

PCO100

User Manual

V1.0



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1.Introduction

1.1 Overview

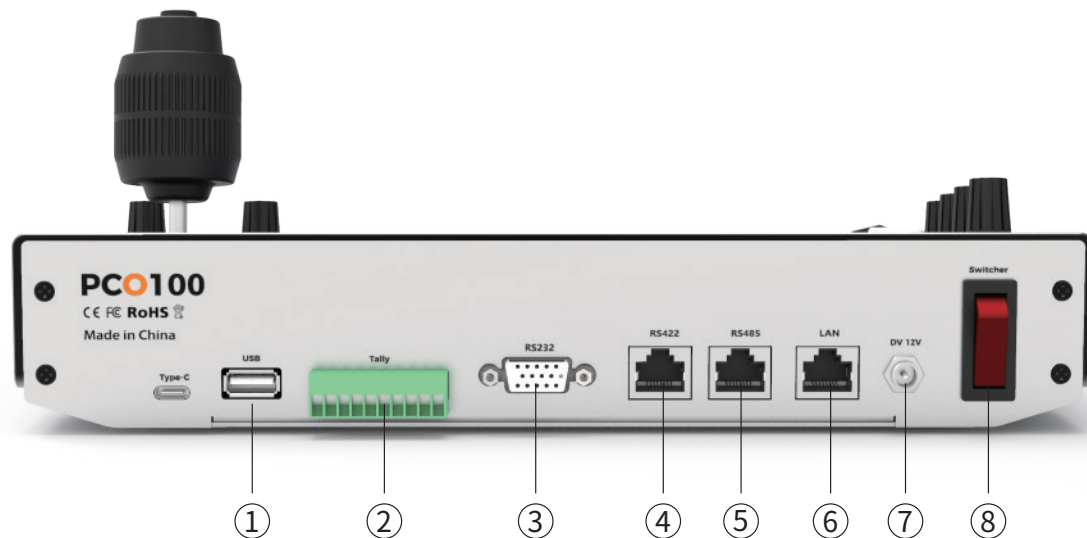
The PCO100 is a professional PTZ camera controller that supports RS-422/RS-485/RS-232/IP control. It can connect up to 255 cameras, providing control over aperture, focus, white balance, and real-time speed adjustments. It offers precise settings for controlling PTZ cameras, with a built-in 5.5-inch screen for real-time camera feed. This device is widely used among various industries, including education, conferences, telemedicine, exhibition services, and so on.

1.2 Key Features

- IP/RS-422/RS-485/RS-232 Cross-Protocol Hybrid Control
- Metal casing with a 5.5-inch LCD screen for in-house camera feed display
- Supports customized cruising, save and recall for user presets
- Supports VISCA, VISCA-Over-IP, VISCA-SONY, Onvif, and Pelco P&D protocols
- 10 short buttons connection for easy camera access
- capture & Review screenshots and save internally with an internal album function
- Supports controlling up to 255 cameras on the same network
(Visca protocol only supports up to 7 cameras)
- Customized built-in screen interface booting
- Fast control of exposure, aperture, white balance, focus, pan/tilt speed, and zoom speed
- Professional 4D joystick/pedal for zoom control
- IP cameras search automatically on the network, easy protocol and IP address configuration
- Multi-colored indicator lights on the buttons to guide users in identifying specific functions
- TALLY GPIO output to indicate the controlled camera

2. Interface Overview

2.1 Ports



1. USB Port: Used for upgrades
2. TALLY Port: For connecting TALLY lights
3. RS232 Port: Supports PELCO-D, PELCO-P, VISCA protocols
4. RS-422/RS-485 Ports: Supports PELCO-D, PELCO-P, VISCA protocols
5. IP Port: Supports ONVIF, VISCA-IP & VISCA-SONY protocols
6. DC 12V Power
7. Power Switch: Device turns on when the switch is in the ON position

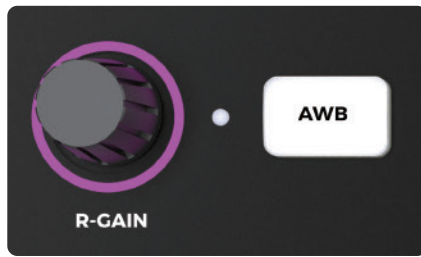
3. Button Functions

3.1 Exposure and White Balance

1. Shutter and Aperture Knob: Adjusts the camera's exposure. Short press the knob to switch between shutter and aperture adjustments. The AUTO knob is for switching between auto and manual modes. The screen will display the current status.



