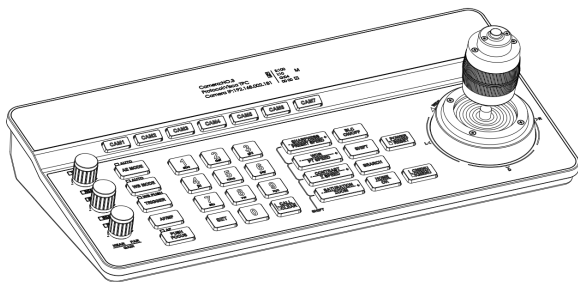# AViPAS

Model: AV-3207
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 can only be used in the specified conditions in order to avoid any damage to the controller:

1. Do not subject the controller to rain or moisture. Do not subject the controller to corrosive gas or liquid.

2. Do not dismantle the controller. Otherwise, you may risk receiving an electric shock. In case of unintended equipment operation, please contact an authorized engineer.

3. Do not operate the controller under unspecified temperature, humidity or power supply.

4. Please use soft and dry fabric for the clean purpose.

5. Please use this product within the suitable temperature and humidity range. Operating temperature: -10℃~ 50℃, humidity ≤ 80%.

Electronic Safety:

1. Installation and operation must accord with electric safety standards.

2. Avoid pressure, vibration or soakage during transport, storage, installation and usage.

3. The power supply of this product is DC 12V, max electrical current is 1A. It is recommended to use the power adapter included in the package.

Power supply polarity:
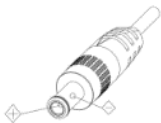
2.1 Packing List

When unpacked, check if all supplied accessories are included:

Control keyboard	1PCS
Power Adapter	1PCS
Power Cord	1PCS
RS232 Cord	1PCS
User Manual	1PCS

2.2 Wiring
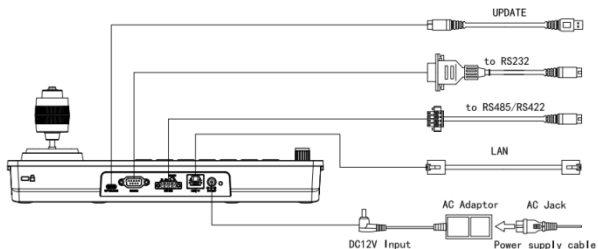
2.3 Bottom Dialing Switch

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			
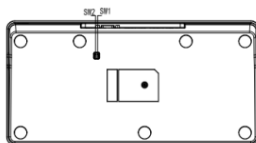
3.1 Product Features:

1. Support multiple network interfaces, including RS232, RS422 and RS485.
2. Supports VISCA Serial, Pelco-P, Pelco-D, VISCA over IP, VISCA TCP, VISCA UDP, ONVIF protocols.
3. Equipped with seven camera shortcut control buttons.
4. Support button keys backlight.
5. Support set, call and clear presets.
6. Support camera PTZ speed adjustment.
7. Support daisy chain function (Max 7 cameras)
8. Support camera On Screen Display menu.
9. Supports standard POE (Power Over Ethernet).
10. Support 10M, 100M adaptive network RJ45 connection.

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
Upgrade Interface	Type-C
Display Screen	3.12" OLED screen, blue light, 256×64 pixels Display Screen
Working power	12V═1A
Working Temperature	-10℃~50℃
Working Humidity	≤80%
Storage Temperature	-20℃~60℃
Storage Humidity	≤90%
Size	320.5mm×156.5mm×118mm
Weight	1.05kg

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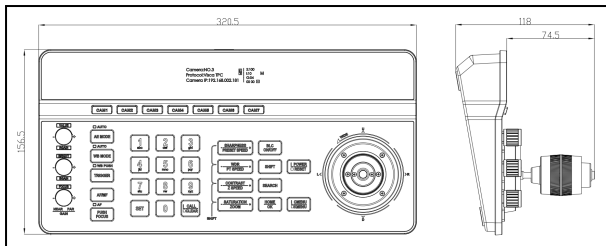
3.4 Interface Description：
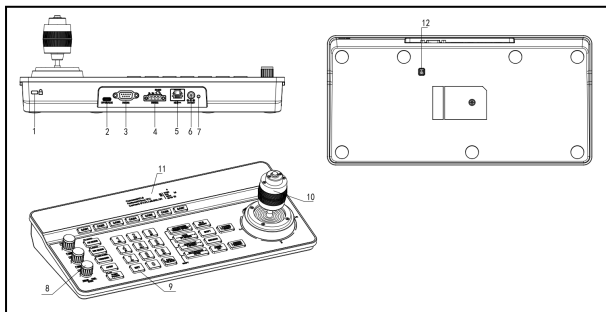
1. Lock Port	5. Ethernet Port	9. Button
2. Type-C Upgrade Interface	6. Power Input	10. Joystick
3. RS232 Interface	7. Indicator light	11. Display screen
4. RS485 Interface	8. Knob	12. Dial switch

