

# B/W VIDEO CAMERA

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, 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 as 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.



## XC-E Series

Component/OEM



## 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 1/8 x 1 1/8 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
- Synchronisation: internal/external (HD/VD)
- High shock and vibration tolerance

## ACCESSORIES

- DC-700/700CE** Compact camera adaptor
- 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 1/2 x 6 3/8 inches)



- CCXC-12P02N** (2 m) 12 pin camera cable (CE standard)  
**CCXC-12P05N** (5 m)  
**CCXC-12P10N** (10 m)  
**CCXC-12P25N** (25 m)



- VCT-333I** Tripod adaptor
- ABS
  - Approx. 6.1 g (0.2 oz)
  - Dimensions: 18 (W) x 6 (H) x 27 (D) mm (2 3/2 x 1/4 x 1 1/8 inches)

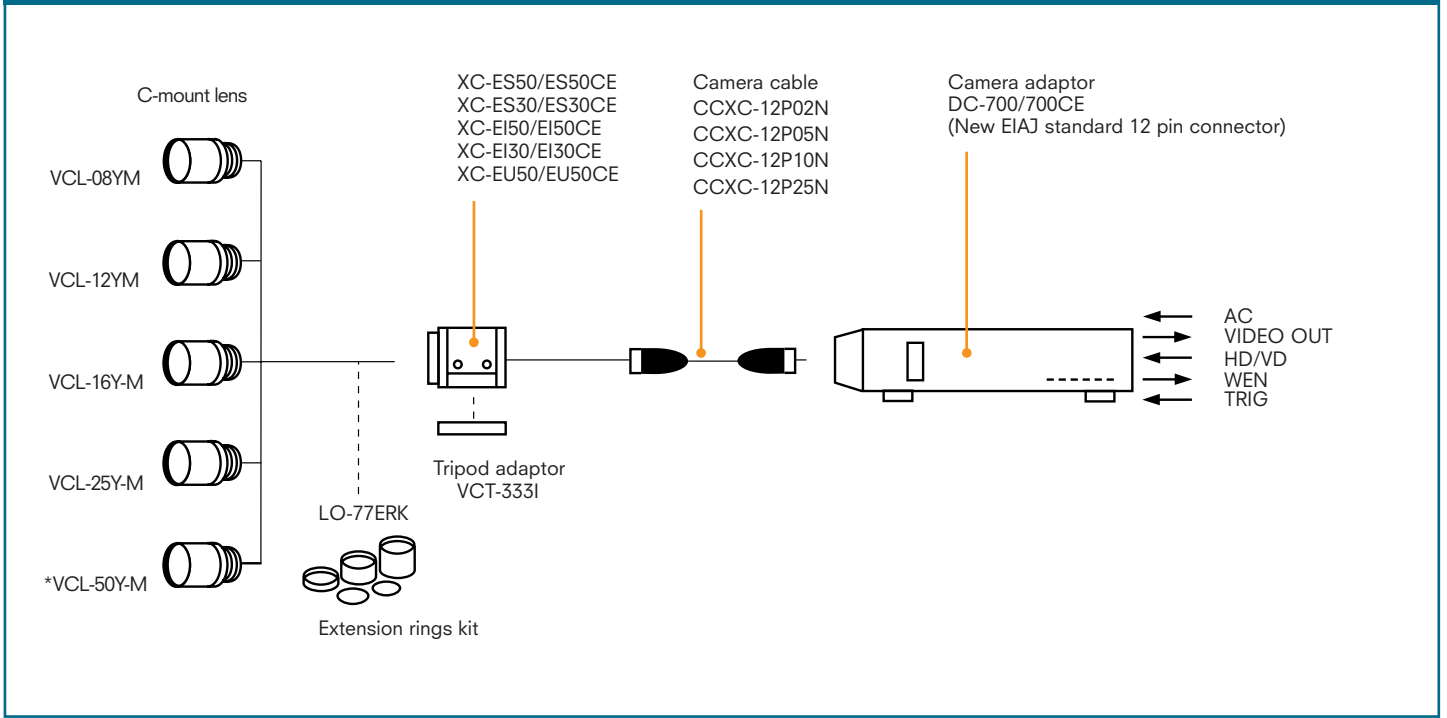


this is not a rehearsal.

