

VHD-V71U2

DATASHEET - MANUAL



MAIN FEATURES

- Completely New Look Designed with worm gear transmission, completely new look, mini size.
- Full function USB interface, compatibility USB3.0 and USB2.0, support audio, support compressed video output, support UVC v1.5 protocol.
- Built-in microphone for optional, pickup distance up to 5 meters, high sensitivity and low base noise.
- 1080P Full HD Apply Panasonic's 1/2.7 inch, 2.07 million effective pixels high quality HD CMOS sensor, can reach maximum 1920 x 1080 high resolution and achieve quality image.
- Ultra high compatibility Compatible with USB 3.0 and USB 2.0, support UVC v1.5 protocol, and support almost all video conference software on the market.
- 72.5° Wide-angle Lens + 16x Digital Zoom Use 72.5° wide-angle high quality lens, support 12x optical zoom, and 16x digital zoom.
- Low-light High SNR of CMOS sensor combined with 2D and 3D noise reduction algorithm, effectively reduce the noise, even under low illumination conditions, picture can still keep clean and clear.
- Remote Control Using RS232/485 interface, all the parameters of the camera can be remote controlled by the high-speed communications.
- H.264 Slice/H.264 SVC Support Support Slice and SVC encoding mode, adapts to video conference of advance USB application.
- Dual stream Support two stream output (YUY2, MJPEG, H.264 each of both), reduce the host codec pressure.
- USB infrared transmission (Optional) Base on customer needs, transmit infrared code value.

CAMERA

VIDEO SYSTEM	1080P, 720P, 540P, 480P, 360P, 240P ETC.
SENSOR	1/2.7", CMOS, EFFECTIVE PIXEL: 2.07M
SCANNING MODE	PROGRESSIVE
LENS	12X, F3.5MM ~ 42.3MM, F1.8 ~ F2.8
DIGITAL ZOOM	16X
MINIMAL ILLUMINATION	0.05 LUX @ (F1.8, AGC ON)
SHUTTER	1/30S ~ 1/10000S
WHITE BALANCE	AUTO, INDOOR, OUTDOOR, ONE PUSH, MANUAL, VAR(2500K ~ 8000K)
BACKLIGHT COMPENSATION	SUPPORT
DIGITAL NOISE REDUCTION	2D&3D DIGITAL NOISE REDUCTION
VIDEO S/N	≥55dB
HORIZONTAL ANGLE OF VIEW	72.5° ~ 6.9°
VERTICAL ANGLE OF VIEW	44.8° ~ 3.9°
HORIZONTAL ROTATION RANGE	±170°
VERTICAL ROTATION RANGE	-25° ~ +25°
PAN SPEED RANGE	1.7° ~ 100°/S
TILT SPEED RANGE	0.7° ~ 28°/S
H & V FLIP	SUPPORT
IMAGE FREEZE	SUPPORT
NUMBER OF PRESET	255
PRESET ACCURACY	0.1°
BUILT-IN MICROPHONE	SUPPORT
DISTANCE OF PICK UP	6M
VOICE TRACKING	SUPPORT

USB FEATURED

OPERATE SYSTEM	WINDOWS 7, WINDOWS 8, WINDOWS 10, MAC OS X, LINUX, ANDROID
COLOR SYSTEM / COMPRESSION	YUV 4:2:2 / H.264 / MJPEG
VIDEO FORMAT	YUY2 (BULK): MAX TO 1080P@60FPS YUY2 (ISOC): MAX TO 1080P@30FPS H.264 AVC: MAX TO 1080P@60FPS H.264 SVC: MAX TO 1080P@30FPS MJPEG: MAX TO 1080P@30FPS
AUDIO ON USB	SUPPORT
USB VIDEO COMMUNICATION PROTOCOL	UVC 1.5
UVC PTZ	SUPPORT

INPUT/OUTPUT INTERFACE

USB INTERFACE	1XUSB3.0: TYPE B FEMALE JACK
AUDIO INTERFACE	1-CH: 3.5MM AUDIO INTERFACE, LINE IN
COMMUNICATION INTERFACE	1XRS232 IN: 8PIN MIN DIN, MAX DISTANCE: 30M, PROTOCOL: VISCA/PELCO-D/PELCO-P - 1XRS232 OUT: 8PIN MIN DIN, MAX DISTANCE: 30M, PROTOCOL: VISCA NETWORK USE ONLY - 1XRS485: SHARE WITH RS232 OUT, MAX DISTANCE: 1200M, PROTOCOL: VISCA/PELCO-D/PELCO-P
POWER JACK	JEITA TYPE (DC IN 12V)

