

Digital high speed camera

HAS-U2

USB 3.0 bus power
5M 2592 x 2048 100 frames/second
Embedded memory / DMA hybrid model



HAS-U2 is a high speed camera with 1-inch CMOS sensor and 2592 x 2048 effective pixels that can shoot 100 fps at full resolution, 1,000 fps at VGA, and up to 7,500 fps by limiting the pixel area. Perfect for multiple high speed camera imaging with embedded memory on it's compact gear.

- Well balanced on high pixel resolution and high speed frame rates.
- It can use both embedded 2GB memory mode and direct memory access mode with USB 3.0 as the situation demands.
- Fully synchronized multiple high speed camera system with just one laptop PC.
- Full spec operation available beyond valid data transfer speed of the USB3.0.
- Large volume of memory by using 64bit OS.
- Low power consumption design for USB 3.0 bus powered device will give you easy cabling layout.
- Internal / External sync
- 10bit A/D
- Data transmission rate approx. 506MB/sec (Embedded memory mode) and 303MB/sec (DMA transfer mode)
- Unit weight approx. 210g, unit size (W x H x D) 44 x 44 x 81.5mm

Perfect for all kind of research/production engineering in behavior, fluid, sports science, biomechanical, robotics, machine vision, crash test, droplet, microscopy, trouble shooting, and more.

Product:

- Camera unit
- USB3.0 cable
- Control software



Palm size body



Frame rate and pixel size

Pix	H	320	320	240	320	320	576	512	640	800	1024	1280	1024	1280	1600	1920	2592
Fps	V	20	120	180	240	320	256	480	480	600	768	768	1024	1024	1200	1080	2048
7500	●																
5000	●																
4000		●															
3000		●	●														
2500			●	●													
2000			●	●	●												
1500				●	●	●	★										
1000					●	●	●	★									
800						●	●	●	★								
500							●	●	●	★	★						
400								●	●	●	★	★	★				
300									●	●	●	★	★	★			
250									●	●	●	●	★	★	★		
200									●	●	●	●	●	★	★		
150										●	●	●	●	●	●		
100											●	●	●	●	●		★
60												●	●	●	●		

★ Only for Embedded memory mode

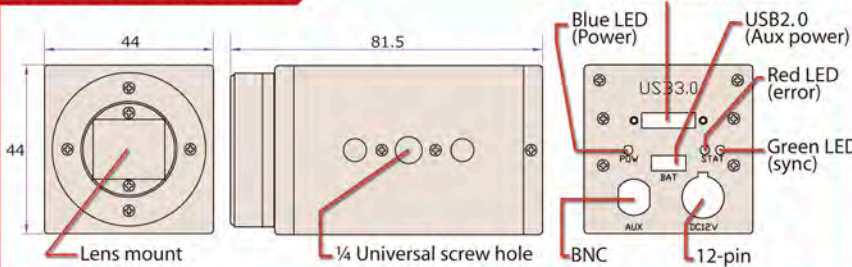
● Enable for both Embedded memory mode and DMA mode

Reference recording frame number and time in Embedded memory mode

Fps	resolution	Frame number (at 2GB)	Recording time (at 2GB)
100	2592×2048	399 f	4 sec
250	1920×1080	1030 f	4.1 sec
500	1280×768	2178 f	4.3 sec
1000	640×480	6982 f	6.9 sec

*You can use large volume of memory on the PC in DMA mode though the frame rate and resolution will be limited under USB3.0's valid data rate.

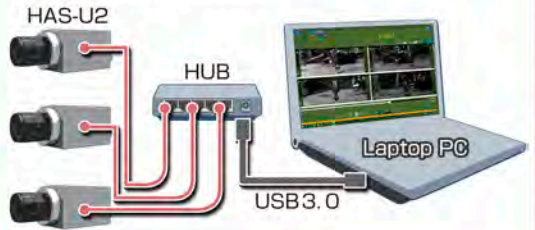
HAS-U2 Dimensions



Connection diagram

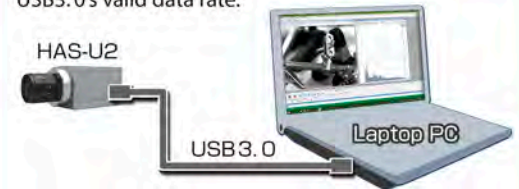
Embedded memory mode

Multiple camera system with one PC. Full spec operation available beyond valid data transfer speed of the USB3.0.



DMA transfer mode

Large volume of memory available using 64bit OS. Frame rate and resolution will be limited under USB3.0's valid data rate.



Specifications

Camera	
Camera type	Mono (HAS-U2M) Color (HAS-U2C)
Sensor type	CMOS
A/D	10bit
Effective resolution	2592 x 2048 (5M pixel)
Sensor format	1-inch
Lens mount	C
Recording mode	Embedded memory / DMA transfer
Memory size	2GB
Data output	USB 3.0
Interface	Micro-B
Shutter(exposure)	Minimum 1/100,000(10μ)
Sensitivity(at 550nm)	7.5 V/lux.s
Power input	5V
Power delivery	USB bus power / 12pin
Electric requirement	Under 4.5W
weight	Approx. 210g
Size	44mm x 44mm x 81.5mm
Control software	
Trigger mode	Start/End/Variable (3.3V TTL or contact signal)
Aux function	Histogram, Guide line, Focus peaking, Live image rotation, Time stamp, Trimming, Text
Image format	AVI, WMV, BMP/Jpeg, RAW
Supported OS	Windows7, 8, 10(32 bit or 64bit)

*Specification and external appearance are subject that may change without notice.

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Digital Image Technology

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ENDOMATRIX

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