

XC-505/505P



* Burst signals are not locked and are free running.

Connection Diagram **PI05**



Outline

The XC-505/505P is an ultra-small color camera module that utilizes a 1/3-type Charge Coupled Device. The camera is so small and light that you can install it anywhere: even in locations where conventional video cameras cannot be installed. The function is made high performance, the camera ideally suited for a wide variety of applications such as machine vision, multimedia and remote monitoring. In addition, the XC-505/505P cameras use a unique, compact NF-mount lens system that can be converted into a flexible C-mount lens.

Features

- 1/3-type IT CCD
- Compact and light-weight:
22 (H) × 22 (W) × 64 (D) mm, 51 g
- External synchronization: HD/VD, VS, VBS¹
- VBS and Y/C outputs
- CCD IRIS function
- Compact NF lens and lens mount
- NR (2D/3D)
- Edge enhancement
- Internal Color bar
- One piece camera - no bulky CCU
- RS-232C interface to control camera functions²

¹ VBS signals input as external synchronized signals perform the same functions as VS signals. (Burst signals are not locked and are free running.)

² For details on how to change this setting. Please refer to the Technical Manual.

- You can install XC-505/505P in only HL (horizontal) directions
 - XCK-L555 Angle Case Kit
The XCK-L555 allows you to bend the XC-505/505P 90 degrees horizontally (HL).

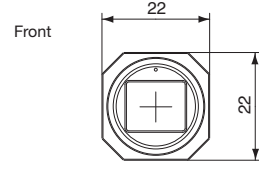
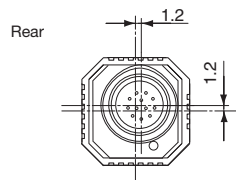
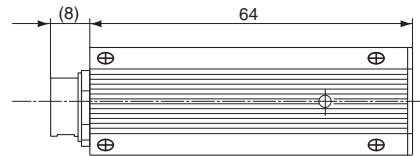
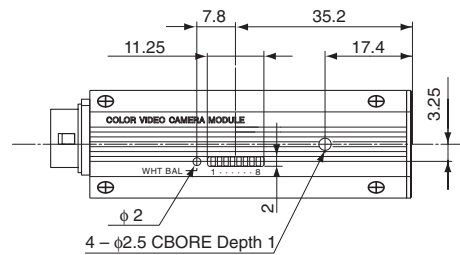
Accessories

- Compact camera adaptor
 - DC-700/700CE
- 12-pin camera cable (CE standard)
 - CCXC-12P02N (2 m)
 - CCXC-12P05N (5 m)
 - CCXC-12P10N (10 m)
 - CCXC-12P25N (25 m)
- NF-mount LENS
 - VCL-03S12XM
 - VCL-06S12XM
 - VCL-12S12XM
- C-mount adaptor
 - LO-999CMT

* When a C-mount type lens is attached, a C-mount adaptor is required.

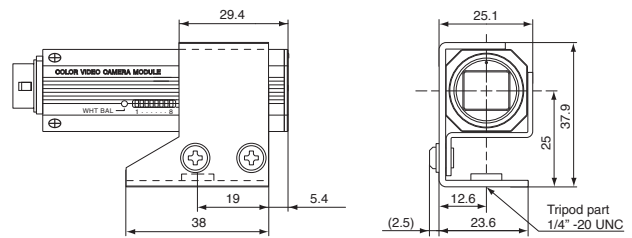
- Right angle CCD mount
 - XCK-L555

Dimensions



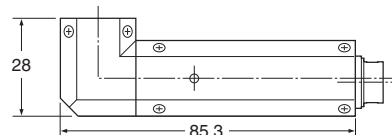
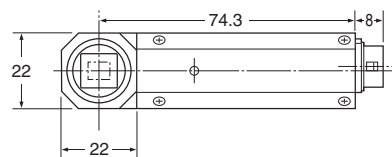
Unit: mm

■ Attached with tripod adaptor (supplied accessory)



■ Installation

XCK-L555 Angle Case Kit



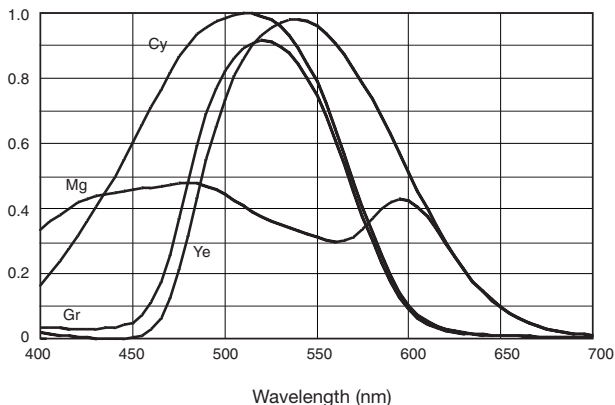
Unit: mm

Digital Video Camera XCG
 XCL
 Intelligent XCI
 Analog Video Camera XA
 XC (Non-TV Format)
 XC (TV Format)
 Accessories
 Color Camera Module FCB
 Color PTZ Camera EVI

