SONY

4-115-799-**12** (1)

Intelligent Camera

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

XCI-SX100/SX100C
XCI-V100/V100C

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4115799120

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

IMPORTANT
The nameplate is located on the bottom.

Power Supply Caution for U.S.A. and CANADA
The unit must always be operated with a rated 12V dc, minimum 2A, Class 2 power supply or limited power sources.
In the USA, use an UL Listed power supply.
In Canada, use a CSA-certified power supply.

For the customers in the U.S.A.
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Note: This camera is not intended for use in security applications in the meaning of the European standard series EN 50132 (Alarm systems - CCTV surveillance systems for use in security applications).

For the customers in Europe
The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.
The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

This apparatus shall not be used in the residential area.

For the customers in Europe, Australia and New Zealand

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.
In the case that interference should occur, consult your nearest authorized Sony service facility.

AVERTISSEMENT

Afin de réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écarter tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

IMPORTANT
La plaque signalétique se situe sous l'appareil.

Pour les clients en Europe
Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japon.
Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

Ne pas utiliser cet appareil dans une zone résidentielle.

Pour les utilisateurs en Europe, Australie et Nouvelle-Zélande

AVERTISSEMENT
Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Précautions à prendre avec l'alimentation électrique pour les ETATS-UNIS et le CANADA
L'unité doit toujours être utilisée avec un courant cc nominal de 12 V, minimum 2A, une alimentation électrique Classe 2 ou des sources d'alimentation électrique limitées.
Aux Etats-Unis, utiliser une alimentation électrique UL répertoriée.
Au Canada, utiliser une alimentation électrique certifiée CSA.

WARNUNG

Um die Gefahr von Bränden oder elektrischen Schlägen zu verringern, darf dieses Gerät nicht Regen oder Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.

WICHTIG
Das Namensschild befindet sich auf der Unterseite des Gerätes.

Für Kunden in Europa
Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.
Der autorisierte Repräsentant für EMV und Produktsicherheit ist Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Deutschland. Bei jeglichen Angelegenheiten in Bezug auf Kundendienst oder Garantie wenden Sie sich bitte an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

Dieser Apparat darf nicht im Wohnbereich verwendet werden.

Für Kunden in Europa, Australien und Neuseeland

WARNUNG
Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

Notes on Operation

Power supply
The camera module is operated with a +12 V DC. If the power supply is insufficient, use the stable power with less ripple or noise.

Foreign bodies
Be careful not to spill liquids, or drop any flammable or metal objects in the camera body.

Locations for operation and storage
Avoid operation or storage in the following places.
- Extremely hot or cold locations. Recommended temperature range is 0°C to 40°C (32°F to 104°F)
- Locations subject to strong vibration or shock
- Near generators of strong electromagnetic radiation such as TV or radio transmitters

Care
Use a blower to remove dust from the surface of the lens or optical filter. Clean the exterior with a soft, dry cloth.
If the camera is very grimy, apply a cloth soaked in a mild detergent then wipe with a dry cloth. Do not apply organic solvents such as alcohol which may damage the finish.

Data and security
You should keep in mind that the images or audio you are monitoring may be protected by privacy and other legal rights, and the responsibility for making sure you are complying with applicable laws is yours alone.

OS
This camera does not support any OS as the factory setup. When you turn on the power, only the BIOS screen is displayed.

Note on laser beams
Laser beams may damage a CCD. You are cautioned that the surface of a CCD should not be exposed to laser beam radiation in an environment where a laser beam device is used.

Overview

The XCI-SX100/SX100C/V100/V100C lineup include an intelligent monochrome cameras (XCI-SX100/V100) and intelligent color cameras (XCI-SX100C/V100C) that can capture and process pictures, as well as peripheral devices.

High image quality
These cameras produce high-resolution images of 1,250,000 pixels with the XCI-SX100/SX100C (SXGA) and 330,000 pixels with the XCI-V100/V100C (VGA), using progressive scan CCDs. As square pixels are adopted, images can be processed using the original aspect ratio without conversion procedure.

