



Imaging Modules

Perfect Digital Imaging



OEM & Custom Imaging Modules Made in Germany - on duty worldwide

Jenoptik OEM & Custom Imaging Modules provide the performance needed to meet the demanding requirements in scientific and industrial applications - at most competitive prices.

Besides a large range of standard dual-board imaging modules Jenoptik continuously provides cost-effective

high volume solutions to fit both your application and budgetary requirements. Customization with respect to small hard- and software adjustments up to complete made-to-spec imaging solutions will be performed in a timely manner.

Our imaging modules come with USB 2.0, USB 3.0, FireWire or custom interfaces.



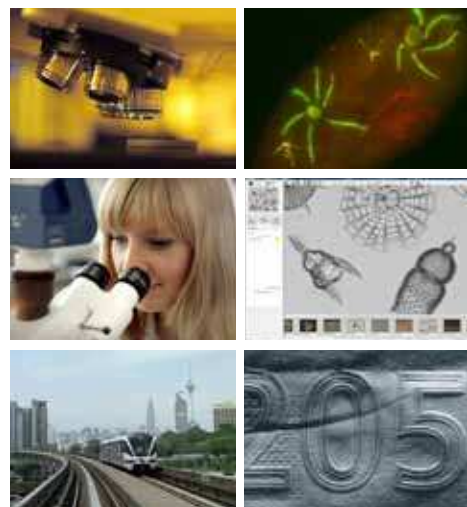
Best imaging modules for system integrators requiring highest performance

Benefits

- Small, customizable footprint
- Single-board or dual-board solutions
- Suitable for scientific and industrial applications
- High resolution
- Low-noise imaging
- High-speed imaging
- High quantum efficiency
- Ease of system integration

Easy to integrate

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



CMOS Imaging Modules

Best cost effectiveness

Specifications

Imaging module type	IM 3.15 USB	IM 3.15	IM 5.0 C USB / IM 5.0 M USB
Image sensor	1/2" CMOS	1/2" CMOS	1/2.5" CMOS
Sensor type	Micron MT9T001P12STC	Micron MT9T001P12STC	Micron MT9P001112STC
Active sensor size [H x V]	6.55 mm x 4.92 mm	6.55 mm x 4.92 mm	5.70 mm x 4.28 mm
Active pixels [H x V]	2048 x 1536 pixel	2048 x 1536 pixel	2592 x 1944 pixel
Digitization	10 bit	10 bit	12 bit
Color / Monochrome	Color	Color	Color / Monochrome
Sensor resolution [max]	2048 x 1536 pixel [3.15 Mpix]	2048 x 1536 pixel [3.15 Mpix]	2592 x 1944 pixel [5.0 Mpix]
Pixel size	3.2 μm^2	3.2 μm^2	2.2 μm^2
Pixel clock	48 MHz [USB]	36 MHz [FireWire]	48 MHz
Dynamic range	58 dB	58 dB	66 dB
Read out noise [typical]	< 1 LSB [10-Bit-Transfer]	< 1 LSB [10-Bit-Transfer]	< 4 LSB [12-Bit-Transfer]
Exposure times	100 μs ... 3 s	50 μs ... 3 s	150 μs ... 3 s
Analog gain	1x ... 4x (SDK)	1x ... 20x	1x ... 5x (SDK)
Max. frame rate [image size] typical via USB 2.0	9 fps [2048 x 1536 pixel] 35 fps [1024 x 768 pixel]	10 fps [2048 x 1536 pixel] 26 fps [1024 x 768 pixel]	5,5 fps [2592 x 1944 pixel] 17 fps [1296 x 972 pixel]
Binning	2x, 3x	2x, 3x	2x, 4x
Cooling	no	no	no
Digital interface	USB 2.0	IEEE1394a FireWire	USB 2.0
Optical connection	C-Mount (0.5x/0.63x TV pref.)		
IR cut-off filter	Hoya CM500 S [IR cut-off at 650 nm]		
Trigger In / Out	yes	no	yes
Voltage supply	USB powered	FireWire powered	USB powered
Power consumption	approx. 2 W	approx. 2.5 W	approx. 1.8 W
Dimensions sensor board	51 mm x 51 mm [with C-Mount]		
Dimensions interface board	55 mm x 46 mm	70 x 75 mm [FireWire]	55 mm x 46 mm
Cable lenght [sensor - interface board]	77 mm	127 mm [FireWire]	77 mm
Ambient conditions	Temperature: +5 °C ... +35 °C / Humidity: 5 % ... 80 %, not condensing		
Stock conditions	Temperature: -20 °C ... +70 °C		
Weight	approx. 220 g [with C-Mount]		
Software	Software Development Kit (SDK) [PC for all cameras / Mac & Linux support only for Firewire-cameras]		
Drivers	available drivers are listed at www.jenoptik.com/progres-drivers		
Hardware requirements	recommended hardware requirements are mentioned at www.jenoptik.com/progres-system-requirements		