2. R-GAIN and B-GAIN Knobs: Adjust the red and blue gain values. The AWB button activates the auto white balance mode (solid light indicates auto mode). The ONE PUSH WB button performs a one-time auto white balance adjustment when pressed, with the current status shown on the screen.

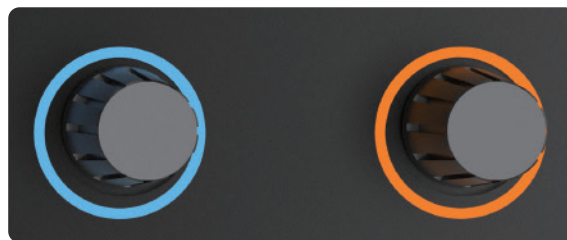


3.2 Focus, Zoom, and Rotation Adjustments

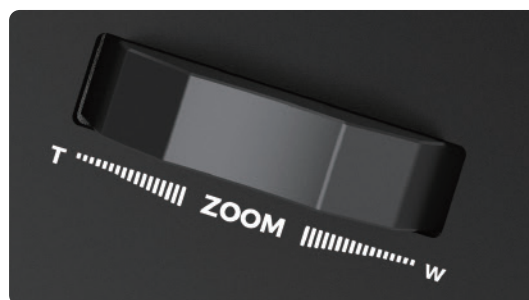
1. ONE PUSH AF Knob: Performs manual focusing. Pressing the knob shortly triggers a one-time auto-focus. The AUTO button switches between auto and manual focus modes. The button remains lit when it is in auto-focus mode.



2. The blue knob P/T adjusts the rotation speed, and the orange knob Zoom adjusts the zoom speed.



3. Press the T key on the seesaw to zoom in the image, press the W key to zoom out the image. Additionally, you can rotate the PTZ remote control to adjust the camera's focus length.



3.3 Camera call-up

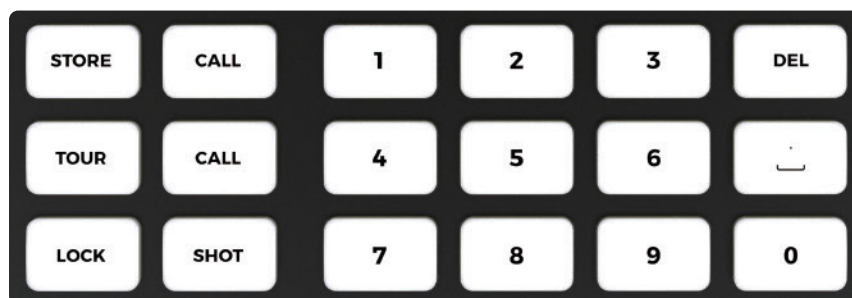
1. GROUP Button: Press the GROUP button to enter the camera group load state, and the button will stay lit when activated. While the button is lit, pressing the topmost numeric key (1~0) will load the corresponding camera group.
2. CAM Button: Press the CAM button to enter the camera load state, and this button will remain lit when activated. While the button is lit, pressing the numeric keys (1~0) will load the corresponding camera.
3. INQUIRY Button: Quickly access the "INQUIRY" menu, where you can check the current camera's information in the touch menu.

4. **SEARCH Button:** Quickly access the "SEARCH" menu, where you can automatically search for IP cameras in the touch menu.
5. **PTZ POWER Button:** Controls the switch on and off. (This function is not effective under Pelco_D/P protocol.)



