The Chronos 1.4 High-Speed Camera is the ideal choice for research and development, engineering, and manufacturing work that requires relatively high frame rates for review and analysis. Compared to the Chronos 2.1-HD, our 1.4 model has the capacity for high frame rates at lower resolutions and is the best choice for lower budgets. Video is saved in compressed H.264 (MPEG-4) or uncompressed RAW format to removable media. You can save hundreds of shots on a single SD card.

Main Features

1.4Gpx/s, 1.3-megapixel image sensor captures 1280x1024 @ 1069 Frames Per Second (FPS), and up to 40413FPS at lower resolution. Available in color and monochrome. The monochrome option has higher effective resolution and is twice as sensitive as the color option.

8GB, 16GB, and 32GB high-speed RAM buffer options for 4, 8, and 16 second record time respectively.

High sensitivity of ISO 320-5120 (Color) and 740-11840 (Monochrome) enables shooting with modest lighting.

Completely standalone, untethered operation. Field-swappable internal battery lasts for upto 1.5 hours of recording. Runs indefinitely on AC adapter or external power source.

Continuous record mode records normal rate video (60FPS) continuously to storage devices while simultaneously recording bursts of high-speed video.

I/O ports enable synchronization and remote triggering through electrical signals, audio, and web interface. An open source, REST-based Application Programming Interface (API) is also included for integrations into custom software or control environments.

Focus peaking highlights sharp edges for quick and perfect focus. Zebra lines help you set correct exposure.

Resolutions and Framerates

Resolution is adjustable in 16x2 increments. Some example combinations of resolution and frame rate are shown below:

Resolution	Max FPS	Record Time (sec)		
		(8GB)	(16GB)	(32GB)
1280 x 1024	1 069	4.08	8.16	16.33
1280 x 720	1 519	4.08	8.17	16.34
1280 x 512	2 134	4.09	8.18	16.36
1280 x 360	3 030	4.09	8.18	16.37
1280 x 240	4 532	4.11	8.22	16.44
1280 x 120	8 986	4.12	8.25	16.51
1280 x 96	11 184	4.16	8.33	16.66
1024 x 768	1 770	4.11	8.22	16.44
1024 x 576	2 357	4.11	8.23	16.46
800 x 600	2 871	4.15	8.30	16.60
800 x 480	3 585	4.14	8.29	16.58
640 x 480	4 434	4.20	8.40	16.80
640 x 360	5 899	4.20	8.40	16.80
640 x 240	8 810	4.21	8.42	16.84
640 x 120	17 391	4.22	8.45	16.91
640 x 96	21 598	4.31	8.62	17.25
336 x 240	15 968	4.37	8.75	17.50
336 x 120	31 294	4.46	8.93	17.86
336 x 96	38 726	4.51	9.02	18.04
320 x 240	16 682	4.44	8.81	17.63
320 x 120	32 667	4.42	8.85	17.70
320 x 96	40 413	4.42	8.85	17.70

Full Specifications

Camera		
	Imaging	1280x1024 1069FPS, see resolution table for details
	Memory	8GB, 16GB, or 32GB
	Record time	4 seconds (8GB), 8 seconds (16GB), 16 seconds (32GB)
	Lens mount	CS/C mount
	Backfocus	Field adjustable
	IR Filter	650nm, user removable, 24 x 16 x 1.1mm
	Display	5" 800x480 capacitive touchscreen, 1000 nit daylight visible
	Enclosure	Anodized CNC machined aluminum
	Cooling	Active cooling, variable-speed fan (fan-off option supported)
	Dimensions	155mm x 96mm x 67.3mm (6.11" x 3.78" x 2.65") without lens
	Weight	1.06 kg (2.34 lbs) without lens

Video Formats		
	H.264	Industry-standard mp4 (MPEG-4) files at bitrates up to 60Mbps
	CinemaDNG Raw	Standard Adobe CinemaDNG raw files
	TIFF	Standard TIFF raw files with timestamps
	Storage Devices	SD, USB, SSD, or SMB/NFS network drives

Image Sensor		
	Resolution	1280x1024p @ 1069FPS
	Speed	1.4Gpx/s – Full throughput down to 320-pixel image width
	Dimensions	8.45 x 6.76mm (2/3" format, 1.3-Megapixel, 3.9x Crop Factor)
	Pixel Pitch	6.6um
	Sensitivity (ISO)	Color - ISO 320 to 5120
		Mono - ISO 740 to 11840
	Shutter	Electronic global shutter, 1/fps to 1us (1/1 000 000 s)
	Dynamic Range	56.7 dB
	Bit Depth	12-bit

