3iCube

The easy performance camera.

USB3.0 CMOS CAMERAS – INDUSTRIAL AND OEM VERSION

net

net
NEW ELECTRONIC TECHNOLOGY

3iCube – DYNAMICS IN VISION

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

3iCube USB3.0 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.
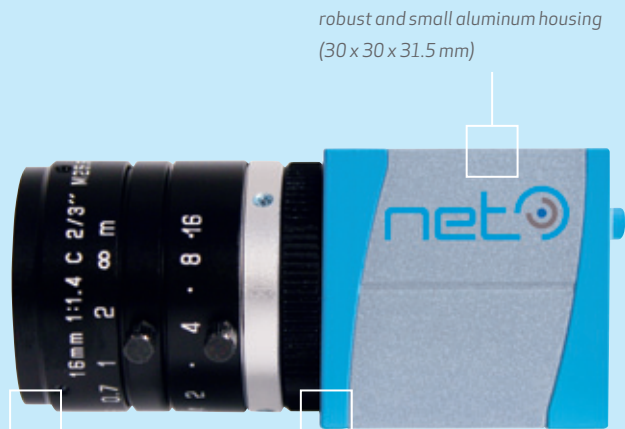
Moreover, the 3iCube series supports monochrome and low light image sensors reflecting an extensive range of selectable resolutions and frame rates for all requirements.

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.
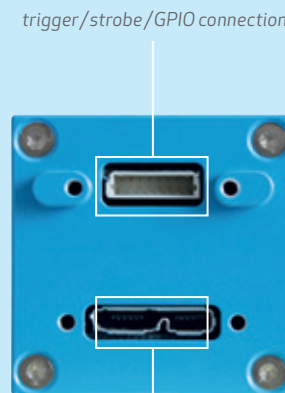
The included SDK and Explorer, SynView, allows quick implementation as well as access to and handling of several 3iCube cameras at once.
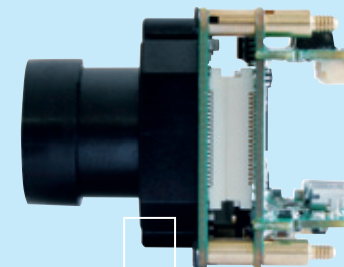
*robust and small aluminum housing
(30 x 30 x 31.5 mm)*

trigger/strobe/GPIO connection

*NET´s lens portfolio:
high resolution mega pixel,
telecentric, CCTV and macro
lenses*

C-/CS-lens mount

lockable micro USB3.0 B

*S-mount with
M12 optics available*

TECHNICAL DATA – CMOS CAMERA LINE

PRODUCT OVERVIEW

The 3iCube series with USB3.0 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.

3iCube – when performance and flexibility matter.

	IC1044BU / BC1044BU	IC1044CU / BC1044CU	IC1130BU / BC1130BU	IC1130CU / BC1130CU	IC4133BU / BC4133BU	IC4133CU / BC4133CU	IC4133IR / BC4133IR	IC4203BU / BC4203BU	IC4203CU / BC4203CU	IC1300CU / BC1300CU	IC1500BU / BC1500BU	IC1500CU / BC1500CU	IC11000BU / BC11000BU	IC11000CU / BC11000CU
Resolution (H x V) [px]	752 x 480 / WVGA		1280 x 1024 / SXGA		1280 x 1024 / SXGA			1600 x 1200 / UXGA		2048 x 1536 / QXGA	2592 x 1944 / QSXGA		3840 x 2748 / WQUXGA	
Sensor	CMOS		CMOS		CMOS			CMOS		CMOS	CMOS		CMOS	
Image sensor	MT9V032		MT9M001	MT9M131	EV76C560		EV76C661	EV76C570		MT9T001	MT9P031	MT9P001	MT9J003	
Sensor size	1/3"		1/2"	1/3"	1/1.8"			1/1.8"		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		3.20 x 3.20	2.20 x 2.20		1.67 x 1.67	
Frame rate [fps]	86		26	24	60			47		12	14	12	7.5	
Shutter	global		rolling		global; rolling; global reset			global; rolling; global reset		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		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		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		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 / 5 Gbps													
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	
Operating temperature	0 to +45° C													

APPLICATION & SOFTWARE

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.
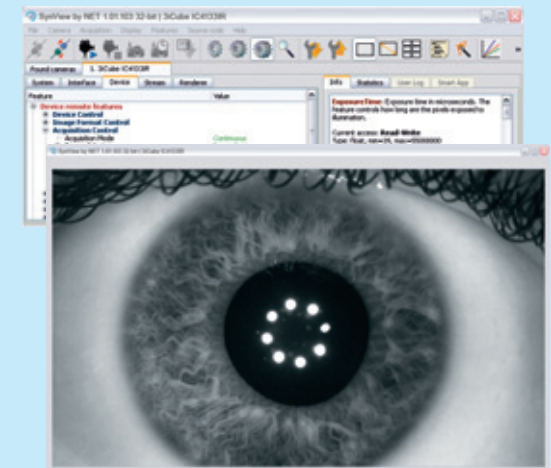
OEM APPLICATION

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/DDR RAM, 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

NET - We simplify complicated technologies by making them easier to use.
Our strengths are the close understanding of the industrial and medical image processing field and the in-depth application knowledge which we have acquired over many years. Camera technology, CCD and CMOS technology, FPGA programming, hardware and software design are our core skills which we can tap within the company. Our innovative portfolio is supplemented by a wide range of standard and customized lenses and light systems.