

iCube



USB2.0 CMOS Cameras



Industrial and OEM Version

SOUTHERN imaging 

NET
NEW ELECTRONIC TECHNOLOGY

Introduction

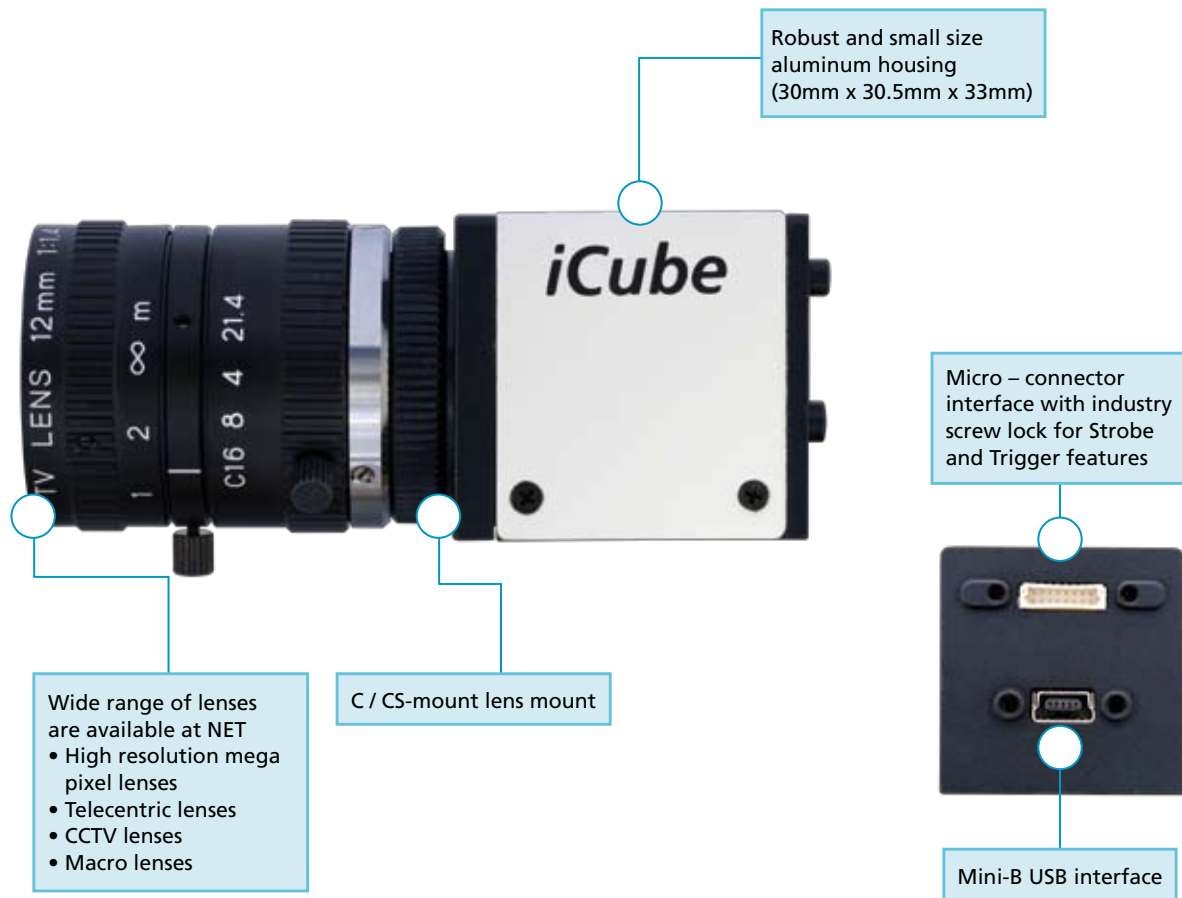
iCube USB2.0 Series

NET has developed with the iCube family a competitive and extreme compact camera with an USB interface. iCube is dedicated for the integration into professional factory automation, quality inspection, surveillance and non-industrial applications. iCube cameras have been equipped with the latest available high performance CMOS image sensors to offer the best image quality that can be achieved with the 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 versions.

