



iDS



Gigabit Ethernet **uEye[®] SE**

Your imagination is our challenge

uEye® – It's so easy



The new compact solution

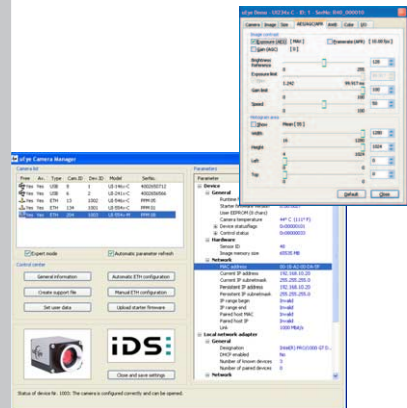
The successful Gigabit Ethernet uEye® range introduces a small but perfectly formed newcomer: the GigE uEye® SE, a camera specially tailored to the needs of plant and machinery manufacturers. Compact design was at the top of the specification list. Furthermore the series is equipped with the same CCD and CMOS sensors as the established model. Resolutions range from VGA to 2 megapixels with CCD, and from WVGA to 5 Megapixels with CMOS. The new models are not only driver compatible with all cameras of the uEye range and across all interfaces, but also use the same SDK and 3rd party interfaces.

GigE Plug and Play

The GigE uEye® SE provides the same plug-and-play ease for which IDS cameras are widely appreciated: Even Gigabit Ethernet models are configured automatically and are ready for use immediately. Our firmware upload philosophy of course also applies to the new product line and automatically ensures that all the cameras of a system use the same version. To update the firmware, all you need to do is update the drivers once on the PC.

Features at a glance

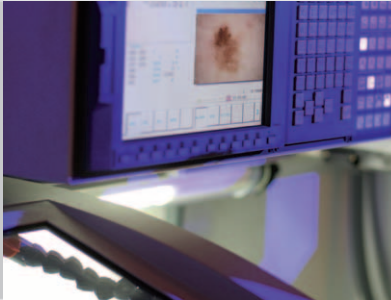
- Universal use with PC, notebook, IPC and embedded systems with Gigabit Ethernet interface
- Resolutions from VGA (640x480) to 5 Megapixels (2560x1920)
- High-quality CCD and CMOS sensors
- Up to 90 full frames/sec., over 500 frames/sec. with AOI
- I/O: 1 trigger, 1 digital out optically isolated
- Compact housing with C-mount lens connector
- One universal driver and one SDK for all uEye® camera models
- Firmware upload philosophy ensures identical, up-to-date versions in multi-camera environments
- Standard interfaces such as Direct Show (WDM) and interfaces for popular image processing software available: e.g. Common Vision Blox, HALCON, LabView and NeuroCheck
- GenICam™ Interface





uEye® Solutions for...

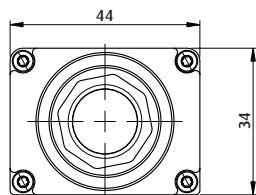
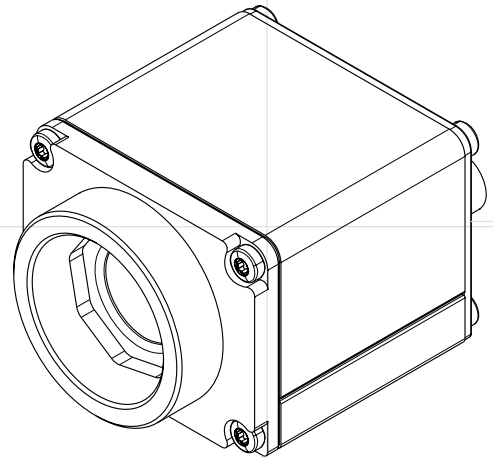
■ **Industry**
Automation
and quality assurance



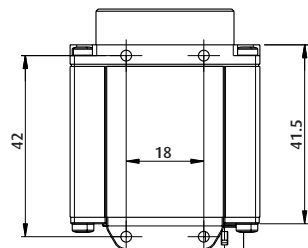
■ **Diagnostics**
Analysis
and documentation



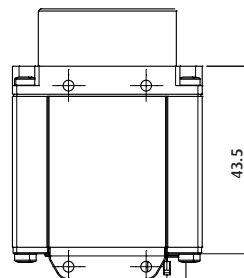
■ **Security technology**
Comparing
and archiving



