keep running, from slow to fast, until it run to the endpoint; The pan/tilt running stops as soon as the key is released.

2. Zoom Operation
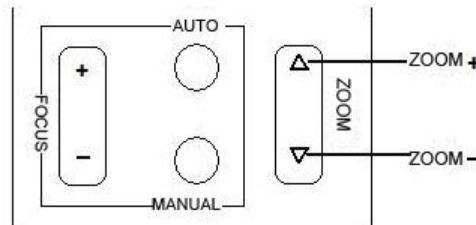
ZOOM OUT: press "ZOOM ▲" key

ZOOM IN: press "ZOOM ▼" key

Press and hold the key, the camera will keep zooming in or zooming out and stops as soon as the key is released.

3. Focus Control
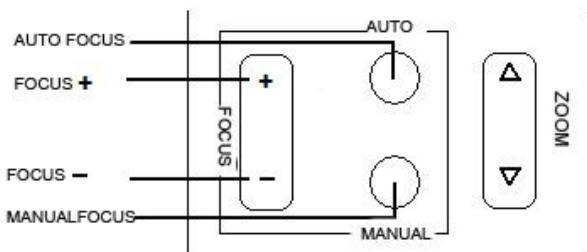
Focus (far)：　Press "focus+" key

Focus (near)：　Press "focus-"key

Auto Focus: Press "auto"

Manual Focus: Press "manual"

Press and hold the key, the action of focus continues and stops as soon as the key is released.

4.BLC Setting
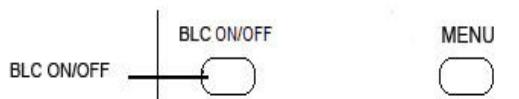
BLC ON: Press BLC ON/OFF

BLC OFF：Press again

Only valid in mode of auto exposure.

5.Presets setting
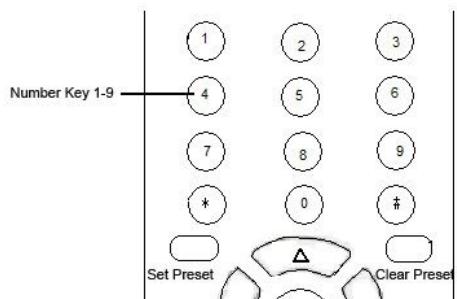
1、Preset setting ： to set a preset position, the users should press the "SET PRESET" key first and then press the number key 0-9 to set a relative preset, 10 preset positions in total are available.

2、Preset clearing : to clear a preset position, the user can press the "CLEAR PRESET" key first and then press the number key 0-9 to clear the relative preset;

Note : press the"#" key three times continually to cancel all the presets.

6、Run Presets
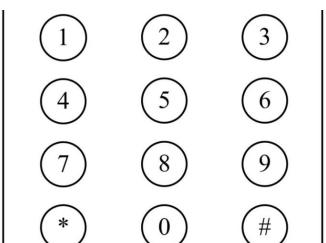
Press a number key 0-9 directly to run a relative preset.

Note: Action in vain if a relative preset position is not existed.

7、Camera Address Setting
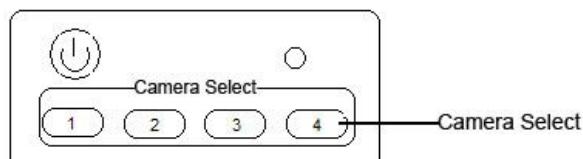
Select the camera you want to controller by press the number key

8、Camera Remote Controller Address Setting
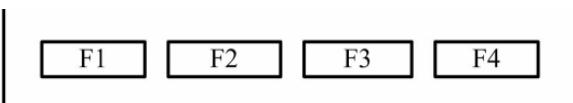
【*】+【#】+【F1】：Camera Address No.1

【*】+【＃】+【F2】：Camera Address No. 2

【*】+【＃】+【F3】：Camera Address No. 3

【*】+【＃】+【F4】：Camera Address No. 4

RS-232C Interface:

Camera	Windows DB-9
1.DTR	1.CD
2.DSR	2.RXD
3.TXD	3.TXD
4.GND	4.DTR
5.RXD	5.GND
6.GND	6.DSR
7.IR OUT	7.RTS
8.NC	8.CTS
	9.RI

