



VIA1M

a 1MP ultra high speed global shutter image sensor

The VIA1M is a high speed global shutter CMOS image sensor with a pixelfield of 1280x1024 pixels. This pixelfield consists of 12 μm x 12 μm global shutter pixels that allow parallel readout and exposure at high frame rates up to 2000 frames/s at full resolution. The VIA1M pixels are optimized for a high SNR which allows capturing high quality images.

The sensor implements a DDS stage and programmable gain amplifier for reducing fixed pattern and dark noise. The sensor shows excellent behavior in linearity, lag and non-uniformity and has a high dynamic range. The VIA1M implements 16 high speed DDR 10bit data ports. Frame rates above 2000 frames/s can be achieved by enabling the row-region-of-interest mode. An on-chip programmable sequencer handles the internal timing and can be reconfigured if needed. The sensor can easily be accessed and configured through an SPI interface.

Sensor specification

- 1280 x 1024 monochrome pixels with a size of 12 μm x 12 μm
- Framerate > 2000 frames/s
- PRNU < 0.2%, Linearity < 0.2%
- Dynamic range > 60dB
- Full well: 54 ke⁻, SNR: 47dB
- Option: Full well > 140 ke⁻, SNR > 52dB
- Global/Rolling shutter capability
- ROI - random row windowing for framerate increase
- Y mirroring
- 16 x 10 bit DDR data outputs @160 MHz
- General purpose frame synchronized outputs
- On chip timing generator
- 11 bit mode with increased dynamics 64 dB
- Programming via SPI

Applications

- Machine vision
- Medical
- Automation
- Automotive
- High-speed inspection and monitoring systems

