XC-ST30/CE
XC-ST50/CE
XC-ST70/CE

CCD B/W VIDEO CAMERA MODULE

The XC-ST30/CE, XC-ST50/CE and XC-ST70/CE incorporate the latest CCD and signal processing technologies into a compact black and white camera module. A new external trigger design allows the electronic shutter speed to be freely specified by the width of an external trigger pulse or by a switch setting on the rear panel of the camera. These cameras are also user-friendly, with all switch settings located on the rear panel.

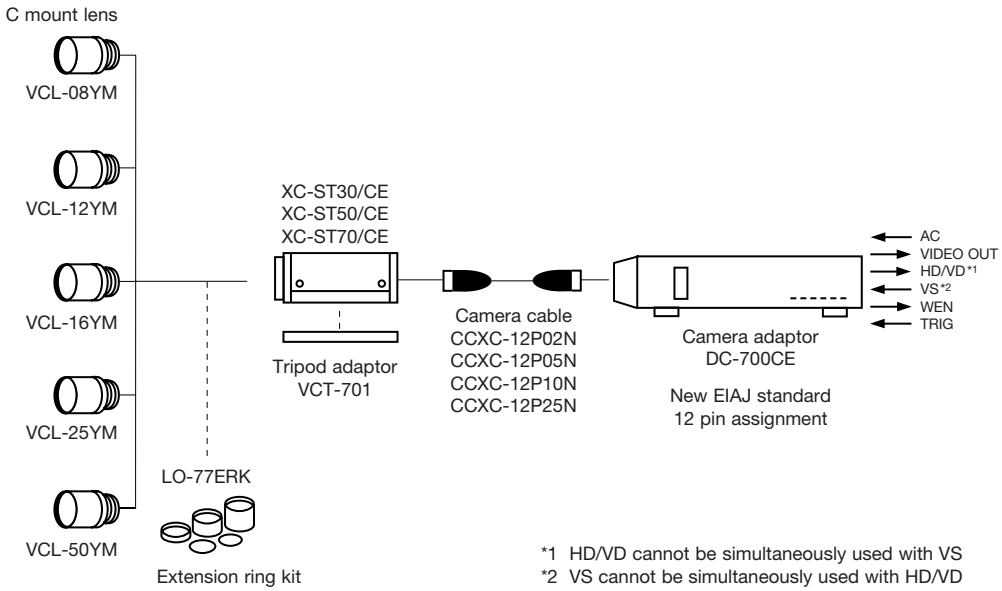
Moreover, the XC-ST30/CE 1/3 type CCD, XC-ST50/CE 1/2 type CCD and XC-ST70/CE 2/3 type CCD models have the exact same dimensions, simplifying space requirements and making it easy to interchange them if necessary. These features, along with high picture quality and high shock and vibration tolerance make the XC-ST30/CE, XC-ST50/CE and XC-ST70/CE cameras ideal for demanding machine vision applications.

Features

- XC-ST30/CE: 1/3 type IT CCD
- XC-ST50/CE: 1/2 type IT CCD
- XC-ST70/CE: 2/3 type IT CCD
- Small and lightweight:
  44 (W) x 29 (H) x 57.5 (D) mm, 110 g
  (XC-ST70/CE is 105 g)
- High sensitivity: 0.3 lx (F1.4)
- High S/N ratio: 54 dB (XC-ST30CE),
  58 dB (XC-ST50CE and XC-ST70CE)
- Electronic shutter function
  (1/100 to 1/10,000 s)
- Flexible trigger shutter functions
  – simple trigger with internally generated HD/VD and Write Enable (WEN)
  – exposure control with switches or trigger pulse width
- Readout on command (with HD/VD input)
- 2:1 interlace
- Frame/field exposure
- Restart/Reset mode
- Synchronisation: internal/external
  (HD/VD, VS)
- High shock and vibration tolerance

CHANGING
THE WAY
BUSINESS
COMMUNICATES

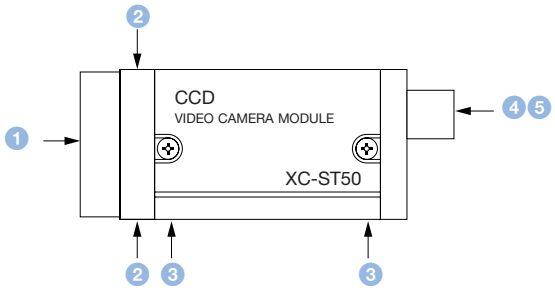
CONNECTIONS



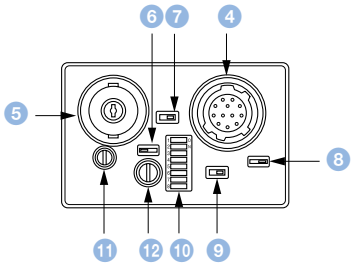
*1 HD/VD cannot be simultaneously used with VS
*2 VS cannot be simultaneously used with HD/VD

