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.

Combining 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.

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**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: 56 dB
- 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

**XC-HR50**
- Depth: 20.1" (510 mm)
- Width: 29.1" (740 mm)

**XC-HR70**
- Depth: 12.1" (307 mm)
- Width: 30.1" (760 mm)

**XC-HR57**
- Depth: 20.1" (510 mm)
- Width: 12.1" (307 mm)

**XC-HR58**
- Depth: 23.7" (600 mm)
- Width: 15.1" (383 mm)

Unit: mm (inches)

*1: for 3-M5 screw  *2: for 4-M2 screw
## SPECIFICATIONS

<table>
<thead>
<tr>
<th>XC-HR50</th>
<th>XC-HR70</th>
<th>XC-S6</th>
<th>XC-HR57</th>
<th>XC-HR58</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Image device</strong></td>
<td>1/3 type IT Progressive Scan CCD</td>
<td>1/2 type IT Progressive Scan CCD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effective picture elements</strong></td>
<td>600(H) x 494(V)</td>
<td>1024x1788</td>
<td>600(H) x 494(V)</td>
<td>600(H) x 494(V)</td>
</tr>
<tr>
<td><strong>Image size</strong></td>
<td>VGA size: 648 (H) x 494 (V)</td>
<td>XGA size: 1,024 (H) x 768 (V)</td>
<td>VGA size: 648 (H) x 494 (V)</td>
<td>VGA size: 648 (H) x 494 (V)</td>
</tr>
<tr>
<td><strong>CCD vertical drive frequency</strong></td>
<td>32,468 kHz ± 1 %</td>
<td>25,23 kHz ± 1 %</td>
<td>15,754 kHz ± 1 %</td>
<td>31,468 kHz ± 1 %</td>
</tr>
<tr>
<td><strong>Lens mount</strong></td>
<td>C-Mount</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flange back</strong></td>
<td>17.526 mm</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Sync system</strong></td>
<td>Int/Ext</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>External sync signal</strong></td>
<td>HD/VD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scanning system</strong></td>
<td>Normal: 525 lines Non-Interlace: 1/50s Binning: 263 lines, 1/120s</td>
<td>Normal: 796 lines (23,23kHz) Non-Interlace(16) mode: 1/29.1s Non-Interlace(16, binning): 1/56.4s</td>
<td>Normal: 525 lines Non-Interlace: 1/60s Binning: 263 lines, 1/60s</td>
<td>Normal: 525 lines Non-Interlace: 1/60s Binning: 263 lines, 1/120s</td>
</tr>
<tr>
<td><strong>Output signal frequency</strong></td>
<td>59.94 Hz (normal mode), 119.88 Hz (binning mode)</td>
<td>29.2 Hz (normal mode), 58.4 Hz (binning mode)</td>
<td>29.97 Hz (normal mode), 59.94 Hz (binning mode)</td>
<td>59.94 Hz (normal mode)</td>
</tr>
<tr>
<td><strong>Video output</strong></td>
<td>1.0 Vp-p, sync negative, 75 Ω, unbalanced</td>
<td>1.0 Vp-p, sync negative, 75 Ω, unbalanced</td>
<td>1.0 Vp-p, sync negative, 75 Ω, unbalanced</td>
<td>1.0 Vp-p, sync negative, 75 Ω, unbalanced</td>
</tr>
<tr>
<td><strong>Output connector</strong></td>
<td>12 pin (New EIAI)</td>
<td>12 pin (New EIAI)</td>
<td>12 pin (New EIAI)</td>
<td>12 pin (New EIAI)</td>
</tr>
<tr>
<td><strong>Horizontal resolution</strong></td>
<td>500 TV lines</td>
<td>800 TV lines</td>
<td>500 TV lines</td>
<td>500 TV lines</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>0.40 lux F5.6 (Fix Gain 0 dB)</td>
<td>0.40 lux F5.6 (Fix Gain 0 dB)</td>
<td>0.40 lux F5.6 (Fix Gain 0 dB)</td>
<td>0.40 lux F5.6 (Fix Gain 0 dB)</td>
</tr>
<tr>
<td><strong>Min. illumination</strong></td>
<td>1.0 lux (F1.4, Manual gain Max)</td>
<td>1.0 lux (F1.8, Manual gain Max)</td>
<td>0.5 lux (F1.4, Manual gain Max)</td>
<td>1.0 lux (F1.4, Manual gain Max)</td>
</tr>
<tr>
<td><strong>S/N ratio</strong></td>
<td>58 dB</td>
<td>56 dB</td>
<td>58 dB</td>
<td>58 dB</td>
</tr>
<tr>
<td><strong>Gain</strong></td>
<td>Fixed/Manual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gamma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>White clip</strong></td>
<td>820 mV ±70 mV (F1.4, Fix Gain)</td>