No.	Function
1	DTR
2	DSR
3	TXD IN
4	GND
5	RXD IN
6	GND
7	IR OUT
8	NC

Camera	Mini DIN
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
7.IR OUT	7.NC
8.NC	8.NC
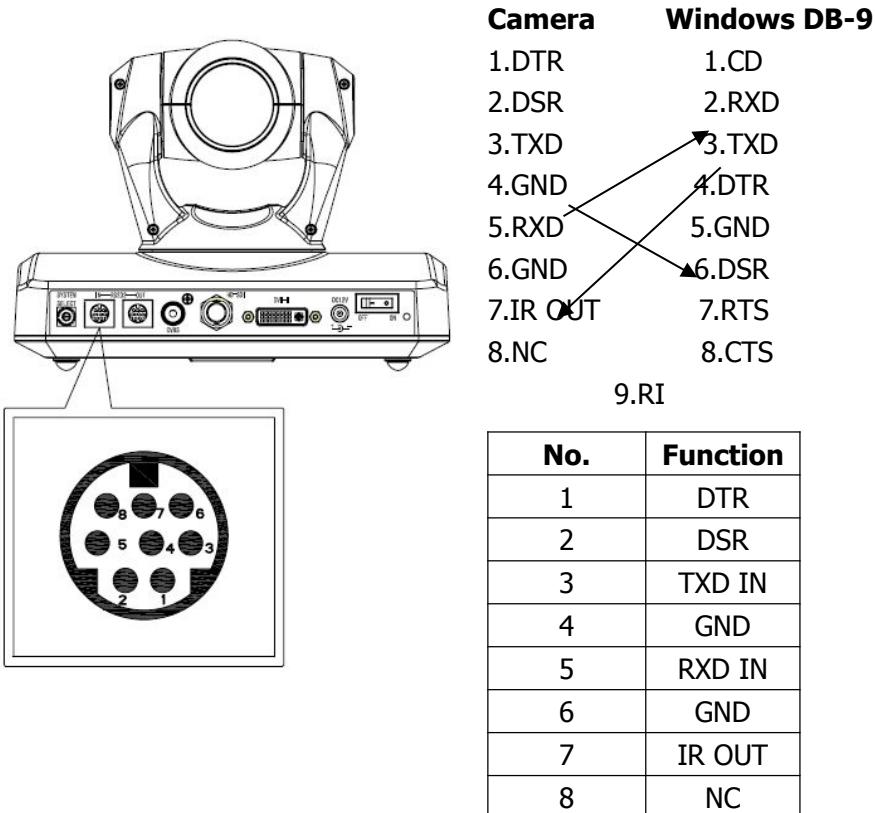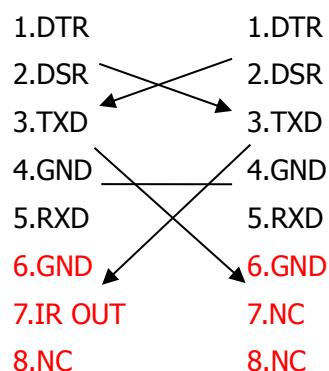
VISCA Network Way
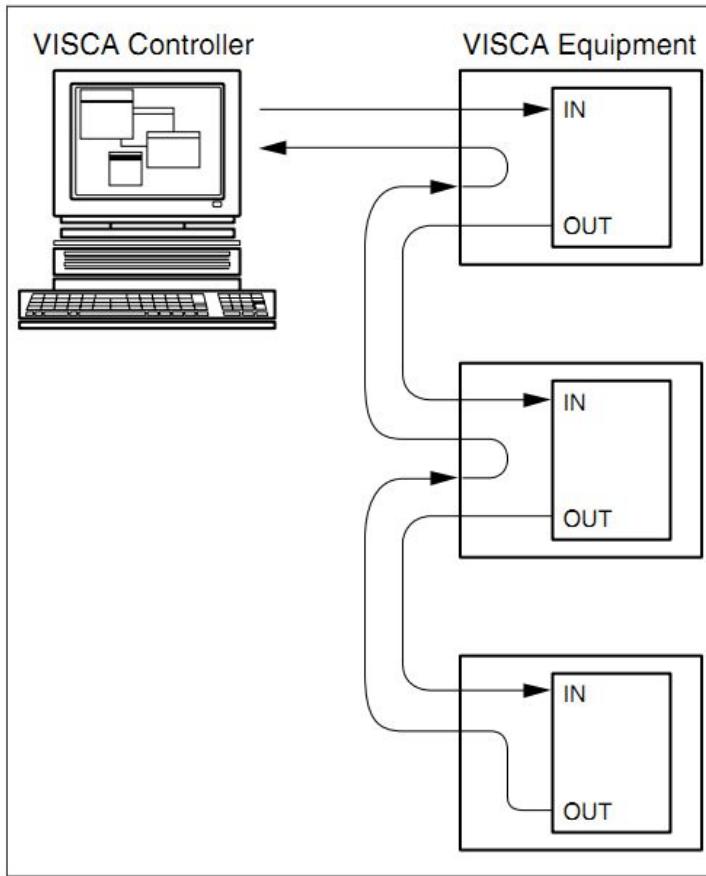
Serial Communication Control

