

CPL High Speed CCD & CMOS Cameras

The CPL Mega Speed series of CCD & CMOS cameras are capable of recording speeds from 1 fps to 50,000 fps in continuous mode and over 400,000 fps in burst mode.

Continuously Capture Up to 50,000 FPS!



CPL-Mega Speed Series Of Digital Cameras

Product Description

The CPL-Mega Speed Digital Camera System is a high performance, high speed digital camera for use in several machine vision, packaging, industrial & scientific imaging applications.

One of the many advantages of the Mega Speed System is its real time image transfer ability which means that the data is viewed on your PC as it is being captured! No waiting for downloads before you can view your captured video sequence.

A software package comes with each system that allows control of several camera functions like frame rate, frame size, shutter speed, trigger type, playback rate, forward, reverse, single frame advance, loading & saving files and various set-up commands.

Design Features

The CPL-Mega Speed Digital Camera System is very small and compact which allows easy integration and placement into all types of imaging environments. The universal "C" Mount on the front of the camera body allows a simple connection to be made to any "C" Mount lens. This mounting method allows end users to use readily available lenses.

The CPL-Mega Speed Digital Camera System uses a Personal Computer Interface slot (PCI) to interface with any 500 Mhz computer for outstanding flexibility and ease of use. Complete turn key packages are also available which includes a pre-setup computer, camera cables, software, power supply and lighting.

Specifications Subject To Change Without Notice.

- ❑ Built in Electronic Shutter
- ❑ Standard "C" Mount Interface
- ❑ B/W & Color Models Available
- ❑ Easy Operation & Quick Set Up
- ❑ Compact & Light Weight Design
- ❑ Quantum Efficiencies Of Up to 70%
- ❑ High Resolution Linear Imaging Surface
- ❑ Several High Speed Models Available up to 400K fps
- ❑ Powerful Full Feature Image Capture Software Included

Up to 4 capture modes in each camera!

The CPL Mega Speed cameras are capable of capturing outstanding detailed images by either running in the continuous capture, capture by trigger, asynchronous reset or by capturing in the burst mode.

Performance Features

The CPL-Mega Speed digital camera system comes complete with every performance feature one might expect from a professional grade imaging system. Some of these features include a built in electronic shutter, low noise readout, high quantum efficiency & high dynamic range.

The CPL-Mega Speeds are available in b/w 8 bit or 24 bit color.

Image acquisition is accomplished by direct digital data transfer to your PC. Once images are captured they are sent to your PC where detailed image analysis can be preformed. Data is transferred via a high speed cable directly to your host PC's RAM in real time, ready for instant viewing with hundreds of image sizes to suit your capture needs.

Several camera options are available including models that will deliver from 1 fps to 50,000 fps. For extremely high speed events, cameras are available with burst rates of over 400,000 fps. To determine the best camera for your individual application, please feel free to speak to our application engineers for an exact camera recommendation.

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Mega Speed Series Specifications



**Ships with easy install capture cards
and cable lengths from 5M to 50M**



Real time image capturing. No downloading!

CPL-Mega Speed Series CCD Cameras

- Sensor type: CCD Frame transfer
- Maximum resolution: 640 x 480
- Frame rates: 1 to 12,000 fps continuous & 1900 to 418,000 fps in burst mode.
- Shutter speed: 1us to 24 ms in 1 us steps
- Spectral response: 400nm to 1000nm
- Quantum efficiency : Typically 60% at 530nm
- A-D converter: 8 bits

CPL-Mega Speed Series CMOS Cameras

- Sensor type: Mega Pixel CMOS Sensor
- Maximum resolution: 1280 x 1024
- Frame rates: 1 to 50,000 fps continuous capture rates. Model dependant
- Shutter speed: .5us to 30 ms in 1 us steps
- Spectral response: 400nm to 1000nm
- Quantum efficiency : Typically 24% at 500nm
- A-D converter: 8 bits

Features Common To Both CCD & CMOS Models

- Trigger & Strobe: TTL 3 to 5 VDC via BNC connector center pin positive active high.
- Camera size: 60mm x 60mm x 140 mm max
- Camera weight: 650 grams max
- Camera cable: 6 meters standard, 5 to 50 meters available.
- Optical interface: Standard "C" Mounts
- Back focus: Approximately 17.5mm from sensor surface to outer face of thread barrel
- Power requirements: 15 V DC Center pin positive
- Gain adjustments: User selectable from 0 to 900
- Image sizes: User selectable from factory defaults or by manual selection*
- Capture modes: Auto-matic or manual modes. Start/stop by trigger or hot keys.
- File saving: User can save in AVI format or BMP format.
- Image enhancement: Bitmaps can be sharpened to bring out better details in captured files.
- Memory allocation: User can add or allocate as much or as little memory as required
- Frame marking: Last frame in captured sequence is identified for quick & easy reference.
- Playback Rate: User selectable from 1 to 100 fps for fast video review.