Electronic shutter function
Shutter speed can be selected from among a variety of available speeds.

External trigger shutter function (2 to 1/50,000 sec.)
You can obtain a freeze frame by inputting an external trigger signal. This function is useful for shooting a fast-moving object clearly.

Partial scan
The camera module can limit the effective video output area to achieve high frame rates, enabling high-speed image processing.

Binning (XCI-SX100/V100 only)
By binning two pixels that align vertically or horizontally, you can acquire a frame rate twice that of the normal mode vertically, and sensitivity twice that of the normal mode vertically and horizontally.

High-resolution images (XCI-SX100C/V100C only)
XCI-SX100C/V100C has a color interpolation algorithm that produces high-resolution images.

Auto iris
With the lens-control signal output from the 6-pin auto iris port, the camera module can control a connected DC iris lens. If you remove the C-mount adaptor, the camera module can support a CS-mount DC iris lens.

Built-in processor
- x86 CPU
- 512 MB DDR2-SDRAM

PC standard input/output interface
- LAN connector
- VGA monitor, analog RGB output
- Hi-speed USB connector

Body fixing
Four screw holes to be used to install the camera are provided both on the top and the bottom of the camera. Installing the camera module on the front panel minimizes deviation of the optical axis.

Tripod
You can mount the camera on a tripod by tightening the tripod screws.

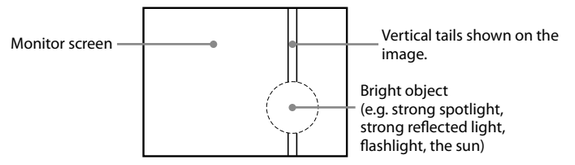
Phenomena Specific to CCD Image Sensors

The following phenomena that may appear in images are specific to CCD (Charge Coupled Device) image sensors. They do not indicate malfunctions.

White flecks
Although the CCD image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc.
This is related to the principle of CCD image sensors and is not a malfunction.

The white flecks especially tend to be seen in the following cases:
- when operating at a high environmental temperature
- when you have raised the gain (sensitivity)
- when using the slow shutter

Vertical smear
When an extremely bright object, such as a strong spotlight or flashlight, is being shot, vertical tails may be produced on the screen, or the image may be distorted.



Aliasing
When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

When Installing the Camera — Fig. A

When you install the camera with various peripheral devices and if the devices have different ground electric potential, ground only one device. In case there is a ground electric potential difference, the camera may be damaged.

① Hi-speed USB connector
② MONITOR connector
③ LAN connector
④ DC IN connector
⑤ SERIAL connector
⑥ DIGITAL I/O connector

❶ USB mouse/keyboard
❷ Monitor
❸ Host device
❹ Abnormal electricity
❺ Ground electric potential difference
❻ Power supply
❼ Camera control device
❽ DIGITAL I/O control device

System Components — Fig. B

An Intelligent Camera XCI-SX100/SX100C/V100/V100C system can include the following optional products.

❶ **Intelligent Camera**
This is a compact, high-resolution camera using progressive-scan CCD image sensors.

❷ **CCXC-12P02N (2 m, 6.6 ft)/05N (5 m, 16.4 ft)/10N (10 m, 32.8 ft)/25N (25 m, 82 ft) camera cable (not supplied)**
This is attached to the DC IN connector of the camera and is used for power supply and trigger-signal input/output.

❸ **Lens (commercially available)**
Use a lens appropriate for the camera module and your needs.

❹ **Fall-prevention wire**
This is attached to one of the auxiliary holes (top), using the supplied screw.

