Technical specifications

Product type	Digital high speed camera

Image Sensor	CMOS APS Sensor
Image Sensor	Monochrome or color (with Bayer pattern)
Pixel size	14 µm
Dynamic range	5-, 8- or 10 bit (user selectable with option 1)
Gain control	Low-, mid- and high gain (user selectable with option 1)
Dynamic range	5-, 8- or 10 bit (optional, user selectable)
Sensitivity	ISO 3200 (monochrome), ISO 1600 (color)
Image Resolution	1280 x 1024 pixels
Image size	1280 x 1024: 18.2 x 14.5 mm (exceeding 1" format)
Frame rate at full resolution	500fps @ 1280 x 1024 pixels
Max. frame rate	50,000 fps
ROI	Free selectable
Shutter type	Global electronic shutter
Shutter exposure times	4 µsec to 1/frame rate

Image memory	Built-in, DRAM
Standard capacity	1.3 GB
Optional	2.6, 5.2, 10.4 GB
Memory upgrade	Possible, factory upgrade
Sequence length	2 secs @ 1280 x 1024 / 500 fps (1.3 GB image memory)
	4 secs @ 1280 x 1024 / 500 fps (2.6 GB image memory)
	8 secs @ 1280 x 1024 / 500 fps (5.2 GB image memory)
	16 secs @ 1280 x 1024 / 500 fps (10.4 GB image memory)
	Sequence length can be extended by reducing the image resolution resp. frame rate

Data Interface	Gigabit Ethernet
Video Interface	Optional, see below
Memory Interface	Optional, see below
Event Markers	4 (TTL, in- or output)
Frame synchronization Multi-camera operation	Sync in, sync out (TTL)

Power supply	12 VDC (9…16 VDC)
Power consumption	20 W
Battery	Built-in, rechargeable NiMH battery allowing 30 minutes camera operation

Extensions

Extensions are additional hardware components, to be ordered with the camera.

Video Interface	Video out (digital SDI, or analog PAL / NTSC)
CF Interface	For CF memory cards (Silicone Drive)
IRIG B Interface	IRIG B time stamping (requires external IRIG-B122, amplitude modulated signal)
24 V Interface	Voltage range (24 – 36 V DC)
Ext. temp range	-40…+50 ºC (-40…+122 ºF)
Coating	To protect electronics against humidity

Options

Options are software-based upgrades to extend the cameras performance and functionality. They can be purchased together with a new camera, or at any time later. Options for existing cameras will be sent electronically and can be installed by the operator within minutes.
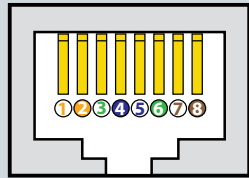
Option 11	Auto Exposure
Option 12	Motion Detection

