23X Block Camera User's Manual

Version 1.0

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Welcome

Thank you for purchasing our block camera!
This user’s manual is designed to be a reference tool for your system.
Please read the following safeguard and warnings carefully before you use this series product!
Please keep this user’s manual well for future reference!

Important Safeguards and Warnings

1．Electrical safety

All installation and operation here should conform to your local electrical safety codes.
We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

2．Transportation security

Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.

3．Installation

Do not apply power to the device before completing installation.
Always follow the instruction guide the manufacturer recommended.

4．Qualified engineers needed

All the examination and repair work should be done by the qualified service engineers.
We are not liable for any problems caused by unauthorized modifications or attempted repair.

5．Environment

This series product should be installed in a cool, dry place away from direct sunlight or strong light, inflammable, explosive substances and etc.
The working temperature ranges from -10℃ ~ to +60℃. Please keep it away from the electromagnetic radiation object and environment.
Please keep the sound ventilation.
Do not allow the water and other liquid falling into the integrated camera module.

6. Daily Maintenance

Please shut down the device and then unplug the power cable before you begin daily maintenance work.
Use the dry soft cloth to clean the device.
If there is too much dust, please use the water to dilute the mild detergent first and then use it to clean the device. Finally use the dry cloth to clean the device.

1 General Introduction

1.1 Overview

This series block camera adopts the high-performance 1/4-inch SONY CCD. It supports 23X optical zoom. The 540TVL definition guarantees the clear video. The high performance DSP can make the focus fast and accurate. At the same time, the auto aperture makes it suitable for various illumination environments. The auto white balance function can restore the true color. The auto electronic gain function can guarantee the self-adaptive color.

This product has the advanced design and is easy to install.

1.2 Functions

Mirror

It includes the pan-flip and tilt -flip (e-flip). The pan -flip means turn the camera output video horizontally and the tilt -flip means turn the camera output video vertically.

Still image

It is to freeze current frame of the camera. You can allow the camera to output the specified frame for a period of time when you are doing other operations such as move, tilt, zoom, focus, lens initialization or preset. The camera can resume output normally after you completed the operation.

Auto exposure

The device can automatically set the shutter speed and aperture value according to the video exposure value.

Negative image

This series product can output the negative image. The negative image color is contrary to or is compensate for the actual image.

Monochrome color display

The device can output the monochrome color video when system boots up.

Auto white balance

The white balance refers to the camera to restore the white object color. It allows the camera to adjust the color temperature in indoor and outdoor environment, just like our human eyes does.

BLC (Backlight compensation)

Once there is strong light at the back of the object, the main object video may become dark. Backlight compensation technology is to automatically compensate the light to get vivid video. You can refer to the following two figures to see the result of the backlight compensation technology function.

Exposure compensation mode

In the auto exposure mode, you can use this function to adjust the exposure object value.

Focus function

This series product supports auto focus, manual focus and one-time auto focus zoom.

Zoom

It supports 23X optical zoom.

Auto day/night mode switch (Color and black/white switch)

This function allows the camera to display the color video in the daytime while the black and white video at night. It is to enhance camera sensitivity and definition.

ICR day/night switch

It is for the IR camera. The IR cut removal is to filter the IR light in the daytime and then auto switch to the general fitter at night. This function allows the camera to output the high sensitivity and clear video.

OSD

The camera supports user-friendly on screen display menu suitable for various users to select the different functions.

1.3 Specifications

Please refer to the following sheet for specification.

Item		Specification
CCD	Size	1/4-inch SONY CCD
	Effective Pixel	PAL：752（H）*582（V） NTSC：768 (H)× 494 (V)
Optical	Optical Zoom	23X，f=3.9～89.7mm（F1.6～3.7）
	Min Focus Distance	100mm～1000mm（Near～Far）
	Range	Pan：50.66°（Near） to 2.46°（Far） Tilt：61.68°（Near） to 3.06°（Far） Diagonal：38.54°（Near） to 1.84°（Far）
Synchronization	Scan System	2：1 interlace
	Synchronization	INT
	Frequency	PAL: Pan：15.625KHz，Tilt：50.00Hz NTSC：Pan :15.750KHz；Tilt：60.00Hz
Resolution		Color：540TVL
Video Output		CVBS：1.0Vp-p／75 Ohm
SNR		≥50dB（AGC Off，Weight ON）