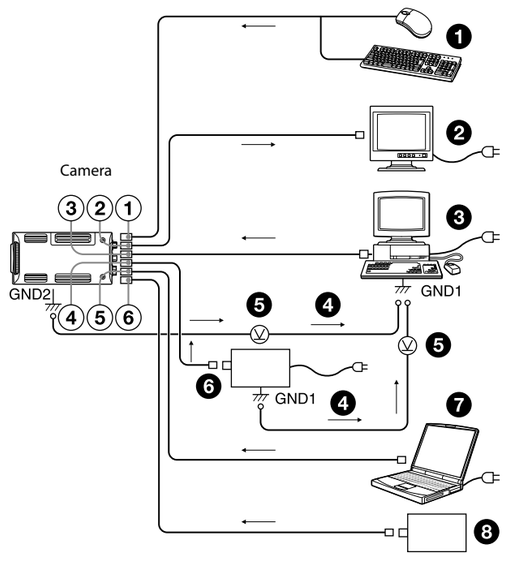
❺ **LAN cable (enhanced category 5) (commercially available)**
This is attached to the LAN connector of the camera and is used to access a network.

Note
Do not connect the LAN cable to a network where excess voltage is present.

❻ **USB mouse/keyboard (commercially available)**
Use a mouse or keyboard that supports USB.

(continued on the reverse side)

A



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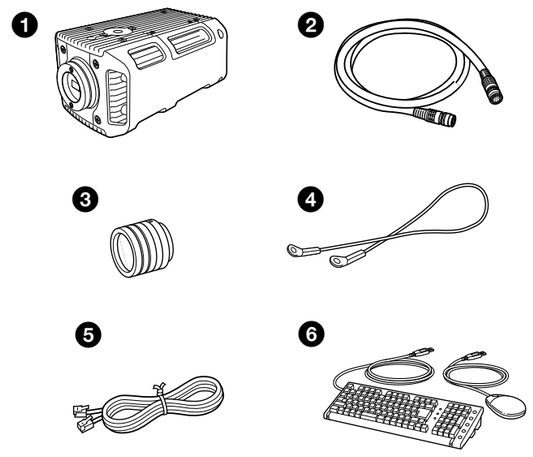

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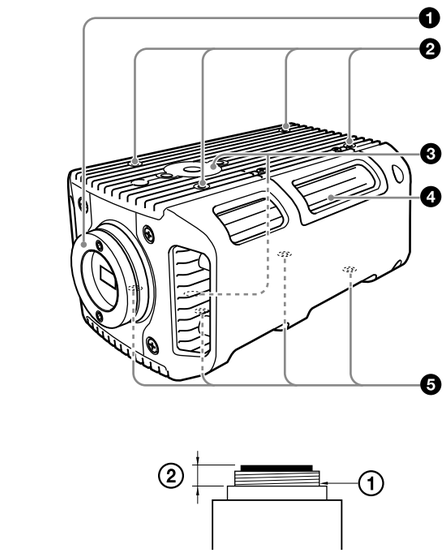

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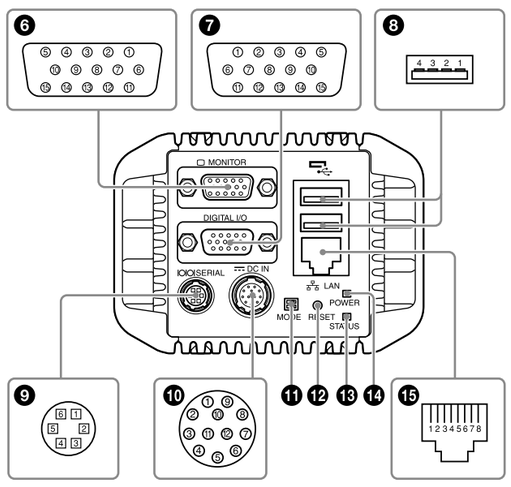

