Mini WX

FASTCAM series by Photron

FASTCAM Mini WX100

4-Megapixel CMOS Sensor:
Mini WX100
2048 x 2048 pixels at 1,080fps
1920 x 1080 pixels at 2,000fps

Maximum Frame Rate:
80,000fps (Mini WX100 type 80K)

Class Leading Light Sensitivity:
ISO 2,000 color

Global Electronic Shutter:
1ms to 2.7µs independent of frame rate

Dynamic Range (ADC):
36-bit color

Compact and Lightweight:
120mm (H) x 120mm (W) x 99mm (D)
4.72″ (H) x 4.72″ (W) x 3.90″ (D)
Weight: 1.6Kg (3.52 lbs.)

Internal Recording Memory:
8GB, 16GB, or 32GB

Fast Gigabit Ethernet Interface:
Provides high-speed image download to standard
notebook/PC

Flexible Frame Synchronization:
Frame rate may be synchronized to
external unstable frequencies

High-G Rated:
Suitable for application in high-G environments;
Operation tested to 100G, 10ms, 6-axes

Fan Stop Function:
Remotely switch off cooling fans to eliminate
vibration

COMPACT HIGH-SPEED CAMERA WITH HIGH IMAGE RESOLUTION

The FASTCAM Mini WX100 high-speed camera delivers exceptional high resolution imaging performance by providing 2048 x 2048 pixel resolution at 1,080fps, 1920 x 1080 pixel full HD resolution at 2,000fps and frame rates up to 80,000fps at reduced image resolution. The system's flexible Region of Interest (ROI) capability allows the user to choose an image aspect ratio appropriate for the subject being recorded.

The FASTCAM Mini WX is compact, lightweight and also rugged (operationally tested to 100G, 10ms, 6-axes). This unique combination of high resolution imaging performance in a compact, lightweight and rugged package makes the system well suited to a wide range of industrial and scientific applications. It is ideally suited for biomechanics, microscopy, automotive safety testing and defense applications.

The FASTCAM Mini WX utilizes Photron's proprietary CMOS image sensor design expertise, including on-chip microlens technology to optimize light sensitivity. The camera provides broadcast quality high definition image resolution, color fidelity and dynamic range. Recording memory options from 8GB to 32GB permit the capture of over 10 seconds of uncompressed and un-interpolated data at 1,000fps with full HD image resolution.

Standard operational features of the FASTCAM Mini WX include a mechanical shutter to allow remote system calibration, Gigabit Ethernet Interface for reliable system control with high-speed data transfer to PC, and the ability to switch off cooling fans to eliminate vibration when recording at high magnifications.

**Light Sensitivity:**

Image Sensor:
The FASTCAM Mini WX system uses an advanced CMOS image sensor optimized for light sensitivity and high image quality that is unique to Photron.

A 10-micron pixel pitch gives a sensor size at full image resolution of 20.48 x 20.48mm (diagonal 28.96mm).

Lenses designed for both FX (35mm full frame) and also DX (APS-C digital SLR) formats are fully compatible with the FASTCAM Mini WX at full image resolution.