* At CPL we understand that every customer has a different imaging problem to solve. That's why selected MS Series of cameras are capable of capturing any image size from 1280 x 1024 right down to 32 x 22 and every possible combination in between. This outstanding flexibility means you can capture the exact size you need at the fastest speed possible.

Powerful Image Capture Software

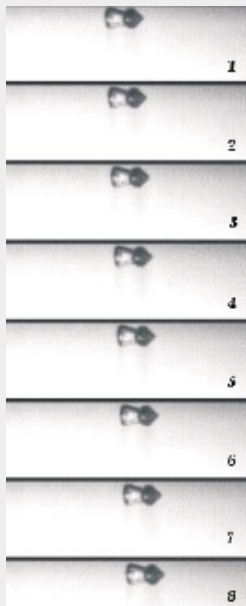
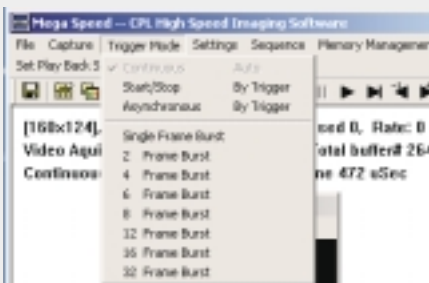
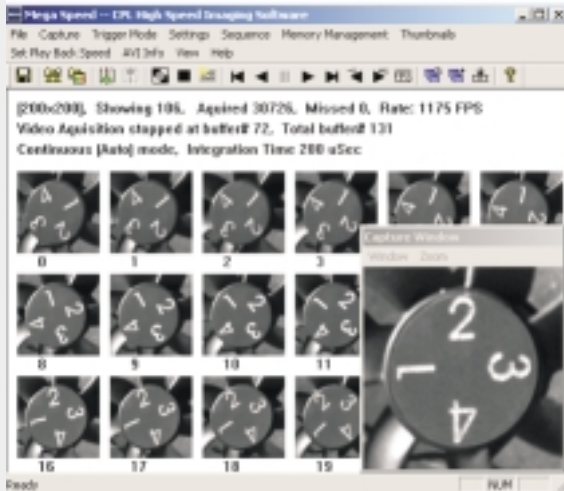
The CPL High Speed Imaging Software is a powerful but easy to use image capture program which easily lets you take your video and quickly identify, diagnose and correct your problem.

Images are transferred to your PC in real time as they happen. Camera adjustments like gain settings and integration times can be made “on the fly” allowing you to take a perfect video sequence every time.

After your capture is stopped, the video sequence is immediately available for playback and image analysis. Multiple thumbnail pictures can be opened both before and after the presently displayed image in your captured sequence for analyzing the entire event at a single glance.

The CPL High Speed Imaging Software is so powerful it allows selection of any image size from 640 x 480 right down to 32 x 22 when used with our CCD cameras and from 1280 x 1024 to 100 x 20 when used with our CMOS cameras. Integration times can be set with the click of a mouse from .5us up to 25,000 us in 1 us steps, effortlessly producing sharp crisp videos.

Flexible image capture modes are all just one mouse click away. Choose from continuous capture, continuous capture by trigger, asynchronous capture by trigger or any one of the available burst modes.

