



XCI-SX100/XP  
XCI-SX100C/XP  
XCI-V100/XP  
XCI-V100C/XP  
Smart Cameras

# Sony's Next-Generation Smart Cameras for Machine Vision and Surveillance Applications — Now in Color!



Sony is expanding its Smart Camera lineup with the introduction of four new cameras to its XCI Series - offering users a choice of VGA or SXGA resolution in either monochrome or color.

The XCI-SX100/XP and XCI-SX100C/XP cameras are equipped with a 1/3-type progressive scan CCD that achieves outstanding picture quality and high-resolution SXGA images (1280 x 960) at 30 fps. The XCI-V100/XP and XCI-V100C/XP employs a 1/3-type progressive scan CCD that captures clear images in VGA resolution (640 x 480) at a frame rate of up to 90 fps.

Compared to previous models, these smart cameras are equipped with enhanced processing power (x86-compatible 1GHz, VIA Eden ULV), built-in Microsoft® Windows® XPe operating system, and a highly capable 512MB of SDRAM memory. They achieve high-speed processing with low power consumption, and also offer high-speed network operation up to 1000Base-T. In addition, these unique cameras are equipped with various interfaces, including: two USB 2.0 ports, Gigabit Ethernet I/F to enable wideband transmission, monitor output, serial interface (RS-232C), trigger input, and exposure output. They also employ Field-Programmable Gate Array (FPGA) as an additional processing device, which enables easy customization for system designers via programmable blocks.

And when applications call for precise color monitoring, the XCI-SX100C/XP and XCI-V100C/XP color cameras are ideal. Combining high-quality image processing within the camera, direct data transfer via a network, and the ability to control peripheral devices, these Smart Cameras offer a perfect solution for machine vision applications.

They are also an excellent choice for high-end security monitoring of parking lots, shopping centers, and train stations since they are equipped with several key surveillance features, including: support CS mount lenses, mounted Auto Iris interface, AWB, AGC, and Wide-D images. Sony's next-generation Smart Cameras are ideal for traffic control, security, pharmaceutical, food and beverage inspection, as well as traditional machine vision applications.

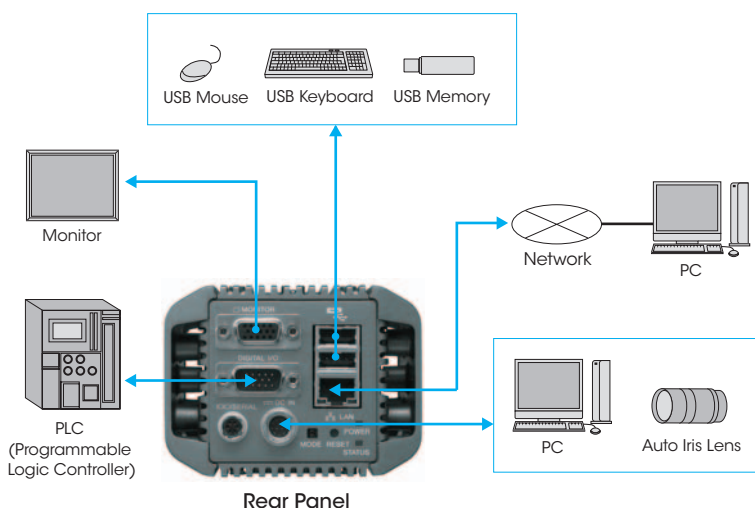
## Features

### High-performance Processor

- x86-compatible CPU (1GHz, VIA Eden ULV)  
MMX, SSE, SSE2, and SSE3 compatibility  
Low power consumption
- 512 MB main memory (DDR2 SDRAM)

### Various Interfaces

- Easy and direct monitor output (D-sub 15-pin)
- High-speed network connectivity, up to 1000Base-T
- USB 2.0 interface
- Two USB ports allow users to control the camera via a mouse and/or keyboard
- Auto Iris control, convenient for a wide range of security applications
- Digital Input/Output and RS-232C allow cameras to connect with external equipment, such as sensors, strobe lights, and Programmable Logic Controllers (PLC)



### Microsoft Windows XP Embedded Support

Enables the cameras to integrate with a wide range of machine vision systems and surveillance systems.