Item	Specification
Min. Illumination	Color：0.1Lux/F1.6 Black and white: 0.01Lux/F1.6
BLC	On/Off
Day/Night Switch	Auto switch color video to black and white video (ICR day/night mode switch)
Auto Gain	On/Off
White Balance	Support auto balance (3000 to 7500K)), auto trace white balance (2700 to 9500K) and manual white balance.
Electronic Shutter	PAL: Auto: 1/50～1/100,00s, Manual 1/50～1/10，000 s NTSC: Auto: 1/60～1/100,00s, Manual 1/60～1/10，000s
Image Flip	Support
Image Freezing	Support
External Control	RS232， 9600bps, compatible with SONY VISCA protocol.
Focus	Auto／manual／one-time auto focus
Focus speed	3.5s，from Near to the Far
Lens Initialization	Built-in
Exposure Compensation	Support
Gain Setup	Support
Aperture Control	Support auto/manual aperture control.
Focus Control	Support auto/manual focus control.
OSD	Support on screen display(OSD)
Working Environment	–10°C～＋60°C/20％～80％RH
Storage Environment	–20°C～＋70°C/20％～95％RH
Power	DC 9V～12V（Recommended: 12V）
Power Consumption	Static：2.8W，Dynamic：3.3W
Weight	230g
Dimension（W*H*D）	87.1（mm）*62.1（mm）*52.7（mm）

2 Framework

2.1 Dimension

You can refer to the following three figures for dimension information. See Figure 2 1 and Figure 2 2. The unit is mm.

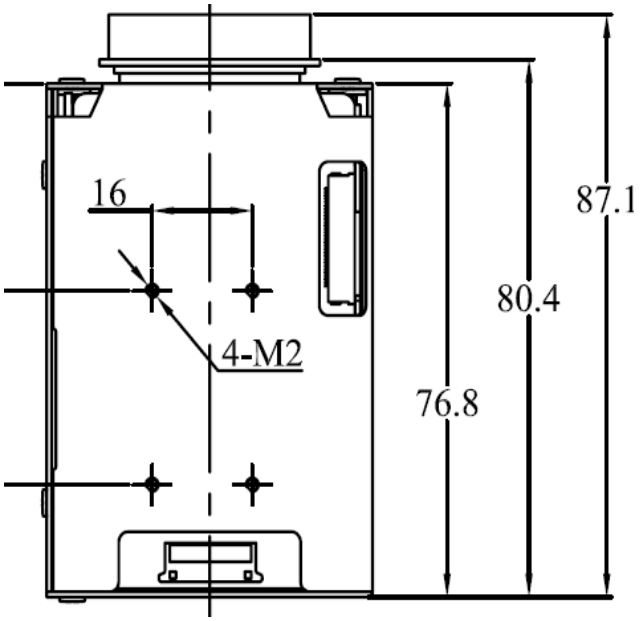

Figure 2 1

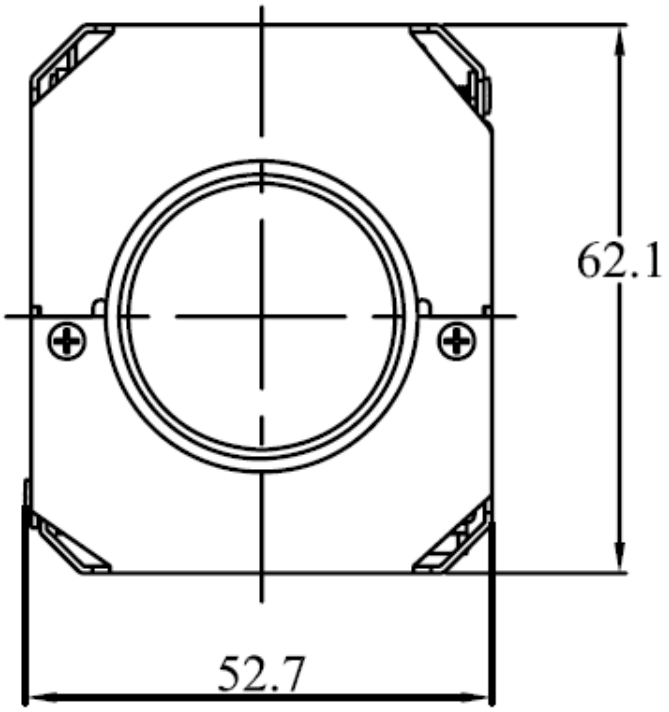

Figure 2 2

2.2 Port

You can refer to the following figure for port connection information See Figure 2 3.

