INDUSTRIAL CAMERAS

PRODUCT OVERVIEW

Our camera portfolio offer a variety of models, each uniquely designed to be used in multiple industrial applications ranging from machine-vision to digital microscopy. Offering a variety of sensors, pixel resolution, and sensitivity, our cameras perform to the highest standard at a low cost. We also offer different accessories including mounting brackets, optical filters, and lens mount adapters to easily integrate our cameras into your current setup.

USB3.0 CMOS Cameras

Enclosed and board level
1.2MP and 5.0MP options
Monochrome and colour options

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USB2.0 CCD Line Cameras

1024, 2048, & 3648 pixel
Silicon Linear CCD arrays
8-, 12-, & 16-Bit A/D converters

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USB2.0 Area Cameras

Digital Output
External and Software Trigger

S-Series

Ultra-Compact
CMOS 752x480, 1.3MP, 3.0MP

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B-Series

Buffered CMOS
752x480, 1.3MP, 3.0MP & 5.0MP

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C-Series

CCD Image Sensor
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M-Series

Unbuffered CMOS
Optional Built-In LED Drivers

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W-Series

Windowless CMOS
UV sensitivity

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Camera Accessories

Cables & Brackets
Optical Filters
Lens mount adapters & more!

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USB3.0 CMOS CAMERAS

Mightex's ultrafast USB 3.0 cameras are designed for applications that require high-speed and/or multiple cameras. These cameras are equipped with a super-speed USB3.0 interface that can deliver a transfer rate of up to 400 Mbytes per second, which is 10 times the USB2.0 speed, 3.5 times GigE speed and 6 times Firewire-800 speed. With fast and high-definition Aptina CMOS image sensors that can offer up to 5 megapixel in full resolution and up to 350fps using ROI mode, Mightex USB3.0 cameras are suited for industrial applications that require a great amount of data to be processed and transferred from the camera to the PC. These ultra-compact cameras have external trigger-in, strobe-out, and a powerful software engine that supports multiple camera operations. In addition to all these outstanding features, a user-friendly GUI based application software and an SDK are provided for custom software development.

FEATURES

- Super-speed USB3.0 interface (5Gb/s)
- Support simultaneous image capturing from multiple cameras
- Ultra compact
- 4-pin GPIOs
- Digital output, no need for frame grabber
- Custom programmable with SDK provided
- DirectShow / TWAIN driver
- External and software trigger
- Strobe output for external flash
- ROI & pixel skipping/ binning
- No need for external power supply
- OEM versions available

MODELS

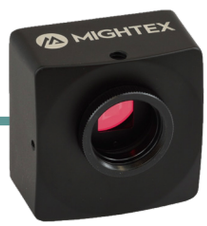
USB3.0 5MP CMOS Camera (8 or 12bits) | *Enclosed*

SME-B050-U | Monochrome
SME-C050-U | Colour

USB3.0 5MP CMOS Camera (8 or 12bits) | *Board Level*

SMN-B050-U | Monochrome
SMN-C050-U | Colour

USB3.0 1.2MP CMOS Camera (8 or 12bits) | *Enclosed*



SME-B012-U | Monochrome
SME-C012-U | Colour

USB3.0 1.2MP CMOS Camera (8 or 12bits) | *Board Level*

SMN-B012-U | Monochrome
SMN-C012-U | Colour

USB3.0 1.5MP CMOS Camera (8 or 12bits) | *Enclosed*

SBE-C015-U | Monochrome
SBE-B015-U | Colour

USB3.0 1.5MP CMOS Camera (8 or 12bits) | *Board-level*

SBN-C015-U | Monochrome
SBN-B015-U | Colour

PERFORMANCE SPECIFICATIONS

Models	SMN-C050-U SMN-B050-U	SME-C050-U SME-B050-U	SMN-C012-U SMN-B012-U	SME-C012-U SME-B012-U
Number of GPIOs	4	4	4	4
Resolution	2,560 x 1,920		1,280 x 960	
CMOS Image Sensor	Aptina Micron MT9P031, Rolling Shutter (ERS or GRR)		Aptina MT9M031, Global Shutter	
Pixel Size | µm	2.2 x 2.2		3.75 x 3.75	
Scanning System	Progressive			
Dynamic Range | dB	70		64	
Sensor SNR | dB	38			
Bit Depth | bit	Color: 24 (R/G/B) B/W: 8 or 12 (Switchable)			
Responsivity | V/lux-sec	1.4		6.1/5.3	
Frame Rates*[1] | fps	14 @2560 x1920 20 @2048 x1536 31 @1536 x1216 41 @1280 x1024 60 @1024 x 768 105 @768 x 480 114 @640 x 480 240 @320 x 240 350 @192 x 128		60 @1280x960 70 @1024x768 110 @768x480 110 @640x480 200 @320x240 325 @192x128 380 @64x64	
Sub Resolutions	Support Arbitrary ROI (Nx, Ny), with Nx and Ny multiples of 64 and 16			
Shutter Speed (Exposure Time) | ms	0.05 ~ 750			
Hardware Gains	1x ~ 16x		1x ~ 8x	
Trigger Mode	With external trigger (Trigger delay < 200µs)			
Trigger Cable	ACC-CAM-DIN8			
Strobe Out	Yes			
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)			
Built-in Filters	IR-cut (factory standard) or custom			
Power Consumption | W	< 2.0			

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.
[1] SMN/SME 5MP models measured @96MHz clock. SMN/SME 1.2MP models measured @74MHz clock.