Fast connection and power via USB port makes the iCube series to a universal plug and play camera for laptops, PC's and also for OEM board systems. A single cable connection, no additional power supply devices and inexpensive cabling makes this USB camera to a flexible solution which is also fast to implement due the user friendly interface.

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



ends Compatible

Technical Data - CMOS Camera Line

Product Overview

The iCube series consist of 5 monochrome and 7 color models in an industrial and OEM board version.

The built-in CMOS image sensors from WVGA (0.36MP) up to WQUXGA (10MP) perform through speed, resolution and features. Unique is the CMOS sensor with 1.3MP, 25 frames per second and global shutter function. The 1.3MP image sensor is also used as a Line Scan camera. Higher frame rates are easily possible when using free scalable ROI, Bin-

ning or Sub-sampling mode. Needless to say iCube supports the Trigger and Strobe functionality. CMOS sensors provide an excellent image quality combined with the full range of color indication. The benefits of a USB interface combined with CMOS technology and all of its advantages, like low power consumption, anti blooming technology and an economic price level, make the iCube family to a precise camera alternative for many image capturing and processing applications.

	INDUSTRIAL	NS1044BU	NS1044CU	NS1130BU	NS1130CU	NS4133BU	NS4133CU	NS1201CU	NS1300CU	NS1500BU	NS1500CU	NS11000BU	NS11000CU	
	OEM	KS1044BU	KS1044CU	KS1130BU	KS1130CU	KS4133BU	KS4133CU	KS1201CU	KS1300CU	KS1500BU	KS1500CU	KS11000BU	KS11000CU	
Image Sensor		1/3" CMOS MT9V032		1/2" CMOS MT9M001	1/3" CMOS MT9M131		1/1.8" CMOS EV76C560	1/3" CMOS MT9D131	1/2" CMOS MT9T001		1/2.5" CMOS MT9P031/MT9P001		1/2.3" CMOS MT9J003	
Active Pixels		0.36MP, WVGA 752(H) x 480(V)		1.3 MP, SXGA 1280(H) x 1024(V)	1.3 MP, SXGA 1280(H) x 1024(V)		1.3 MP, SXGA 1280(H) x 1024(V)	2 MP, UXGA 1600(H) x 1200(V)	3.2 MP, QXGA 2048(H) x 1536(V)		5.0 MP, QSXGA 2592(H) x 1944(V)		10 MP, WQUXGA 3664(H) x 2748(V)	
Pixel Size		6.00 x 6.00 µm		5.2 x 5.2 µm	3.6 x 3.6 µm		5.3 x 5.3 µm	2.8 x 2.8 µm	3.2 x 3.2 µm		2.2 x 2.2 µm		1.67 x 1.67 µm	
Image Area		4.51 x 2.88 mm		6.66 x 5.32 mm	4.6 x 3.7 mm		6.9 x 5.5 mm	4.73 x 3.52 mm	6.55 x 4.92 mm		5.70 x 4.28 mm		6.11 x 4.58 mm	
Frame Rate		86 fps		25 fps	25 fps		25 fps	15 fps	12 fps		6 fps		3 fps	
Exposure Time (Freerun & Trigger) Shutter		0.024 - 763 ms		0.035 - 572 ms	0.039 - 630 ms		0.025 - 600 ms	0.053 - 860 ms	0.056 ms - 50 s		0.074ms - 77s 0.075ms - 50s		0.340 ms - 14 s	
Dynamic Range		> 55 dB		68.2 dB	71 dB		62 dB	71 dB	61 dB		70.1 dB	67.4 dB	65.2 dB	71 dB
Binning		2x2 / 4x4		-	-		2x2	2x2	2x2 / 4x4		2x2 / 4x4		2x2 / 4x4	
Sub-Sampling Modes (Skipping)		-		640 x 512	-		640 x 512 / 320 x 256 multiple ROI's / user-defined	768 x 576 / 384 x 256	1024 x 768 / 512 x 384		1280 x 960 / 640 x 448		1920 x 1080 / 960 x 540	
Shutter		Global Shutter		Rolling Shutter	-		Global Shutter; Rolling Shutter; Global Reset	Rolling Shutter	Rolling Shutter with Global Reset		Rolling Shutter with Global Reset		Rolling Shutter with Global Reset	
Aspect Ratio		14 : 9		5 : 4	-		5 : 4	4 : 3	4 : 3		4 : 3		4:3	
Exact Real Diagonal		5.35 mm		8.5 mm	5.9 mm		8.7 mm	5.9 mm	8.2 mm		7.13 mm		7.65 mm	
Power Consumption		< 1.0 W		< 1.0 W	-		< 1.0 W	< 1.5 W	< 1.5 W		< 1.5 W		< 1.5 W	
Gain		12 dB		23.5 dB	24 dB		24 dB	24 dB	18 dB		18 dB		18 dB	
Lens Mount		C- / CS- mount, optional S-mount												
Scanning System		Progressive Scan												
Trigger		External Trigger / Software Trigger												
Strobe		Yes												
GPIO		1x												
Interface/Transfer Rate		USB2.0 Interface / 480 Mbits / sec												
Dimension		Industrial: 30 (W) x 30.5 (H) x 33 (D) mm, 44 g OEM: 28 x 28 x 22 mm, 12 g												
USB Connection		Mini - B USB Connector												
Digital I/O Connection		8 pin lockable												