CMOS



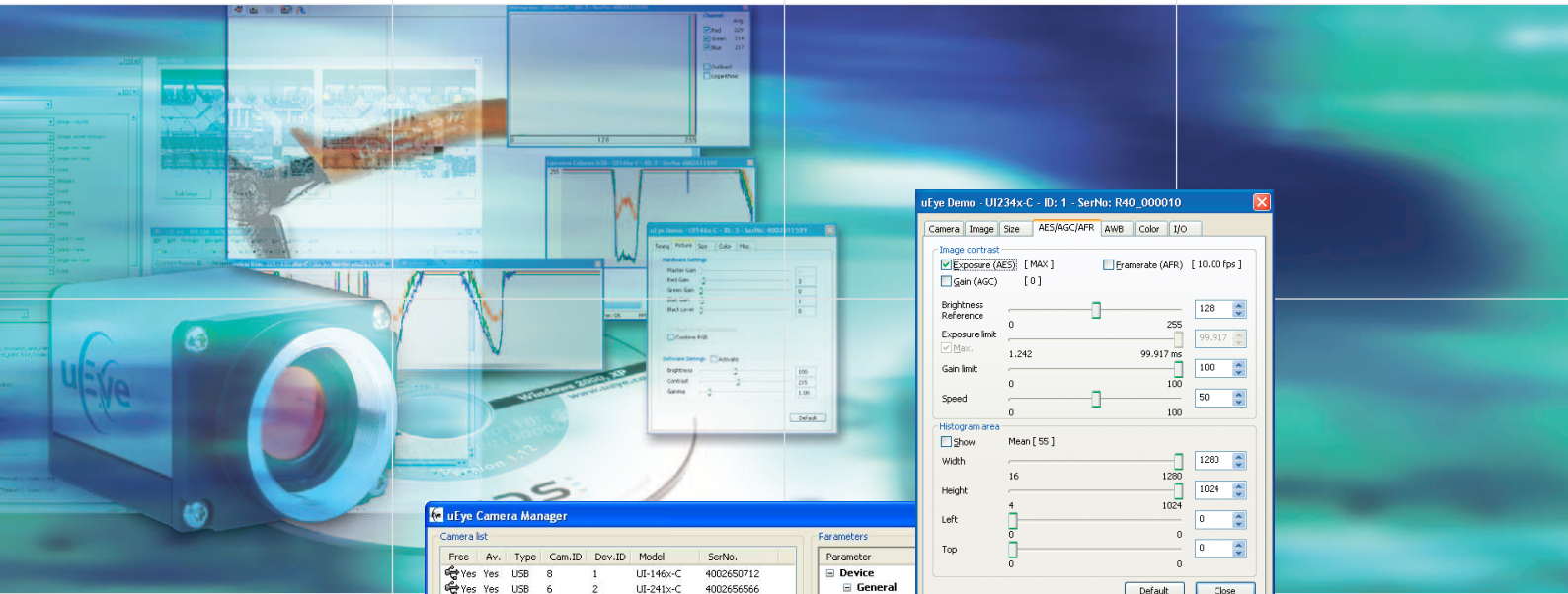
CCD



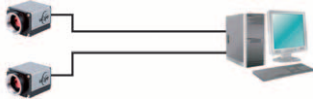
All dimensions in mm

For application examples using our products please visit:
www.ids-imaging.com/casestudies

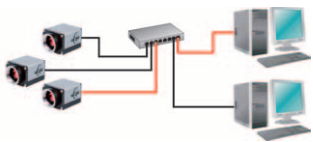
The Second Half of the Camera



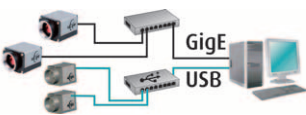
Direct connection to the PC



Connection via switches



Simultaneous operation with USB cameras



Free	Av.	Type	Cam.ID	Dev.ID	Model	Ser.No.
Yes	Yes	USB	8	1	UI-146x-C	4002650712
Yes	Yes	USB	6	2	UI-241x-C	4002656566
Yes	Yes	ETH	13	1002	UI-546x-C	PPH 05
Yes	Yes	ETH	134	1001	UI-554x-C	PPH 01
Yes	Yes	ETH	204	1003	UI-554x-M	PPH 03

The interface also shows a 'Parameters' section with tabs for Device, Hardware, Network, and Local network adapter. The Network section is expanded, showing details for the selected camera's network configuration.

uEye® Demo

The supplied uEye® demo program allows you to start acquiring images with your uEye® camera in no time at all. It also allows you to perform image measurement and annotation, in addition to giving you all the tools to configure the camera settings so that it can be optimized for your application.

