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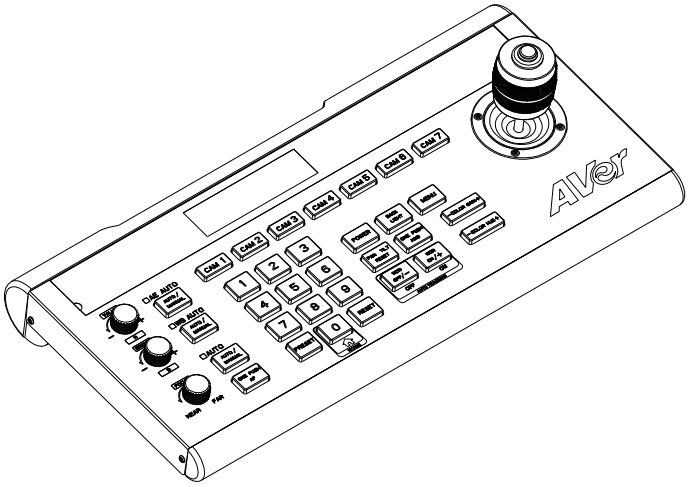

PTZ Camera Controller

User Manual

Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

DISCLAIMER

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WARNING

- To reduce risk of fire or electric shock, do not expose this appliance to rain or moisture. Warranty will be void if any unauthorized modifications are made to the product.
- Do not drop the device.
- Use the correct power supply voltage to avoid damaging the camera.
- Do not place the device where the cord can be stepped on, as this may result in fraying or damage to the lead or the plug.
- Hold both sides of the device to move it. Do not carry it by holding just one side.

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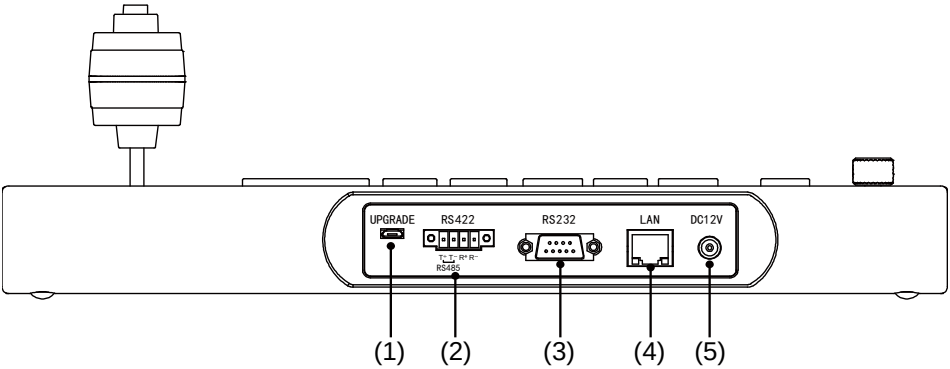
Product Introduction

