

iCube 

Makes trends compatible.

USB2.0 CMOS CAMERAS - INDUSTRIAL AND OEM VERSION

net 
NEW ELECTRONIC TECHNOLOGY

iCube - MAKES TRENDS COMPATIBLE

iCube - a challenge in performance & price.

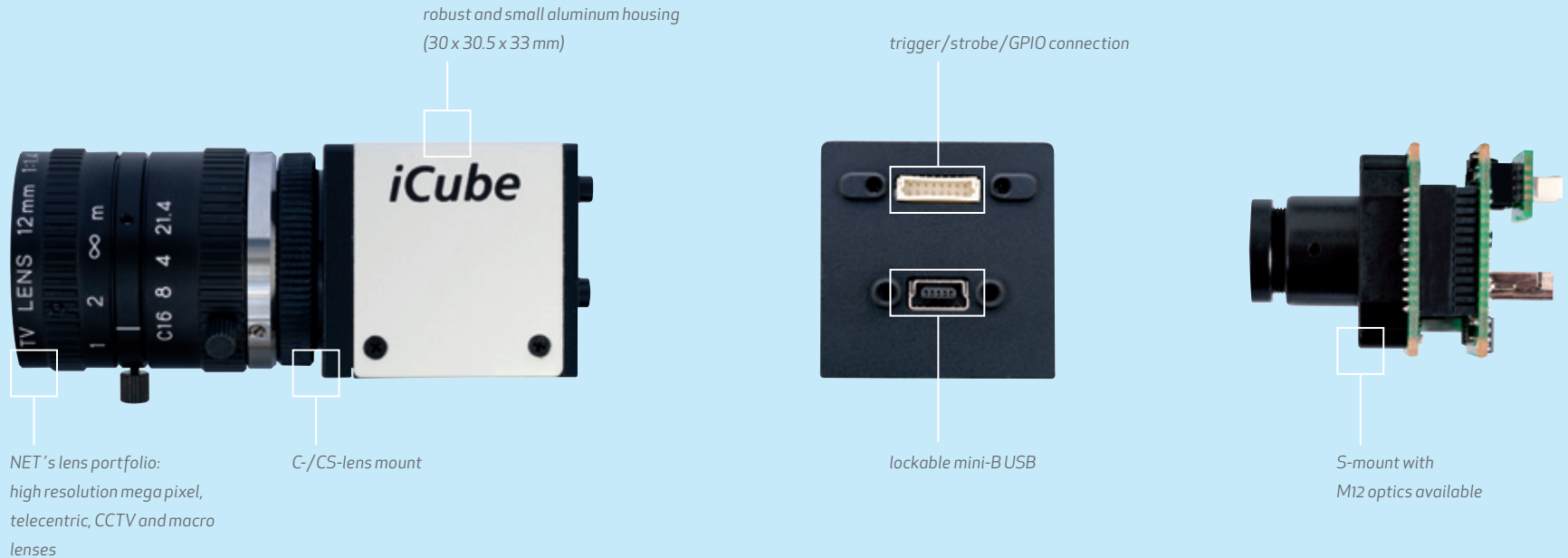
iCube USB2.0 SERIES

NET has designed an easy to use compact camera with USB interface. iCube is dedicated for the integration into professional factory automation, quality inspection, surveillance and non-industrial applications like biometrics and microscopy. iCube cameras are equipped with the latest available high performance CMOS image sensors to offer the best image quality achievable with camera process electronic.

The iCube series supports monochrome and color image sensors, allowing a wide selection of resolutions and selectable frame rates. Furthermore the iCube series is offered as industrial and board level version. Fast connection and power via USB port makes the iCube series a universal plug and play camera linked with a notebook, a PC or even for an embedded computer system.

A single cable connection, no additional power supply devices and inexpensive cabling turn iCube into a flexible and fast to implement solution.

The included viewer software iControl allows a quick implementation, access and handling of all iCube cameras at once.



TECHNICAL DATA – CMOS CAMERA LINE

PRODUCT OVERVIEW

iCube supports monochrome and color image sensors, allowing a wide selection of resolutions and selectable frame rates. iCube is offered as small sized and lightweight industrial and board level version. The CMOS image sensors provide an excellent image quality and are equipped with global shutter for fast moving objects and rolling

shutter, also with global reset image readout, to capture images with outstanding signal quality. iCube offers multiple free scalable regions of interest (ROI). Due to its enhanced image sensor sensitivity, the camera realizes a high quantum efficiency and thus is a perfect fit for applications in the near infrared region.

The benefits of a USB interface with low power consumption combined with CMOS technology make the iCube series a precise camera for easy and quick implementation in various applications.

