

# SONY®

B/W VIDEO CAMERA

**XC-ES50/ES50CE**  
**XC-ES30/ES30CE**  
**XC-EI50/EI50CE**  
**XC-EI30/EI30CE**  
**XC-EU50/EU50CE**

**Component/OEM**



## OUTLINE

The XC-E Series are compact, light-weight one-piece black and white cameras incorporating the latest 1/2 and 1/3 type Interline (IT) CCD which produces new levels of picture detail. With dimensions of 29 x 29 x 32 mm (1 3/16 x 1 3/16 x 1 5/16 inches), these cameras can easily be installed in places where installation was previously difficult for other larger cameras.

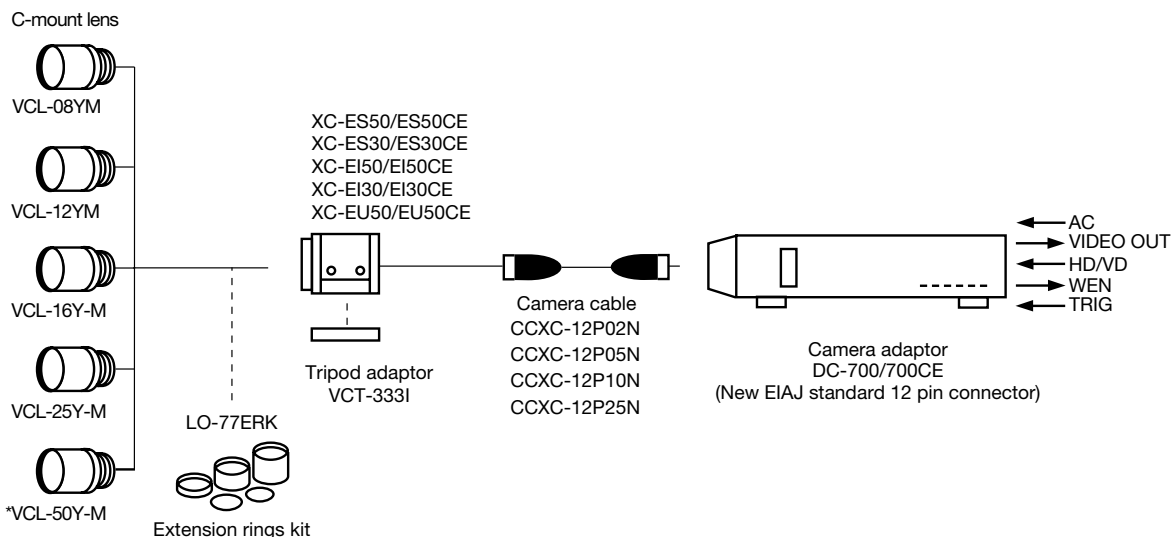
The XC-E Series offer three different model ranges that only differ in spectral sensitivity to suit various application environments. The XC-ES Series (XC-ES50/ES50CE and XC-ES30/ES30CE) are standard models for general use under visible light conditions. The XC-EI Series (XC-EI50/EI50CE and XC-EI30/EI30CE) offer excellent near-infrared sensitivity. Under low light conditions or when used with IR LED illumination systems, these cameras provide clear images. The XC-EU Series (XC-EU50/EU50CE) offer near-ultraviolet sensitivity in the i-line, or 365 nm, range. The short wavelength allows the XC-EU Series to capture very fine detail.

All models have identical dimensions and controls, making them easy to interchange. A variety of settings are available for differing subject and lighting conditions. All camera control switches are accessible from the outside of the camera. Excellent vibration and shock characteristics make these cameras ideal for demanding machine vision applications.