FASTCAM MINI WX100 Spectral Response Curve - Color
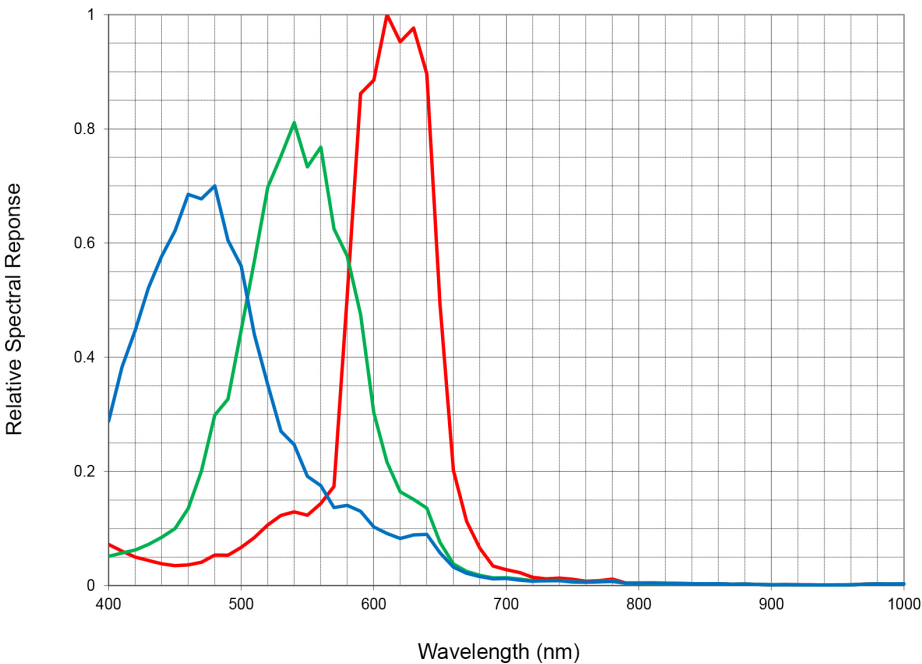
High-Speed Gigabit Ethernet Interface:
The FASTCAM Mini WX camera system is equipped with a high-speed Gigabit Ethernet Interface to provide reliable network communication and fast download of image data.

Dedicated I/O:
A dedicated BNC connection for a contact closure hardware trigger input is provided. In addition, two programmable inputs and two programmable output channels provide direct connection for common tasks such as synchronization of multiple cameras and operation in conjunction with Data Acquisition (DAQ) hardware.

High-G Mechanical Calibration Shutter:
The ruggedized mechanical shutter fitted as standard to the FASTCAM Mini WX camera allows sensor black balance calibration to be carried out remotely from the system control software.

Nikon G-Type Compatible Lens Fitting:
The FASTCAM Mini WX camera is equipped with an objective lens mount compatible with readily available Nikon G-type lenses. Controls provided within the lens mount allow the control of lens aperture on lenses without external iris control.
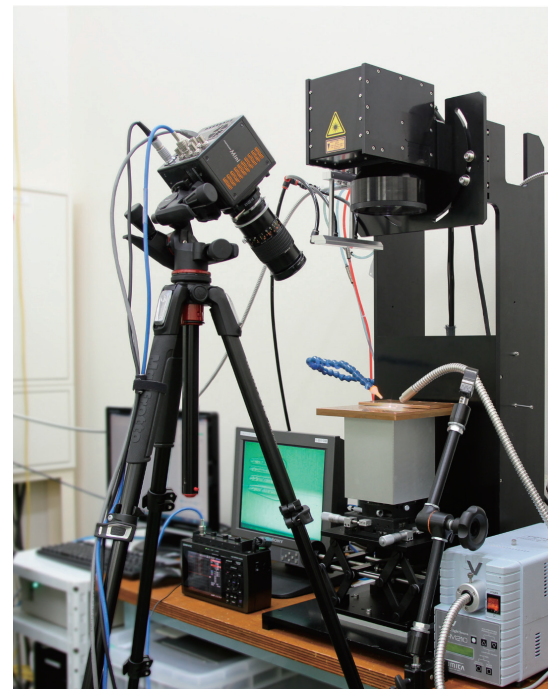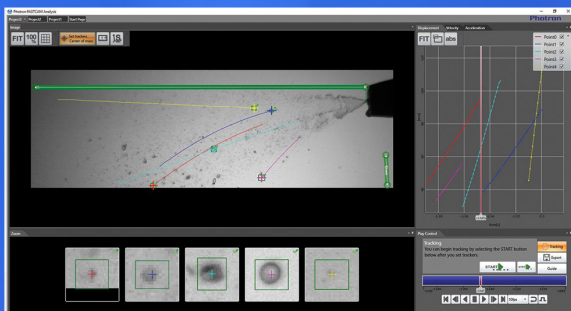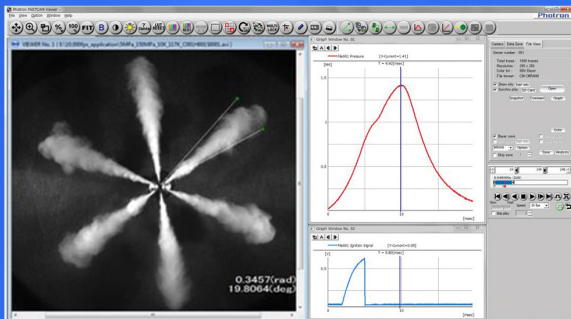
Photron FASTCAM Viewer:
Photron FASTCAM Viewer software (PFV) has been designed to provide an intuitive and feature rich user interface for the control of Photron high-speed cameras, data saving, image replay and simple motion analysis. Advanced operation menus provide access to features for advanced camera operation and image enhancement. Tools are provided to allow image calibration and easy measurement of angles and distances from image data. Also included are a C++ SDK and wrappers for LabView and MATLAB ®.

