

# CHRONOS 4K12 HIGH-SPEED CAMERA

Slow-motion video serves to captivate audiences, analyze issues, gather new data, and enhance creative visualizations. The Chronos 4K12 high-speed camera revolutionizes slow-motion video capture while maintaining a compact body and a built-in touchscreen.

Its user-friendly design and portability make it an ideal choice for a wide range of use cases, from research and development to professional cinematography and media creation. Delivering 1,397 frames per second in 4K, the Chronos 4K12 establishes itself as the world's fastest 4K camera.

AVAILABLE IN COLOR AND MONOCHROME



## MAIN FEATURES

### ULTRA HIGH-RESOLUTION

Up to 1,397 FPS @ 4096 x 2160 **4K**

### FLEXIBLE WINDOWING

Adjustable up to 29,002 FPS @ 128 x 32

**STANDALONE OPERATION** A built-in 5" touchscreen and 1 TB solid-state drive allow for easy recording and review. Additional external battery required for field work (not included).



**RAW OR COMPRESSED** Save files as CinemaDNG (Raw) or MPEG-4 (Compressed) formats

### INTERCHANGEABLE LENS MOUNTS

C, E, EF, F, and MFT lens mount plates available

**REMOTE CONTROL APP & API** iOS and Android Apps for remote control and REST API for automation. Network connection via USB-C to Ethernet or WiFi adapter (not included). Coming January 7, 2025

## APPLICATIONS

- Academic Research
- Media Production
- Industrial / Manufacturing
- Sports / Biomechanics
- Engineering / R&D
- Wildlife

## RESOLUTION & FRAME RATES

CAPTURE RESOLUTION	8-BIT 16.7 Million Colors	10-BIT 1.07 Billion Colors	12-BIT 68.7 Billion Colors
4096 x 2160 <b>4K</b>	1,397 FPS	1,006 FPS	481 FPS
3840 x 2160	1,491 FPS	1,006 FPS	481 FPS
2048 x 2016	2,065 FPS	1,082 FPS	518 FPS
1920 x 1080 <b>HD</b>	3,651 FPS	1,947 FPS	942 FPS
1280 x 1024	3,856 FPS	2,060 FPS	998 FPS
1280 x 720	5,153 FPS	2,793 FPS	1,366 FPS
768 x 576	6,337 FPS	3,479 FPS	1,717 FPS
512 x 480	7,351 FPS	4,082 FPS	2,030 FPS
384 x 256	11,729 FPS	6,847 FPS	3,533 FPS
1280 x 96	20,413 FPS	13,268 FPS	7,495 FPS
320 x 96	20,413 FPS	13,268 FPS	7,495 FPS
128 x 32	29,002 FPS	21,231 FPS	13,590 FPS

## CAMERA OVERVIEW

CAMERA	
Model	Color or Monochrome
Imaging	4096 x 2160 @ 1,397 FPS
Memory	128GB
Record Time	11 seconds (128GB) at max resolution
Lens Mount	C, E, F, EF, MFT Plates Available
Backfocus	Field adjustable via included shim kit
IR Filter	650nm, user removable
Display	5" 800x480 touchscreen, 1000 nit daylight visible
Enclosure	Anodized CNC machined aluminum
Cooling	Active cooling, variable-speed fans
Dimensions	188mm x 111mm x 53mm (7.40" x 4.37" x 2.08") w/o lens
Weight	1.32 kg (2.91 lbs) without lens

# CAMERA SPECIFICATIONS - CHRONOS 4K12 HIGH-SPEED CAMERA

## INPUTS/OUTPUTS

Power Input	12-24V 60W (5.5/2.5mm barrel jack, positive tip)
Network	Gigabit Ethernet via USB-C Adapter WiFi via USB-C Adapter
Trigger <small>Coming October 1, 2024</small>	3 trigger inputs / frame strobe outputs (4-pin 3.5mm TRRS Connector) Adjustable input threshold 0 to 6.6V. Included TRRS to BNC splitter cable accessory.
Video Out (Live)	HDMI Live Display Out 4K @ 30 FPS or HD @ 60 FPS
Video Out (Playback) <small>Coming January 7, 2025</small>	HDMI Playback Out 4K @ 30 FPS or HD @ 60 FPS
USB	USB-C Port 1: 3.2 Gen 1, 5 Gbps (Mac/Linux or Periph.) USB-C Port 2: 3.2 Gen 2x2, 20 Gbps (Peripheral, SSDs)