[www.sonybiz.net/vision](http://www.sonybiz.net/vision)

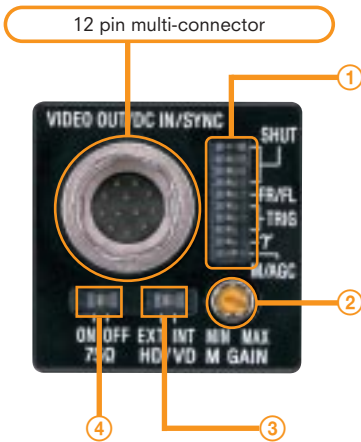
**SONY**

## CONNECTION DIAGRAM

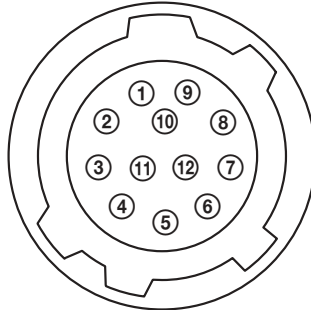


\* Only VCL-50Y-M is applicable to the XC-EU50/EU50CE

## DIMENSIONS & REAR PANEL



### ● 12 pin multi-connector



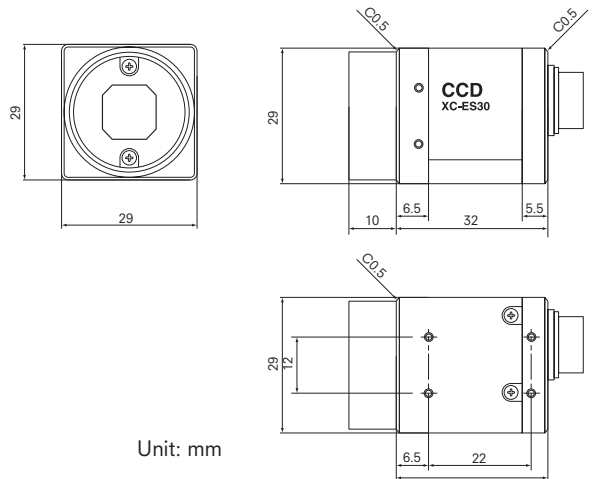
Pin No.	EXTERNAL SYNC (HD/VD)	INTERNAL SYNC (HD/VD)
①	GND	GND
②	+12 V	+12 V
③	GND	GND
④	VIDEO output	VIDEO output
⑤	GND	GND
⑥	External HD input	Internal HD output
⑦	<sup>*3</sup> External VD input	Internal VD output
⑧	GND	GND
⑨	-	-
⑩	<sup>*4</sup> WEN output	<sup>*4</sup> WEN output
⑪	TRIG input	TRIG 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
		OFF
		Dip switch 5: FRAME/FIELD
		FRAME
		Dip switch 6-8: External trigger shutter mode, restart/reset mode
Normal		
	Dip switch 9: Gamma ON/OFF	OFF
	Dip switch 0: GAIN	Manual
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



