![Photonfocus logo](photon focus)

CMOS Camera

MV1-D1312C SERIES
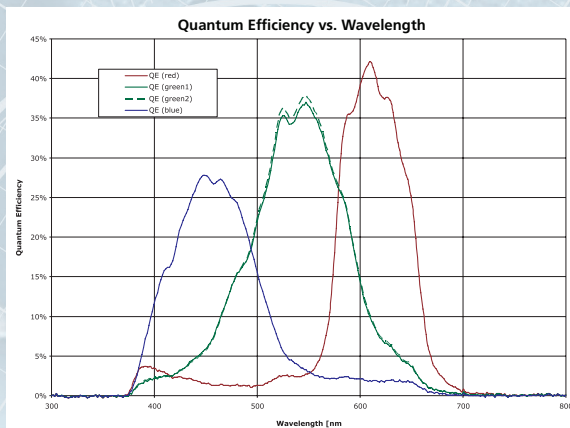
1.4 Megapixel resolution with Photonfocus sensor

Features

– Photonfocus A1312C CMOS image sensor
– 1312 x 1082 pixel resolution
– Integrated NIR cut-off filter[1]
– Exceptional SNR up to 300:1
– Dynamic range up to 60 dB
– Up to 170 fps @ full resolution
– Global shutter
– Colour (RGB Bayer)
– Standard features
– CameraLink® and GigE interface
– 12 bit output format
– Boardlevel or OEM solution available

Compatible with

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

Spectral response of the Photonfocus A1312C CMOS image sensor

Quantum Efficiency vs. Wavelength

QE (red)
QE (green1)
QE (green2)
QE (blue)

Quantum Efficiency

Wavelength [nm]

MV1-D1312C-40-CL-12 MV1-D1312C-40-G2-12*	MV1-D1312C-80-CL-12* MV1-D1312C-80-G2-12	MV1-D1312C-160-CL-12 MV1-D1312C-100-G2-12*	MV1-D1312C-240-CL-8*

Image sensor

Image sensor	Photonfocus A1312C (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	390 to 670 nm (to 10 % of peak responsivity)[1]	
Responsivity	190×10^3 DN / (J/m²) @ 625 nm / 8 bit / gain = 1 (approximately 560 DN / (lux s) @ 625 nm / 8 bit / gain = 1)	
Quantum Efficiency	> 40 %	
Optical fill factor	> 60 %	
Dynamic range	60 dB in linear mode	
Colour format	RGB Bayer (raw)	
Characteristic curve	Linear	
Shutter mode	Global shutter	
Read out mode	Sequential or simultaneous read out (read out during exposure) for higher frame rates	

Camera

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		80 MHz (CL) / 50 MHz (GigE)	
Camera taps	1	1 (GigE) / 2 (CL)		3
Greyscale resolution	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

[1] A1312C image sensor available without NIR cut-off filter on request
* Model available upon request