SONY®

Component/OEM

B/W Progressive Scan Cameras

XC-HR50	High Frame Rate Monochrome Camera
XC-HR70	High Frame Rate Monochrome Camera
XC-56	Monochrome Video Camera
XC-HR57	High Frame Rate Monochrome Camera
XC-HR58	High Frame Rate Monochrome Camera

These new cameras expand the range of products in Sony's progressive scan and high-frame rate, compact camera line up!

Introducing the newest additions to Sony's B/W progressive scan camera offerings – the XC-HR57, XC-HR58, and XC-56. Designed with the same compact and robust body, these cameras are easily interchangeable and are a snap to install even in space restricted areas.

The XC-HR57 incorporates a 1/2" Progressive Scan IT CCD with VGA resolution of 640 x 480 at 60 full frames/sec (120 binned frames/sec.). The XC-HR58 incorporates a 1/2" Progressive Scan IT CCD with SVGA resolution of 767 x 580 at 50 full frames/sec (100 binned frames/sec.). The XC-56 features a 1/3" Progressive Scan IT CCD with square pixels and VGA resolution of 659 x 494 at a speed of 30 full frames/sec. for compatibility with slower vision systems using Sony XC-55 cameras.

The XC-HR50 and XC-HR70 cameras incorporate a 1/3" Progressive Scan IT CCD providing high-resolution images at high frame rates. The XC-HR50 features VGA resolution of 648 x 494 at a speed of 60 full frames/sec., and the XC-HR70 features XGA resolution of 1024 x 768 at a speed of 29 full frames/sec.

In addition, the XC-HR camera series feature a high scanning function that increases their vertical scanning frequency so that images can be captured up to 120 - 240 frames/sec.

Combing high-resolution and high-speed image-capture capabilities with a compact, robust body, these cameras are ideal for demanding inspection applications such as semiconductor production and high-speed assembly lines.

FEATURES

COMMON CAMERA FEATURES

- High-resolution image capturing
- High-rate scanning
- Compact, lightweight body:
  - 29 x 29 x 30 mm (W x H x D)
  - 1-3/16 x 1-3/16 x 13/16 inches (W x H x D)
  - 50 g / 1.8 oz
- External trigger shutter: 1/4 to 1/100,000 sec.
- Synchronization: Internal/External (HD/VD)
- C-mount
- External controls for easy configuration
- High shock and vibration tolerance
- Lead-free solder board

FEATURES

SPECIFIC CAMERA KEY FEATURES

XC-HR50

- 1/3 type progressive scan CCD with square pixels
- VGA resolution (648 x 494 pixels) image capturing at a speed of 60 full frames/sec.
- High-rate scanning of up to 240 partial frames/sec. (effective line: 100 lines) (at restart/reset ON, binning OFF)
- Partial Scan controlled by VD pulse length
- Minimum illumination: 1.0 lux at F1.4
- High S/N ratio: 58 dB
- Electronic shutter: 1/100 to 1/30,000 sec.
- No IR cutoff filter

XC-HR70

- 1/3 type progressive scan CCD with square pixels
- XGA resolution (1,024 x 768 pixels) image capturing at a speed of 29 full frames/sec.
- High-rate scanning of up to 120 partial frames/sec. (effective line: 152 lines) (at restart/reset ON, binning OFF)
- High Resolution: 800 TV lines
- Partial Scan controlled by VD pulse length
- Minimum illumination: 1.0 lux at F1.8
- High S/N ratio: 56 dB
- Electronic shutter: 1/100 to 1/20,000 sec.
- No IR cutoff filter

XC-HR57

- 1/2 type progressive scan CCD with square pixels
- VGA resolution (648 x 494 pixels) image capturing at a speed of 60 full frames/sec.
- High rate scanning of up to 240 binned frames/sec. (effective line: 100 lines) (at restart/reset ON, binning OFF)
- Partial scan controlled by VD pulse length
- Minimum illumination: 1.0 lux at F1.4
- High S/N ratio: 58 dB
- Electronic shutter: 1/100 to 1/30,000 sec.
- No IR cutoff filter