GENERIC SPECIFICATION

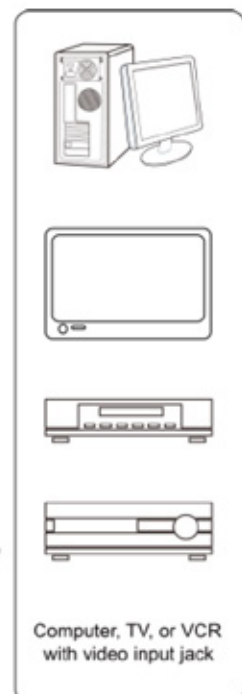
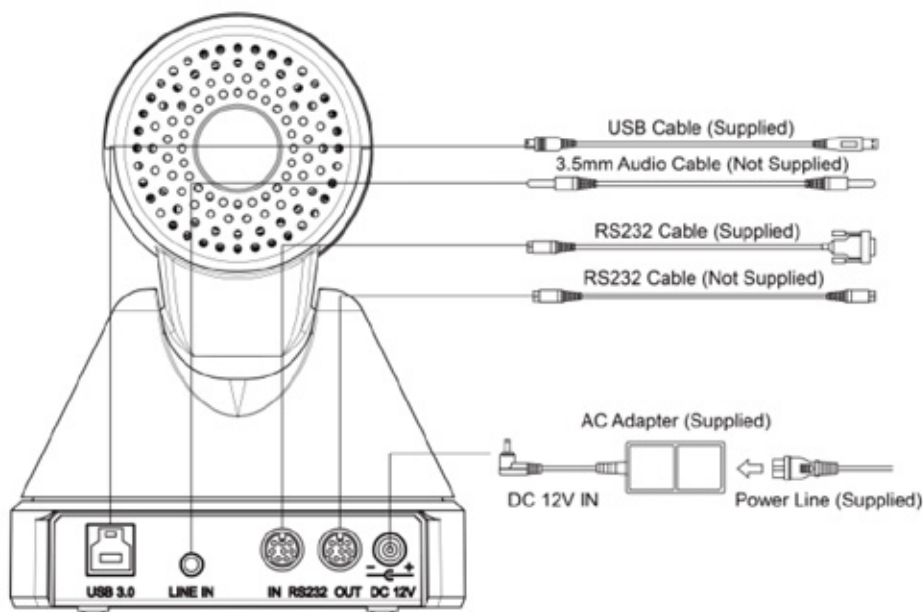
INPUT VOLTAGE	DC 12V
CURRENT CONSUMPTION	1.0A (MAX)
OPERATING TEMPERATURE	-10°C ~ 40°C (14°F ~ 104°F)
STORAGE TEMPERATURE	-40°C ~ 60°C (-40°F ~ 140°F)
POWER CONSUMPTION	12W (MAX)
MTBF	>30000H
SIZE	128.5MM X 118MM X 156.2MM
NET WEIGHT	0.91KG

> APPEARANCE AND INTERFACE



> QUICK START

- 1) Please check connections are correct before starting.
- 2) Connect the power adapter to the power connector on the rear panel of the camera. The power indicator on the front panel of the camera is on.
- 3) After the camera is powered on, it starts to initialize, right up to the limit position, and then both horizontal and vertical go to the middle position, the motor stops running, and the initialization is completed.
(Note: If preset 0 is saved, PTZ will be set to preset 0).



> NOTE

- Electric Safety. Installation and operation must accord with electric safety standard.
- Use caution to transport. Avoid stress, vibration or soakage in transport, storage and installation.
- Polarity of power supply. The power supply of this product is +12V, the max electrical current is 2A. Polarity of the power supply plug drawing shows as below.



- Electric Safety. Installation and operation must accord with electric safety standard.
- Use caution to transport. Avoid stress, vibration or soakage in transport, storage and installation.
- Polarity of power supply. The power supply of this product is +12V, the material) damage. Make sure there is no obstacle within rotation range. Please never power on before installation is completed.
- Do not dismantle the camera. We are not responsible for any unauthorized modification or dismantling. Max electrical current is 2A. Polarity of the power supply plug drawing shows as below.



