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SONY



XCL-5005
B/W Digital Camera

XCL-5005CR
Color Digital Camera

5-Megapixel Sony CCD | 15 fps | PoCL

Outline

Sony is expanding its Camera Link™ family with the introduction of the XCL-5005 (B/W) and XCL-5005CR (Color) Digital Cameras for demanding industrial-inspection applications. Both the XCL-5005 and XCL-5005CR cameras incorporate a 2/3-type progressive scan IT CCD that produces ultra-high resolution images of over 5,000,000 effective pixels at 15 fps. In addition, these cameras employ the standard Camera Link interface, which is switchable to PoCL (Power over Camera Link) enabling users to simplify connections to various machine-vision systems. These cameras are compatible with standard C-mount lenses adding to their cost-effectiveness.

The XCL-5005 and XCL-5005CR feature a multitude of functions useful in machine-vision applications, such as vertical and horizontal partial scanning, built-in real-time hardware pre-processing, and flexible high-speed outputs. These robust cameras are highly resistant to shock and vibration which is essential for machine-vision applications.

These feature-rich, ultra-high resolution digital cameras capture clear, fast moving objects or still images in low light environments. They are an ideal solution for today's wide range of industrial machine vision applications such as semiconductors, electronic display and large part inspection, and bio-science/ microscopy applications.

Features

Ultra-High Resolution Image Capture

The XCL-5005 and XCL-5005CR cameras incorporate a 2/3-type progressive scan IT CCD that provides outstanding picture quality and high-resolution images of over five effective megapixels (2448 x 2050) at 15 fps.

Supports both PoCL and Standard Camera Link (Base Configuration)

These cameras are equipped with the industry standard digital Camera Link interface to simplify connectivity to machine vision systems. This interface outputs high-speed image data at up to 2.4 Gb/s enabling high-resolution images to be transferred and processed quickly and accurately. What's more, because these cameras are PoCL-capable, they can be configured using a single cable for easy and flexible installation.

Vertical and Horizontal Partial Scanning

The XCL-5005 and XCL-5005CR cameras feature both a vertical and horizontal partial scanning function used to scan particular areas of an image to reduce data size and to minimize processing time. The horizontal scanning function can be set from 128 pixels to 2448 pixels in 4-pixel increments allowing users to precisely select the area of the image to be scanned.

Hardware Pre-processing

These cameras feature a number of real-time hardware pre-processing functions such as a 3 x 3 filter, DTL filter, γ – correction, and a binarization mechanism that can be used to emphasize the edges of an object or to change the contrast of an image. These functions provide frame grabbers with images that are easy to process, thus minimizing the load on the PC.

Variety of Output Formats

Camera Link (Base Configuration)

	Resolution Depth	Output Data Clock
XCL-5005	8-, 10-, 12-bit B/W	80 MHz (1 tap)
		40 MHz (2 taps)
XCL-5005CR	8-, 10-, 12-bit Raw Color 24-bit RGB	80 MHz (1 tap)
	8-, 10-, 12-bit Raw Color	40 MHz (2 taps)

High Shock and Vibration Resistance

Vibration resistance : 10 G (20 to 200 Hz)
Shock resistance : 70 G

Other Features

- C-mount Lens Interface
- Compact and Lightweight
  1 3/4 (W) x 1 3/4 (H) x 2 3/8 (D) inches
  (44 x 44 x 57.5 mm)
  (excluding protrusions)
  Approx. 4.6 oz (130 g)
- External Trigger Shutter
  2 to 1/10,000 s
- Binning Function (XCL-5005 only)
- Built-in Test Pattern