Industrial and OEM Version

iCube - Makes Trends Compatible

Software

Application Overview

The iCube family with USB2.0 interface is designed for a wide range of use and is suitable for many image capturing and processing solutions. The camera targets specific industries in rough environments like quality control or inspection, positioning or alignment, completeness, surface- and printing inspection, edge- or contour analysis, bar code and data matrix applications. Being also suitable for non industrial segments and solutions, like medicine applications and microscopy, security, document management, passport/ID-card identification, OCR solutions, access control and surveillance applications, the small and efficient iCube series is the versatile and reliable solution for your application requirements.

All iCube products are targeting reliable high performance applications to achieve small budget solutions in a short time. The camera is especially designed for the easy and quick implementation of a broad application range. The simple handling of cameras with USB interface allows an additional integration in an existing environment.

OEM Application

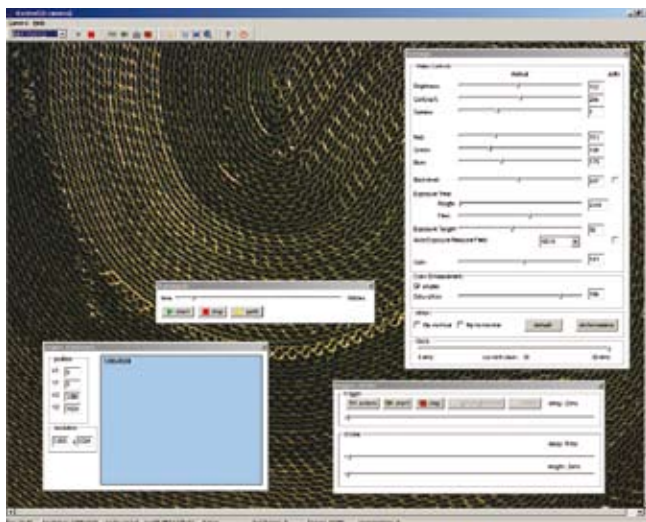
The iCube series is also available without housing as small sized and lightweight board level cameras for OEM use. All advantages of the standard iCube camera with housing plus additional customer requirements can be implemented in a board camera at a competitive price level. Specific board level features for customized OEM solutions on request.



iCube customized solution
with AUTOFOCUS lens

Viewer Software

The iControl viewer software is an easy and quick access to all iCube cameras by computer for testing and evaluation. The iControl software allows to change camera settings very simple, save these in customer modes and viewing these live as well. The software also supports to store images in BMP or JPG format on a connected computer. The iControl software is part of the SDK software and is included within the package.



Software Development Kit (SDK)

The flexible SDK software package from NET makes the integration into existing and customized image capturing and processing systems simple. The software allows an easy integration into many commercial systems. Programming samples are available for Microsoft Visual C++ 6.0

Third Party Software - Application

The integration of iCube USB cameras is supported through a wide variety of common drivers and allows an easy handling of the camera. The iCube family is compatible to common software libraries with Direct-X/ Direct-Show interface.