### Excellent Picture Quality/High Frame Rates

XCI-SX100/SX100C: SXGA (1280 x 960) at 30 fps, ideal for applications that require the capture of highly detailed images.

XCI-V100/V100C: VGA (640 x 480) at 90 fps, perfect for applications that require high-speed image capture.

### C/CS mount lens

C/CS mount lens attachable to support both machine vision and high-end security applications, such as Intelligent Traffic Systems (ITS).



For Machine Vision (C mount)

For High-end Security (CS mount)

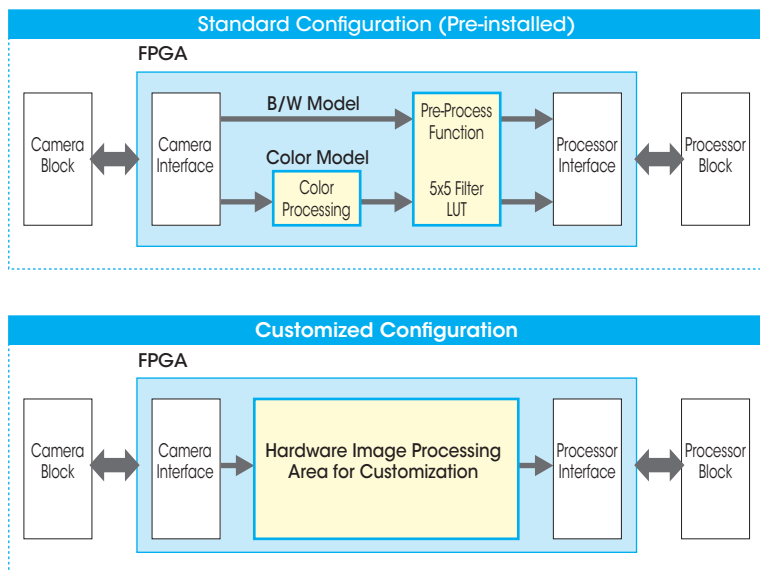
### Full Range of Pre-processing Functions

- Color-processing function enables the reproduction of extremely detailed images\*3
- Built-in real-time 5 x 5 image pre-processing filter
- Hardware LUT (Look Up Table)

\*3 Available only with XCI-SX100C/XP and XCI-V100C/XP

### Customizable FPGA (Field Programmable Gate Array)

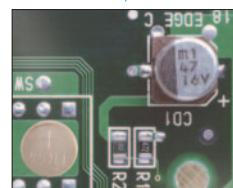
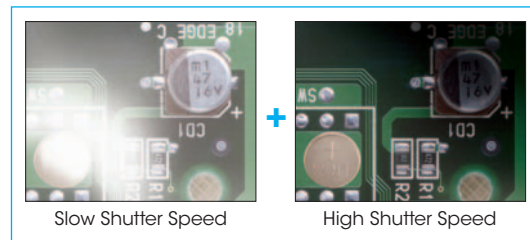
All four camera models contain customizable space in their FPGA block. This allows you to replace part of the pre-installed area with your own image-processing software, thereby increasing the camera's overall image-processing capability.



Customizable FPGA

### Dual Readout by Wide-D Technology

This function allows you to capture two images at different shutter speeds. For machine vision applications, you can obtain two different images simultaneously and analyze them in separate ways without changing the lighting. In addition, for security applications, a composite image with a wide dynamic range can be produced with software image processing.



Composite Image with Wide-D Technology

### Dual Readout by Wide-D Technology (simulated images)

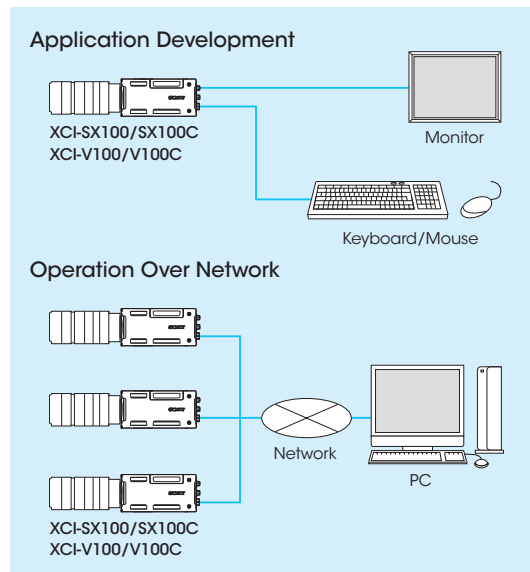
### Watch Dog Timer (WDT)

This monitors software activity on the CPU and reboots the hardware if problems occur.

