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1 Safety Precautions

- Electrical Safety
Please install and operate this product in accordance with all electrical safety standards.
- Use Caution to Transport
Avoid stress, vibration or liquid damage in transport, storage and installation.
- Power Supply Polarity
This product uses a +12V power supply with 2A max electrical current. Power supply plug polarity is shown below.

- Installation Precautions
Do not hold the camera lens when carrying it. Mechanical damage may be caused by touching camera lens by hand. Do not use in corrosive liquid, gas or solid environments to avoid plastic cover damage.

Make sure there are no obstacles within rotation range. Do not power on before installation is completed.

- Do Not Disassemble Camera
We are not responsible for any unauthorized modification or dismantling.

Warning
Specific frequencies of electromagnetic fields may affect camera image performance.

2 Package Contents
Please check that all supplied accessories are included:

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera</td>
<td>1</td>
</tr>
<tr>
<td>AC Power Adaptor</td>
<td>1</td>
</tr>
<tr>
<td>Power Cable</td>
<td>1</td>
</tr>
<tr>
<td>Remote Control</td>
<td>1</td>
</tr>
<tr>
<td>User Manual</td>
<td>1</td>
</tr>
<tr>
<td>Quality Card</td>
<td>1</td>
</tr>
</tbody>
</table>

3 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 will turn on.

3) After the camera is powered on, it will initialize by moving to its limits, then returning horizontally and vertically to the middle position. The initialization is complete when the motor stops running. (Note: If preset 0 is saved, PTZ will move to preset 0.)

4  Product Information

4.1 Features

- **Full Function USB Interface**
  Compatible with USB 3.0 and USB 2.0, full function USB interface supports audio and compressed video output, as well as UVC 1.5 protocol.

- **Full HD 1080p**
  Full HD CMOS sensor with 2.07 million pixels for high-quality images up to 1920x1080.

- **12x Optical + 16x Digital Zoom**
  Powerful zoom allows close-up viewing.

- **Low Light Performance**
  2D / 3D noise reduction algorithms greatly reduce image noise to keep images clean and clear even under ultra-low lighting.

- **Remote Control**
  The camera can be controlled remotely through the RS232 serial port.

- **H.264 Slice/SVC Encoding**
  Supports Slice/SVC encoding mode for video conferencing and advanced USB applications.

- **Dual Stream**
  The first stream can provide YUY2, MJPEG, or H.264, and the second stream supports H.264, enabling host to reduce codec pressure.

- **Dual Power Supply**
  Supports DC IN 5V and DC IN 12V.

---

### 4.2 Product Specification

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Camera</strong></td>
<td></td>
</tr>
<tr>
<td>Video System</td>
<td>1080p, 720p, 540p, 480p, 360p, 240p etc.</td>
</tr>
<tr>
<td>Sensor</td>
<td>1/2.7 inch, CMOS, Effective Pixel: 2.07M</td>
</tr>
<tr>
<td>Scanning Mode</td>
<td>Progressive</td>
</tr>
<tr>
<td>Lens</td>
<td>12x, f=3.5mm ~ 42.3mm, F1.8 ~ F2.8</td>
</tr>
<tr>
<td>Digital Zoom</td>
<td>16x</td>
</tr>
<tr>
<td>Minimum Illumination</td>
<td>0.5 Lux @ (F1.8, AGC ON)</td>
</tr>
<tr>
<td>Shutter</td>
<td>1/30s ~ 1/10000s</td>
</tr>
<tr>
<td>White Balance</td>
<td>Auto, Indoor, Outdoor, One Push, Manual, VAR</td>
</tr>
<tr>
<td>Backlight Compensation</td>
<td>Supported</td>
</tr>
<tr>
<td>Digital Noise Reduction</td>
<td>2D &amp; 3D Digital Noise Reduction</td>
</tr>
<tr>
<td>Signal Noise Ratio</td>
<td>≥55dB</td>
</tr>
<tr>
<td>Horizontal Angle of View</td>
<td>72.5° ~ 6.9°</td>
</tr>
<tr>
<td>Vertical Angle of View</td>
<td>44.8° ~ 3.9°</td>
</tr>
<tr>
<td>Horizontal Rotation Range</td>
<td>±170°</td>
</tr>
<tr>
<td>Vertical Rotation Range</td>
<td>-30° ~ +90°</td>
</tr>
<tr>
<td>Pan Speed Range</td>
<td>1.7° ~ 100°/s</td>
</tr>
<tr>
<td>Tilt Speed Range</td>
<td>1.7° ~ 69.9°/s</td>
</tr>
<tr>
<td>H &amp; V Flip</td>
<td>Supported</td>
</tr>
<tr>
<td>Image Freeze</td>
<td>Supported</td>
</tr>
<tr>
<td>Number of Presets</td>
<td>255</td>
</tr>
<tr>
<td>Preset Accuracy</td>
<td>0.1°</td>
</tr>
</tbody>
</table>