LOCATIONS OF PARTS & OPERATIONS

Side



Rear panel



1 Lens mount (C mount)
A commercial C mount lens as well as Sony standard lenses can be used.

2 Camera fixing reference hole
High-precision screw hole machined on the lens mount surface.

3 Screw hole for tripod adaptor installation (VCT-ST70I)

4 12 pin multi-connector
The 12 pin multi-connector is connected to a DC IN/SYNC (DC power/sync signal input)

5 BNC connector
Video out

6 Gamma correction
ON/OFF switchable

7 Internal/External synchronisation switch
In the EXT position, if there is no external sync input, the internal sync is activated inside the camera. In this case, HD/VD signal is not output through the 12 pin multi-connector.

8 Trigger polarity switch
The trigger polarity is selectable (neg/pos polarity)

9 75 Ω termination switch

10 Dip switch
Dip switch 1 - 4: Shutter speed
Dip switch 5: FRAME/FIELD exposure
Dip switch 6 - 8: Normal shutter mode, External trigger shutter mode, Restart/ Reset mode

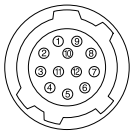
11 Gain switch
A: Image output at a fixed level of image according to the brightness of the subject. (Variable range: 0 to 18 dB)
F: Fixed gain 0 dB
M: gain (manual)
Factory setting: the variable gain is adjusted to the fixed sensitivity for a standard subject. When using two or more XC-ST30/CE, XC-ST50/CE or XC-ST70/CE cameras, identical images of the same subject can be attained.

12 Gain control
The gain can be adjusted between 0 to 18 dB when the gain switch is set to "M".

12 pin multi-connector

Pin No.	External HD/VD sync	Internal HD/VD sync	External VS sync
1	GND	GND	GND
2	+12 V	+12 V	+12 V
3	GND	GND	GND
4	VIDEO output	VIDEO output	VIDEO output
5	GND	GND	GND
6	External HD input	Internal HD output	—
7	*3 External VD input	Internal VD output	VS
8	GND	GND	GND
9	—	—	—
10	*4 WEN output	*4 WEN output	*4 WEN output
11	TRIG input	TRIG input	TRIG input
12	GND	GND	GND

*3 : In Restart/Reset mode VD input is necessary
*4 : WEN output is only effective in EXT trigger shutter mode



4 12 pin multi-connector

Rear panel factory settings

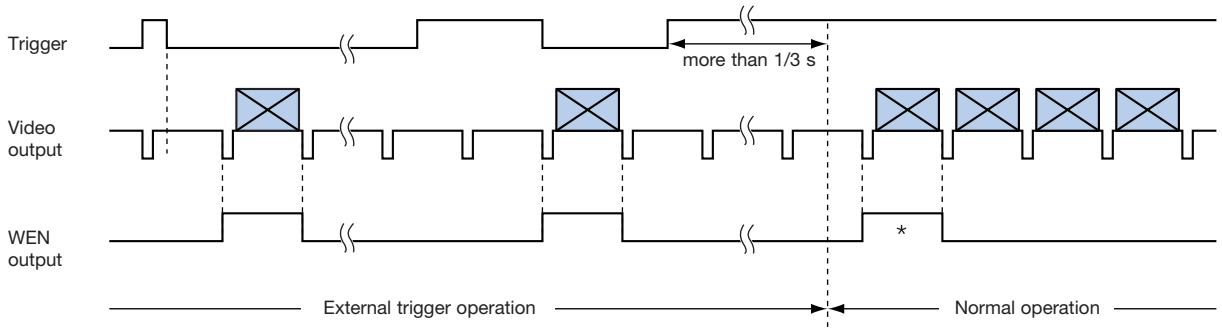
No.	Switch	Factory setting
6	Gamma correction ON/OFF	OFF
7	Internal/External sync	EXT
8	Trigger polarity	+
9	75 Ω termination	ON
10	Dip switch	
	1 · 2 · 3 · 4: Shutter speed	OFF
	5: Field/Frame	OFF
	6 · 7 · 8: normal shutter/EXT trigger shutter/restart reset	OFF
11	GAIN	FIX

