

MC1310 /11 High-Speed *megaPixel* CMOS Camera

- MC1310 monochrome
- MC1311 RGB colour with BAYER filter
- Up to 500 fps @ 1280 (H) x 1024 (V) resolution
- 1024 or 256 grey scales
- Full Camera Link™ output with 660 Mbyte/s max. data rate
- Random selection of window size and position
- Asynchronous global shutter
- Horizontal und vertical pixelbinning
- ImageBLITZ® image trigger
- Very low power
- Small, compact size

Flexible resolution and speed

Mikrotrons MC1310/11 is a high-speed *megaPixel* CMOS camera with a resolution of 1280 (H) x 1024 (V) pixel. In contrast to high resolution CCD-imagers, modern CMOS-sensors offer high resolution and extremely high data rates. Because of random programmability of window size, position (ROI) and clock frequency resolution and frame rate can be easily adapted to any specific need.

Easy configuration

MC1310/11 configuration is done via the Camera Link™ interface. Eight sets of camera configuration schemes can be stored in non-volatile memory of the cameras microcontroller. Even the FPGA configuration file can be downloaded for very special customer needs e.g.: image preprocessing in MC1310/11 hardware.

Window size and position (ROI) on the imager plus clock speed are programmable. With a pixel clock of 33 MHz on the "Base" Camera Link™ connector and a window size of 100 x 100 pixel a frame rate of more than 4.850 fps can be achieved. Maximum video data rate at the 64-bit "Full" Camera Link™ connector is 660 Mbyte/sec.

„Freeze Frame“ full frame shutter and exposure time controlling

The MC1310/11 has a „Freeze Frame“ shutter. This shutter „freezes“ and stores the complete full frame at the end of the exposure time while exposing the next image.

In this way the full frame shutter makes the sharply defined exposure of very fast, dynamic processes possible.



MC1310/11 can expose images synchronously or asynchronously. In synchronous (free run) mode exposure time equals frame time or, for shorter exposure times, the electronic shutter can be activated with a minimal shutter time of 4µs. In asynchronous mode an image is exposed by an external trigger.

Camera Link™ accordant data output

Using 2x10-Bit data output the full dynamic range of the sensor is available on the output. If less bandwidth and more speed is desired, any 8-Bits out of the 10-Bits of the sensor can be selected and output as 2x8-Bit or 8x8-Bit as full Camera Link™ output format.

Pixelbinning

With high frame rates the exposure time is short. For more sensitivity the grey level of two adjacent or pixel in one row or one column or both can be summed.

ImageBLITZ® image trigger

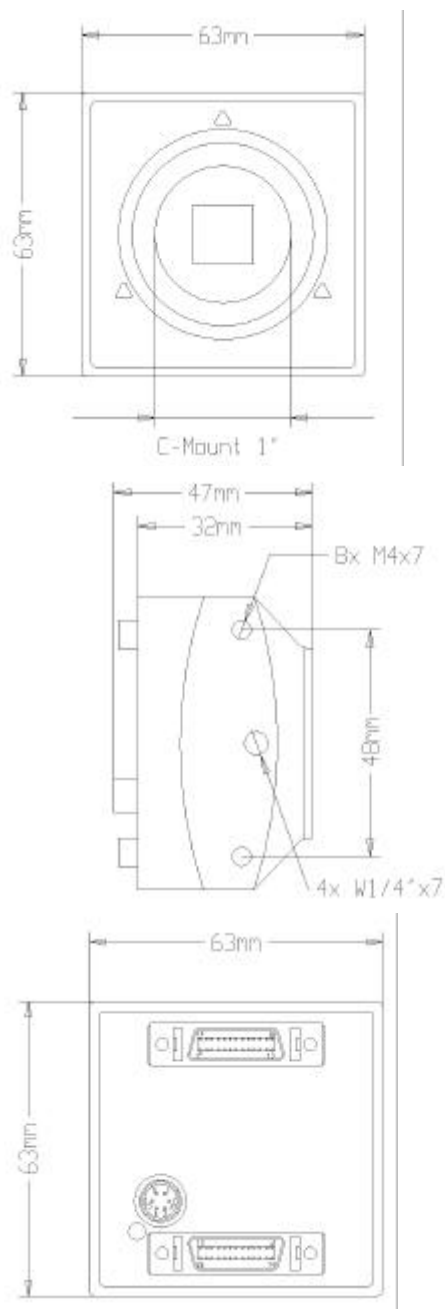
ImageBLITZ® integrates the function of an optical sensor or any other external actuator inside MC1310/11 hardware without any support of an image processing system.

The hardware inside the camera controls with very high repetition rate the intensity along an arbitrary selectable piece of one of the 1024 rows of the imager. If along that piece of the selected row a selectable number of grey values are beyond or below a selectable threshold, one complete image is automatically exposed and output.

This is the advantage: no mounting and adjustment of an optical sensor and each object is captured at the exact same position of the image.

Technical Data

MC1310 Sensor	linear response, monochrome
MC1311 Sensor	linear response, RGB colour with BAYER filter
Number of pixel	1280(H) x 1024 (V)
Pixel size	12 x 12 µm
Optical active area	15,36 (H) x 12,29 (V) mm 19,67 mm diagonal
Fill factor	40%
Spectral bandwidth	400 ... 800 nm
Illumination @ ADC Vref = 1V	1600 LSB/lux-sec at 550 nm
Dynamic range	59 dB
Frame rates	500 fps bei 1280x1024 Pixel 1000 fps bei 1280x512 Pixel 100000 fps bei 1280x2 Pixel
Video output	Full Camera Link™-digital interface
Synchronisation	Internal or external pixel clock
Pixel clock	7,5 - 83 MHz
Asynchronous shutter	Internal timer, 1024 steps, 4 µs to 32 ms or by pulse width of trigger signal
Gain	Digital x 1, 2, 4
Camera configuration	Camera Link™, 9,6 – 115 Kbd, n, 8, 1
Operating temperature	+5° to +50° C
Power supply (VCC)	8 ... 35 V DC, 4,5 W
Lens	C-mount, F-mount with adapter
Dimensions	63 x 63 x 47 mm (W x H x D)
Weight	App. 300 g



Connectors

Two 26-pin Camera Link™ Connectors

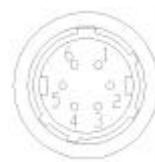
All signals according to Base/Full Camera Link™ specification

Signal	Description
CC1	EXP
CC4	External Clock



6-pin. Hirose power connector

Pin	Signal	Pin	Signal
1	VCC.	4	GND
2	STRB-	5	STRB+
3	GND	6	VCC.



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