### IPC Video Features

| Video Compression             | H.264 / H.265 / MJPEG                     |
| Video Stream                  | First Stream,                             |
### DVDO-C2-1 PTZ Video Conference Camera User Manual

<table>
<thead>
<tr>
<th>Power Jack</th>
<th>JEITA type (DC IN 12V) / USB B type (DC IN 5V)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Parameter</strong></td>
<td></td>
</tr>
<tr>
<td>Input Voltage</td>
<td>DC 12V / DC 5V</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>12V 1.0A (Max) / 5V 1.5A (Max)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-10°C ~ 40°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C ~ 60°C</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>12W (Max)</td>
</tr>
<tr>
<td>MTBF</td>
<td>&gt;30000h</td>
</tr>
<tr>
<td>Size</td>
<td>144 x 144 x 168 (mm)</td>
</tr>
<tr>
<td>Net Weight</td>
<td>1.17Kg</td>
</tr>
</tbody>
</table>

#### 4.3 Interfaces and Buttons

![Interfaces Diagram]

**Item** | **Name**
---|---
1 | Network Interface
2 | USB 3.0 Interface
3 | RS232 Interface
4 | LINE IN Interface
5 | DC 12V Interface

#### 4.4 Dimensions

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Network Interface</td>
</tr>
<tr>
<td>2</td>
<td>USB 3.0 Interface</td>
</tr>
<tr>
<td>3</td>
<td>RS232 Interface</td>
</tr>
<tr>
<td>4</td>
<td>LINE IN Interface</td>
</tr>
<tr>
<td>5</td>
<td>DC 12V Interface</td>
</tr>
</tbody>
</table>
4.5 Remote Control

Key Description

1. **Standby Key**
   - Press this button to enter standby mode.
   - Press it again to enter normal mode.
   - Note: Power consumption in standby mode is approximately half of normal mode.

2. **Number Key**
   - To set preset or recall preset.

3. *** Key**
   - Used with other buttons.

4. **Preset Key**
   - Set preset: Store a preset position.
   - [SET PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position.
5. HOME Key
Confirm menu selection; Returns PTZ to the middle position when pressed.

6. Return Key
Return to previous level menu.

7. Zoom Key
Slow Zoom: Zoom In [+ or Zoom Out [- slowly
Fast Zoom: Zoom In [+ or Zoom Out [- quickly

8. Left / Right Setting Key
Press with 1 button and 2 button to set the direction of the Pan-Tilt.
- Simultaneously press L/R Set + 1 [STD]: Turns Pan-Tilt in same direction as the L/R Set.
- Simultaneously press L/R Set + 2 [REV]: Turns Pan-Tilt in opposite direction as the L/R Set.

9. Focus Key
Used for focus adjustment.
Press [AUTO] to adjust focus on the center of the object automatically.
Press [MANUAL] to adjust focus on the center of the object manually.
Use [FAR] to focus on distant object and [NEAR] to focus on close object.

