



CMOS Imaging Modules

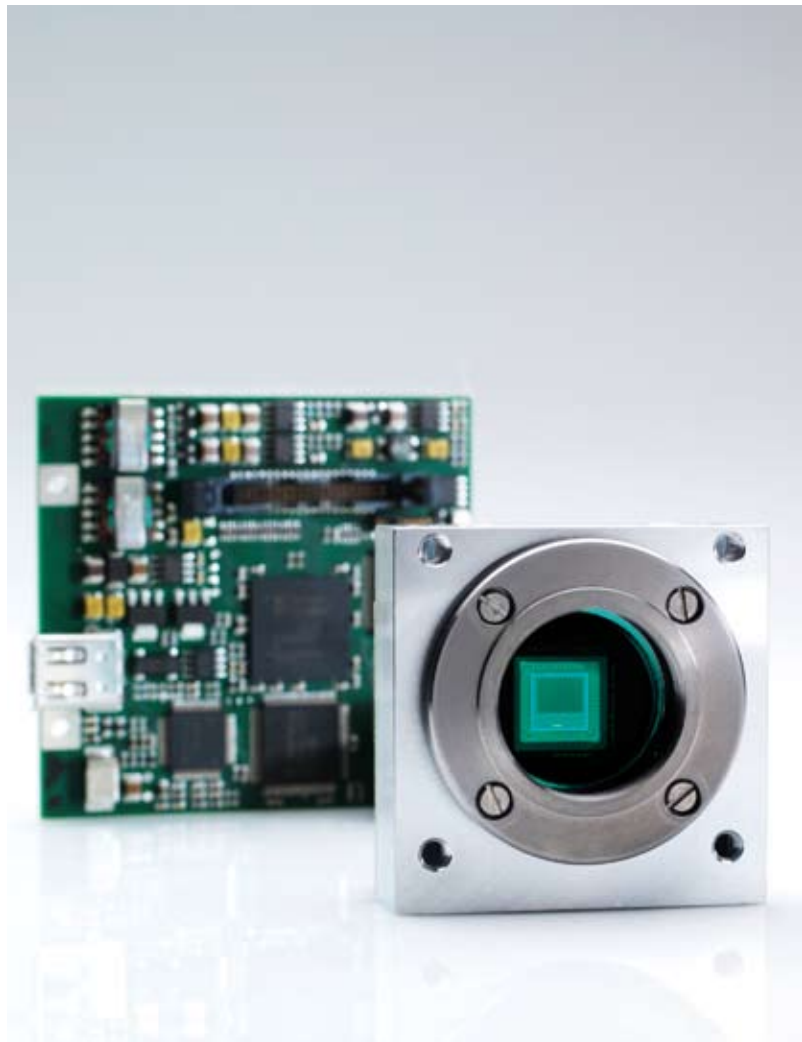
The high performance board level cameras with CMOS Technology provide the best imaging solution for system integrators in industry, medicine and security.

Easy to integrate

- Software development kit (SDK)
- WIN/ MAC/ Linux
- LabView driver
- ActiveX Control
- USB 2.0/ IEEE 1394a FireWire

Benefits

- Very high frame rates
- ROI
- High resolution
- Low noise electronics
- Binning
- Dynamic grey scale leveling



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Specifications

Imaging module type	IM 1.3 USB	IM 3.15 USB/ 3.15	IM 5.0 USB
Image sensor	1/2" CMOS	1/2" CMOS	1/2.5" CMOS
Sensor type	Micron MT9M001	Micron MT9T001	Micron MT9P001
Sensor size [H x V]	6.66 mm x 5.32 mm	6.55 mm x 4.92 mm	5.70 mm x 4.28 mm
Active pixels [H x V]	1280 x 1024 pixel	2048 x 1536 pixel	2592 x 1944 pixel
Digitization	10 Bit	10 Bit	12 Bit
Color/ Monochrome	Color/ Monochrome	Color	Color/ Monochrome
Sensor resolution [max]	1280 x 1024 pixel [1.3 Mpix]	2048 x 1536 pixel [3.15 Mpix]	2592 x 1944 pixel [5.0 Mpix]
Pixel size	5.2 μm^2	3.2 μm^2	2.2 μm^2
Pixel clock	48 MHz	48 MHz [USB] 36 MHz [FireWire]	48 MHz
ROI	Arbitrary position and size		
Dynamic range	68 dB	58 dB	68 dB
Read out noise [typical]	< 1 LSB ¹²	< 1 LSB ¹²	< 4 LSB ¹³
Exposure times	60 μs ... 0.5 s	50 μs ... 3 s	75 μs ... 3 s
Analog gain	1x ... 8x	1x ... 8x	1x ... 8x
Max. frame rate [image size] typical via USB 2.0 ¹¹	30 fps [1280 x 1024 pixel] 20.5 fps [1280 x 1024 pixel]	12 fps [2048 x 1536 pixel] 8.9 fps [2048 x 1536 pixel]	6 fps [2592 x 1944 pixel] 5.7 fps [2048 x 1536 pixel]
Image resolution Binning	no	2x, 3x	2x, 3x
Cooling	no	no	no
Digital interface	USB 2.0	USB 2.0 / IEEE1394a FireWire	USB 2.0
Optical connection	C-Mount (0.5x TV pref.)		
IR –cut –of filter	Hoya CM500 S [IR Cut-Off bei 650 nm]		
Trigger In/ Out	Synchronization with external devices; configurable via control software		
Voltage supply	USB powered	USB/ FireWire powered	USB powered
Power consumption	approx. 2 W	approx. 1.9 W 4 W	approx. 1.8 W
Dimensions sensor board	51 mm x 51 mm [with C-Mount]		
Dimensions interface board	55 mm x 46 mm	55 x 46 mm [USB] 70 x 75 mm [FireWire]	55 mm x 46 mm
Cable length [sensor - interface board]	77 mm	77 mm [USB] 127 mm [FireWire]	77 mm
Ambient conditions	Temperature: +5 °C ... +55 °C / Humidity: 5 % ... 80 %, not condensing		
Stock conditions	Temperature: -20 ... +70 °C		
Weight	approx. 220 g [with C-Mount]		
Software	Software Development Kit (SDK) [PC/ MAC/ Linux], ActiveX Control, LabView		
Hardware requirements	PC: MS WIN 2000/ XP/ Vista Mac: OS X 10.4 or higher 3 GHz CPU, 1 GB RAM, 64 MB graphics, USB 2.0 or Firewire a		

¹¹ 8 Bit transfer | ¹² 10 Bit transfer | ¹³ 12 Bit transfer

It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.



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