Windowless USB2.0 Monochrome 1.3MP CMOS Cameras (8-bit)

(Part Numbers: MCE-B013-UW and MCE-B013-UWS)

FEATURES

- Free from unwanted inter-ference fringes
- Higher sensitivity than sen-sors with windows
- 4-pin GPIOs
- Higher sensitivity than color cameras especially in IR
- 1,280 x 1,024 active imag-ing pixels
- High-speed USB2.0 (480Mb/s)
- Digital output, no need for frame grabber
- Full-featured SDK
- TWAIN and DirectShow drivers
- LabVIEW driver
- External and software trig-gering
- Strobe out for external flash
- ROI & pixel skipping/binning
- No need for external power supply
- OEM versions available

APPLICATIONS

- Laser beam profiling
- Laser interferometry
- Digital holography
- Holography data storage
- Digital microscopy'
- Machine vision
- Medical imaging
- Semiconductor equipment
- Test instruments

PRODUCT DESCRIPTION

Mightex USB 2.0 monochrome cameras are designed for a wide variety of applications such as digital microscopy and medical imaging, where quality, ease of use, and cost-effectiveness are crucial. Monochrome cameras often exhibit 20% higher spatial resolution than their color coun-terparts 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 in full resolution and up to 600 fps using ROI mode. In addition, a user-friendly GUI based application software and an SDK are provided for custom software development. The cameras have 4-pin GPIOs and a TWAIN driver, a Direct-Show driver and a LabVIEW driver are also provided to easily link the cameras with users' appli-cations. Windowless cameras are particularly useful for applications that are sensitive to multiple reflections due to the existence of the glass window in front of the CMOS sensor.

PERFORMANCE SPECIFICATIONS

Parameters	MCE-B013-UW and MCE-B013-UWS	Unit
Board-level / enclosed	Enclosed	
Number of GPIOs	4	
Resolution	1,280 x 1,024 monochrome	
CMOS Chip	½" (5:4) Micron MT9M001	
Pixel Size	5.2 x 5.2	μm
Active Imager Size	6.66 x 5.32	
Scanning System	Progressive	
Dynamic Range	68	dB
Sensor SNR	45	dB
Gray Level	8	bit
Responsivity	2.1	V/lux-sec
Frame Rates* (@48MHz Clock)	24 @1,280 x 1,024, 35 @1,024 x 768, 50 @800 x 600,70 @640 x 480, 200 @320 x 240, 300 @160 x 120 450 @64 x 64, 600 @32 x 32	fps
Sub Resolutions	1,024 x 768, 800 x 600, 640 x 480, 320 x 240, 160 x 120, 64 x 64, 32 x 32	
Shutter Speed (Exposure time)	0.04 ~ 750	ms
Hardware Gains (0x – 16x)	12	
Trigger Mode	With external trigger**	
Lens Mount	C-Mount, CS-Mount or custom-defined	
Built-in Filters	None	
Power Consumption	< 1.0	W
Dimension	58 x 58 x 34 (CS-mount), 58 x 58 x 39 (C-mount)	mm
Weight (excluding lens)	150	g

* The actual achievable frame rate depends on exposure time, as well as resources of PC system
** Part number of the trigger cable for external trigger : ACC-CAM-DIN8

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FEATURES

- Higher sensitivity than sensors with windows
- Free from unwanted interference fringes
- 32MB on-board memory (23 frames at 8 bit, and 4 frames at 10 bit, at full resolution)
- Switchable between 10 bit and 8 bit
- Arbitrary ROI
- 4-pin GPIOs
- Support simultaneous image capturing from multiple cameras
- 1,280 x 1,024 active image pixels
- High-speed USB2.0 (480Mb/s)
- Digital output, no need for frame grabber
- Full-featured SDK
- TWAIN and DirectShow drivers
- Linux and LabVIEW drivers
- External and software triggering
- Strobe out for external flash
- ROI & pixel skipping/ binning
- No need for external power supply