The camera can be controlled by RS232 interface (VISCA IN) when under normal operation; the serial parameters are as follows:

Baud rate: 2400/4800/9600/115200bit/sec;

Start bit: 1

Data bit: 8

Stop bit: 1

Check bit: N/A

Camera initializes after power is on: Rotate to the left bottom, move to the right top, then back to the middle position. Camera lens will move to the furthest position, OnePush focus mode, automatic exposure mode. If preset 0 is set, it will turn to preset 0 when Initialization finishes. Then the camera can be controlled by serial command.

VISCA Protocol List

Section1 Camera Return Command

Ack/Completion Message		
	Command packet	**Note**
ACK	z0 41 FF	Returned when the command is accepted.
Completion	z0 51 FF	Returned when the command has been executed.

z = camera address + 8

Error Messages

	Command packet	**Note**
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

Section2 Camera Control Command

Command	**Function**	**Command packet**	**Note**
AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - 7(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	p = 0(low) - 7(high)
	Near(Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	One Push AF	8x 01 04 18 01 FF	
	Infinity	8x 01 04 18 02 FF	
	Near Limit	8x 01 04 28 0p 0q 0r 0s FF	
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor mode	8x 01 04 35 01 FF	
	Outdoor mode	8x 01 04 35 02 FF	
	OnePush mode	8x 01 04 35 03 FF	
	Manual	8x 01 04 35 05 FF	
	Outdoor Auto	8x 01 04 35 06 FF	
	Sodium Lamp Auto	8x 01 04 35 07 FF	
	Sodium Lamp	8x 01 04 35 08 FF	
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain

	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode(Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Positon
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright l Positon
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_BackLight	On	8x 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p: Memory Number(=0 to 127) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal ON/OFF
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical ON/OFF
	Off	8x 01 04 66 03 FF	

VideoSystem Set		8x 01 06 35 00 0p FF	P: 0~F Video format 2:1080i60 3:1080i50 4:720P60 5:720P50 6:1080P30 7:1080P25
CAM_ICR	ON	8x 01 04 01 02 FF	Infrared Mode ON/OFF
	OFF	8x 01 04 01 03 FF	
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
SYS_Menu	OFF	8x 01 06 06 03 FF	Turn off the menu
IR_Receive	On	8x 01 06 08 02 FF	IR(remote commander)receive ON/OFF
	Off	8x 01 06 08 03 FF	
	On/Off	8x 01 06 08 10 FF	
IR_ReceiveReturn	On	8x 01 7D 01 03 00 00 FF	IR(remote commander)receive message via the VISCA communication ON/OFF
	Off	8x 01 7D 01 13 00 00 FF	
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed) YYYY: Pan Position(TBD) ZZZZ: Tilt Position(TBD)
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan-tiltLimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 UpRight 0:DownLeft YYYY: Pan Limit Position(TBD) ZZZZ: Tilt Limit Position(TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	

Section3 Query command

Command	Command packet	Return packet	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	Indoor mode
		y0 50 02 FF	Outdoor mode
		y0 50 03 FF	OnePush mode
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
		y0 50 06 FF	Outdoor Auto
		y0 50 07 FF	Sodium Lamp Auto
		y0 50 08 FF	Sodium Lamp
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosiInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_ BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_NRModeInq	8x 09 04 53 FF	y0 50 0p FF	P: 0~5 0=off
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated.
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off

CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~F Video format 2:1080i60 3:1080i50 4:720P60 5:720P50 6:1080P30 7:1080P25
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF
		y0 07 7D 01 04 07 FF	Zoom tele/wide
		y0 07 7D 01 04 38 FF	AF On/Off
		y0 07 7D 01 04 33 FF	CAM_Backlight
		y0 07 7D 01 04 3F FF	CAM_Memory
		y0 07 7D 01 06 01 FF	Pan_tiltDrive
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: Pan Position zzzz: Tilt Position

Note:

　　【x】in the above form means the address of camera【y】=【x + 8】.