TRIGGER SHUTTER MODES

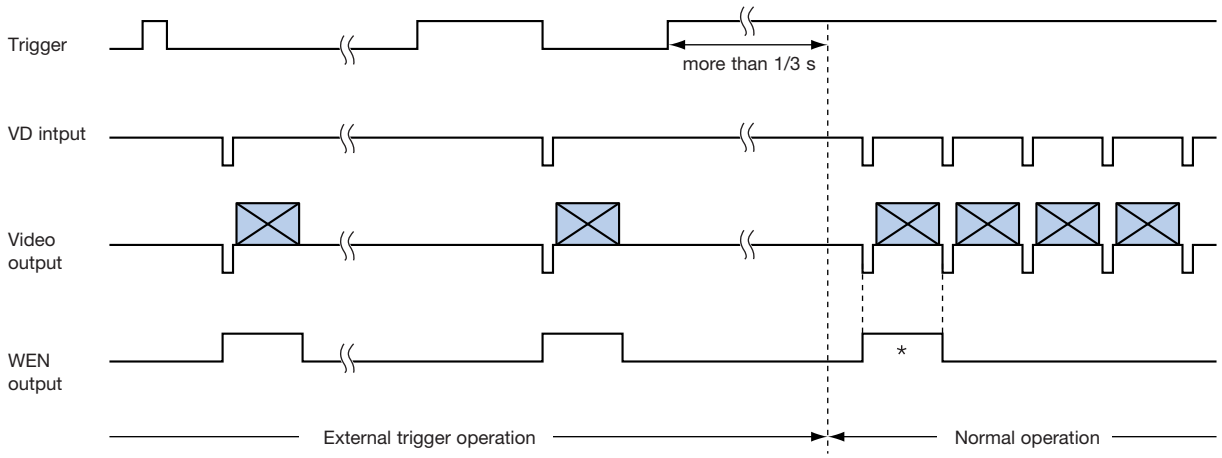
A new external trigger design allows the electronic shutter speed to be freely specified by the width of an external trigger pulse or by a switch setting on the rear panel of the camera.

Shutter speed setting based on the trigger width

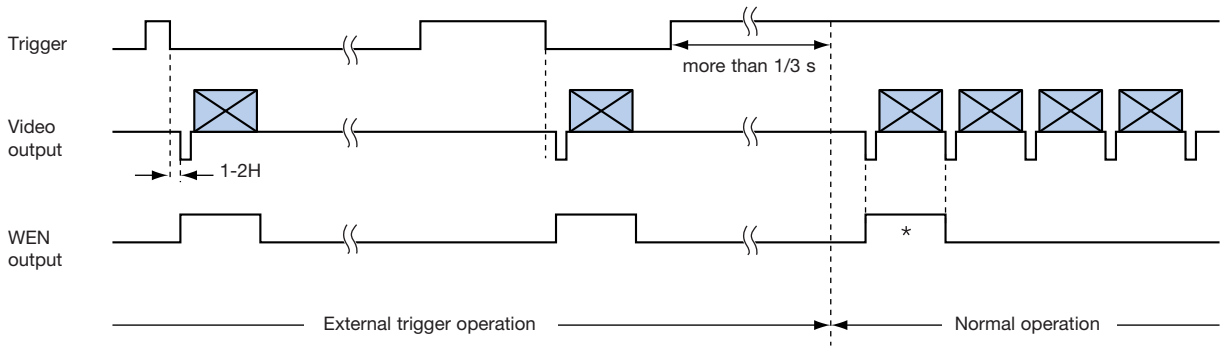
Non reset mode Ext sync (continuous HD/continuous VD input), or internal sync



Non reset mode Ext sync (continuous HD and single VD input)