DIMENSIONS

Models	Weight (excluding lens) |**g**	Size (hxwxd) |**mm**	
		CS-mount	C-mount
SME series	150	58x58x34	58x58x39
SMN series	80	51x51x29	51x51x34

RECOMMENDED CONFIGURATIONS

Processor	Dual-core Intel CPU 1.8GHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	1GB or greater for 5MP models| 2GB or greater for 1.2MP models
Hard Disk Space	40MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB3.0 Host Controller	Intel Integrated USB3.0 Host Controller is recommended

PERFORMANCE SPECIFICATIONS

Models	SBN-C015-U SBN-B015-U	SBE-C015-U SBE-B015-U
Number of GPIOs	4	4
Resolution	1408x 1088	
CMOS Image Sensor	Sony IMX273, Glogal shutter	
Pixel Size | µm	3.45 x 3.45	
Scanning System	Progressive	
Dynamic Range | dB	~60	
Sensor SNR | dB	TBD	
Gray level | bit	8/12	
Frame Rates*[1] | fps	250/150 @1408x1088 450/270 @1408x544 496/270 @704x544	
Sub Resolutions	Support arbitrary ROI (Nx x Ny), with Nx is always 1408, Ny multiples of 32	
Shutter Speed (Exposure Time) | ms	0.05~750	
Hardware Gains	0 – 48	
Trigger Mode	With external trigger (Trigger delay < 80us)	
Strobe Out	Yes	
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)	
Built-in Filters	IR-cut (standard) or custom	
Power Consumption | W	<3.0(USB3.0), < 2.5(USB2.0)	

*The actual achievable frame rate depends on exposure time and working mode, as well as resources available from the PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
SBN series	80	51x51x29	51x51x34
SBE series	150	58x58x34	58x58x39

RECOMMENDED CONFIGURATIONS

Processor	Dual-core Intel CPU 1.8GHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, 10 and 11
RAM	4G or greater
Hard Disk Space	100M for software installation, plus additional space for storing captured images
USB3.0 Host Controller	Intel Integrated USB3.0 Host Controller is recommended

USB2.0 AREA CAMERAS

Mightex USB 2.0 cameras are designed for a wide variety of applications (such as industrial inspections, digital microscopy and medical imaging), which require good quality cameras that are easy to use and cost-effective. With a USB2.0 interface and powerful PC software, the camera delivers excellent quality images. In addition, a user-friendly GUI based application software and a SDK are provided for custom software development. The cameras have 4-pin GPIOs and a DirectShow driver and a TWAIN driver are provided to easily link the cameras with users' applications.

FEATURES

- 4-pin GPIOs
- High-speed USB2.0 (480Mb/s)
- Digital output, no need for frame grabber
- DirectShow and TWAIN driver
- External and Software trigger
- Strobe output for external flash
- ROI & pixel skipping/ binning
- No need for external power supply
- OEM versions available

S-SERIES

Mightex S-series compact USB 2.0 cameras are ultra-compact, optimized for machine-vision applications, and they can also be used for a wide variety of other applications where quality, ease of use, and cost-effectiveness are crucial. These cameras have external trigger-in and strobe-out. A USB command set protocol is provided for non-Windows based applications. A Linux driver is also available upon request.

Key Definitions

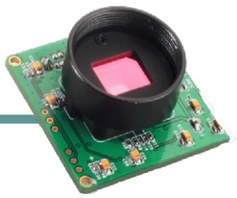
- **Ultra-Compact**
- **CMOS 752x480, 1.3MP, 3.0MP**
- **Monochrome & Colour**
- **Global & Rolling Shutter**