Pelco-D Protocol Command List

Function	Byte 1	Byte2	Byte 3	Byte 4	Byte5	Byte6	Byte 7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM
Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position	0xFF	Address	0x00	0x5B	Value High	Value Low	SUM

			Byte	Byte	
Response				Byte	Byte	
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

Pelco-P Protocol Command List

Function	Byte1	Byte2	Byte 3	Byte4	Byte5	Byte6	Byte 7	Byte 8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x00	0x80	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR
Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

Menu Settings

1. MENU

Put the Menu button under the normal image. The content of the menu will display on the screen.Use the roll arrows to choose the option。

```
          M A I N
 = = = = = = = = = = = = = = = = = = = = =
  L A N G U A G E／语言设置
 (S Y S T E M   O P T I O N)
 (C A M E R A   O P T I O N)
 (P T   O P T I O N)
 (V. F O R M A T)
 (R E S E T)
 (H E L P)


  E X I T／M E N U
```

Language：the language of the menu setting, Chinese/English

System option：Enter the submenu of the system parameter setting

Camera option：Enter the submenu of the camera parameter setting

PTZ option：Enter the submenu of the PTZ setting

Video format: Enter the submenu of the video format

Reset：Enter the submenu of the reset

Help：Enter the submenu of the help

2. System Parameter Setting

Press the direction key to the system parameter setting on the menu, and enter by pressing the Home key mutton. As follows:

```
   S Y S T E M   S E T
 = = = = = = = = = = = = = = = = = = = = =
  P R O T O C O L
  A D D R
  B. R A T E
  R S 4 8 5
  A R M. V E R
  F P G A. V E R
  HW. V E R



  B A C K／M E N U
```
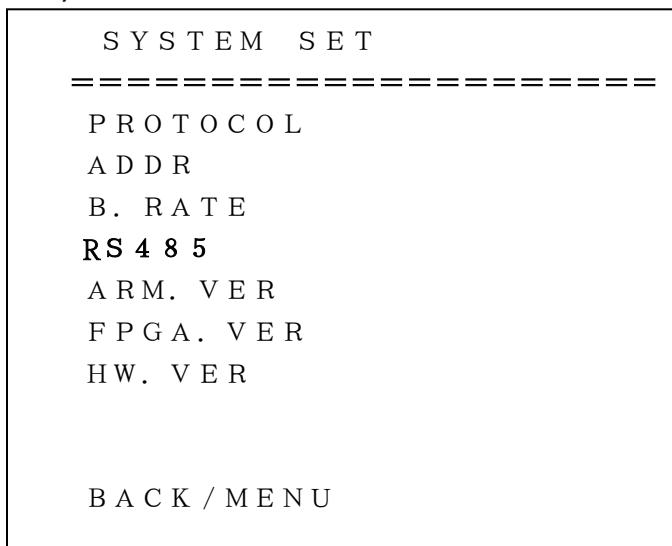
Communication Protocol：protocol type，VISCA/Pelco-P/Pelco-D

Communication address：VISCA=1~7　　Pelco-P/Pelco-D = 1~63

Baudrate：　　　　　　　2400/4800/9600/115200

RS 4 8 5：Set "On" when using the RS485

ARM software version/FPGA software version/hardware version:

the information display on the software and hardware version

1. **Camera Parameter Setting**

Press the direction key to the camera parameter setting on the menu, and enter by pressing the Home key mutton. As follows:

```
       CAMERA  SET


  =====================
   (EXPOSURE)
   (COLOR)
   (LEN)


    BACK/MENU
```
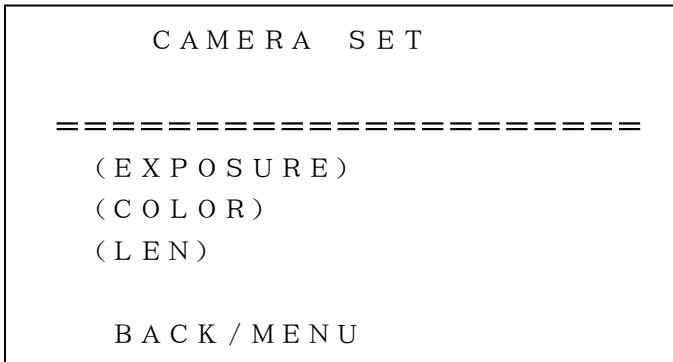
Exposure：enter the submenu of the Exposure
Color: enter the submenu of the Image Correction
Lens: enter the submenu of the Lens Correction

