D Series
DANTE AV PTZ Camera

USER MANUAL
Part One: Camera Use

VERSION: D-09232021

DANTE AV CAMERA D412

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Operating Instructions

Thank you for purchasing our product. If there are any questions, please contact the authorized dealer.

Before operating the unit, please read this manual thoroughly and retain it for future reference.

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IMPORTANT INFORMATION

Legal Notice

Attention:

To ensure account security, please change the password after your first login. You are recommended to set a strong password (no less than eight characters). Password login does not apply to some models that do not need password login.

The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.

Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.

This manual is a guide for multiple product models and so it is not intended for any specific product.

In this manual, the illustrations of displayed interface, parameters displayed, drawings and value ranges may vary with models. Please see the actual product for details.

Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.

Use of this document and the subsequent results shall be entirely on the user’s own responsibility.

Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![WARNING!]</td>
<td>Contains important safety instructions and indicates situations that may cause bodily injury.</td>
</tr>
<tr>
<td>![CAUTION!]</td>
<td>User must be careful and improper operations may cause damage or malfunction of product.</td>
</tr>
<tr>
<td>![NOTE!]</td>
<td>Indicates useful or supplemental information about the use of product.</td>
</tr>
</tbody>
</table>

Safety Information

⚠️ WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all the Safety Instructions supplied with your equipment before installation and operation.

Warnings:

- If the product does not work properly, please contact your dealer. Never attempt to disassemble the camera yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- This installation should be made by a qualified service person and should conform to all the local codes.
- When shipping, the camera should be packed in its original packaging.
- Make sure the power supply voltage is correct before using the camera.
- Do not drop the camera or subject it to physical shock.
- Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.

- Do not aim the camera lens at the strong light such as sun or incandescent lamp. The strong light can cause fatal damage to the camera.

Maintenance Precautions:

- If there is dust on the front glass surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.

- If there is grease or a dust stain on the front glass surface, clean the glass surface gently from the center outward using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the glass surface gently until it is removed.

- Do not use organic solvents, such as benzene or ethanol when cleaning the front glass surface.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

WEEE Directive—2002/96/EC

The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

Disclaimer

The contents of this document are subject to change without prior notice. Any updates and content changes will be added to the subsequent new manual version.

If there are any concerns, please contact Bolin Support Team at www.bolintechnology.com

Website Reference and other information

For related product information please visit Bolin Technology website https://bolintechnology.com/
WHAT’S IN THE BOX

Camera X 1

IR Remote Controller X 1
(2 X AA Batteries Required)

Camera Power Adaptor X 1

Camera Power Cord X 3 (Type: US, EU, UK)

Bag of Mounting Screws X 1

RJ45 to RS232 Extension Cable X 1

RJ45 to RS422 Extension Cable X 1

Welcome Card X 1

Accessories (Optional)

Wall Mount (BL-WM-01)

Ceiling Mount (BL-CM-01)
Overview

This user guide is suitable for the following models: D412

Features

- Dante AV powered by Dante AV Module, support Unicast or Multicast Dante AV video streaming over Standard 1Gbps Ethernet.
- 1/2.8 Inch "Exmor R" CMOS sensor, Effective pixel number: 8.29 Megapixels.
- Resolution: Up to 2160P60, 1080P60, 1080i59.94; supports 23.98 frame rate.
- Video Format-HDMI 2.0, Color Space supports YUV(YCbCr), RGB.
- IP Resolution: Up to 2160P60, 1080P60
- Zoom: Optical 12X, Digital 16X.
- Image stabilizer and true WDR 120dB.
- Support Day/Night mode, PTZ Trace Memory, Noise Reduction, Tally Light.
- Video Output: HDMI(4K), Dante AV(4K) simultaneously.
- Codec with Ultra-low Latency mode
- Synchronized Video and Audio.
- Dante Ecosystem Friendly, Instant Dante Ecosystem compatibility with existing Dante-enabled products, Unified control of audio and video using Dante tools - Dante Controller.
- ±175 degrees continuous pan, +90 degrees to -30 degrees continuous tilt.
- 128 presets, Speed up to 150°/S.
- Standard mounting and ceiling mounting with E-Flip function
- Control supports RS-232 control, RS-422/485 control, VISCA-over-IP, IR Remote Controller.
- Image parameter setting restore with presets and quick access operation
- Supports MIC/LINE audio input, Audio output with HDMI, embedded with Dante AV IP signal.
- Power: DC 12V, PoE++ (IEEE802.3bt).
- Firmware upgrade via USB2.0 or Dante Upgrade Tool.
1. **12V DC power port**
   - Connect the supplied DC power adaptor and cord.
2. **Video format selector** (For video format selection)
3. **DIP switch**
4. **IR remote ID selector**
5. **IR receivers**
6. **MIC/LINE input**
   - Ø 3.5 mm stereo mini jack, input impedance: high impedance
   - During MIC input, supported mic: stereo mic (plug-in power) supply voltage: 2.5V ± 0.5V
   - During LINE input, input level: approx. –10 dB ±3 dB
7. **USB2.0 (Firmware upgrade only)**
8. **RJ45 port for RS232 control port**
9. **RJ45 port for RS-422/485 control port**
10. **LAN/POE++(IEEE802.3bt) for Dante video output**
11. **HDMI 2.0 (4K) video output**
12. **HDMI Cable Secure Mount**
13. **Power Indicator**
14. **Lens - with 12X optical zoom**
15. **Tally lamps**
16. **Status Indicator**
17. **Camera Bottom pads**
18. **Fixed mounting thread**
19. **Tripod mounting thread**
Remote Controller

1. MENU, on screen menu display ON/OFF
2. Camera IR ID Selector for Remote Control.
3. AI Features, available when AI button (13#) is pressed. (Set for fan speed adjustment)
4. Positioning Function and Number Buttons
   • Preset Position Calling and Setting
5. Value adjusting + for Feature Item NO.11.
6. Preset button, to set preset position.
7. Zoom. Telescope and Wide with slow speed.
8. Auto Framing. (Not activated.)
9. Direction Control
   • PAN-TILT direction control
   • OSD menu navigator
   • HOME: Home position, confirm button, Enter button.
10. FOCUS
    • Manual Focus, Far, Near
    • Auto Focus
11. Features Direct Control, work with Value Adjust key + and – to make the feature adjustments.
    • Gain, Image gain adjustments
    • Color, Image color saturation adjustments
    • Black L, Image Black Level adjustments
    • WB.R, Image White Balance Red adjustments
    • PT S, Pan/Tilt Speed adjustments
    • Zoom S, Zoom Speed adjustments
    • Preset S, Preset Speed adjustments
    • WB.B, Image White Balance Blue adjustments
    • WDR, Wide Dynamic Range adjustments
    • Freeze, To get a frozen image.
    • B Light, Back Light compensation
    • OPW, One Push White Balance
12. Video Format Switching, Works with pressing and holding Fn button (15#).
    • You can change the video format by keep pressing the button. (When video format is changed, the camera would restart, and the screen turns black for few seconds.)
13. AI Mode key (Set for fan speed adjustment)
    • Press AI button once, the button illuminated, then press one of the AI features (Printed in blue font) to adjust the speed of the fan.
14. Power (Press and hold for 3 second)
    • Power ON the camera from standby mode to operational status.
    • Power OFF the camera to turn the camera to standby status.
    • When the camera is powered OFF, the camera lens turns to the back for standby mode.
    • When the camera is powered ON, the camera lens turns to the front.
    • Powering the camera ON/OFF would not restart the camera.
15. Fn Function Mode key
    • Press and hold the Fn key and press one of the function buttons that printed in brown font.
16. Reset button: to delete preset that has been set.
17. Zoom. Telescope and Wide with fast speed.
18. One Push AF
    • Press once to focus.