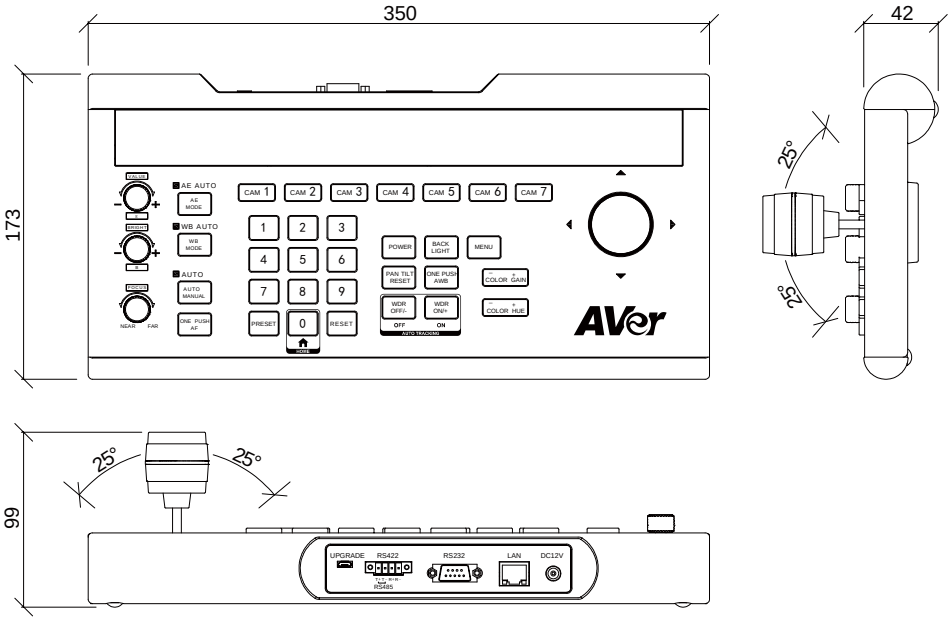
Overview



<table>
<tr><th>Name</th><th>Function</th></tr>
<tr><td>(1) Micro USB port</td><td>For upgrading the device firmware. Connect to a PC with a micro USB cable to upgrade.</td></tr>
<tr><td>(2) RS422/RS485 port</td><td>For connecting a camera via RS422 or RS485.
Please refer the table below for connection.
<table>
<tr><th colspan="2">RS422</th></tr>
<tr><td>Camera Controller</td><td>Camera</td></tr>
<tr><td>T+</td><td>R+</td></tr>
<tr><td>T-</td><td>R-</td></tr>
<tr><td>R+</td><td>T+</td></tr>
<tr><td>R-</td><td>T-</td></tr>
</table>
<table>
<tr><th colspan="2">RS485</th></tr>
<tr><td>Camera Controller</td><td>Camera</td></tr>
<tr><td>T+</td><td>RS485 A+</td></tr>
<tr><td>T-</td><td>RS485 B-</td></tr>
</table></td></tr>
<tr><td>(3) RS232 port</td><td>For connecting a camera via RS232.</td></tr>
<tr><td>(4) LAN port</td><td>For network connection.</td></tr>
<tr><td>(5) DC 12V</td><td>DC 12V power jack.</td></tr>
</table>