Warning

Specific frequencies of electromagnetic field may affect the image of the camera!

> PACKING LIST

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

NAME	QUALITY
Camera	1
AC Power Adaptor	1
Power Cable	1
Serial Cable	1
Remote Control	1
User Manual	1
USB 3.0 Cable	1

> ABOUT PRODUCT

FEATURES

- **New appearance**
Worm and worm drive design, new appearance, mini-style, two-color optional.
- **USB 3.0**
Supports UVC protocol, compatible with USB 2.0 and USB 3.0, USB 3.0 supports up to 1920x1080p/60 output, and USB 2.0 supports up to 960x540p/60 output.

When the camcorder is connected to the PC through the USB for the first time, the PC will automatically install the UVC-related drivers.

• Built-in Microphone.

Built-in microphone, pick up distance up to six meters, high sensitivity, low noise floor.

• 1080P Full HD.

With the new generation of Panasonic 1/2.7 inch, 2.07 million effective pixels of high-quality HD CMOS sensors, you can achieve high-quality images with a maximum resolution of 1920x1080.

• High Frame Rate.

1080P output frame rate up to 60fps.

• 72.5° Wide-angle lens + 16x Digital Zoom.

With a 72.5° high quality super-lens lens, the optical zoom can be up to 12 times and supports 16x digital zoom (optional).

• Low illumination

The application of 2D and 3D noise reduction algorithm greatly reduces the image noise. Even under the condition of ultra-low illumination, it still keeps the picture clean and clear, and the SNR of image is as high as 55dB.

• Remote Control

Through the RS232 and RS485 serial ports, the camera can be controlled remotely.

PRODUCT SPECIFICATION

SIGNAL SYSTEM

1080p/60 (optional), 1080p/50 (optional), 1080p/30, 1080p/25, 720p/60, 720p/50, 720p/30, 720p/25.

SENSOR

1/2.7 inch, CMOS, Effective pixels: 2.07 million.

SCANNING MODE

Progressive.

LENS

12x, f3.5mm ~ 42.3mm, F1.8 ~ F2.8.

DIGITAL ZOOM

16x (optional).

MINIMUM ILLUMINATION

0.5Lux @ (F1.8, AGC ON).

SHUTTER

1/30s ~ 1/10000s.

WHITE BALANCE

Auto, Indoor, Outdoor, One Push, Manual, VAR.

BACKLIGHT COMPENSATION

Support.

DIGITAL NOISE REDUCTION

2D, 3D digital noise reduction.

SIGNAL NOISE RATIO

≥55dB.

HORIZONTAL ROTATION RANGE

±170°.

VERTICAL ROTATION RANGE

-30° ~ +30°.

PAN SPEED RANGE

1.7° ~ 100°/s.

TILT SPEED RANGE

1.7° ~ 69.9°/s.

H&V FLIP

Support.

IMAGE FREEZE

Support.

NUMBER OF PRESET

255.

PRESET ACCURACY

0.1°.

USB FEATURE

OPERATING SYSTEM

Windows XP/Vista/7/8/10, Mac OS X, Linux.

COLOR SPACE/ COMPRESSION

YUV 4:2:2/H.264/MJPEG.

VIDEO FORMAT

USB3.0: 1080p/60 (optional), 1080p/50 (optional), 1080p/30, 1080p/25, 720p/60, 720p/50, 720p/30, 720p/25
 USB2.0: 1080p/30, 1080p/25, 1080p/15, 1080p/10, 720p/30, 720p/25, 960x540p/30, 960x540p/25, 640x360p/60, 640x360p/50.

USB AUDIO

Support.

USB VIDEO COMMUNICATION PROTOCOL

UVC 1.1, UVC 1.5.

UVC PTZ CONTROL

Support.

INPUT/OUTPUT INTERFACE

USB INTERFACE

1 x USB3.0: Type B female jack.

AUDIO INTERFACE

1-ch: 3.5mm Audio Interface, Line In.

COMMUNICATION INTERFACE

- 1 x RS232 In: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA / Pelco-D/Pelco-P.
- 1 x RS232 Out: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA network use only.
- 1 x RS485: Share with RS232 Out, Max Distance: 1200m, Protocol: VISCA/Pelco-D/Pelco-P.

POWER JACK

JEITA type (DC IN 12V).

