



# smart components!

^ *Smart Multi-Sensor Camera:* up to four pixel-synchronous CMOS sensors with global shutter are connected to the camera by an LVDS data cable and can be freely positioned. An FPGA and 256MB storage take over the preprocessing of the image data.

## Smart Components

In addition to image acquisition, *Smart Components* from VRmagic also make it possible to preprocess data directly in the camera. Image data can be compressed on the FPGA of the camera to reduce the load of the host system.

*Smart Components* are available with different CMOS sensors, in monochrome and color, with rolling or global shutter and resolutions from VGA (640x480) to three megapixels (2048x1536).

## Features

Internal 64MB DDR-memory (ring buffer); Lossless bandwidth sharing; Lossless realtime compression (RLE-encoding); Bayer and HQ Bayer filter with RGB24; RGB565 or optimized grey picture; Highspeed USB 2.0; Fullspeed USB 1.x.

## Camera Features

- Standard Mini USB-B connector
- USB powered
- Freely programmable timings
- Unlimited access to uncompressed sensor data
- Hirose connector for trigger/strobe signals
- DIP switches for configuration of trigger/strobe to active/passive
- Optimized for parallel operation of multiple cameras
- Soft-trigger; Timestamps; Framecounter
- Storage of user configurations in the device
- Multiple standard formats plus one free definable ROI (Region of Interest)
- No frame grabbing hardware necessary

	VRmFAVC-1	VRmFC-4	VRmFC-6	VRmFC-8	VRmFC-9	VRmFC-12	VRm2FC-12	VRm3FC-12	VRm4FC-12
							Multi-Sensor Cameras		
CMOS Sensor		1/2"	1/2"	1/2"	1/2"	1/3"	2x 1/3"	3x 1/3"	4x 1/3"
Color	x	x	x	x		x	x	x	x
Monochrome	x	x	x		x	x	x	x	x
Resolution	PAL/NTSC	800x600	640x480	2048x1536	1280x1024	752x480	752x480	752x480	752x480
Pixelsize		8x8 µm	9.9x9.9 µm	3.2x3.2 µm	5.2x5.2 µm	6x6 µm	6x6 µm	6x6 µm	6x6 µm
FPS		30	132	13	30	69	69	69	69
Pixelclock		5-15 MHz	5-42 MHz	5-48 MHz	5-48 MHz	5-26.6 MHz	5-26.6 MHz	5-26.6 MHz	5-26.6 MHz
Shutter		rolling	global	rolling	rolling	global	global	global	global
Board size (mm)	42x38x40	42x38x25	42x38x25	42x38x25	42x38x25	42x38x25	42x38x25 2x 28x19x7	42x38x25 3x 28x19x7	42x38x25 4x 28x19x7
Housing size (mm)	55x45x40	46x46x46	46x46x46	46x46x46	46x46x46	46x46x46			
Internal (RAM)	64MB	64MB	64MB	64MB	64MB	64MB	256MB	256MB	256MB
Illumination (Cob)		x	x	x	x	x			

10 bit sensor data are being processed and alternatively 8 bit or 10 bit transferred via USB. Model VRmFC-4 transfers 8 bit.