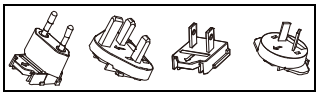
Dimensions

Unit: mm

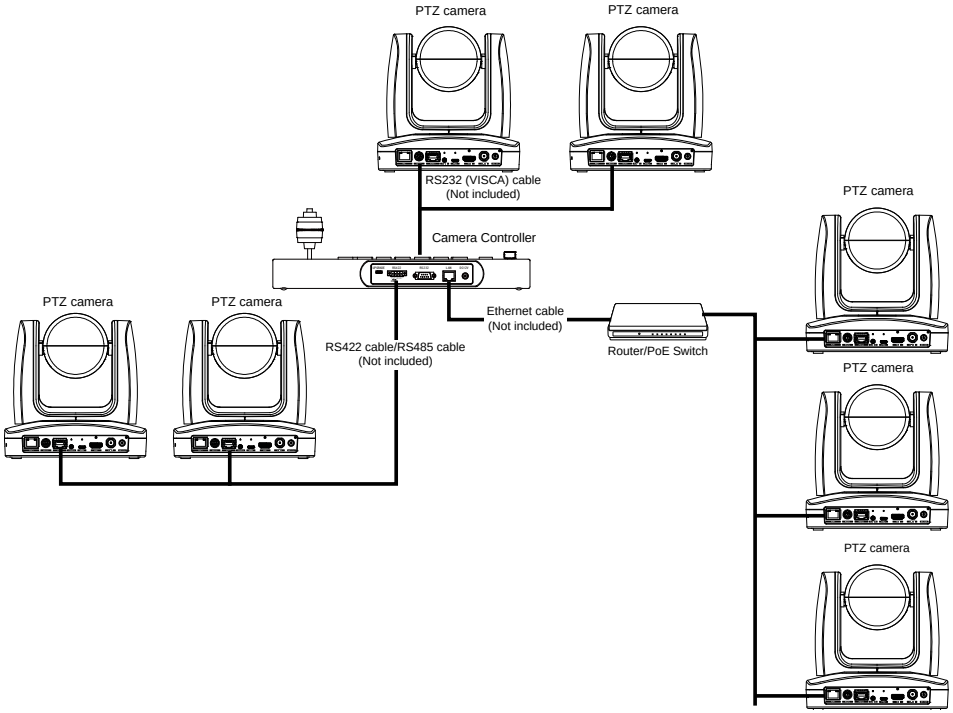


Connections

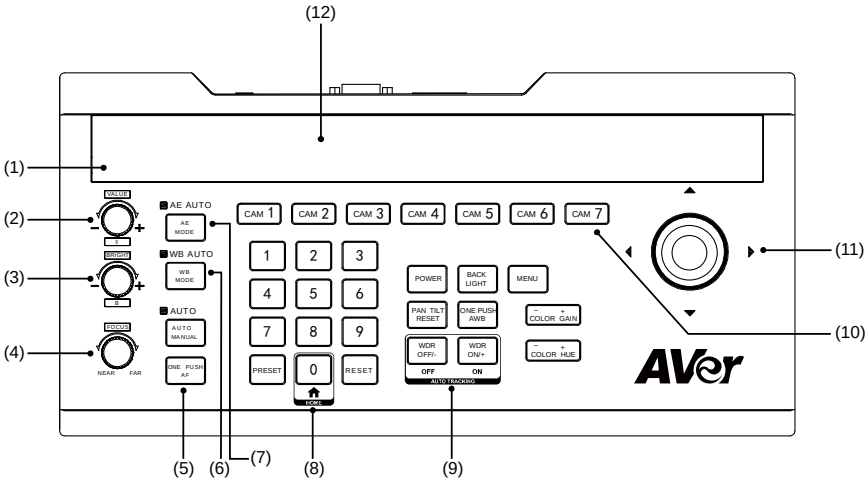
- **All devices must be connected to a power source and turned on.**
  [Note] Please use the power plug that your country supports. We provide four types of power plugs in the package: EU, US, UK, and AU.



- **The PTZ camera controller and the camera must be on the same network (LAN) segment.**

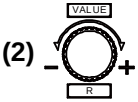


Function Buttons



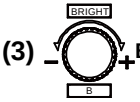
(1) Light sensor

Detects the environment brightness. When the keyboard backlight is set to **AUTO**, the keyboard will adjust the brightness of the keyboard panel according to the environment brightness. When the environment is bright, the backlight will turn off. When the environment is dark, the backlight will turn on.



(2) Value/R knob

For adjusting the camera's exposure parameters or red gain value. Turn clockwise to increase the value, and turn counterclockwise to decrease the value.



(3) Bright/B knob

For adjusting the camera's exposure parameters or blue gain value. Turn clockwise to increase the value, and turn counterclockwise to decrease the value.

(4) Focus knob

For adjusting the camera's focal length. Turn clockwise to adjust the near focus length, and turn counterclockwise to adjust the far focus length. (When this function is activated, the keyboard's focus mode will be changed to **MANUAL**.)

AUTO

(5) Auto focus buttons

For adjusting the camera's focus. When the **AUTO** indicator is on, it means the selected camera is in **AUTO** mode.

The **ONE PUSH AF** button triggers the one-time auto focus function. Each time the button is pressed, the camera will focus once, and the camera will enter auto focus mode.

Function Buttons (continued)

WB AUTO

(6)

WB MODE button

For modifying the camera's white balance mode. Press to toggle between the available modes. The **VALUE/R** and **VALUE/B** knobs perform different functions in different white balance modes (refer to the table below). When the **WB MODE** button indicator is on, the **VALUE/R** and **Bright/B** knobs are only available for white balance.

