# XC-555/555P

1/2 Type CCD | NF Lens Mount | VBS Output | Y/C Output | HD VD External Sync | Normal Shutter | CCD Iris

ATW White Balance | Fixed White Balance | Manual White Balance | RS232C Control

Connection Diagram P59

## Outline

The XC-555/555P is an ultra-compact, integrated 1/2 type IT CCD color camera ideally suited for a wide variety of applications such as machine vision, multimedia and remote monitoring. The XC-555/555P is designed so that a video output signal can be obtained by only providing a power supply of 12 V DC. Its ultra-compact, one-piece design eliminates the need for a bulky CCU (Camera Control Unit), allowing the XC-555/555P cameras to be easily installed in space-restricted areas. In addition, the XC-555/555P cameras use a unique, compact NF mount lens system that can be converted into a flexible C mount lens.

## Features

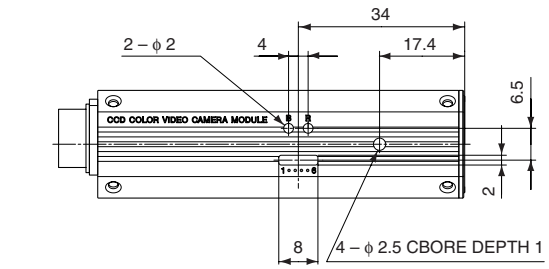
- 1/2 type IT CCD
- Ultra-compact and light-weight:
  22 (H) x 22 (W) x 75 (D) mm, 60g
- One piece camera - no bulky CCU
- Compact NF lens and lens mount
- CCD IRIS function
- VBS and Y/C outputs
- External synchronization
- RS-232C interface to control camera functions*1

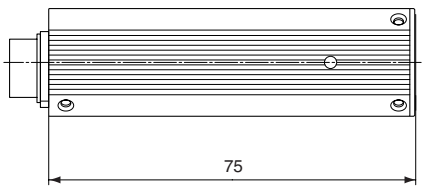
*1 The RS-232C switch is set to OFF at the factory. For details on how to change this setting. please refer to the Technical Manual.

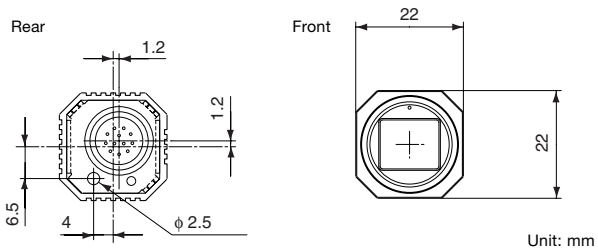
## Accessories

- 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

## Dimensions



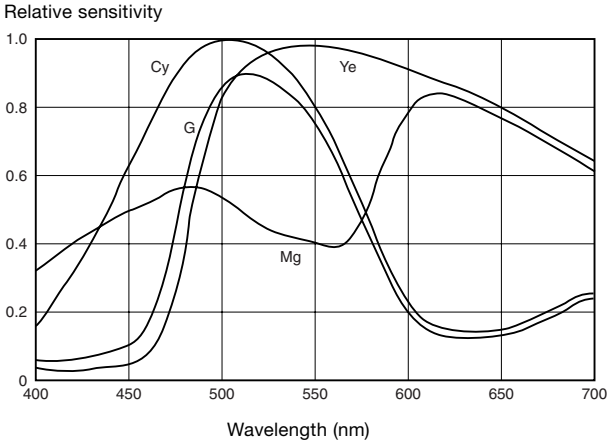




Unit: mm

## Spectral Sensitivity Characteristics

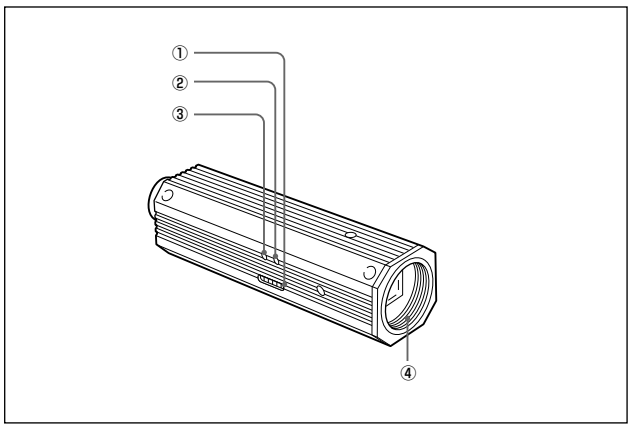
●**XC-555**

**(Typical Values)**




(Lens characteristics included, and light source characteristics excluded.)