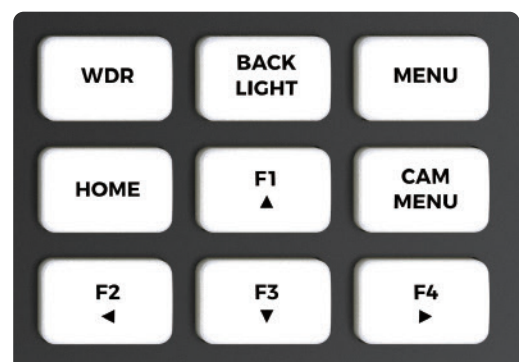
3.4 Camera Preset Setup

1. **STORE:** Press the button, and when the button is constantly lit, select the desired numeric key to save the current camera position; when you need to load a preset position, press the CALL button, next to STORE and then select the desired preset number to load the required preset position.
2. **Lock:** Press the LOCK key, and the controller's keyboard will be locked to prevent accidental touches.
3. **SHOT:** Screenshort button: Press to take a snapshot of the current PTZ view.
4. **TOUR:** PTZ Cruise Button: Click the button, select the number of positions to save for the cruise, and then you can set the cruise path; when you need to load the cruise path, first click the CALL button, next to the TOUR button, and then click the cruise number you need to load to invoke it.
5. **Numeric Keys:** Assist in inputting numbers & letters, etc. They can be used for setting the controller's IP, camera's IP, setting/calling/clearing camera preset positions, etc.



3.5 Auxiliary Keypad Area

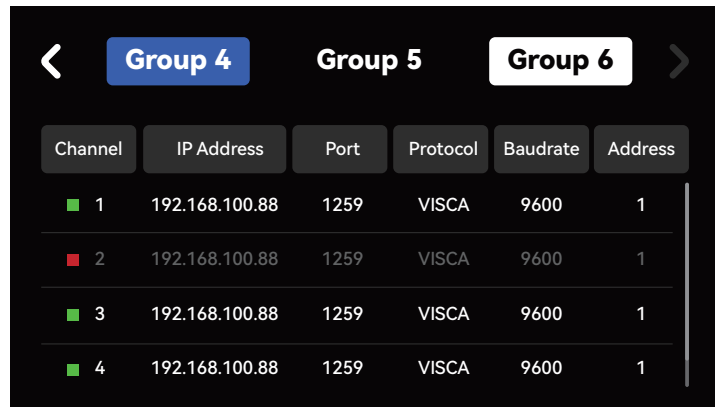
1. **CAM MENU:** Access the camera's built-in menu.
2. **MENU:** Menu button, return to the menu.
3. **HOME:** PTZ Home Position Key: Allows for a one-touch return to the initial position.
4. **WDR:** Wide Dynamic Range (WDR) Key: Used to turn on or off the wide dynamic range feature.
5. **BACK LIGHT:** Reduce screen brightness.
6. **F1-F4:** Shortcut Key: Allows for custom setting of key functions according to user requirements.



4. Menu Setting

4.1 Device List

Click to enter the Device List module. In this menu, you can view the IP addresses of camera added to the current device. Details such as the device's IP information, port number, and protocol will be displayed. Select the IP address of the camera you want to connect to, then click Connect.



The screenshot shows a mobile interface for the 'Device List' menu. At the top, there are three tabs: 'Group 4' (selected), 'Group 5', and 'Group 6'. Below the tabs is a table with the following columns: Channel, IP Address, Port, Protocol, Baudrate, and Address. The table contains four rows of data, all with the same IP address (192.168.100.88) and port (1259).

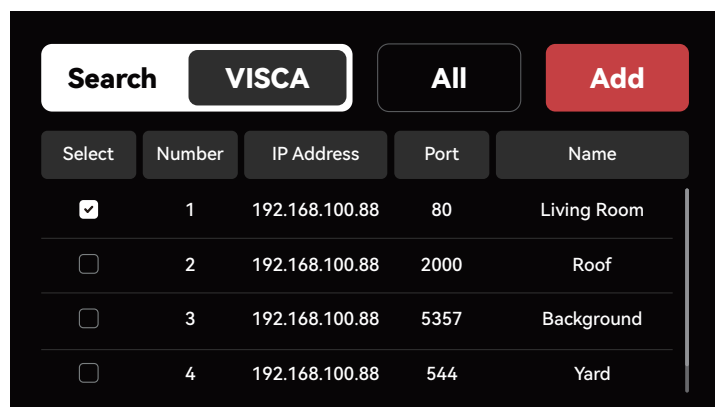
Channel	IP Address	Port	Protocol	Baudrate	Address
1	192.168.100.88	1259	VISCA	9600	1
2	192.168.100.88	1259	VISCA	9600	1
3	192.168.100.88	1259	VISCA	9600	1
4	192.168.100.88	1259	VISCA	9600	1