Notes
• AAA Battery is not included with the remote controller.
Camera Installation

This device is designed for indoor use only.

It is not designed to be used outdoors. Do not operate the device where it may meet constant heavy water. Please avoid installing the unit in a location commonly exposed to sunlight for extended periods of time. Do not install the unit near temperature adjustment device, such as a heating or cooling unit.

Failure to comply may cause abnormal behavior during operation or physical damage to the device.

Do not install the device in the following type of locations:

- In locations where the temperature is below -10 Celsius (32F) or above 40 Celsius (104F)
- On walls without proper mounting method and brackets
- In locations where humidity is 81% or higher
- In locations where it may be exposed to harmful chemicals
- Near sea where device can be exposed to corrosion
- In locations where the device will be exposed to strong radiation
- In locations where the device will be exposed to strong radio waves
- In locations where the device will be exposed to strong magnetic fields
- For other potentially questionable locations email Bolin Support for any questions or concerns

Safety Matters

For your safety, please disconnect all power to the device when installing and removing the device. Always use supplied accessories and do not modify the supplied power adaptor.

Only qualified personnel should install and remove this device. Please make sure the installation environment is safe and follows best practices prior, during, and after the installation process. Bolin does not accept any responsibility or liability for any accident or damages resulting from malpractice or improper installations.

The following chapters will introduce the installation methods of the Dante AV camera.

Before mounting your camera, please make sure you have purchased the optional accessories needed for the installation.

- Disconnect the power from the camera before camera installation.
- Accessories such as the Wall mount and Ceiling mount are necessary for the installation.
- Verify the bearing capacity of the mounted position.
- Tighten all the screws to hold the camera securely.
Ceiling Mount Installation

Need to use Ceiling Mount bracket and M4*6PW/M3*6PW screws for this installation. Ceiling mount is sold separately. Please following the below diagrams for ceiling mount installation.

Required accessories and components:

Ceiling mount installation:
**Wall Mount Installation**

Need to use Wall Mount bracket and M4*6PW screws for this installation. Wall mount is sold separately. Please following the below diagrams for wall mount installation.

Required accessories and components:

![Wall Mount Bracket](image1)

![M4*6PW Screw](image2)

**Wall mount pendant installation:**

1. Wall
2. Fixed Screw X4 (Not included with product)
3. Wall Mount Bracket

**Wall mount standard installation**

1. Wall
2. Wall Mount Bracket
3. Fixed Screw X4 (Not included with product)
System Configuration

Connection

The camera’s pan, tilt, zoom can be controlled with a keyboard controller by connecting a control cable (crossover cable, RS232, RS-422/485). The Dante AV decoder can be used to decode the Dante AV camera view and output it to a monitor via HDMI. The decoder also has an RS-422 interface, allowing a keyboard controller to control the camera that is subscribed to the decoder. The keyboard controller can also control the camera directly through the network (by using Visca over IP protocol).

HDMI cables, Visca control cables, and network cables are required in this configuration setup. To obtain these third-party components or accessories, consult the dealer where you bought your camera.

Power

- Use only the DC power adaptor (JEITA type4) supplied with the unit. Do not use any other DC power adaptor.
- If using POE to power the camera, POE++ (IEEE802.3bt) is supported.
- Ensure that the POE power source has sufficient power budget to power the camera, or some features may not function properly.

Cable Requirements

For optimal experience with Dante AV, it is recommended that the following cables are used for the application:

- HDMI 2.0 or higher (due to 4K60 and color depth concern of our Bolin Dante AV PTZ Camera)
- Cat5e or Cat6 cable

Display monitor (recommended specs)

Any regular TV monitor with HDMI video output can be used for video display.

For optimal experience with Dante AV, it is recommended that the following display be used during application testing/use:

- A monitor with high end color support
- A monitor with 1ms response time (for latency testing and if latency is a concern)
- 3840 x 2160 resolution (4K UHD capable device)
- HDMI 2.0 port devices
- Support 4.2.2 and 4.4.4 color modes
Obtain Video Signal
The camera can simultaneously have HDMI and Dante AV IP video output.

HDMI Video signal
1. Connect the camera to a UHD Monitor/TV using HDMI cable.
2. Turn on the camera, video will display on the monitor after initialization.
3. Information of the camera’s initial setting status will display for about 5 seconds.
4. You can set the video format of the camera to the one you want to display.

Dante AV IP Video Signal
1. You need a Dante AV decoder to obtain the Dante AV IP video stream
2. Use Cat6 network cable to connect Dante AV decoder and Dante AV camera to the same POE network switch.
3. Connect Dante AV decoder to the HDMI display device.
4. Use Cat6 network cable to connect the PC with Dante Controller Software to the same network switch.
5. Running the Dante Controller, check to subscribe the video TX (camera HDMI video) to RX (decoder HDMI video) connection.
6. Dante video will be displayed on the HDMI monitor via the Dante AV decoder.

Audio IN

- The camera is equipped with a 3.5mm audio input interface, supports Line in or Mic audio signal input.
- On rear panel, a microphone or audio source can be connected to the MIC/LINE input port, which feeds audio into the camera.
- User can select the audio input type to be LINE or MIC via the HDMI OSD menu, to adapt the input audio signal.

**NOTE:** If the audio Input Type is selected as MIC, user can also set Plugin Power to ON, so that the camera can supply power to the connected microphone. The power supply voltage is 2.5V.

- Audio is embedded with Camera HDMI and Dante AV video signal.

Camera Initial setting status Information
Information of the camera initial setting status will display for 5 seconds.

1. Camera PELCO ID for RS-485 control
2. Camera ID for IR Remote Controller
3. Baud Rate setting
4. COM Port setting
5. Video format setting
6. HDMI setting
7. Model Type
8. MCU firmware version

<table>
<thead>
<tr>
<th>Camera Status Info Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>PELCO ID</td>
</tr>
<tr>
<td>IR ID</td>
</tr>
<tr>
<td>BAUD RATE</td>
</tr>
<tr>
<td>COMM TYPE</td>
</tr>
<tr>
<td>FORMAT</td>
</tr>
<tr>
<td>HDMI OUT</td>
</tr>
<tr>
<td>MODEL TYPE</td>
</tr>
<tr>
<td>MCU FW:</td>
</tr>
</tbody>
</table>
Camera Control Methods and System Configurations

There are multiple ways of controlling the camera and various system configuration capabilities by using optional products. This section describes controlling methods with typical system examples and the required components of each.

1. Use the Infrared Remote Controller
2. Use RS-232 (VISCA)
3. Use RS-422/485 (VISCA/PELCO P/D)
4. IP Control (See Network Camera User Manual)

Use the Infrared Remote Controller

To operate the camera from a short distance.

For IR remote control detail, please refer to Operation Using the Infrared Remote Controller.

Use RS-232 (VISCA)

You can use RS-232 port to connect optional controllers, such as joystick keyboard controller or PC control station, to operate the camera. To perform pan/tilt and zoom operations, use the joystick of the keyboard controller. Preset operation can be done using the control buttons on the keyboard as well. An application software that supports this camera is needed if using a PC station.

