

CV60 USB 3.0 Series

High-resolution USB 3.0 cameras with color and monochrome Sony Pregius sensors

CV60 USB 3.0 area scan cameras offer outstanding image quality and industrial grade reliability in a compact footprint. When combined with Zebra industrial vision controllers and frame grabbers and driven by Zebra's powerful Aurora machine vision software suite, CV60 USB 3.0 cameras support a wide range of industrial machine vision inspection and automation applications. Available in eight models (four monochrome, four color), CV60 cameras feature high-resolution Sony Pregius CMOS sensors with resolutions ranging from 2.3 to 12.3 megapixels, with USB 3.0 interface.



CV60 Series USB 3.0 Area Scan Cameras

Every model comes standard with industrial grade shock and vibration ratings (80G/10G), excellent thermal dissipation, and outstanding reliability to keep critical inspection systems running at maximum uptime.

The CV60 Series includes a robust set of capabilities like region-of-interest (ROI), image flipping and mirroring (most models), blemish compensation and shading correction—plus, advanced features like two different sequencer modes and an intelligent, user-customizable auto-exposure function (ALC).

CV60 USB 3.0 additional features.

- Ideal for setups requiring three or more cameras
- ROI settings for added flexibility
- Horizontal/vertical image flip function, plus blemish correction and shading compensation
- Includes Sequencer function and Automatic Level Control (ALC) for dynamic lighting conditions
- Compact size with excellent shock and vibration resistance
- Powered by USB or separate 6-pin connector
- C-mount lens

To learn more, please visit www.zebra.com/cv60

Specifications

Portfolio Specifications¹

System Clock	74.25 MHz (for pulse generator)
EMVA 1288 Parameters Absolute Sensitivity Maximum SNR	10-bit output format Monochrome: 3.71 p, Color: 4.86 p (I = 527 nm) Monochrome: 39.7 dB, Color: 39.7 dB
Traditional SNR ²	Monochrome: greater than 60 dB Color: greater than 60 dB (0 dB gain, 10-bit)
Video Signal Output	Monochrome: 8/10/12-bits ³ Color: 8/10/12-bit Bayer ³
Gain Output	Manual/auto 0 dB to +42 dB
White Balance	Off, presets, or one-push/continuous AWB
Gamma/LUT	0.45 to 1.0 (9 steps) or 257-point programmable LUT
Synchronization	Internal
Video Modes	Normal/Single ROI, Sequencer (Trigger and Command)
Trigger Input	Opto In, Pulse Generators (4), Software, NAND Out (2), User Output (4)
Exposure Modes	Timed/EPS, RCT, Trigger Width, Auto
Shading Correction	Flat shading, color shading (color model only)
Pre-Processing Functions	H and V flip (mirroring), blemish compensation, H and V decimation
Operating Temperature	23°F/-5°C to 113°F/45°C (20 to 80% non-condensing)
Storage Temperature	-13°F/-25°C to 140°F/60°C (20 to 80% non-condensing)
Vibration	10 G (20 Hz to 200 Hz, XYZ directions)
Shock	80 G
Regulations	CE(EN 55032:2015(CISPR32:2015), EN 55035:2017(CISPR35:2016)), FCC Part 15 Class A, RoHS/ WEEE, KC
Power	6-pin: +10 V to +25V DC, 4.3 W typical @ +12V USB: +5V DC, 4.2 W typical @ +5 V
Lens	C-mount
Dimensions (H x W x L)	29 mm x 29 mm x 51.1 mm
Weight	65 g

Model Specifications⁴

2.3 MP USB 3.0	Color and Mono Sensors: 2.3 MP Pixels: 1920 x 1200 px Light Spectrum: Color: Visible Monochrome: Visible and NIR Frame Rate: 162 fps Sensor Name: IMX392 Optical Format: 1/2.3 in. Sensor Diagonal: 7.8 mm Active Sensor Area: 6.6 x 4.4 mm Read Out Modes: Full: 1920 (h) x 1200 (v) up to 162 fps ROI (Single): H: 90 to 1904 pixels in 16- pixel steps, V: 8 to 1198 lines in 2-line steps Binning: 1x2, 2x1, 2x2 (monochrome only) Electronic Shutter: Timed: 14.73 µs to 8 s in 1 step Auto: 100 µs to 6.1 ms at full resolution Automatic Level Control (ALC): Shutter Range: from 100 µs to 6.1 ms Gain Range: from 0 dB to +42 dB
5 MP USB 3.0	Color and Mono Sensors: 5 MP Pixels: 2448 x 2048 px Light Spectrum: Color: Visible Monochrome: Visible and NIR Frame Rate: 36 fps Sensor Name: IMX264 Optical Format: 2/3 in. Sensor Diagonal: 11 mm Active Sensor Area: 8.5 x 7.1 mm Read Out Modes: Full: 2448 (h) x 2048 (v) up to 36 fps ROI (Single): H: 96 to 2432 pixels in 16- pixel steps, V: 8 to 2046 lines in 2-line steps Binning: 1x2, 2x1, 2x2 (monochrome only) Electronic Shutter: Timed: 14.73 µs to 8 s in 1 µs step Auto: 100 µs to 28 ms at full resolution Automatic Level Control (ALC): Shutter Range: from 100 µs to 28 ms Gain Range: from 0 dB to +42 dB
8.9 MP USB 3.0	Color and Mono Sensors: 8.9 MP Pixels: 4096 x 2160 px Light Spectrum: Color: Visible Monochrome: Visible and NIR Frame Rate: 32 fps Sensor Name: IMX267 Optical Format: 1 in. Sensor Diagonal: 16 mm Active Sensor Area: 14.1 x 7.4 mm Read Out Modes: Full: 2448 (h) x 2048 (v) up to 32 fps ROI (Single): H: 96 to 4080 pixels in 16- pixel steps, V: 8 to 2158 lines in 2-line steps Binning: 1x2, 2x2 (monochrome only) Electronic Shutter: Timed: 15.26 µs to 8 s in 1 µs step Auto: 100 µs to 31.2 ms at full resolution Automatic Level Control (ALC): Shutter Range: from 100 µs to 31.2 ms Gain Range: from 0 dB to +42 dB
12.3 MP USB 3.0	Color and Mono Sensors: 12.3 MP Pixels: 4096 x 3000 px Light Spectrum: Color: Visible Monochrome: Visible and NIR Frame Rate: 23 fps Sensor Name: IMX304 Optical Format: 1.1 in. Sensor Diagonal: 17.5 mm Active Sensor Area: 14.1 x 10.3 mm Read Out Modes: Full: 4096 (h) x 3000 (v) up to 23 fps ROI (Single): H: 96 to 4080 pixels in 16- pixel steps, V: 8 to 2998 lines in 2-line steps Binning: 1x2, 2x1, 2x2 (monochrome only) Electronic Shutter:

Model Specifications⁴

	Timed: 15.26 μ s to 8 s in 1 μ s step Auto: 100 μ s to 43.4 ms at full resolution Automatic Level Control (ALC): Shutter Range: from 100 μ s to 43.4 ms Gain Range: from 0 dB to +42 dB
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Connector Pin-Out

DC In/Trigger HIROSE HR10A- 7R-6PB(73)	Pin 1: DC in 10 V to 25 V Pin 2: Opto In+ Pin 3: Opto In- Pin 4: Opto Out+ Pin 5: Opto Out- Pin 6: Ground
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Footnotes

1. Specifications subject to change without notice 2. Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time. 3. 12-bit output only available in video processing bypass mode. 4. Tracking speeds and max. values adjustable.
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