Spectral response
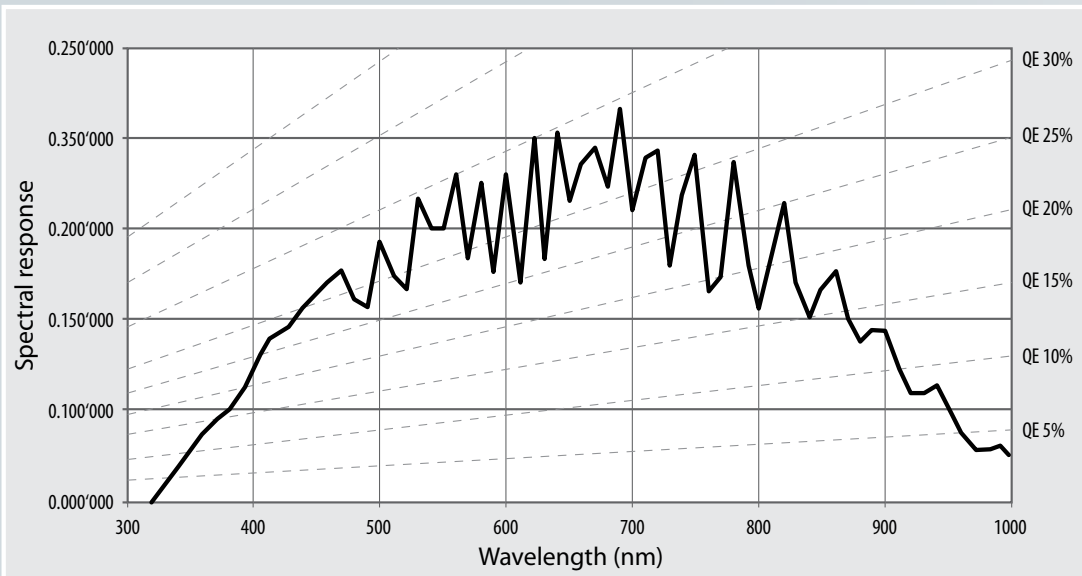
Connectors

Data Connector	
1 BI_DA+ 2 BI_DA− 3 BI_DB+ 4 BI_DC+ 5 BI_DC− 6 BI_DB− 7 BI_DD+ 8 BI_DD−	
Connector type:	RJ45

I/O Connector	
1 GND (-) 2 V In (In) 3 Remote On (In) 4 Sync In (In) 5 Sync Out (Out) 6 Set-to-Rec (In) 7 Trigger (In) 8 Strobe (Out) 9 Armed (Out) 10 Triggered (Out) 11 Event Marker 1 12 Event Marker 2 13 Event Marker 3 14 Event Marker 4	
Connector type:	**LEMO** Type: FGG.2B.314.CLAD82Z **ODU** Type: S22LOC-P14MFGO-8200

Environmental conditions

Shock resistance	Robust design, but not designed/built to withstand severe shocks
Operating temperature	0 … +45 ºC (32 …113 ºF)
Storage temperature	-40 … +70 ºC (-40 …158 ºF)
Operating humidity	max. 80 %, non condensing, at 45 ºC (113 ºF) for 8 hours
Storage humidity	max. 40 %, non condensing, at 70 ºC (158 ºF) for 48 hours

Control PC – minimum requirements

CPU	Pentium Dual Core, 2 GHz
DRAM	2 GB
HDD	60 GB
Interfaces	GigE
OS	MS Windows 2000, XP PRO, VISTA, Windows7

The control PC for an AOS high speed camera has to meet or exceed these minimum requirements for a reliable, convenient camera performance. PC's with lower specifications may result in a camera performance below the indicated ones.

Resolution vs. frame rate

The S-MOTION offers a frame rate of 500fps at the full image resolution of 1280 x 1024 pixels. The following configurations can be selected via the included AOS Imaging Studio control software, other settings are possible too within the sensor limitations:

Image resolution	Frame rate (fps)
1280 x 1024	500
864 x 640	1'000
800 x 600	1'250
640 x 480	1'900
512 x 512	2'085
512 x 256	4'130
400 x 300	4'200
360 x 240	5'700
256 x 256	6'530
200 x 150	11'975
128 x 128	16'630
200 x 24	50'000

Dimensions / weight / mechanics

Dimension (w/o options)	72 x 72 x 122 mm (w/o lens and extensions)
Weight	900 gr (w/o lens and extensions)
Lens mount	c-mount, adjustable backfocus
	1" lens format covers image format at 800 x 600
	Full format of 1280 x 1024 (option 2) requires lenses with an image size larger than 1" (i.e. F-mount lenses with adapter)
Camera mount	Standard $^3/_8$" thread with $^1/_4$" brass insert

Certifications

CE	In compliance with relevant standards

Dimension / Mounting

36.0
72.0
UNC 3/8"

72.0
72.0

side view

72.0
x

18.766
24.659
53.9

x = Lenght (standard): 122 mm
Length (with CF interface): 137 mm
Length (with Video Interface): 129 mm
Length (with CF- and Video Interface): 144 mm

