Photron Motion Tools
Version 1.2.0
Released August 7, 2004

GENERAL NOTES:

1. This new version now provides active control for the following Photron camera models:
    a. FastCam PCI
    b. FastCam PCI R2
    c. FastCam-X 1280 PCI
    d. FastCam 512PCI
2. Version 1.2.0 of Photron Motion Tools ("PhoMoTo") works under Windows NT, 2000 and XP.
3. FastCam PCI drivers work under Windows NT, 2000 and XP; FastCam PCI R2, Photron FastCam-X 1280 PCI and FastCam 512PCI drivers only work under Windows 2000 and XP only.
4. Users cannot interconnect cameras within the same computer due to driver limitations.
5. Version 1.2.0 is a major release, superceding version 1.0.6.

NEW OR CHANGED IN THIS RELEASE:

This release includes the following additions or modifications from the prior releases:

1. Calibration in the Standard Version Calibration
    a. Addition of the Quick Calibration Box.
    b. Added the ability to save calibrations.
2. Auto-Tracking Analysis
    a. Added the ability to use Excel Templates during Export in Enhanced Analysis module.
    b. Provided a new default Excel template that includes graphing, point-to-point measurements, data smoothing and directional velocities.
    c. Added a Tracking Zoom Box that follows the object during auto-tracking.
    d. Added a switch to toggle the Tracking Zoom Box on/off in the System Configuration menu. The default is off.
3. Interface
    a. Updated to the new Photron logo
    b. Added standard Windows shortcuts (At-F for file, Alt-O for open, etc.).
    c. Fixed the reticle visibility function.
    d. Added play controls under each video window. These controls append to the bottom of the video windows, and include Rewind, Play Reverse, Play Forward, Stop, Step Backward, Step Forward and Fast Forward. Also, includes loop control and sync button, and fast-drag bar. Displays the frame number and frame time.
    e. Added a switch to toggle the play control box on/off in the System Configuration menu. The default is off.
    f. Added some new notices to unlicensed features. Now, when users select unlicensed modules or features (e.g. GPS/IRIG , Automatic download, or Notes), PhoMoTo pops a notice informing users that the feature is currently unlicensed.
    g. Removed all residuals of white in windows or dialogue boxes that contain inactive or unlicensed features. Now, white areas are active and all areas that do not allow user entry are gray.
    h. Changed 'Dismiss' to 'Close' throughout the software.
    i. Improvement of image rotation and image flipping during recording.
4. Installation
    a. Increased the "All Features On" evaluation period to 35 days from previous 21 days.
    b. Changed the installation protocol to include a new Drivers folder that includes simplified driver updating for Plug-and-Play operation.
5. Camera Support
    a. Added support for the new Photron Fastcam 512PCI camera. This new version now provides active control for the following Photron camera models:
        i. FastCam PCI

        ii. FastCam PCI R2
        iii. FastCam-X 1280 PCI
        iv. FastCam 512PCI
    a. Enabled the automatic overheat protection feature for all Fastcam PCI cameras.
    b. Added a toggle to bypass overheat protection.
6. Loading/Saving
    a. Added the ability to read Photron MCDL data files and to display these in PhoMoTo graphs for video/data analysis. This feature provides the ability to use PhoMoTo to analyze data and video acquired with non-PCI cameras such as the Fastcam APX and Fastcam Ultima 512.

KNOWN CAMERA BUGS:

Known camera limitations will impair software operation. The following is a list of the known camera bugs and the resultant PhoMoTo software behavior:

1. If you open a F1280PCI and then close it, when you try to open it again quickly, it may fail with a timeout error, which may lead to a crash of the application.
2. With multiple F1280s in one computer, you may get timeout errors when closing the first camera on the PCI bus and then trying to open it again.
3. With the FastCam PCI in slave mode, if there is no external sync pulse, there will be no live image. This is normal behavior. However, with the FastCam-X 1280 PCI, if there are no external sync pulses, the camera will free run, showing both a live image and recording. There is no way to know if the FastCam-X 1280 PCI camera is receiving correct synchronization pulses from either the data acquisition system or the GPS/IRIG system. The camera switches between sync input mode and free-run mode without generating an error.
4. There is an intermittent 1-frame unwrap bug in the FastCam-X 1280 PCI and FastCam PCI in which the last recorded frame is placed as the first frame of the playback video sequence.
5. The FastCam PCI cameras will not reliably work with GPS/IRIG module hardware. The camera does not adhere to standard TTL line impedance characteristics – the synchronization input line voltage (from the GPS/IRIG board) is drawn down below the standard TTL switch logic levels. It is suggested that you use GPS/IRIG with the F1280PCI only.
6. The FastCam PCI camera looks for rising edge (low to high) TTL triggers on the TT input connector. If the input signal is high at the start of a recording, the cameras will not trigger. Data acquisition triggers will work, but the cameras will not.
7. If the TS trigger input is held low at the beginning of a recording, the software triggers will not work (external trigger only).
8. Short trigger pulses on the TS trigger line may result in missed triggers.

KNOWN SOFTWARE BUGS:

1. None.

USER NOTES:

1. When using Photron Motion Tools with data acquisition and an external PCMCIA-to-PCI bus expander, use NIDAQ version 6.9.2 or higher.
2. When using multiple cameras with data, all cameras must have their jumper settings to SLAVE.
3. When using multiple cameras with video only, the first camera can have its jumpers set to MASTER or SLAVE (preferable); all other cameras must have the jumpers set to SLAVE.
4. Photron cameras look for rising edge (low to high) TTL triggers on the TT input connector. If the input signal is high at the start of a recording, the cameras will not trigger. Data acquisition triggers will work.
5. If multiple FastCam PCI cameras are opened in the wrong order, two versions of the same camera may be seen.

6. The order of cameras in the drop-down box under Open_Camera is NOT the chain order. Record the chain order as you connect the cameras together.
7. For a software trigger to be enabled and work properly with multiple cameras, the internal sync connections must be made per the instructions provided with the camera hardware.
8. For data acquisition with video, the external trigger MUST go to all devices (e.g. all cameras and the data acquisition hardware) simultaneously.
9. Only an external trigger is available with data acquisition module or with GPS/IRIG module. Test Trigger buttons are not available with automatic download and data acquisition or GPS/IRIG.

INSTALLATION NOTES:

1. When upgrading Photron Motion Tools from a previous version, select REPAIR. Alternatively, simply uninstall all versions of Photron Motion Tools from the computer, then install the new version.