RS232 Connection
1. Set RS232 control method on rear panel Dip Switch.
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard.
3. Set specific VISCA address to control the camera for with the Bottom Dip Switch located on the camera.
4. If you want to have the camera address automatically assigned by VISCA controller, set camera Dip Switch address to 0.
5. Reboot the camera after the Dip Switch has been set up correctly.
6. Camera supports Daisy Chain connection up to 7 cameras.
7. Use the RJ45 to RS232 (VISCA) control cable. The controller must be VISCA compatible.
8. You can make RS232 connection cable if you have the following applications:

```
RS-232
1. DTR
2. DSR
3. RXD
4. TXD
5. GND
6. DSR
7. RTS
8. CTS
9. RI
```

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

```
Camera or Mini Din 8 pin serial
1. DTR
2. DSR
3. RXD
4. GND
5. GND
6. RXD
7. GND
8. N.C
```

```
RS-232
1. DTR
2. DSR
3. RXD
4. GND
5. RXD
6. GND
7. GND
```

```
Windows DB-25
1. FG
2. TXD
3. RXD
4. RTS
5. CTS
6. DSR
7. GND
20. DTR
```

9. Use the included RJ45 to RS232 8 pin Mini Din adaptor to make RS232 connection for your control device.

10. Use the included RJ45 to RS422/232 Phoenix terminal contact adaptor to make RS232 connection for your control device.

11. Or you can use CAT5/6 network cable (T-568B standard pinout) to make RS232 connection by following the pin definition below:
12. How to make RS232 Daisy Chain multiple camera connection with standard RS232 serial port controller as below:

Use RS-422(VISCA)

You can use RS-422/485 port to connect optional controllers, such as joystick keyboard controller or PC control station, to operate the camera. To perform pan/tilt and zoom operations, use the joystick of the keyboard controller. Preset operation can be done using the control buttons on the keyboard as well. An application software that supports this camera is needed if using a PC station.

RS422 (VISCA) connection

1. Set RS422 control method on Bottom Dip Switch.
2. Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard you are using.
3. Set specific camera address that you want to control the camera via the Bottom Dip Switch.
4. If you want to have the camera address automatically assigned by VISCA controller, set camera Dip Switch address to 0.
5. Reboot the camera after the Bottom Dip Switch has been set up correctly.
6. Use the RJ45 to RS422 control cable. The controller must be VISCA compatible.
7. Camera supports Daisy Chain connection up to 7 cameras.
8. The connection of SONY keyboard is different than other VISCA (Non-Sony) keyboard.
9. How to make RS422 connection and RS422 Daisy Chain connection with SONY controller is shown below
10. How to make RS422 connection and RS422 Daisy Chain connection with Non-Sony controller as below:

**VISCA (Non-Sony) Keyboard RS422 Connection**

11. Use included RJ45 to RS422 Phoenix connector adaptor to make RS422 connection for your control device.
12. Or you can use CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS422 connection by following the pin definition below:

![Diagram showing CAT5/6 Network cable and RS422 Serial port connection on controller side.]

13. How to make RS422 Daisy Chain multiple camera connection with RS422 standard serial port controller:

![Diagram showing RS422 Serial port connection on controller side.]

**PELCO P/D Keyboard RS485 Connection**

*NOTE: Use RS422 ports for RS485 connection. Only use TX+ and TX- for RS485 connection.*

- Set RS422 control method on Bottom Dip Switch.
- Set Baud Rate on Bottom Dip Switch to the same as Baud Rate setting on the keyboard.
- Set the camera ID on OSD menu by remote controller.
- Reboot the camera after the Bottom Dip Switch has been set up correctly.
- Use PELCO P/D compatible keyboard.
- Use preset 95 on the keyboard to bring up/exit camera OSD menu.
• Use joystick and Button “OPEN” or “CLOSE” to navigate OSD menu.
• To operate keyboard, please refer to the user manual of the keyboard you are using.

**PELCO RS485 Connection**

- Use included RJ45 to RS422 Phoenix connector adaptor to make RS485 connection for your control device.
- Or you can use CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS485 connection by following the pin definition below:

- How to make RS485 multiple cameras connection with RS485 standard serial port controller:
Note
For RS-232 VISCA control, this unit supports daisy chain connection for using multiple cameras.
For control details, refer to Operating Instructions of control keyboard/station software.
- You need to match the communication speed (Baud Rate) between the camera and the joystick controller.
- You cannot use the RS-232 connections while you are using the RS422/485 connection.

Operating Multiple Cameras Using RS-232, RS-422, RS-485
- Using RS-232 (VISCA), you can connect to 7 cameras.
- Using RS-422 (VISCA), you can connect to 7 cameras.
- Using RS-485 (PELCO), you can connect to 255 cameras.
- Using RS-485 (PELCO), all camera addresses must be set up before the connection. You can set the camera address by operating OSD menu, or by setting the Dip Switch on the bottom of the camera. In this case, you can use multiple control keyboards.

VISCA over IP Control
See Part Two: Dante AV Use
Tally Light GPI I/O connection

The camera is equipped with a Tally lamp that quickly distinguishes when the camera is in use. It is an arc Tally lamp used for improving visibility and merge together with the circular design lens. To use camera Tally Light function, you need a video switcher and a keyboard (not included).

GPI connection with RS422 VISCA control connection

Cable Preparation
1. Build standard multiple cameras RS-422 daisy chain control connection between the keyboard controller and the cameras. (For more RS422 control information details please refer to Keyboard Controller user guide)
2. Built Tally/Contact Function cable connection between the Keyboard Controller and Video Switcher (Sony)

Set UP
1. GPI I/O Input mode - Tally signal is sent by Video Switch
   a. Connect camera with keyboard by standard RS-422 control cable.
   b. Connect keyboard with video switch by tally function cable.
   c. Access to KEYBOARD SETTING > GPI I/O > Setting, and change it to Input mode, then Exit to home directory.
   d. Once the above is done, we can switch to different camera by video switch. For example, if we switch to camera 1 on video switch, it will send tally signal to keyboard via the tally function cable. The keyboard will then transmit this tally signal to camera 1 via standard RS-422 control cable, so camera 1’s tally light will turn on, and the keyboard can control camera 1’s pan and zoom.
   e. If switch to camera 2 on video switch, then camera 2 tally light will on and camera 1 tally light will off.

Diagram when GPI is select “Input”
2. GPI I/O Output mode - Tally signal is sent by Keyboard Controller
   a. Connect camera with keyboard by standard RS-422 control cable.
   b. Access to KEYBOARD SETTING > GPI I/O > Setting, and change it to Output mode, then Exit to home directly.
   c. Once the above is done, we can switch to different camera by keyboard. For example, if we switch to camera 1 on keyboard, it will send tally signal to camera 1 via standard RS-422 control cable, so camera 1 tally light will turn on. The keyboard can control camera 1’s pan and zoom at this time.
   d. If switch to camera 2 on keyboard, then camera 2 tally light will on and camera 1 tally light will go off.

GPI connection with VISCA OVER IP control connection
DIP SWITCH SETTINGS

The Dip switch is for setting the camera configuration for following items:
1. Camera ID Address for VISCA protocol
2. RS-232 / RS-422 control method selection
3. RS-232 / RS-422 baud rate selection

Setting of the Dip Switches
Turn off power to the camera before changing the Dip switch settings.
Power on the camera to have the new Dip Switch setting activated.

Camera ID address and Baud rate setting can be set in camera’s OSD menu as well. The camera accepts both the changes of OSD menu setting or changes of the Dip switch setting. They override each other. After the camera is turned on, the camera takes the last setting before it is turned on, either through the OSD or rear panel DIP switch.