Battery		
	Type	EN-EL4a
	Maximum Run Time	1.5 hours recording
	Charge Time	2 hours (0-80%) with in-camera charger

| IO		
	Power Input	17-20V 40W (5.5/2.5mm barrel jack, positive tip)
	Network	Gigabit Ethernet
	Trigger	Two trigger inputs/frame strobe outputs (BNC and Aux)
		Adjustable input threshold 0 to 6.6V
		Electrically isolated trigger input (Aux connector)

IO (Continued)	*Trigger (Continued)*	Trigger with sound, laser, and lighting using accessories
	Audio	Microphone/Line input using continuous live mode @ 60FPS
	Video	HDMI output 720p or 1080p (default) @ 60FPS, video only
	USB	USB type A (host) and micro-B (device)
	SATA	eSATA 3Gbps to SATA 2.5" lll SSD (5V power)
Trigger Modes	*End Trigger*	Camera records until a defined delay after trigger
	Toggle	Camera starts recording with one button press, and stops recording with a subsequent button press
	Exposure Trigger	External signal sets the frame rate for synchronization
	Shutter Gating	External signal sets the frame rate and controls the exposure for synchronization
	Frame Sync Output	The camera outputs a signal indicating its frame rate and exposure
Trigger Ports	*BNC*	Female BNC connector
	Phoenix	Pluggable black phoenix terminal block (8-pin)
	Network Control	Through web page or REST API based interface with USB or CAT ethernet cable
Recording Modes	*Normal*	Records into the ring buffer. Once a trigger occurs, video can be reviewed and saved.
	Segmented	Video memory is divided into segments, each recording as in the Normal mode above. Number of segments is user selectable.
	Gated Burst	Frames are captured while trigger is active
	Live Slow Motion	Continuously records a short slow-motion video and immediately plays it back then repeats.
Normal Speed Recording	*Continuous*	Video is saved continuously at up to 60FPS to mp4 (MPEG-4) files on removable storage. Operates like a normal video camera.
Assistive	*Focus Aid*	Highlights sharp edges to aid focusing
	Zebras	Rolling diagonal lines indicate clipped (overexposed) areas
	Viewfinder Zoom	Zooms in to allow easier focusing
	Overlay	Displays frame and time information on top of footage
Environmental	*Operating Temperature*	-20 °C to +40 °C (-4 °F to +104 °F)

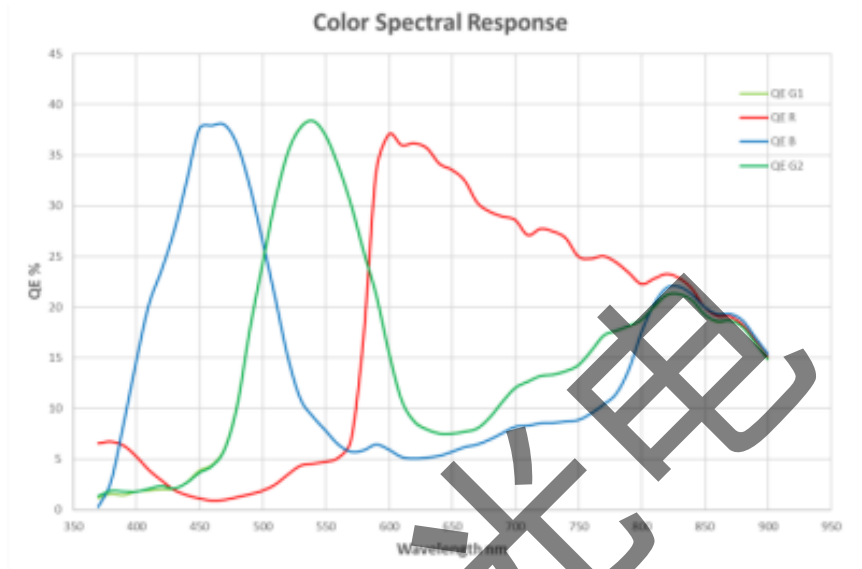Specifications are subject to change without notice.