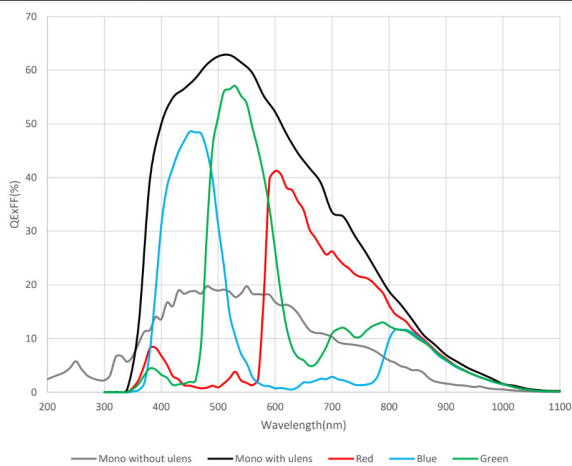
## VIDEO FORMATS

Compressed	Standardized H.264 AVC, or H.265 HEVC MPEG-4 Video Files
RAW	Standard Adobe CinemaDNG raw files
TIFF <small>Coming October 1, 2024</small>	Standard TIFF files with timestamps
Storage Devices	Internal 1 TB NVMe SSD, SD Card, USB-C SSD, or SMB/NFS network drives

## IMAGE SENSOR

Resolution	4096 x 2160 @ 1,397 FPS Maximum 128x32 @ 29,002 FPS Minimum
Speed	12.4 Gigapixels per second
Dimensions	20.74mm x 9.79mm 4/3" format, 10-Megapixel, 2x Crop Factor
Pixel Pitch	4.5um
Sensitivity (ISO)	Color - ISO 100 to 400 Mono - ISO 200 to 800
Shutter	Electronic global shutter, 1/fps to 1us (1/1,000,000 s)
Dynamic Range	11.3 stops (68 dB) in 12-bit mode
Bit Depth	8-bit, 10-bit, or 12-bit User Selectable

## IMAGE SENSOR - QUANTUM EFFICIENCY



**Legend**

- Green: Available in software version 1.5.2
- Yellow: Coming soon as free user-installable software update on October 1, 2024
- Orange: Coming soon as free user-installable software update on January 7, 2025

## TRIGGER MODES

End Trigger <small>Coming October 1, 2024</small>	Records until a defined delay after trigger
Toggle	Starts and stops with button press
Exposure Trigger <small>Coming January 7, 2025</small>	External signal sets synchronization frame-rate
Shutter Gating <small>Coming January 7, 2025</small>	External signal sets the exposure synchronization and frame-rate
Frame Sync Output <small>Coming October 1, 2024</small>	Outputs a signal indicating its frame rate and exposure

## SOFTWARE

Control <small>Coming January 7, 2025</small>	Desktop, iOS, and Android Apps. Connect via optional Ethernet or WiFi adapters.
Stream <small>Coming January 7, 2025</small>	Live or Playback Mode network streaming via RTSP stream.
APIs <small>Coming January 7, 2025</small>	HTTP REST Interface

## NETWORK CONTROL

Network Control <small>Coming January 7, 2025</small>	Through control apps or REST API via optional Ethernet or WiFi adapters.
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## RECORDING MODES

Normal	Records into the ring buffer. Once a trigger occurs, video can be reviewed and saved.
Segmented <small>Coming January 7, 2025</small>	Video memory is divided into segments, each recording as in the Normal mode above. Number of segments is user selectable.
Gated Burst <small>Coming January 7, 2025</small>	Frames are captured while trigger is active

## ASSISTIVE

Focus Aid	Highlights sharp edges to aid focusing
Zebras	Rolling diagonal lines indicate clipped (overexposed) areas
Histogram	Graphically represent brightness and distribution of light in the image
Overlay <small>Coming October 1, 2024</small>	Displays frame and time information on top of footage

## ENVIRONMENTAL

Operating Temperature	0 °C to +40 °C (32 °F to +104 °F)
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## REGULATORY COMPLIANCE

USA	FCC - 47 CFR Part 15
Canada	ISED ICES-Gen Iss.1 & ICES-003 Iss.7
EU / UK / AUS / NZ	CE EN IEC 61000-6-3:-2021, 61000-6-2:2019
Korea	KS C 9610-6-3:2017, 9610-6-2:2019
Japan	VCCI-CISPR32:2016

## SERVICE & SUPPORT

Standard 1 year warranty. Optional 1 and 2 year extensions available. Chronos high-speed cameras benefit from free software updates, which offer continuous additions and improvements to in-camera features. Support, tutorials, and software updates are available online at [support.krontech.ca](http://support.krontech.ca)