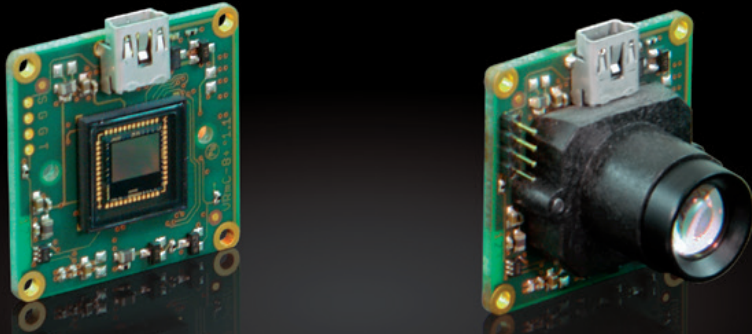


Compact USB Cameras

Small Cameras –
Huge Possibilities



- Small and cost-efficient
- Single-board design
- Four image sensor types available
- Aluminum housing or OEM camera
- Includes SDK and API



▲ Above: VRmC8+ OEM and VRmC16+ COB S-Mount (height 1:1)

Product Features of VRmCX+ Cameras

- Access to all camera parameters via CamLab or API
- Parallel operation of multiple cameras possible
- Power supply via USB
- Freely definable region of interest (ROI)
- Access to raw sensor data
- Timestamp and frame counter
- Adjustable anti-blooming circuit

Available Image Sensors

Camera and Sensor ID	VRmC8+	VRmC9+	VRmC12+	VRmC16+
Sensor Type	Aptina MT9T031	Aptina MT9M001	Aptina MT9V024	Aptina MT9M021
Technology	CMOS rolling shutter	CMOS rolling shutter	CMOS global shutter	CMOS global shutter
Color / Monochrome	● / –	– / ●	● / ●	● / ●
Sensor Size [inch]	1/2	1/2	1/3 wide	1/3
Resolution [px]	2056 x 1544	1288 x 1032	754 x 480	1280 x 960
Pixel Size [µm]	3.2 x 3.2	5.2 x 5.2	6 x 6	3.75 x 3.75
Bit Depth [bit]	8/10	8/10	8/10	8/10
Min. Exposure Time [µs]	60	38	30	103
Pixel Clock [MHz]	5...48	5...48	13...27	10...48
Max. Frame Rate [Hz] *	13	30	70	29

* This is the maximum value at full ROI with minimum exposure time. The actual frame rate depends on the pixel clock, sensor settings, and image format.

Available Designs

Design	OEM	COB M9LP	COB S-Mount	PRO
Description	Board camera	Board camera with optics	Board camera with optics	Camera in anodized aluminum housing
Lens mount	–	M9 low profile	S-Mount M12	C-Mount
Lens	–	6.0 mm F2.8	12.0 mm F2.0 (further lenses on request)	–
Available filters	–	Window glass, IR-pass filter, IR-cut filter, or without filter		
Available image sensors	8, 9, 12, 16	12	8, 9, 12, 16	8, 9, 12, 16
Dimensions w/o lens [mm]	32 x 35 x 7	32 x 35 x 9	32 x 35 x 15	36 x 36 x 27
USB 2.0 Mini-B interface	●	●	●	●
Hardware / software trigger	● / ●	● / ●	● / ●	– / ●

VRmagic Software Development Kit

- API compatible with all VRmagic cameras
- CamLab GUI application with access to all camera parameters
- Demos and source code for several development platforms
- Individual adjustment of exposure time, (auto) exposure, gains, white balance, pixel clock, and blanking interval
- Image conversion to RGB32, RGB24, RGB565, Gray, YUV
- Correction of gamma, luminance and contrast via LUT
- Supports ActivisionTools, Common Vision Blox, Eye Vision, HALCON, MATLAB, and OpenCV