3.5 Display Screen：
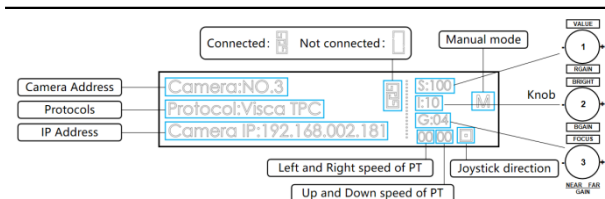
3.6 Button Function:
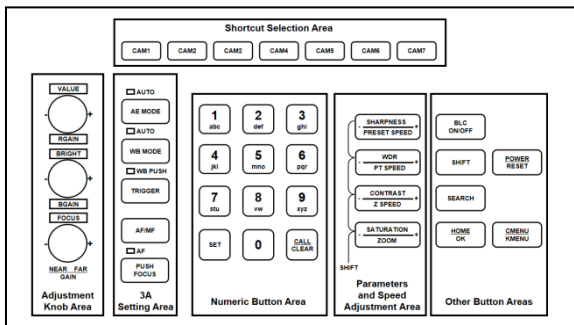
3.6.1 Shortcut Selection Area
【CAM1】~【CAM7】 Select the corresponding camera.

3.6.2 Adjustment Knob and 3A Setting Area
【AE MODE】 When the "AUTO" indicator light is on, the controller is under auto exposure mode. When the "AUTO" indicator light is off, the controller can switch between Manual/Shutter/Iris/Gain mode. The knobs on the left side can be used to adjust parameters for Shutter, Iris, B/R Gain and Brightness.

```
S : SHUTTER
B : BRIGHT
```

```
S : SHUTTER Mode
S : 100
B : 08        S
 - : - -
00  00        ·
```

```
I : IRIS
B : BRIGHT
```

```
I : IRIS Mode
I : 10
B : 08        I
 - : - -
00  00        ·
```

```
B : BRIGHT
```

```
B : BRIGHT Mode
 - : - -
B : 11        B
 - : - -
00  00        ·
```
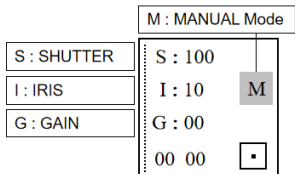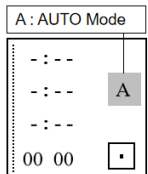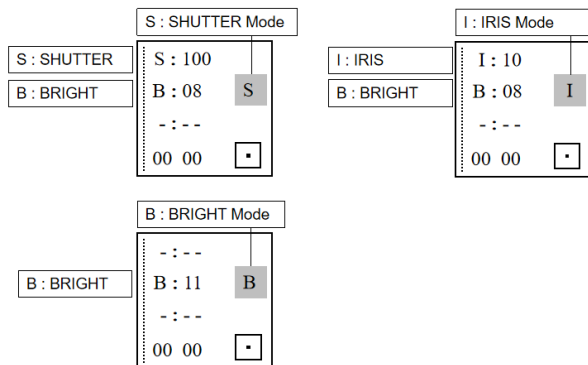
【**WB MODE**】 When the "AUTO" indicator light is on, the controller is under AUTO/ATW mode. When the "AUTO" indicator light is off, the controller can switch between Manual/Indoor/Outdoor/Sodium lamps/Fluorescent lamps modes. The user can adjust red gain and blue gain value through the first two knobs on the left side of the keyboard.
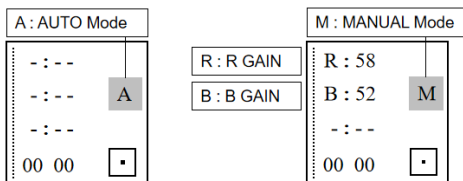
【TRIGGER】 In One-push mode ("WB PUSH" light is on), the automatic white balance will turn on.

【AF/MF】 The "AF" indicator light will turn on under Auto Focus mode. Otherwise, the controller is under Manual Focus mode. Focus +/- can be adjusted by the third knob on the left side of the keyboard.

Note: When exposure and focus are under manual mode at same time, then the 3rd knob will prioritize adjusting the focus.

【PUSH FOCUS】 Autofocus once.

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.

Note: Press the SHIFT button to switch between parameter setting mode and speed setting mode. The screen will display "S" when SHIFT is pressed.

When "S" is shown on the screen, these 4 buttons mentioned above can be used for parameter setting.