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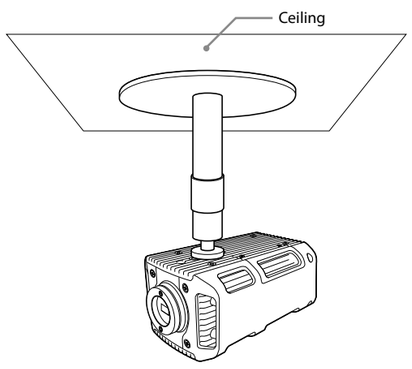

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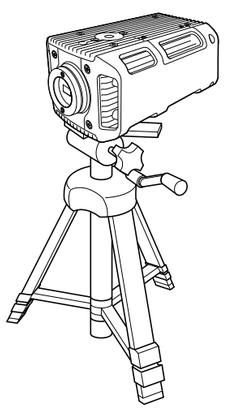

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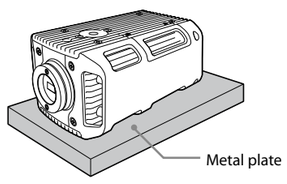

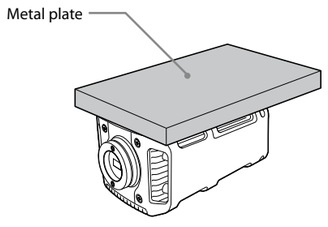

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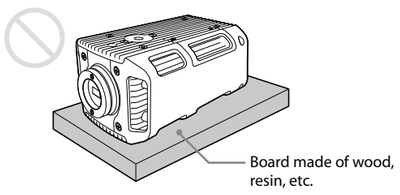

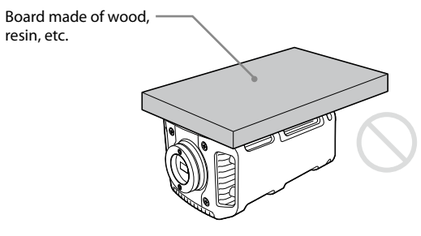

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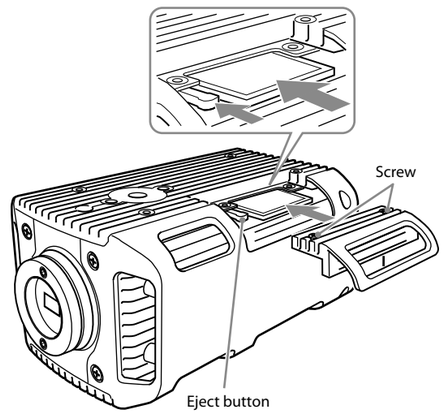

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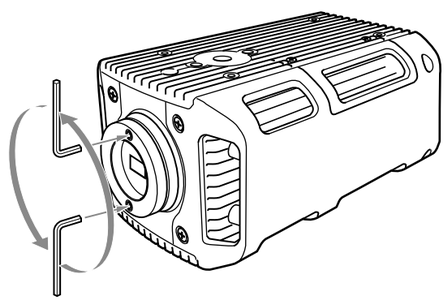

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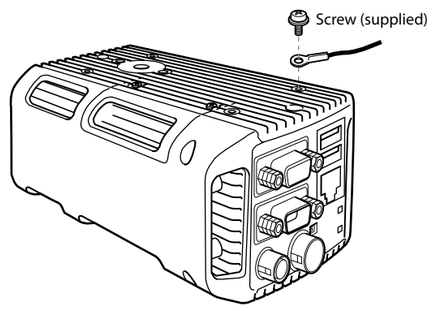

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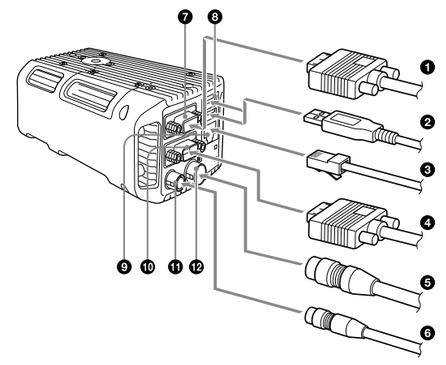


Locations and Functions of Parts and Operations

Front/Top/Bottom — Fig. C

1 Lens mount (C-mount/CS-mount)

Attach any C-mount or CS-mount lens, or other optical equipment.