MODELS

Ultra-compact USB2.0 752x480 CMOS | *Enclosed*

SCE-BG04-U | Monochrome
SCE-CG04-U | Colour

Ultra-Compact USB2.0 752x480 CMOS | *Board Level*



SCN-BG04-U | Monochrome
SCN-CG04-U | Colour

Ultra-Compact USB2.0 1.3MP CMOS | *Enclosed*

SCE-B013-U | Monochrome

Ultra-Compact USB2.0 1.3MP CMOS | *Board Level*

SCN-B013-U | Monochrome

Ultra-Compact USB2.0 3.0MP CMOS | *Enclosed*

SCE-C030-U | Colour

Ultra-Compact USB2.0 3.0MP CMOS | *Board Level*

SCN-C030-U | Colour

PERFORMANCE SPECIFICATIONS

Models	SCE-BG04-U SCN-BG04-U	SCE-CG04-U SCN-CG04-U	SCE-B013-U SCN-B013-U	SCE-C030-U SCN-C030-U
Number of GPIOs	4	4	4	4
Resolution	752 x 480		1,280 x 1,024	2,048 x 1,536
CMOS Chip	1/3" Micron MT9V032, Global Shutter (Micron TrueSNAP)		½" (5:4) Micron MT9M001, Rolling Shutter	½" (5:4) Micron MT9T001, Rolling Shutter
Pixel Size | µm	6.0 x 6.0		5.2 x 5.2	3.2 x 3.2
Active Imager Size | mm	4.51 x 2.88		6.66 x 5.32	
Scanning System	Progressive			
Dynamic Range | dB	> 55		68	61
Sensor SNR | dB	N/A		45	43
Gray Level | bit	8			
Responsivity | V/lux-sec	4.8		2.1	
Frame Rates* (@24MHz Clock)/ (@48MHz Clock) | fps	38 @752 x 480 40 @640 x 480 82 @320 x 240 130 @160 x 120 170 @64 x 64		20 @1280 x 1024 31 @1024 x 768 45 @800 x 600 52 @752 x 480 52 @640 x 480 120 @320 x 240	6 @2048 x 1536 10 @1600 x 1200 12 @1280 x 1024 20 @1024 x 768 26 @800 x 600 32 @752 x 480 35 @640 x 480 64 @320 x 240
Sub Resolutions	Support Arbitrary ROI (Nx, Ny), with Nx and Ny multiples of 4			
Shutter Speed (Exposure Time) | ms	0.05 ~ 750		1 ~ 750	
Hardware Gains	1x ~ 4x		0.125x ~ 8x	
Trigger Mode	With external trigger			
Trigger Cable	ACC-CAM-CON8			
Strobe Out	Yes			
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)			
Built-in Filters	IR-cut (factory standard), No filter, or IR-pass			
Power Consumption | W	< 1.0			

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
SCE series	120	45x45x23	45x45x28
SCN series	60	40x40x25	40x40x30

RECOMMENDED CONFIGURATIONS

Processor	Pentium III 900 MHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	256MB or greater
Hard Disk Space	30MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB2.0 Host Controller	Intel Integrated USB2.0 Host Controller is recommended

B-SERIES

Mightex USB 2.0 cameras with frame buffers are optimized for machine-vision applications, and they can also be used for a wide variety of other applications such as digital microscopy and medical imaging, where quality, ease of use, and cost-effectiveness are crucial. These cameras have built-in frame buffers, external trigger-in, strobe-out, and a powerful camera engine that supports multiple cameras. A USB command set protocol is also provided for non-Windows based applications. A Linux driver is also available upon request.

Key Definitions

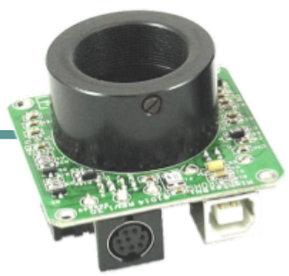
- **Buffered**
- **CMOS 752x480, 1.3MP, 3.0MP & 5.0MP**
- **Monochrome & Colour**
- **8bit, 10bit &12bit**
- **Global & Rolling Shutter**

MODELS

Buffered USB2.0 752x480 CMOS | *Enclosed*

BCE-BG04-U | Monochrome, 8 bit
BCE-CG04-U | Colour, 8 bit
BTE-BG04-U | Monochrome, 10 bit

Buffered USB2.0 752x480 CMOS | *Board Level*

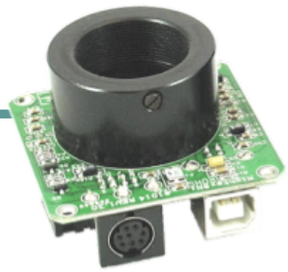


BCN-BG04-U | Monochrome, 8 bit
BCN-CG04-U | Colour
BTN-BG04-U | Monochrome, 10 bit

Buffered USB2.0 1.3MP CMOS | *Enclosed*

BCE-B013-U | Monochrome, 8 bit
BTE-B013-U | Monochrome, 10 bit

Buffered USB2.0 1.3MP CMOS | *Board Level*



BCN-B013-U | Monochrome, 8 bit
BTN-B013-U | Monochrome, 10 bit

Buffered USB2.0 3.0MP CMOS | *Enclosed*

BCE-C030-U | Colour, 8 bit

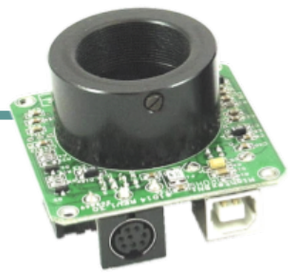
Buffered USB2.0 3.0MP CMOS | *Board Level*