## Location and Function of Parts and Controls

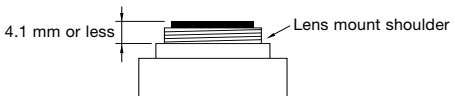



**① Dip switches for setting functions**
This switches are used to adjust white balance and shutter speed; and to flip AGC (ON/OFF) and output signals (Y/C/VBS).

**② R control for manual white balance adjustment**
This control is effective when the white balance switches are set to MAN. Adjust the red color by turning the control.

**③ B control for manual white balance adjustment**
This control is effective when the white balance switches are set to MAN. Adjust the blue color by turning the control.

**④ Lens mount (special mount)**




**Note**

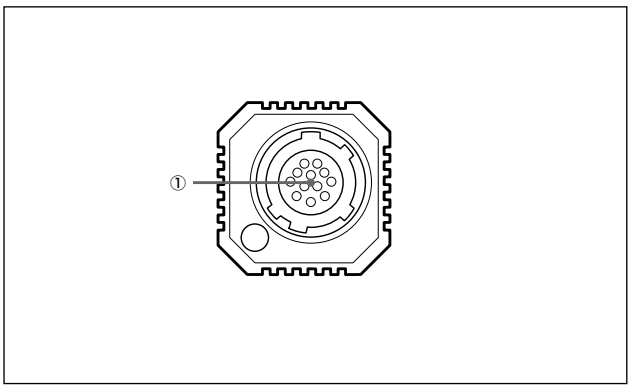
- To attach a C-mount type lens, a C-mount adaptor (LO- 999CMT) is required.
- This camera uses a 1/2-inch CCD. So the lens should be used with this size of CCD. If used with a lens intended for a 2/3-inch CCD, the angle of view will be different.
- When connecting a heavy lens, make sure that it is supported properly.
- When connecting heavy lens, make sure that it is not subject to shocks or vibration.

## Specifications

| | XC-555 | XC-555P |
|---|---|---|
| Image device | 1/2 type IT CCD | |
| Signal system | NTSC | PAL |
| Effective picture elements | 768 (H) x 494 (V) | 752 (H) x 582 (V) |
| Effective lines | 756 (H) x 485 (V) | 739 (H) x 575 (V) |
| Cell size | 8.4 µm (H) x 9.8 µm (V) | 8.6 µm (H) x 9.3 µm (V) |
| Lens mount | NF mount (Flange back 12 mm) | |
| Sync system | Internal/External (auto) | |
| External sync system input/output | HD/VD (HD/VD level: 2 to 4 Vp-p), 75 Ω VS (1 Vp-p), 75 Ω | |
| External sync frequency | VD/59.94 Hz ± 0.0009 Hz<br>HD/15734 Hz ± 0.016 Hz | VD/50 Hz ± 0.00075 Hz<br>HD/15625 Hz ± 0.0156 Hz |
| Scanning system | 525 lines 2:1 Interlaced 30fps | 625 lines 2:1 Interlaced 25fps |
| 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<br>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 | 2000 lx F8 (γ=ON, MIN GAIN, AGC OFF (0 dB)) | |
| Minimum illumination* | 3.0 lx (F1.2, AGC ON (18 dB)) | |
| S/N ratio | 48 dB (AGC OFF (0 dB)) | 48 dB (AGC OFF (0 dB)) |
| White balance | ATW, 3200 K, 5600 K, MANUAL | |
| Gain | AGC (0 to 18 dB)/FIX (0 dB) | |
| Gamma | ON/OFF Controlled by RS-232C *1 | |
| Shutter speed | OFF, Flickerless, 1/1000 s, CCD IRIS | |
| CCD IRIS | Auto: 1/60 to 1/4000 s RS-232C: 1/60 to 100000 s *1 | Auto: 1/50 to 1/4000 s RS-232C: 1/50 to 100000 s *1 |
| Output connector | DC IN, SYNC, VIDEO: multi 12-pin | |
| Power requirements | DC +10.5 to +15 V | |
| Power consumtion | 2.4 W | |
| Dimension (W) x (H) x (D) | 22 x 22 x 75 mm | |
| Mass | 60 g | |
| Operating temperature | 0 to 40 °C | |
| Storage temperature | -30 to 60 °C | |
| Performance guarantee temperature | 0 to 40 °C | |
| Operating humidity | 20 to 80 % (no condensation) | |
| Storage humidity | 20 to 90 % (no condensation) | |
| Shock resistance | 70 G | |
| MTBF | 70,900 Hrs | |
| Regulatory compliance | UL6500, FCC Class B Digital Device, CE (EN61326), Australia EMC (AS4251.1+A4252.1) | |
| Supplied accessories | Lens mount cap (1), Tripod adaptor (1 set), Operating Instructions (1) | |

