

SONY

CCD B/W VIDEO CAMERA MODULE

XC-ST50/ST50CE XC-ST30/ST30CE

Component / OEM



OUTLINE

The XC-ST50/ST50CE and XC-ST30/ST30CE 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-ST50/ST50CE 1/2 type CCD and XC-ST30/ST30CE 1/3 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-ST50/ST50CE and XC-ST30/ST30CE cameras ideal for demanding machine vision applications.

FEATURES

- XC-ST50/50CE: 1/2 type IT CCD
- XC-ST30/30CE: 1/3 type IT CCD
- Small and lightweight: 44(W) x 29(H) x 57.5(D) mm, 110 g
- High sensitivity: 0.3 lx (F1.4)
- High S/N ratio: 60 dB (XC-ST50), 56 dB (XC-ST30)
- 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/non-interlace
- Frame/field exposure
- Restart/Reset function
- Synchronization: internal/external (HD/VD, VS)
- High shock and vibration tolerance

ACCESSORIES

Compact camera adaptor (CE standard)

DC-700/700CE

- 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



12 pin camera cable (CE standard)

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



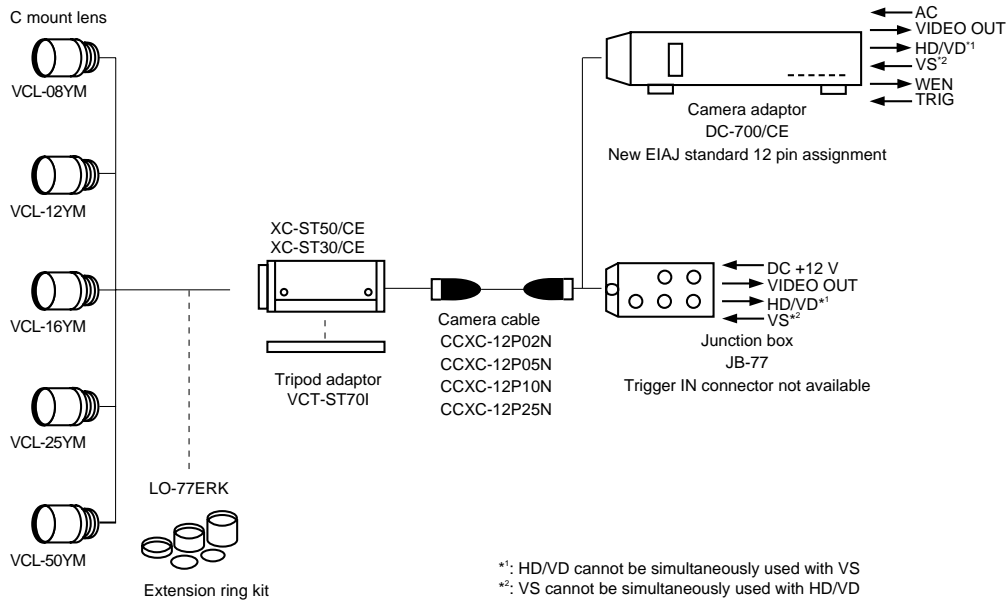
Tripod adaptor

VCT-ST701

- Isolated type
- Approx. 14 g
- Dimensions: 40(W) x 6(H) x 59(D) mm

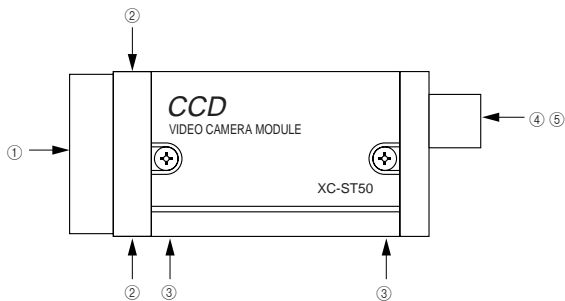


CONNECTIONS

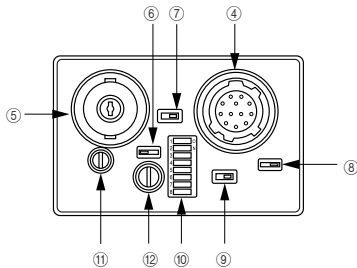


LOCATION OF PARTS & OPERATION

● Side



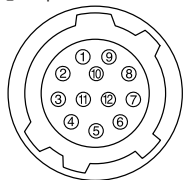
● Rear Panel



- 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 synchronization 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-ST50/50CE, XC-ST30/30CE 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