BCN-C030-U | Colour, 8 bit

Buffered USB2.0 5.0MP CMOS | *Enclosed*

BCE-B050-U | Monochrome, 8 bit
BCE-C050-U | Colour, 8 bit
BTE-B050-U | Monochrome, 12 bit

Buffered USB2.0 5.0MP CMOS | *Board Level*



BCN-B050-U | Monochrome, 8 bit
BCN-C050-U | Colour, 8 bit
BTN-B050-U | Monochrome, 12 bit

PERFORMANCE SPECIFICATIONS | 752 X 480 MODELS

Models	BCE-CG04-U BCN-CG04-U	BCN-BG04-U BCE-BG04-U BCE-BG04-US BCN-BG04-US	BTN-BG04-U BTE-BG04-U BTE-BG04-US BTN-BG04-US
Number of GPIOs	4	4	4
Resolution	752 x 480		
CMOS Chip	1/3" Micron MT9V032, Global Shutter (Micron TrueSNAP)		
Pixel Size | µm	6.0 x 6.0		
Active Imager Size | mm	N/A		
Scanning System	Progressive		
Dynamic Range | dB	> 55		
Sensor SNR | dB	N/A		
Gray Level | bit	8		10
Responsivity | V/lux-sec	2.1	4.8	
On-Board Memory | MB	32		
Frame Rates* (@26MHz Clock) | fps	60@752x480 65@640x480 130@320x240 220@160x120 310@64x64		10-bit Operation 36@752x480 44@640x480 130@320x240 220@160x120 310@64 x 64
Sub Resolution	Support Arbitrary ROI (Nx, Ny), with Nx and Ny multiples of 4		
Shutter Speed (Exposure Time) | ms	0.05 ~ 750		
Hardware Gains | dB	1x ~ 4x		
Trigger Mode	With external trigger		
Trigger Cable	ACC-CAM-DIN8		
Strobe Out	Yes		
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)		
Built-in Filters	IR-cut (factory standard), or IR-pas, or no filter		
Power Consumption | W	< 1.8		

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

PERFORMANCE SPECIFICATIONS | 1.3MP, 3.0MP & 5.0MP

	1.3MP		3.0MP	5.0MP	
Models	BCE-B013-U BCN-B013-U BCE-B013-US BCN-B013-US	BTE-B013-U BTN-B013-U	BCN-C030-U BCE-C030-U BCE-C030-US BCN-C030-US	BCN-B050-U BCE-B050-U BTE-B050-U BTN-B050-U	BCE-C050-U BCN-C050-U
Number of GPIOs	4	4	4	4	4
Resolution	1,280 x 1,024		2,048 x 1,536	2,592 x 1,944	
CMOS Chip	½" (5:4) Micron MT9M001, Rolling Shutter		½" (5:4) Micron MT9T001, Rolling Shutter	1/2.5" (5:4) Micron MT9P031, Rolling Shutter	
Pixel Size | µm	5.2 x 5.2		3.2 x 3.2	2.2 x 2.2	
Active Imager Size | mm	6.66 x 5.32		N/A		
Scanning System	Progressive				
Dynamic Range | dB	68		61	70	
Sensor SNR | dB	45		43	38	
Gray Level | bit	8	10	8	8 or 12	8
Responsivity | V/lux-sec	2.1			1.4	
On-Board Memory | MB	32				
Frame Rates* (@48MHz Clock) | fps	25 @1280x1024 35 @1024x768 50 @800x600 55 @752x480 65 @640x480 140 @320x240	12 @1280 × 1024 18 @1024 × 768 25 @800 × 600 28 @752 × 480 33 @640 × 480 70 @320 × 240	11 @2048x1536 16 @1600x1200 28 @1280x1024 42 @1024x768 64 @800x600 82 @752x480 90 @640x480 240 @320x240	**12 bit:** 3 @2592x1944, 5 @2048x1536 7 @1600x1200 12 @1280x1024 21 @1024x768 33 @800x600 43 @752x480 51 @640x480 100 @320x240	6 @2592 x 1944 9 @2048 x 1536 13 @1600 x 1200 18 @1280 x 1024 28 @1024 x 768 40 @800 x 600 50 @752 x 480 56 @640 x 480 100 @320 x 240
Sub Resolutions	Support Arbitrary ROI, (X, Y) with X and Y multiples of 4				
Shutter Speed (Exposure Time) | ms	0.05 ~ 750				
Hardware Gains | dB	0.125x ~ 8x			1x ~ 16x	
Trigger Mode	With external trigger				
Trigger Cable	ACC-CAM-DIN8				
Strobe Out	Yes				
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)				
Built-in Filters	IR-cut (factory standard), or IR-pass, or no filter			IR-cut (factory standard) or custom	
Power Consumption | W	< 1.8				

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
BCE | BTE series	150	58x58x34	58x58x39
BCN | BTN series	80	51x51x29	51x51x34

RECOMMENDED CONFIGURATIONS

Processor	Pentium III 900 MHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	256MB or greater
Hard Disk Space	30MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB2.0 Host Controller	Intel Integrated USB2.0 Host Controller is recommended

C-SERIES

Mightex C-series CCD USB 2.0 area cameras provide higher sensitivity than CMOS cameras. They are are optimized for machine-vision applications, and they can also be used for a wide variety of other applications where quality, ease of use, and cost-effectiveness are crucial. These cameras have external trigger-in and strobe-out. A USB command set protocol is provided for non-Windows based applications. A Linux driver is also available upon request.