The Dip Switch Settings
Bit 1~3: Camera Address setting for VISCA protocol
Bit 4: Reserved
Bit 5: Reserved
Bit 6: RS-232/RS-422
Bit 7~8: RS-232/RS-422 Baud Rate

![DIP Switch Diagram]

<table>
<thead>
<tr>
<th>VISCA Address</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>ON</td>
<td>OFF</td>
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</tr>
<tr>
<td>6</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>7</td>
<td>ON</td>
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<table>
<thead>
<tr>
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<td>Operation</td>
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<td>Firmware Upgrade</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>RS-422</td>
<td>ON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baud Rate Setting</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400 bps</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>4800 bps</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>9600 bps</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>38400 bps</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>
Setting of the back panel Rotate DIP Switches

The Rotate Dip Switch is for setting video format. Use small screwdriver to turn the switch, the arrow points to the Numbers or the Letters. Please refer to the chart below to identify which video resolution corresponds with each Numbers & Letters.

<table>
<thead>
<tr>
<th>Numbers &amp; Letters</th>
<th>Video Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1080i50</td>
</tr>
<tr>
<td>1</td>
<td>1080i59.94</td>
</tr>
<tr>
<td>2</td>
<td>1080i60</td>
</tr>
<tr>
<td>3</td>
<td>1080p25</td>
</tr>
<tr>
<td>4</td>
<td>1080p29.97</td>
</tr>
<tr>
<td>5</td>
<td>1080p30</td>
</tr>
<tr>
<td>6</td>
<td>1080p50</td>
</tr>
<tr>
<td>7</td>
<td>1080p59.94</td>
</tr>
<tr>
<td>8</td>
<td>1080p60</td>
</tr>
<tr>
<td>9</td>
<td>2160p23.98</td>
</tr>
<tr>
<td>A</td>
<td>2160p25</td>
</tr>
<tr>
<td>B</td>
<td>2160p29.97</td>
</tr>
<tr>
<td>C</td>
<td>2160p30</td>
</tr>
<tr>
<td>D</td>
<td>2160p50</td>
</tr>
<tr>
<td>E</td>
<td>2160p59.94</td>
</tr>
<tr>
<td>F</td>
<td>2160p60</td>
</tr>
</tbody>
</table>

IR Remote Controller ID Setting

Set the IR SELECT switch on the back panel of the camera to 1, 2 or 3, which is the camera ID number that you want to operate on the Remote Controller.

For example, when the camera IR ID is selected 1, on the remote controller, press the Camera IR ID button 1, the camera will be controlled by the remote controller.

When the camera IR ID is selected 3, on the remote controller, press the Camera IR ID button 3, the camera will be controlled by remote controller.

Always check the IR ID on both camera and remote sides and see if they match when the camera doesn’t respond to the remote control.
Adjusting and Setting with Menus

About On-Screen Menus

Various settings on the camera, like shooting conditions and system setup, can be changed while observing menus being displayed on a connected visual output device.

This section explains how to read the on-screen menus before starting menu operations. The menu parameters may vary according to the different product model.

Note

You cannot perform pan/tilt operations while the menu is displayed.

Main Menu

To display the main menu, press the MENU button on the supplied infrared remote controller or Bolin PTZ keyboard controller.

1. Selected Items
Selects a menu setting. The selected item is shown by the arrow cursor. The arrow cursor moves up or down by pressing the “↑, ↓” button on the infrared remote controller.

2. Menu Items
To display a setting menu, select one using the “↑, ↓” button on the infrared remote controller and press the HOME button on the infrared remote controller to enter/confirm.

Setting Menus

The setting menu selected on the main menu is displayed.

1. Setting Menu
The name of the setting menu currently selected is displayed here.

2. Selected Item
Selects a setting item. The selected item is shown by the arrow cursor. Move the cursor up or down by pressing the “↑, ↓” button on the infrared remote controller.

3. Setting Items
The setting items for this setting menu are displayed. Select the setting item using the “↑, ↓” button on the infrared remote controller.

4. Set Value
The currently set values are displayed. To change a set value, use the “←, →” button on the infrared remote controller.

In some product models, only use “←” button on the infrared remote controller to change the value. To confirm the value, you can use either “→” button or HOME button.

Control Button

You can select the item by pressing “↑, ↓, ←, →” and HOME button.

1. You can select a menu item by “↑, ↓” button on the infrared remote controller. The selected item is shown by the arrow cursor. You can change the value of the item by pressing “←, →” button.
2. You can move to the next layer by pressing the HOME button.
3. You can return to the normal display by pressing the MENU button.

Note

When you are operating the menu using the infrared remote controller, you cannot set IR- RECEIVE in the SYSTEM menu to OFF. To set IR RECEIVE to OFF, use the appropriate VISCA command.
EXPOSURE Menu

The EXPOSURE menu is used to set the items related to exposure.

MODE (Exposure Mode)

**FULL AUTO**: Iris, Gain and Shutter Speed can be set automatically.
**MANUAL**: Adjust the GAIN, electronic shutter speed (SPEED), iris (IRIS) manually.
**IRIS PRI**: Iris Priority mode. The iris can be set freely by the user. The gain and shutter speed are set automatically according to the brightness of the subject.

The exposure is adjusted automatically using the values manually set for iris (IRIS)

**SHUTTER PRI**: Shutter Priority mode. The shutter speed can be set freely by the user, the iris and gain are set automatically, according to the brightness of the subject.

The exposure is adjusted automatically using the values manually set for electronic shutter speed (SPEED), BACK LIGHT and EX-COMP

**50HZ PRI**: 50Hz Priority mode.
**60HZ PRI**: 60Hz Priority mode.
**GAIN PRI**: Gain Priority mode. Adjust with Variable Gain, Auto Iris and Shutter speed.

Adjust the GAIN, BACK LIGHT and EX-COMP

---

**EXPOSURE MENU: FULL AUTO**

- **MODE**: FULL AUTO
- **BACK LIGHT**: OFF
- **EX-COMP**: OFF

**EXPOSURE MENU: MANUAL**

- **MODE**: MANUAL
  - **GAIN**: 12dB
  - **SPEED**: 1/60
  - **IRIS**: F2.8

---

When you select one from various exposure modes, some of the following setting items that are required for the selected mode will appear.

**GAIN**: Select the gain from the following: 0dB, 4dB, 9dB, 13dB, 18dB, 22dB, 27dB, 31dB, 36dB, 40dB, 45dB, 49dB, 54dB, 58dB, 63dB, 67dB, 72dB

**IRIS**: Select the iris from the following: F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, F1.6, CLOSE

**SPEED**: Select the speed from the following: 1/1, 1/2, 1/4, 1/8, 1/15, 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, 1/10K

**BACKLIGHT**: When the background of the subject is too bright, or when the subject is too dark due to shooting in the AE mode, back light compensation will make the subject appear clearer.

**EX-COMP**: (Exposure Compensation)

When MODE is set to one of FULL AUTO, IRIS PRI, SHUTTER PRI or GAIN PRI, set this item to ON to enable exposure compensation. When you set EX-COMP to ON, LEVEL appear, and you can select the
exposure compensation level from the following:
-7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7
If you set the level to 0, exposure compensation will be disabled. Level +7 is the brightest and −7 is the darkest compensation value.
When EX-COMP is set to OFF, exposure compensation does not function.

**WHITE BALANCE Menu**

The WHITE BALANCE menu is used to select the white balance mode.

