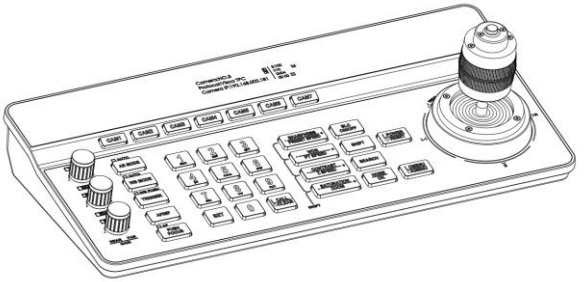
AVIPAS

Model: AV-3207 & AV-3207 AT Version

4D Serial & IP Joystick Controller



User Manual

V1.2

Please read this user manual

thoroughly before using.

www.avipas.com

1.1 Cautions

Preface:

This manual introduces the functions, technical specifications and operations of the serial/IP controller. Prior to installation and usage, please read the manual thoroughly.

Precautions:

This product should only be used under the specified conditions to avoid damage to the controller.

- Do not expose the controller to rain, moisture, corrosive gas, or liquid.
- Do not dismantle or disassemble the controller. Doing so may result in electric shock. If the device malfunctions, please contact an authorized engineer.
- Do not operate the controller outside the specified temperature, humidity, or power supply range.
- Use only soft, dry cloth for cleaning.
- Ensure operation within the following environmental conditions: Temperature: -10°C to 50°C; Humidity: ≤ 80%

Electronic Safety:

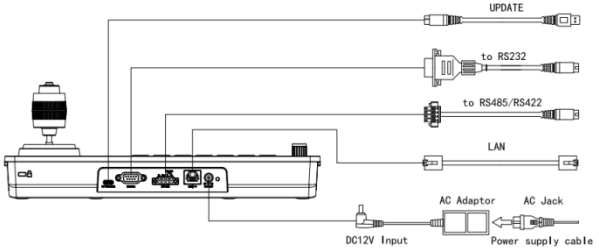
- Installation and operation must accord electric safety standard.
- Avoid pressure, vibration or soakage during transport, storage, installation and usage.
- The power supply of this product is DC 12V, max electronical current is 1A. It is recommended to use the power adapter included in the package.
- Power supply polarity:

2.1 Packing List

When unpacked, check if all supplied accessories are included:

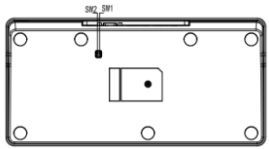
AV-3207 keyboard controller ····· 1PC
Power Adapter ····· 1PC
Power Cord (US standard) ····· 1PC
RS232 Cable (9 pin Female to 8 pin mini male) ····· 1PC
User Manual ····· 1PC

2.2 Wiring



2.3 Bottom Dialing Switch

Bottom dial control			
Mode	SW-1	SW-2	Description
1	*	OFF	ARM Upgrade Mode
2	*	ON	Normal Working Mode
SW-1 is reserved, no function defined			



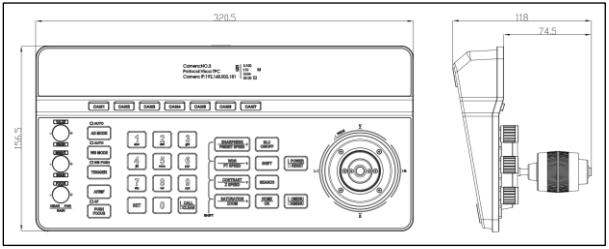
3.1 Key Features:

1. Multiple control interfaces: RJ45, RS232, RS422, and RS485
2. Wide control protocol compatibility: VISCA Serial, VISCA over IP, Pelco-P, Pelco-D, VISCA TCP, VISCA UDP, ONVIF, and NDI (optional) protocols.
3. Quick-access control with 7 dedicated camera shortcut keys.
4. Backlit buttons for easy operation in low-light environments.
5. Preset management: set, recall, and clear presets with ease.
6. Adjustable PTZ speed control for precise camera movements.
7. Access and control camera On-Screen Display (OSD) menus.
8. Standard Power over Ethernet (PoE) support for simplified cabling.
9. Easy setup of Auto Tracking function with multiple tracking mode options (available in AT version only).
10. Adaptive network connectivity with 10/100M RJ45 interface.