CCD Color Imaging Modules

Excellent color reproduction & image quality

Specifications

Imaging module type	IM 3.2	IM 5.0	IM 7.1
Image sensor	1/1.8" CCD	2/3" CCD	1/2.5" CCD
Sensor type	SONY ICX252	SONY ICX282	SONY ICX629
Active sensor size [H x V]	7.58 mm x 6.54 mm	9.04 mm x 7.86 mm	5.71 mm x 4.29 mm
Active pixels [H x V]	2080 x 1542 pixel	2580 x 1944 pixel	3072 x 2300 pixel
Digitization	12 bit	12 bit	12 bit
Color / Monochrome	Color	Color	Color
Sensor resolution [max]	2080 x 1542 pixel [3.2 Mpix]	2580 x 1944 pixel [5.0 Mpix]	3072 x 2300 pixel [7.1 Mpix]
Pixel size	3.45 μm^2	3.4 μm^2	1.86 μm^2
Pixel clock	12 MHz	12 MHz / 18 MHz	32 MHz
Dynamic range	61 dB	61 dB 60 dB	60 dB
Read out noise [typical]	3 LSB [12-Bit-Transfer]	4 LSB [12-Bit-Transfer]	4 LSB [12-Bit-Transfer]
Exposure times	270 μs ... 180 s	90 μs ... 180 s	170 μs ... 5 s
Analog gain	1x ... 12x (SDK)	1x ... 16x (SDK)	1x ... 16x (SDK)
Max. frame rate [image size] typical via USB 2.0	6 fps [2080 x 1542 pixel] 12 fps [1040 x 770 pixel]	6 fps [2580 x 1944 pixel] 21 fps [646 x 488 pixel]	18 fps [1228 x 920 pixel]
Binning	2x ... 5x (SDK)	2x ... 5x (SDK)	4x (SDK)
Cooling	optional	optional	no
Digital interface	IEEE1394a FireWire	IEEE1394a FireWire	IEEE1394a FireWire
Optical connection		C-Mount (0.5x/0.63x TV pref.)	
IR cut-off filter	Hoya CM500 S [IR cut-off at 650 nm] Optional: clear glass		
Trigger In / Out	no	no	yes
Voltage supply	FireWire powered	FireWire powered	FireWire powered
Power consumption	approx. 6 W	approx. 6 W	approx. 6 W
Dimensions sensor board		51 mm x 51 mm [with C-Mount]	
Dimensions interface board	70 x 75 mm	70 x 75 mm	70 x 75 mm
Cable length [sensor - interface board]	127 mm	127 mm	127 mm
Ambient conditions	Temperature: +5 °C ... +55 °C / Humidity: 5 % ... 80 %, not condensing		
Stock conditions	Temperature: -20 °C ... +70 °C		
Weight	approx. 270 g [with C-Mount]		
Software	Software Development Kit (SDK) [WIN / MAC / Linux]		
Drivers	available drivers are listed at www.jenoptik.com/progres-drivers		
Hardware requirements	recommended hardware requirements are mentioned at www.jenoptik.com/progres-system-requirements		