**MODE (white balance mode)**
Select the white balance mode from the following:

- **AUTO**: This mode computes the white balance value output using color information from the entire screen. This mode is the initial setting.
- **INDOOR**: 3200K Base Mode
- **OUTDOOR**: 5800K Base Mode
- **OPW (One Push White Balance)**: The One Push White Balance mode is a fixed white balance mode that may be automatically readjusted only at the request of the user (One Push Trigger), if a white subject, in correct lighting conditions, is occupying more than 1/2 of the image, is submitted to the camera. One Push White Balance data is lost when the power is turned off.

**NOTE:** When you select the OPW (One Push White Balance)
Please perform the following operations:
1. Place an image of white subject (For example: A piece of white paper) in the center of the screen.
2. Press the HOME button of the infrared remote controller.
The one-push white balance adjustment is activated.

- **ATW (Auto Tracking White Balance)**: Auto Tracking White balance (2000K to 10000K), allows the camera to adjust the tone according to the temperature of the light source illuminating the subject
- **USER**: This is a mode that enables you to manually set the control of R and B gain up to 256 steps.

**NOTE:** When you select USER, R. GAIN (red gain) and B. GAIN (blue gain) appear. You can select each item in the range from 0 to 255.

- **SVL: Sodium Vapor Lamp**: This is a fixed white balance mode specifically for sodium vapor lamps.

- **MANUAL**: This is a mode that enables you to manually set the color temperature from 2500K to 8500K
PICTURE 1 Menu

2D NR:
2D Noise Reduction is a method of reducing noise within an image by comparing frame-to-frame, removing the variations that do not appear in each frame.

3D NR
3D Noise Reduction is a method of reducing noise by comparing variances within the same frame, as well as comparing frame-to-frame. This will reduce noise without leaving trails behind a moving object.

FLIP:
Image E-Flipper – Used when ceiling mounting or upright mounting. Set to OFF is upright mode, set to ON is for ceiling mount.

MIRROR:
You can have the image as seen in a mirror, with the right side as though it were the left.

COLOR
You can configure the color gain from 0-15. Use this setting when bright color is particularly important.

HUE
You can adjust color phase from 0-15.

CONTRAST:
You can adjust the contrast level in the range from 0 to 15. The smaller the value is, the lower the contrast becomes, and the larger the value is, the higher the contrast becomes.

STABILIZER
When the image stabilizer function is set to ON, you can obtain an image with less screen blur caused by shaking. The correction effect can be achieved at the vibration frequency around 10 Hz. The image stabilizer function uses the digital zoom method. Although there are changes in the angle of view and resolution, the sensitivity is maintained.

Note: The image stabilizer function may not work under the environment of high frequency vibration components. When using the camera under such environment, set the image stabilizer function to Off.

PICTURE 2 Menu

EFFECT (PICTURE EFFECT):
It consists of the following functions:
B&W: Monochrome Image
Image effect from Off, B&W

GAMMA:
In this mode, the gamma can be set to value from 0 to 1.

SHARPNESS:
Picture sharpness value ranges from 0 to 15. You can enjoy emphasized edge and high-resolution images.

BRIGHTNESS:
You can adjust the brightness from 0-15

STYLE:
Video image effect mode, you can select from the followings: INDOOR, NORMAL, WDR, FACE, CUSTOM

WDR: (Wide dynamic range mode): WDR feature is available on certain product models.
Wide Dynamic: ON, OFF. The camera distinguishes light and dark areas within the same scene, adjusts the brightness for dark areas, and controls the blown-out highlights.
You can select the wide dynamic range mode between ON and OFF

WDR LEVEL:
You can adjust the WDR level in the range from 1 to 8. Adjustable when WDR set to ON.
PAN TILT ZOOM Menu

The PAN TILT ZOOM menu is used to select the pan/tilt/zoom mode.

**DIGITAL ZOOM:**
You can set digital zoom to ON or OFF. When set to OFF, digital zoom does not operate, and only optical zoom is available. When set to ON, digital zoom takes over after optical zoom reaches MAX (12X). Up to 200X/300X can be zoomed digitally.

When digital zoom is available, the resolution decreases.

**ZOOM RATIO OSD (Zoom times display):**
Set Ratio OSD to ON, the number of the zoom ratio that you are operating displays on screen.

**VIDEO PARAMETERS:**
Set Video Parameters OSD to ON, the value of the setting and parameter will be displayed on screen when you use remote controller to adjust the camera image parameters using the direct adjust buttons “+” or “-” with the feature keys on the remote controller.

**AF SEN. (AF SENSITIVITY):**
NORMAL: Reaches the highest focus speed quickly. Use this when shooting a subject that moves frequently.
LOW: Improves the stability of the focus. When the lighting level is low, the AF function does not take effect, even though the brightness varies, contributing to a stable image.

**MF SPEED:**
Manual Focus variable speed, that has 0-7 eight speed levels.

**NEAR LIMIT:**
Can be set in a range from OVER, 5m, 3m, 2m, 1.5m, 1.2m, 1.0m, 80cm, 55cm, 35cm, 25cm, 18cm, 14cm, 10cm, 8cm.

**ADAPTIVE PT:**
Set to ON, Pan Tilt speed would be adaptive with the zoom range.

Turn ON to automatically adjust the Pan and Tilt speed with various zoom ratios. For example, the higher zoom ratio you use, the slower the speed of P/T.

**P/T SPEED:**
Set P/T Speed value to from 0 to 5 (The speed from low to high), to change the speed of P/T on remote controller.

**PRESET SPEED:**
Set preset speed value from 0 to 5 to change the preset speed.

**PAN DIR (PAN DIRECTION):**
Camera horizontal left and right orientation setting, options: Normal/Invert

**TILT DIR (TILT DIRECTION):**
Camera tilt up and down orientation setting, options: Normal/Invert

**TALLY MODE**
When the tally mode is set to ON, the tally light on the camera will be turned on.

If you connect the camera to Bolin keyboard controller, you can set the GPI I/O to Output or Input mode in Keyboard Setting, allowing tally control via the keyboard directly.

**TRACE MEMORY**
Trace Memory is a function used to record pan/tilt/zoom operations controlled by remote controller or a remote controller, which can be played back as required. Up to 100 pan/tilt/zoom commands can be recorded for up to 60 seconds.

- **TRACE NO:** Select the TRACE number to record, playback or delete.
- **PLAY TIMES:** How to playback the recorded operations, can be set to Once or Unlimited.
  - Once: The recorded trace memory will only run one time, then stop.
  - Unlimited: The recorded trace memory will loop unlimited times until leaving Trace Memory mode or manual PTZ movement is triggered.
- **RECORD:** Record operations.
• MEMORY: Play or delete the recorded operations.

**Recording Trace Memory (pan/tilt/zoom operations)**

• Select the trace number you want to record in TRACE NO.
• Move the cursor to RECORD and press the HOME button (or Joystick right click).  
  *Setting menu (enter to record) is display at the top left corner of the screen*
• Move the camera position to the Start Position where you want the Trace to start from.  
  *Recording status is display at the top of the screen*
• Call preset 1 to start the trace recording
• Perform the pan/tilt/zoom operations you want to record, during recording, elapsed commands number 
at the top of the screen increases in increments of 1 when the camera received one command.

**NOTE:** If using the remote controller, pan/tilt/zoom operations can't be performed simultaneously. 
If using the joystick controller, pan/tilt/zoom operations can't be performed simultaneously
• Call preset 1 to finish and stop the trace recording  
**NOTE:** The recording automatically stops after the maximum recording time has elapsed.