2.1 Exposure

Press the direction key to the Exposure on the menu, and enter by pressing the Home key mutton. As follows:

```
         EXPOSURE
  =====================
   EXP. MODE
     SHUTTER
     IRIS
     GAIN
     BRIGHT
     EV. MODE
     LEVEL
    BLC


    BACK/MENU
```
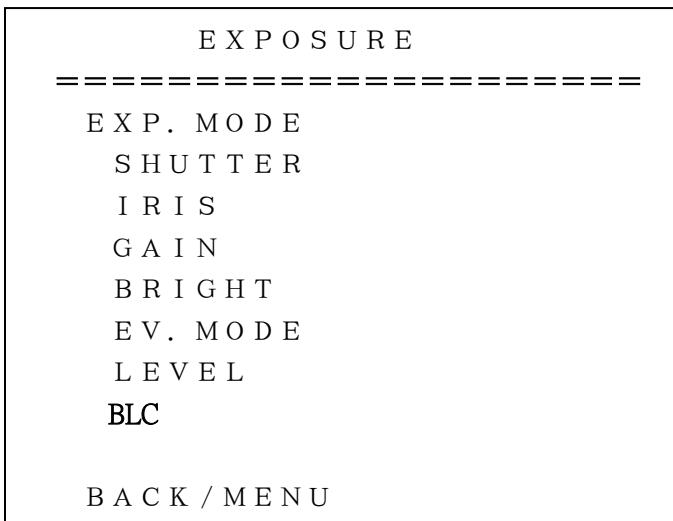
Exposure mode：setting items：Auto，Manual，Shutter，Iris，Bright
Shutter：setting items：1/1、1/2、1/3、1/6、1/12、1/25、1/50、1/75、1/100、1/125、1/150、
        1/215、1/300、1/425、1/600、1/1000（valid under the mode of Manual and Shutter）
Iris：setting items：0~17（valid under the mode of Manual and Iris）
Brightness：setting items：0~31 （Valid under the brightness mode）
Gain: setting items：0~15（Valid under the Manual mode）
EV mode：setting items：On/Off , Compensation works except the exposure mode of Manual
Level of compensation：setting items: 0~14
BLC：setting items：On/Off，Valid under the Auto exposure mode

2.2 Color Correction

Press the direction key to the color correction on the camera parameter system, and enter by pressing the Home key mutton. As follows:

```
              C O L O R
  = = = = = = = = = = = = = = = = = = = = =
    W B .  M O D E
    R .  G A I N
    B .  G A I N
    C L R .  G A I N
    C L R .  H U E
    G A M M A
    C H R O M A
    A P E R T U R E
    N O I S E .  R D


    B A C K / M E N U
```
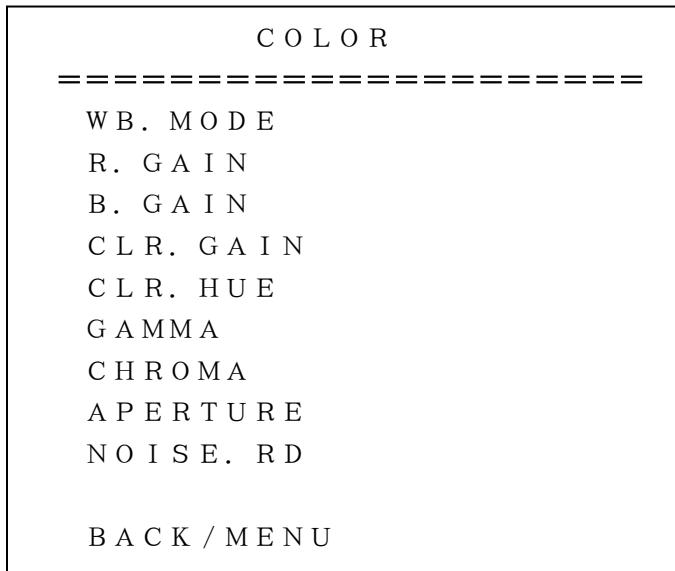
WB mode：setting items：Auto、Indoor、Outdoor、OnePush、ATW、Manual、SVL1、SVL2

