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Find the *FLIR Systems / Point Grey Research DR2-HICOL-CS-BOX* at our website: *Click HERE*

Dragonfly®2

FLEXIBLE + FULL-FEATURED

- **IEEE-1394a (FireWire) digital camera**
- **On-board color processing**
- **1/3" Sony® CCDs, BW or Color**
- **Enclosed or remote head options available***

The Dragonfly®2 is a flexible, full-featured IEEE-1394a (FireWire) camera designed for imaging product development.

Models	Lense Specification
DR2-BW/COL-XX	Sony 1/3" CCD, BW / Color, 648x488 at 60 FPS
DR2-HIBW/HICOL-XX	Sony 1/3" CCD, BW / Color, 1032x776 at 30 FPS
DR2-13S2M/C-CS	Sony 1/3" CCD, BW / Color, 1296x964 at 20 FPS
DR2-03S2M/C-EX-CS	Sony 1/3" CCD, BW / Color, 648x488 at 60 FPS
DR2-08S3M/C-EX-CS	Sony 1/3" CCD, BW / Color, 1032x766 at 30 FPS



Triggering and GPIO

The Dragonfly2 has an 8-pin GPIO connector located on the back of the camera and case. Inputs can be configured to accept an external trigger signal. Outputs can be configured to send an output signal, strobe or PWM signal and can drive most TTL devices at approximately 10mA. The Dragonfly2 has a logic level serial port with a bandwidth capacity of up to 115.2 Kbps.

Region of Interest (ROI) & Pixel Binning

The Dragonfly2 supports Format_7 custom image modes such as pixel binning and region of interest (ROI) to achieve faster frame rates and higher sensitivity. (Example below uses a DR2-BW)

Mode	Resolution	FPS	Description
0	648x488	60	Region of Interest (ROI)
1	320x240	100	2x2 pixel binning
2	640x240	60	1x2 pixel binning

Software

The FlyCapture® software development kit (SDK) is included with all Point Grey imaging products. The SDK is compatible with Microsoft Windows and includes a camera device driver, full software library with Application Programming Interface (API), demo programs and C/C++ example source code. The Dragonfly2 is also compatible with many third-party software packages from vendors such as National Instruments, Cognex, MVTec, A&B Software, Matrox, Mathworks, and Norpix.

Updatable Firmware

The field-programmable gate array (FPGA) chip controls all camera functionality, including exposure, resolution and frame rate, pixel binning, user memory channels and more. It can also be updated with new functionality in the field.

Automatic Synchronization

Multiple Dragonfly2 cameras networked on the same IEEE-1394 bus are automatically synchronized to each other. The maximum deviation between cameras is 125µs.

Color Processing

The color Dragonfly2 features on-camera color processing and auto white balance. Available outputs include YUV411, YUV422 and RGB. If a reduction in the bus bandwidth is required, users can access the raw Bayer pattern.

Auto Iris

In addition to auto-gain and auto-shutter/exposure controls, the Dragonfly2 has a DC auto-iris output. Using standard CCTV auto-iris lenses, users can physically control the amount of light that falls onto the CCD. This feature is particularly important in outdoor applications where the amount of light can vary greatly.

Gamma and Programmable LUT

The digitization of the images on the camera is achieved using a 12-bit analog to digital converter. Users can choose either an 8-bit or 16-bit output from the camera. Gamma can be applied to12-bit data when 8-bit output is used. Lookup table support (LUT) is also available for custom mapping of image values.

On-Board Memory Channels

The Dragonfly2 has the ability to save and restore camera settings and imaging parameters via on-board memory channels. This is useful for saving default power-up settings, such as gain, shutter, video format and frame rate, etc., that are different from the factory defaults.

*not available for DR2-13S2M/C-CS models

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Dragonfly®2 Specifications

MODEL	CONFIGURATION	VERSION	MP	IMAGING SENSOR
DR2-COL-CSBOX DR2-COL-CS DR2-03S2C-EX-CS	Boxed Board Level Board Level/Remote Head	Color	0.3 MP	▪ Sony ICX424 CCD, 1/3", 7.4 µm ▪ Global Shutter ▪ 648x488 at 60 FPS
DR2-BW-CSBOX DR2-BW-CS DR2-03S2M-EX-CS	Boxed Board Level Board Level/Remote Head	Mono		
DR2-HICOL-CS-BOX DR2-HICOL-CS DR2-08S2C-EX-CS	Boxed Board Level Board Level/Remote Head	Color	0.8 MP	▪ Sony ICX204 CCD, 1/3", 4.65 µm ▪ Global Shutter ▪ 1032x776 at 30 FPS
DR2-HIBW-CSBOX DR2-HIBW-CS DR2-08S2M-EX-CS	Boxed Board Level Board Level/Remote Head	Mono		
DR2-13S2C-CS	Board Level	Color	1.3 MP	▪ Sony ICX445 CCD, 1/3", 3.75 µm ▪ Global Shutter ▪ 1296x964 at 20 FPS
DR2-13S2M-CS	Board Level	Mono		