Otherwise, these 4 buttons can be used for speed setting and zoom.

```
Camera:NO.3                    S  [icon]  : S:100
Protocol:Visca TPC                       : I:10      M
Camera IP:192.168.002.181                : G:04
                                         : 00 00  [icon]
```
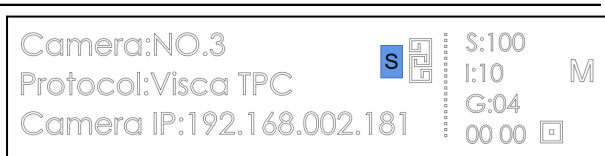
3.6.5 Other Button Areas

【BLC ON/OFF】Backlight compensation on / off.

【SHIFT】 Switch between parameter adjustment mode and speed adjustment mode.

【SEARCH】Search for IP addresses.

【HOME/OK】Return to the original position of the camera.

【POWER/RESET】Short press to control the camera power, 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 and pressing the "lock" button, the camera will keep rotating in the previous moving direction until the set lock time is exceeded or the camera rotates to the limit position.

4.1 Keyboard Menu Instructions:

Long press CMENU/KMENU button to open the keyboard menu; Move the joystick Up or Down to view the menu options; Right to enter submenu; Left to return to the previous page.

Note: Short press CMENU/KMENU can also return to the previous page; numeric keys 0~9 can set the corresponding parameters in some sections.

4.2 Menu options:

	Language	Chinese/English
	Brightness	1~15
	Backlight	AUTO/ON/OFF
System setting	Screen Prt	10s~180s
	DHCP	OFF/ON
	Local IP	192.168.001.180（default）
	Mask	255.255.255.000
	Gateway	192.168.001.001

	Camera	The keyboard can set 7 camera addresses: CAM1~CAM7
	Protocol	VISCA Serial, Pelco-P/D, VISCA over IP, VISCA TCP/UDP, ONVIF
Camera setting	IP/ Cam 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
	Pan Reverse	Reverse the control direction.
	Tilt Reverse	Reverse the control direction.
PTZ setting	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)
	New PSD	Create a new password.
Password Setting	Confirm	Confirm the new password.
	Enable	Enable the new password.
	Version	Keyboard firmware version.

5.1 Connection in network mode:

5.1.1 The keyboard controller connects with the camera through PoE switch:

In the same LAN, set the same network segment, correct protocol, IP address and port number, then you can control the camera.
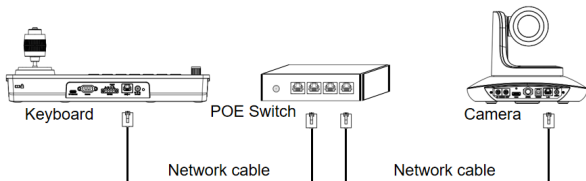
5.1.2 The keyboard controller connects with the camera directly:

Connect the controller with the camera directly via Ethernet cable, set the same network segment, correct protocol, IP address and port number, then you can control the camera.
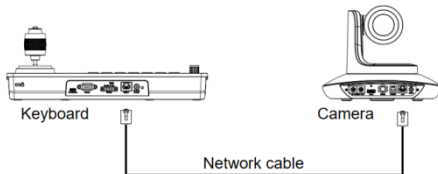
5.2 Connection in RS232 mode:

Connect the controller with the camera via RS232 cable, set correct protocol, address and baud rate, then you can control the camera.

Keyboard

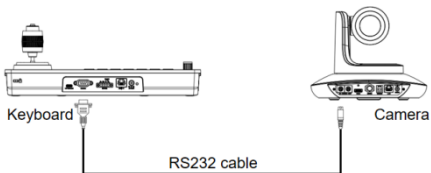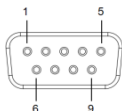Camera

RS232 cable

Line Sequence：Connect the controller with the 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 type)	Pin Number	2	3	5	1,4,6	7,8
	Signal Definition	RXD	TXD	GND	Internal connection	Internal connection

5.3 Connection in RS422 mode:

Connect the controller with the camera via RS422 cable, set correct protocol, address and baud rate, then you can control the camera.

Keyboard

Camera

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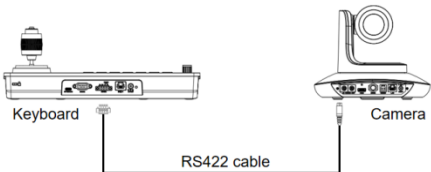
Line Sequence：Use the RS422 connection. Let the controller pin 1 TXD + connects to the camera's RXD+, the controller pin 2 TXD - connects to the camera's RXD -, the controller pin 3 RXD + connects to the camera's TXD +, the controller pin

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 the camera via RS485 cable, set correct protocol, address and baud rate, then you can control the camera.