An optional software plug-in module provides synchronization between Photron high-speed cameras and data acquired through National Instruments data acquisition systems. synchronized data captured by the DAQ system provides waveform information which can be viewed alongside high-speed camera images.

Photron FASTCAM Analysis:
PFV software allows image sequences to be exported directly to optional Photron FASTCAM Analysis (PFA) Motion Analysis software. This entry level Motion Analysis software with an on screen 'step by step guide' function launches automatically from Photron FASTCAM Viewer software, and provides automated tracking of up to 5 points using feature or correlation tracking algorithms for the automated analysis of motion within an image sequence.

Variable Region of Interest:
Region of Interest (ROI) or sub-windowing allows a user-specified portion of the sensor to be defined to capture images. By using a reduced portion of the image area, the frame rate at which images are recorded can be increased. FASTCAM Mini WX allows the ROI to be set in increments of 256 pixels horizontal and 32 pixels vertical.

Square Image Sensor Format:
Unlike broadcast and media applications where image formats such as 16:9 have now become standard, in scientific and industrial imaging applications an image sensor with a 1:1 image format is generally accepted to be advantageous. To capture the maximum useful image data in applications including microscopy, detonics, combustion imaging and many others, a 1:1 sensor format provides greater flexibility than 'letterbox' image formats. The FASTCAM Mini WX image sensor allows the user to choose either square or rectangular image formats in order to obtain the maximum subject information.

External Frame Synchronization:
The FASTCAM Mini WX camera can be fully synchronized with an external event to allow the timing of when each individual image is captured to be precisely referenced. The camera can be accurately synchronized to unstable frequencies allowing complex events such as combustion in rapidly accelerating or decelerating engines to be recorded and studied.

Record During Download Operation:
FASTCAM Mini WX recording memory can be divided into multiple active sections. The user can record an on-going event in one memory partition while at the same time downloading a previously recorded image sequence in order to improve workflow and optimize camera operation.

All measurements are in millimeters (mm)

Coupling to other lens systems:
A combination of small physical size, low weight and high light
sensitivity allows the FASTCAM Mini WX to be coupled to a range of
optical systems such as scientific and long distance microscopes, rigid
endoscopes or borescopes and image intensifiers for applications
ranging from imaging flows in microfluidic devices to combustion
diagnostics.

Rugged Design:
The FASTCAM Mini WX is designed to be used environments where
it may be subject to mechanical shock and vibration. The system has
been tested to confirm suitability for operation at 100G, 10ms, 6-axes.

Ruggedized Lens Support:
The image sensor size of the FASTCAM Mini WX is compatible with
the Schneider Compact range of Ruggedized lenses. Providing a
24mm image circle these lenses are fully compatible with the Mini WX
sensor at full HD image resolution. Focal lengths currently available
include 20mm, 24mm and 35mm with an aperture of f/2.0.

Specifications subject to change without notice.