Spectral Sensitivity Characteristics

• XC-505

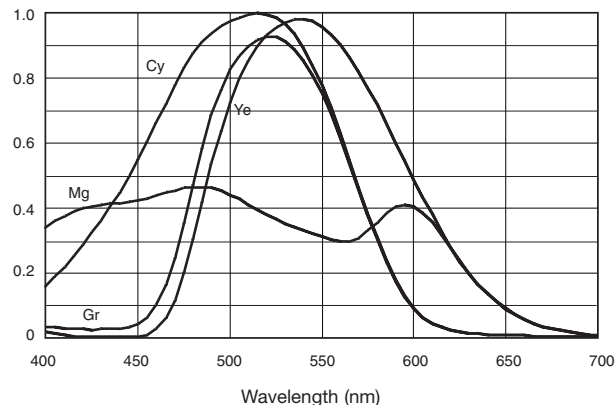
Relative sensitivity



(Lens characteristics and light source characteristics excluded.)

• XC-505P

Relative sensitivity



(Lens characteristics and light source characteristics excluded.)

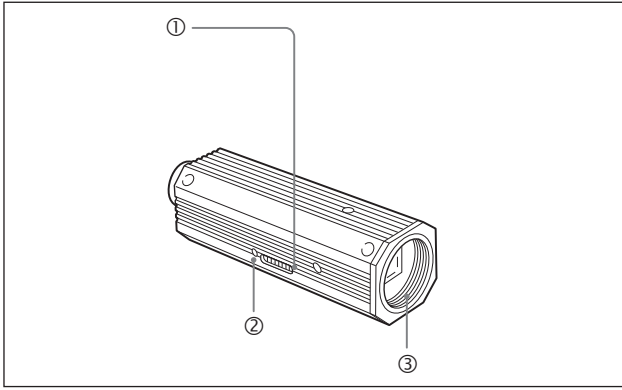
Specifications

	XC-505	XC-505P
Image device	1/3-type IT CCD	
Signal system	NTSC	PAL
Effective picture elements (H) × (V)	768 × 494	752 × 582
Effective lines (H) × (V)	756 × 485	739 × 575
Cell size (H) × (V)	6.35 μm × 7.40 μm	6.50 μm × 6.25 μm
Lens mount	NF-mount (Flange back 12 mm)	
Sync system	Internal/External (auto)	
External sync system input/output	HD/VD (HD/VD level: 2 Vp-p to 4 Vp-p), 75 Ω VS, VBS (1 Vp-p), 75 Ω	
External sync frequency	VD/59.94 Hz ± 0.0009 Hz HD/15734 Hz ± 0.016 Hz	VD/50 Hz ± 0.00075 Hz HD/15625 Hz ± 0.0156 Hz
Scanning system	525 lines 2:1 Interlaced 30 fps	625 lines 2:1 Interlaced 25 fps
Color filter	Complementary color mosaic	
Video output	VBS, Y/C (selected with the switch), VBS: 1 Vp-p, 75 Ω, sync negative, Y: 1 Vp-p, 75 Ω C: C level depends on the composite video out signal	
Horizontal frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 Hz	50 Hz
Horizontal resolution	470 TV lines	460 TV lines
Vertical resolution	485 TV lines	575 TV lines
Sensitivity	2,000 lx F11 (γ=ON, AGC OFF (0 dB))	
Minimum illumination	1.5 lx (F1.4, AGC MAX. (18 dB))	
S/N ratio	48 dB (AGC OFF (0 dB))	46 dB (AGC OFF (0 dB))
White balance	ATW/3,200 K/5,600 K/ON-Push WB/MANUAL (R, B)	
Gain	AGC (0 dB to 18 dB)/FIX (0 dB)	
Gamma	ON/OFF Controlled by RS-232C ¹⁾	
Shutter speed	OFF, Flickerless, (1/100), 1/1,000 sec, CCD IRIS	
CCD IRIS	Auto: 1/60 sec to 1/4,000 sec *RS-232C: 1/60 sec to 100,000 sec	Auto: 1/50 sec to 1/4,000 sec *RS-232C: 1/50 sec to 100,000 sec
Output connector	DC IN, SYNC, VIDEO: multi 12-pin	
Power requirements	DC 10.5 V to 15 V	
Power consumption	1.5 W	
Dimension	22 (W) × 22 (H) × 64 (D) mm (not including projecting parts)	
Mass	51 g	
Operating temperature	-5°C to +45°C	
Storage temperature	-30°C to +60°C	
Performance guarantee temperature	0°C to 40°C	
Operating humidity	20% to 80% (no condensation)	
Storage humidity	20% to 95% (no condensation)	
Vibration resistance	10 G (20 Hz to 200 Hz 20 minutes for each direction-x, y, z)	
Shock resistance	70 G	
MTBF	81,880 hours (Approx. 9.3 years)	
Regulatory compliance	UL: UL6500, FCC/IC: FCC/IC Class A Digital Device, CE (EMC): EN61326 Class A, AS/NZ EMC: EN61326 Class A, CB: IEC60065, KC: KN22/KN24: Class A	
Supplied accessories	Lens mount cap (1), Tripod adaptor (1 set), Operating Instructions (1)	