Note

The lens must not project more than the following length-values from the lens mount.

① Lens mount face
② C-mount: 10 mm (13/32 inch) or less
CS-mount: 5 mm (7/32 inch) or less

2 Fall-prevention wire screw holes (top)/auxiliary reference screw holes (top)

3 Tripod screw holes (top/bottom)

4 CF card slot cover/CF card slot (internal)

5 Reference holes (bottom)

These precision screw holes are for locking the camera in place. Using these holes secures the optical axis alignment.
For details, refer to the Technical Manual.

Rear — Fig. D

6 MONITOR (monitor output) connector (15-pin, female)

You can connect a monitor cable to this connector and display an image on a multiscan monitor.

Pin No.	Signal	Pin No.	Signal
1	R OUT	9	NC
2	G OUT	10	GND
3	B OUT	11	NC
4	NC	12	NC
5	GND	13	HD OUT
6	GND	14	VD OUT
7	GND	15	NC
8	GND		

7 DIGITAL I/O connector (15-pin, male)

You can connect a DIGITAL I/O cable to this connector to transmit and receive data between the camera module and the control device.

Pin No.	Signal	Pin No.	Signal
1	ISO_IN1	9	ISO_OUT4
2	ISO_IN2	10	ISO_OUT_COM1
3	ISO_IN3	11	ISO_OUT5
4	ISO_IN4	12	ISO_OUT6
5	ISO_IN_COM	13	ISO_OUT7
6	ISO_OUT1	14	ISO_OUT8
7	ISO_OUT2	15	ISO_OUT_COM2
8	ISO_OUT3		

8 Hi-speed USB connector

You can connect a USB mouse/keyboard via this connector to control a camera.

Pin No.	Signal	Pin No.	Signal
1	VBUS	3	D+
2	D–	4	GND

9 SERIAL / Auto iris connector (6-pin)

You can connect a serial cable to this connector to control a camera from a camera-control device.
You can connect a DC iris lens to control the lens from a camera.

Pin No.	Signal	Pin No.	Signal
1	TXD	4	IRIS_CONTROL–
2	RXD	5	IRIS_CONTROL+
3	GND	6	IRIS_DRIVE+

10 DC IN (DC power input) connector (12-pin)

You can connect a camera cable (not supplied) to this connector to input the +12 V DC power supply.

Pin No.	Signal	Pin No.	Signal
1	GND	7	NC
2	VCC	8	GND
3	GND	9	VCC
4	NC	10	Exposure pulse output
5	GND	11	Trigger pulse input
6	NC	12	GND

11 MODE switches

For service use. Both switches are set to the left side as the factory setup.

Note

If either of these switches is set to the right side, the camera will not start normally.

12 RESET switch

Hardware reset. Push to restart the camera.

13 STATUS LED

Lights in red when the BIOS is starting up.

14 POWER LED

Lights in green when power is turned on.

15 LAN connector

You can connect a LAN cable to this connector to input/output a video signal to/from the host device/the camera.

Pin No.	Signal	Pin No.	Signal
1	TRD+ (0)	5	TRD– (2)
2	TRD– (0)	6	TRD– (1)
3	TRD+ (1)	7	TRD+ (3)
4	TRD+ (2)	8	TRD– (3)

CAUTION
For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.

CAUTION
When you connect the LAN cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.

ATTENTION
Par mesure de sécurité, ne raccordez pas le connecteur pour le câblage de périphériques pouvant avoir une tension excessive à ce port. Suivez les instructions pour ce port.