<td>820 mV ±70 mV (F1.4, Fix Gain)</td>
<td>820 mV ±70 mV (F1.4, Fix Gain)</td>
<td>820 mV ±70 mV (F1.4, Fix Gain)</td>
</tr>
<tr>
<td><strong>Shutter</strong></td>
<td>Normal shutter, Reset/Reset, External Trigger shutter (Mode 1/Mode 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Normal shutter speed</strong></td>
<td>OFF to 1/30,000s switchable at rear panel</td>
<td>OFF to 1/20,000s switchable at rear panel</td>
<td>OFF to 1/15,000s switchable at rear panel</td>
<td>OFF to 1/10,000s switchable at rear panel</td>
</tr>
<tr>
<td><strong>External trigger shutter speed</strong></td>
<td>OFF to 1/100,000s switchable at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Rate Scanning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R/R mode Binning off:</strong></td>
<td>Max 240 frames/s (effective line: 102 lines)</td>
<td>Max 120 frames/s (effective line: 51 lines)</td>
<td>Max 120 frames/s (effective line: 51 lines)</td>
<td>Max 240 frames/s (effective line: 102 lines)</td>
</tr>
<tr>
<td><strong>R/R mode Binning on:</strong></td>
<td>Max 360 frames/s (effective line: 59 lines)</td>
<td>Max 180 frames/s (effective line: 89 lines)</td>
<td>Max 120 frames/s (effective line: 100 lines)</td>
<td>Max 360 frames/s (effective line: 59 lines)</td>
</tr>
<tr>
<td><strong>External trigger shutter mode (MODE 1) Binning off:</strong></td>
<td>Max 240 frames/s (effective line: 100 lines)</td>
<td>Max 120 frames/s (effective line: 100 lines)</td>
<td>Max 120 frames/s (effective line: 100 lines)</td>
<td>Max 240 frames/s (effective line: 100 lines)</td>
</tr>
<tr>
<td><strong>External trigger shutter mode (MODE 1) Binning on:</strong></td>
<td>Max 360 frames/s (effective line: 57 lines)</td>
<td>Max 180 frames/s (effective line: 89 lines)</td>
<td>Max 120 frames/s (effective line: 100 lines)</td>
<td>Max 360 frames/s (effective line: 57 lines)</td>
</tr>
<tr>
<td><strong>Power requirements</strong></td>
<td>DC 12 V (+10.5 to 15 V)</td>
<td>DC 12 V (+10.5 to 15 V)</td>
<td>DC 12 V (+10.5 to 15 V)</td>
<td>DC 12 V (+10.5 to 15 V)</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>1.8 W</td>
<td>1.5 W</td>
<td>1.8 W</td>
<td>2.0 W</td>
</tr>
<tr>
<td><strong>Dimensions(W x H x D)</strong></td>
<td>29 x 29 x 30 mm (1 3/16 x 1 3/16 x 1 3/16 inches)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>50 g / 2 oz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature</strong></td>
<td>-5 to 40°C (23 to 113 °F)</td>
<td>-5 to 40°C (23 to 113 °F)</td>
<td>-5 to 40°C (23 to 113 °F)</td>
<td>-5 to 40°C (23 to 113 °F)</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>-30 to 60 °C (-22 to 140 °F)</td>
<td>-30 to 60 °C (-22 to 140 °F)</td>
<td>-30 to 60 °C (-22 to 140 °F)</td>
<td>-30 to 60 °C (-22 to 140 °F)</td>
</tr>
<tr>
<td><strong>Operating humidity</strong></td>
<td>20 to 80 % (no condensation)</td>
<td>20 to 80 % (no condensation)</td>
<td>20 to 80 % (no condensation)</td>
<td>20 to 80 % (no condensation)</td>
</tr>
<tr>
<td><strong>Storage humidity</strong></td>
<td>20 to 95 % (no condensation)</td>
<td>20 to 95 % (no condensation)</td>
<td>20 to 95 % (no condensation)</td>
<td>20 to 95 % (no condensation)</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>10G (20 Hz to 200 Hz)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Shock resistance</strong></td>
<td>70 G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regulation</strong></td>
<td>UL 6500, FCC Class A Digital Device, CE (EM113/69+A1/98), AS4251.1 A+AS4252.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Supplied accessories</strong></td>
<td>Lens mount cap (1), Operating instructions(1)</td>
<td></td>
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</tr>
</tbody>
</table>

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