10. Selection Key
Press the button corresponding to the camera to be operated with the remote controller.

11. # Key
Used with other buttons.

12. IR Remote Control Key
[*]+[#]+[F1]: Address 1
[*]+[#]+[F2]: Address 2
[*]+[#]+[F3]: Address 3
[*]+[#]+[F4]: Address 4

13. Reset Key
Used to erase a preset position.
[RESET] + Numeric button (0-9)
Or: [*] + [#] + [RESET] to erase all presets.

14. PTZ Control Key
Press arrow buttons to pan and tilt. Press [HOME] button to return the camera to default position.

15. Menu Key
Press to enter or exit OSD MENU.

16. Backlight Key
Press to enable or disable backlight compensation.
NOTE:
- Effective only in auto exposure mode.
- Use when lighting behind subject darkens the image. Backlight compensation will improve the image, and can be canceled by pressing [BACKLIGHT] button again.

17. PTZ Reset Key
Preset Pan/Tilt self-test.

18. Image Freezing Function
Press remote control key [F4] to freeze the image. “Freeze” indication will appear on the upper left corner of image for five seconds. Press [F4] key again to return display to normal, and “Unfreeze” indication will appear for five seconds.

19. Shortcut Set
[*]+[#]+[1]: OSD menu default English
[*]+[#]+[3]: OSD menu default Chinese
[*]+[#]+[4]: Display current IP address
[*]+[#]+[6]: Recover default settings
[*]+[#]+[8]: View camera version
[*]+[#]+[9]: Invert the image

4.6 RS-232 Interface

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTR</td>
</tr>
<tr>
<td>2</td>
<td>DSR</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>RXD</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>IR OUT</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>

The correspondence between the camera and Windows DB-9 pin:
4.7 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;
  - Starting Position: 1 bit
  - Data bits: 8 bits
  - Stop bits: 1 bit
  - Parity: None

After powering 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.

- **Protocols**
  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, please contact the manufacturer.
5 GUI Settings

5.1 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.

<table>
<thead>
<tr>
<th>MENU</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Exposure</td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Image</td>
</tr>
<tr>
<td>P/T/Z</td>
</tr>
<tr>
<td>Noise Reduction</td>
</tr>
<tr>
<td>Setup</td>
</tr>
<tr>
<td>Communication Setup</td>
</tr>
<tr>
<td>Restore Default</td>
</tr>
</tbody>
</table>

[Home] Enter  [Menu] Exit

5.2 EXPOSURE

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

<table>
<thead>
<tr>
<th>EXPOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Mode Auto</td>
</tr>
<tr>
<td>ExpCompMode Off</td>
</tr>
<tr>
<td>Backlight Off</td>
</tr>
<tr>
<td>Gain Limit 3</td>
</tr>
<tr>
<td>Anti-Flicker 50Hz</td>
</tr>
<tr>
<td>Meter Average</td>
</tr>
<tr>
<td>DRC 2</td>
</tr>
</tbody>
</table>

▲▼Select Item  ◀▶Change Value  [Menu] Back

Mode: Set Exposure to Auto, Manual, SAE, AAE, or Bright.
ExpCompMode: Exposure Compensation On / Off. (Effective only in Auto mode)

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ExpComp: Exposure compensation range from -7~7. (With ExpCompMode On)
Backlight: Backlight compensation On / Off. (Effective only in Auto mode)
Bright: Intensity control from 0~17. (Effective only in Bright mode)
Gain Limit: Maximum gain limit 0~15. (Effective in Auto, SAE, AAE, Bright modes)
Anti-Flicker: Select Off / 50Hz / 60Hz. (Effective only in Auto, AAE, Bright modes)
Meter: Select Average / Center / Smart / Top.
Iris: Aperture value 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 modes)
Shutter: Select 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)
Gain: Select 0~7. (Effective only in Manual mode)
DRC: DRC strength 0~8

