

CMOS Smart Camera

# SM2-D1312-SERIES

1.4 Megapixel smart camera with programmable DSP

## Features

- Photonfocus A1312 CMOS image sensor
- 1312 x 1082 pixel resolution
- Programmable Texas Instruments DSP
- HALCON Embedded compatible
- Dynamic range up to 120 dB via LinLog<sup>®</sup>
- Up to 108 fps @ full resolution
- JPEG compression @ 68 fps<sup>(1)</sup>
- Global shutter
- Monochrome
- GigE interface
- 12 bit greyscale resolution



Webserver Screenshot



SM2-D1312-80-GB-12	SM2-D1312-JPEG-100-GB-12	SM2-D1312-160-GB-12
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Image sensor	
Image sensor	Photonfocus A1312 (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
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	~100 ke <sup>-</sup>
Spectral range	< 370 to 1000 nm (to 10 % of peak responsivity)
Responsivity	210 x 10 <sup>3</sup> DN / (J/m <sup>2</sup> ) @ 625 nm / 8 bit / gain = 1 (approximately 620 DN / (lux s) @ 625 nm / 8 Bit / gain = 1)
Quantum Efficiency	> 50 %
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 or simultaneous read out (read out during exposure only in linear mode) for higher frame rates

Camera			
Exposure time	10 µs ... 0.83 s / 50 ns steps	10 µs ... 0.67 s / 40 ns steps	10 µs ... 0.41 s / 25 ns steps
Frame rate	55 fps	68 fps	108 fps
Pixel clock	40 MHz	50 MHz	80 MHz
Camera taps	2 (internal)		
Greyscale resolution	8 bit / 10 bit / 12 bit		
Fixed pattern noise (FPN)	< 1 DN RMS @ 8 bit / gain = 1 / offset correction ON		
Analogue gain	1		
Digital gain	1 / 2 / 4 / 8		
Configuration interface	Built-in Webservice		
Trigger modes	<ul style="list-style-type: none"> <li>• Free running (non triggered) • DSP controlled trigger • External trigger input</li> </ul>		
Features	<ul style="list-style-type: none"> <li>• Region of Interest (ROI) • 512 Multiple ROI (MROI) • Decimation Y • Image correction • 2 Look-up tables (LUT)</li> <li>• Constant frame rate • Crosshair • Convolver 3x3 • Temperature • Image information • Realtime clock</li> <li>• FTP Server • Extended trigger input and strobe output functionality</li> </ul>		
CPU / RAM / Storage	Texas Instruments TMS320 C6415 @ 1GHz, 8000 MIPS / 256 MB SDRAM / 2 GB SD Card		
Interface	GigE		
Operating temperature	0°C ... +50°C		
Power supply	+12 V DC (±10%)		
Power consumption	10 W		
Lens mount	C-Mount (CS-Mount optional)		
Dimensions	60 x 60 x 136 mm <sup>3</sup>		
Mass	602 g		
Conformity	CE / RoHS / WEEE		
Specials	Adjustable backfocus; Opto-isolated I/Os; JTAG, RS232 Interface, RS422 Interface		

Software	
Camera control	Built-in webservice
DSP Development tools	Texas Instruments Code Composer, HALCON Embedded

<sup>(1)</sup> Feature only available for SM2-D1312-JPEG-100-GB-12 camera (for other cameras on request)

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