Keyboard   Camera

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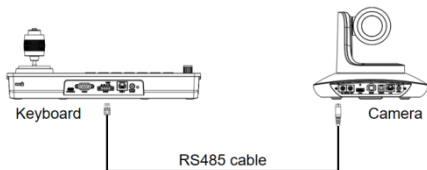
Line Sequence：Use the RS485 connection. Let the controller pin 1 TXD + connected to the camera RXD+, the controller pin 2 TXD- connected to the camera RXD -.
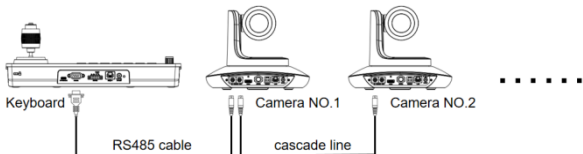


```
Keyboard          Camera
  TXD+  <--------->  RXD+
  TXD-  <--------->  RXD-
```

5.5 Cascade in RS232, RS422, RS485 mode：

Connect the cameras in daisy chain as shown below:

Keyboard   Camera NO.1   Camera NO.2   · · · · · ·

RS485 cable   cascade line

Line Sequence：Use RS232 cascade connection. Connect the output of the controller with the input port of the first camera; connect the output port of the first camera with the output port of the second camera. Set correct protocol, address, baud rate, then you will be able to control the cameras.

Keyboard		Camera NO.1		Camera NO.2	Camera NO.3
RXD	<---------->	TXD IN		RXD OUT	
TXD	<---------->	RXD IN		TXD OUT	
		TXD OUT	<---------->	RXD IN	······
		RXD OUT	<---------->	TXD IN	
GND	<---------->	GND	<---------->	GND	

6.1 Controller Web User Interface

Connect the controller with the PC through Ethernet cable. Make sure the controller is in the same LAN with your PC. (For full instruction about how to access controllers via IP, please refer to How-to material in our website: www.avipas.com). Open a browser, enter the controller's IP address in the address bar (default: 192.168.1.180). Login with default username and password: admin/admin.

Keyboard Control

Username

Password

Login

In the web user interface, you can change controller's settings in system configuration page, as shown below:

System Configuration

- Device Control
- Ethernet
- Firmware Upgrade
- Reset Options
- Account

Device Search

All ⌄   Search   Manually Add

Index	IP	Protocol	Actions

Device Configuration

ID	IP	Protocol	Actions

6.2 Device Control

6.2.1 Device Search

Searching for devices within the same LAN and add to Device Configuration section; Or enter camera's IP addresses/protocols manually.

6.2.2 Device Configuration

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

Device Search

| All ⌄ | Search | Manually Add |

Index	IP	Protocol	Actions
0	192.168.2.101	Onvif	Add

Device Configuration

ID	IP	Protocol	Actions
1	192.168.1.128	VISCA TCP	Config Del

6.3 Ethernet Parameter

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

Ethernet

DHCP	⬤
IP Address	192.168.1.180
Netmask	255.255.255.0
Gateway	192.168.1.1
DNS	192.168.1.1
HTTP Port	

6.4 Firmware Upgrade

The current firmware version will display on the screen. For firmware upgrade, please choose 'select file' and upload corresponding firmware files. Please do not power off during the upgrade process.

Firmware Upgrade

Control Version	1.0.0.1
Device Name	TV3308 Camera
Bootloader Version	V1.0.0
System Version	V1.0.0
APP version	V263
Upgrade	select File

6.5 Reset Options

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

Reboot: Reboot the device.

Reset Options

Reset/Reboot

Reset all camera setting to their default values and reboot

Reboot

6.6 Account

Set the login account and password of the controller.

Account Settings

Account	
Password	
Confirm Password	

Save

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 the corresponding protocol.
	Check whether the connection status icon displays 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 the camera's setting.
Multiple cameras connected, but some of them cannot be controlled.	Check whether the cable connected properly;
	Check whether the camera address set on the controller matches with each other.
Multiple cameras connected, some cameras responding to control signals 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.

Warranty

Thank you for your interest in the products of AVIPAS Inc.

This Limited Warranty applies to this 4D Serial & IP Joystick Controller purchased from AVIPAS Inc. This Limited Warranty covers any defect in material and workmanship under normal usage within the Warranty Period. AVIPAS Inc. will repair or replace the qualified products at no charge.

AVIPAS Inc. provides a two (2)-year warranty (from the date of purchase) for this keyboard controller.

This Limited Warranty does not cover problems including but not limited to: improper handling, malfunction or damage not resulting from defects in material.

To receive warranty service, please contact AVIPAS Inc. first. We will decide whether a repair or replacement is needed and will advise you of the cost of such repair or replacement.

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