PHYSICAL PARAMETER

INPUT VOLTAGE

DC 12V.

OPERATING TEMPERATURE

-10°C ~ 40°C.

STORAGE TEMPERATURE

-40°C ~ 60°C.

POWER CONSUMPTION

12W (Max).

MTBF

>30000h.

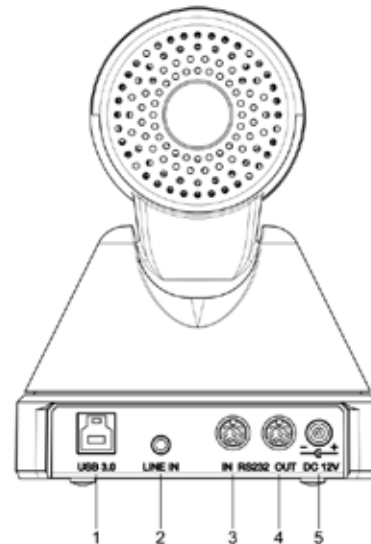
SIZE

128 x118 x158mm.

NET WEIGHT

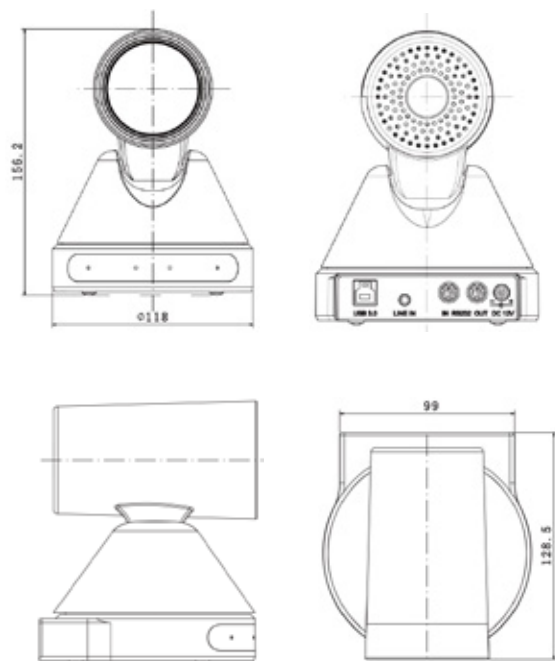
0.91Kg.

INTERFACES AND BUTTONS



ITEM	NAME
1	USB 3.0 Interface
2	Audio Input Interface
3	RS232 IN Interface
4	RS232 OUT Interface
5	DC 12V Power Interface

DIMENSION



> KEY DESCRIPTION

1. STANDBY BUTTON

Press this button to enter standby mode. Press it again to enter normal mode.

Note: Power consumption in standby mode is approximately half of the normal mode.

2. POSITION BUTTONS

To set preset or call preset.

3. *BUTTON

Used with other buttons.

4. SET/PRESET BUTTONS

Set preset: Store a preset position.

[SET PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position.

5. PAN-TILT CONTROL BUTTONS

Press Pan-Tilt back to the middle position.

6. BACK BUTTONS

Press the OSD menu return to the superior.

7. ZOOM BUTTONS

Slow Zoom: Zoom In [+] or Zoom Out [-] slowly.

Fast Zoom: Zoom In [+] or Zoom Out [-] fast.

8. PAN-TILT L/R SET

Press with 1 buttons and 2 buttons setting the direction of the Pan-Tilt.

- Simultaneously press L/R Set + 1 [STD]: set the Pan-Tilt turn the same direction as the L/R Set.
- Simultaneously press L/R Set + 2 [REV]: set the Pan-Tilt turn the opposite direction as the L/R Set.

9. FOCUS BUTTONS

Used for focus adjustment. Press [AUTO] adjust the focuses on the center of the object automatically. To adjust the focus manually. Press [MANUAL] adjust the focus on the center of the object manual. MANUAL button, and adjust it with [Far] (Focus on far object) and [NEAR] (Focus on near object).

10. CAMERA SELECT BUTTONS

Press the button corresponding to the camera you want to operate with the remote controller.

11. # BUTTON

Used with other buttons.

12. SET CAMERA IR ADDRESS BUTTONS

[*]+[#]+[F1]: Address 1

[*]+[#]+[F2]: Address 2

[*]+[#]+[F3]: Address 3

[*]+[#]+[F4]: Address 4

13. CLEAR PRESET BUTTONS

Clear preset: Erase a preset position.

