C-VIT High-speed camera

C-VIT – the rugged, ultra-compact high speed camera

Hi-G-rated for 150+ G, ready to be used in the most severe environments. A robust high resolution camera for demanding applications in research and development.

The C-VIT is particularly suited for all applications where a compact, portable, high resolution and robust camera is essential. The highly light-sensitive sensor and on-the-fly image processing in the camera covers the most ambitious application. The C-VIT is designed and certified to withstand G-forces in excess of 150 G/10 msec (all axes) and spikes of up to 200 G. Offering a wide range of signals for external control or feedback on camera status during tests, the C-VIT is a genuine all-in-one camera. To round it all up, the comprehensive Imaging Studio software allows easy piloting from PC, laptop or tablet PC.

Unique features and benefits

- **Superior image quality** – C-VIT built-in on-the-fly image processing provides crisp clear images.
- **Ultra compact and all in one** – C-VIT is an ultra-compact camera ready to shoot in rugged environments.
- **WLAN** – C-VIT is available with WLAN connectivity.
- **Extensions** – Extensions such as CFast Flash Disk, microSD, or HDMI output on camera are available.

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AOS Technologies AG

C-VIT High-speed camera specifications

Typical frame rates vs resolution

	2048	1920	1280	1024	900	800	640	512	256
2048	**570**	610	840	990	1140	1220	1450	1770	2650
1080	1080	**1160**	1590	1890	2150	2320	2740	3340	4990
1024	1140	1220	**1670**	**1990**	2270	2440	2880	3520	5250
900	1290	1390	1910	2260	2580	2780	3280	4000	5970
800	1450	1570	2140	2540	2900	3120	3680	4490	6690
720	1620	1740	**2380**	2820	3220	3470	4090	4990	7420
700	1660	1790	2440	2900	**3310**	3560	4200	5120	7620
600	1940	2090	2850	3380	3860	**4150**	4900	5970	8870
480	2420	2610	3560	4220	4810	5180	**6100**	7420	11010
512	2270	2440	3330	3950	4500	4850	5710	**6950**	10320
320	3620	3890	5300	6280	7150	7690	9050	11000	16210
256	4500	4850	6600	7800	8890	9550	11230	13610	**20000**

Table shows typical resolution vs. fps, Resolution is freely adjustable within limitations of camera/sensor

Recording time (modulated)

Memory Size	1.3 GB	2.6 GB	5.2 GB	10.4 GB
1920 x1080 @1000 fps	1 sec	2 sec	4 sec	8 sec

Optical/Sensor specifications

Image Sensor	CMOS Sensor
Pixel Size	6.3 micron
Light Sensitivity	ISO 2100 (monochrome), ISO 1400 (color)
Dynamic Range	8 Bit
HDR Mode	High Dynamic Range Mode (HDR) up to 10 Bit, user adjustable by slider in control software
Pixel Correction	Built-in pixel correction and in-camera processing for highest image accuracy
Shutter Type	Global, independent of frame rate
Exposure Time	Free adjustable from 2 µsec to 1 / framing rate by software
Lens Mount	C-Mount or optional F-Mount

Camera and control features

Image Memory	Standard: 1.3 GB, optional 2.6 / 5.2 / 10.4 GB
Nonvolatile Memory	Optional CFast flash card interface and micro SD disk slot. Camera can save image data on flash disk w/o PC attached, ideal when using WiFi for piloting camera
Power	10–36 VDC / 17–20 Watts depending on options and extensions
I/O Tolerance	TTL level, all I/O are 0–24 V tolerant
LED Control	LEDs on back and front indicates camera status
Reset	Reset function to reset camera status w/o affecting image memory
Power On/Off	Switch on/off, Remote Switch on
Battery 180° Version	Re-chargeable NiMH battery inside for up to 30 min autonomous operation of camera, depending on options installed
Trigger Delay	Programmable up to 65 sec
Trigger Windowing/ De-bouncing	User programmable trigger window to eliminate false triggering by external devices
Trigger Modes, Positions	Pre-post recording, freely adjustable in steps of 1% of total camera memory
Timing	High precision time base, temperature compensated
Multi-Buffer	Split buffer for up to 32 individual sub-buffers
Auto-Download	Auto download to PC for 24/7 recording or automatic download to optional flash card until flash card full
Pre-Program of Camera	C-VIT may be pre-programmed with a specific set of commands. Ideal when camera can no longer be accessed before test and switch on is possible only by remote switch on
OSD	Information on camera, recording features, time stamp, and event marker may be added in image data. Position of OSD is set by user

Imaging studio features

Imaging Studio	Software suite to parameterize and control camera, handle data download and conversion of native files into most common single images and movie formats. Runs on Win 7/10, 32/64 Bit
Parameterization	Set all camera parameters for recording by convenient and easy-to-use software interface supports graphical setting of resolution
Display	Display multiple cameras simultaneously
Editing	Play back, edit and save sequences after recording with few clicks
OSD (on screen display)	OSD with camera parameters
Overlay	Overlay of recorded image with user adjustable opacity
Point & click	Easy point and click measurement and manual tracking features
Export	Export of AOS native file format to avi, mpeg, mpeg4, bmp, tif, png, jpg
Image Processing	Manual or automatic color correction and white balance functionality
Batch Converter	Convert native files to movie files using off-line batch conversion

Data interface

Data Interface	Gigabit Ethernet (10/100/1000) with lockable RJ45 connector Optional: Ethernet on 8 pin LEMO connector
WiFi	Optional: Wireless interface to setup and pilot camera 2,4 Ghz / 5 Ghz, 802.11a/g/n
I/O Interface	Solid 14 pin LEMO connector
Synchronization	Sync in / Sync out for phase-locked master-slave operation with other cameras or synchronization to external frequency
Armed Out	Armed out indicates camera is in recording mode and ready to receive trigger
Trigger In	Trigger input, rising, falling edge, TTL, switch closing/opening
Triggered Out	Indicates camera is triggered
Set_To_Rec	Used to set the camera from idle mode into recording
Remote Switch On	Switch on camera by simple 2 wire connection over a distance of up to 100 m (300 feet)
Event Marker	Event marker to record/mark events during image data acquisition
Strobe	Strobe out to synchronize external equipment to camera. Pulse width represents shutter time
HDMI	HDMI interface for live view on camera

Physical specifications

Size & Weight	width: 67 mm / height: 71 mm / length: 84 mm / 750 gr width: 2.63" / height: 2.79" / length: 3.30" / 1.5 lb
Operating Temperature	-10 … + 45 °C / +14 … +113 °F
Storage Temperature	-40 … +70 °C / -40 … +158 °F
Shock Resistance	150 G / 10 msec all axis, spikes up to 200 G
I/O Connector	LEMO type ref. FGG.2B.314.CLAD72Z (cable type)
CE	In compliance with relevant standards
Mounting	¼" UNC thread, bottom / M6 mounting threads on 4 sides

Optional extensions (change of camera size)

IRIG-B	IRIG-B 122 input	size unchanged
Non-volatile storage devices	CFast flash card interface Micro SD card slot	width / height / length: 67 mm / 71 mm / 100 mm 2.63" / 2.79" / 3.93"
WiFi Interface	Wireless interface to setup and piloting of camera	width / height / length: 67 mm / 71 mm / 100 mm 2.63" / 2.79" / 3.93"
HDMI	HDMI interface on camera	width / height / length: 67 mm / 71 mm / 100 mm 2.63" / 2.79" / 3.93"
Extended Temperature Range	Inquire	Size unchanged regardless of extensions Installed

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