Key Definitions

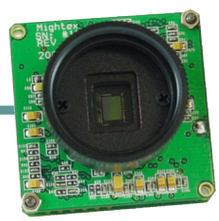
- **CCD Image Sensor**
- **High Sensitivity**
- **Monochrome & Colour**
- **Global Shutter**

MODELS

Buffered USB2.0 1280x960 1/3” CCD | *Enclosed*

CGE-B013-U | Monochrome
CGE-C013-U | Colour

Buffered USB2.0 1280x960 1/3” CCD | *Board Level*



CGN-B013-U | Monochrome
CGN-C013-U | Colour

Buffered USB2.0 1392x1040 1/2” CCD | *Enclosed*

CCE-B013-U | Monochrome
CCE-C013-U | Colour

Buffered USB2.0 1392x1040 1/2” CCD | *Board Level*

CCN-B013-U | Monochrome
CCN-C013-U | Colour

Buffered USB2.0 1392x1040 2/3" CCD | *Enclosed*

CXE-B013-U | Monochrome
CXE-C013-U | Colour

PERFORMANCE SPECIFICATIONS

Models	CXE-B013-U	CXE-C013-U	CCE-B013-U CCN-B013-U	CCE-C013-U CCN-C013-U	CGE-B013-U CGN-B013-U	CGE-C013-U CGN-C013-U
Number of GPIOs	4	4	4	4	4	4
Resolution	1,392 x1,040				1,280 x 960	
CCD Chip	2/3" Sony ICX285AL Global Shutter	2/3" Sony ICX285AQ Global Shutter	½" Sony ICX205AL Global Shutter	½" Sony ICX205AK Global Shutter	1/3" Sony ICX445AL Global Shutter	1/3" Sony ICX445AK Global Shutter
Bit | bit	8 or 12					
Pixel Size | µm	6.45 x 6.45		4.65 x 4.65		3.75 x 3.75	
Active Imager Size | mm	(Diagonal) 11.0		7.60 x 6.20		6.26 x 5.01	
Scanning System	Progressive					
On-Board Memory | MB	N/A		32			
Frame Rates* (@28MHz Clock) | fps	15 @1392 x 1040 29 @696 x 520 (2x2 Bin) 37 @464 x 344 (3x3 Bin) 49 @348 x 256 (4x4 Bin) 49 @348 x 256 (1:4 Skip)				20 @1280 x 960 38 @640 x 480 (2x2 Bin) 53 @424 x 320 (3x3 Bin) 66 @320 x 240 (4x4 Bin) 66 @320 x 240 (4x4 Bin2)	
Sub Resolutions	696 x 520(2x2 Bin) 464 x 344 (3x3 Bin) 348 x 256 (4x4 Bin) 348 x 256 (1:4 Skip)				640 x 480(2x2 Bin) 424 x 320(3x3 Bin) 320 x 240(4x4 Bin) 320 x 240 (1:4 Bin2)**	
Shutter Speed (Exposure time) | ms	0.05~200,000					
Hardware Gains | dB	6 ~ 43				6 ~ 41	
Trigger Mode	With external trigger					
Trigger Cable	ACC-CAM-DIN8				ACC-CAM-CON8	
Trigger Delay | µs	< 25					
Strobe Out	Yes					
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)					
Built-in Filters	IR-cut (factory standard), or IR-pass, or no filter					
Power Consumption | W	< 1.8					

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
CGE series	115	45x45x30.5	45x45x35.5
CGN series	29	40x40x31	40x40x36
CCE | CXE series	150	95x70x38.5	95x70x43.5
CCN series	80	89x64x34	89x64x39

RECOMMENDED CONFIGURATIONS

Processor	Pentium III 900 MHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	256MB or greater
Hard Disk Space	30MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB2.0 Host Controller	Intel Integrated USB2.0 Host Controller is recommended

M-SERIES

Our unbuffered monochrome cameras often exhibit 20% higher spatial resolution than their color counterparts because no pixel interpolation is necessary. Without a Bayer color filter on the sensor, monochrome cameras are also more sensitive than color sensors especially in near IR and UV regions. Frame rate can be as high as 24 fps at full resolution and up to 600 fps using ROI mode. Our unbuffered colour camera delivers excellent quality images, and the frame rate can be as high as 8 fps at full resolution and up to 175 fps using ROI mode. All cameras have 4-pin GPIOs and optional built-in LED drivers