5.3 COLOR

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

<table>
<thead>
<tr>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>► WB Mode Auto</td>
</tr>
<tr>
<td>RG Tuning 0</td>
</tr>
<tr>
<td>BG Tuning 0</td>
</tr>
<tr>
<td>Saturation 100%</td>
</tr>
<tr>
<td>Hue 7</td>
</tr>
<tr>
<td>AWB Sens High</td>
</tr>
</tbody>
</table>

▲▼Select Item  ◀▶Change Value  [Menu] Back

Mode: Set WB Mode to Auto, Manual, SAE, AAE, or Bright.
**WB-Mode**: Set White Balance to Auto, Indoor, Outdoor, One Push, Manual, VAR.

**RG Tuning**: Red Gain fine-tuning from -10~10. (Effective in Auto, One Push, VAR modes)

**BG Tuning**: Blue Gain fine-tuning from -10~10. (Effective in Auto, One Push, VAR modes)

**Saturation**: Select from 60% ~ 200%.

**Hue**: Select from 0 ~ 14.

**AWB Sens**: Set White Balance Sensitivity to Low / Middle / High.

**RG**: Red Gain from 0~255. (Manual mode)

**BG**: Blue gain from 0~255. (Manual mode)

**Colortemp**: Select 2500K ~ 8000K. (Effective only in VAR mode).

---

### 5.4 IMAGE

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

<table>
<thead>
<tr>
<th>IMAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Image Settings" /></td>
</tr>
</tbody>
</table>

**Luminance**: Select from 0~14.

**Contrast**: Select from 0~14.

**Sharpness**: Select Auto, 0~15.

**Flip-H**: On / Off.

**Flip-V**: On / Off.

**B&W-Mode**: On / Off.

**Gamma**: Select Default, 0.45, 0.5, 0.56, 0.63.

**Style**: Select Default, Norm, Clarity, Clarity (LED), Bright, Soft, 5S.

---

### 5.5 P/T/Z

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

<table>
<thead>
<tr>
<th>P/T/Z</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="ptz.png" alt="P/T/Z Settings" /></td>
</tr>
</tbody>
</table>

**SpeedByZoom**: Depth of field scale On / Off.

**AF-Zone**: Set automatic focusing area to Top / Center / Bottom.

**AF-Sense**: Set automatic focusing sensitivity to Low / Normal / High.

**Display Info**: On / Off.

**Image Freeze**: On / Off.

**Call Preset Speed**: Select 1~24.

---

### 5.6 NOISE REDUCTION

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

<table>
<thead>
<tr>
<th>NOISE REDUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="noise.png" alt="Noise Reduction" /></td>
</tr>
</tbody>
</table>

**NR2D Level**: Set 2D noise reduction to Off / Auto / 1~5.

**NR3D Level**: Set 3D noise reduction to Off / 1~8.

---

### 5.7 AUDIO
Move the main menu cursor to [AUDIO], and press [HOME] key to enter the audio page, as shown below.

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

Language: Select EN (English) / Chinese / Russian.
USB Mode: Select BULK / ISOC.
ID CONF: Select 1 / 2.
OSD Flip: Select On / Off.
Standby Mode: Select On / Off.
Ircut Status: Select On / Off / Auto.
Autoir High: Select 0~4.
Autoir Low: Select 0~4.

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

Protocol: Select protocol type to Auto / VISCA / PELCO-D / PELCO-P.
V_Address: Select 1~7.
(V_EAddrFix: Select On / Off.
P_D_Address: Select 0~254.
(P_P_Address: Select 0~31.
Net Mode: Set serial port network control to Serial / Parallel.
Baudrate: Select serial port baud rate to 2400 / 4800 / 9600 / 38400.