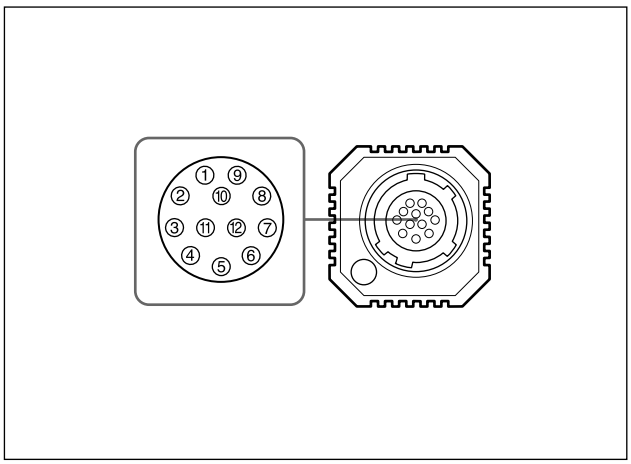
*1 The RS-232C switch is set to OFF at the factory. For details on how to change this setting. please refer to the Technical Manual.

## Rear Panel




① **DC IN/SYNC/VIDEO connector (multi 12-pin)**
This connector inputs DC 12V 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.

## Connector Pin Assignments



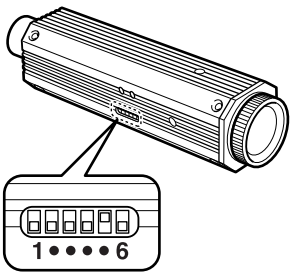

| Signal / Pin No. | Sync signal types | | |
|---|---|---|---|
| | External Sync signal | | Internal Sync signal |
| | HD,VD | VS Input | |
| 1 | GND (Earth) | GND (Earth) | GND (Earth) |
| 2 | +12V | +12V | +12V |
| 3 | VBS/Y Output (Earth) | VBS/Y Output (Earth) | VBS/Y Output (Earth) |
| 4 | VBS/Y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

## 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

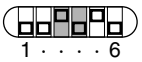
Select the white balance setting according to the lighting conditions.

| | Lighting condition | DIP switch setting |
|---|---|---|
| 3200K (fixed) | For indoor shooting under incandescent light (factory setting). | 1 · · · · 6 |
| 5600K (fixed) | For outdoor shooting on sunny days. | 1 · · · · 6 |
| 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. | 1 · · · · 6 |
| MAN (manual) | Select this position when you want to adjust the red color with the R control and the blue color with the B control. | 1 · · · · 6 |

To adjust the white balance, use the shaded switches.

## ■ To adjust the shutter speed

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

| | Shutter speed | DIP switch setting |
|---|---|---|
| OFF | (XC-555)<br>1/60 sec. (factory setting)<br>(XC-555P)<br>1/50 sec. (factory setting) |  |
| 1/1000 | 1/1000 sec. |  |
| CCD IRIS | Set the CCD IRIS mode. |  |
| FLICKERLESS | 1/100 sec. (XC-555)<br>1/120 sec. (XC-555P) |  |

To adjust the shutter speed, use the shaded switches.

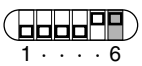
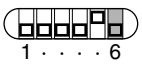
## ■ AGC (Auto Gain Control) ON/OFF

| | Gain | DIP switch setting |
|---|---|---|
| ON | Auto gain control<br>(factory setting) |  |
| OFF | 0 dB |  |

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. |  |
| VBS | Select this position to output the VBS signal from the DC IN/VIDEO (factory setting). |  |

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