R/G：setting items：0~255（valid under the Manual）

B/G：setting items：0~255（valid under the Manual）

Color gain：setting items：0~14

Hue：setting items：0~14

Gamma: setting items：0~4

Chroma：setting items：0~3

Aperture：setting items：0~15

Noise RD：setting items：0~5, 0=off

2.3 Lens Correction

Press the direction key to the lens correction on the camera parameter system, and enter by pressing the Home key mutton. As follows:

```
              L E N
  = = = = = = = = = = = = = = = = = = = = =
    F O C U S
    WDR
    D .  Z O O M


    B A C K / M E N U
```
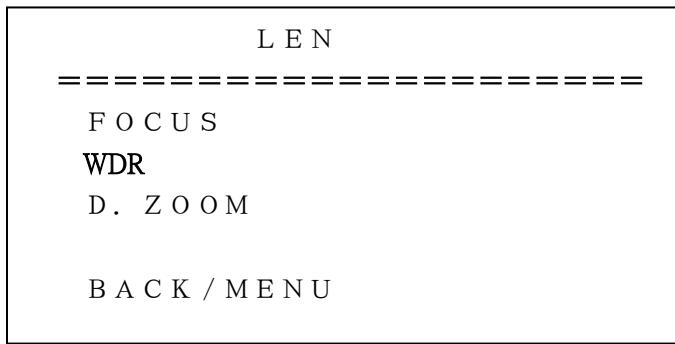
Focus mode：setting mode OnePush，Infinity

WDR：   setting mode Auto，Ratuio，On，Off，Dv On

Digital Zoom：   setting mode：On/Off

4. PTZ parameter setting

Press the direction key to the PTZ parameter setting on the Menu, and enter by pressing the Home key mutton. As follows:

```
                P T   S E T
  = = = = = = = = = = = = = = = = = = = = =
   P O W E R .  A C T
   S P E E D B Y Z
   M O U N T .  M O D E
   I R   P .  S P E E D
   I R   Z .  S P E E D
   M I N .  S P E E D


   B A C K / M E N U
```
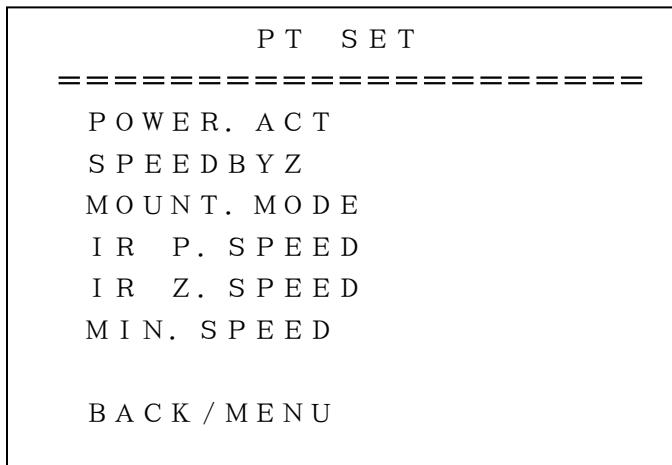
Power action：On(return to 0 preset if no action after power on for 12sec)、Off
Speedbyz： only valid for remoter，On（move speed will be slower when zoom in）、Off
Mount mode：UP、DOWN
IR controller P speed： **remoter move speed from** 2 to20
IR controller zoom speed：remoter camera zoom speed from 1 to 7
Min speed: Min speed for COM command from 1 to 9