Mechanical Drawing – Dimensions and Mounting Holes

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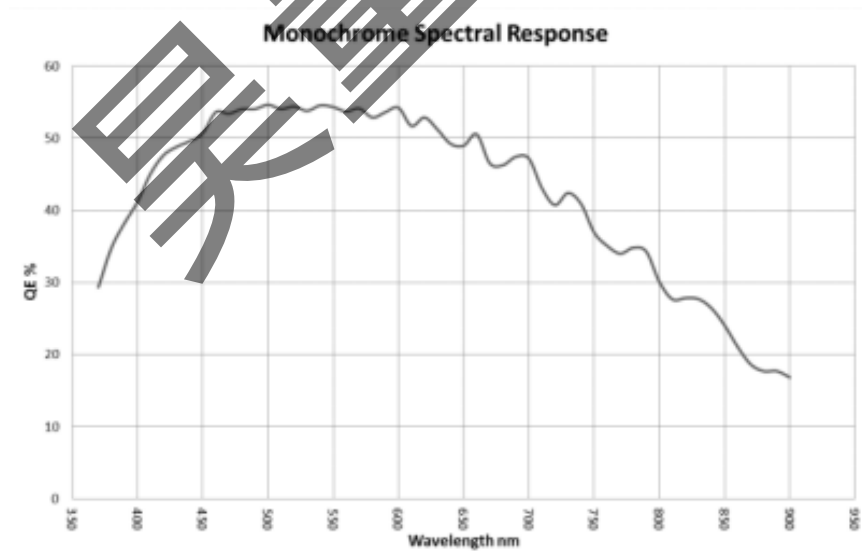Tel (021) 5108 3793   E-mail info@auniontech.com   Website: www.auniontech.com
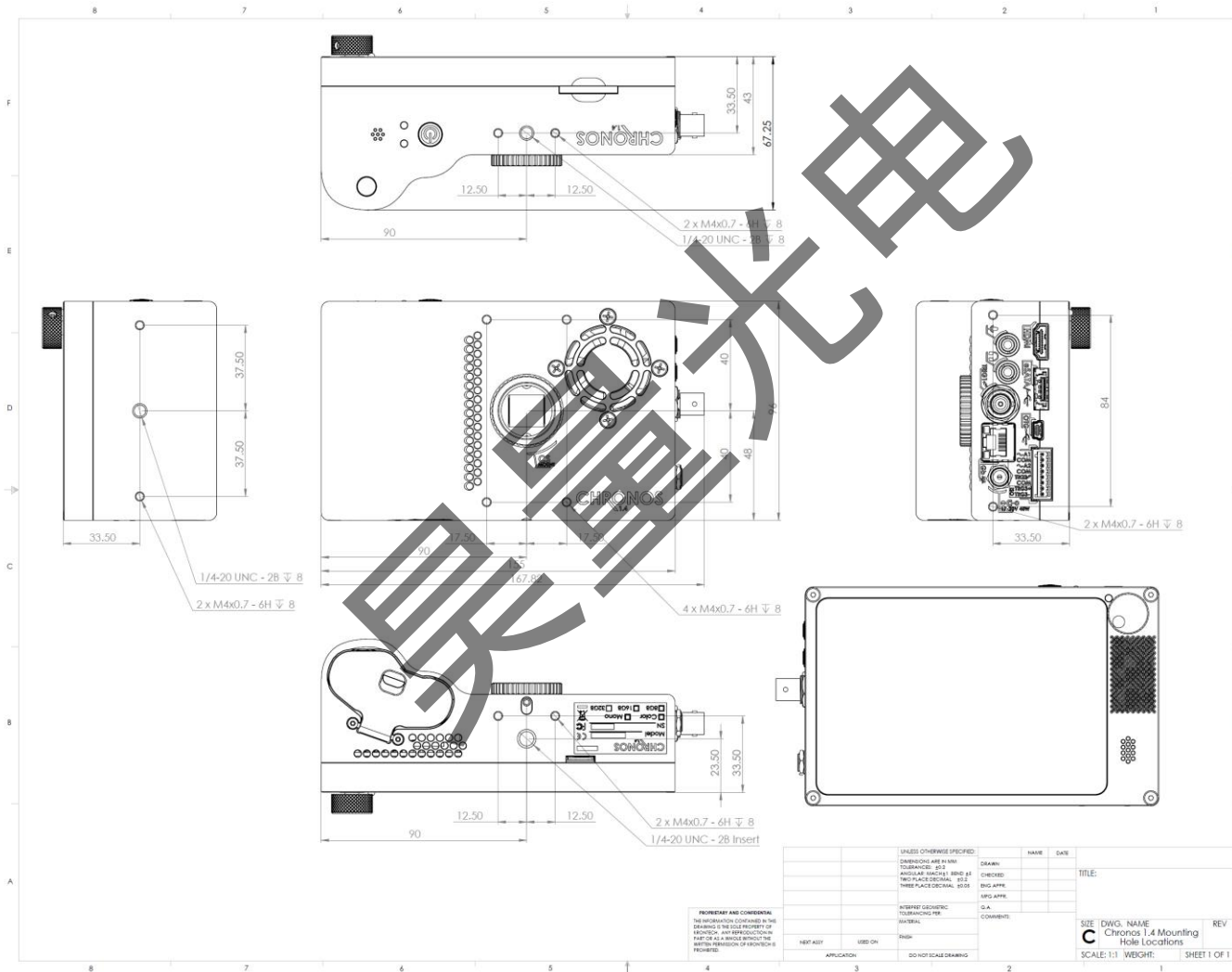
Spectral Response

Chronos 1.4 - Color Option Spectral Response

Chronos 1.4 - Monochrome Option Spectral Response

NOTE: The spectral response curves are measured without IR filters in units of quantum efficiency