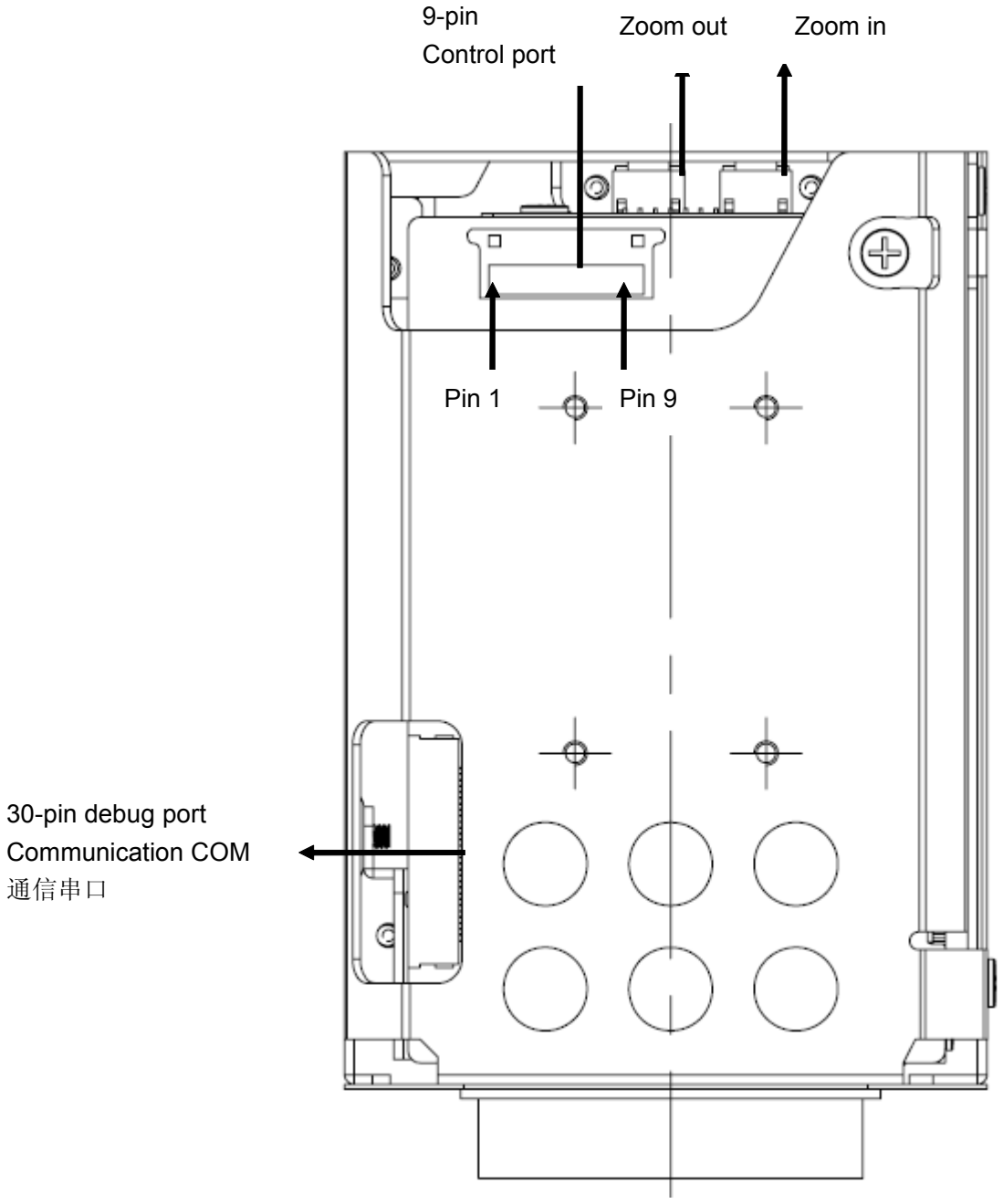

Figure 2 3

Please refer to the following sheet for detailed information.

Port	Function	Note
Zoom	Zoom out	Decrease the zoom value.
	Zoom in	Increase the zoom value.
30-pin port	Debug port	It is the debug port. You can connect to the debug board during the production debug process.

9-pin user port	User port	It includes the function ports such as video output, power input.
Indication light	Working status indication light	It is red. When the device is working properly, the red light becomes flashing.
	Power status indication light	It is red. When the power supply is normal, the red light becomes flashing.

Note

You can connect the debug board to the 30-pin debug port to debug. Please note the debug board is not our default accessory. You can contact your local retailer to get the board.

Please refer to the following sheet for 9-pin user connection pin information.

