



FASTSERIES

FASTMOTION APPLICATION
USER'S MANUAL

30002-00401

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Document Name:	FastMotion User's Manual	
Document Number:	30002-00401	
Revision History:	1.0	Jan 25, 2003
	2.0	April 10, 2003
	3.0	June 16, 2008

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C. OTHER ALACRON MANUALS

Alacron manuals cover all aspects of FastSeries hardware and software installation and operation. Call Alacron at 603-891-2750 and ask for the appropriate manuals from the list below if they did not come in your FastSeries shipment.

- 30002-00148 ALFAST Runtime Software Programmer's Guide & Reference
- 30002-00153 Fast I/O Hardware User's Manual
- 30002-00162 FOIL – FastSeries Object Imaging Library User's Manual
- 30002-00170 ALRT, ALFAST & FASTLIB Software Installation Manual for Linux
- 30002-00180 Fast4 1300 Hardware User's Manual
- 30002-00184 FastSeries Getting Started Manual
- 30002-00183 FastImage 1303 Camera Integration User's Manual
- 30002-00190 FastFrame 1303 Hardware User's Manual

II. INTRODUCTION

This manual covers the Alacron FASTMOTION APPLICATION. FastMotion Application provides the user of Alacron Fast series products the ability to capture full speed video until the host buffer is full, and then save the result to TIFF files.

III. FASTMOTION APPLICATION

A. INTRODUCTION

Introduction

FastMotion Application is a digital recording system that is based on the Alacron FastSeries family of frame grabbers. The application works under Windows XP operating system. The FastMotion system enables recording of video from a variety of digital and analog sources.

The FastMotion Application enables recording of high frame rate images into system memory (RAM) and/or disk files. The maximum recording rate to the system memory is dependent on the type of Fast Series board used. Fast-X products can record at over 500 MB/sec, the Fast Frame 1303 can record at up to 80 MB/sec, the Fast Image at 120 MB/sec, the Fast-XB product at up to 250 MB/sec, and finally the Fast Frame Cardbus at 120 MB/sec. The Frame rate to the disk files depends on the hardware configuration.

Installation

FastMotion Application is installed using a Microsoft Installer data base file called FastMotion-<version>.msi. To install double click on the .msi file and follow the provided instructions. At the end of the install a read me dialog will be displayed. Be sure to read this and follow the instructions.

B. USER'S GUIDE

This section discusses the operation of the program via its dialog boxes. These are essentially the steps to using this program. Selection of the capture control file (.cap) via the Select Camera button. Setup the trigger settings. Start capture via the 'Grab' or 'Grab to HD' buttons. Stop of capture via an external trigger or via the 'Stop Grab' button. Finally the resulting data is saved via the 'Save TIFFs' button.

Camera Settings

After initiating the FastMotion application, the first step to start using the FastMotion software, is to select the camera type by opening the "Select Camera" Dialog Box.

This dialog box enables you to select the camera type, camera frame size, and input number. Additional attributes of camera parameters (if any) are displayed at the bottom of the dialog. After selecting the camera type, the camera details appear in the camera setting frame at the main application window.

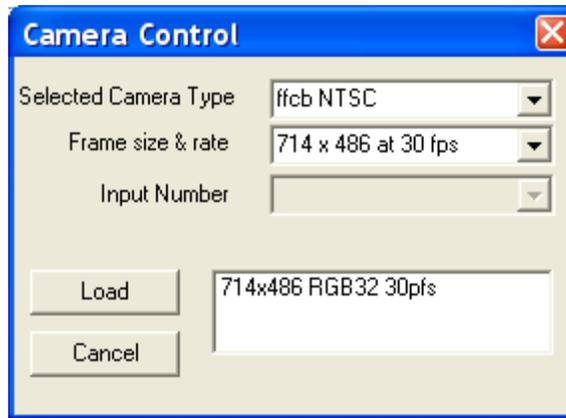


Figure 1: Select Camera dialog box

The combo boxes list options associated with the capture file, such as frame size, and rate, and which input to record.

Recording Options



Figure 2: Stop/Grab Button

CHANNEL NUMBER

Some hardware setups support multiple channels, which are not captured at the same time by the hardware. In those cases the 'Chan#' edit box and spin control will be enabled (not gray). This control will allow you to select which channel will be captured to host memory.