Key Definitions

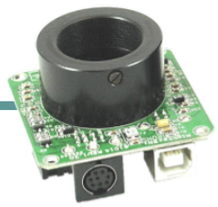
- **Unbuffered**
- **CMOS 1.3MP & 3.0MP**
- **Optional Built-in LED drivers**
- **Monochrome & Colour**
- **Rolling Shutter**

MODELS

Unbuffered USB2.0 1.3MP CMOS | *Enclosed*

MCE-B013-U | Monochrome
MLE-B013-U | Monochrome

Unbuffered USB2.0 1.3MP CMOS | *Board Level*



MCN-B013-U | Monochrome
GLN-B013-U | Monochrome

Unbuffered USB2.0 3MP CMOS | *Enclosed*

MCE-C030-U | Colour
MLE-C030-U | Colour

Unbuffered USB2.0 3MP CMOS | *Board Level*

MCN-C030-U | Colour
GLN-C030-U | Colour

PERFORMANCE SPECIFICATIONS

Models	1.3MP		3MP	
	MCN-B013-U MCE-B013-U	GLN-B013-U MLE-B013-U	MCN-C030-U MCE-C030-U	GLN-C030-U MLE-C030-U
Number of GPIOs	4	No	4	4 (GLN model only)
Built-in LED Drivers	No	Yes	No	Yes
Resolution	1,280 x 1,024		2,048 x 1,536	
CMOS Chip	½" (5:4) Micron MT9M001, Rolling Shutter		½" Micron MT9T001, Rolling Shutter	
Pixel Size | µm	5.2 x 5.2		3.2 x 3.2	
Active Imager Size | mm	6.66 x 5.32			
Scanning System	Progressive			
Dynamic Range | dB	68		61	
Sensor SNR | dB	45		43	
Gray Level | bit	8			
Responsivity | V/lux-sec	2.1			
Frame Rates* (@48MHz Clock) | fps	24 @1280x1024 32 @1024x768 50 @800x600 70 @640x480 180 @320x240 300 @160x120 450 @64x64 600 @32x32		8 @2048x1536 11 @1600x1200 16 @1280x1024 26 @1024x768 35 @800x600 50 @640x480 80 @320x240 130 @160x120 175 @64x64	
Sub Resolutions	1024x768 800x600 640x480 320x240 160x120 64x64 32x32		1600x1200 1280 x 1024 1024x768 800x600 640x480 320x240 160x120 64x64	
Shutter Speed (Exposure Time) | ms	0.04 ~ 750			
Hardware Gains | dB	12			
Trigger Mode	With external trigger			
Trigger Cable	ACC-CAM-DIN8			
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)			
Built-in Filters	IR-cut (factory standard), No filter, or IR-pass			
Power Consumption | W	< 1.0 (excluding LED drivers, if applicable)			
Number of LED Driver Channels	N.A.	4	N.A.	4
LED Driver Max. Output Voltage | V	N.A.	5	N.A.	5
LED Driver Max. Output Current (total) | mA	N.A.	250	N.A.	250

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
MCE | MLE series	150	58x58x34	58x58x39
MCN | GLN series	48	51x51x29	51x51x34

RECOMMENDED CONFIGURATIONS

Processor	Pentium III 900 MHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	256MB or greater
Hard Disk Space	30MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB2.0 Host Controller	Intel Integrated USB2.0 Host Controller is recommended

W-SERIES

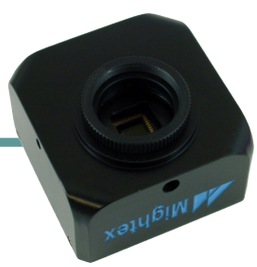
Mightex W-series windowless cameras are particularly useful for applications that are sensitive to interference fringes resulting from multiple reflections due to the existence of the glass window in front of the CMOS sensor. One example of such an application is laser beam profiling. In addition, windowless cameras are usually more sensitive to UV than their windowed counterpart, and hence the former might be useful for acquiring UV images.

Key Definitions

- **Windowless**
- **Unbuffered or Buffered**
- **Monochrome**
- **Rolling Shutter**

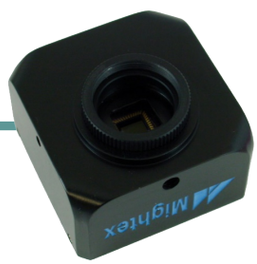
MODELS

Windowless Unbuffered USB2.0 1.3MP CMOS | *Enclosed*



MCE-B013-UW | Monochrome, 8 bit, C-mount
MCE-B013-UWS | Monochrome, 8 bit, CS-mount

Windowless Buffered USB2.0 1.3MP CMOS | *Enclosed*



BTE-B013-UW | Monochrome, 10 bit, C-mount
BTE-B013-UWS | Monochrome, 10 bit, CS-mount