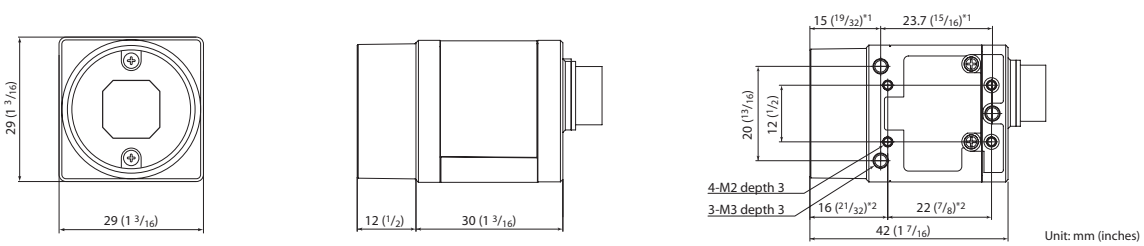
XC-HR58

- 1/2 type progressive scan CCD with square pixels
- High SVGA resolution (767 x 580 pixels) image capturing at a speed of 50 full frames/sec.
- High-rate scanning of up to 200 binned frames/sec. (effective line: 90 lines) (at restart/reset ON, binning OFF)
- Partial scan controlled by VD pulse length
- Minimum illumination: 1.0 lux at F1.4
- High S/N ratio: 56dB
- Electronic shutter: 1/100 to 1/30,000 sec.
- No IR cutoff filter

XC-56

- 1/3 type progressive scan CCD with square pixels
- VGA resolution (659 x 494 pixels) image capturing at a speed of 30 frames/sec.
- Minimum illumination: 0.5 lux at F1.4
- High S/N ratio: 58 dB
- Electronic shutter: 1/100 to 1/15,000 sec.
- Pin out compatible with Sony XC-55 camera

