

# IEEE-1394 digital camera

- ✓ 6 Pin IEEE-1394 interface
- ✓ External trigger
- ✓ Automatic inter-camera synchronization
- ✓ Computer controlled camera parameters
- ✓ Image acquisition software
- ✓ CS mount or micro-lenses



dragonfly

The Dragonfly is an OEM-style IEEE-1394 board level camera specifically designed for industrial machine vision tasks. The Dragonfly was created to provide maximum control and flexibility for digital imaging applications. Through the IEEE-1394 interface, the computer communicates digitally with the camera, allowing reliable transmission of images and software control of camera parameters.

## Network capable

An IEEE-1394 hub can be used to connect multiple Dragonfly cameras on the same bus. By connecting the hub to a PC host it is possible to simultaneously acquire images from any one of the cameras. Four B&W Dragonfly cameras can simultaneously broadcast at 640x480 resolution at 30 frames per second (FPS) and seven cameras can broadcast at 15FPS. Three cameras can simultaneously broadcast at 1024x768 resolution at 15 FPS.

## Camera synchronization

When more than one Dragonfly camera is present on the IEEE-1394 bus, the cameras automatically synchronize their acquisition time to within 120µs. This feature is particularly important in applications where an image of an object needs to be acquired from multiple points of view at exactly the same time. Please contact us if you require a large number of synchronized cameras.

## External trigger

The Dragonfly camera has an external trigger feature that provides control over timing of the image acquisition. The external trigger feature is defined by the IEEE-1394 based Digital Camera Specification (ver 1.30). This is used in applications where the image acquisition has to be synchronized with an outside event.

## Firmware upgrading

The Dragonfly allows users to upgrade its firmware through the IEEE-1394 interface. Our upgrade software allows camera features to be easily upgraded in-field. For example, extended exposure time was a feature added to the camera after it started shipping. Please visit our web page frequently for updates of camera features or contact us with your specific needs.

## Peripheral control

The Dragonfly has four I/O pins that can be configured in one of four ways. The pins can be set up for external trigger, CCD integration strobe output, digital input and output. This feature is useful for integrating the camera with external devices such as process controllers and lighting lights.

## Camera parameter control

Host software provided with the Dragonfly camera allows manual and automatic control of the camera parameters, such as the CCD integration time and the gain. In the color version, the software allows control of white balance.

The Dragonfly is a fully digital video camera that conforms to the DCAM 1.30 and the "IEEE 1394 standards". The Dragonfly uses a 1/3" progressive scan CCD in order to stream VGA quality images at 30 FPS without compression. The camera is provided as a complete system with an IEEE 1394 interface card, cable, and image acquisition software.

[www.ptgrey.com](http://www.ptgrey.com)



Point Grey Research (PGR) is a worldwide leader in the development of advanced digital camera technology products. Based in Vancouver, British Columbia, PGR designs, manufactures and distributes IEEE-1394 cameras, stereo vision cameras and spherical digital video cameras to a broad spectrum of industries. Through a close working relationship with its customers, PGR continues to be at the forefront of innovation.

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## Camera Specifications:

Imaging Device	1/3" Sony CCD 640x480 Option: ICX084, B&W or Color 1024x768 Option: ICX204, B&W or Color HAD image sensor with square pixels Progressive scan All models available with an extended CCD head
Supported frame rates:	640x480 Option: 30, 15, 7.5, 3.75 FPS 1024x768 Option: 15, 7.5, 3.75, 1.875 FPS
Supported formats:	B&W models: 8-bit or 16-bit Mono Color models: 8-bit or 16-bit Bayer tiled image (color space conversion done on the host computer)
Digital camera specification:	Version 1.30
Signal to noise ratio:	Greater than 60dB
Connector:	6-pin IEEE-1394
Power:	Through IEEE-1394, less than 2.0W
Shutter:	Auto/Manual (1/30s to 1/8000s @ 30Hz at 640x480; 1/15s to 1/6000s @ 15Hz at 1024x768). Shutter time can be extended up to 60 seconds.
Gain:	Auto/Manual (640x480: 0 - 30dB, 0.035dB resolution) (1024x768: 0 - 27dB, 0.035dB resolution)
Synchronization:	Less than 120µs
External Trigger:	DCAM 1.30 Trigger Mode_0, see diagram
Lens focal length:	4, 6 and 8mm focal length, M12 micro-lenses (12mm diameter, 0.5mm pitch) C/S mount lens holders available
Footprint:	2.5" X 2" see diagram

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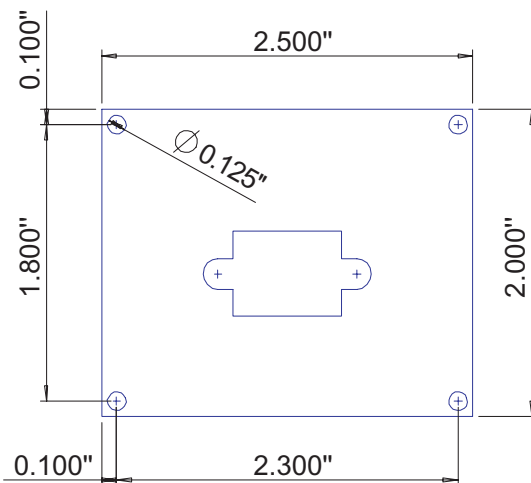
## Package includes:

- ✓ Dragonfly camera
- ✓ 4.5 meter, 6-pin, IEEE-1394 cable
- ✓ IEEE-1394 OHCI PCI Interface card
- ✓ 4, 6 and 8mm focal length M12 micro lenses
- ✓ CS mount lens holder
- ✓ Tripod mounting bracket
- ✓ Dragonfly camera driver
- ✓ Image acquisitions software

## System requirements:

- ✓ Intel Pentium II or better
- ✓ Windows 2000 or XP

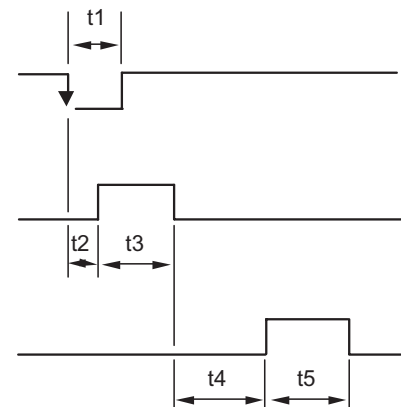
## Dimensions



External Trigger

Integration time

Video packet



- t1: min 1µs
- t2: less than 63µs
- t3: integration time
- t4: 1 ms
- t5: 30 ms (240 packets) (Mode\_5, 30fps)

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**RESEARCH**

305-1847 West Broadway, Vancouver, B.C., Canada V6J 1Y6  
T: 604-730-9937 F: 604-732-8231 [www.ptgrey.com](http://www.ptgrey.com)