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

Restore: Confirm restore factory settings, Yes / No.
Note: Press [HOME] button to confirm restoring all parameters to default, including IR Remote address and VISCA address.
6 Network Function

6.1 System Requirements

Network Protocol: TCP/IP
Client PC: P4 / 128M RAM / 40G HDD / scaling graphics card with DirectX 8.0+

6.2 Equipment Installation

1) Connect USB camera to the internet or to your PC directly via ethernet cable.
2) Turn on DC 12V power.
3) If the network connection is normal, the green connection light at the network interface will light up within 5 seconds, and the orange data indicator will flash, indicating that the physical connection of the camera has been completed.

6.3 Internet Connection

There are two main ways to connect USB camera to the internet.

Connect by Network Cable

![Connect by Network Cable](image)

Connect by Switch / Router

![Connect by Switch / Router](image)

6.4 Camera Controlled by LAN

6.4.1 Setup IP Address

Determine camera IP address as follows:

Method 1: Press * and # and 4 on remote controller one by one, the camera IP address will be shown on screen.
Method 2: Connect camera to PC with network cable, use “upgrade_En.exe” to search for IP address.

To change IP address, two methods as below:

Method 1: Log in to the web interface, select “Network > Lan Settings”, change IP address, subnet mask and gateway. Click “Apply” and restart the camera.

![Lan Settings](image)

Method 2: Open “upgrade_En.exe”, change IP and click “Set”. USB camera will restart.
To change IP address:
Step 1 Search the IP address of camera.
Step 2 Select the camera IP to be changed.
Step 3 Select “Config” tab in upgrade app.
Step 4 Change the IP address, netmask and gateway, then click “Set”.

6.4.2 View / Access Camera
Input http://192.168.100.88 into browser (Internet Explorer recommended). Input login name: admin and password: admin into login window as shown:

The camera can now be viewed as shown:

When using this camera for the first time, VLC player software must be installed. Please visit http://www.videolan.org/vlc/#download and install VLC player software. Once VLC is installed, log in again to view camera.

6.5 Camera Controlled by WAN
6.5.1 Setup IP controlled by dynamic DNS
DDNS providers: Dyndns.org, 3322.org

Router Port Mapping:
Refer to below “Tenda” router example: enter the Router Home Page (interface page), select “Advanced” -> “Virtual Server”, add a new port number in “Ext Port”, add a new port number in “Int port”, input camera IP address to “Internal IP”, then select “Save”, as shown below:

6.5.2 Dynamic DNS View Camera
To view camera via DDNS, use this link format: \textbf{http://hostname:port number}. For example, for host computer name “youdomain.f3322.org” and camera port 89, the link is \textbf{http://youdomain.3322.org:89}

\textbf{Tips}

If the camera default port is 80, it is unnecessary to input port number. The host name can access camera directly.

\textbf{6.5.3 VLC Stream Media Player Monitor}

\textbf{VLC media server viewing procedure}

\textbf{Step 1} Open VLC media player.

\textbf{Step 2} Click “Media > Open Network Stream”, or click “Ctrl + N”; as shown:

\textbf{Step 3} Input URL address:

\begin{itemize}
  \item rtsp://ip: port number/1 (First stream);
  \item rtsp://ip: port number/2 (Second stream).
\end{itemize}

\textbf{Step 4} Finish.

\textbf{Tips}

Default RTSP port number: \textbf{554}

\textbf{6.6 Camera Parameter Setup}

\textbf{6.6.1 Homepage Introduction}

\textbf{Menu}

All pages include two menu bars for:

\textbf{Real time monitoring}: displaying video image

\textbf{Parameter setup}: with function buttons.

\textbf{A. Video Viewing Window}

Video viewing window must accommodate video resolution; higher resolutions will allow larger playback area. Double click viewing window to view full-screen; double click again to will restore window size.

\textbf{Status bar in viewing window shown below:}

\begin{itemize}
  \item 1) Video playback pause button: pause video real-time, click to resume playback.
  \item 2) Audio control buttons: adjust volume or mute.
  \item 3) Full screen button.
\end{itemize}
B. PTZ Setup

1) Pan and Tilt Control
Up, Down, Left and Right arrows and home button allow you to manually move the camera to the desired position.