**Playing Trace Memory (pan/tilt/zoom operations)**

• Select the recorded trace number you want to play in TRACE NO.
• Move the cursor to MEMORY, select PLAY and press HOME button (the button is located on the top of the joystick) to begin playback.

**NOTE:** Playback stops if a pan/tilt/zoom operation is performed during playback by using the remote controller or a joystick controller.

**Deleting recorded Trace Memory (pan/tilt/zoom operations)**

• Select the trace number you want to delete in TRACE NO.
• Move the cursor to MEMORY, select DELETE and press HOME button, it will display “DELETE TRACE YES”, press HOME button again, the specific trace recording will be deleted.

**AUDIO**

This item is set to OFF by default, user can set it to ON to enable camera to capture audio signal if there’s audio source connected to 
the camera’s rear panel 3.5mm audio input port.

• AUDIO: OFF by default, user can set it to ON to extend the audio setting menu
• INPUT TYPE: To select the audio input type, options are LINE and MIC  
  o LINE: To enable the camera to process audio through Line in and capture the audio source  
  o MIC: To enable the camera to process audio through microphone and capture the Mic audio source
• VOLUME LEVEL: To adjust the audio gain value.  
  o LINE audio gain value can be adjusted from the following: -34.5dB to 33dB  
  o MIC audio gain value can be adjusted from the following: 6dB, 9dB, 12dB, 15dB, 20dB, 40dB
• PLUGIN POWER: Available when Input Type is set to MIC  
  o OFF: Disable plugin power for the connected microphone. In this case, the microphone needs 
to be powered by external power adapter.  
  o ON: Enable plugin power for the connected microphone, and the power supply voltage is 2.5V
SYSTEM MENU

PELCO ID
When using RS485 (PELCO P/D) control, Set Camera ID to the address that you want to control to. This value is from 1-255.

IR-RECEIVE (Infrared Signal Reception)
When this is set to OFF, the camera does not receive the signal from the infrared remote controller.
Be sure to keep it set to ON when you use the infrared remote controller.

Note
You cannot set IR-RECEIVE to OFF when you operate the menu using the infrared remote controller. To set it to OFF, use the appropriate VISCA controller.

PRESET SETTINGS
Used to set functions related to presets, including Preset Memory and Motionless Preset

- PRESET MEMORY:
  - This feature allows you to save the image parameter to PRESET memory, turn it on to save most image parameters like picture, white balance, exposure, focus mode, zoom positions when you call the preset.
  - Set to OFF to disable saving the image parameters to presets, make the preset only include pan/tilt/zoom actions.

- MOTIONLESS PRESET:
  - When motionless preset is ON, video image will not be shown during the transition to the designated preset location.
  - Set to OFF to disable Motionless preset, back to normal running preset action.

COLOR SPACE
User can select color space of the camera output signal based on the color space of the back-end display or video capture device.

- User can select YUV444/422/420 or RGB format in 2160p resolution
- User can select YUV 422 or RGB format in 1080p and 720p resolution

FACTORY RESET
You can select this item to set camera back to Factory Default setting by pressing HOME button to confirm the action. All data of the camera that have been set will be deleted.

RELOAD PRESET 1:
When this item is set to ON, preset 1 is set to HOME position. The camera goes to HOME position when it is powered on or reset.

VIDEO FORMAT:
This Video Format selection will determine the video format of HDMI output.
You can change the video format here.

- Select the Video Format row, press “←” button to choose the video format you want to set to, then press “→”
- Pressing “→” button changes the value on certain product models. If not, then click HOME button to confirm the change or can cancel by pressing the MENU button.
- Note: The camera will reboot by itself. The new video format will be activated.

The video formats that you can select from are:
- 2160P: 60/59.94/50/30/29.97/25/23.98
- 1080P: 60/59.94/50/30/29.97/25/23.98
- 720P: 60/59.94/50

SV: MCU Software Version Number that is currently running on the camera. You may need this information for technical support.
STATUS MENU

Status menu will display the basic information of this camera, as well as video parameters. It is convenient for users to quickly get the active status of the camera’s settings.

Firmware Upgrade

There are 2 types of upgradable firmware with the camera. The latest camera firmware is available to be downloaded from Bolin website: www.bolintechnology.com

1. MCU (Micro Control Unit) firmware upgrade via USB
2. DanteAV firmware upgrade via Dante Upgrade Tool

**NOTE:** The firmware upgrade process is intended to be performed under the supervision of a BOLIN-Authorized repair technician. For assistance with this, please contact your authorized BOLIN Technology dealer, installer, or integrator. BOLIN Technology Technical Support can also be reached for assistance with this process.

Upgrading MCU Firmware

MCU Firmware can be upgraded by following these steps:

1. Load the .bin file onto a flash drive (Formatted as FAT32), and rename the file as “HD20.bin”
2. With the camera powered off, insert the flash drive to the USB port on the back panel of the camera
3. Apply power to the camera

The green Status indicator light on the front panel of the camera will turn red for a few seconds while the upgrade takes place. Once the upgrade is finished, the light will turn back to green. The camera will proceed through a normal boot cycle. Check the SV version information on the OSD boot screen to confirm that the new firmware has been properly installed.

Upgrading Dante AV firmware

You can upgrade camera Dante AV firmware version via Dante Firmware Update Manager. Connect and configure your camera with your local network successfully, running “Dante Firmware Update Manager” to do Dante AV firmware upgrades. For instructions on how to Firmware upgrade for Dante AV, please refer to User Manual Part Two.
Operation Using the Infrared Remote Controller

Pan/Tilt and Zoom Operation

Panning and Tilting
1. Press the POWER switch.
The camera will turn on and perform the pan/tilt reset operation automatically.
2. Press the arrow buttons to pan or tilt the camera.
While checking the picture on the screen, press the desired arrow button.
To move the camera in short increments, Tap the button or short press for a moment.
To move the camera in long increments, press and hold the button.
To move the camera diagonally, press the “←, →” button while holding down the “↑, ↓” button.

Restore to starting position
Press the HOME button.

If the camera moves in a different direction from the one that you intended
The camera is preset so that the image output from the camera is rotated toward the right whenever you press the “←, →” button.

To face the camera toward the opposite direction
You might wish to face the camera towards the opposite direction from that of the button you pressed, for example, when you change the direction of the camera while checking the picture on the screen. In such a case, press and hold the Fn key, then press the 2 (REV) button.

<table>
<thead>
<tr>
<th>Arrow button</th>
<th>Movement of the camera</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To reset the setting
To reset the setting, press and hold the Fn key, then press the 1 (STD) button.

<table>
<thead>
<tr>
<th>Arrow button</th>
<th>Movement of the camera</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note
The above setting only changes the signal emitted from the infrared remote controller and does not change the setting of the camera itself. Therefore, repeat the setting for each infrared remote controller if you are using more than one infrared remote controller.

When the STANDBY lamp is blinking
If the camera is moved forcibly, or a finger or other object interferes with camera movement, the camera may fail to memorize the pan/tilt position.

Press the PAN-TILT RESET button to delete the pan/tilt position.

**Zooming**

**Button (Slow Zoom)** [TT] - Zoom-IN and [W] - Zoom-OUT slowly

**Button (Fast Zoom)** [TT] - Zoom-IN and [W] - Zoom-OUT quickly

---

**Operating Multiple Cameras with Infrared Remote Controller**

1. Before use this Camera IR ID on the remote controller, you need to set Camera IR ID on the panel to the camera. On the remote controller, activate (Press) the Camera IR ID that has been set on the camera.

2. Press one of the Camera IR ID button on the IR remote controller, the button will be illuminated, that means the camera that is set to IR ID Number will respond to the IR controller.

