

## FLIR **FIREFLY<sup>®</sup> MV** USB 2.0 OR 1394A

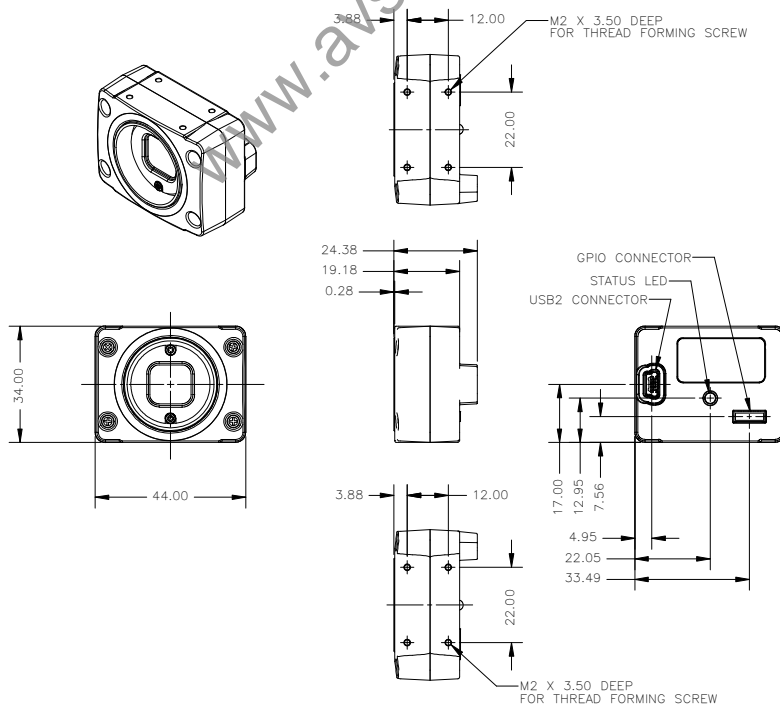


### SMALL + INEXPENSIVE + USB OR 1394

The Firefly MV line offers a total of 14 different combinations of form factor and interface that are designed to address a wide variety of applications in industrial and non-industrial imaging, such as object and gesture tracking, optical character recognition (OCR), augmented reality, and multitouch interface technology.

### KEY FEATURES

- 14 different combinations of form factor and interface
- USB 2.0 or 1394a digital interface
- Ultra compact at 44 x 34 mm



## Specifications - 1394a models

MODEL	VERSION	MP	IMAGING SENSOR
FMVU-03MTC-CS	Color	0.3 MP	<ul style="list-style-type: none"> <li>Micron MT9V022 CMOS, 1/3", 6.0 μm</li> <li>Global Shutter</li> <li>752x480 at 60 FPS</li> </ul>
FMVU-03MTM-CS	Mono		
FMVU-13S2C-CS	Color	1.3 MP	<ul style="list-style-type: none"> <li>Sony IMX035 CMOS, 1/3", 3.63 μm</li> <li>Rolling Shutter</li> <li>1328x1048 at 23 FPS</li> </ul>
<b>A/D Converter</b>	On chip 10-bit/12-bit		
<b>Image Data Output</b>	8, 16-bit digital data		
<b>Image Data Formats</b>	Y8, Y16 (mono), 8-bit and 16-bit raw Bayer data (color)		
<b>Partial Image Modes</b>	Pixel binning and region of interest (ROI) modes		
<b>Image Processing</b>	Gamma, lookup table, hue, saturation, and sharpness		
<b>Gain</b>	Automatic/Manual Gain modes 0 dB to 12 dB (FMVU-03MT)/0 dB to 24 dB (FMVU-13S2)		
<b>Gamma</b>	0 to 1 (FMVU-03MT)/0.50 to 4.00 (FMVU-13S2)		
<b>White Balance</b>	Automatic/manual modes, programmable via software		
<b>Color Processing</b>	On-camera in YUV or RGB format, or on-PC in Raw format		
<b>Digital Interface</b>	5-pin Mini-B USB2.0 for camera control, video data, and power		
<b>Transfer Rates</b>	480 Mb/s		
<b>GPIO</b>	7-pin JST GPIO connector, 4 pins for trigger and strobe, 1 pin +3.3 V, 1 VEXT pin for external power		
<b>External Trigger Modes</b>	IIDC Trigger Modes 0, and 3		
<b>Synchronization</b>	Via external trigger		
<b>Shutter</b>	Global Shutter (FMVU-03MT)/Rolling Shutter (FMVU-13S2) Automatic/Manual modes 0.12 ms to 512 ms (FMVU-03MT)/0.03 ms to 8000 ms (FMVU-13S2)		
<b>Memory Channels</b>	2 memory channels for custom camera settings		
<b>Flash Memory</b>	N/A		
<b>Dimensions</b>	24.4 x 44 x 34 mm (excluding lens holder and connectors)		
<b>Mass</b>	37 g (without optics or tripod mounting bracket)		
<b>Power Consumption</b>	4.75 to 5.25 V via GPIO or USB 2.0 interface, less than 1 W		
<b>Camera Specification</b>	IIDC v1.31		
<b>Camera Control</b>	via FlyCapture SDK, CSRs, or third party software		
<b>Camera Updates</b>	In-field firmware updates		
<b>Lens Mount</b>	CS-mount		
<b>Temperature</b>	Operating: 0° to 45°C; Storage: -30° to 60°C		
<b>Emissions Compliance</b>	CE, FCC, RoHS		
<b>Operating System</b>	Windows XP SP1		
<b>Warranty</b>	One year		