### Other Features

- External trigger shutter
- Vertical and horizontal partial scanning function
- Vertical and horizontal binning function
- Selectable power supply between 12V and 24V
- High shock and vibration resistance

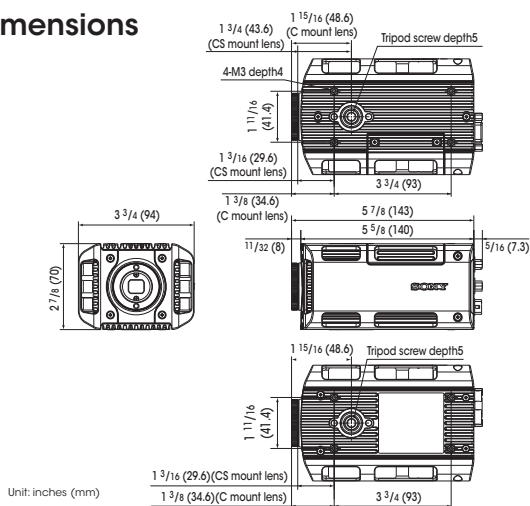
### System Configurations



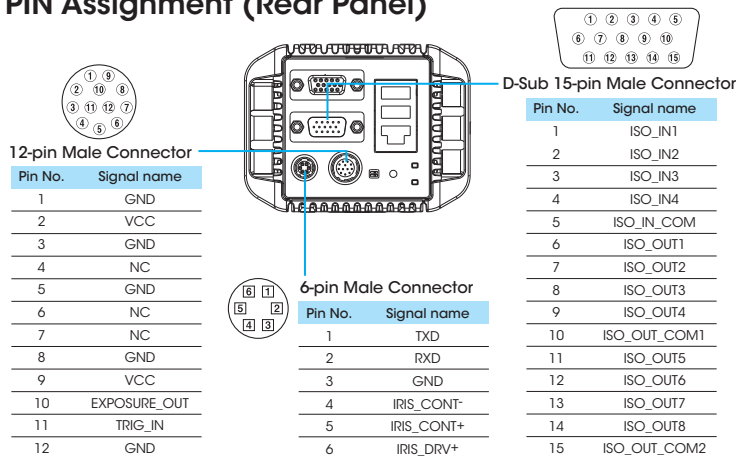
## Specifications

|                                    | XCI-SX100/XP   | XCI-SX100C/XP  | XCI-V100/XP  | XCI-V100C/XP  |  |
|------------------------------------|--|--|--|---|--|
| <b>Sensor Block</b>                |  |  |  |   |  |
| Image device                       | 1/3-type IT progressive scan CCD   |  |  |   |  |
| Effective picture elements (H x V) | 1,280 x 960 (SXGA)   |  | 640 x 480 (VGA)  |   |  |
| Cell size (H x V)                  | 3.75 x 3.75 μm   |  | 7.4 x 7.4 μm   |   |  |
| Resolution depth                   | Mono 8: 8 bits/pixel<br>Mono 16: 10 bits/pixels  | Raw 8: 8 bits/pixel<br>Y 8: 8 bits/pixels<br>BGRi: 8 bits B/G/R, Interleave<br>YUVi: 8 bits Y/U/V, Interleave<br>Y+BGRI: Y8 bits+8 bits B/G/R, Interleave<br>Y+RGBp: Y8 bits+8 bits R/G/B, Plane | Raw 16: 10 bits/pixels<br>Y 16: 10 bits/pixels<br>RGBp: 8 bits R/G/B, Plane<br>YUVp: 8 bits Y/U/V, Plane | Mono 8: 8 bits/pixel<br>Mono 16: 10 bits/pixels                     | Raw 8: 8 bits/pixel<br>Y 8: 8 bits/pixels<br>BGRi: 8 bits B/G/R, Interleave<br>YUVi: 8 bits Y/U/V, Interleave<br>Y+BGRI: Y8 bits+8 bits B/G/R, Interleave<br>Y+RGBp: Y8 bits+8 bits R/G/B, Plane |
| Frame rate                         | 30 fps (SXGA)  |  | 90 fps (VGA)   |   |  |
| Sensitivity                        | 400 lx at F5.6 (0 dB)  | 2000 lx at F5.6 (0 dB)   | 400 lx at F5.6 (0 dB)  | 2000 lx at F5.6 (0 dB)  |  |
| Gain control                       | Manual (0 to +18 dB, 0.1 dB steps)   |  |  |   |  |
| Readout modes                      | Normal, Binning (1 x 2, 2 x 2),<br>Partial scanning (H/V 16 division),<br>LUT, 5 x 5 filter  | Normal,<br>Partial scanning (H/V 16 division),<br>LUT, 5 x 5 filter  | Normal, Binning (1 x 2, 2 x 2),<br>Partial scanning (H/V 16 division),<br>LUT, 5 x 5 filter              | Normal,<br>Partial scanning (H/V 16 division),<br>LUT, 5 x 5 filter |  |
| Normal shutter speed               | 2 to 1/100,000 s   |  |  |   |  |
| External trigger shutter           | Trigger start (shutter speed: 2 to 1/50,000 s), Trigger start and exposure duration (4 s Max), Trigger inhibit function, Trigger delay function: 0 to 4 s, 1 ms step |  |  |   |  |