DIMENSIONS - XC-HR50/XC-HR70/XC-56/XC-HR57/XC-HR58 CAMERAS



*1: for 3-M3 screw *2: for 4-M2 screw

SPECIFICATIONS

	XC-HR50	XC-HR70	XC-56	XC-HR57	XC-HR58
Image device	1/3 type IT Progressive Scan CCD			1/2 type IT Progressive Scan CCD	
Effective picture elements	659(H) x 494(V)	1024(H) x 768(V)	659(H) x 494(V)	659(H) x 494(V)	782(H) x 582(V)
Image size	VGA size: 648 (H) x 494 (V)	XGA size: 1,024 (H) x 768 (V)	VGA size: 648 (H) x 494 (V)	VGA size: 648 (H) x 494 (V)	SVGA size: 767 (H) x 580 (V)
CCD vertical drive frequency	31.468 kHz ±1 %	23.23 kHz ±1 %	15.734 kHz ±1 %	31.468 kHz ±1 %	31.25 kHz ±1 %
Lens mount	C-Mount				
Flange back	17.526 mm				
Sync system	Int/Ext				
External sync signal	HD/VD				
Scanning system	Normal: 525 lines Non-Interlace : 1/60s Binning: 263 lines, 1/120s	Normal: 796 lines (23.23kHz) Non-Interlace(1N mode) : 1/29.2s Non-interlace(1N, binning): 1/58.4s	Normal: 525 lines Non-Interlace : 1/30s Binning: 263 lines, 1/60s	Normal: 525 lines Non-Interlace : 1/60s Binning: 263 lines, 1/120s	Normal: 625 lines Non-Interlace : 1/50s Binning: 313 lines, 1/100s
Output signal frequency	59.94 Hz (normal mode), 119.88 Hz (binning mode)	29.2 Hz (normal mode), 58.4 Hz (binning mode)	29.97 Hz (normal mode), 59.94 Hz (binning mode)	59.94 Hz (normal mode), 119.88 Hz (binning mode)	50.0 Hz (normal mode), 99.8 Hz (binning mode)
Video output	1.0 Vp-p, sync negative, 75 Ω, unbalanced	1.0 Vp-p, sync negative, 75 Ω, unbalanced	1.0 Vp-p, sync negative, 75 Ω, unbalanced	1.0 Vp-p, sync negative, 75 Ω, unbalanced	1.0 Vp-p, sync negative, 75 Ω unbalanced
Output connector	12 pin (New EIAJ)	12 pin (New EIAJ)	12 pin	12 pin (New EIAJ)	12 pin (New EIAJ)
Horizontal resolution	500 TV lines	800 TV lines	500 TV lines	500 TV lines	600 TV lines
Sensitivity	400 lux F5.6 (Fix Gain 0 dB)	400 lux F5.6 (Fix Gain 0 dB)	400 lux F8 (Fix Gain 0 dB)	400 lux F5.6 (Fix Gain 0 dB)	
Min. illumination	1.0 lux (F1.4, Manual gain Max)	1.0 lux (F1.8, Manual gain Max)	0.5 lux (F1.4, Manual gain Max)	1.0 lux (F1.4, Manual gain Max)	1.0 lux (F1.4, Manual gain Max)
S/N ratio	58 dB	56 dB	58 dB	58 dB	56dB
Gain	Fix/Manual				
Gamma	OFF fixed				
White clip	820 mV ±70 mV (F1.4, Fix Gain)	820 mV ±70 mV (F1.8, Fix Gain)	820 mV ±70 mV (F1.4, Fix Gain)	820 mV ±70 mV (F1.4, Fix Gain)	820 mV ±70 mV (F1.4, Fix Gain)
Shutter	Normal shutter, Restart/Reset, External trigger shutter (Mode 1/MODE 2)				
Normal shutter speed	OFF to 1/30,000s switchable at rear panel	OFF to 1/20,000s switchable at rear panel	OFF to 1/15,000s switchable at rear panel	OFF to 1/30,000s switchable at rear panel	OFF to 1/30,000s switchable at rear panel
External trigger shutter speed	1/4 to 1/100,000s				
High Rate Scanning					
R/R mode Binning off:	Max 240 frames/s (effective line: 102 lines)	Max 120 frames/s (effective line: 152 lines)	Max 120 frames/s (effective line: 102 lines)	Max 240 frames/s (effective line: 102 lines)	Max 200 frames/s (effective line: 90 lines)
R/R mode Binning on:	Max 360 frames/s (effective line: 59 lines)	Max 180 frames/s (effective line: 89 lines)	Max 180 frames/s (effective line: 59 lines)	Max 360 frames/s (effective line: 59 lines)	Max 300 frames/s (effective line: 52 lines)
External trigger shutter mode (MODE 1) Binning off :	Max 240 frames/s (effective line: 100 lines)	Max 120 frames/s (effective line: 153 lines)	Max 120 frames/s (effective line: 100 lines)	Max 240 frames/s (effective line: 100 lines)	Max 200 frames/s (effective line: 88 lines)
External trigger shutter mode (MODE 1) Binning on:	Max 360 frames/s (effective line: 57 lines)	Max 180 frames/s (effective line: 90 lines)	Max 180 frames/s (effective line: 57 lines)	Max 360 frames/s (effective line: 57 lines)	Max 300 frames/s (effective line: 53 lines)
Power requirements	DC 12 V (+10.5 to 15 V)	DC 12 V (+10.5 to 15 V)	DC 12 V (+10.5 to 15 V)	DC 12 V (+10.5 to 15 V)	DC 12 V (+10.5 to 15 V)
Power consumption	1.8 W	2.0 W	1.5W	1.8 W	2.0W
Dimensions(W x H x D)	29 x 29 x 30 mm (1 3/16 x 1 3/16 x 1 3/16 inches)				
Weight	50 g / 2 oz				
Operating temperature	-5 to 40°C (23 to 113 °F)	-5 to 40°C (23 to 113 °F)	-5 to 40°C (23 to 113 °F)	-5 to 40°C (23 to 113 °F)	-5 to 40°C (23 to 113 °F)
Storage temperature	-30 to 60 °C (-22 to 140 °F)	-30 to 60 °C (-22 to 140 °F)	-30 to 60 °C (-22 to 140 °F)	-30 to 60 °C (-22 to 140 °F)	-30 to 60 °C (-22 to 140 °F)
Operating humidity	20 to 80 % (no condensation)	20 to 80 % (no condensation)	20 to 80 % (no condensation)	20 to 80 % (no condensation)	20 to 80 % (no condensation)
Storage humidity	20 to 95 % (no condensation)	20 to 95 % (no condensation)	20 to 95 % (no condensation)	20 to 95 % (no condensation)	20 to 95 % (no condensation)
Vibration resistance	10G (20 Hz to 200 Hz)				
Shock resistance	70 G				
Regulation	UL 6500, FCC Class A Digital Device, CE (EN61326/97+A1/98), AS4251.1+A4252.1				
Supplied accessories	Lens mount cap (1), Operating instructions(1)				

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