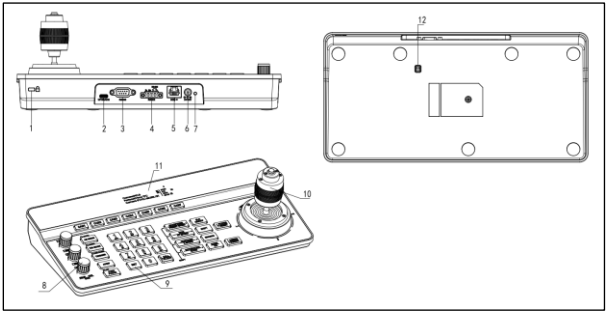
3.2 Technical Specifications：

Parameters	Indicators
Control Interface	RJ45, RS232, RS422, RS485
RJ45	Ethernet port, POE（IEEE802.3af）
RS232	DB9 male connector
RS422	3.81 spacing terminal, T+, T-, R+, R-
RS485	3.81 spacing terminal, T+, T−
Support Protocols	VISCA Serial, Pelco-P, Pelco-D, VISCA over IP, VISCA TCP, VISCA UDP, ONVIF, NDI (optional)
USB-C port	Firmware updates
Display Screen	3.12" OLED screen, blue light, 256×64 pixels
Working power	12V⎓1A
Working Temperature	-10℃~50℃
Working Humidity	≤80%
Storage Temperature	-20℃~60℃
Storage Humidity	≤90%
Size	12.7x6.2x4.7inch (320.5×156.5×118mm)
Weight	2.3LB (1.05kg)

3.3 Product Dimension：

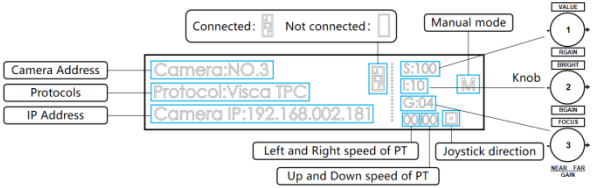


3.4 Interface Description：



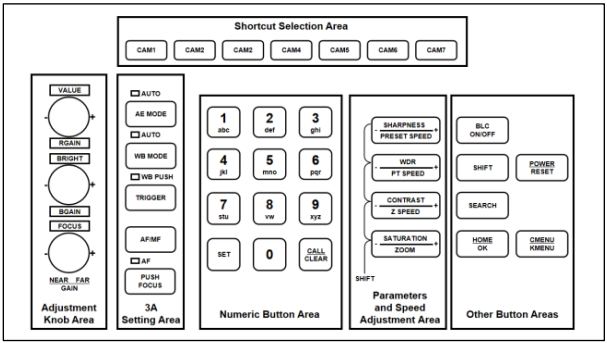
1. Lock Port	5. Ethernet Port	9. Button
2. USB Type-C Port	6. Power Input	10. Joystick
3. RS232 Interface	7. Indicator light	11. Display screen
4. RS485 Interface	8. Knob	12. Dial switch

3.5 Display Screen：

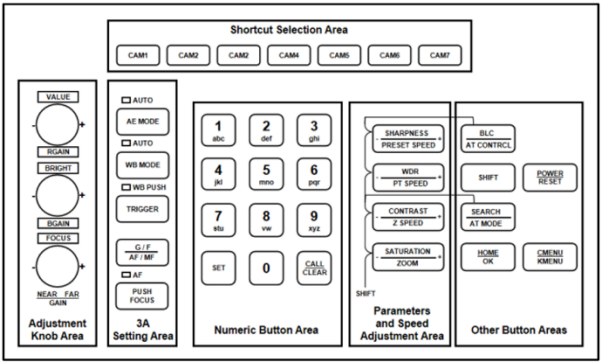


3.6 Button Function:

AV-3207



AV-3207 AT Version (Auto Tracking version)



3.6.1 Shortcut Selection Area

【CAM1】~【CAM7】 Select the corresponding camera.

💡 Tip: **Quick Camera IP address Switching:**

Step 1: Turn on FSwitch: (Keyboard menu-> FSwitch-> "ON")

In **IP Control Mode**, you can quickly switch camera IP addresses without re-entering the full address. Simply input the **last set of digits** of the desired camera's IP address using the numeric keypad, then press any **CAM1–CAM7** key. The controller will update the current camera's IP address to match the entered digits.