2) Zoom
Zoom In / Zoom Out control.

3) Focus
Focus In / Focus Out control for fine manual focus adjustment in case auto-focus encounters difficult objects or backgrounds.

4) PTZ Speeds
Pan speed can be set between 1 ~ 24.
Tilt speed can be set between 1 ~ 20.
Zoom and Focus speeds can be set 0 ~ 7.

5) PTZ Presets
After manually setting up a shot that you would like to return to, you can save presets for quick recall of these positions. Type a number between 0 and 254 into the Preset box.

6) PTZ / OSD Dropdown
From the dropdown menu, click OSD option to open the camera’s on-screen display menu from the web interface.

C. Language Selection
Choose “Chinese”, “English” or “Russian” to change web interface language.
### 6.6.2 Video Settings

<table>
<thead>
<tr>
<th>Video Settings</th>
<th>Video Format: Dial Priority</th>
<th>Encode Level: mainprofile</th>
</tr>
</thead>
</table>

#### First stream

- **Encode Protocol:** H.264
- **Resolution:** 1920x1080
- **Bit Rate:** 2048 (32~20480) kbps
- **Frame Rate:** 30 fps
- **I Key Frame Interval:** 150 (2~150)
- **Bit Rate Control:** CBR, VBR
- **Fluctuate Level:** 1
- **Slice Split Enable:** On, Off
- **Split Mode:** Fixed blocks, Fixed bytes
- **Slice Size:** 66 blocks/bytes

#### Second stream

- **Encode Protocol:** H.264
- **Resolution:** 320x240
- **Bit Rate:** 1024 (32~6144) kbps
- **Frame Rate:** 30 fps
- **I Key Frame Interval:** 30 (2~150)
- **Bit Rate Control:** CBR, VBR
- **Fluctuate Level:** 1
- **Slice Split Enable:** On, Off
- **Split Mode:** Fixed blocks, Fixed bytes
- **Slice Size:** 15 blocks/bytes

### 4) Resolution

First stream: 1920x1080, 1280x720, 1024x576, 960x540, 640x480, 640x360.
Second stream: 1280x720, 1024x576, 720x576 (50Hz), 720x480 (60Hz), 720x408, 640x360, 480x270, 320x240, 320x180

Higher resolutions provide clearer images while consuming more network bandwidth.

### 5) Bit Rate

The user may specify the bit rate. In general, higher bit rates provide clearer images. However, bit rate configuration must match network bandwidth. When network bandwidth is narrow, high bit rates may result in abnormal video streams and inferior images.

### 6) Frame Rate

The user may specify frame rate. In general, higher frame rates provide smoother video.

### 7) I Key Frame Interval

Set interval between I frames. Larger intervals result in lower response from viewing window.

### 8) Bit Rate Control

CBR: Constant Bit Rate - Video encoded at preset speed.
VBR: Variable Bit Rate - Video encoder adjusts speed based on preset speed for optimal image quality.

### 9) Fluctuate Level

Set variable bit rate fluctuation range 1 ~ 6.
10) Slice Split Enable
Enable or disable slice split function.

11) Split Mode
Select split mode: Fixed blocks / Fixed bytes.

12) Slice Size
Set size of slice.

6.6.3 Image Settings

1) Brightness
Image brightness 0~14 slider. Default = 7.

2) Saturation
Saturation 0~14 slider. Default = 4.

3) Contrast
Contrast 0~14 slider. Default = 8.

4) Sharpness
Sharpness 0~15 slider. Default = 3.

5) Hue
Hue 0~14, slider. Default = 7.

6) Flip & Mirror
Flip checkbox turns image upside down.
Mirror checkbox reverses image left / right.

6.6.4 Audio Settings

1) Audio Switch
Enable / disable audio switch.