[CLEAR PRESET] + Numeric button (0-9) Or:

[*]+[#]+[CLEAR PRESET]: Erase all the preset individually.

14. PAN/TILT CONTROL BUTTONS

Press arrow buttons to perform panning and tilting. Press [HOME] button to face the camera back to front.

15. MENU

MENU: enter or exit OSD MENU.

16. BLC (BACKLIGHT COMPENSATION) BUTTON

BLC ON/OFF: press this button to enable the backlight compensation. Press it again to disable the backlight compensation.

NOTE:

- Effective only in auto exposure mode.
- If a light behind the subject, the subject will become dark. In this case, press the backlight ON/OFF button. To cancel this function, press backlight ON/OFF button.

17. PAN/TILT RESET

Preset Pan/Tilt self-test.

18. IMAGE FREEZING FUNCTION

Manually freeze: open the freezing function after press the remote control [F4], display "Freeze" on the left upper corner character, after five seconds display disappear automatically. If you want to cancel the freeze, press [F4] key and then can return to normal, display "Unfreeze" on the left upper corner, after five seconds display disappear automatically.

Recalling the Preset image Freeze: by the OSD Menu Setting "Recalling the Preset image Freeze" function. After the function is opened, the screen will stay in before Recalling the Preset when Recalling the Preset, the screen can be switched to the preset position screen until the camera points to the preset position.

19. SHORTCUT SET

[*]+[#]+[1]: OSD menu default English

[*]+[#]+[3]: OSD menu default Chinese

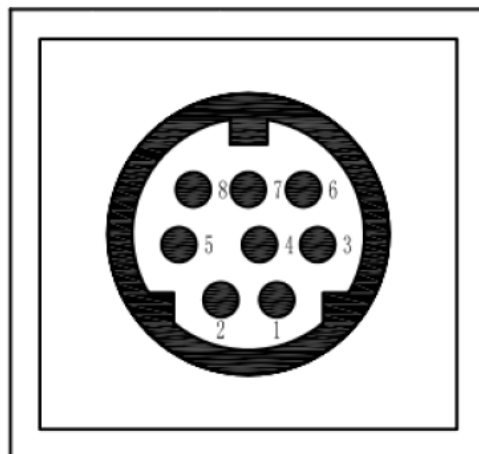
[*]+[#]+[5]: Save OSD

[*]+[#]+[6]: Quickly recover the default

[*]+[#]+[8]: Look the camera version

[*]+[#]+[9]: Quickly set up inversion

> RS-232 INTERFACE



> RS-232 INTERFACE

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

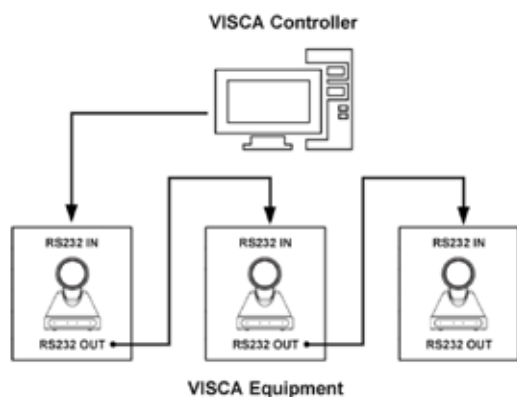
The correspondence between the camera and Windows DB-9 pin:

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

The correspondence between the camera and the Mini DIN pin:

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



> SERIAL COMMUNICATION CONTROL

RS232 COMMUNICATION CONTROL

The camera is controlled via RS232.
The RS232 serial port parameters are as follows:
Baud rate: 2400/4800/9600/38400 bit/s;
Starting Position: 1 bit
Data bit: 8 bits
Stop bit: 1 bit
Check digit: None

RS485 COMMUNICATION CONTROL

Control camera via RS485, half duplex mode:
Baud rate: 2400/4800/9600/38400 bit/s;
Starting position: 1 bit
Data bit: 8 bits
Stop bit: 1 bit
Check digit: None
After power on, the camera goes to the upper right limit and then back to the middle position. The zoom lens is pulled to the farthest position, auto focus, and the aperture is adjusted to the default value. If the camera has preset 0 saved, the camera will be set to position 0 after the initialization is completed.
At this point, the user can use the serial port command to control the camera.