All the parameters at a glance:
The uEye® Camera Manager

One-stop configuration

The uEye® Camera Manager is the central point for managing the uEye® cameras connected to the system. You can choose, for example, whether you want to configure the IPs of the Gigabit Ethernet cameras automatically or manually. You can also set the camera ID and the individual branding. The Expert mode gives you additional details on the connected cameras, e.g. the IP addresses and network adapters that are used, the camera temperature and, with USB uEye® cameras, the USB root hub used. This central tool helps you avoid bottlenecks and achieve maximum performance.



Easy Integration Thanks to Comprehensive Software



The uEye® SDK offers over 100 functions

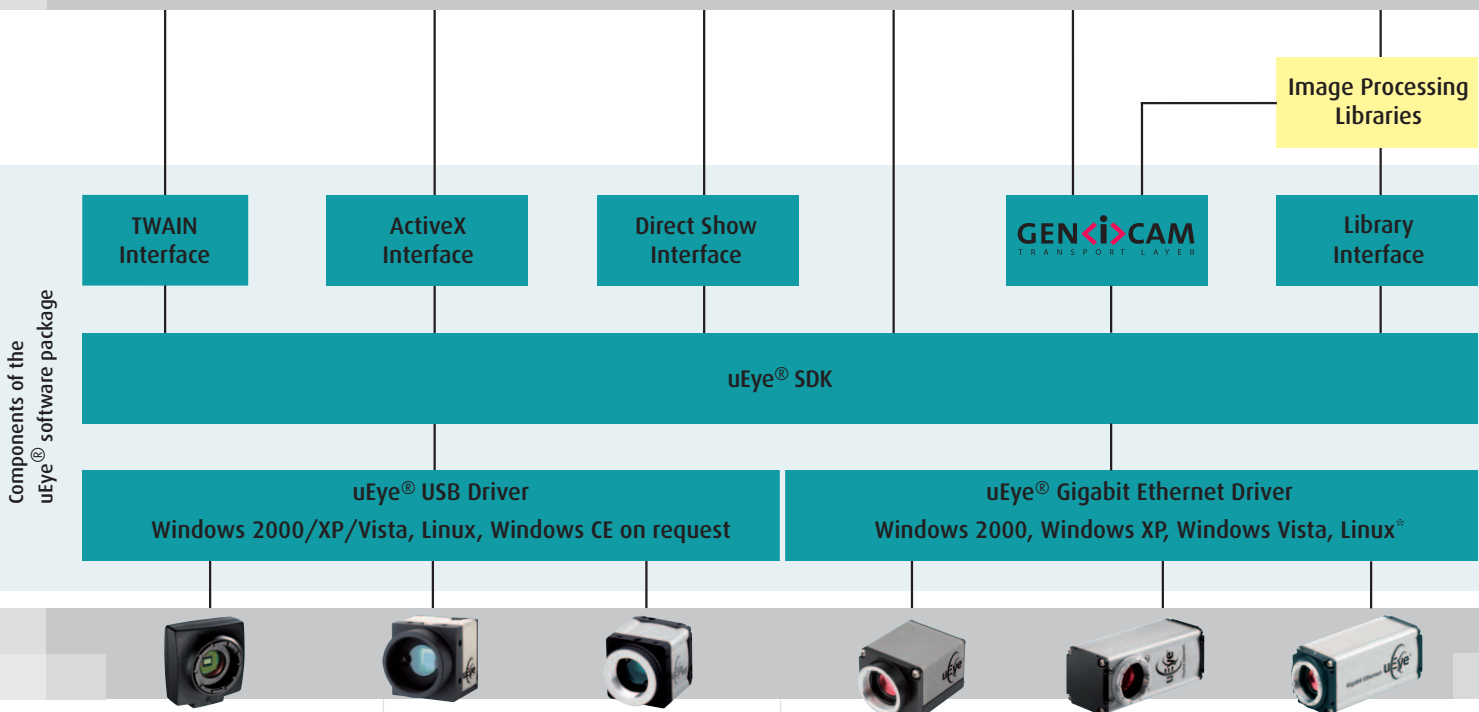
Over 20 demos provided in source code facilitate integration

Interface variety gives you good cards for quick integration

Programming languages and libraries

To make integration as easy as possible and allow use of your familiar development environment, we support the following programming languages: C, C++, C#, Microsoft .NET and Visual Basic. We also provide 3rd party software drivers for Common Vision Blox, HALCON, LabView and NeuroCheck.

