

**NEW**

Ultra-High Sensitivity, Wide-Field Imaging System

# MiCAM03-C35IR

**Large 35mm Full-Size,  
Ultra-High Sensitive CMOS sensor**

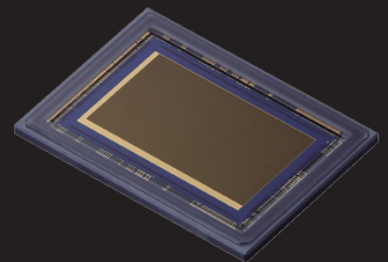


**High-Sensitivity Imaging with  
Fluorescence/Luminescence Probes**

**Wide-Field Imaging of  
Entire Multi-Well Plates**

MiCAM03-C35IR is an imaging system equipped with a large 35mm full-size CMOS sensor, which has a spatial resolution of 2,160x1,280 pixels.

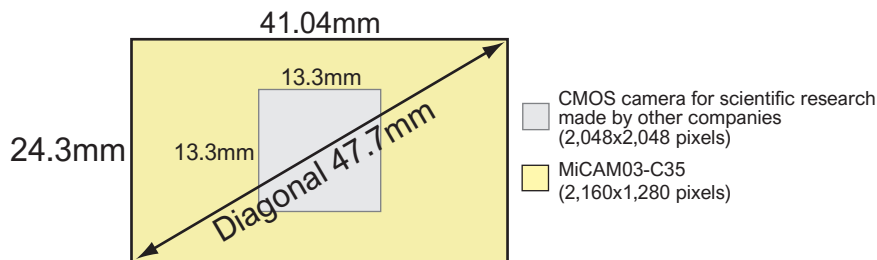
MiCAM03-C35IR uses an ultra-high sensitive CMOS sensor which has large pixels, uses low noise technology, and has > 80% quantum efficiency. This makes it possible to image dim fluorescent samples at wide fields of view, which was previously difficult to detect with sufficient S/N ratios.



# Very Large Image Sensor

Wide Field of View and Brighter Imaging is Possible

Sensor size: 41.0mm x 24.3mm (Diagonal 47.7mm)



When imaging a wide field of view, it is necessary to use a low-magnification lens. In general, however, low magnification lenses also have low numerical apertures, and images appear dim.

C35IR camera head has a large sensor, and users can image large field of views even when using higher magnification lenses, in comparison to cameras having smaller sensors. As a result, brighter imaging is possible with C35IR at wide fields of view.

In combination with Brainvision's fluorescence microscope, it is possible to assemble a wide-field / high resolution / high S/N ratio fluorescence imaging system

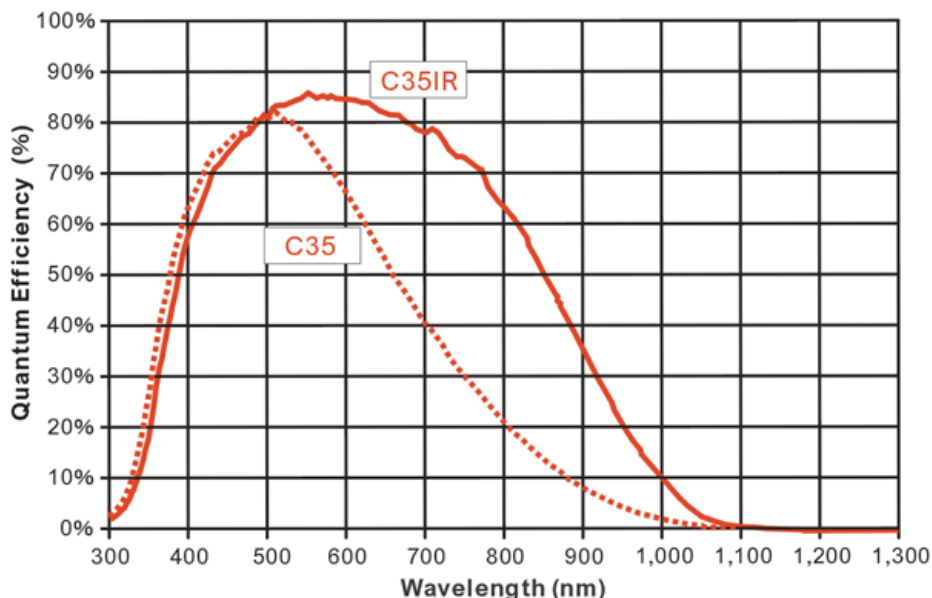


Magnification	Field of View (H x V)
0.63x	65.1mm x 38.6mm
1.0x	41.0mm x 24.3mm
1.6x	25.6mm x 15.2mm