## FEATURES

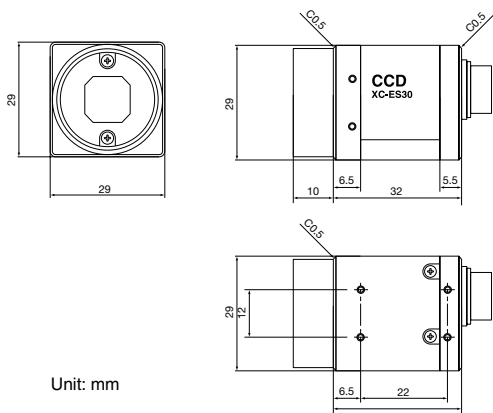
- XC-ES50/ES50CE/EI50/EI50CE: 1/2 type IT CCD
- XC-ES30/ES30CE/EI30/EI30CE: 1/3 type IT CCD
- XC-EU50/EU50CE: 1/2 type IT CCD
- Compact and light weight: 29 (W) x 29 (H) x 32 (D) mm, 50 g (1 3/16 x 1 3/16 x 1 5/16 inches, 2 oz)
- Near-infrared sensitivity (XC-EI50/EI50CE, XC-EI30/EI30CE)
- Near-ultraviolet sensitivity (XC-EU50/EU50CE)
- Minimum illumination at F1.4
  - 0.3 lx (XC-ES50/ES50CE, XC-ES30/ES30CE)
  - 0.1 lx (XC-EI50/EI50CE)
  - 0.2 lx (XC-EI30/EI30CE)
- High S/N Ratio: 60 dB
- Electronic shutter function (1/100 - 1/10,000 s)
- Flexible trigger shutter function
- 2:1 interlaced/non-interlaced
- Frame/field exposure
- Restart/reset function
- Synchronization: internal/external (HD/VD, VS)
- High shock and vibration tolerance

## CONNECTION DIAGRAM

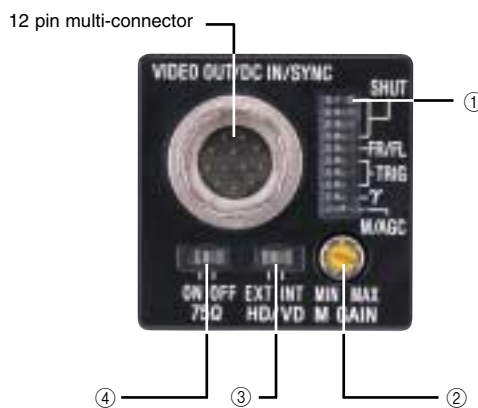


\*Only VCL-50Y-M is applicable to the XC-EU50/EU50CE.

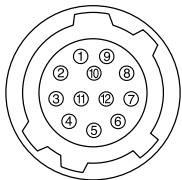
## DIMENSIONS & REAR PANEL



Unit: mm



12 Pin multi-connector



PIN No.	External sync (HD/VD)	Internal sync (HD/VD)
1	GND	GND
2	+12 V	+12 V
3	GND	GND
4	Video output	Video output
5	GND	GND
6	*1 HD input	HD output
7	*1 VD input	VD output
8	GND	GND
9	-	-
10	*2 WEN output	*2 WEN output
11	TRIG input	TRIG input
12	GND	GND

\*1 HD/VD input is required when using restart, reset mode.

\*2 WEN output works only when in external trigger shutter mode.

### ● Factory setting mode of rear panel

No.	Switch name	Factory-setting mode
①	Shutter speed/Mode setting DIP switch	Dip switch 1-4: Shutter speed
		Dip switch 5: FRAME/FIELD
		Dip switch 6-8: External trigger shutter mode, restart/reset mode
		Dip switch 9: Gamma ON/OFF
		Dip switch 0: GAIN
②	Manual GAIN (M GAIN) control knob	Twelve o'clock position
③	HD/VD signal input/output switch	EXT
④	75 Ω termination switch	ON

## ACCESSORIES

### Compact camera adaptor DC-700/700CE

- Compact, lightweight (700 g, 1 lb 8 oz)
- External sync IN / OUT
- Trigger input / WEN output
- New EIAJ standard 12 pin connector
- Dimensions: 110(W) x 53(H) x 160(D) mm (4 3/8 x 2 1/8 x 6 3/8 inches)



### 12 pin camera cable (CE standard)

- CCXC-12P02N (2m)
- CCXC-12P05N (5m)
- CCXC-12P10N (10m)
- CCXC-12P25N (25m)