APPLICATIONS

- Laser beam profiling
- Laser interferometry
- Digital holography
- Holography data storage
- Digital microscopy
- Machine vision
- Medical imaging
- Semiconductor equipment
- Test instruments

PRODUCT DESCRIPTION

Mightex USB 2.0 monochrome cameras are designed for a wide variety of applications such as digital microscopy and medical imaging, where quality, ease of use, and cost-effectiveness are crucial. 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 12 fps in full resolution and up to 150 fps using ROI mode. A user-friendly GUI based application software and an SDK are provided for custom software development. In addition, a TWAIN driver, a DirectShow driver and a LabVIEW driver are also provided to easily link the cameras with users' applications. A USB command set protocol and a Linux driver are also provided for non-windows based applications. Window-less cameras are particularly useful for applications that are sensitive to multiple reflections due to the existence of the glass window in front of the CMOS sensor.

PERFORMANCE SPECIFICATIONS

Parameters	BTE-B013-UW and BTE-B013-UWS	Unit
Board-level / enclosed	Enclosed	
Number of GPIOs	4	
Resolution	1,280 x 1,024 monochrome	
CMOS Chip	½" (5:4) Micron MT9M001	
Pixel Size	5.2 x 5.2	μm
Active Imager Size	6.66 x 5.32	
Scanning System	Progressive	
Dynamic Range	68	dB
Sensor SNR	45	dB
Gray Level	10	bit
Responsivity	2.1	V/lux-sec
On-board Memory ("Frame Buffers")	32	MB
Frame Rates* (@48MHz Clock)	12 @1,280 x 1,024, 18 @1,024 x 768 25 @800 x 600, 28 @752 x 480 33 @640 x 480, 70 @320 x 240	fps
Sub Resolutions	Support arbitrary ROI, (X, Y) with X and Y multiples of 4	
Shutter Speed (Exposure time)	0.04 ~ 750	ms
Hardware Gains	0.125X ~ 8X	
Trigger Mode	With external trigger**	
Lens Mount	C-Mount, CS-Mount or custom-defined	
Built-in Filters	None	
Power Consumption	< 1.8	W
Dimension	58 x 58 x 34 (CS-mount), 58 x 58 x 39 (C-mount)	mm
Weight (excluding lens)	150	g