	INDUSTRIAL	NS1044BU	NS1044CU	NS1130BU	NS1130CU	NS4133BU	NS4133CU	NS4133IR	NS1201CU	NS4203BU	NS4203CU	NS1300CU	NS1500BU	NS1500CU	NS11000BU	NS11000CU	
BOARD		KS1044BU	KS1044CU	KS1130BU	KS1130CU	KS4133BU	KS4133CU	KS4133IR	KS1201CU	KS4203BU	KS4203CU	KS1300CU	KS1500BU	KS1500CU	KS11000BU	KS11000CU	
Resolution (H x V) [px]		752 x 480 / WVGA		1280 x 1024 / SXGA		1280 x 1024 / SXGA		1600 x 1200 / UXGA		1600 x 1200 / UXGA		2048 x 1536 / QXGA		2592 x 1944 / QSXGA		3840 x 2748 / WQXGA	
Sensor		CMOS		CMOS		CMOS		CMOS		CMOS		CMOS		CMOS		CMOS	
Image sensor		MT9V032		MT9M001	MT9M131	EV76C560		EV76C661	MT9D131	EV76C570		MT9T001	MT9P031	MT9P001	MT9J003		
Sensor size		1/3"		1/2"	1/3"	1/1.8"		1/3.2"	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		2.80 x 2.80	4.50 x 4.50	3.20 x 3.20		2.20 x 2.20		1.67 x 1.67			
Framerate [fps]		86		25		25		15	20	11		6		3			
Shutter		global		rolling		global; rolling; global reset		rolling	global; rolling; global reset	rolling with global reset		rolling with global reset		rolling with global reset			
Shutter speed		0.049 - 603 ms	0.062 - 745 ms	0.02 - 394 ms	0.039 - 633 ms	0.09 - 2933 ms		0.046 - 860 ms	0.075 - 600 ms	0.056 ms - 21.8 s		0.085 ms - 89 s	0.074 ms - 77 s	0.146 ms - 135 s			
Dynamic range [dB]		55		68	71	62		71	62	61		70		65			
Binning		2 x 2 / 4 x 4		-		2 x 2		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		768 x 576 / 384 x 256	640 x 512 / 320 x 256 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		4:3			
Gain [dB]		12		23	24	24		24	24	18		18		18			
Lens		C- / CS-mount															
Scanning system		progressive scan															
Trigger		external / software															
Strobe		yes															
GPIO		3x															
Interface		USB2.0 / 480 Mbps															
Dimension (WxHxD) [mm]		industrial: 30 x 30.5 x 33 board: 28 x 28 x 22															
USB connection		mini-B USB															
Digital I/O connection		8 pin lockable															
Power consumption [W]		< 1.0		< 1.0		< 1.0		< 1.5	< 1.0	< 1.5		< 1.5		< 1.5			
Operating temperature		0 to +45° C															

APPLICATION & SOFTWARE

APPLICATION OVERVIEW

iCube 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 iCube is a versatile and reliable solution for your application requirements.

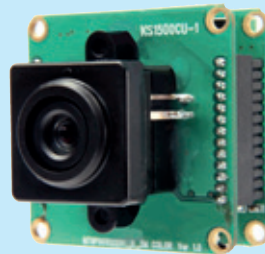
CAMERA CUSTOMIZATION

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 iCube series is also available as small sized and lightweight board level cameras for OEM use. All advantages of the iCube camera plus additional customer requirements can be implemented

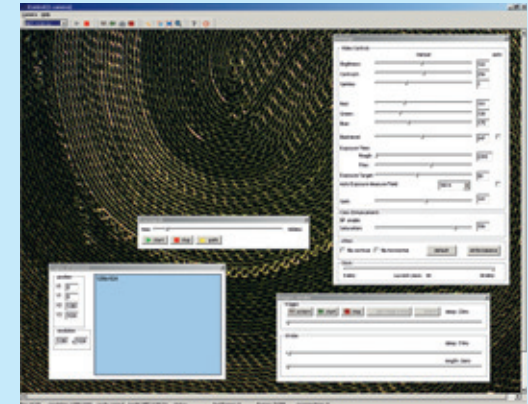
in a board camera e.g. customized firmware, FPGA/DDR RAM, real-time processing.



iCube customized solution with AUTOFOCUS lens

VIEWER SOFTWARE

The iControl viewer is a part of the provided software development kit (SDK) and enables an easy and quick access to all iCube cameras via Windows and LINUX for testing and evaluation. It allows a fast access to camera and image processing settings, and the creation of customer modes. iControl supports the possibility to save images as jpg, bmp or tiff as well as videos as avi file on a connected computer.



SOFTWARE DEVELOPMENT KIT (SDK)

The flexible SDK from NET makes the integration into existing and customized image capturing and processing systems simple. Programming samples are available for Microsoft Visual C++, Visual Basic and C#.

3RD PARTY SOFTWARE-APPLICATION

The integration of iCube USB cameras is supported through a wide variety of common drivers, e.g. for Cognex, and allows an easy handling of the camera. The iCube family is compatible to common software libraries with Direct-X/Direct-Show interface. The software allows an easy integration into commercial vision systems from suppliers like Halcon and Matrox.

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