The values for mass and dimension are approximate.

¹⁾ The RS-232C switch is set to OFF at the factory. For details on how to change this setting please refer to the Technical Manual.

Location and Function of Parts and Controls



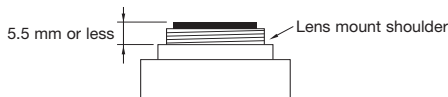
① Dip switches for setting functions

Select the white balance, shutter speed; and to flip, AGC (auto gain control) ON/OFF and output signal (Y/C/VBS). For details, see "Mode Setting by Dip Switch".

② One-Push WB Switch

One Push white balance functions when the white balance adjustment mode is set to One Push WB. The white balance is automatically adjusted when this switch is pressed, and the color balance is retained after adjustment.

③ Lens mount (NF-mount)



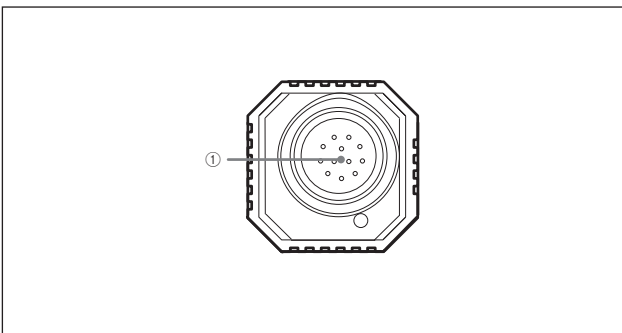
If you install a C-mount lens on the Camera, you will need the C-mount adaptor LO-999CMT.

Note

For installing a C-mount lens on the XC-505

- If you install a C-mount lens on the XC-505 you will need the C-mount adaptor LO-999CMT (sold separately). Be sure that the lens does not project more than 4.1 mm from the lens mount.
- This camera uses a 1/3-inch CCD. So the lens should be used with this size of CCD. If used with a lens intended for 1/2-inch CCD, the angle of view will be different.
- When connecting a heavy lens, make sure that it is supported properly.
- When connecting heavy lens, make sure that it is not subject to shocks or vibration.

Rear Panel



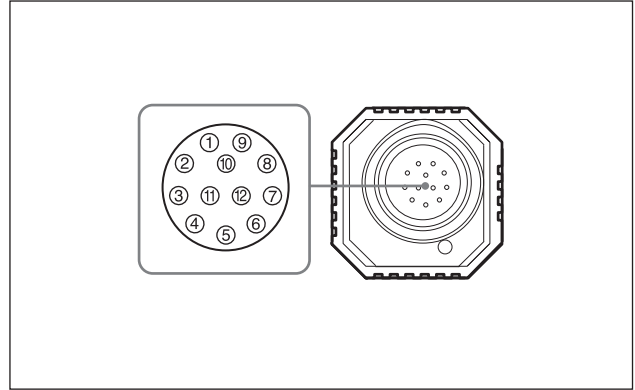
① DC IN/SYNC/VIDEO connector (multi 12-pin)

This connector inputs DC 12 V power and outputs the video signal when the CCXC-12P02N/12P05N/12P10N/12P25N camera cable is connected.

If the unit is connected to devices that originate a synchronized signal, the external synchronous signal (VS, HD/VD) can be used to move the color camera module.

VBS signals input as external synchronized signals perform the same functions as VS signals. (Burst signals are not locked and are free running.)