# High Sensitivity

Large Pixel Size, High Quantum Efficiency, Low Noise

Pixel size of 19umx19um / Quantum efficiency of 80% or higher



# High Spatial Resolution and High Frame Rate

## 52.6fps at 2,160x1,280 pixels

Frame rate, spatial resolution and active area size

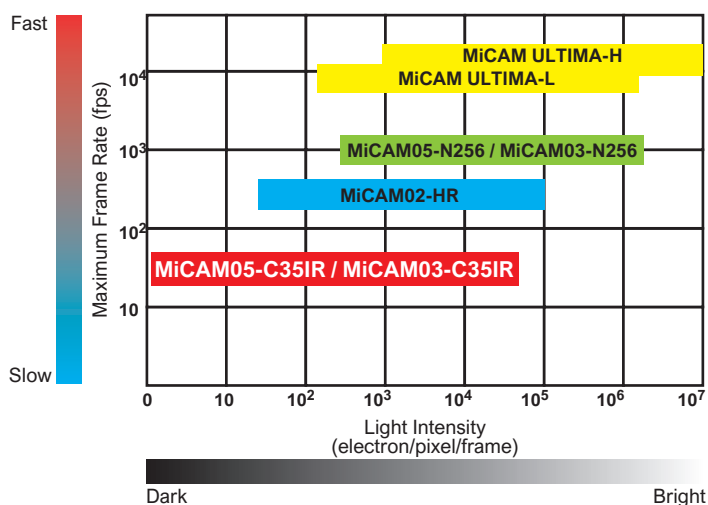
Imaging Mode	Number of pixels (H x V)	Active area size (mm) (H x V)	Maximum frame rate (fps)	Minimum Exposure time (ms)
High Resolution Imaging	2,160 x 1,280	41.0 x 24.3	52.6	19.0
	2,108 x 1,080	40.1 x 20.5	61.7	16.2
High Speed Imaging (Partial readout)	1,276 x 1,280	24.2 x 24.3	89.3	11.2
	1,212 x 1,080	23.0 x 20.5	107.5	9.3
	1,212 x 720	23.0 x 13.7	153.8	6.5
	1,212 x 360	23.0 x 6.8	277.8	3.6
2x2 Binning	1,080 x 640	41.0 x 24.3	90.9	11.0

## For Imaging Low Light Levels

MiCAM series cameras have always been used for capturing light intensity changes at high speeds from bright fluorescence samples, but it has been difficult to capture sufficient S/N ratios from dark fluorescent samples.

MiCAM05-C35IR makes it possible to image low light levels from dark fluorescent samples, which was previously difficult to detect with sufficient S/N ratios.

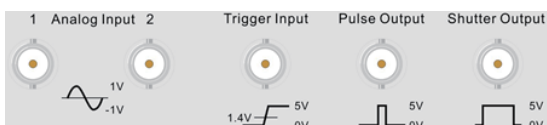
MiCAM series camera comparison showing light intensity levels and maximum frame rates



## Various I/O Connectors

MiCAM03 processor has multiple input and output connections available.

These universally standard I/O connections can be synchronized with image acquisition and external devices.



## Turnkey System Ready for Immediate Use

The system consists of hardware/software specifically designed for fluorescence imaging, and the PC and monitor are included as standard equipment.

Before use, calibration/setting/tuning is not necessary.