3. Always firstly check if the IR ID is set correctly same as the IR ID set on the camera when the camera is not responding to the IR controller.

Then, you can operate the camera(s) specified by number. Every time you operate the camera(s) using the IR remote controller, the Camera IR ID button pressed in step 2 fleshes.

---

**Adjusting the Camera Focus**

**Focusing on a Subject**

**Focusing the camera on a subject automatically**

Press the AUTO button.
The camera focuses on the subject at the center of the screen automatically.

**Focusing the camera on a subject manually**

After pressing the MANUAL button, press either the FAR or the NEAR button to have the camera focus on the subject.

---

**Shooting with Back Lighting**

When you shoot a subject with a light source behind it, the subject becomes dark. In such a case, press the BACK LIGHT button.

To cancel the function, press the BACK LIGHT button again.

**Note**

The BACK LIGHT function is effective if MODE is set to FULL AUTO in the EXPOSURE menu of the camera.
Storing the Camera Settings in Memory — the Presetting Feature

Memory (Preset)
Using the preset function, 9 sets of camera shooting conditions can be stored and recalled. 9 sets of camera shooting conditions can be stored and recalled by using remote controller. Up to 128 presets via protocol programming.

This function allows you to achieve the desired status instantly, without needing to adjust the following items each time.

- Pan/Tilt Position
- Zoom Position
- Focus Auto/Manual
- Focus Position
- AE Mode
- Shutter control parameters
- Bright Control
- Iris control parameters
- Gain control parameters
- Exposure Compensation On/Off
- Exposure Level
- Backlight Compensation On/Off
- White Balance Mode
- R/B Gain
- Aperture Control
- WD Parameter

The settings stored using this function are recalled when the power is turned on.

1. Press the PAN-TILT RESET button to delete reset the pan/tilt position.

2. Adjust the position, zooming, focus, and backlighting of the camera.

While holding down the PRESET button, press any of the POSITION buttons, 1 to 9, in which you want to store the settings.

Recalling the stored settings
Press any of the POSITION buttons, [1] to [9], in which you have stored the settings.

Cancelling the preset memory
While holding down the RESET button, press the POSITION button from which you want to cancel the settings.

Notes
- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- If you want to retain the previous pan and tilt positions, etc. store those settings to POSITION 1 before the power is turned off.
- When you are storing or cancelling the settings in one POSITION, you cannot call up, store, or cancel the settings in another POSITION.
- When the menu is displayed on the screen, you cannot perform the operation for storing, recalling, or cancelling the setting. Be sure to return to the normal display before starting these operations.
Adjusting the camera

Adjusting the camera, including camera image parameter (Gain, Color, Contrast, White Balance (Red & Blue), Black Level), camera speed (Pan/Tilt speed, zoom speed and preset speed), as well as Freeze, Back Light and One Push White Balance.

Gain-Adjust Gain
Press Gain button, the Gain button light will on, then press “+” or “-” button to adjust the Gain value. After done, press other button in this area, the Gain button light will off.

Color-Adjust Color
Press Color button, the Color button light will on, then press “+” or “-” button to adjust the Color value. After done, press other button in this area, the Color button light will off.

CON-Adjust Contrast
Press CON button, the CON button light will on, then press “+” or “-” button to adjust the Contrast value. After done, press other button in this area, the CON button light will off.

WB.B-Adjust White Balance (Red)
Press WB.R button, the WB.R button light will on, then press “+” or “-” button to adjust the White Balance Red color value. After done, press other button in this area, the WB.R button light will off.

WB.B-Adjust White Balance (Blue)
Press WB.B button, the WB.B button light will on, then press “+” or “-” button to adjust the White Balance Blue color value. After done, press other button in this area, the WB.B button light will off.

PT S.-Adjust Pan/Tilt Speed
Press PT S button, PT S button light will on, then press “+” or “-” button to adjust Pan/Tilt speed value. After done, press other button in this area, the PT S button light will off.

Zoom S.-Adjust Zoom Speed
Press Zoom S button, Zoom S button light will on, then press “+” or “-” button to adjust zoom speed value. After done, press other button in this area, the Zoom S button light will off.

Preset S.-Adjust Preset Speed
Press Preset S button, Preset S button light will on, then press “+” or “-” button to adjust preset speed value. After done, press other button in this area, the Preset S button light will off.

Black L.-Adjust Black Level
Press Black L button, Black L button light will on, then press “+” or “-” button to adjust black level value. After done, press other button in this area, the Black L button light will off.

B.Light-Adjust Back Light
Press B Light button, B Light button light will on, then press “+” or “-” button to adjust back light value. After done, press other button in this area, the B Light button light will off.

Freeze-Set Freeze
Pressing the Freeze button will cause the Freeze button light to turn on, causing the camera image to be frozen. Press Freeze button again will get Freeze button light to turn off, and camera image will be back to normal.

OPW-Set One Push Whit Balance
Press OPW button, OPW button light will on, camera will be automatically readjusted white balance.

NOTE:
When you select the OPW (One Push White Balance), please perform the following operations:
1. Place an image of white subject (For example: A piece of white paper) in the center of the screen.
2. Press the OPW button of the infrared remote controller. The one-push white balance adjustment is activated.

NOTE:
After done, press other function button which in different color, the red color button light will off.
AI Feature Mode (Set to fan speed adjustment)
Within Bolin Dante AV product line, this AI feature is set to adjust the speed of the fan that is built inside of the camera or decoder for heat dissipation.

Al Button:
Press Al button, the button is illuminated in blue color, the IR controller will switch to fan speed adjustment mode.
Buttons that highlighted in blue will be activated when Al button is pressed and illuminated.

Zoom:
Press zoom to adjust the fan speed to low-speed rate. In this fan speed setting, the noise of the fan is low.
I:
Press I to adjust the fan speed to mid-speed rate. In this fan speed setting, the noise of the fan is median.
III:
Press I to adjust the fan speed to mid-speed rate. In this fan speed setting, the noise of the fan is median.

AI Setup:
Not activated

Fn Mode Key
Press and hold the Fn key, then press one of the function buttons that printed in color brown to have extra feature settings.

REV:
To face the camera toward the opposite direction, press and hold the Fn key, then press 2 (REV) button.
STD:
To reset the setting that's been configured in REV step, press and hold the Fn key, then press 1 (STD) button.
Scan:
To set the camera in scan mode, press and hold the Fn key, then press 3 (Scan) button. Press one more time to stop the scanning.

NOTE: If set Left limit / Right Limit, auto scanning will run within the limited position range.

Left Limit:
To set the leftmost position that the camera can pan to.
Use the arrow keys to turn the camera to the leftmost position you want to set, press and hold the Fn key, then press and hold 5 (Left Limit) button for 1 second. The left limit position has now been set. When the camera is turning to the left and reaches the left limit position, the camera will stop.
Press and hold Fn key, then press and hold 5 (Left Limit) for 3 seconds, the left limit position will be deleted.

Right Limit:
To set the rightmost position that the camera can pan to.
Use the arrow keys to turn the camera to the rightmost position you want to set, press and hold the Fn key, then press and hold 6 (Right Limit) for 1 second. The right limit position has now been set. When the camera is turning to the right and reaches the right limit position, the camera will stop.
Press and hold Fn key, then press and hold 6 (Right Limit) for 3 seconds, the right limit position will be deleted.

NOTE:
When the HOME position or the preset position set is not within the Left Limit / Right Limit range, the remote controller operate HOME position or preset call command becomes invalid.

