CMOS Camera

MV1-D1312IE SERIES

## 1.4 Megapixel resolution with Photonfocus sensor

Features

– Photonfocus A1312IE CMOS image sensor
– 1312 x 1082 pixel resolution
– Very good NIR spectral response
– Exceptional SNR up to 300:1
– Dynamic range up to 120 dB via LinLog®
– Up to 170 fps @ full resolution
– Global shutter
– Monochrome
– Extended features
– CameraLink® and GigE interface
– 12 bit greyscale resolution
– Boardlevel or OEM solution available

Compatible with

HALCON   **LabVIEW**   **MATROX IMAGING**

Spectral response of the Photonfocus A1312IE CMOS image sensor

Quantum Efficiency vs. Wavelength
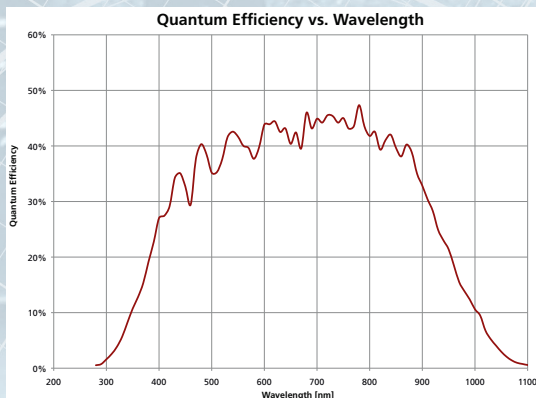
MV1-D1312IE-40-CL-12 MV1-D1312IE-40-G2-12*	MV1-D1312IE-80-CL-12 MV1-D1312IE-80-G2-12*	MV1-D1312IE-160-CL-12 MV1-D1312IE-100-G2-12	MV1-D1312IE-240-CL-8

Image Sensor

Image sensor	Photonfocus A1312IE (3. Generation)
Technology	CMOS active pixel (APS)
Scanning system	Progressive scan
Optical format / diagonal	1" (13.6 mm diagonal) maximum resolution 2/3" (11.6 mm diagonal) 1024 x 1024 resolution
Resolution	1312 x 1082 pixels / 1248 x 1082 pixels
Pixel size	8 µm x 8 µm
Active optical area	10.48 mm x 8.64 mm (maximum)
Dark current	0.65 fA/pixel
Full well capacity / SNR	~90 ke⁻ / 300:1
Spectral range	< 370 to 1050 nm (to 10 % of peak responsivity)
Responsivity	280 x 10³ DN / (J/m²) @ 850 nm / 8 bit / gain = 1
Quantum Efficiency	> 45 %
Optical fill factor	> 60 %
Dynamic range	60 dB in linear mode; 120 dB with LinLog®
Colour format	Monochrome
Characteristic curve	Linear, LinLog®
Shutter mode	Global shutter
Read out mode	Sequential read out or simultaneous read out (read out during exposure only in linear mode) for higher frame rates

Full well capacity / SNR row: ~90 ke⁻ / 300:1

Camera

	MV1-D1312IE-40	MV1-D1312IE-80	MV1-D1312IE-160 / 100	MV1-D1312IE-240
Exposure time	10 µs … 1.68 s / 100 ns steps	10 µs … 0.83 s / 50 ns steps	10 µs … 0.67 s / 40 ns steps (GigE) 10 µs … 0.41 s / 25 ns steps (CL)	10 µs … 0.279 s / 16.67 ns steps
Frame rate	27 fps	55 fps	68 fps (GigE) / 108 fps (CL)	170 fps
Pixel clock	40 MHz	40 MHz	80 MHz (CL) / 50 MHz (GigE)	80 MHz (CL) / 50 MHz (GigE)
Camera taps	1	1 (GigE) / 2 (CL)	1 (GigE) / 2 (CL)	3
Greyscale resolution	8 bit / 10 bit / 12 bit	8 bit / 10 bit / 12 bit	8 bit / 10 bit / 12 bit	8 bit
Fixed pattern noise (FPN)	< 1 DN @ 8 bit / correction ON			
Analogue gain	1			
Digital gain	0.1 to 15.99 (Fine Gain)			
Configuration interface	CL SERIAL (Baudrate user selectable) (CL) / Gigabit Ethernet (GigE)			
Trigger modes	• Free running (non triggered) • Interface trigger • External trigger input • Software trigger			
Features	• Region of Interest (ROI) • 512 Multiple ROI (MROI) • Decimation Y • Image correction • 2 Look-up tables (LUT) • Constant frame rate • Crosshair • Convolver 3x3 • Temperature • Image information • Extended trigger input and strobe output functionality			
Interface	CameraLink® Base or GigE (GigE Vision & GenICam compliant)			
Operating temperature	0°C … +50°C			
Power supply	+12 V DC (±10 %) (CL) / +12 V … +24 V DC (±10 %) (GigE)			
Power consumption	2.5 W (CL) / < 4.5 W (GigE)	< 3.0 W (CL) / < 5.0 W (GigE)	< 3.3 W (CL) / < 5.2 W (GigE)	< 5.2 W (CL)
Lens mount	C-Mount (CS-Mount optional)			
Dimensions (H x W x L)	60 x 60 x 45 mm³ (CL) / 60 x 60 x 51 mm³ (GigE)			
Mass	265 g (CL) / 310 g (GigE)			
Conformity	CE / RoHS / WEEE			
Specials	Adjustable backfocus; Opto-isolated I/Os; Dual RS-422 Inputs (GigE)			

Software

Camera control	PFRemote™ graphical user interface (GUI) and PFLib (SDK); GigE: graphical user interface GEV Player and SDK; All 3rd party tools providing full support for GigE Vison and GenICam
OS	Windows and Linux (32 & 64 Bit); other OS (QNX, etc) on request

* Model available upon request