WB MODE	VALUE/R knob function	BRIGHT/B knob function
Auto	None	None
Manual	Red Gain	Blue Gain

AE AUTO

(7)

AE MODE button

For modifying the camera's exposure mode. Press to toggle between the available modes. In exposure mode, use **VALUE/R** and **BRIGHT/B** knobs to adjust the value.
When the **AE MODE** indicator is on, the **VALUE/R** and **BRIGHT/B** knobs adjust the exposure parameters.

AE MODE	VALUE/R knob	BRIGHT/B knob
Auto	None	Gain compensation
Manual	Shutter	Iris
Shutter priority	Shutter	Gain compensation
Iris priority	Iris	Gain compensation
Brightness priority	None	Brightness

(8) Preset function buttons

- **PRESET**: Saves and calls presets.
  - Save Presets: Press the **PRESET** button and its light will start to flash. Then, enter the preset number to save the preset. For example, press **PRESET** + 1 + 2 to set the preset as 12. Press **PRESET** again to accomplish the setting.
  - Call Presets: Preset number button(s) + **PRESET**. For example, press 1 + 2 + **PRESET** to call preset 12.
- **RESET**: Clears the presets. Press the **RESET** button and the **RESET** light will start to flash. Then, enter the preset number. For example, press **RESET** + 2 + 5 to clear preset 25.

(9) Camera function buttons

- **POWER**: Checks the camera power status (CAM 1 CAM 2 CAM 3 CAM 4 CAM 5 CAM 6 CAM 7). Press the **POWER** button, and the **CAM1** to **CAM7** button status lights will light up.

Green	Power on
White	Standby
Off	No camera is connected or detected

Press **POWER** + **CAM (1–7)** to turn the camera on/off.

- **BACKLIGHT:** Turns the backlight on/off.
- **MENU:** Enters or exits the setup menu. Press and hold for 3 seconds to enter the setup menu.
- **PAN TILT RESET:** Resets the pan/tilt position of camera.

Function Buttons (continued)

(9) Camera function buttons (continued)

- **ONE PUSH AWB:** Triggers a one-time white balance adjustment.
- **WDR OFF/- and Tracking OFF**
  - WDR OFF/-: Turns off or reduces the WDR function.
  - AUTO TRACKING OFF: Press and hold for 3 seconds to turn off the auto tracking function.
- **WDR ON/+ and AUTO TRACKING ON**
  - WDR ON/+: Turns on or increases the WDR function.
  - AUTO TRACKING ON: Press and hold for 3 seconds to turn on the auto tracking function.
- **COLOR GAIN -/+:** Adjusts the color gain value.
- **COLOR HUE -/+:** Adjusts the color hue value.

(10) CAM1–CAM7 buttons

Press the camera button to activate camera control (the camera indicator will turn green). Each camera button must be set to the camera's IP address and port (refer to "PTZ Camera Controller Operation" > "Ethernet Settings").

(11) Joystick

Use the joystick to zoom in/out and move the camera up/down, left/right, and clockwise/counterclockwise.
In the setup menu, use the joystick to move the cursor and modify parameters. To confirm a selection, press the button on top of the joystick.

(12) LED display panel

Displays the selected camera's status and related information, and the system menu.

PTZ Camera Controller Operation

Menu

Press the “MENU” button to enter the menu. Press the “MENU” button again to exit.

The main menu is as below shown:

1. System Settings
2. COM settings
3. Ethernet settings
4. Password settings

Using the joystick to select and set the parameters in the menu:

Right	Enter the submenu, move to the selection, or confirm the selected value
Left	Exit current selection or return to the last selection
Up	Move between menu selections or change the value
Down	Move between menu selections or change the value
Top button	Enter or confirm the selection

System Settings

The system settings menu is as shown below:

1. Language: English
2. LED brightness: Normal
3. Backlight: Auto
4. Joystick sensitivity: 7 ↓↓↓↓
5. Auto standby: Off ↑↑↑↑
6. IP address: 192.168.000.088:08090
7. About

[Note] “↓↓↓↓” and “↑↑↑↑” indicate the menu can page down or up.