Sensitive CCD Imaging Modules

Best color reproduction, highest performance & highest sensitivity

Specifications

Imaging module type	IM 1.4C / 1.4M	1.4 C USB / 1.4 M USB	IM 1.4C ^{cool} / 1.4M ^{cool}
Image sensor	2/3" CCD progressive scan	2/3" CCD progressive scan	2/3" CCD progressive scan
Sensor type	Sony ICX285	Sony ICX285	Sony ICX285
Active sensor size [H x V]	8.8 mm x 6.6 mm	8.8 mm x 6.6 mm	8.8 mm x 6.6 mm
Active pixels [H x V]	1360 x 1024 pixel	1360 x 1024 pixel	1360 x 1024 pixel
Digitization	14 bit	12 bit ¹⁾	14 bit
Color / Monochrome	Color / Monochrome	Color / Monochrome	Color / Monochrome
Sensor resolution [max]	1360 × 1024 pixel [1.4 Mpix]	1360 × 1024 pixel [1.4 Mpix]	1360 × 1024 pixel [1.4 Mpix]
Pixel size	6.45 μm ²	6.45 μm ²	6.45 μm ²
Pixel clock	12 MHz / 24.5 MHz	12 MHz / 24.5 MHz	12 MHz / 24.5 MHz
Dynamic range	65 ... 67 dB	67 ... 69 dB	67 ... 69 dB
Read out noise [typical]	6 LSB [14 Bit Transfer]	~ 4 LSB [12 Bit Transfer] ¹⁾	6 LSB [14 Bit Transfer]
Exposure times	94 μs ... 180 s	20 μs ... 180s ¹⁾	94 μs ... 300 s
Analog gain	1x ... 8x	1x ... 14x ¹⁾ (SDK)	1x ... 8x (SDK)
Max. frame rate [image size] typical via USB 2.0	13 fps [1360 x 1024 pixel] 51 fps [680 x 512 pixel]	15 fps [1360 x 1024 pixel] ¹⁾ 26.5 fps [680 x 512 pixel] ¹⁾	13 fps [1360 x 1024 pixel] 51 fps [680 x 512 pixel]
Binning	2x ... 10x	2x ... 8x ¹⁾ (SDK)	2x ... 10x (SDK)
Cooling	no	no	yes
Digital interface	FireWire a	USB 2.0	FireWire a
Optical connection	C-Mount (0.5x/0.63x TV pref.)		
IR cut-off filter	Hoya CM500 S [IR cut-off at 650 nm] Optional: clear glass		
Trigger In / Out	yes	yes	yes
Voltage supply	FireWire	USB powered	FireWire powered
Power consumption	approx. 5 W	approx. 2.5 W ¹⁾	approx. 8 W
Dimensions sensor board	72 x 62.3 mm	51 x 51 mm ¹⁾	78 x 72 mm
Dimensions interface board	85 x 70 mm	55 x 46 mm ¹⁾	85 x 70 mm
Cable length [sensor - interface board]	127 mm	77 mm ¹⁾	127 mm
Ambient conditions	Temperature: +5 °C ... +55 °C / Humidity: 5 % ... 80 %, not condensing		
Stock conditions	Temperature: -20 °C ... +70 °C		
Weight	approx. 300 g	approx. 220 g ¹⁾	approx. 450 g
Software	Software Development Kit (SDK) [PC for all cameras / Mac & Linux support only for Firewire-cameras]		
Drivers	available drivers are listed at www.jenoptik.com/progres-drivers		
Hardware requirements	recommended hardware requirements are mentioned at www.jenoptik.com/progres-system-requirements		

¹⁾ Specification only for USB



JENOPTIK | Optical Systems

Optoelectronic Systems Business Unit

JENOPTIK Optical Systems GmbH

Goeschwitzer Strasse 25

07745 Jena | Germany

Phone +49 3641 65-3083 | Fax -2144

digitalimaging.os@jenoptik.com

www.jenoptik.com/digitalimaging

Office USA:

JENOPTIK Optical Systems, Inc.

16490 Innovation Drive

Jupiter, FL 33478-6428 | USA

Phone +1 561 628-8837 | Fax 881-1947

digitalimaging.os@jenoptik.com