AOS Technologies AG
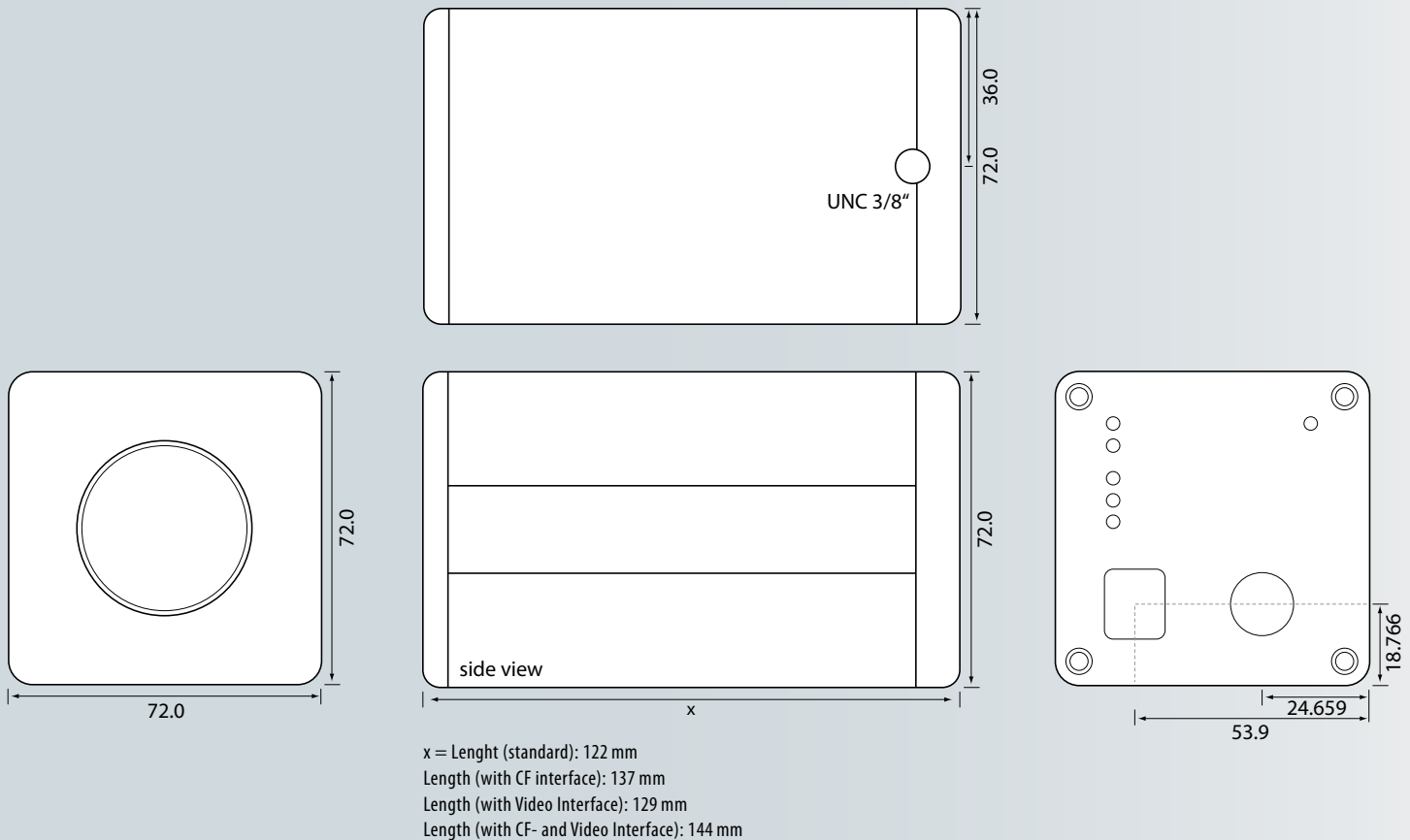
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Specifications are subject to change without prior notice – v10.2009