

Description

The EC-Series cameras are ultra-compact, light-weight, firewire cameras for machine vision and industrial imaging applications. These cameras pack a lot of performance into a very small package. Designed specifically for machine vision applications in semiconductor and component inspection, manufacturing quality control, food and beverage inspection, embedded machine imaging and many other vision applications. The EC-Series camera include both CMOS and CCD based models.

Features

- Ultra small size
- Light weight
- Fast frame rates / data rate
- IEEE-1394 interface
- DCAM (IIDC 1.31)
- Snapshot/global shutter
- Asynchronous external trigger and sync I/O
- Region of Interest readout (AOI partial scan)
- Non-volatile configuration memory
- Exposure controls (exposure, gain, offset)
- Rugged design
- Both monochrome and color models

- [More features and specifications](#)

Models

[EC640, 659x493, 97 fps, CMOS](#)

[EC650, 659x493, 90 fps, 1/3" CCD](#)

[EC655, 659x493, 90 fps, 1/2" CCD](#)

[EC750, 752x480, 60 fps, CMOS](#)

[EC1020, 1024x768, 30 fps, 1/3" CCD](#)

[EC1280, 1280x1024, 24 fps, 2/3" CMOS](#)

[EC1350, 1360x1024, 18 fps, 1/2" CCD](#)

[EC1380, 1360x1024, 20 fps, 2/3" CCD](#)

[EC1600, 1620x1220, 15 fps, CCD](#)

Model	Resolution	Frame Rate	Sensitivity	Image Quality	Price
EC640					
EC650					
EC655					
EC750					
EC1020					
EC1280					
EC1350					
EC1380					
EC1600					

Good	Better	Best
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Specifications

	EC640 / EC640C	EC650 / EC650C	EC655 / EC655C	EC750 / EC750C	EC1020 / EC1020C	EC1280	EC1350 / EC1350C	EC1380 / EC1380C	EC1600 / EC1600C
Resolution	659x493	659x493	659x493	752x480	1024x768	1280x1024	1360 x 1024	1360 x 1024	1620x1220
Sensor Type	1/2" CMOS progressive scan	1/3" CMOS progressive scan	1/2" CCD progressive scan	1/3" CCD progressive scan	1/3" CMOS progressive scan	2/3" CCD progressive scan	1/2" CMOS HAD progressive scan	Super 2/3" CCD progressive HAD	1/1.8" CCD progressive scan

Pixel Size (um)	9.9 x 9.9	7.4 x 7.4	9.9 x 9.9	6.0 x 6.0	4.65 x 4.65	6.7 x 6.7	4.65 x 4.65	6.45 x 6.45	4.4 x 4.4
Maximum Frame Rate (full resolution)	97 fps	90 fps	90 fps	60 fps	33 fps	24 fps	18 fps	20 fps	15 fps
Lens Mount	C-mount	C-mount adjustable focus	with C-mount back adjustable focus	with C-mount back CS-mount	C-mount adjustable focus	with C-mount back C-mount	C-mount adjustable focus	with C-mount back adjustable focus	with C-mount back adjustable focus
Digital Interface	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)	DCAM (IICDC 1.31)
Interface Type	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394	IEEE-1394
Exposure Range	10us to 10s	10us to 10s	10us to 10s	30us to 1s	20us to 10s	10us to 10s	10us to 10s	10us to 10s	10us to 10s
Shutter Type	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)	Snapshot (global shutter)
Region of Interest (ROI)	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution	Independent x and y control; 1 pixel resolution
Frame Rate at 100 x 100 ROI*	463 fps	160 fps	160 fps	275 fps	135 fps	890 fps	29 fps	34 fps	57 fps
Binning	N/A	2x2	2x2	N/A	2x2	N/A	2x2	2x2	2x2
2x2 binning max. framerate*	N/A	160 fps	160 fps	N/A	58 fps	N/A	29 fps	34 fps	27 fps
Imaging Modes	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger	Free-running, External Trigger, Fixed frame rate, Software trigger
Fixed Frame Rate Control	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate	0.02 fps to maximum frame rate
External Trigger Modes	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input	Edge high, Pulse high, Active low, Trigger ready, input
External Sync Modes	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO	Exposing, GPO
Trigger Delay Control Range	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments	1us to 1s in 1 us increments
Trigger Latency	4 us	4 us	4 us	4 us	4 us	4 us	4 us	4 us	4 us
Trigger Jitter	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us	+/- 0.5 us
External Trigger/Sync Connection	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose	4-pin Hirose
Monochrome Modes	Mono8, Mono16	Mono8, Mono16	Mono8, Mono16	Mono8, Mono16	Mono8, Mono16	Mono8	Mono8, Mono16	Mono8, Mono16	Mono8, Mono16
Color Modes	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24	N/A	Bayer8, Bayer16, RGB24, YUV411, YUV422	Bayer8, Bayer16, RGB24, YUV411, YUV422
GPIO	1 GPO output	1 GPO output	1 GPO output	1 GPO output	1 GPO output	1 GPO output	1 GPO output	1 GPO output	1 GPO output
Power Consumption	1.8W - 12VDC	2.5W - 12VDC	2.5W - 12VDC	1.8W - 12V@150 mA	2.5W - 12VDC	1.8W - 12V@150 mA	2.5W - 12VDC	3W** - 12VDC	3W - 12VDC

Housing Size (not including lens mount and connectors)	33x46x28mm	38x46x33 mm	38x46x33 mm	33x46x28mm	38x46x33 mm	28x46x33mm	38x46x33 mm	38x46x33 mm	38x46x33 mm
Total Size Envelope (HxWxL)	33x46x49 mm	33x46x56 mm	33x46x56 mm	33x46x43 mm	33x46x56 mm	33x46x49 mm	33x46x56 mm	33x46x56 mm	33x46x56 mm
Weight	77g	84 g	84 g	70 g	84 g	77 g	84 g	89 g	84 g
Conformity	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS	CE, FCC, RoHS
Digitization	10 bits	12 bits	12 bits	10 bits	12 bits	10 bits	12 bits	12 bits	12 bits
Operating Temperature***	0 to 60 C	0 to 50 C	0 to 50 C	0 to 60 C	0 to 50 C	0 to 60 C	0 to 50 C	0 to 50 C	0 to 50 C
Spectral Sensitivity Range	400 - 1000 nm	400 - 1000 nm	400 - 1000 nm	400 - 1030 nm	400 - 1000 nm	400 - 1000 nm	400 - 1000 nm	400 - 1000 nm	400 - 1000 nm
Monochrome Spectral Response Curve	click here	click here	click here	click here	click here	click here	click here	click here	click here
Color Response Curve	click here	click here	click here	click here	click here	N/A	click here	click here	click here

Notes

Specifications are preliminary and subject to change without notice

*There are a wide range of settings and speeds. These figures are given as an example. Small ROI will give even faster maximum framerates.

**Up to 3.7 W for smaller region of interest readout.

***Higher ambient temperatures are possible if the camera is properly mounted to a heat sink.