Application Level



Components of the uEye® software package

* in preparation

All GigE uEye® SE-Models at a Glance



Sensor Technology	CMOS Area	CMOS Area	CMOS Area	CMOS Area	CMOS Area	CMOS Area
GigE SE Model (Mono)	UI-5220SE-M-GL	UI-5540SE-M-GL	-	-	-	UI-5480SE-M-GL
GigE SE Model (Color)	UI-5220SE-C-HQ	-	UI-5640SE-C-HQ	UI-5550SE-C-HQ	UI-5460SE-C-HQ	UI-5480SE-C-HQ
Resolution	752 x 480	1280 x 1024	1280 x 1024	1600 x 1200	2048 x 1536	2560 x 1920
Resolution Category / Pixel Class	WVGA	SXGA/1.3 MP	SXGA/1.3 MP	UXGA/2 MP	SUXGA/3.2 MP	QSXGA/5 MP
exact Resolution in Megapixels	0.36	1.31	1.31	1.92	3.15	4.92
Optical Sensorclass	1/3"	1/2"	1/3"	1/3"	1/2"	1/2"
Electronic Shutter	Global	Rolling	Rolling	Rolling	Rolling	Rolling/Global Start
Max. frame rate in Freerun mode at full resolution	90 fps	26 fps	25 fps	19 fps	12 fps	7 fps
Max. frame rate in Trigger mode with 1ms exposure	60 fps	22 fps	21 fps	16.5 fps	10 fps	6 fps
Exposure time in Freerun mode	76 µs - 5.5 s	35 µs - 4.9 s	38 µs - 10.1 s	36 µs - 21.4 s	53 µs - 2.91 s	67 µs - 3.43 s
Exposure time in Trigger mode	76 µs - 5.5 s	35 µs - 4.9 s	38 µs - 10.1 s	36 µs - 21.4 s	53 µs - 1.25 s	67 µs - 3.43 s
AOI Modes	H ² + V ²	H ² + V ²	H ² + V ²	H ² + V ²	H ² + V ²	H ² + V ²
Mono: min. and max. Width, Raster	16 - 752, 4	32 - 1280, 4	-	-	-	32 - 2560, 4
Color: min. and max. Width, Raster	16 - 752, 4	32 - 1280, 4	32 - 1280, 4	32 - 1600, 4	16 - 2048, 4	32 - 2560, 4
Mono: min. and max. Height, Raster	4 - 480, 2	4 - 1024, 2	-	-	-	4 - 1920, 2
Color: min. and max. Height, Raster	4 - 480, 2	4 - 1024, 2	4 - 1024, 2	4 - 1200, 2	4 - 1536, 2	4 - 1920, 2
AOI Frame rate examples from the image center	640 x 480; 105 fps 320 x 240; 211 fps 160 x 120; 344 fps	1024 x 768; 41 fps 640 x 480; 90 fps 320 x 240; 247 fps	1024 x 768; 39 fps 640 x 480; 89 fps 320 x 240; 262 fps	1280 x 720; 37 fps 1024 x 768; 42 fps 640 x 480; 92 fps	1920 x 1080; 17 fps 1280 x 720; 36 fps 640 x 480; 86 fps	1920 x 1080; 15 fps 1024 x 768; 30 fps 640 x 480; 58 fps