ATTENTION
Lors de la connexion du câble LAN de l'appareil au périphérique, utilisez un câble blindé afin d'empêcher tout dysfonctionnement dû au bruit de rayonnement.

VORSICHT
Aus Sicherheitsgründen nicht mit einem Peripheriegerät-Anschluss verbinden, der zu starke Spannung für diese Buchse haben könnte. Folgen Sie den Anweisungen für diese Buchse.

VORSICHT
Verwenden Sie beim Anschließen des LAN-Kabels des Geräts an ein Peripheriegerät ein abgeschirmtes Kabel, um Fehlfunktionen aufgrund von Störungen zu vermeiden.

Installation

Notes on installing the camera

The camera body is designed to externally dissipate heat built up internally during operation.
Install the camera as shown below to promote heat dissipation and retain optimum performance of the camera.
– using a suspension support (E-1)
– using a tripod (E-2)
– using a metal plate (E-3)

Note

Do not attach to a board made of wood, resin, etc. that may block heat dissipation. (E-4)

Inserting the CF memory card — Fig. F

1 Loosen the two screws and remove the cover.
2 Press the eject button and insert the CF card slot.
3 Mount the cover to the camera module, pressing the CF card slot with the cover inside.
4 Fasten the two screws to secure the cover.

Fitting the CS-mount lens — Fig. G

This camera module supports a C-mount lens as the factory setup. If you will be using a CS-mount lens, perform the following steps:
1 Insert two 3– mm Allen wrenches (commercially available) through the screw-recess holes of the C-mount adaptor.
2 Turn the Allen wrenches counterclockwise.
3 Remove the C-mount adaptor.

If you need to use the C-mount adaptor again, follow steps **1** to **3** in reverse order.

Note

When you fit the C-mount adaptor again after removal, a flange focal length may change.

Attaching the fall-prevention wire — Fig. H

1 Attach the fall-prevention wire (not supplied) to the camera module, using the supplied screw.
2 Attach the other end of the fall-prevention wire to a junction box, etc. (screw not supplied)

Note

- The fall-prevention wire is very important for fall prevention. Perform the procedure correctly.
- Use the screws supplied with the XCI-SX100/SX100C/V100/V100C. Using other than the supplied screws may cause damage inside the camera module.

Warning

- If you want to install the camera at a height such as on a ceiling, entrust the installation to an experienced contractor or installer.
- If you install the camera at a height, ensure that the installation location and its material are strong enough to withstand a weight, and then install the camera securely. If they are not strong enough, the camera may fall and cause serious injury.
- To prevent the camera from falling, be sure to attach the supplied wire rope.
- If you install the camera at a height, check periodically, at least once a year, to ensure that the connection has not loosened. If conditions warrant, perform this periodic check more frequently.

Connecting the camera cable — Fig. I

Connect the camera cable to the DC IN connector.
Also, if needed, connect the LAN cable to the LAN connector, the monitor cable to the MONITOR connector, the serial cable to the SERIAL connector, the DIGITAL I/O cable to the DIGITAL I/O connector, and the USB mouse/keyboard to one of the USB connectors respectively. When you connect the monitor cable or DIGITAL I/O cable, plug the cable connector into the monitor connector or DIGITAL I/O connector until they snap into place, holding them.
Then tighten the fixing screws placed on both sides of the cable connector.

1 Monitor cable
2 USB cable
3 LAN cable
4 DIGITAL I/O cable
5 Camera cable
6 Serial cable
7 MONITOR connector
8 Hi-speed USB connector
9 LAN connector
10 DIGITAL I/O connector
11 SERIAL connector
12 DC IN connector

Connect the other end of 5 to the power supply.
Also, if needed, connect 1 to the monitor, 3 to the host device, 4 to the DIGITAL I/O control device, and 6 to the camera control device.

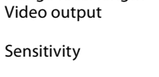
Note

Looseness of the fixing screws may cause poor connection and damage the camera module or cables.
Fasten the fixing screws.

