

# HarshCam

## Ruggedized SONY Blocks

[www.harshcam.com](http://www.harshcam.com)

Iberoptics enhances SONY FCB blocks by locking zoom and focus positions, ensuring consistent image quality even under severe mechanical stress. Engineered to withstand impacts exceeding 40 G for over 11 milliseconds, the HarshCam is built for the most demanding conditions. Optional features include an extended operating temperature range from -35°C to +71°C, enabling instant start in extreme climates.

### HarshCam-EV9520L & EV9520L(±)

- 1/2.8-type CMOS
- Full HD Model (1080/60)
- 30x Optical Zoom (with Digital Zoom 360x)
- MIL-STD-810 compliant, method 514 (vibration) & 516 (shock)
- MIL-STD 810 Method 501.4 Hot Dry (A1) & 502.4 Basic Cold (C1)



### Features

#### FHD 1/2.8-type CMOS

- Superb Full HD (1920 x 1080 ) picture quality
- Boresight improvement
- Low image latency
- Super Image Stabilizer

#### 30x Optical Zoom lens

- Excellent zooming performance & durability

#### Digital Zoom

- 12X Digital Zoom
- Provides 360x zoom at FHD resolution.

#### Form factor compatible with FCB-EV series

Direct Successor to FCB-EV7520 with same size & dimensions for easy migration

#### Other Features

- Defog (Auto, low/mid-high)
- Auto ICR
- Noise Reduction
- Slow AE Response
- Private Zone Masking
- Visibility enhancer
- Flicker compensation
- High Sensitivity

# Core Applications

HarshCam is designed for demanding environments, offering seamless integration into vehicles and systems operating under extreme conditions. It excels where constant vibrations, shocks, impacts, and severe climates are part of everyday operations.

## Typical examples:



**HarshCam-9520L**  
Sensor: IMX662  
Size: 1/2.8"  
SNR1s: 0.18lx  
Pixel size: 2.9um



*Defense and security*



**HarshCam-9500L**  
Sensor: IMX464  
Size: 1/1.8"  
SNR1s: 0.18lx  
Pixel size: 2.9um



*Unmanned Towers*



**HarshCam-9500H**  
Sensor: IMX464  
Size: 1/1.8"  
SNR1s: 0.18lx  
Pixel size: 2.9um



*Unmanned combat aerial vehicles*



**HarshCam-ER9500**  
Sensor: IMX678  
Size: 1/1.8"  
SNR1s: 0.29 lx  
Pixel size: 2um  
Unique 4K 60fps camera

Facing disconnections or resets in critical environments? Choose HarshCam—the rugged imaging solution built for reliability when it matters most.

Watch this video to see HarshCam's performance in action:



<https://youtu.be/45gWEj07zIY?si=hP-kYz8etI8163S>

# Configuration and connectivity of the HarshCam models

The modifications applied to the Sony blocks to create HarshCam are entirely internal and fully transparent to both integrators and end users. Connectivity and control software remain identical to those of the original Sony block.

Likewise, the external form factor is unchanged, ensuring complete compatibility. As a result, a HarshCam can seamlessly replace a standard Sony block of the same base model without any additional adjustments—swap the units and power on.

## Ruggedized SONY block references available:

SONY Block	HarshCam Reference	Sensor	Video Output
FCV-EV9520L	HarshCam-9520L	(1/3" FHD)	LVDS
FCV-EV9520L	HarshCam-9520L(±)*	(1/3" FHD)	LVDS
FCB-EV9500L	HarshCam-9500L	1/1.8" FHD Super Stabilizer	LVDS
FCB-EV9500L	HarshCam-9500L(±)*	1/1.8" FHD Super Stabilizer	LVDS
FCB-EW9500H	HarshCam-9500H	1/1.8" 4 MP FHD Super Stabilizer	HDMI
FCB-EW9500H	HarshCam-9500H(±)*	1/1.8" 4 MP FHD Super Stabilizer	HDMI
FCB-ER9500	HarshCam-ER9500	1/1.8-type 8.51 MP Super Stabilizer	HDMI
FCB-ER9500	HarshCam-ER9500(±)*	1/1.8-type 8.51 MP Super Stabilizer	HDMI

\*MIL-STD-810 compliant, method 514 (vibration) & 516 (shock) and MIL-STD 810 Method 501.4 Hot Dry (A1) & 502.4 Basic Cold (C1)

This comparison illustrates the performance of the HarshCam (left) versus a standard block camera—the Sony FCB-9520 (right)—following a 40G impact.



*Best case for the original block*



*Typical case for the original block*

The new HarshCam (±) series operational temperature range of -35 °C to +71 °C meets or exceeds the requirements for both the Hot Dry (A1) and Basic Cold (C1) climatic categories defined in the MIL-STD-810 standard.

MIL-STD-810G Method	Procedure	Climatic Category	Performance
501 High Temp.	II (Operation)	A1 — Hot Dry Ambient: +32 °C to +49 °C	Exceeds
501 High Temp.	I (Storage)	A1 — Hot Dry Induced: +33 °C to +71 °C	Meets
502 Low Temp.	II (Operation)	C1 — Basic Cold Ambient: -21 °C to -32 °C	Exceeds
502 Low Temp.	I (Storage)	C1 — Basic Cold Induced: -25 °C to -33 °C	Exceeds

**VISCA/RS-232C**  
**Overview of VISCA**

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In VISCA, up to seven peripheral devices, like the FCB camera, can be connected to one controller using communication conforming to the RS-232C standard.