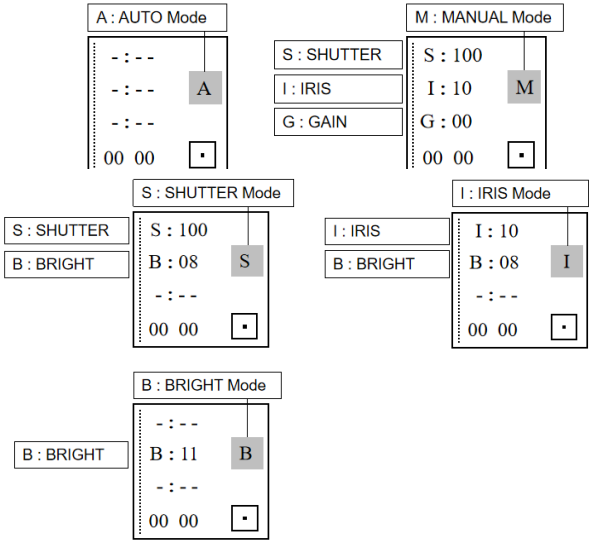
This function allows fast switching between **1–254 camera IP addresses**.

3.6.2 Adjustment Knob and 3A Setting Area

【AE MODE】 When the AUTO indicator light is on, the controller operates in Auto Exposure mode. When the AUTO indicator light is off, the controller can be

switched to Manual, Shutter, Iris, or Gain mode.

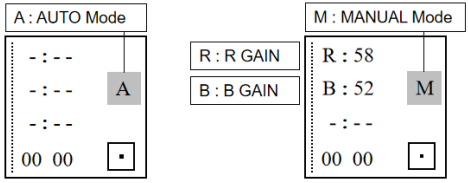
The adjustment knobs on the left side allow you to fine-tune the following parameters: Shutter, Iris, B/R Gain, and Brightness.



【WB MODE】 When the AUTO indicator light is on, the controller operates in AUTO/ATW (Auto Tracking White Balance) mode. When the AUTO indicator light is off, the controller can be switched to one of the following modes: Manual, Indoor, Outdoor, Sodium Lamp, or Fluorescent Lamp.

The first two adjustment knobs on the left side of the keyboard allow you to fine-tune

the Red Gain and Blue Gain values.



【TRIGGER】 In One-push mode, customer can set up an ideal white balance.

Tip: **One-Push White Balance (WB Push) Setup**

1. Switch the camera to One-Push WB mode (the "WB PUSH" indicator light will turn on).
2. Place a white sheet of paper or another neutral white object in front of the camera lens, filling the frame.
3. Press the "Trigger" button. The camera will automatically adjust the white balance to match the lighting condition.

For best results, perform this adjustment under the same lighting conditions as your actual shooting environment.

【AF/MF】 AF indicator light is "ON", the controller operates in Auto Focus mode. AF indicator light is "OFF", the controller is in Manual Focus mode.

In Manual Focus mode, the third adjustment knob on the left side of the keyboard is used to adjust Focus +/−.

Note: If both Exposure and Focus are set to Manual mode, the third knob will prioritize Focus adjustment.

****【G/F | AF/MF】 AV-3207 AT version**

Focus Mode (AF Indicator Light on)

- ON: Auto Focus mode.
- OFF: Manual Focus mode. The third knob on the left can be used to adjust Focus +/−.

Button Operations

- Short press 【G/F | AF/MF】: Switches between Brightness (Gain) control and Focus control.
- Long press 【G/F | AF/MF】: Switches between Auto Focus and Manual Focus modes.

Note: If both Exposure and Focus are set to Manual mode, the third knob will prioritize Focus adjustment.

【PUSH FOCUS】 One-time Autofocus. 💡 Tip Use this function to quickly reset to autofocus if the camera loses focus.

3.6.3 Numeric Button Area

【0~9】+【SET】 Set the presets.

【0~9】+ Short press【CALL/CLEAR】 Call the presets.

【0~9】+ Long press【CALL/CLEAR】 Clear the Presets.

Note: Up to 128 presets can be set and recalled.

3.6.4 Parameters and Speed Adjustment Area

【−SHARPNESS+/−PRESET SPEED+】 Adjust the sharpness. / Adjust the preset speed.

【−WDR+/−PT SPEED+】 Adjust the WDR. / Adjust the camera PT speed.

【−CONTRAST+/−Z SPEED+】 Adjust the contrast. / Adjust the camera zoom speed.

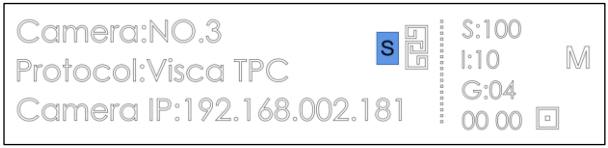
【−SATURATION+/−ZOOM+】 Adjust the saturation. / Adjust the camera

lens zoom.

