

3iCube 

The easy performance camera.

USB3.0 AND USB3 VISION CMOS CAMERAS - INDUSTRIAL AND OEM VERSION

neto 
NEW ELECTRONIC TECHNOLOGY

3iCube – DYNAMICS IN VISION

3iCube – meet challenging applications at an optimal price-performance ratio.

3iCube USB3.0 AND USB3 VISION SERIES

NET's easy to use compact camera with USB3.0 interface taps the full potential of the latest CMOS image sensors to set new standards in regard of achievable frames rates and image quality. It supports 24-bit RGB true color while offering a high speed interface to meet the most challenging applications like multi-camera systems.

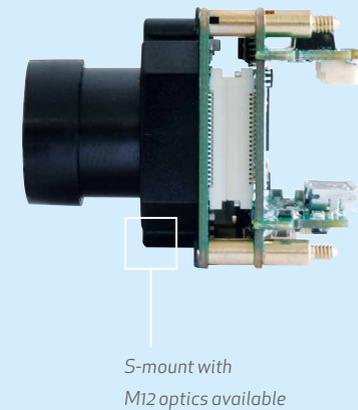
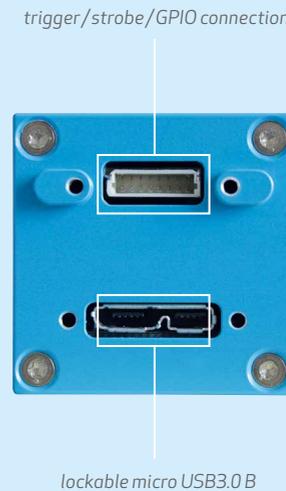
Moreover, the 3iCube series supports monochrome and low light image sensors reflecting an extensive range of selectable resolutions and frame rates for all requirements.

3iCube is available as industrial and board-level camera. Due to a high-performance processing unit the lightweight camera can perform challenging real-time image processing tasks to meet any particular demand in factory automation, quality inspection, surveillance, biometrics and microscopy.

3iCube complies the USB3 Vision standard, which uses the GenICam generic programming interface. This turns 3iCube into a real plug-and-play camera as integration into many existing applications can be achieved without development effort.

The cameras feature power supply over one USB port when connected to a notebook, PC or an embedded computer system. No additional cabling is necessary.

The included SDK and Explorer, SynView, allows quick implementation as well as access to and handling of several 3iCube cameras at once.





TECHNICAL DATA – CMOS CAMERA LINE

PRODUCT OVERVIEW

The 3iCube series with USB3.0 / USB3 Vision 5 Gbps interface features the latest CMOS image sensors with an excellent image quality for a broad range of applications. NET offers 3iCube with resolutions ranging from 0.4 to 10 megapixel and performing high speed frame rates at full resolution. Its sensor design encompasses global shutter for

fast moving objects and rolling shutter, also with global reset image readout, to capture images with outstanding signal quality. In case of processing image sections, 3iCube offers multiple regions of interest (ROI) with extensively configurable windows embedded on chip. Due to its enhanced image sensor sensitivity, 3iCube realizes a high

quantum efficiency and thus is a perfect fit for applications in the near infrared region (NIR). In addition, long exposure photography is supported by 3iCube. The series allows to benefit fully from the possibilities of state-of-the-art camera technology. 3iCube's attractive price-performance ratio at an extraordinary quality level speaks for itself.