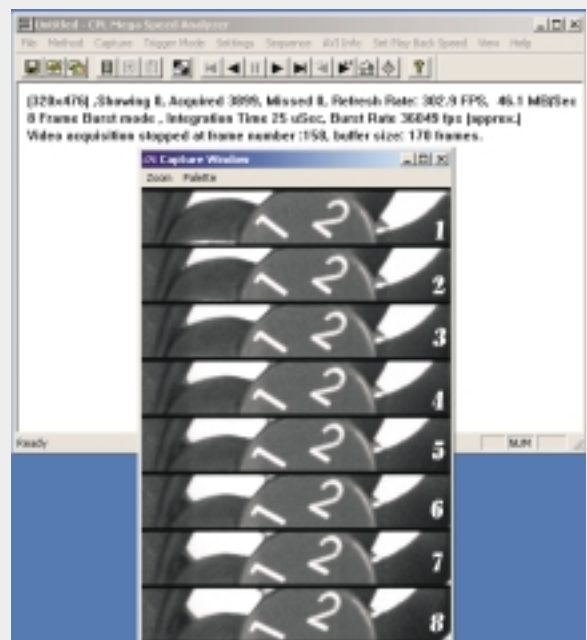


Left:

8 successive frames of a high speed pellet moving from left to right. The video was taken in the 8 frame burst mode at a speed rate of 62,000 frames per second. Integration time was 10us. Two 75 watt halogen lamps 5” away from the pellets were used. The pellets are 0.320 L x 0.220 W.

Right:

8 successive frames of a high speed fan turning counter-clockwise. The video was taken in the 8 frame burst mode at a speed rate of 36,000 frames per second. Integration time was 25us. One 75 watt halogen lamp was used. The Data Header shows all relevant video information.



For additional information, please feel free to contact our sales office and ask for our application engineers. They will be happy to assist you in any future high speed imaging projects.

CPL Mega Speed Series Frame Rates

Model	Image Size	Frame Rate Examples	Frame Storage *
CPL MS100 CCD	640 x 480 to 100 x 100	1 to 96 fps	15 seconds
CPL-MS1000 CCD	640 x 476	192 fps	15 seconds
	640 x 100	885 fps	7 seconds
	320 x 240	695 fps	8 seconds
	200 x 200	1175 fps	10 seconds
CPL-MS4K CCD +	160 x 124	1876 fps	7.5 seconds
	160 x 80	2757 fps	5.2 seconds
	100 x 100	2880 fps	5 seconds
	80 x 80	3830 fps	3.8 seconds
CPL-MS10K CCD +	320 x 60	2464 fps	5.8 seconds
	200 x 22	7230 fps	1.9 seconds
	160 x 36	5260 fps	2.7 seconds
	100 x 36	6514 fps	2.9 seconds
	80 x 60	4825 fps	2.5 seconds
	80 x 32	7662 fps	3 seconds
	64 x 48	6190 fps	2 seconds
	32 x 32	9470 fps	2 seconds
	32 x 22	11,800 fps	1.9 seconds
CPL MS25K CMOS	400 x 400	500 fps	15 seconds
	200 x 200	2000 fps	15 seconds
	100 x 100	5000 fps	5 seconds
	100 x 20	25,000 fps	1.5 seconds
CPL MS50K CMOS	1280 x 1024	500 fps	Consult With Sales Rep
	1280 x 512	1000 fps	Consult With Sales Rep
	1280 x 256	2000 fps	Consult With Sales Rep
	1280 x 100	5000 fps	Consult With Sales Rep
	1280 x 10	50,000 fps	Consult With Sales Rep
CPL-MS400K CCD +	640 x 240 burst mode	1900 – 109,000 fps	15 seconds
	640 x 120 burst mode	1980 – 180,000 fps	15 seconds
	640 x 60 burst mode	1990 – 267,000 fps	15 seconds
	640 x 28 burst mode	1990 – 352,000 fps	15 seconds
	640 x 14 burst mode	1990 – 418,000 fps	15 seconds

+ Means this camera has all the above CCD model frame rates plus those listed to the right. Most models feature user definable X & Y sizes. Above frame sizes are some examples of possible resolutions.

* Frame Storage is the maximum savable AVI length when 1 Gigabyte of RAM is installed in the host PC. Extended run times are also available. Please specify at time of ordering.

The captured images will continuously loop through the memory (amount of frame storage taken from the above table), displaying the captured images in real time until the user stops the camera from capturing. The user may also de-select the loop through option in the menu and only capture 1 memory cycle of video to prevent over writing an important part of your captured video sequence.

Industrial Applications

- Crash Testing
- Line Inspection
- Phase Contrast
- Ballistic Testing
- Component Wear
- Component Placement

Other Applicable Fields

- Biology
- Genetics
- Geology
- Forensics
- Cell Biology
- Biophysics
- Plant Science
- Biochemistry
- Pathology
- Neuroscience
- Microbiology
- Pharmacology