# Harshcam Specifications

## Harshcam-9520L

Basic Specifications	
Image Sensor (Number of effective pixels)	1/2.8-type STARVIS 2 CMOS Sensor (Approx. 2.13M pixels)
Output Image Size (H x V)	1920x1080, 1280x720
Signal System	1080p/60, 1080p/59.94, 1080p/50, 1080p/30, 1080p/29.97, 1080p/25, 1080i/60, 1080i/59.94, 1080i/50, 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25
Minimum Illumination (50%, High Sensitivity Mode ON)	ICR-OFF mode: 0.009 lx (Shutter Speed: 1/30 s), 0.0012 lx (Shutter Speed: 1/4 s or 1/3 s) ICR-ON mode: 0.00008 lx (Shutter Speed: 1/30 s), 0.000005 lx (Shutter Speed: 1/4 s or 1/3 s, 30%)
Minimum Illumination (50%, High Sensitivity Mode OFF)	ICR-OFF mode: 0.09 lx (Shutter Speed: 1/30 s), 0.012 lx (Shutter Speed: 1/4 s or 1/3 s) ICR-ON mode: 0.00063 lx (Shutter Speed: 1/30 s)
Recommended Illumination	100 lx to 100,000 lx
Image S/N	50 dB (Weight On)
Gain	Auto/Manual (0 dB to 50.0 dB), 0 to 28 steps
Shutter Speed	1/1 to 1/10000 s, 22 steps
Sync System	Internal
Exposure Control	0 dB to ± 10.5 dB, 15 steps
Backlight Compensation	Yes
Gamma	Standard / Straight gamma
Aperture Control	16 steps
White Balance	Auto, ATW, Indoor, Outdoor, One Push WB, Manual WB, Outdoor Auto, Sodium Vapor Lamp (Fix/Auto/Outdoor Auto), Spot AWB
AE (Auto Exposure Mode)	Full Auto, Manual, Priority mode (shutter/iris), EV compensation, Spot AE, Slow AE
Lens (wide to tele)	30x optical zoom f= 4.3 mm to 129 mm, F1.6 to F4.7
Zoom Mode	Standard Mode / Variable Mode / Direct Mode
Digital Zoom	12x (360x with optical zoom)
Zoom Movement Speed:	
Wide to Tele (59.94p/50p)	4.8 s (Focus Tracking ON) 3.0 s (Focus Tracking OFF)
Wide to Tele (29.97p/25p)	5.7 s (Focus Tracking ON) 3.0 s (Focus Tracking OFF)
Wide to Digital 12x Tele	6.0 s (59.94p mode) 6.3 s (50p mode) 7.0 s (29.97p mode) 7.3 s (25p mode)
Focusing System	Auto Focus (Normal AF, Interval AF, Zoom Trigger AF (Sensitivity: normal, low)), Manual (Standard, Variable, Direct), One Push Trigger, Full Scan One Push Trigger, Near Limit, ICR-on Correction, Spot Focus
Focus Movement Time	∞ to Near: 1.4 s
Horizontal Viewing Angle (wide to tele)	Distortion Compensation OFF : Approx. 64.0° to 2.4° Distortion Compensation ON : Approx. 61.5° to 2.3°
Minimum Object Distance (wide end to tele end)	10 mm to 1200 mm

Camera Features	
Auto ICR	Yes: ON (B&W/Color)
Wide Dynamic Range (Wide-D)	Yes
Visibility Enhancer	Yes
Defog	Yes (low/mid/high)
Noise Reduction	Yes (3D + 2D / Independent setting (3D, 2D))
Progressive Scan Mode	Yes
Image Stabilization	Yes: Super image stabilizer (Super / Super+)
StableZoom*	Yes
Spot Light Avoidance	Yes
Motion Detection	Yes
Privacy Zone Masking	Yes
Alarm	Yes
Slow AE Response	Yes
Picture Effects	Black White (Monochrome Image)
Picture Freeze	Yes
Electronic-Flip (E-FLIP)	Yes
Mirror Image	Yes
Slow Shutter	Yes
Temperature Readout	Yes
Title Display	Yes (20 characters / line, max. 11 lines)
Camera Mode Display	Yes (English)

Interface	
Video Output	Digital : Y/Pb/Pr 4:2:2 (LVDS) (Y: 8 bit, C: 8 bit, Vsync, Hsync, Field, Clock) (SMPT274M/SMPT296M)
Camera Control Interface	VISCA protocol (CMOS 3.3V Level, 5.5V tolerance); Baud Rate : 9.6 kbps, 19.2 kbps, 38.4 kbps, 115.2 kbps, Stop bit: 1 bit

General	
Power Requirements	7.0 V to 12.0 V DC
Power Consumption	4.4 W (during motor operation: 5.4 W)
Operating Temperature	-35 °C to +71 °C (-31 °F to +160 °F)**
Storage Temperature	-35 °C to +71 °C (-31 °F to +160 °F)**
Operating Humidity	20% to 80% (Absolute humidity: 36 g/m3)
Storage Humidity	20% to 95% (Absolute humidity: 36 g/m3)
Dimensions (W x H x D)	50 x 60 x 89.7 mm (2 x 2 3/8 x 3 5/8 in.)
Mass	Approx. 242,5 g (8.54 oz)

\*StableZoom increases the magnification by combining optical zoom and digital zoom.

\*\*Values specific to HarshCam-95xxL(±) series



### DIMENSIONS • CONNECTOR



\* The lens position is shifted down by approx. 2 mm than FCB-EV7520 series.

### DIGITAL OUTPUT CONNECTOR

KELCo. USL00-30L-C

For pin assignment, please refer to the technical manual for details.