Using a tripod

Use a tripod screw with a protrusion ℓ extending from the installation surface, as follows, and tighten it, using a screwdriver.

ℓ: 4.3 mm to 5 mm (0.17 inches to 0.20 inches)



Specifications

Imaging sensor system

Pickup device	XCI-SX100/SX100C: 1/3 type Interline CCD; 1,250,000 square pixels with alignment XCI-V100/V100C: 1/3 type Interline CCD; 330,000 square pixels with alignment
Output picture elements (horizontal/vertical)	XCI-SX100/SX100C: 1,280 × 960 XCI-V100/V100C: 640 × 480
Chip size (horizontal/vertical)	XCI-SX100/SX100C: 6.26 mm × 5.01 mm XCI-V100/V100C: 5.79 mm × 4.89 mm
Unit cell size (horizontal/vertical)	XCI-SX100/SX100C: 3.75 µm × 3.75 µm XCI-V100/V100C: 7.4 µm × 7.4 µm
CCD vertical drive frequency	XCI-SX100/SX100C: 29.7 kHz XCI-V100/V100C: 46.154 kHz
CCD horizontal drive frequency	XCI-SX100/SX100C: 49.302 MHz XCI-V100/V100C: 36.0 MHz
LUT	10-bit input/10-bit output Five default tables (γ=1, 0.45, 2.2 / binarization / negative-positive inversion)
Shutter speed	Monitoring mode: 2 to 1/100,000 sec. External trigger mode: 2 to 1/50,000 sec.

Processor and interface system

CPU	Compatible x86 Internal Operating Frequency: 1 GHz MMX, SSE, SSE2, SSE3 L1 caches 64 KB × 2/L2 caches 128 KB
Memory	Type: DDR2-400 Size: 512 MB
LAN	10Base-T/100Base-TX/1000Base-T
USB	Hi-speed USB

Optical system and others

Lens mount	C-mount/CS-mount
Flange focal length	17.526 mm (in air)/12.5 mm (in air)
Video output	VGA to UXGA Vertical frequency: 60 Hz
Sensitivity	XCI-SX100/V100: 400 lx, F5.6 XCI-SX100C/V100C: 2,000 lx, F5.6
Minimum illumination	XCI-SX100/V100: 2 lx or less (gain: +18 dB, F1.4) XCI-SX100C/V100C: 20 lx or less (gain: +18 dB, F1.4)
Gain	0 dB to +18 dB
Read mode	Normal mode Binning mode (XCI-SX100/V100 only) Partial scan mode
Shutter	External trigger shutter
Power	+12 V DC (range: 10.5 V to 26.4 V)
Power consumption	XCI-SX100/V100: 17.4 W XCI-SX100C/V100C: 18.2 W
Operating temperature	–5 °C to +45 °C (23 °F to 113 °F)
Storage temperature	–30 °C to +60 °C (–22 °F to 140 °F)
Operating temperature humidity	20 % to 80 % (no condensation)
Storage temperature humidity	20 % to 95 % (no condensation)
Vibration resistance	10 G (20 Hz to 200 Hz, when using the reference holes)
Shock resistance	70 G
External dimension (w/h/d)	94 × 70 × 140 mm (3 3/4 × 2 7/8 × 5 5/8 inches), not including projecting parts
Mass	760 g (1 lb 11 oz)
Accessories	Lens mount cap (1) Fall-prevention wire (1) Screw M3 × 8 for fall-prevention wire (1) Operating Instructions (1)

Design and specifications are subject to change without notice.

IMPORTANT

The nameplate is located on the bottom.

Note

Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

About the Technical Manual

The Operating Instructions describe the functions and use of this product.

For more details, see the Technical Manual.
Please ask your sales representative about the Technical Manual.

http://www.sony.net/

Printed on recycled paper using VOC (Volatile Organic Compound)-free vegetable oil based ink.