- **Language**

  The system supports **English**, **Traditional Chinese**, and **Simplified Chinese**.

- **LED brightness**

  Adjust the PTZ camera controller’s LED panel brightness – **High**, **Low**, or **Normal**.

- **Backlight**

  Set up the backlight for the PTZ camera controller buttons – **Auto**, **Off**, or **On**.

System Settings (continued)

- **Joystick sensitivity**

  Set the joystick sensitivity level – **1–7**. The higher the joystick sensitivity is set, the smaller the movement necessary to produce rapid pan/tilt rotation.

- **Auto standby**

  Set the length of idle time before the PTZ camera controller enters standby mode – **1**, **2**, **5**, **10**, **20**, **30**, or **60** minutes.

- **IP address**

  Set up the PTZ camera controller's IP address and port. The default IP and port are 192.168.001.088: 5000.

  [Tip] Use the number buttons (0–9) to enter the IP address and port.

- **About**

  Displays the name of the PTZ camera controller, firmware version, and serial number.

COM Settings

The COM settings menu is as shown below:

1. Channel: CAM1
2. Address: 1
3. Baud rate: 9600
4. Protocol: Visca

- **Channel**

  Select the channel to set up. The channels correspond to the CAM1–CAM7 buttons on the PTZ camera controller.

- **Address**

  Set the channel address. The table below shows the available address values for different protocols.

  When the address is set to "Other," you can modify the address by pressing the corresponding channel button(s) after exiting the settings menu. For example, if the address for CAM1 is set to "Other," press "1" + "2" + "CAM1" to set the CAM1 address to 12.

Protocol	Address value
Visca[1]	1–7
SonyVisca[2]	1–7, other
Pelco-P	1–7, other
Pelco-D	1–7, other

1:

VISCA (RS232)	Serial Port(RS232/422/485): VISCA
	UDP VISCA

2:

Sony VISCA (IP)	IP: VISCA over IP

COM Settings (continued)

- **Baud rate**

  Set the baud rate for the channel (CAM1–CAM7) – **2400**, **4800**, **9600**, **19200**, or **38400**.

- **Protocol**

  Set the protocol for the channel (CAM1–CAM7) – **Visca**, **SonyVisca**, **Pelco-P**, or **Pelco-D**.

Ethernet Settings

Set up the camera's channel, IP address, and port on the PTZ camera controller.

The Ethernet settings menu is as shown below:

1. Channel: CAM1
2. Cam IP: 192.168.001.100
3. Port: 52381

- **Channel**

  Select the channel to setup. The channels correspond to the "CAM1–CAM7" buttons on the PTZ camera controller.

- **Cam IP**

  Set up the camera IP address. When a 3-digit number is entered, the cursor will automatically move to the next column. To enter a number with less than 3 digits, press the "RESET" button to move to the next column. To delete an incorrect entry, press the "PRESET" button.

  [Tip] Use the number buttons (0–9) to enter the IP address.

- **Port**

  Set up the camera connection port.

  [Tip] Use the number buttons (0–9) to enter the port.

Password Settings

Enable/disable and change the PTZ camera controller's password.

The password settings menu is as shown below:

1. Password: disable
2. Modify password

- **Password**

  Enable/disable the password function on the PTZ camera controller. The default password is "8888."

  When the password is enabled, the user needs to enter the password to access the menu.

  [Tip] Use the number buttons (0–9) to enter the password.

- **Modify password**

  Enter the current password, and then enter a new password. Re-enter the new password to confirm.

  [Tip] Use the number buttons (0–9) to enter the password.