3.6.5 Other Button Areas

【**SHIFT**】 Mode Switching: Parameter vs. Speed Adjustment

To toggle between Parameter Adjustment Mode and Speed/Zoom Control Mode:



SHIFT Active:

- The screen displays “S”.
- The four control buttons now operate as parameter adjustment controls (e.g., exposure, white balance, etc.).

SHIFT Inactive (no “S” on screen):

- The same buttons switch to speed and zoom control functions, allowing you to adjust pan/tilt speed and zoom level.

【**BLC ON/OFF**】 Toggles Backlight Compensation.

- Short press to turn ON.
- Short press again to turn OFF.

*【**BLC / AT CONTROL**】 **Auto Tracking Version (AT version)**

- When SHIFT is active or “S” is displayed**:** This button toggles Backlight Compensation ON/OFF.
- When SHIFT is inactive or “S” is not displayed: This button switches Auto-Tracking ON/OFF.

【**SEARCH**】Automatically detect and display available camera IP addresses.

*【**SEARCH/AT MODE**】 **Auto Tracking Version (AT version)**

- When SHIFT is active or “S” is displayed**:** This button toggles searching available camera IP addresses.
- When SHIFT is inactive or “S” is not displayed: This button switches Auto-Tracking position mode: Left, Right or Center

【HOME/OK】 Returns the camera to its initial home position.

【POWER/RESET】 Short press to control the camera power ON or OFF. Long press to reset the camera.

【CMENU/KMENU】 Short press to open the camera menu, long press to open the keyboard menu.

3.6.6 Joystick Control

【Up】【Down】【Left】【Right】 Use the joystick to control the camera in 4 directions.

【Zoom＋】 Turn the joystick clockwise to zoom in.

【Zoom－】 Turn the joystick counterclockwise to zoom out.

【 Lock 】 When controlling the camera, press the LOCK button to enable continuous movement. The camera will keep rotating in the last moving direction until one of the following occurs:

- The set lock time is exceeded, or
- The camera reaches its max Pan/Tilt limit.

4.1 Keyboard Menu Instructions:

- Short Press CMENU/KMENU button to open the camera menu;
- Long press CMENU/KMENU button to open the keyboard menu;
- Use the joystick:
  - Up/ Down to scroll through menu options.
  - Right to enter a submenu.
  - Left to return to the previous page.

Note: A short press of the CMENU/KMENU button also returns to the previous page. The numeric keys (0–9) can be used to set corresponding parameters in certain sections.

4.2 Menu options:

System setting	**Language**	Chinese/English
	Brightness	1~15
	Backlight	AUTO/ON/OFF
	Screen Prt	10s~180s
	DHCP	OFF/ON
	Local IP	192.168.001.180（default）
	Mask	255.255.255.000
	Gateway	192.168.001.001
	Run Link	OFF/ON
	Reset	NO/YES
	FSwitch	OFF/ON

Camera setting	**Camera**	The keyboard can set 7 camera addresses: CAM1~CAM7
	Protocol	VISCA Serial, Pelco-P, Pelco-D, VISCA over IP, VISCA TCP, VISCA UDP, ONVIF, NDI (optional)
	IP Addr / Address	Set the camera IP address or camera address.
	Port / Baudrate	Set the port number or baud rate. Default port numbers for each IP protocol: ONVIF: 8000, NDI: 5961, VISCA: 52381
	Username	Username setting, default: admin
	Password	Password setting, default: admin

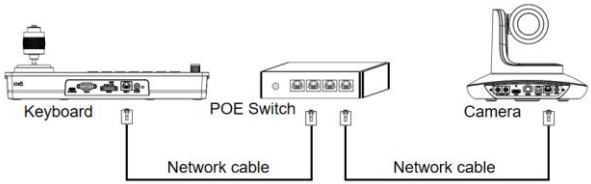
PTZ Settings	**Pan Reverse**	Reverse the control direction.
	Tilt Reverse	Reverse the control direction.
	Preset PT Spd	Set preset PT speed: 5~24
	Preset Z Spd	Set preset Zoom speed: 1~7
	Focus Speed	Set focus sensitivity: 0~7
	Lock Time	Set lock time: 2~20(s)

Password setting	**New PSD**	Create new password.
	Confirm	Confirm the new password.
	Enable	Enable the new password.
	Version	Keyboard firmware version.