* The actual achievable frame rate depends on exposure time, as well as resources of PC system
** Part number of the trigger cable for external trigger : ACC-CAM-DIN8
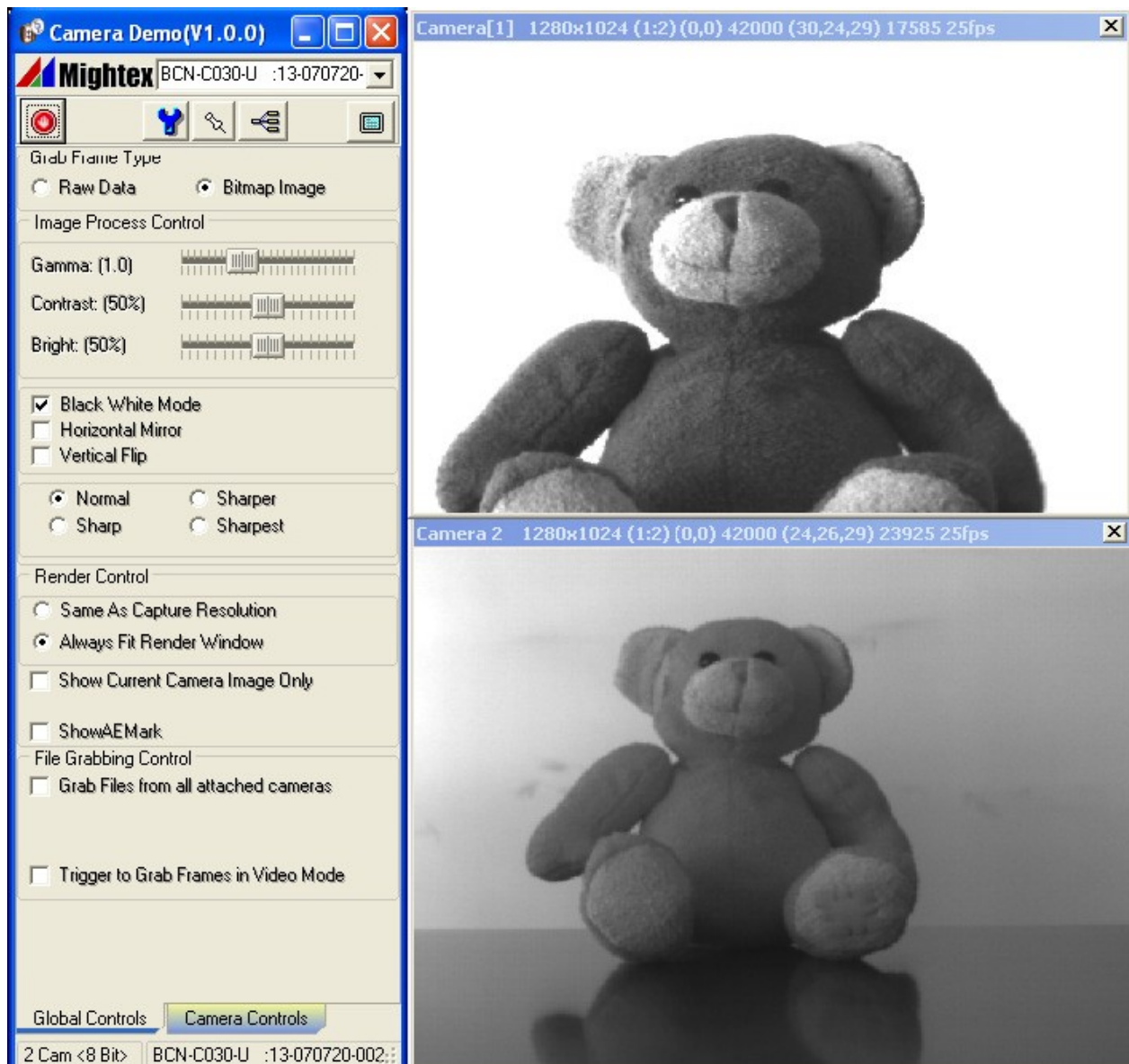
OPERATION CONDITION

Operating Temperature Range:	0°C ~ 45°C
Storage Temperature Range:	-25°C ~ 85°C
Relative Humidity, Non-condensing:	5% ~ 95%

RECOMMENDED SYSTEM CONFIGURATION

Processor:	Pentium III 900 MHz or better, or a compatible processor
Operating System:	Windows 2000, XP, Vista, Windows 7 and 8
RAM:	256MB or greater
Hard Disk Space:	30MB for software installation, plus additional space for storing captured images
USB2.0 Host Controller:	Intel Integrated Host Controller (Recommended)