VISCA Command List

Command Set	Command	Command Packet	Comments
AddressSet	Broadcast	88 30 01 FF	Address setting
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p=0 (Low) to 7 (High)
	Wide(Variable)	8x 01 04 07 3p FF	
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Variable)	8x 01 04 08 2P FF	p=0 (Low) to 7 (High)
	Near(Variable)	8x 01 04 08 3P FF	
	Auto Focus	8x 01 04 38 02 FF	AF ON/OFF
	Manual Focus	8x 01 04 38 03 FF	
	One Push	8x 01 04 18 01 FF	One Push AF Trigger
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	One Push WB	8x 01 04 35 03 FF	One Push WB mode
	Manual	8x 01 04 35 05 FF	Manual Control mode
	One Push	8x 01 04 10 05 FF	One Push WB Trigger
CAM_RGain	Up	8x 01 04 03 02 FF	Manual Control of R Gain
	Down	8x 01 04 03 03 FF	
CAM_Bgain	Up	8x 01 04 04 02 FF	Manual Control of B Gain
	Down	8x 01 04 04 03 FF	
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter Priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure
	Iris Priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure
	Bright	8x 01 04 39 0D FF	Bright Mode (Manual control)
CAM_Shutter	Up	8x 01 04 0A 02 FF	Shutter Setting
	Down	8x 01 04 0A 03 FF	
CAM_Iris	Up	8x 01 04 0B 02 FF	Iris Setting
	Down	8x 01 04 0B 03 FF	
CAM_Bright	Up	8x 01 04 0D 02 FF	Bright Setting
	Down	8x 01 04 0D 03 FF	

Command Set	Command	Command Packet	Comments
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Up	8x 01 04 0E 02 FF	Exposure Compensation Amount Setting
	Down	8x 01 04 0E 03 FF	
CAM_Backlight	On	8x 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_Preset	Reset	8x 01 04 3F 00 0p FF	p: Memory Number (=0 to 5) Corresponds to 1 to 6 on the Remote Commander.
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_Menu	On/Off	8x 01 06 06 10 FF	Display ON/OFF
Pan-tilt Drive	Up	8x 01 06 01 VV WW 03 01	VV: Pan speed 01 to 18 WW: Tilt Speed 01 to 17
	Down	8x 01 06 01 VV WW 03 02	
	Left	8x 01 06 01 VV WW 01 03	
	Right	8x 01 06 01 VV WW 02 03	
	UpLeft	8x 01 06 01 VV WW 01 01	
	UpRight	8x 01 06 01 VV WW 02 01	
	DownLeft	8x 01 06 01 VV WW 01 02	
	DownRight	8x 01 06 01 VV WW 02 02	
	Stop	8x 01 06 01 VV WW 03 03	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
CAM_Wdr	On	8x 01 04 3D 02 FF	Wdr ON/OFF
	Off	8x 01 04 3D 03 FF	
CAM_ColorGain	Direct	8x 01 04 49 00 00 00 0p FF	p: Color Gain Setting 0h(60%) to Eh(200%)
CAM_ColorHue	Direct	8x 01 04 4F 00 00 00 0p FF	p: Color Hue Setting 0h(-14 degrees) to Eh(+14 degrees)
CAM_MenuEnter		8x 01 7E 01 02 00 01 FF	Enter Submenu

Specifications

I/O port	
RS422/RS485 port	4-pin terminal
RS232 port	DB 9-pin male interface
LAN port (All communication ports can function simultaneously.)	RJ45 female port
Power plug	JEITA type-4 female
Upgrade port	Micro USB female port
Camera control	
Max support	255 PTZ cameras
Control protocol	VISCA , PELCO P/D
Display screen	OLED screen
Camera channel	7
Knobs	3
Joysticks	1
Control signal format	
Baud rate	2400bps, 4800bps, 9600bps, 19200bps, 38400bps
Data bits	8 bits
Stop bits	1 bit
Parity bits	None
Ethernet protocol	UDP / TCP /IP
Power	
Rated voltage	DC 12V
Rated current	0.3A max, 3.6W
Power consumption	24W
Physical	
Working temperature	0℃–40℃ (32℉–104℉)
Storage temperature	-20℃–60℃(-4℉–140℉)
Working temperature	Indoors
Dimensions (L*W*H)	350 mm x 173 mm x 99 mm
Weight	2.5 kg
Accessories	User manual / 4-pin terminal / power adapter/ power jack transfer cable