④ 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 | ^{*)} External VD input | Internal VD output | VS |
| 8 | GND | GND | GND |
| 9 | — | — | — |
| 10 | ^{*)} WEN output | ^{*)} WEN output | ^{*)} WEN output |
| 11 | TRIG input | TRIG input | TRIG input |
| 12 | GND | GND | GND |

^{*)}: In restart/reset mode VD input is necessary

^{*)}: WEN output is only effective in EXT trigger shutter mode

● Rear Panel Factory settings

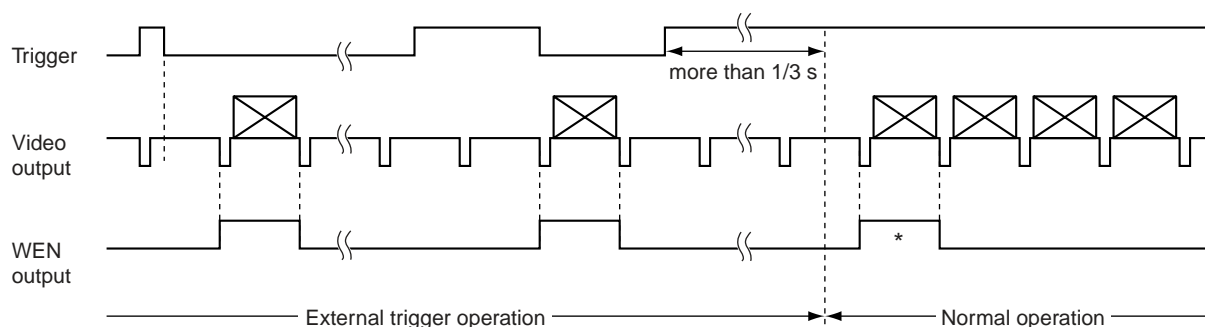
| No. | Switch | Factory setting |
|-----|---|-----------------|
| ⑥ | Gamma correction ON/OFF | OFF |
| ⑦ | Internal/External sync | EXT |
| ⑧ | Trigger polarity | + |
| ⑨ | 75 Ω termination | ON |
| ⑩ | Dip switch | |
| | 1 · 2 · 3 · 4: Shutter speed | OFF |
| | 5: Field/Frame | OFF |
| ⑪ | 6 · 7 ·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

TRIGGER SHUTTER MODES

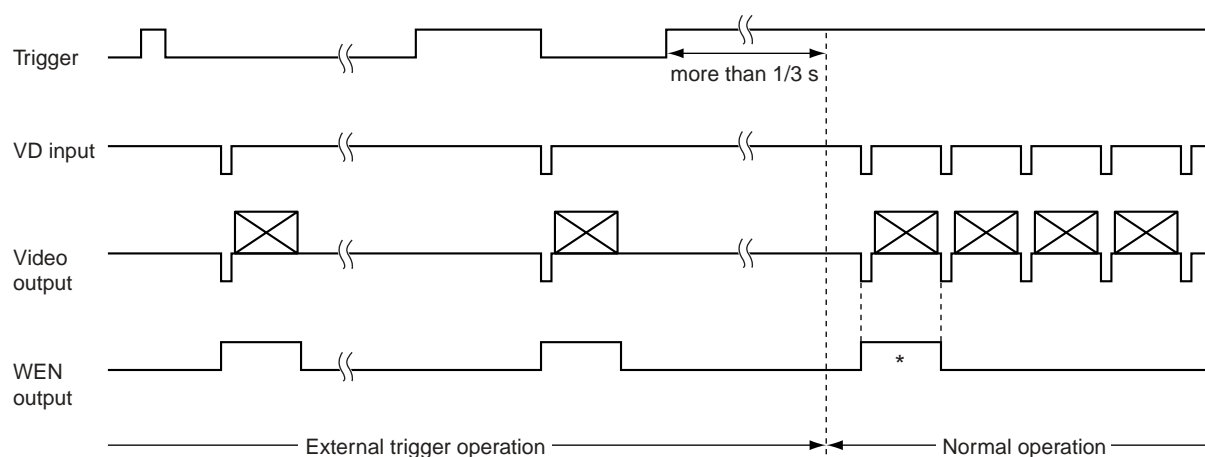
A new external trigger design allows the electronic shutter speed to be freely specified by the width of an external trigger pulse or by a switch setting on the rear panel of the camera.

