

## Progressive Scan Camera Series

XC-56  
XC-HR50  
XC-HR57  
XC-HR58  
XC-HR70

High speed cameras for demanding machine vision applications in space-restricted areas



Featuring an ultra-compact design, the new XC-56, XC-HR57 and XC-HR58 cameras are the latest addition to its range of progressive scan cameras. With a compact design inherited from the XC-HR50 and XC-HR70, these units are easy to install even in space-constrained areas.

The XC-HR57 and XC-HR58 incorporate a 1/2 type IT progressive scan CCD, which offers a high horizontal resolution of 500 TV lines (XC-HR57) and 600 TV lines (XC-HR58), plus a high sensitivity of 1.0 lux at F1.4.

Like the XC-56, the XC-HR50 and XC-HR70 incorporate a 1/3 type IT progressive scan CCD, providing high-resolution images at high frame rates.

Featuring high-resolution and high-speed image-capture capabilities delivered in a compact body, the XC-HR Series and the XC-56 are the ideal camera modules for demanding applications such as the inspection of semiconductor production lines and high-speed assembly lines.

## Features

### Common 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 1 3/16 inches) 50 g (1.8 oz)
- External trigger shutter: 1/4 to 1/100,000 s
- Synchronisation: Internal/External (HD/VD)
- C-mount system
- Highly shock- and vibration-tolerant design
- Lead-free solder board

### XC-HR57

- 1/2 type progressive scanning CCD with square pixels
- VGA resolution (648 x 494 pixels) image capturing at a speed of 60 frames/s
- High-rate scanning of up to 240 frames/s (effective line: 100 lines) (at restart/reset ON, binning OFF)
- Minimum illumination of 1.0 lux at F1.4
- High S/N ratio: 58 dB
- Electronic shutter: 1/100 to 1/30,000 s

### XC-56

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

### XC-HR58

- 1/2 type progressive scanning CCD with square pixels
- SVGA resolution (767 x 580 pixels) image capturing at a speed of 50 frames/s
- High-rate scanning of up to 200 frames/s (effective line: 90 lines) (at restart/reset ON, binning OFF)
- Minimum illumination of 1.0 lux at F1.4
- High S/N ratio: 56 dB
- Electronic shutter: 1/100 to 1/30,000 s

### XC-HR50

- 1/3 type progressive scanning CCD with square pixels
- VGA resolution (648 x 494 pixels) image capturing at a speed of 60 frames/s
- High-rate scanning of up to 240 frames/s (effective line: 100 lines) (at restart/reset ON, binning OFF)
- Minimum illumination of 1.0 lux at F1.4
- High S/N ratio: 58 dB
- Electronic shutter: 1/100 to 1/30,000 s

### XC-HR70

- 1/3 type progressive scanning CCD with square pixels
- XGA resolution (1,024 x 768 pixels) image capturing at a speed of 30 frames/s
- High-rate scanning of up to 120 frames/s (effective line: 152 lines) (at restart/reset ON, binning OFF)
- Minimum illumination of 1.0 lux at F1.8
- High S/N ratio: 56 dB
- Electronic shutter: 1/100 to 1/20,000 s

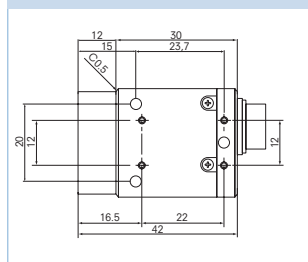
# XC-56 / XC-HR50 / XC-HR57 / XC-HR58 / XC-HR70