5.1 Connection in network mode:

5.1.1 Connecting the Keyboard Controller to a Camera via PoE Switch:

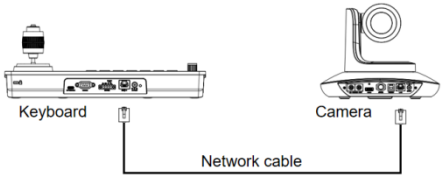
- Ensure the keyboard controller and the camera are connected to the same LAN through a PoE switch.
- Configure the following settings so they match between the controller and the camera:
  - Network segment
  - Protocol
  - IP address
  - Port number



5.1.2 Direct Connection Between Keyboard Controller and Camera:

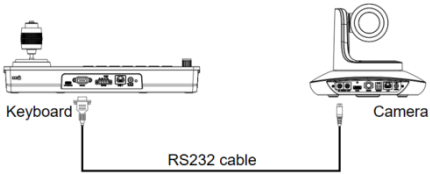
- Connect the keyboard controller directly to the camera using an Ethernet cable.
- Configure the following settings so they match between the controller and the camera:
  - Network segment
  - Protocol
  - IP address

- Port number

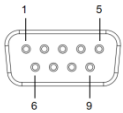


5.2 Connection in RS232 mode:

Connect the controller with camera via RS232 cable, set correct protocol, address and baud rate. Once the settings are aligned, the controller can control the camera.



Line Sequence： Connect the controller with camera via RS232 cable. Connect controller pin 1 RXD with camera input interface TXD; connect controller pin 2 TXD with camera RXD; connect controller pin 3 GND with the camera GND.



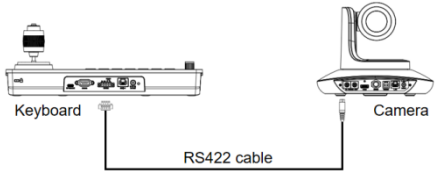
Keyboard	Camera
RXD <---------->	TXD
TXD <---------->	RXD
GND <---------->	GND

DB9 Male	Pin Number	2	3	5	1,4,6	7,8

(Pin type)	Signal Definition	RXD	TXD	GND	Internal connection	Internal connection

5.3 Connection in RS422 mode:

Connect the controller with camera via RS422 cable, set correct protocol, address and baud rate. Once the settings are aligned, the controller can control the camera.



Line Sequence： Use the RS422 connection. Let the controller pin 1 TXD + connect to the camera's RXD-, the controller pin 2 TXD - connects to the camera's RXD +, the controller pin 3 RXD + connects to the camera's TXD -, the controller pin 4 RXD - connects to the camera's TXD+.

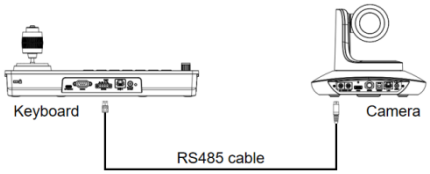
Keyboard		Camera
TXD＋	<---------->	RXD＋
TXD－	<---------->	RXD－
RXD＋	<---------->	TXD＋
RXD－	<---------->	TXD－

Note: Some cameras do not support RS422 control.

5.4 Connection in RS485 mode:

Connect the controller with camera via RS485 cable, set correct protocol, address

and baud rate. Once the settings are aligned, the controller can control the camera.

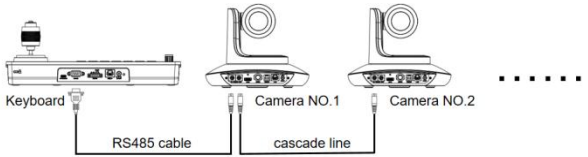


Line Sequence： Use the RS485 connection. Let the controller pin 1 TXD + connected to the camera RXD-, the controller pin 2 TXD- connected to the camera RXD +.

Keyboard		Camera
TXD＋	<---------->	RXD＋
TXD－	<---------->	RXD－

5.5 Cascade in RS232, RS422, RS485 mode：

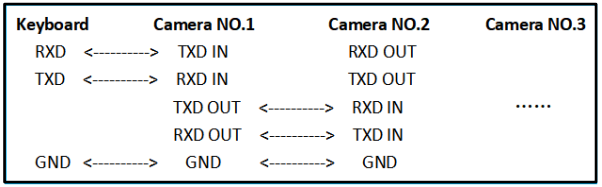
Connect the cameras in daisy chain as shown below:



Line Sequence：

- Connect the RS232 output port of the controller to the RS232 input port of the first camera.
- Connect the RS232 output port of the first camera to the RS232 input port of the second camera.
- Configure the following settings correctly:
  - Protocol
  - Camera address
  - Baud rate

Once configured, the controller will be able to control the connected cameras.