4.2 Add New Device

1. Automatically Search IP Cameras

It supports searching for cameras using VISCA-IP, ONVIF, and other protocols. Follow these steps:

- Click the Add New menu module or press the SEARCH button to access the camera search menu.
- After selecting the VISCA-IP or ONVIF protocol, the device will automatically search for cameras and display the IP addresses of available cameras.
- Select the devices you want to add by checking the corresponding boxes, then click Add in the upper-right corner. Choose the group number for saving, and press Enter to save.



The screenshot shows a mobile interface for the camera search results. At the top, there are four buttons: 'Search', 'VISCA' (selected), 'All', and 'Add'. Below the buttons is a table with the following columns: Select, Number, IP Address, Port, and Name. The table contains four rows of data, each with a checkbox in the 'Select' column.

Select	Number	IP Address	Port	Name
☒	1	192.168.100.88	80	Living Room
☐	2	192.168.100.88	2000	Roof
☐	3	192.168.100.88	5357	Background
☐	4	192.168.100.88	544	Yard

2. Manually Add Cameras

To manually add a camera:

- Click Add New, then select the desired camera group and number.
- Choose the protocol you want to use, input the camera's IP address, and click Add.

(The settings that can be modified on the manual addition page include: Camera ID, Camera Name, Camera Protocol, Camera IP, UDP Port, Username, Password, Baud Rate, Serial Port Interface, CAM Address, etc. Details are provided in the table below.)

Camera Name	The name of the camera, which can be customized. You can modify it using the Multi-function Digital Panel.
Protocol	The control protocol in use. When using a network connection, you can choose VISCA-IP, ONVIF, or VISCA-SONY protocols. For RS232/422/485 connections, you can choose VISCA, PELCO-D, or PELCO-P.
Interface	The control interface. Options include LAN, RS232, RS422, and RS485.
Port Number	The UDP port number for VISCA, default is 52381. Generally, this does not need to be changed unless required by the specific camera.
Group and Channel	The camera group. After saving, press the GROUP key and then the camera number key to call the corresponding camera.
IP Address	The IP address of the connected camera, which must be entered manually.
Stream Address	Fill in according to the camera's manual.
Username Password	The username, default is admin. Modify as needed based on the requirements of the specific camera. Use the Multi-function Digital Panel to input letters and numbers. Press Enter to toggle case. The password, also defaulted to admin, can be modified as required.

The screenshot shows a configuration menu with the following fields and values:

- Alias:** Camera
- Protocol:** VISCA (selected), ONVIF, NDI
- Group:** 6
- IP Address:** 192.168.100.88
- Stream URL:** tps:// 192.168.100.88
- Channel:** 2
- RTSP Auth:** ON (selected), OFF
- User Name:** Admin
- Password:** *****

At the bottom, there are two buttons: "Cancel" and "Add".

3. How to Add Multiple PTZ Cameras

To add multiple cameras, repeat the steps for 1. Automatic Camera Search and 2. Manual Camera Addition in sequence. Please note:

- When connecting multiple cameras via the network port, ensure that the IP addresses of the cameras do not overlap.
- When connecting multiple cameras using the same serial protocol, ensure that the addresses (Addr) of the cameras are unique. These should be sequentially set to 1, 2, 3, etc.

4. How to Call a Camera

After adding cameras, you can use shortcut keys to quickly call specific cameras:

- The "GROUP" and "CAM" keys are status keys. Pressing them to switch the operation mode of the numeric keys above.
- Numeric keys act as shortcuts to quickly select camera groups or individual cameras.