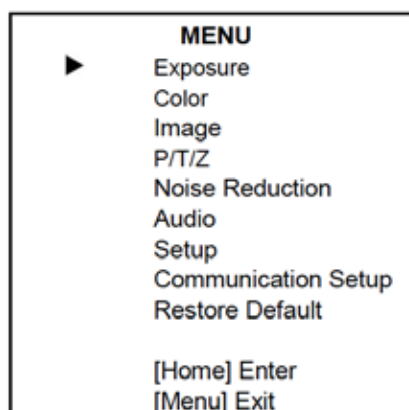
LIST OF PROTOCOLS (OMITTED)

The serial port of the camera follows the VISCA/Pelco-D/Pelco-P standard protocol. If secondary development is required, the camera can be controlled according to the standard protocol. For a detailed list of VISCA/Pelco-D/Pelco-P protocols, contact the manufacturer.

> GUI SETTINGS

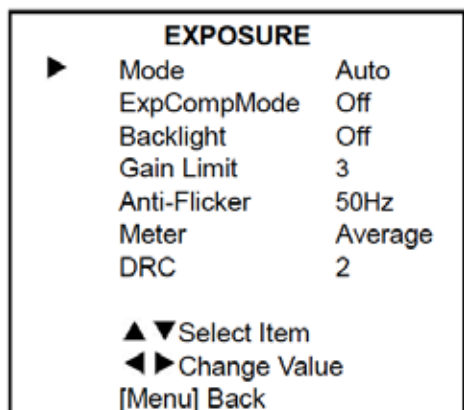
MENU

Press [MENU] button to display the main menu on the normal screen, using arrow button to move the cursor to the item to be set. Press the [HOME] button to enter the corresponding sub-menu.



> EXPOSURE

Move the main menu cursor to [EXPOSURE], and press [HOME] key enter the exposure page, as shown in the following figure.



MODE: exposure mode, optional items: Auto, Manual, SAE, AAE, Bright. ExpCompMode: Exposure compensation mode, optional items: On, Off (Effective only in Automode).
EXPCOMP: exposure compensation value, optional items: -7~7 (Effective only in ExpCompMode item to On).
BACKLIGHT: set the backlight compensation, optional items: On, Off (Effective only in Auto mode).
BRIGHT: intensity control, optional items: 00~17 (Effective only in Bright mode).
GAIN LIMIT: maximum gain limit, optional items: 0 ~ 15 (Effective only in Auto, AAE, Bright mode).
Anti-Flicker: Anti-flicker, optional items: Off, 50Hz, 60Hz (Effective only in Auto, Bright mode).
METER: optional items: Average, Center, Smart, Top.
IRIS: aperture value, optional items: F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0, Close (Effective only in Manual, AAE mode).
SHUTT: Shutter value, optional items: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (Effective only in Manual, SAE mode).
DRC: DRC strength, optional items: 0 ~ 8.

> COLOR

Move the main menu cursor to [COLOR], and press [HOME] key enter the color page, as shown in the following figure.

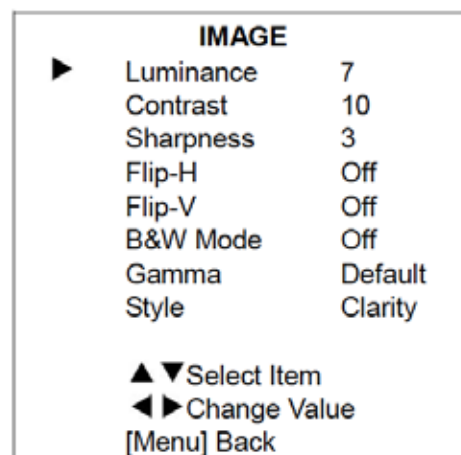
WB-MODE: White balance mode, optional items: Auto, Indoor, Outdoor, One Push, Manual, VAR.
RG: Red gain, optional items: 0~255 (Effective only in Manual mode).
BG: Blue gain, optional items: 0~255 (Effective only in Manual mode).

Move the main menu cursor to [COLOR], and press [HOME] key enter the color page, as shown in the following figure.