# Data Analysis Software

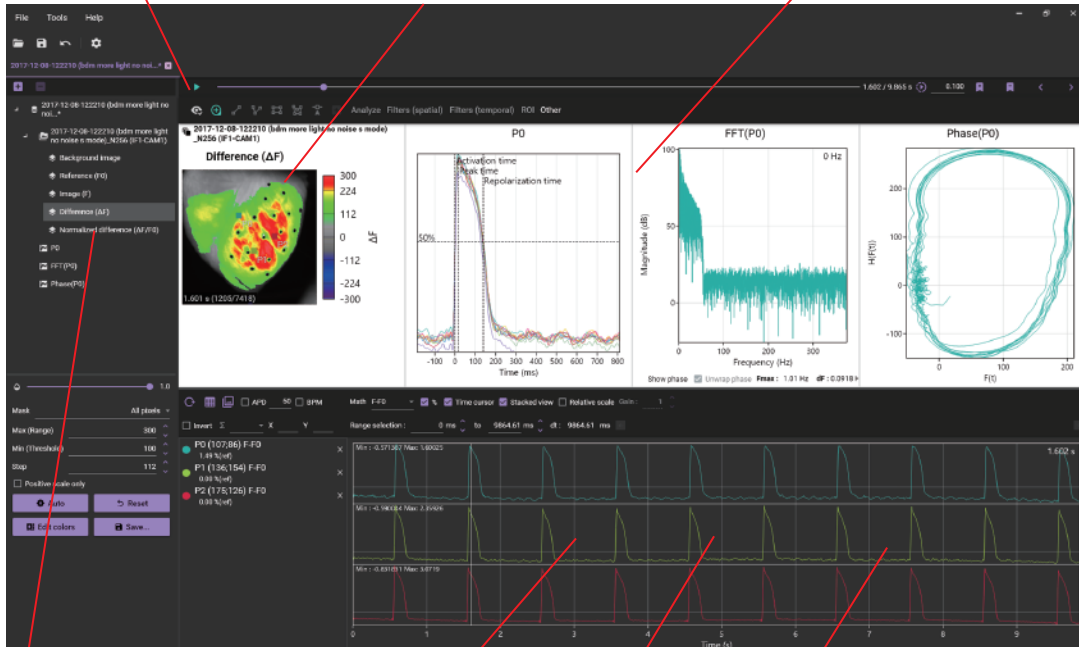
## Movie display

- Playback / stop
- Adjustment for playback speed
- Frame forward / frame back

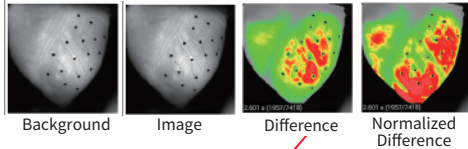
## Image display

- Enlarging / reducing image
- Selecting / moving points
- Display of numerical data, XY coordinates, frame number
- Change color map

## Display of analysis results



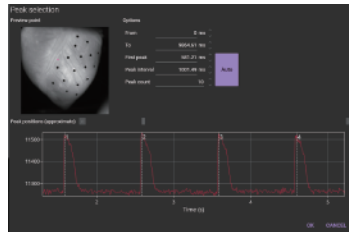
## Image management by layer



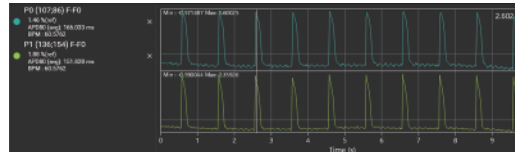
## Wave display

- Click image to display waveform at that point
- Waveform display by specifying coordinates
- Simultaneous display of analog waveforms such as ECG
- Inversion of waveform polarity
- Change of waveform value display method (F, F-F0, dF/dt)

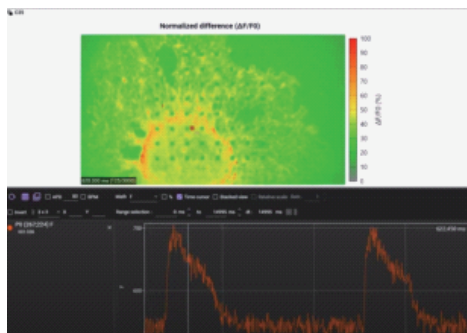
## Automatic peak detection



## Automatic detection of spikes



# Sample Data



## Cultured cardiomyocyte sheet stained with calcium ion indicator.

- Imaging system: MiCAM05-C35IR
- Spatial resolution: 636 x 360 pixels
  - Frame rate: 200 frames/second
  - Camera gain: 16x

We thank Dr. Hiroko Izumi-Nakaseko with Department of Pharmacology, Faculty of Medicine, Toho University, Tokyo, Japan for data.

## ■ Specifications

System		
Name	Ultra-High Sensitivity, Wide-Field Imaging System MiCAM03-C35	Ultra-High Sensitivity, Wide-Field Imaging System MiCAM03-C35IR
Model	MC03-C35	MC03-C35IR
Standard System Configuration	Camera Head, Processor, Cables, PC, Monitor, Acquisition/Analysis Software	
Supported OS	Windows 10 64bit	
Camera Head		
Name	C35 camera	C35IR camera
Model	MC-C35CAM	MC-C35IRCAM
Image Sensor	CMOS	
Active Area Size (H x V)	41.04 mm x 24.32 mm	
Pixel Format (H x V)	2,160 x 1,280 pixels (2.76M pixels)	
Unit Pixel Size (H x V)	19μm x 19μm	
Shutter	Rolling shutter	
Dark Noise	2.2 e- @gain x16	3.4 e- @gain x16
Full-Well Capacity	61,000 e-	70,000 e-
Lens Mount	EF-Mount, C-Mount, Others	
Interface	Special Cable	
Dimension (WxHxD)	103mm x 103mm x 76.5mm	
Weight	920g	
Processor		
Name	MiCAM03 processor	
Model	MC03-PRC	
Camera Interface	1	
Camera Port	1 (1 of 2 ports is available for C35 camera)	
Buffer Memory Inside Processor	1GB	
Analog Inputs for synchronous recording	2ch	
Output for Stimulation Pulse	1ch	
Input for External Trigger Signal	1ch	
Input/Output for Frame Timing	1ch	
Digital I/O port	1 (6 pins)	
Trigger Mode	Software, TTL External Input, Analog External Input	
Data Transfer Mode	USB3.0	
Recording Mode	Temporary storage to PC RAM / Direct data saving to PC drive (SSD/HDD)	
Maximum Recordable Frame Number	Dependent on camera used and image acquisition settings	
Power Supply	AC100V-230V, 50Hz/60Hz 150W	
Fuse	T2A L 250V	
Dimension	300mm(W) x 260mm(D) x 60mm(H)	
Weight	2.6kg	

\* Specifications & appearance are subject to change without prior notice due to continuous improvements.

\* All products are for research use only. \* All products are made in Japan.

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