GRAB BUTTON

Pressing the *Grab* button starts a continuous grabbing operation. Video frames captured from the camera are stored in the system memory in a circular buffer. During grabbing, the image area at the main application window is continuously updated with the latest video image from the camera at a refresh rate that depends on camera characteristics and system configuration.

Zooming and panning functions are available by using the mouse and the shift key. Hold down the shift key and move the mouse to pan, right click to zoom in (magnify) and right click to zoom out. Note when the program starts you may not be seeing the whole image, in this case you should pan and zoom to see the whole image, or the portion of the image of interest.

The grabbing operation continues until the user presses the *Stop Grab* button or until a trigger signal is received - according to trigger definition (see Triggered Grabbing section 3).

GRAB TO HD BUTTON

Pressing the *Grab To HD* button opens up a standard save file dialog. The user should choose a folder and provide a filename – under which all captured frames will be saved. Immediately after confirming the filename, the system will begin saving the grabbed images to the selected directory as RAW data. If a recording schedule is defined the data is saved according to that schedule. (See Section 4b). The recording rate is determined by the performance of the system. Typically this will be significantly slower than capturing to memory.

There are 3 options to stop the grabbing process:

- Grabbing terminates per definitions in the recording schedule.
- If a recording schedule is not defined, the system stops the grabbing after saving 10000 images. Note this is typically more than will fit on your disk drive. The OS will prevent saving files beyond the capacity of your disk drive.
- Manual termination by pressing the Stop Grab button.

At the end of the grabbing process, the images that were previously stored as RAW data, are converted to a TIFF format. A progress bar that appears at that time enables viewing the progress of saving and converting. The maximum conversion rate is dependent on image size and system configuration (Hard drive type, controller, RAM size, etc.). Using relatively large system RAM allows achieving burst writing at high frame rates. During grabbing to the system hard disk, the image area at the main window is updated at a lower refresh rate - to prevent disturbance to system performance.

STOP GRAB BUTTON

Once a grab command is initiated, the Stop Grab button stops the acquisition process of the images and storing of images to the buffer.

When the Grab to HD command is selected the Stop Grab button stops the grabbing process manually. The saved RAW data images are converted to a TIFF image format. Zooming and panning features are available.

Triggered Grabbing

FastMotion provides a Trigger feature that enables capturing and viewing of images that occurred before and after a “trigger” signal was initiated. The amount of images to be captured prior to “Trigger” is defined by the Trigger % - see Figure 2: Trigger setup dialog box.

The FastMotion trigger function is a “Stop On Trigger” function, i.e. the system has to be in a “Grab” mode before receipt of the trigger signal.

The trigger signal can be either software driven - using the Fire Trigger button, or hardware-driven - using one of the trigger input lines in the frame grabber connector. When a trigger signal is received, the current frame in the frames buffer is marked as a reference ID frame 0. All the frames accumulated prior to “Trigger” will be marked with a negative ID frame number-relative to their position to the trigger, and all frames accumulated past the “trigger” – will be bear a positive ID number.

The trigger percent – to be defined by user - determines the size of the frames buffer to be allocated to the pre-trigger images.

The recordings process ends when the buffer is filled up or when the user activates the Stop Grab button.

After recording, the images are stored in the system RAM and may be viewed by using the preview buttons, or they may be saved by pressing the Save TIFF button.

Note: The images are not saved automatically to the hard disk.

Trigger Settings

Pressing the *Trigger Setup* button opens the trigger setup dialog as shown in Figure 2.