WB-MODE: white balance mode, optional items: Auto, Indoor, Outdoor, One Push, Manual, VAR.
RG: Red gain, optional items: 0~255 (Effective only in Manual mode).
BG: blue gain, optional items: 0~255 (Effective only in Manual mode).
COLOR TEMP: optional items: 2500K ~ 8000K (Effective only in VAR mode).
RG TUNING: red gain fine-tuning, optional items: -10 ~ +10 (Effective only in AWB sens is Low).
BG TUNING: blue gain fine-tuning, optional items: -10 ~ +10 (Effective only in AWB sens is Low).
SATURATION: optional items: 60% ~ 200%. Hue: Chroma adjustment, optional items: 0 ~ 14.
AWB SENS: the white balance sensitivity, optional items: Low, Middle, High.

> IMAGE

Move the main menu cursor to [IMAGE], and press [HOME] key enter the image page, as shown in the following figure.



LUMINANCE: brightness adjustment, optional items: 0 ~ 14.

CONTRAST: contrast adjustment, optional items: 0 ~ 14.

SHARPNESS: sharpness adjustment, optional items: Auto, 0 ~ 15.

FLIP-H: image flipped horizontally, optional items: On, Off.

FLIP-V: image Flip Vertical, optional items: On, Off.

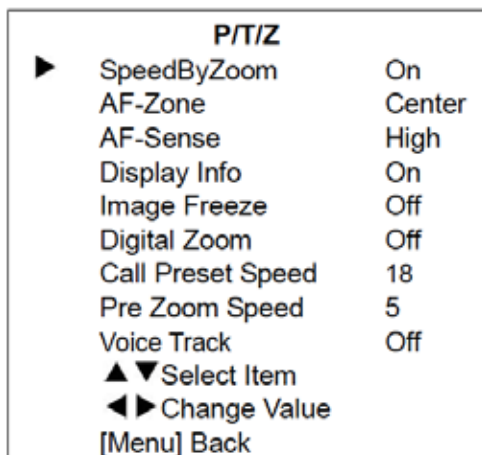
B&W MODE: optional items: On, Off.

GAMMA: optional items: Default, 0.45, 0.5, 0.56, 0.63.

STYLE: optional items: Norm, Clarity(LED), Clarity, Bright, Soft, 5S, QS.

> P/T/Z

Move the main menu cursor to [P/T/Z], and press [HOME] key enter the P/T/Z page, as shown in the following figure.



SPEEDBYZOOM: the depth of field scale switch, optional items: On, Off.

AF-ZONE: interested in focusing area, optional items: Top, Center, Bottom.

AF-SENSE: automatic focusing sensitivity options, optional items: Low, Medium, High.

DISPLAY INFO: optional items: On, Off.

IMAGE FREEZE: optional items: On, Off. Digital

ZOOM: optional items: Off, 2x, 4x, 8x, 16x.

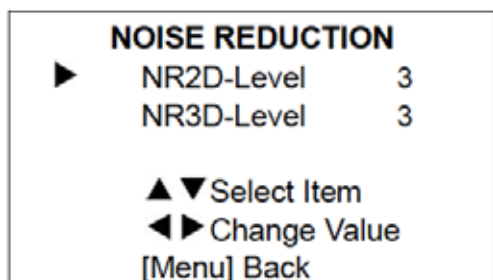
CALL PRESET SPEED: optional items: 1 ~ 24.

ZOOM SPEED: optional items: 0 ~ 7.

OPTIONAL ITEMS: On, Off.

> NOISE REDUCTION

Move the main menu cursor to [NOISE REDUCTION], and press [HOME] key enter the noise reduction page, as shown in the following figure.

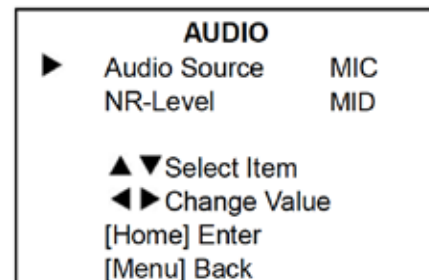


NR2D Level: 2D noise reduction, optional items: Off, Auto, 1 ~ 5.

NR3D Level: 3D noise reduction, optional items: Off, 1 ~ 8.