PERFORMANCE SPECIFICATIONS

Models	MCE-B013-UW MCE-B013-UWS	BTE-B013-UW BTE-B013-UWS
Number of GPIOs	4	4
Built-in LED Drivers	No	
Resolution	1,280 x 1,024 Monochrome	
CMOS Chip	½" (5:4) Micron MT9M001, Rolling Shutter	½" (5:4) Micron MT9M001
Pixel Size | µm	5.2 x 5.2	
Active Imager Size | mm	6.66 x 5.32	
Scanning System	Progressive	
Dynamic Range | dB	68	
Sensor SNR | dB	45	
Gray Level | bit	8	10
Responsivity | V/lux-sec	2.1	
Frame Rates* (@48MHz Clock) | fps	24 @1280x1024 32 @1024x768 50 @800x600 70 @640x480 180 @320x240 300 @160x120 450 @64x64 600 @32x32	12 @1280x1024 18 @1024x768 25 @800x600 28 @752x480 33 @640x480 70 @320x240
Sub Resolutions	1024x768 800x600 640x480 320x240 160x120 64x64 32x32	Support arbitrary ROI, (X, Y) with X and Y multiples of 4
Shutter Speed (Exposure Time) | ms	0.04 ~ 750	
Hardware Gains | dB	12	0.125x ~ 8x
Trigger Mode	With external trigger	
Trigger Cable	ACC-CAM-DIN8	
Lens Mount	C– mount or CS-mount (M12.5-mount or custom-defined lens mount supported)	
Built-in Filters	No filter, IR-cut (standard), or IR-pass	None
Power Consumption | W	< 1.0 (excluding LED drivers, if applicable)	< 1.8

* Actual achievable frame rate depends on exposure time, as well as available resources of the host PC system.

DIMENSIONS

Models	Weight (excluding lens) | **g**	Size (hxwxd) | **mm**	
		CS-mount	C-mount
MCE | BTE series	150	58x58x34	58x58x39

RECOMMENDED CONFIGURATIONS

Processor	Pentium III 900 MHz or better, or a compatible processor
Operating System	Windows XP, Vista, 7, 8, and 10
RAM	256MB or greater
Hard Disk Space	30MB for software installation, plus additional space for storing captured images
Display	24 bit True Colour
USB2.0 Host Controller	Intel Integrated USB2.0 Host Controller is recommended

USB2.0 CCD LINE CAMERAS

Mightex's CCD line cameras are cost-effective & high-performance based on a single-line, CCD chip with USB2.0 (480 Mb/s) interface. CCD line cameras have several advantages over their area-array counterparts, including high optical linear resolution that allows systems developers to use the cameras to capture two-dimensional (2-D) images by moving the object or the CCD perpendicularly to the scan line. Line cameras are ideal for a variety of OEM applications such as industry process control, optical spectroscopy and bio-medical imaging. Setting up the line camera is very easy: one simply needs to install the camera's application software into any PC, and then connect the line camera to the PC using a USB cable. There is no need to install a DAC card or to use an external power supply. A Linux driver is also available upon request.

FEATURES

- USB2.0 interface
- No external power supply required
- Adjustable optical integration time
- 1024, 2048, & 3648 pixel silicon linear CCD arrays
- 8-, 12-, & 16-Bit A/D converters
- External trigger capability
- 4 GPIOs
- SDK for user applications
- Demo software with GUI