A/D Converter	12-bit
Image Data Output	8, 16 and 24-bit digital data
Image Data Formats	Y8, Y16, Mono8, Mono12, Mono16, Raw8, Raw12, Raw16 (all models); RGB, YUV411, YUV422, YUV 444 (color models)
Partial Image Modes	Pixel binning and region of interest (ROI) modes
Image Processing	Gamma, lookup table, white balance
Gain	Automatic/Manual/One-Push Gain modes 0 dB to 24 dB
Gamma	0.50 to 4.00, programmable lookup table
White Balance	Automatic/manual modes, programmable via software
Color Processing	On-camera in YUV or RGB format, or on-PC in Raw format
Digital Interface	6-pin IEEE 1394a for camera control and video data transmission
Transfer Rates	400 Mb/s
GPIO	8-pin Phoenix connector for power, trigger, strobe, PWM, and I/O
External Trigger Modes	IIDC Trigger Modes 0, 1, 3, 4, 5, and 14 / 0, 1, 3, 14 (DR2-13S2)
Synchronization	Via external trigger or software trigger
Shutter	Global Shutter Automatic/Manual/One-Push/Extended Shutter modes 0.031 ms to 66.63 ms at 15 FPS, greater than 5 seconds in extended shutter mode
Memory Channels	2 memory channels for custom camera settings
Flash Memory	512 KB
Dimensions	64 mm x 51 mm (bare board without case or lens holder) / 44 mm x 34 mm x 24.4 mm (case enclosed)
Mass	45 g (bare board with lens holder and C-mount adapter) / 37 g (case enclosed without optics)
Power Consumption	8 to 30 V, max 2 W at 12 V (DR2-03S2 & DR2-08S2) / max 2.2 W at 12 V (DR2-13S2) via GPIO or FireWire interface
Camera Specification	IIDC v1.31
Camera Control	via FlyCapture SDK, CSRs, or third party software
Camera Updates	In-field firmware updates
Lens Mount	C-mount / M12 microlens (DR2-03S2 & DR2-08S2)
Temperature	Operating: 0° to 45°C; Storage: -30° to 60°C
Emissions Compliance	CE, FCC, RoHS
Operating System	Windows XP Serivce Pack 1
Warranty	One year

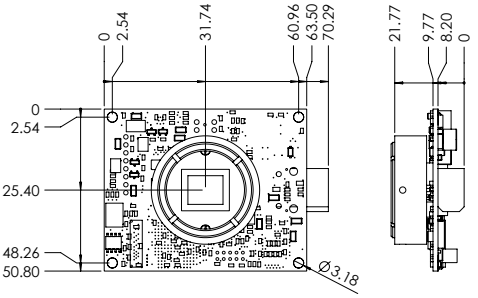
Development Kit (DR2-DEVKIT) Includes:

- CS-mount lens with variable focus and auto iris
- GPIO connector for quick and easy external wiring
- 4.5 meter, 6-pin to 6-pin, IEEE-1394 cable w/ferrites
- IEEE-1394 OHCI PCI Host Adapter 3 port-400Mbps card
- FlyCapture® SDK (C/C++ API and device drivers) CD

OEM Kit (DR2-xxxx-OEMKIT) Includes:

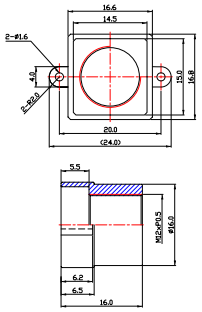
- M12 microlens with 6mm focal length, M12 lens holder†
- Tripod mounting bracket
- Wiring harness for the GPIO connector
- 4.5 meter, 6-pin to 6-pin, IEEE-1394 cable w/ferrites
- IEEE-1394 OHCI PCI Host Adapter 3 port-400Mbps card
- FlyCapture® SDK (C/C++ API and device drivers) CD

Dimensional Drawings - DR2-xxxx-CS

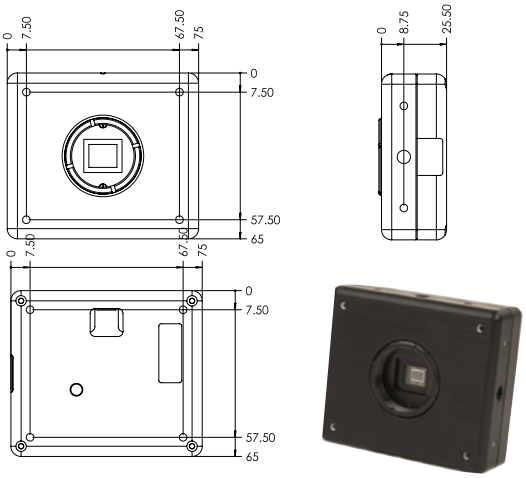


M12 Lens Mount Drawing

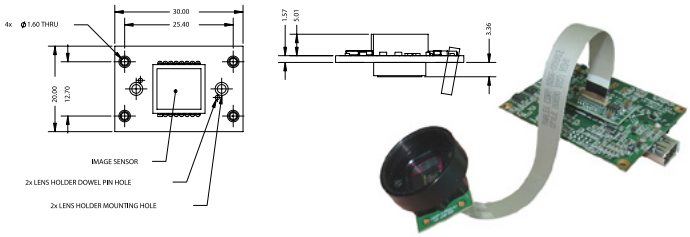
This mount is used for attaching an M12 microlens to the camera board.



Dimensional Drawings - DR2-xxxx-CSBOX



Dimensional Drawings - DR2-xxxx-EX-CS



FireWire

FC CE

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