### Tripod adaptor VCT-333I

- ABS
- Approx. 6.1 g (0.2 oz)
- Dimensions: 18(W)x6(H)x2.9(D)mm (23/32 x 1/4 x 1/8 inches)



## Standard model

### XC-ES50/ES50CE XC-ES30/ES30CE



## Near IR model

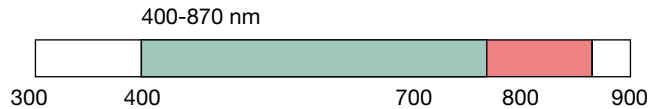
### XC-EI50/EI50CE XC-EI30/EI30CE



#### ■ Applicable wavelength range



#### ■ Applicable wavelength range



## SPECIFICATIONS

	XC-ES50	XC-ES50CE	XC-ES30	XC-ES30CE	XC-EI50	XC-EI50CE	XC-EI30	XC-EI30CE
Image device	1/2 type IT CCD		1/3 type IT CCD		1/2 type IT CCD		1/3 type IT CCD	
Effective picture elements	768 (H) x 494 (V)	752 (H) x 582 (V)	768 (H) x 494 (V)	752 (H) x 582 (V)	768 (H) x 494 (V)	752 (H) x 582 (V)	768 (H) x 494 (V)	752 (H) x 582 (V)
Signal system	EIA (standard)	CCIR (standard)	EIA (standard)	CCIR (standard)	EIA (standard)	CCIR (standard)	EIA (standard)	CCIR (standard)
Horizontal frequency	15.734 kHz	15.652 kHz	15.734 kHz	15.652 kHz	15.734 kHz	15.652 kHz	15.734 kHz	15.652 kHz
Vertical frequency	59.94 Hz	50 Hz	59.94 Hz	50 Hz	59.94 Hz	50 Hz	59.94 Hz	50 Hz
Cell Size	8.4 x 9.8 μm	8.6 x 8.3 μm	6.35 x 7.4 μm	6.5 x 6.25 μm	8.4 x 9.8 μm	8.6 x 8.3 μm	6.35 x 7.4 μm	6.5 x 6.25 μm
Lens mount	C mount							
Flange back	17.526 mm							
Sync system	Internal / External (auto)							
External sync system	HD / VD (2 to 5 Vp-p), VS							
External sync frequency	+/- 1%							
Jitter	Less than +/- 50 nsec							
Scanning system	2:1 Interlaced							
Video output	1.0 Vp-p, negative, 75 Ω unbalanced							
Horizontal resolution	570 TV lines	560 TV lines	570 TV lines	560 TV lines	570 TV lines	560 TV lines	570 TV lines	560 TV lines
Sensitivity	400 lx F5.6 (γ = ON MIN GAIN, NO IR cut filter)		400 lx F4 (γ = ON MIN GAIN, NO IR cut filter)		400 lx F11 (γ = ON MIN GAIN, NO IR cut filter)		400 lx F8 (γ = ON MIN GAIN, NO IR cut filter)	
Minimum illumination*	0.3 lx		0.3 lx		0.1 lx		0.2 lx	
S/N ratio	60 dB							
Gain	AGC (0-18 dB) / Manual (0-18 dB) Selectable							
Gamma	ON / OFF							
Normal shutter	1/100 to 1/10,000 S	1/120 to 1/10,000 S	1/100 to 1/10,000 S	1/120 to 1/10,000 S	1/100 to 1/10,000 S	1/120 to 1/10,000 S	1/100 to 1/10,000 S	1/120 to 1/10,000 S
External trigger shutter**	1/4 to 1/10,000 S	1/4 to 1/8,000 S	1/4 to 1/10,000 S	1/4 to 1/8,000 S	1/4 to 1/10,000 S	1/4 to 1/8,000 S	1/4 to 1/10,000 S	1/4 to 1/8,000 S
Power requirements	DC12 V (+9 to 16 V)							
Power consumption	1.6 W		1.4 W		1.6 W		1.4 W	
Dimensions	1 3/16 x 1 3/16 x 1 5/16 inches (29 (W) x 29 (H) x 32 (D) mm)							
Weight	2 oz (50 g)							
Operation temp./mois.	-10 to +50°C (14 to +122°F) / 20 to 80%							
Storage temp./mois.	-20 to +60°C (-4 to +140°F) / 20 to 95%							
Vibration	10 G (20 to 200 Hz)							
Shock resistance	70 G							
MTBF	126,000 hrs.							
Regulatory compliance	UL1492, FCC Class A Digital Device, CE (EN50081-2 + EN50082-2), AS4251.1 + AS4252.2							
Supplied accessories	Lens mount cap (1), Operating instructions (1)							