| Strobe delay function              | Delay function: 0 to 4 ms, 1 μs step   |  |  |   |  |
| Auto features                      | AGC, AWB, Auto Iris Control  |  |  |   |  |
| <b>Processor</b>                   |  |  |  |   |  |
| CPU                                | x86 1GHz, VIA Eden ULV (L1 caches 64 KB x 2, L2 caches 128 KB)   |  |  |   |  |
| Memory                             | 512 MB DDR2 SDRAM  |  |  |   |  |
| <b>Interface</b>                   |  |  |  |   |  |
| Ethernet                           | 1000 Base-T/100 Base-TX/10 Base-T  |  |  |   |  |
| Monitor output                     | D-sub 15 pin for multi scan monitor  |  |  |   |  |
| USB                                | Hi-Speed USB (USB 2.0) x 2   |  |  |   |  |
| Serial communication               | RS-232C  |  |  |   |  |
| Iris control                       | DC   |  |  |   |  |
| Trigger input                      | Low: 0 to +0.5 V, High: +4.5 V to +24.0 V  |  |  |   |  |
| Strobe output                      | Low: 0 to +1.0 V, High: +4.0 V to + 5.0 V  |  |  |   |  |
| Digital I/Os                       | Isolated IN (4), Isolated OUT (8)  |  |  |   |  |
| <b>General</b>                     |  |  |  |   |  |
| Lens mount                         | C mount/CS mount switchable (C mount at the shipment)  |  |  |   |  |
| Power requirements                 | DC 10.5 to 26.4 V  |  |  |   |  |
| Power consumption                  | 17.4 W (Max.)  | 18.2 W (Max.)  | 17.4 W (Max.)  | 18.2 W (Max.)   |  |
| Dimensions (W x H x D)             | 3 3/4 x 2 7/8 x 4 1/2 inches (94 x 70 x 139.5 mm)  |  |  |   |  |
| Weight                             | 1.7 oz (760 g)   |  |  |   |  |
| Operating temperature              | 23 to 113 °F (-5 to +45 °C)  |  |  |   |  |
| Storage temperature                | -22 to 140 °F (-30 to +60 °C)  |  |  |   |  |
| Operating humidity                 | 20 to 80 % non condensing  |  |  |   |  |
| Storage humidity                   | 20 to 95 % non condensing  |  |  |   |  |
| Vibration resistance               | 10 G (20 to 200 Hz)  |  |  |   |  |
| Shock resistance                   | 70 G   |  |  |   |  |
| Regulations                        | FCC/IC/CE/VCCI Class A, MIC  |  |  |   |  |
| Supplied Accessories               | Lens mount cap, C mount conversion adapter (installed), Fall-prevention wire rope, Screw, Operating instructions   |  |  |   |  |

## Dimensions



## PIN Assignment (Rear Panel)



**SONY**

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