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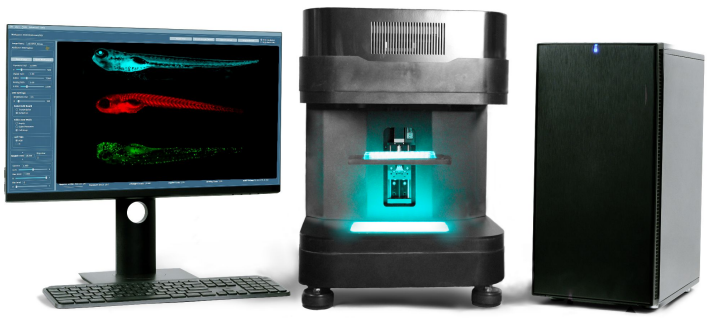
MCAM ™ Kestrel *A-K0950* Screening

Ramona's **Multi-Camera Array Microscope™ (MCAM)** uses an array of micro-cameras to capture an entire well plate at cellular resolution in seconds.

As Ramona's fluorescence compatible higher-resolution system, the **Kestrel Screening System** is designed for high-content screening. It provides capabilities for parallelized functional fluorescence and bright-field imaging of specimens like zebrafish embryos, zebrafish larvae and organoid cultures. From fine-morphology and cardiac assessment, to fluorescence quantification and time lapse imaging, acquire multiple readouts throughout development in one integrated system.



Development Partners

High Content Imaging

Inspired by the tools scientists use everyday, the **Kestrel Screening System** is ideal for assessments in standard SBS 96-well plates.

Multiplex to Reduce Bias

Use multiple cameras to assess time-sensitive developmental readouts without time bias. Rapidly screen specimens for health. Save time in the lab with 24X workflow speed-up.

Cells in Motion

Rapidly measure blood flow, immune cell movement, and cardiac parameters simultaneously across 96 samples at different developmental time-points

Custom Workflows

Already have an assay? Integrate it easily in our intuitive software and build upon your lab expertise and our technology.

MCAM ™ Model A

Kestrel

0950

Screening

Multi-Camera Array Microscope ™

Optical Characteristics

Sensor Characteristics

Data

Mechanical, Power, & Thermal

Illumination

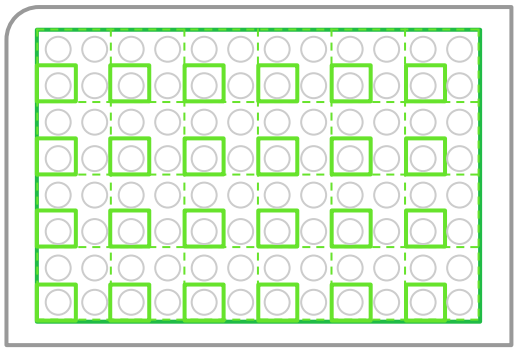
Operating Standards

Operation

Software & Firmware

Field Of View	74mm x 110mm
Live View | Stitched View	Segmented | 2x2 Scan
Resolution	3.0µm/ pixel
Numerical Aperture	0.053
Working Distance	90mm
Depth of Field	0.50mm
Micro-Camera Array Size	6 x 4 = 24 micro-cameras
Micro-Camera Array Spacing	18mm
Micro-Camera Field of View	9.5mm x 9.5mm
Image Sensors	CMOS - RGB Color | Monochrome
Array Pixel Count	314 Megapixel
Pixel Size	1.1µm
Bit Depth	8
Dark Current (Typ.)	5.9 LSB/s
SNR (Typ.)	35 dB
Dynamic Range (Typ.)	70.3 dB
Monochrome Peak QE	92% at 460nm
RGB Color Peak QE	85% at 520nm
Digital Gain	7.75
Analog Gain	2
Minimum Exposure	1.5 microseconds
Maximum Exposure	9 seconds
Max. Frame Rate (full array)	22fps
Max. Frame Rate (partial array)	22fps (no binning)
Maximum Data Rate	45 Gb/sec | 19 Gb/sec
Data Transfer Interface	PCIe 3.0 (x16) | (x4)
Native File Format	.nc (HDF5)
Exported Image File Format	.tiff, .bmp
Exported Video File Format	.mp4
Export Options	By Well ID
Metadata	.json
Metadata Options	By Plate Barcode
Local Storage	4 TB
Network-Attached Storage	Available Upon Request
Microscope Orientation	Upright | Inverted
Access	Open | Enclosed
Vibration Dampening	Integrated
Dimensions (Typ.)	350mm x 350mm x 450mm
Weight (Typ.)	22kg
Stages - Motorized Linear Motion	<3µm Repeatability
	<50µm Unidirectional Accuracy
Stage Inserts	160mm x 110mm Universal Mount
Accepted Formats of Data by Well ID	96 Multi-Well Plate
Nominal Power Consumption	400W
Maximum Power Consumption	850W
Power	120V @ 60Hz | 240V @ 55Hz
Thermal Monitoring	K-Type Thermo. +/- 1.5C Accuracy | Reporting Integrated in Metadata
Active Thermal Control	Available Upon Request - Ramona + Tokai Hit Stage Top Module
Transmission	LED Structured Illumination Panel
Control	Individually Addressable (+1400 LEDs)
Spectra	470 (B) + 518 (G) + 620 (R) + 840 (IR)
Reflection	LED Diffuse Illumination Rails
Control	Group Digital Addressable
Spectra	VIS | IR | UV
Fluorescence	LED High-Power Uniform Excitation
Channels	GFP/ RFP/ BFP
Ubuntu Linux	Version 22.04
Python	Version 3.9
Acquisition Modes	Snapshot, Z-Stack, Timelapse, Video
Observation Modes	Brightfield, Darkfield, Fluorescence
Focus	Global Linear Z-Positioning
GUI	Simple and Intuitive Application
API	Python-Based
Output Trigger	SMA Type @ 5V Signal
Image Capture Firmware	Custom Gigapixel Frame Grabber
Cross-Sensor Synchronization	<6 microseconds
2D Image Mosaicing	Live
Gigapixel Image Stitching	Composite Array Frame Output (.tiff)
Mosaic-Based 2D	Included
Neural Network-Based 2D	Available
High-Speed Video	Available
Bin2	40fps
Bin4	120fps
Control software	For MCAM Computer
Viewing Software	For Windows and Linux
Open API	docs.ramonaoptics.com

System Field-of-View Over 96 Multi-Well Plate



= Well

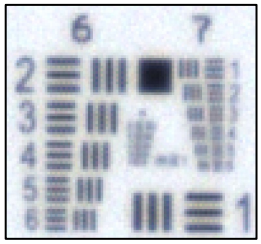
= Micro-Cam FOV

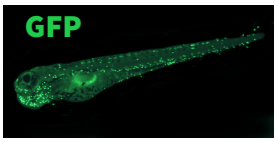
= Micro-Cam Scan Area

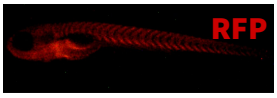
= System FOV

= Well Plate Perimeter

Resolution (3.0 µm/pixel) and Fluorescence

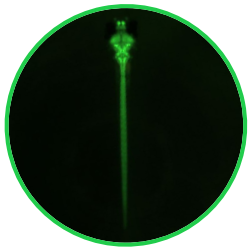






Example zooms (Bright Field/Fluorescence)

X 24 per snapshot



X 24 per snapshot

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See What You're Missing.

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