5, Reset

Entry into [reset] in the main menu[HOME] as following picture :

```
                RESET
  = = = = = = = = = = = = = = = = = = = = =
   SYS. RESET
   CAM. RESET
   PT. RESET
   ALL. RESET


   Back / M E N U
```
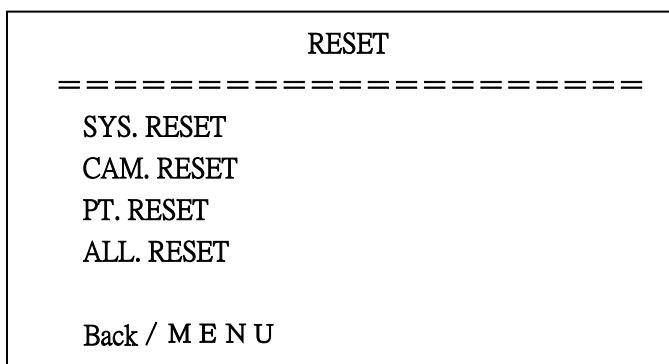
SYS. Reset : Protocol=Visca , Address=1 , Baud rate =9600 , RS485=off
CAM. Reset : Camera parameters reset
P/T Parameters reset :configure =off , SpeedByZ=off , Installation =Up ,
Rotation Speed of remote controller=16 , Zoom Speed of remote controller =5
Reset all : Reset protocol ,
6, Help
Entry into [help] in the main menu [HOME] as following picture :

```
                Help
  = = = = = = = = = = = = = = = = = = = = =
   ∧  ∨   Select  Menu
   ＜  ＞   Change Setting
   H O M E  Enter
   M E N U  Return


   BACK / M E N U
```
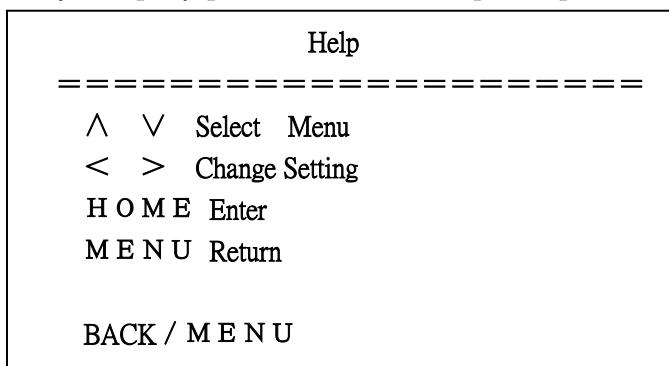
Operation Help information

```
┌─────────────────────────────────────┐
│              EXIT                    │
│  ═══════════════════════            │
│    SAVE ?                Yes/No      │
│                                      │
│                                      │
│                                      │
│    OK / H O M E      BACK / M E N U  │
│                                      │
└─────────────────────────────────────┘
```
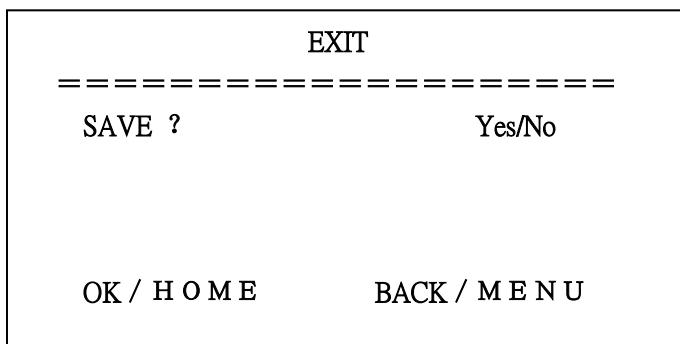
SAVE?   Save optional , can setting Yes, NO .
Note : press [Home] to confirm . [Menu] to return

Maintenance and Troubleshooting

Camera Maintains
If camera is not used for long time, please turn off power switch, adapter switch and AC plug.
Use soft cloth or tissue to clean the camera cover.
Use soft cloth to clean the lens; Use neuter cleanser if bad smeared. No use strong or corrosive cleanser or corrosive cleanser avoiding scuffing.

Unqualified Application
No shooting extreme light object, such as sunlight, lamplight etc.
No operating in unstable light environment, otherwise image will twinkle
No operating in radio wave with great power environment, such as TV station or Wireless Launcher
Image effective will not be good when the light is not accordant with camera's lux.

Troubleshooting

Image
No image
1, Check whether the power cord, voltage is OK, power indicator light is ON.
2, Turn off the power supply to check whether the camera can auto configure.
3, Check the dial switch in bottom and make sure the two dial position are all on OFF.
4, Check video and TV wire is connected correctly.

Abnormal display of image
Check whether the video connecting wires is well and other connecting sockets and camera flat wires are well
The camera can only works at one focus, other position can not be focused.
Change the position to see if this phenomenon still exists. If yes, it may be caused by
Camera control drive focus control system trouble.
Image dithering when at Maximum Zoom
1, Check whether camera is fixed correctly.
2, If there is vibrative mechanical object.

Remote Controller

Remoter can not control
1, Change the battery
2, Check the camera operation mode is right.

COM can not control
1, Check the camera operation mode is right.
2, Check control wire is connected correctly.