F.Default:
To restore the camera to factory settings, press and hold Fn key, then press 7 (F.Default) button.

STATUS
To pull out the camera Status menu, press and hold Fn key, then press 8 (Status) button.
MUTE
To enable or disable the audio signal from the SDI/HDMI output, press and hold Fn key, then press 9 (Mute) button to mute, press one more time to unmute.

Resolution:
To change the video resolution, press and hold Fn key, then press the Resolution button to populate a menu where you can switch resolutions.
Changing Video Resolutions

- Press and hold Fn button, then press the Resolution button to populate a menu where you can switch resolutions
- Use the arrow keys to navigate
- Press Home to select
- Screen will show ‘CHANGING…”
- Press Menu to exit

Press and hold Fn key, then press this button to switch between available resolution
## Menu Configuration

The menus of camera are configured as described below.

### OSD Menu Configuration

<table>
<thead>
<tr>
<th>Menu</th>
<th>EXPOSURE</th>
<th>MODE</th>
<th>FULL AUTO</th>
<th>EX-COMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>BACK LIGHT</td>
<td>OFF, ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFF, ON (When set to ON, the LEVEL can be adjusted)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>LEVEL: -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BACK LIGHT</td>
<td>OFF, ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFF, ON (When set to ON, the LEVEL can be adjusted)</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>LEVEL: -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7</td>
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<tr>
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<td></td>
<td>IRIS PRI</td>
<td>IRIS</td>
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<tr>
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<td>IRIS PRI</td>
<td>IRIS</td>
</tr>
<tr>
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<td></td>
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<td>SHUTTER PRI</td>
<td>SHUTTER</td>
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<td>WHITE BALANCE</td>
<td>WHITE BALANCE</td>
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<td>MODE</td>
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<td>FLIP</td>
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<td></td>
<td>MIRROR</td>
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<td>BRIGHTNESS</td>
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<td>WDR</td>
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<td>PAN TILT ZOOM</td>
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<tr>
<td>DIGITAL ZOOM</td>
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<td>ZOOM RATIO OSD</td>
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<td>ADAPTIVE PT</td>
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<td>P/T Z SPEED</td>
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<td>PRESET SPEED</td>
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<td>PAN DIR</td>
<td>NORMAL, INVERT</td>
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<tr>
<td>TILT DIR</td>
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<td>TALLY MODE</td>
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<td>TRACE MEMORY</td>
<td>TRACE NO 1-4</td>
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<td>VOLUME LEVEL</td>
<td>-34.5dB-31.5dB / 6dB-40dB</td>
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<td>PLUG IN POWER</td>
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<td>001-255</td>
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<tr>
<td>IR-RECEIVE</td>
<td>ON, OFF</td>
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<tr>
<td>PRESET SETTINGS</td>
<td>PRESET MEMORY ON, OFF</td>
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<td>COLOR SPACE</td>
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<td>FACTORY RESET</td>
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<td>RELOAD PRESET 1</td>
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<td>VIDEO FMT</td>
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<td>SV</td>
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<table>
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<tr>
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<td>IR ID</td>
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<td>P/T SPEED</td>
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<tr>
<td>PRESET SPEED</td>
<td>5</td>
</tr>
</tbody>
</table>
**Troubleshooting**

**Camera will not power on**

Use the supplied power adaptor or a proper rating PoE device. Verify wirings are properly connected and plugs are securely in place. If the camera is attached to an outlet with a power switch, please make sure the switch is on.

**Camera restarts by itself**

The camera may not be getting sufficient power. Verify on our website at www.bolintech.com that proper power is used to supply power to the camera.

Verify that the camera and its power source are not set to restart at a specific time.

**Camera is not seen in Dante controller**

If only the camera is not seen in the Dante controller, please verify it is within the same network and that no security measures are in place to prevent the camera from connecting to the network. When in doubt, contact your network administrator.

The proper network interface needs to be selected using the Dante Controller software to view Dante device(s).

If no Dante devices are listed under the Dante Controller software, please verify cable connection of said devices, along with network configurations. Follow procedure outlined on Audinate’s FAQ [https://www.audinate.com/learning/faqs/dante-controller-is-not-displaying-details-under-clock-status-or-device-info-whats-wrong](https://www.audinate.com/learning/faqs/dante-controller-is-not-displaying-details-under-clock-status-or-device-info-whats-wrong)

**Decoder will not power on**

The decoder has a power ON/OFF switch located at the front of the device. Please verify that it is on the ON position.

Use the supplied power adaptor or a proper rating PoE device. Ensure wirings are properly connected and plugs are securely in place. If the decoder is attached to an outlet with a power switch, please make sure the switch is on.

**Decoder will restart by itself**

The decoder may not be getting sufficient power. Verify on our website at [www.bolintech.com](http://www.bolintech.com) and verify that proper power is used to supply power to the unit.

Verify that the decoder and power source is not set to restart at a specific time.

**Decoder is not seen in Dante controller**

If only the decoder is not seen in the Dante controller, please verify it is within the same network and that no security measures are in place to prevent the decoder from connecting to the network. When in doubt, contact your network administrator.

The proper network interface needs to be selected using the Dante Controller software to view Dante device(s).

If no Dante devices are listed under the Dante Controller software, please verify cable connection of said devices, along with network configurations. Follow procedure outlined on Audinate’s FAQ [https://www.audinate.com/learning/faqs/dante-controller-is-not-displaying-details-under-clock-status-or-device-info-whats-wrong](https://www.audinate.com/learning/faqs/dante-controller-is-not-displaying-details-under-clock-status-or-device-info-whats-wrong)

**Other common potential concerns/issues**

For other concerns please consult our website for knowledge articles and FAQs that may address it. Our technical support team can also be reached via the contact form should you need further assistance.
Warranty

How to submit product for warranty

Repair and Warranty services can be requested by contacting our support line. Please follow the instructions provided on our website along with any relevant information to https://bolintechnology.com/support/

Warranty Disclaimer

Bolin Technology in no event shall be liable to any party or any person for cases including but not limited to the ones below, except for reasonable replacement or maintenance of Bolin products.

- Personal injury or any damage caused by inappropriate use or safety negligence of the user
- Unauthorized alteration, repair, disassembly, of Bolin products and accessories by the user
- Any inconvenience, loss, or damages that may arise from Bolin products when combined with third party devices
- Any damage and loss, including without limitation, direct or indirect, arising out of or relating to Bolin products
- Inconvenience or any loss arising when images are not displayed due to any reason or cause, including any failure or problem with the Bolin products
- Loss of registered information or data caused by any failure
- Any compensation, claims, demands etc. resulting from infringement of privacy by individuals or organizations whose images were shot by the user because these images (including recordings and live streams made) were made available by the user in the public domain for any reason or other or because the images ended up being used for purposes other than the one described above

How to properly dispose electronic products

Please follow electronic equipment disposal guidelines and laws of the respectful country that the device(s) are in. It is recommended to ask a qualified contractor to dispose of the unit properly to protect the environment in accordance with national legislation.
Support Contact Info

Your experience is important to us. If you need assistance, our support team can be reached by any of the methods below:

- Go to https://bolintechnology.com/company/#contact-us and select customer support

**SEND A MESSAGE**

- Go to https://bolintechnology.com/support/ and use the Raise a Support Ticket button
- Email: support@bolintechnology.com
- Phone: (626)3336288 ext.104

Or use your cell phone and mobile device to scan the QR code below to have product datasheet and user guide, and contact information:
Dimensions

Unit: mm