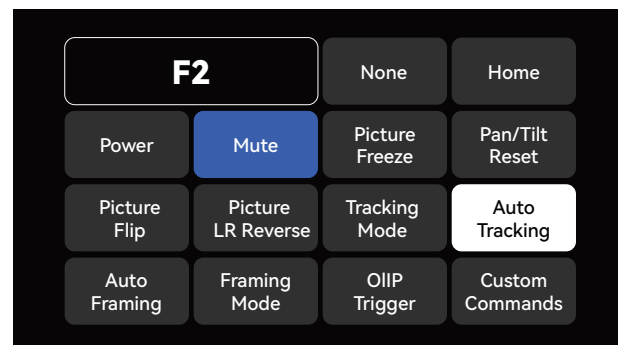
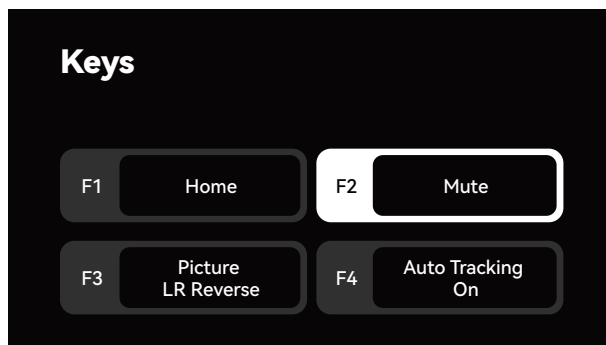
Key Behavior:

- When the "GROUP" key indicator is lit: You are in camera group selection mode. Pressing the numeric keys selects the corresponding camera group.
- When the "CAM" key indicator is lit: You are in camera selection mode. Pressing the numeric keys calls the camera corresponding to that number within the selected group.
- Once a camera is successfully connected, the corresponding numeric key will light up as an indicator.

4.3 Shortcut Keys

In this menu, you can configure the shortcut functions for F1-F4 keys:

1. Select the shortcut key you want to configure.
2. Click to access the options and choose the desired shortcut function.
3. Confirm the selection to complete the setup.



4.4 Network Settings

The controller identifies cameras through their IP addresses, so when connecting the camera and controller via a network port, the controller's IP address, subnet mask, and gateway must be configured. Ensure that both the camera and the controller are on the same local network.

1. DHCP

DHCP

When DHCP is enabled, the camera controller can automatically obtain an IP address through the router.

IP

- DHCP Enabled: Connect the camera controller to a DHCP-enabled router, and it will automatically obtain an IP address.
- DHCP Disabled: If no router is available, you can directly connect the camera and controller using an Ethernet cable. Manually configure the controller's IP address to ensure it is in the same subnet as the camera (i.e., the first three segments of the IP address must match, and the last segment must differ. For example, if the camera's IP address is 192.168.5.163, the controller's IP address could be set to 192.168.5.177).

2. IP Settings

- DHCP Enabled: Connect the controller to a DHCP-enabled router to automatically obtain an IP address.
- DHCP Disabled: Manually configure the controller's IP address as described above.

3. Subnet Mask

- Set the subnet mask, with the default value being 255.255.255.0.

4. Gateway

- Configure the gateway based on the current IP address. The default setting is 192.168.5.1.

The Network configuration screen has a title 'Network' and a 'DHCP' toggle set to 'ON'. Below are three rows of input fields for IP Address, Mask, and Gateway, each with four numeric buttons.

Field	1	2	3	4
IP Address	192	168	110	94
Mask	192	168	110	94
Gateway	192	168	110	255

4.5 System Settings

In the system settings menu, you can modify basic device parameters such as:

- Time, language, sleep duration, background switch, login switch, TALLY light, etc.
- You can also reset the device to its default settings with a single click.
- Additional options include configuring PTZ camera settings such as horizontal and vertical inversion, zoom toggle, joystick calibration, and importing/exporting device configurations.
- The system version and serial number are also displayed here.

The left side of the System settings screen shows various toggle and input settings. The title 'System' has a right arrow. Settings include: Time (6:28), Beep (OFF/ON), Log in (OFF/ON), BK (OFF/ON), CHN/ENG language selector, Tally (OFF/ON), and Auto Sleep (15min/30min/60min).

The right side of the System settings screen shows PTZ settings and system information. The title 'System' has a left arrow. Settings include: Tilt Reverse (OFF/ON), Pan Reverse (OFF/ON), Zoom (OFF/ON), Correction, Import, Export, Firmware (RT-21Q1P3), and SN (FGUSB84H).

4.6 Photo Gallery

Screenshots taken using the SHOT key are displayed in this menu. You can select all screenshots at once and delete them using the option in the top-right corner.

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