Connector Pin Assignments



Signal	Sync signal types		
	External Sync signal		Internal Sync signal
Pin No.	HD,VD	VS/VBS Input	Internal Sync signal
1	Ground	Ground	Ground
2	+12 V	+12 V	+12 V
3	VBS/Y Output	VBS/Y Output	VBS/Y Output
4	VBS/Y Output (signal)	VBS/Y Output (signal)	VBS/Y Output (signal)
5	HD Input	-	-
6	HD Input (signal)	-	-
7	VD Input (signal)	VS/VBS Input (signal)	-
8	Ground (-/C)	Ground (-/C)	Ground (-/C)
9	-/C Output (signal)	-/C Output (signal)	-/C Output (signal)
10	RS-232C (TXD) *		
11	RS-232C (RXD) *		
12	VD Input (GND)	VS/VBS Input (GND)	Ground
RS-232C			

* RS-232C setting

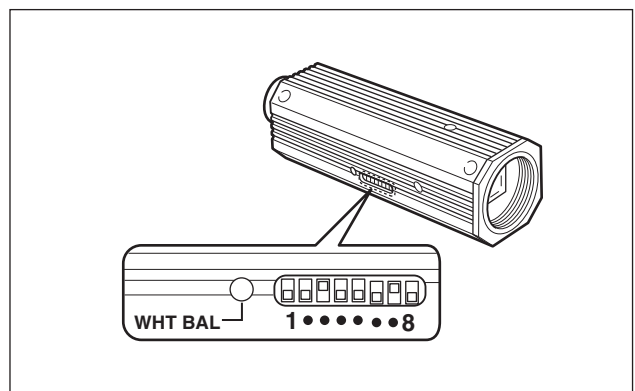
Changing the setting of the RS-232C switch falls under the heading of dismantling the camera, and is outside the scope of the warranty. To change the setting, request assistance from the dealer from whom you purchased your camera.

Mode Setting

By flipping the DIP switches located on the side of this camera, you can adjust the following functions.









Note

Each switch is assigned to a function. The switches that should be set to adjust a certain function (white balance, shutter speed), to switch the AGC (ON/OFF), or to switch the output signals (Y/C/VBS) are specified and indicated by shading in the illustrations of the corresponding descriptions of the function. The switches that are not shaded are not related to these functions.



■ To Adjust the white balance




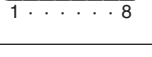
Select the white balance setting according to the lighting conditions.

	Lighting condition	DIP switch setting
3200K (fixed)	For indoor shooting under incandescent light.	 1 8
5600K (fixed)	For outdoor shooting on sunny days.	 1 8
One Push WB (One Push white balance)	The white balance is automatically adjusted when the One Push WB switch is pressed, and the color balance is retained after adjustment.	 1 8
ATW (auto tracing white balance)	The white balance is adjusted according to the color temperature transition of the subject. This mode is suitable for shooting with variable lighting (factory setting).	 1 8
MAN (manual)	The manual white balance adjustment, DIP switch and a combination One Push WB	
	Red hues are subdued with each press of the One Push WB switch.	 1 8
	Red hues are enhanced with each press of the One Push WB switch.	 1 8
	Blue hues are subdued with each press of the One Push WB switch.	 1 8
	Blue hues are enhanced with each press of the one Push WB switch.	 1 8

To change the One Push switch, use the shaded switches.



■ Shutter speed

Set the shutter speed switches to select the desired shutter speed. Using the CCD IRIS function, set the CCD IRIS mode.

	Lighting condition	DIP switch setting
OFF	Factory setting 1/60 sec (XC-505) 1/50 sec (XC-505P)	 1 8
1/1,000	1/1,000 sec	 1 8
CCD IRIS	Set the CCD IRIS mode.	 1 8
FLICKERLESS	1/100 sec (XC-505) 1/120 sec (XC-505P)	 1 8

To adjust the shutter speed, use the shaded switches.



■ AGC (auto gain control) ON/OFF

	Gain	DIP switch setting
ON	Auto gain control (factory setting)	 1 8
OFF	0 dB	 1 8

To switch the AGC on or off, use the shaded switches.

■ Y/C/VBS

Select the camera output signal.

	Output signal	DIP switch setting
Y/C	Select this position to output the Y/C separated signal from the DC IN/VIDEO connector.	 1 8
VBS	Select this position to output the VBS signal from the DC IN/VIDEO (factory setting).	 1 8

To switch the output signals (Y/C/VBS), use the shaded switches.

■ Factory settings

	XC-505/505P	XC-555/555P
White balance	ATW	3200K
Shutter speed	OFF	OFF
AGC	ON	ON
Output signal (Y/C/VBS)	VBS	VBS

*XC-555/555P: discontinued models