Reset mode Only for Ext sync



* When switching from Ext. trigger to regular operation the WEN pulse is output

Shutter speed settings by dip switch control

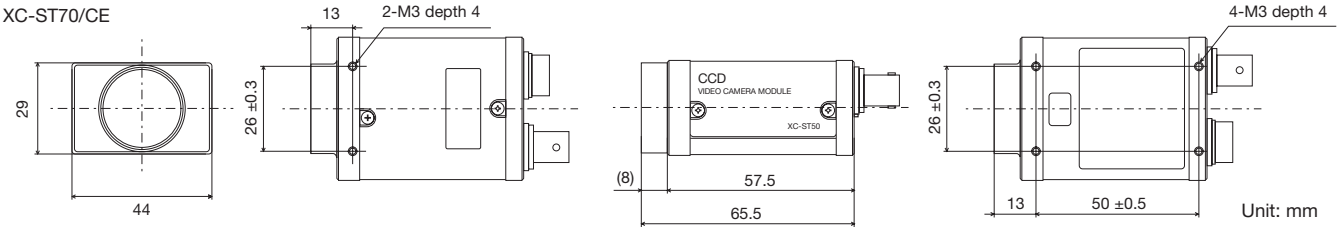
Shutter speeds are set by dip switches 6, 7, 8, on the camera's rear panel. The width of the trigger pulse is irrelevant.

SPECIFICATIONS

	XC-ST30	XC-ST50	XC-ST70	XC-ST30CE	XC-ST50CE	XC-ST70CE
Image device	1/3 type IT CCD	1/2 type IT CCD	2/3 type IT CCD	1/3 type IT CCD	1/2 type IT CCD	2/3 type IT CCD
Effective Pictures Element	768 (H) x 494 (V)			752 (H) x 582 (V)		
Signal system	EIA standard			CCIR standard		
Horizontal frequency	15.734 kHz ±1%			15.625 kHz ±1%		
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 ~ 5 Vp-p), VS					
External Sync frequency	Horizontal sync frequency ± 1%					
Jitter	less than ± 50 nsec					
Scanning system	525 lines, 60 fields/s, 2:1 Interlaced			625 lines, 50 fields/s, 2:1 Interlaced		
Video output	1.0 Vp-p, negative, 75 Ω unbalanced					
Horizontal resolution	570 TV lines			560 TV lines		
Sensitivity	400 lx, F8 (γ compensation ON, 0 dB)					
Minimum illumination	0.3 lx (F1.4, AGC ON, without IR cut filter)					
S/N ratio	56 dB	60 dB	60 dB	54 dB	58 dB	58 dB
Gain	AGC (0 ~18 dB) / Manual (0 ~18 dB) / Fixed (0 dB) Selectable					
Gamma	ON / OFF					
Normal shutter	1/100 ~ 1/10,000 s			1/120 ~ 1/10,000 s		
External trigger shutter	1/4 ~ 1/10,000 s			1/4 ~ 1/8,000 s		
Power requirements	DC 12 V ±10%					
Power consumption	1.9 W	2.0 W	2.1 W	1.9 W	2.0 W	2.1 W
Dimensions	44 (W) x 29 (H) x 57.5 (D) mm					
Mass	110 g		105 g	110 g		105 g
Operation temp. / Humidity	-5°C ~ +45°C / 20 ~ 80%					
Storage temp. / Humidity	-30°C ~ +60°C / 20 ~ 95%					
Vibration	10 G (20 ~ 200 Hz)					
Shock resistance	70 G					
MTBF	70,600 hrs.					
Regulations	UL1492, FCC Class A Digital Device, CE (EN50081-2 + EN50082-2), AS4251.1 + AS4252.2					
Supplied accessories	Lens mount cap (x 1), Operating instructions (x 1)					
Optional accessories	DC-700CE: Compact camera adaptor (CE standard): Compact, lightweight, Two video outputs, External sync IN/OUT, Trigger input/WEN output, New EIAJ standard 12 pin assignment, Dimensions: 110 (W) x 53 (H) x 160 (D) mm CCXC-12P02N (2 m), CCXC-12P05N (5 m), CCXC-12P10N (10 m), CCXC-12P25N (25 m): 12 pin camera cable (CE standard) VCT-ST70I: Tripod adaptor: Isolated type, Approx. 14 g, Dimensions: 40 (W) x 6 (H) x 59 (D) mm					

DIMENSIONS

XC-ST30/CE
XC-ST50/CE
XC-ST70/CE



Unit: mm

Sony contacts

Sony Belgium (ICS) +32 2 724 18 24
Sony France (ICS) +33 1 55 90 41 58
Sony Germany (ICS) +49 221 537 8923
Sony Italy (ICS) +39 02 61 83 84 06
Sony Netherlands (ICS) +31 20 658 1502
Sony Nordic (ICS) +46 40 19 08 06
Sony Spain (ICS) +34 902 41 51 61
Sony UK (ICS) +44 1932 816 340

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CA XC-ST30/50/70CE/GB-11/12/2002