Binning Modes	H ² + V ² (mono)	-	-	H ² + V ²	H ² + V ²	H ² + V ² (color)
Binning Method	H + V: Average	-	-	H + V: Average	H: Sum; V: Average	H: Sum; V: Average
Binning Factors; Resolution; frame rate	2x; 376 x 240; 234 fps 4x; 188 x 120; 400 fps - -	- - - -	- - - -	2x; 800 x 600; 60 fps - - -	2x; 1024 x 768; 35 fps 3x; 680 x 512; 50 fps 4x; 512 x 384; 71 fps 6x; 340 x 256; 104 fps	2x; 1280 x 960; 21 fps Color: 3x; 852 x 640; 35 fps Color: 4x; 640 x 480; 47 fps Color: 6x; 424 x 320; 80 fps
Subsampling Method	H + V	H ² + V ² (color)	H ² + V ²	H ² + V ²	H ² + V ²	H ² + V ² (color)
Subsampling Factors; Resolution; frame rate	2x; 376 x 240; 91 fps 4x; 188 x 120; 91 fps - - - -	2x; 640 x 512; 94 fps 4x; 320 x 256; 260 fps 8x; 160 x 128; 522 fps - - -	2x; 640 x 512; 83 fps 4x; 320 x 256; 248 fps - - - -	2x; 800 x 600; 71 fps 4x; 400 x 300; 231 fps 8x; 200 x 150; 575 fps 16x; 100 x 74; 797 fps - -	2x; 1024 x 768; 44 fps 3x; 680 x 512; 92 fps 4x; 512 x 384; 153 fps 5x; 408 x 306; 217 fps 6x; 340 x 256; 280 fps 8x; 256 x 192; 407 fps	2x; 1280 x 960; 28 fps 3x; 852 x 640; 62 fps 4x; 640 x 480; 110 fps 5x; 512 x 384; 164 fps 6x; 424 x 320; 204 fps -
Mono: Maximum Gain	4x	13x	-	-	-	30x
Color: Maximum Gain RGB / Master	5x (SW)/4x	-	3.1x/3.0x	3.1x/3.5x	7.25x/12x	6.5x/12x
Additional Gain Boost factor	1.6x	1.5x	2x	2x	2x	Color: 1.6x
Sensor Model	Mono: MT9V032 Color: MT9V022	MT9M001	MT9M131	MT9D131	MT9T001	MT9P031
Pixel clock range (Sub/Bin Modes)	5 - 42 (59) MHz	1 - 46 (59) MHz	5 - 40 (40) MHz	3 - 45 (55) MHz	3 - 46 (59) MHz	4 - 48 (100) MHz
Full Well Capacity	30000 e-	40000 e-	25000 e-	15000 e-	20000 e-	12000 e-
Pixel pitch in µm	6.00 µm	5.20 µm	3.60 µm	2.80 µm	3.20 µm	2.20 µm
Sensitive Area	4.51 x 2.88 mm	6.66 x 5.32 mm	4.61 x 3.69 mm	4.48 x 3.36 mm	6.55 x 4.92 mm	5.63 x 4.22 mm
Aspect Ratio	14:9	5:4	5:4	4:3	4:3	4:3
Exact diagonal	5.4 mm; 1/3.0"	8.5 mm; 1/1.9"	5.9 mm; 1/2.7"	5.6 mm; 1/2.9"	8.2 mm; 1/2.0"	7.0 mm; 1/2.3"
Pixel with microlenses, lens shift	yes	yes	yes; CRA: 25°	yes; CRA: 20°	yes	yes, CRA: 7°