> AUDIO

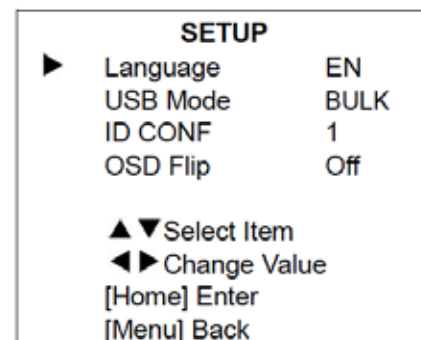
Move the main menu cursor to [AUDIO], and press [HOME] key enter the audio page, as shown in the following figure.



Audio Source: Optional items: MIC, LINE. **NR-Level:** Optional items: LOW, MID, HIGH.

> SETUP

Move the main menu cursor to [SETUP], and press [HOME] key enter the setup page, as shown in the following figure.



Language: Optional items: EN, Chinese, Russian.

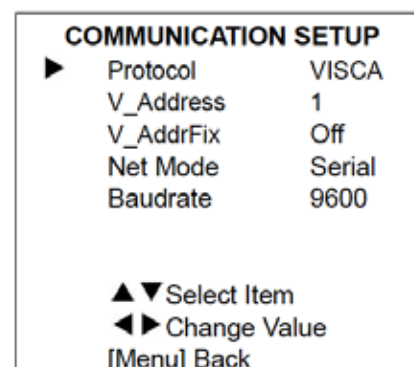
USB Mode: Optional items: BULK, ISOC.

ID CONF: Optional items: 1, 2.

OSD Flip: Optional items: On, Off.

> COMMUNICATION SETUP

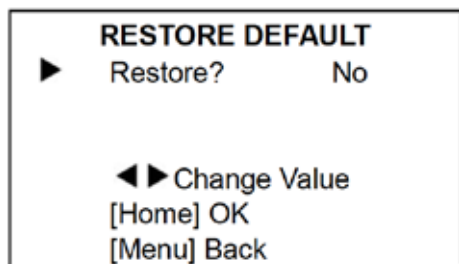
Move the main menu cursor to [COMMUNICATION SETUP], and press [HOME] key enter the communication setup page, as shown in the following figure.



Protocol: Control protocol type, optional items: AUTO, VISCA, PELCO-D, PELCO-P.
 V_Address: Optional items: 1 ~ 7.
 P_D_Address: Optional items: 0 ~ 254. (Effective only in PELCO-D protocol).
 P_P_Address: Optional items: 0 ~ 31. (Effective only in PELCO-P protocol).
 V_AddrFix: If you can change through the serial port of infrared switch, optional items: On, Off (When set to On, useless in 88 30 01 FF Command).
 Net Mode: Set the serial port control networking, optional items: Serial, Paral.
 Baudrate: Serial port baud rate, optional items: 2400, 4800, 9600, 38400.

> RESTORE DEFAULT

Move the main menu cursor to [RESTORE DEFAULT], and press [HOME] key enter the restore default page, as shown in the following figure.



Restore: Confirm restore factory settings, optional items: Yes, No.

Note: Press [HOME] button to confirm, all parameter restore default, include IR Remote address and VISICA address.

> MAINTENANCE AND TROUBLESHOOTING

CAMERA MAINTAINS

- If camera will not be used for a long time, please turn off the power switch, disconnect AC power cord of AC adaptor to the outlet.
- Use soft cloth or tissue to clean the camera cover.
- Please use the soft dry cloth to clean the lens. If the camera is very dirty, clean it with diluted neuter detergent. Do not use any type of solvents, which may damages the surface.

UNQUALIFIED APPLICATION

- No shooting extreme bright object for a long period of time, such as sunlight, light sources, etc.
- No operating in unstable lighting conditions, otherwise image will be flickering.
- No operating close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

TROUBLESHOOTING IMAGE

- The monitor shows no image:
 - 1) Check that the camera power supply is connected, the voltage is normal, and the power indicator light is always on.
 - 2) Turn off the power switch to check whether the camera is self-testing.
 - 3) Check the cable of video platform and TV whether correct connection.
- Sometimes without the image:

Check the cable of video platform and TV whether correct connection.
- Image have jitter when the camera lens at max multiple:
 - 1) Check whether the camera installed position be stabled.
 - 2) Check whether have vibrating machinery or object near the camera.

CONTROL

- Remote control can not control:
 - 1) Check and replace the new battery for the remote controller.
 - 2) Check whether the camera working mode is correct.
- Series port can not control:
 - 1) Check whether the camera protocol, address such is the same.
 - 2) Check whether the control line is connected well.