2) Audio Type
Audio type AAC.

3) Sample Rate
Selectable 44.1K / 48K.

4) Bit Rate
Selectable 96K / 128K / 256K.

5) Input Type
Input type line in.

6) Input Vol L
Left channel volume.

7) Input Vol R
Right channel volume.

8) ADTS Options
Enable / disable ADTS.
6.6.5 System Settings

1) Work Mode
Select RTSP / SDK / Multicast. (default: RTSP)

2) Reboot
Click to restart system.

3) Username and Password
Set password. (letters and numbers only)

6.6.6 Network Settings

1) Lan Settings
Default IP address 192.168.100.88
MAC address may not be modified.

2) Port Settings
A. HTTP Port
IP address identifies the network device, which may run multiple web applications using network ports to transmit data. Port setting determines web server program’s transmission port. Port mapping must be consistent with port numbers. (default port: 80)

B. RTSP Port
RTSP protocol supported. (default port: 554)
Use VLC tools broadcast.

C. PTZ Port
PTZ protocol supported. (default port: 5678)

3) Control Protocol Settings
Set camera control communication protocol. Enter Visca / Pelco-D / Pelco-P addresses.

4) RTMP Settings
Set MRL of RTMP. Turn each stream On / Off and selectively enable / disable video and audio per stream.

5) RTSP Settings
Turn On / Off RTSP authentication.

6) ONVIF Settings
Turn On / Off ONVIF and ONVIF authentication.

7) Multicast Settings
Turn On/Off multicast. Set multicast address (default: 224.1.2.3) and port (default: 6688 for first stream; 6690 for second stream).
8) **SDK Settings**

Turn On/Off active connection. Set SDK address (default: 192.168.100.138) and port (default: 1234).

9) **NTP Settings**

Turn On/Off NTP time sync, main time show and sub time show. Set NTP server address, time interval, main stream position and sub stream position.

**6.6.7 Device Information**

Display current device information, as shown:

<table>
<thead>
<tr>
<th>Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device ID:</td>
<td>HD Camera</td>
</tr>
<tr>
<td>Software Version:</td>
<td>SOC v6.3.38 - ARM v7.3.32SP</td>
</tr>
<tr>
<td>Device Type:</td>
<td>G23.V5</td>
</tr>
<tr>
<td>Webware Version:</td>
<td>v1.5.5</td>
</tr>
</tbody>
</table>

7 **Maintenance and Troubleshooting**

**Camera Maintains**

- If camera will not be used for a prolonged period, please turn off the power switch, and disconnect power cord from outlet.
- Use soft cloth or tissue to clean the camera cover.
- Please use a soft dry cloth to clean the lens. Do not use any solvents, which may damage the surface.

**Operating Precautions**

- Do not shoot extremely bright objects, such as sunlight, light sources, etc.
- Avoid unstable lighting conditions, which cause flickering images.
- Do not operate near powerful electromagnetic radiation, such as TV or radio transmitters, etc.

**Image Troubleshooting**

- The monitor shows no image
  1) Check camera power supply is connected, voltage is normal, and power indicator light is always on.
  2) Turn off power switch to check whether camera is self-testing.
  3) Check all connections.
- Intermittent image loss
  Check all cable connections of video platform and TF / display.
- Image jitter
  1) Ensure stable camera installation.
  2) Check for vibration near camera.
- No video image in IE browser

Please visit VLC website (http://www.videolan.org/vlc) to download and install VLC media player.
● Unable to access camera through IE browser

1) Use PC to access network to test whether PC and USB camera can communicate.
2) Disconnect the network, connect USB video conference camera and PC separately, and reset the IP address of PC.
3) Check IP address, subnet mask, and gateway settings for USB camera.
4) Check for MAC address conflicts.
5) Check whether the web port is occupied by another device.

● Forgot IP address or login password
Default IP address: 192.168.100.88
Default user name: admin
Default password: admin