* = planned

² = Use increases frame rate



■ Delivery includes

uEye® camera, drivers, SDK, demo programs, program examples, tools and documentation

■ System requirements

PC with 1.5 GHz, 512 MB RAM; operating system: Windows 2000 -SP4, Windows XP -SP2, Windows VISTA, Linux Kernel 2.6*, GigE Interface

UI-6210SE-M-GL UI-6210SE-C-HQ	UI-6310SE-M-GL UI-6310SE-C-HQ	UI-6410SE-M-GL UI-6410SE-C-HQ	UI-6220SE-M-GL UI-6220SE-C-HQ	UI-6230SE-M-GL UI-6230SE-C-HQ	UI-6240SE-M-GL UI-6240SE-C-HQ	UI-6250SE-M-GL UI-6250SE-C-HQ
640 x 480	640 x 480	640 x 480	768 x 576	1024 x 768	1280 x 1024	1600 x 1200
VGA	VGA	VGA	CCIR	XGA	SXGA/1.3 MP	UXGA/2 MP
0.31	0.31	0.31	0.44	0.79	1.31	1.92
1/2"	1/4"	1/3"	1/2"	1/3"	1/2"	1/1.8"
Global	Global	Global	Global	Global	Global	Global
75 fps	75 fps	75 fps	52 fps	30 fps	15 fps	12 fps
65 fps	62 fps	64 fps	47 fps	27 fps	15 fps	12 fps
40 µs - 630 ms 40 µs - 10 min.	40 µs - 640 ms 40 µs - 10 min.	40 µs - 640 ms 40 µs - 10 min.	50 µs - 770 ms 50 µs - 10 min.	66 µs - 1 s 66 µs - 10 min.	83 µs - 1.46 s 83 µs - 10 min.	94 µs - 1.57 s 94 µs - 5 s
H + V ²	H + V ²	H + V ²	H + V ²	H + V ²	H + V ²	H + V ²
16 - 640, 1 16 - 640, 2 120 - 480, 1 120 - 480, 2	16 - 640, 1 16 - 640, 2 120 - 480, 1 120 - 480, 2	16 - 640, 1 16 - 640, 2 120 - 480, 1 120 - 480, 2	16 - 768, 1 16 - 768, 2 120 - 576, 1 120 - 576, 2	16 - 1024, 1 16 - 1024, 2 120 - 768, 1 120 - 768, 2	16 - 1280, 1 16 - 1280, 2 120 - 1024, 1 120 - 1024, 2	320 - 1600, 1 320 - 1600, 2 240 - 1200, 1 240 - 1200, 2
320 x 240; 122 fps - -	320 x 240; 140 fps - -	320 x 240; 111 fps - -	640 x 480; 60 fps 320 x 240; 97 fps -	800 x 600; 37 fps 640 x 480; 45 fps 320 x 240; 78 fps	1024 x 768; 18 fps 640 x 480; 28 fps 320 x 240; 38 fps	1024 x 768; 18 fps 640 x 480; 28 fps 320 x 240; 47 fps
H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum	H + V ² (Mono) H + V: Sum
2x; 320 x 240; 135 fps 3x; 212 x 160; 183 fps 4x; 160 x 120; 221 fps - -	2x; 320 x 240; 131 fps 3x; 212 x 160; 174 fps 4x; 160 x 120; 208 fps - -	2x; 320 x 240; 133 fps 3x; 212 x 160; 178 fps 4x; 160 x 120; 215 fps - -	2x; 384 x 288; 90 fps 3x; 256 x 192; 121 fps 4x; 192 x 144; 143 fps - -	2x; 512 x 384; 53 fps 3x; 340 x 256; 71 fps 4x; 256 x 192; 85 fps - -	2x; 640 x 512; 23 fps 3x; 424 x 340; 28 fps 4x; 320 x 256; 31 fps - -	2x; 800 x 600; 24 fps 3x; 532 x 400; 34 fps 4x; 600 x 300; 43 fps - -
- -	V ² (color) 2x; 320 x 240; 131 fps - -	- -	- -	- -	V ² (color) 4x; 320 x 256; 31 fps - -	V ² (2x: color) 2x; 800 x 600; 24 fps 4x; 400 x 300; 43 fps - -
20.78x 4x/12x Mono: 2x	12.21x 4x/7.3x Mono: 2x	18x 4x/12x Mono: 2x	14.1x 4x/8.9x Mono: 2x	10.47x 4x/7.59x Mono: 2x	13.66x 4x/8.9x Mono: 2x	13.78x 4x/8.9x Mono: 2x
ICX414 - 5 - 30 MHz 32000 e- 9.90 µm 6.34 x 4.75 mm 4:3 7.9 mm; 1/2.0" yes	ICX098 - 5 - 30 MHz 20000 e- 5.60 µm 3.58 x 2.69 mm 4:3 4.5 mm; 1/3.6" yes	ICX424 - 5 - 30 MHz 24000 e- 7.40 µm 4.74 x 3.55 mm 4:3 5.9 mm; 1/2.7" yes	ICX415 - 5 - 30 MHz 25000 e- 8.30 µm 6.37 x 4.78 mm 4:3 8.0 mm; 1/2.0" yes	ICX204 - 5 - 30 MHz 12000 e- 4.65 µm 4.76 x 3.57 mm 4:3 6.0 mm; 1/2.7" yes	ICX205 - 5 - 30 MHz 12000 e- 4.65 µm 5.95 x 4.76 mm 5:4 7.6 mm; 1/2.1" yes	ICX274 - 5 - 30 MHz 9000 e- 4.40 µm 7.04 x 5.28 mm 4:3 8.8 mm; 1/1.8" yes



uEye® cameras with CCD/CMOS sensors and Gigabit Ethernet port

- Universal use with PC, notebook and IPC systems with Ethernet interface
- Resolutions from VGA (640x480) to 5 Megapixels (2560x1920)
- High-quality CCD and CMOS sensors
- Comprehensive uEye® SDK with demo programs and source code examples



Other IDS products

- uEye® USB cameras
- Camera accessories
- Lenses
- Frame grabbers
- Software



Your imagination is our challenge

IDS

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