Unit: mm

## STANDARD MODEL

XC-ES50/ES50CE  
XC-ES30/ES30CE



### Applicable wavelength range

400-770 nm



## NEAR IR MODEL

XC-EI50/EI50CE  
XC-EI30/EI30CE



### Applicable wavelength range

400-770 nm



## 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 mm	8.6 x 8.3 mm	6.35 x 7.4 mm	6.5 x 6.25 mm	8.4 x 9.8 mm	8.6 x 8.3 mm	6.35 x 7.4 mm	6.5 x 6.25 mm
Lens mount	C mount							
Flange back	17.526 mm							
Sync system	Internal / External (auto)							
External sync system	HD / VD (2 to 5 Vp-p)							
External sync frequency	± 1%							
Jitter	Less than ± 50 ns							
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	29 (W) x 29 (H) x 32 (D) mm (1 3/16 x 1 3/16 x 1 5/16 inches)							
Mass	50 g (2 oz)							
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 hours							
Regulatory compliance	UL1492, FCC Class A Digital Device, CE (EN50081-2 + EN50082-2), AS4251.1 + AS4252.2							
Supplied accessories	Lens mount cap (x1), Operating instructions (x1)							

\* F1.4, AGC ON, without IR cut filter

\*\* Using Dip switch on the rear panel or Using trigger pulse width

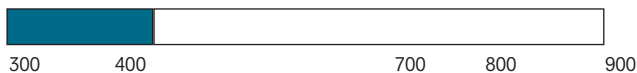
## UV MODEL

### XC-EU50/EU50CE



#### Applicable wavelength range

300-420 nm

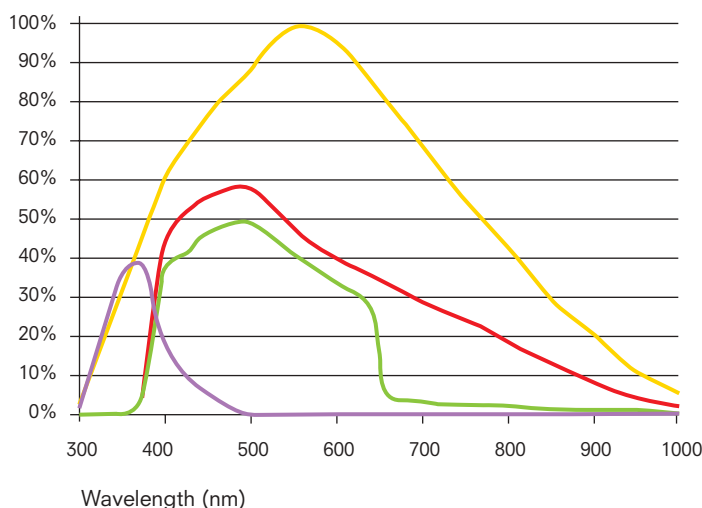


The XC-EU50/EU50CE models are compact and light-weight cameras that have near-ultraviolet sensitivity in the i-line, or 365 nm, range. Examples of typical application areas are PCB and solder inspection, document proofing, microscopy, medical and cosmetics applications. The short wavelength allows the XC-EU50/EU50CE models 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.

## SPECIFICATIONS

	XC-EU50	XC-EU50CE
Image device	1/2 type IT CCD	
Signal system	EIA	CCIR
Effective picture elements	768 (H) x 494 (V)	752 (H) x 582 (V)
Cell size	8.4 (H) x 9.8 (V) $\mu\text{m}$	8.6 (H) x 8.3 (V) $\mu\text{m}$
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)	
External sync frequency	$\pm 1\%$	
Jitter	Less than $\pm 50$ ns	
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	29 (W) x 29 (H) x 32 (D) mm	
Mass	50 g (2 oz)	
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 hours	
Regulatory compliance	UL1492, FCC Class A Digital Device, CE (EN50081-2 + EN50082-2), EMC (AS35448)	
Supplied accessories	Lens mount cap (x1), Operating instructions (x1)	

## SPECTRAL RESPONSE



Note following differences between models:

- New XC-E Series have much improved sensitivity over well-known XC-75/73 Series.
- XC-EI models are more sensitive than XC-ES models, not only in near-IR range but in visible range as well.
- XC-EU models are only sensitive in near-UV range and are not susceptible to disturbance from surrounding visible light.

Product information  
is available on the  
ISP Home Page

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CA XC-E Seriesv2/GB-03/09/2001

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