SPECIFICATIONS	XC-56	XC-HR50	XC-HR57	XC-HR58	XC-HR70
Image device	1/3 type IT progressive scan CCD		1/2 type IT progressive scan CCD		1/3 type IT progressive scan CCD
Effective picture elements	659 (H) x 494 (V)			782 (H) x 582 (V)	
Image size	VGA size: 648 (H) x 494 (V)			SVGA size: 767 (H) x 580 (V)	XGA size: 1,024 (H) x 768 (V)
CCD vertical drive frequency	15.734 kHz ±1 %	31.468 kHz ±1 %		31.25 kHz ±1 %	23.23 kHz ±1 %
Lens mount	C-Mount				
Flange back	17.526 mm				
Sync system	Int/Ext				
External sync signal Scanning System	HD/VD				
Output signal frequency	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	Normal: 625 lines Non-Interlace : 1/50s Binning: 398 lines, 1/58.4s	Normal: 796 lines Non-Interlace : 1/29.2s Binning: 398 lines, 1/58.4s
	29.97 Hz (normal mode), 59.94 Hz (binning mode)	59.94 Hz (normal mode), 119.88 Hz (binning mode)	50.00 Hz (normal mode), 99.8 Hz (binning mode)	29.2 Hz (normal mode), 58.4 Hz (binning mode)	
Video output	1.0 Vp-p, sync negative, 75 Ω, unbalanced				
Output Connector	12 pin	12 pin (New EIAJ)			
Horizontal Resolution	500 TV lines		600 TV lines	800 TV lines	
Sensitivity	400 lux F8 Fix Gain (0 dB)	400 lux F5.6 Fix Gain (0 dB)			
Min. Illumination	0.5 lux (F1.4, Manual gain Max)	1.0 lux (F1.4, Manual gain Max)			1.0 lux (F1.8, Manual gain Max)
S/N ratio	58 dB			56 dB	
Gain	Fix/Manual				
Gamma	OFF fixed				
White clip	820 mV ±70 mV (F1.4, FIX GAIN)			820 mV ±70 mV (F1.8, FIX GAIN)	
Shutter	Normal shutter, Restart/Reset, External trigger shutter(Mode 1/MODE 2)				
Normal shutter speed	OFF to 1/15,000s switchable at rear panel	OFF to 1/30,000s switchable at rear panel			OFF to 1/20,000s switchable at rear panel
External trigger shutter speed	1/4 to 1/100,000s				
High-rate scanning	R/R mode binning off: max 120 frames/s R/R mode binning on: max 180 frames/s	R/R mode binning off: max 240 frames/s R/R mode binning on: max 360 frames/s	R/R mode binning off: max 240 frames/s R/R mode binning on: max 360 frames/s	R/R mode binning off: max 200 frames/s R/R mode binning on: max 300 frames/s	R/R mode binning off: max 120 frames/s R/R mode binning on: max 180 frames/s
Power requirements	External trigger shutter mode (MODE 1) binning off: max 120 frames/s External trigger shutter mode (MODE 1) binning on: max 180 frames/s	External trigger shutter mode (MODE 1) binning off: max 240 frames/s External trigger shutter mode (MODE 1) binning on: max 360 frames/s	External trigger shutter mode (MODE 1) binning off: max 240 frames/s External trigger shutter mode (MODE 1) binning on: max 360 frames/s	External trigger shutter mode (MODE 1) binning off: max 200 frames/s External trigger shutter mode (MODE 1) binning on: max 300 frames/s	External trigger shutter mode (MODE 1) binning off: max 120 frames/s External trigger shutter mode (MODE 1) binning on: max 180 frames/s
	DC 12 V (+10.5 to 15 V)				
Power Consumption	1.5 W	1.8 W		2.0 W	
Dimensions (W x H x D)	29 x 29 x 30 cm (1 3/16 x 1 3/16 x 1 3/16 inches)				
Mass	50 g (2 oz)				
Operating temperature	-5 to 40 °C (23 to 113 °F)				
Storage temperature	-30 to 60 °C (-22 to 140 °F)				
Operating humidity	20 to 80 % (no condensation)				
Storage humidity	20 to 95 % (no condensation)				
Vibration resistance	10 G (20 Hz to 200 Hz)				
Shock Resistance	70 G				
Regulation	UL 6500, FCC Class A Digital Device, (EN61326/97+A1/98), AS4251.1+A4252.1				
Supplied accessories	Lens mount cap (1), Operating instructions (1)				
Optional accessories	Camera cable CCXC-12PxxN, Camera adaptor (power source) DC-700/CE, Tripod adaptor VCT-331				

## Sony Contacts

<b>ISS for Central Zone</b> (Austria, Eastern Europe, Germany, Netherlands, German-speaking Switzerland)	+49 221 537 3668
<b>ISS for Nordic Zone</b> (Baltics, Denmark, Finland, Norway, Sweden)	+45 43 557 067
<b>ISS for Other Zone</b> (UK, Ireland, Greece, Israel, South Africa)	+44 1932 816 315
<b>ISS for South Zone</b> (Belgium, France, Portugal, Spain, French-speaking Switzerland)	+33 1 55 90 40 74
<b>ISS for Italy</b>	+39 (0) 6 334 372 27

## Dimensions Unit: mm



## Rear Panel



## PIN Assignment

Pin NO.	IN/OUT signal
1	GND
2	+ 12 V
3	GND
4	VIDEO output
5	GND
6	HD IN / OUT
7	VD IN <sup>*1</sup> / OUT
8	GND
9	—
10	WEN OUT <sup>*2</sup>
11	TRIG IN
12	GND

<sup>\*1</sup> An input VD signal is required when the restart/reset mode is used.  
<sup>\*2</sup> A WEN output signal is valid only in the external trigger shutter mode.