6.1 Controller Web User Interface

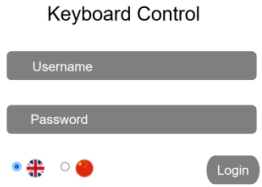
- Connect the controller to your PC using an Ethernet cable.
- Ensure both the controller and the PC are in the same LAN.

*For detailed instructions on accessing the controller via IP, please refer to the How-to materials available on our website: www.avipas.com

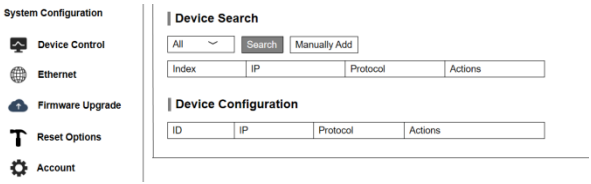
- Open a web browser and enter the controller's IP address in the address bar (default: 192.168.1.180).

Log in using the default credentials:

- Username: admin
- Password: admin



Once logged in, you can configure the controller in the System Configuration page of the web interface, as shown below:



6.2 Device Control

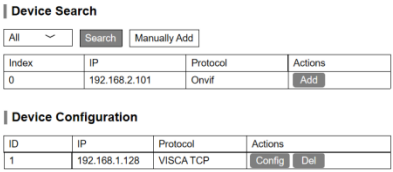
6.2.1 Device Search

The controller can search for devices within the same LAN and automatically add them to the Device Configuration section.

Alternatively, you can manually add cameras by entering their IP address and protocol.

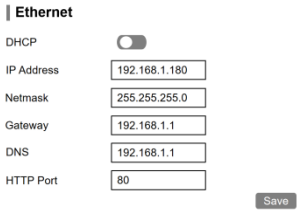
6.2.2 Device Configuration

Modify configured devices' IP address, protocol and port number.



6.3 Ethernet Parameter

Set the network parameters of the controller, including DHCP switch, IP Address, Netmask, Gateway, DNS, HTTP Port.



6.4 Firmware Updates

The current firmware version will be displayed on the screen. To upgrade, click Select File and upload the corresponding firmware file.

Important: Do not power off or disconnect the device during the upgrade process.

6.5 Reset Options

Reset/Reboot: Resets all parameters and reboots the device.

Reboot: Restart the device.

6.6 Account

Set login account and password of the controller.

Frequently Asked Questions	
Description	**Solution**
Cannot control the camera in network mode.	Check if the Ethernet cable is connected properly.
	Check whether the camera supports corresponding protocol.
	Check whether the connection status icon is displayed on the screen. If the camera connected successfully, the icon "  " will show up.
	Check whether the IP address, protocol and port number set on the controller are consistent with the camera.
	Check whether the controller and the camera are on the same LAN.
Cannot control the camera via RS232, RS422, RS485.	Check the connection of RS232, RS422, RS485;
	Check whether T+, T-, R+, R- of RS422 are connected properly; Check whether T+, T- of RS485 are connected backwards.
	Check whether the address, protocol and baud rate set on the controller are consistent with camera's setting.
Multiple cameras connected, but some of them cannot be control.	Check whether the cable connected properly;
	Check whether the camera address set on controller matches with each other.
Multiple cameras connected, some cameras responding to control signal at same time.	Check whether the address, protocol and baud rate set on the controller are consistent with camera's setting; Check whether camera addresses exist conflicts.

Warranty

Thank you for choosing AVIPAS Inc. products.

This Limited Warranty applies to AV-3207 the 4D Serial & IP Joystick Controller purchased from AVIPAS Inc. It covers defects under normal use during the warranty period.

- Warranty Period: AVIPAS Inc. provides a two (2)-year warranty from the date of purchase for this keyboard controller.
- Coverage: During the warranty period, AVIPAS Inc. will repair or replace qualified products at no charge.
- Exclusions: This warranty does not cover issues caused by, but not limited to: improper handling, misuse, or damage not resulting from material defects.

Warranty Service: To request warranty service, please send an email to service@avipas.com with your product details and proof of purchase. We will evaluate the case, determine whether a repair or replacement is required, and inform you of any applicable costs.

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