Shutter speed setting based on the trigger width

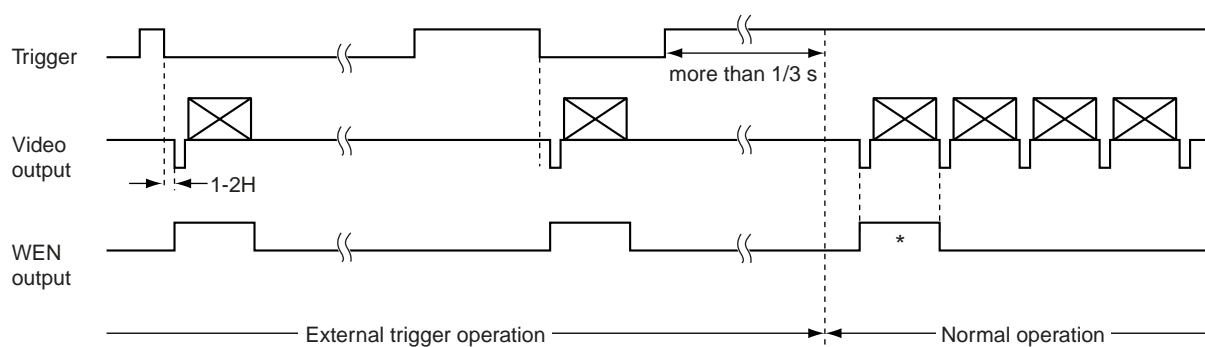
◇ Non reset mode Ext sync (continuous HD/continuous VD input), or internal sync



◇ 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

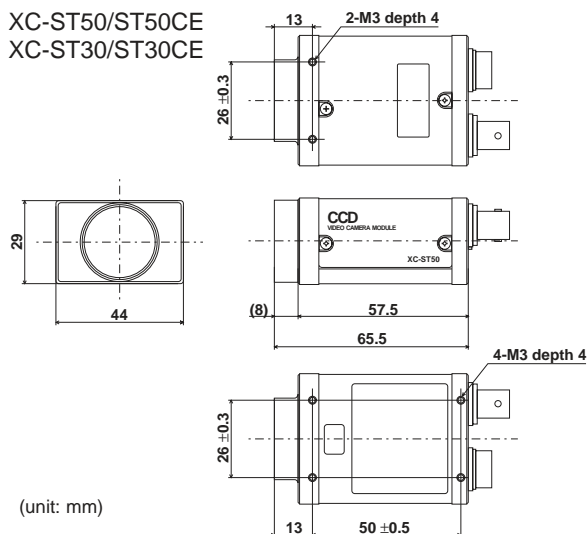
Shutter speeds are set by dip switches 6,7,8 on the camera's rear panel. The width of the trigger pulse is irrelevant.

SPECIFICATIONS

| | XC-ST50 | XC-ST30 | XC-ST50CE | XC-ST30CE |
|----------------------------|---|-----------------|--|-----------------|
| 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) | |
| 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 (g compensation ON, 0 dB) | | | |
| Minimum illumination | 0.3 lx (F1.4, AGC ON, without IR cut filter) | | | |
| S/N ratio | 60 dB | 56 dB | 58 dB | 54 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 | DC12 V +/-10% | | | |
| Power consumption | 2.0 W | 1.9 W | 2.0 W | 1.9 W |
| Dimensions | 44(W) x 29(H) x 57.5(D) mm | | | |
| Weight | 110 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 (1), Operating instructions (1) | | | |

DIMENSIONS & REAR PANEL

XC-ST50/ST50CE
XC-ST30/ST30CE



Product information is available on the
ISP Home Page

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Product Information

Information including product features and catalogs

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- Sony Electronics Inc. (USA) HQ
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Germany
France
UK
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Italy

1 Sony Drive Park Ridge, NJ 07656
115 Gordon Baker Rd, Toronto, Ontario M2H 3R6
15, rue Floreal F-75831 Paris Cedex 17, France
Hugo-Eckener-Strasse 20 D-50829 Koln
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Per Albin Hanssons vag 20 S-214 32 Malmo Sweden
Via Galileo Galilei 40 I-20092 Cinisello Balsamo, Milano

(TEL:+1-800-686-7669)
<http://www.sony.com/videocameras>
(TEL:+1-416-499-1414) (FAX:+1-416-497-1774)
(TEL:+33-1-55-90-35-11) (FAX:+33-1-55-90-35-17)
<http://www.pro.sony-europe.com>
(TEL:+49-221-5966-322) (FAX:+49-221-5966-491)
(TEL:+33-1-55-90-41-58) (FAX:+33-1-55-90-42-20)
(TEL:+44-990-331122) (FAX:+44-1932-817011)
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