No	Pin Name	Note
1	GND	
2	VD_LOCK	Reserved development port
3	GND_DAC	Video GND end
4	VIDEO_OUT	Video output end
5	GND	
6	DC_IN	+9～+12V power input port
7	GND	
8	UTXD1	URT COM input signal，TTL level
9	URXD1	URT COM output signal，TTL level

3 Command List

Command List	Command	Value	Note
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs：Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs ： Focus Position
	Auto Focus	8x 01 04 38 02 FF	AF ON/OFF
	Manual Focus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 38 10 FF	
	One Push Trigger	8x 01 04 18 01 FF	One Push AF Trigger
CAM_Initialize	Lens	8x 01 04 19 01 FF	Lens Initialization Start
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor	8x 01 04 35 01 FF	Indoor mode
	Outdoor	8x 01 04 35 02 FF	Outdoor mode
	One Push WB	8x 01 04 35 03 FF	One Push WB mode
	ATW	8x 01 04 35 04 FF	Auto Tracing White Balance
	Manual	8x 01 04 35 05 FF	Manual Control mode
	One Push Trigger	8x 01 04 10 05 FF	One Push WB Trigger
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq：B Gain
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 mode
	Iris Priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright Mode(Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting

	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq：Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	
	Up	8x 01 04 0B 02 FF	Iris Setting
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq：Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	
	Up	8x 01 04 0C 02 FF	Gain Setting
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 4C 00 00 0p 0q FF	pq：Gain Position
CAM_Bright	Reset	8x 01 04 0D 00 FF	
	Up	8x 01 04 0D 02 FF	Bright Setting
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq：Bright Position
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	
	Up	8x 01 04 0E 02 FF	Exposure Compensation Amount Setting
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq：ExpComp Position
CAM_Backlight	On	8x 01 04 33 02 FF	Back Light Compensation ON/OFF
	Off	8x 01 04 33 03 FF	
CAM_Aperture	Reset	8x 01 04 02 00 FF	
	Up	8x 01 04 02 02 FF	Apeture Contro;
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq：Aperture Gain
CAM_LR_Reverse	On	8x 01 04 52 03 FF	Mirror Image ON/OFF
	Off	8x 01 04 61 02 FF	
CAM_Freeze	On	8x 01 04 62 02 FF	Still Image ON/OFF
	Off	8x 01 04 62 03 FF	

CAM_PictureEffect	Off	8x 01 04 63 00 FF	Picture Effect Setting
	Neg.Art	8x 01 04 63 02 FF	
	B&W	8x 01 04 63 04 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Picture flip ON/OFF
	Off	8x 01 04 66 03 FF	
CAM_ICR	On	8x 01 04 01 02 FF	Infrared Mode ON/OFF
	Off	8x 01 04 01 03 FF	
CAM_AutoICR	On	8x 01 04 51 02 FF	Auto dark-field mode On/Off
	Off	8x 01 04 51 03 FF	
	Threshold	8x 01 04 21 00 00 0p 0q FF	Pq:ICR ON→OFF threshold level
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p：Memory Number（=0 to 5）
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_Custom	Reset	8x 01 04 3F 00 7F FF	Starts in this mode at Power ON
	Set	8x 01 04 3F 01 7F FF	
	Recall	8x 01 04 3F 02 7F FF	
CAM_Memsavr	Write	8x 01 04 23 0X 0p 0p 0q 0q FF	X：00 to 07（Address）Total 16 Byte ppqq：0x0000 to 0XFFFF（Data）
CAM_Display	On	8x 01 04 15 02 FF （8x 01 06 06 02 FF）	Display ON/OFF
	Off	8x 01 04 15 03 FF (8x 01 06 06 03 FF)	
	On/Off	8x 01 04 15 10 FF (8x 01 06 06 10 FF)	
CAM_Title	Off	8x 01 04 74 3p FF	
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs：Camera ID（=0000 to FFFF）

- **This manual is for reference only. Slight difference may be found in the user interface.**
- **All the designs and software here are subject to change without prior written notice.**
- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
- **Please visit our website or contact your local service engineer for more information.**

Appendix Toxic or Hazardous Materials or Elements

Component Name	Toxic or Hazardous Materials or Elements					
	Pb	Hg	Cd	Cr VI	PBB	PBDE
Circuit Board Component	○	○	○	○	○	○
Device Construction Material	○	○	○	○	○	○
Wire and Cable	○	○	○	○	○	○
Packing Components	○	○	○	○	○	○
Accessories	○	○	○	○	○	○

O: Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.

X: Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard. During the environmental-friendly use period (EFUP) period, the toxic or hazardous substance or elements contained in products will not leak or mutate so that the use of these (substances or elements) will not result in any severe environmental pollution, any bodily injury or damage to any assets. The consumer is not authorized to process such kind of substances or elements, please return to the corresponding local authorities to process according to your local government statutes