INDUSTRIAL	IC1044BU	IC1044CU	IC1130BU	IC1130CU	IC4133BU	IC4133CU	IC4133IR	IC4203BU	IC4203CU	IC2234BU	IC2234CU	IC1300CU	IC1500BU	IC1500CU	IC11000BU	IC11000CU						
BOARD	BC1044BU	BC1044CU	BC1130BU	BC1130CU	BC4133BU	BC4133CU	BC4133IR	BC4203BU	BC4203CU	BC2234BU	BC2234CU	BC1300CU	BC1500BU	BC1500CU	BC11000BU	BC11000CU						
Resolution (H x V) [px]	752 x 480 / WVGA		1280 x 1024 / SXGA		1280 x 1024 / SXGA			1600 x 1200 / UXGA		1920 x 1200 / WUXGA		2048 x 1536 / QXGA		2592 x 1944 / QSXGA		3840 x 2748 / WQUXGA						
Sensor	CMOS		CMOS		CMOS			CMOS		CMOS		CMOS		CMOS		CMOS						
Image sensor	MT9V032		MT9M001		MT9M131		EV76C560		EV76C661		EV76C570		IMX249-LLJ-C / IMX249LQJ-C		MT9T001		MT9P031		MT9P001		MT9J003	
Sensor size	1/3"		1/2"		1/3"		1/1.8"		1/1.8"		1/1.2"		1/2"		1/2.5"		1/2.3"					
Pixel size [µm]	6.00 x 6.00		5.20 x 5.20		3.60 x 3.60		5.30 x 5.30		4.50 x 4.50		5,86 x 5,86		3.20 x 3.20		2.20 x 2.20		1.67 x 1.67					
Framerate [fps]	86		26		24		60		47		37		12		14		12		75			
Shutter	global		rolling		global; rolling; global reset			global; rolling; global reset		global		rolling; global reset		rolling with global reset		rolling with global reset						
Shutter speed	0.024 - 763 ms		0.062 - 745 ms		0.02 - 394 ms		0.039 - 633 ms		0.031 - 1030 ms		0.035 - 1136 ms		34,9 µs - 25,8 ms		0.056 ms - 50 s		0.085 ms - 89 s		0.074 ms - 77 s		0.146 ms - 135 s	
Dynamic range [dB]	55		68		71		62		63		66		75,6		61		70		65			
Binning	2 x 2 / 4 x 4		-		2 x 2			2 x 2		-		2 x 2 / 4 x 4		2 x 2 / 4 x 4		2 x 2 / 4 x 4						
Skipping	-		640 x 512		640 x 512 / 320 x 256 multiple ROI's / user-defined			800 x 600 / 400 x 300 multiple ROI's / user-def.		-		1024 x 768 / 512 x 384		1280 x 960 / 640 x 448		1920 x 1344 / 960 x 640						
Aspect ratio	14:9		5:4		5:4			4:3		16:10		4:3		4:3		4:3						
Gain [dB]	12		23		24		24		24		18		18		18							
Lens	C- / CS-mount																					
Scanning system	progressive scan																					
Trigger	external / software																					
Strobe	yes																					
GPIO	3x																					
Interface	USB3.0 with iControl SDK / USB3 Vision with SynView SDK / optional: UVC (USB Video Class Device)																					
Dimension (WxHxD) [mm]	industrial: 30 x 30 x 31.5 board: 28 x 28 x 22																					
USB connection	lockable micro USB3.0 B																					
Digital I/O connection	8 pin lockable																					
Power consumption [W]	< 1.0		< 1.0		< 1.0			< 1.0		< 1.5		< 1.5		< 1.5		< 1.5						
Operating temperature	0 to +45° C																					

APPLICATION & SOFTWARE

Ask us for matching lenses & illumination!

APPLICATION OVERVIEW

3iCube targets industries in rough environments like quality inspection, completeness, surface and printing inspection, bar code, data matrix applications and others. Being also appropriate for non-industrial segments like medicine applications and microscopy, security, document management and access control, the small and efficient 3iCube is a versatile and reliable solution for your application requirements. Because of its high speed interface, 3iCube is particularly suitable for video traffic in HD quality or multi-camera systems.

CAMERA CUSTOMIZATION

Particular applications require specific camera features and functions. To fulfill these requirements NET is able to offer camera customization, e.g. through onboard processing of specific available NET or customers' algorithms:

- high end de-mosaicing
- full color matrix and color correction
- gain offset correction
- flatfield correction

- defect pixel correction
- white balance
- gamma correction

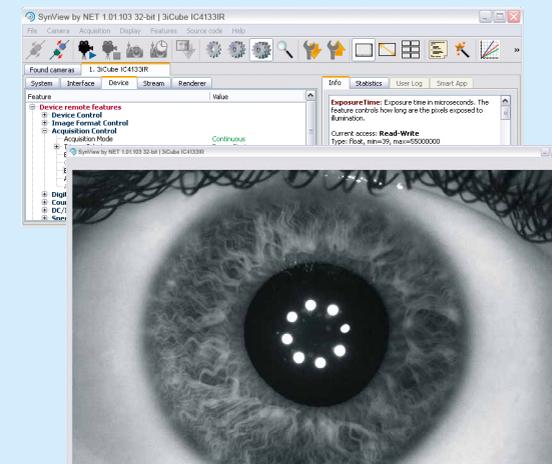
OEM APPLICATION

The 3iCube series is suitable as lightweight board-level cameras for OEM use due to its compact size. Being a flexible and powerful solution, 3iCube can be offered with custom features such as customized firmware, FPGA, real-time processing.

SOFTWARE DEVELOPMENT KIT (SDK) & 3RD PARTY SOFTWARE

SynView, the included SDK, is compliant with GigE Vision, GenTL and GenICam (with XML files) standards and runs under Win XP/7 and Linux. It supports the programming languages C, C++, .NET environment and enables quick integration into existing customer systems. The setting and evaluation of image data is achieved by means of various functionalities for camera calibration, preview, image evaluation and code examples.

NET supports all GenTL consumer image processing libraries, i.a. Adaptive Vision Studio, Halcon, VisionPro, LabView Vision, and MATLAB.



Eyetracking with NIR

About NET New Electronic Technology GmbH

NET has more than 20 years of experience in supporting customers' applications with smart camera technology and custom camera solutions. NET adds value to the applications of OEMs, system integrators and machine builders through custom vision solutions and a portfolio of cameras and components with unique features. The company offers both know-how in vision technologies and an extensive portfolio.

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