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## Specifications - USB 2.0 models

MODEL	VERSION	MP	IMAGING SENSOR
FFMV-03M2C-CS	Color	0.3 MP	<ul style="list-style-type: none"> <li>Micron MT9V022 CMOS, 1/3", 6.0 μm</li> <li>Global Shutter</li> <li>752x480 at 60 FPS</li> </ul>
FFMV-03M2M-CS	Mono		
<b>A/D Converter</b>	On chip 10-bit		
<b>Image Data Output</b>	8, 16-bit digital data		
<b>Image Data Formats</b>	Y8, Y16 (mono), 8-bit and 16-bit raw Bayer data (color)		
<b>Partial Image Modes</b>	Pixel binning and region of interest (ROI) modes		
<b>Image Processing</b>	Gamma, lookup table, hue, saturation, and sharpness		
<b>Gain</b>	Automatic/Manual Gain modes 0 dB to 12 dB		
<b>Gamma</b>	0 to 1		
<b>White Balance</b>	Automatic/manual modes, programmable via software		
<b>Color Processing</b>	On-camera in YUV or RGB format, or on-PC in Raw format		
<b>Digital Interface</b>	6-pin IEEE 1394a for camera control, video data, and power		
<b>Transfer Rates</b>	400 Mb/s		
<b>GPIO</b>	7-pin JST GPIO connector, 4 pins for trigger and strobe, 1 pin +3.3 V, 1 VEXT pin for external power		
<b>External Trigger Modes</b>	IIDC Trigger Modes 0 and 3		
<b>Synchronization</b>	Via external trigger or software trigger (on same bus only), or free-running (using standard video formats/modes operating at 30 FPS and 60 FPS only)		
<b>Shutter</b>	Global Shutter Automatic/Manual/Extended Shutter modes 0.03 ms to 512 ms (extended shutter mode)		
<b>Memory Channels</b>	3 memory channels for custom camera settings		
<b>Flash Memory</b>	N/A		
<b>Dimensions</b>	44 x 34 x 24.4 mm (excluding lens holder and connectors)		
<b>Mass</b>	37 g (without optics or tripod mounting bracket)		
<b>Power Consumption</b>	8 to 30 V, 1 W at 12 V via 1394a interface		
<b>Camera Specification</b>	IIDC v1.31		
<b>Camera Control</b>	via FlyCapture SDK, CSRs, or third party software		
<b>Camera Updates</b>	In-field firmware updates		
<b>Lens Mount</b>	CS-mount		
<b>Temperature</b>	Operating: 0° to 40°C; Storage: -30° to 60°C		
<b>Emissions Compliance</b>	CE, FCC, RoHS		
<b>Operating System</b>	Windows XP SP1		
<b>Warranty</b>	One year		