EXAMPLE OF GRAPHICAL USER INTERFACE

Windowless CMOS Cameras

INSTALLATION DRAWINGS

Enclosed camera with CS-mount

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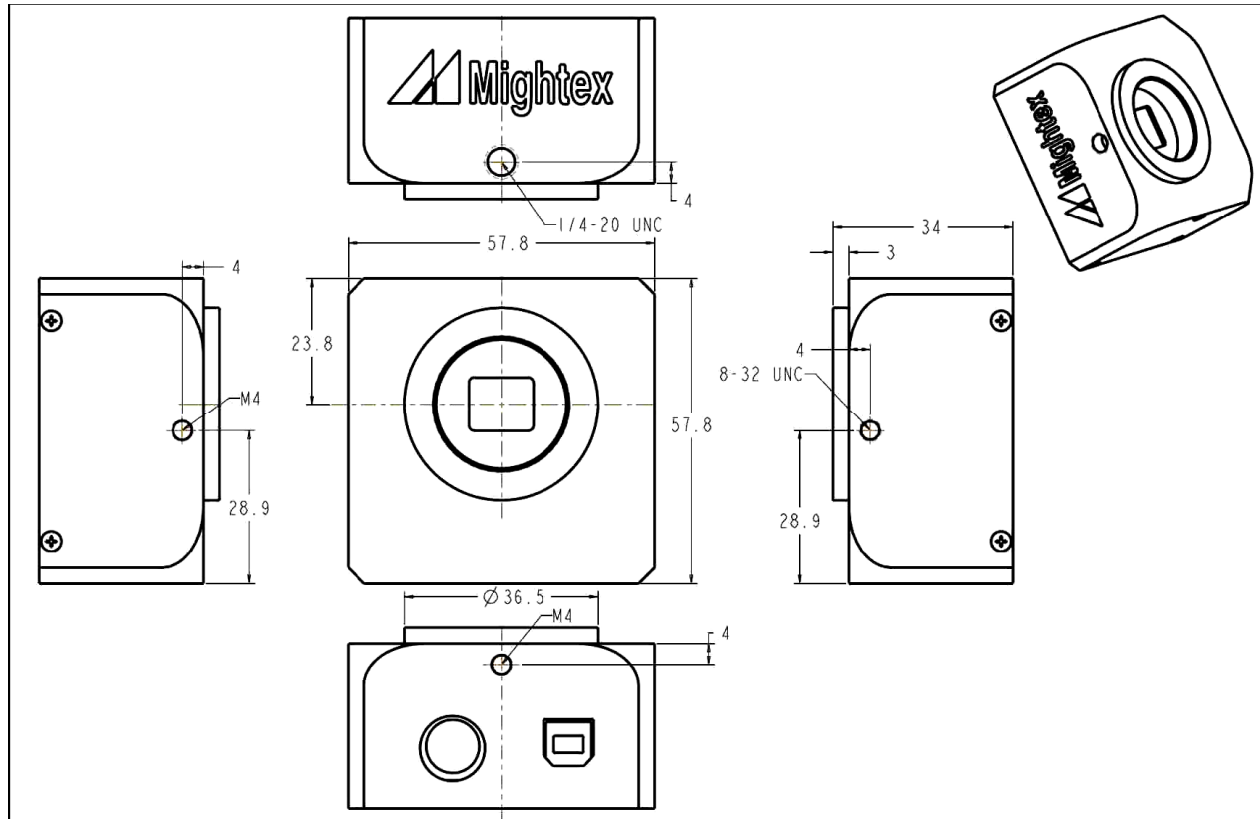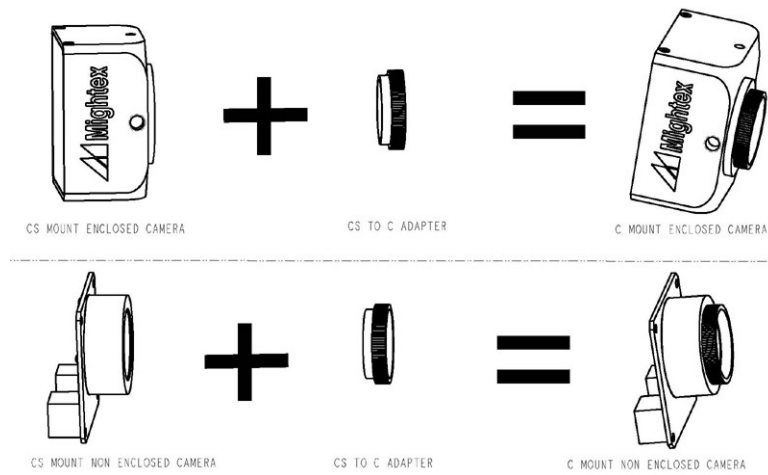Simply Brighter

WHAT'S IN A C-MOUNT CAMERA?

CS MOUNT ENCLOSED CAMERA + CS TO C ADAPTER = C MOUNT ENCLOSED CAMERA

CS MOUNT NON ENCLOSED CAMERA + CS TO C ADAPTER = C MOUNT NON ENCLOSED CAMERA

A C-mount camera is composed of a CS-mount camera and a CS-to-C-mount adapter. The latter is essentially a 5mm thick threaded ring.

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