\* (F1.4, AGC ON, without IR cut filter) \*\* Using Dip switch on the rear panel or Using trigger pulse width

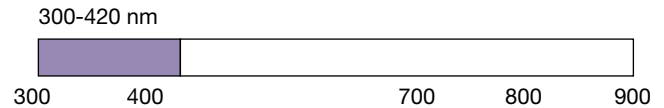
## UV model

The XC-EU50/EU50CE are compact, and light-weight CCD cameras that have near-ultraviolet sensitivity in the i-line, or 365 nm, range. Examples of typical application areas are PCB and solder inspection, document proofing, microscopy, medical and cosmetics applications. The short wavelength allows the XC-EU50/EU50CE cameras to capture clearly very fine detail and surface structures, which cannot be detected using visible or IR lighting, including very small scratches, dust or blemishes, as well as special fluorescent materials.

## XC-EU50/EU50CE



### ■ Applicable wavelength range



## SPECIFICATIONS

	XC-EU50	XC-EU50CE
Image device	1/2 type IT CCD	
Signal system	EIA	CCIR
Effective picture elements	768 x 494	752 x 582
Cell size	8.4 (H) x 9.8 (V) $\mu$ m	8.6 (H) x 8.3 (V) $\mu$ m
Horizontal frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 Hz	50 Hz
Lens mount	C mount	
Flange back	17.526 mm	
Sync system	Internal / External (auto)	
External sync system	HD / VD (2 to 5 Vp-p), VS	
External sync frequency	+/- 1%	
Jitter	Less than +/- 50 nsec	
Scanning system	2:1 Interlaced	
Video output	1.0 Vp-p, negative, 75 $\Omega$ unbalanced	
Horizontal resolution	570 TV lines	560 TV lines
S/N ratio	60 dB	
Gain	AGC / Manual Selectable	
Gamma	ON / OFF	
Normal shutter	1/100 to 1/10,000 s	1/120 to 1/10,000 s
External trigger shutter	1/4 to 1/10,000 s	1/4 to 1/8,000 s
Power requirements	DC12 V (+9 to 16 V)	
Power consumption	1.6 W	
Dimensions	1 3/16 x 1 3/16 x 1 5/16 inches (29 (W) x 29 (H) x 32 (D) mm)	
Weight	2 oz (50 g)	
Operation temp./mois.	-5 to +45°C (-23 to +113°F) / 20 to 80% (no condensing)	
Storage temp./mois.	-20 to +50°C (-4 to +122°F) / 20 to 95% (no condensing)	
Vibration	10 G (20 to 200 Hz)	
Shock resistance	70 G	
MTBF	126,000 hrs.	
Regulatory compliance	UL1492, FCC Class A Digital Device, CE (EN50081-2 + EN50082-2), EMC (AS35448)	
Supplied accessories	Lens mount cap (1), Operating instructions (1)	

Product information  
is available on the  
ISP Home Page

Sony online <http://www.sony.co.jp/ISP/>

Click!

### Product Information

Information including product features and catalogs

### Document & Software

Product document information and sample software  
downloads

Product catalog

User's Guide  
XC-E series  
XC-EU50/EU50CE

Application Guide

Instruction Manual

Command List

Sample software

Sony Electronics Inc.  
One Sony Drive  
Park Ridge, NJ 07656  
[www.sony.com/videocameras](http://www.sony.com/videocameras)  
1-800-686-SONY

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