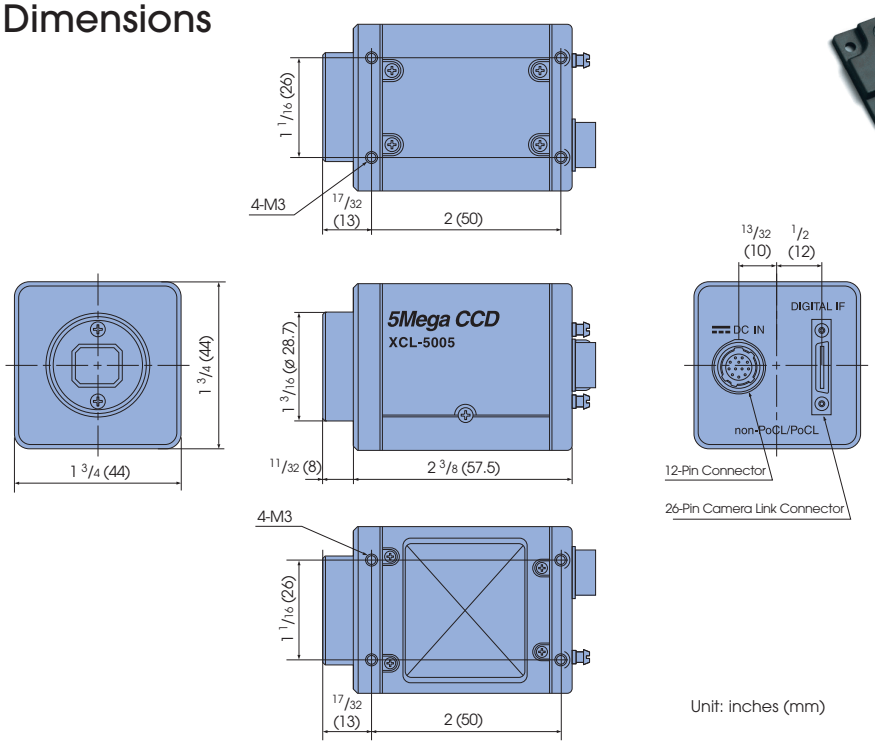
CAMERA Link® REGISTERED PRODUCT

Specifications

	XCL-5005	XCL-5005CR
Image device	2/3-type progressive scan IT CCD	
Standard picture size (H x V)	2448 x 2050 (5,018,400 pixels)	2448 x 2050 (5,018,400 pixels)*
Cell size	3.45 x 3.45 µm	
Resolution depth	8/10/12 bits/pixel	Raw Color: 8/10/12 bits/pixel RGB Color: 24bits
Lens mount	C mount	
Digital interface	Standard Camera Link (Base Configuration)/PoCL (Power over Camera Link)	
Frame rate	15 fps	
Output data clock	80 MHz (1 Tap) 40 MHz (2 Taps)	80 MHz (1 Tap) 40 MHz (2 Taps, Raw Color only)
Sensitivity	400 lx F5.6 (0dB)	2000 lx F5.6 (0dB)
Minimum illumination	1 lx (GAIN +18dB, F1.4)	8 lx (GAIN +18dB, F1.4)
Gain control	0 to +18 dB	
Readout modes	Normal, Binning (1x2), Partial scan (by 1 line increments)	Normal, Partial scan (by 2 line increments)
Shutter speed	2 to 1/10,000 s	
Shutter mode	External trigger shuter (Trigger start/Trigger start and exposure duration)	
Readout features	Gamma : OFF/ON (Arbitrary setting), DTL filter (Edge detection/emphasis), 3x3 matrix filter, Binarization	Gamma : OFF/ON (Arbitrary setting) AWB : OFF/ON (One push)
Extended signal output	DVAL/EXPOSURE/GND output (selectable)	
Power requirements	DC 12V	
Power consumption	Max. 3.8 W	
Dimensions	1 3/4 (W) x 1 3/4 (H) x 2 3/8 (D) inches (44 x 44 x 57.5 mm), (excluding protrusions)	
Weight	Approx. 4.6 oz (130 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 % (no condensation)	
Storage humidity	20 to 95 % (no condensation)	
Vibration resistance	10 G (20 to 200 Hz)	
Shock resistance	70 G	
Supplied accessories	Lens mount cap, Operating instructions	

* When RAW data is output, depending on the frame grabber, picture size may be reduced to 2,446 (H) x 2,048 (V).

Dimensions



Unit: inches (mm)

PIN Assignment & Connector

■ 12-pin EIAJ connector

Pin No.		Pin No.	
1	DC IN (Ground)	7	GPIO IN 1+ (Isolated)
2	DC IN	8	GPIO OUT 2- (Isolated)
3	ISO GND	9	GPIO OUT 2+ (Isolated)
4	Store OUT (Isolated)	10	GPIO OUT 2+ (Isolated)
5	GPIO OUT 1- (Isolated)	11	Trigger IN
6	GPIO OUT 1+ (Isolated)	12	ISO GND

■ 26-pin connector

Pin No.		Pin No.	
1	POWER/INNER_SHIELD (GND)	14	INNER_SHIELD (GND)
2	X0- output (signal)	15	X0+ output (signal)
3	X1- output (signal)	16	X1+ output (signal)
4	X2- output (signal)	17	X2+ output (signal)
5	XCLK- output (signal)	18	XCLK+ output (signal)
6	X3- output (signal)	19	X3+ output (signal)
7	SerTC+ (signal)	20	SerTC- (signal)
8	SerTFG- (signal)	21	SerTFG+ (signal)
9	TRIG- input (signal)	22	TRIG+ input (signal)
10	NC	23	NC
11	NC	24	NC
12	NC	25	NC
13	INNER_SHIELD (GND)	26	POWER/INNER_SHIELD (GND)

PoCL: Pin 1 and pin 26 are used for power.
Standard Camera Link: Pin 1 and pin 26 are used for INNER_SHIELD (GND).

Optional Accessories



Tripod Adaptor
VCT-ST70I
Isolated type
Weight: Approx. 0.5 oz (14 g)
Dimensions (W x H x D):
1 5/8 x 1/4 x 2 3/8 inches
(40 x 6 x 59 mm)

Camara Adaptor
DC-700

Cables
CCXC-12P02N
CCXC-12P05N
CCXC-12P10N
CCXC-12P25N

SONY

Sony Electronics Inc.
1 Sony Drive
Park Ridge, NJ 07656
www.sony.com/videocameras

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