MODELS

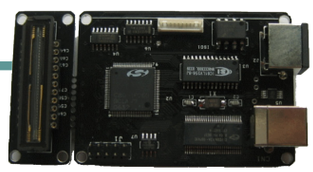
USB2.0 1024-Pixel 8/12bit | *Enclosed*

TCE-1024-U | Glass Window
TCE-1024-UF | Fused Silica Window

USB2.0 2048-Pixel 12bit | *Enclosed*

TCE-1209-U | Glass Window

USB2.0 2048-Pixel 12bit | *Board Level*



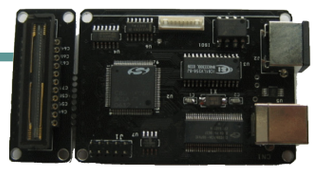
TCN-1209-U | Glass Window

USB2.0 3648-Pixel 16bit | *Enclosed*

TCE-1304-U | Glass Window
TCE-1304-UW | Windowless

USB2.0 3648-Pixel 16bit | *Board Level*

TCN-1304-U | Glass Window
TCN-1304-UW | Windowless



PERFORMANCE SPECIFICATIONS

Models	TCE-1024-U TCE-1024-UF	TCE-1209-U TCN-1209-U	TCE-1304-U TCE-1304-UW TCN-1304-U TCN-1304-UW
CCD	High performance CCD sensor	Toshiba TCD1209	Toshiba TCD1304DG
Number of Pixels	1,024	2,048	3,648
Pixel Size | µm	14 x 14		8 x 200
Spectral Range | nm	TCE-1024-U 300-1,000 TCE-1024-UF 200-1,000	300-1,000	TCE-1304-U: 350-1,000 TCE-1304-UW: 200-1,000
Pixel Output Clock | MHz	32	8	0.5
Frame Buffers on Camera	16,384 frames 8bit 8,192 frames 12bit	64 frames	4 Frames
ADC Resolution	8 or 12 bits	12 bits	16 bits
External Trigger	Yes		
Trigger Cable	ACC-CAM-DIN8		
Exposure Time Range | ms	0.04 ~ 655	0.3 ~ 3,300	0.1~ 6,500
Gain | dB	6 ~ 42	N/A	
GPIO	Yes (4 programmable I/O's)		
Scan Rate | scans/second	25,000 8bit 10,000 12bit in NORMAL mode[a] >11,000 8bit & 12bit in TRIGGER mode[b]	3,300[c]	138[d]
Lens Mount (Optional)	N/A	F mount	N/A
Host Interface	USB 2.0		

[a] Actual scan rate depends on exposure time, as well as available resources of the host PC system.
[b] In Trigger Burst mode the scan rate can reach 25,000 scans/second (8bit) or 10,000 scans/second (12bit)
[c] Scan rate achievable when exposure time is set at 0.3ms in Continuous mode.
[d] Scan rate achievable when exposure time is set at 0.1ms in Continuous mode.

SDK FEATURES

Operating System	Windowns 2000, XP, Vista, 7, 8, and 10
RAM	64MB or greater
Hard Disk Space	10MB for software installation, plus additional space for storing captured images
USB Port	USB2.0
Multiple Cameras	Supported
Plug & Play	Not recommended
Device Driver	Yes
Demo Application	Yes
Library Files	Yes (DLL files and Static Library files)
Example Codes	Yes (VC++ and Delphi)
Frame Attributes*	Exposure time, Time Stamp, Trigger Event Count, Over exposure detection

* SDK will provide call back, which will send the user Frame data and the related attributes of each frame.

INDUSTRIAL CAMERA ACCESSORIES

CABLES AND BRACKETS

Part Number	Description
ACC-USB-2M	6-foot-long USB A-B cable
ACC-USB-5M	Extra-length (15 feet long) USB A-B cable
ACC-USB-M2M	6-foot-long USB A-miniB cable
ACC-USB-M5M	Extra-length (15 feet long) USB A-miniB cable
ACC-CAM-DIN8	Mightex's M-series, B-series, CCD (except CGx-series) and USB3.0 camera trigger cable with an 8-pin DIN connector. For GPIOs and external triggers. Length: 80cm
ACC-CAM-CON8	Mightex's Con8 cable for S-series and CGx-series CCD cameras. For GPIOs and external triggers
ACC-CAM-BRKT	USB connector holding bracket for Mightex's MCE- and BCE- CMOS cameras
ACC-USB-M2M-S	6-foot-long USB A-miniB cable with locking screws, for S-series enclosed cameras only

OPTICAL FILTERS

Part Number	Description
ACC-CAM-IRC	IR-cut filter. Dimensions: 18mm in diameter, and 1mm in thickness.
ACC-CAM-IRPxxx	Various IR-pass filters. Dimensions: 15(L) x 13(W) x 2(T) mm.
ACC-CAM-PGP	Plain glass plates for Mightex's cameras. Dimensions: 18mm in diameter, and 1mm in thickness.

Please note that, while ACC-CAM-IRC and ACC-CAM-PGP can be used as drop-in replacements, ACC-CAM-IRPxxx will have to be glued to the camera using epoxy due to its 2mm thickness.

LENS MOUNT ADAPTERS

Part Number	Description
ACC-CAM-CSC	CS-mount to C-mount lens adapter.
ACC-CAM-CM12	C-mount to M12x.5 adapter.
ACC-CAM-C23	C-mount to 23mm adapter (for microscope eyepiece tube).
ACC-CAM-C1Q	C-mount to 1.25" adapter for cameras (for telescope 1.25" eyepiece tube).
ACC-CAM-M12	Stand-alone M12 lens mount for MCN-, BCN-, SCE-, SCN-series cameras, IR-Cut filter not included.
ACC-CAM-CS	Stand-alone CS lens mount for MCN- and BCN- series cameras, IR-Cut filter not included.

CCD LINE CAMERA ACCESSORIES

Part Number	Description
ACC-LCM-F	F-mount lens adapter for TCN-1304-U line camera.
ACC-LCE-F	F-mount lens adapter for TCE-1024-U(F), TCE-1304-U, TCN-1209-U and TCE-1209-U line camera.
ACC-1304-120	Daughter-board/motherboard connection cable for TCN-1304-U line camera, 120mm long.
ACC-1304-200	Daughter-board/motherboard connection cable for TCN-1304-U line camera, 200mm long.
ACC-LCE-C	Mechanical adapter for CCD Line Camera TCE-1024-U(F), TCE-1304-U, TCN-1209-U and TCE-1209-U, with C-type lens mount.