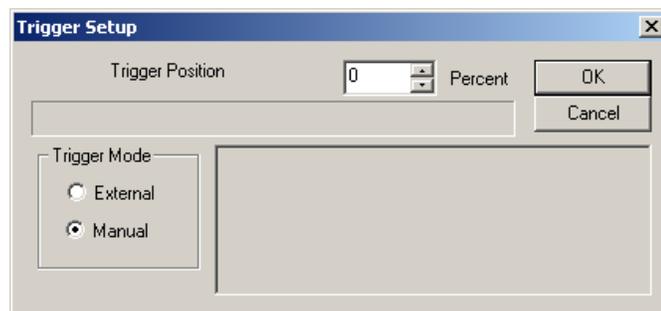


Figure 3: Trigger setup dialog box

Trigger Setup enables you to define the trigger percentage value and trigger mode. The default trigger percentage is 0%, which means that the system will perform full buffer recording after receiving a trigger command. Trigger percentages are between 0% to 100% in 1% increments . A progress bar –located below the trigger percentage - indicates the % value graphically. The default trigger mode is manual, which means that the user fires the trigger. The external trigger mode inhibits the software trigger operation and passes the trigger control to the frame grabber.

The trigger set up and mode are part of the trigger settings frame at the main application window.

FIRE TRIGGER BUTTON

Pressing this button fires the software trigger to control the triggered grabbing operation as described above.



Figure 4: Fire Trigger Button

Table 1 summarizes the system behavior at different trigger percentage options

Table 1: Trigger definitions

Trigger Percent	Buffer State	Process
0%	Full	Continue to record one full-length buffer after receiving the trigger. If the user stops the recording, the frames that were recorded until then are available.
0%	Partial	Continue to record one full buffer. If the user stops the recording the frames that were recorded are available.
100%	Full	The recording stops immediately and a full buffer is available- with all “historic” frames that were grabbed prior to “trigger”.
100%	Partial	The recording stops and the frames that were recorded are available.
Between 0% to 100%	Full	Continue recording until the post-trigger value is achieved and return a full buffer. If the user stops the recording a full buffer is returned.
Between 0% to 100%	Partial	Continue recording until the post-trigger value is achieved and return a full buffer, which includes the post-trigger frames and the pre-trigger frames. When the user stops the recording the pre-trigger frames and the post-trigger frames that were recorded are returned.

Note: The size of the buffer depends on the amount of system RAM reserved for the FastMotion system

Video/Frame Manager

FastMotion provides Video/Frame controls to enable the user to view the images that were stored in the system memory and to save them as a collection of TIFF files. The user can also determine the frame rate and the “zoom in” and “zoom out” scale. Figure 3 and Table 2 present all the Video/Frame Manager controls

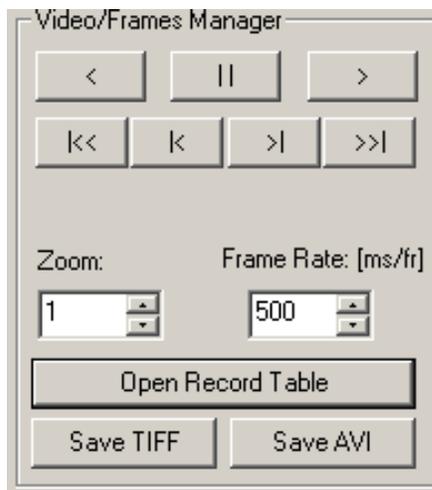


Figure 5: Video/Frame Manager controls

PLAYBACK BUTTONS

Table 2: Play back buttons

	Play the recorded images from the current frame to the end of the recorded buffer according to the frame rate. (i.e. forward)
	Play the recorded images from the current frame to the beginning of the recorded buffer according to the frame rate. (i.e. backwards)
	Pauses the images play process.
	Moves to the beginning of the buffer and displays the first image in the recorded buffer.
	Moves to the end of the buffer and displays the last image in the recorded buffer.
	Moves forward through the recorded buffer manually frame by frame.
	Moves backwards through the recorded buffer manually frame by frame.

RECORDING SCHEDULE

Pressing the Open Record Table button opens up the recording schedule table, shown in Figure 4, which enables the definition of frames that have to be captured and allows skipping unwanted frames. The recording table can be fragmented to many recording strips to allow flexibility of capture.

When working in the 'Triggered Grabbing' mode, frames are stored in the system RAM memory, and the recording table determines the frames that should be saved to hard disk when the *Save TIFF* button is activated. When working in 'continuous grabbing to HD' (activating the Grab to HD button), the recording table determines the frames that should be saved to the hard disk. Using the recording table in this mode allows the user to save long video frames sequence limited only by the amount of free hard disk space.

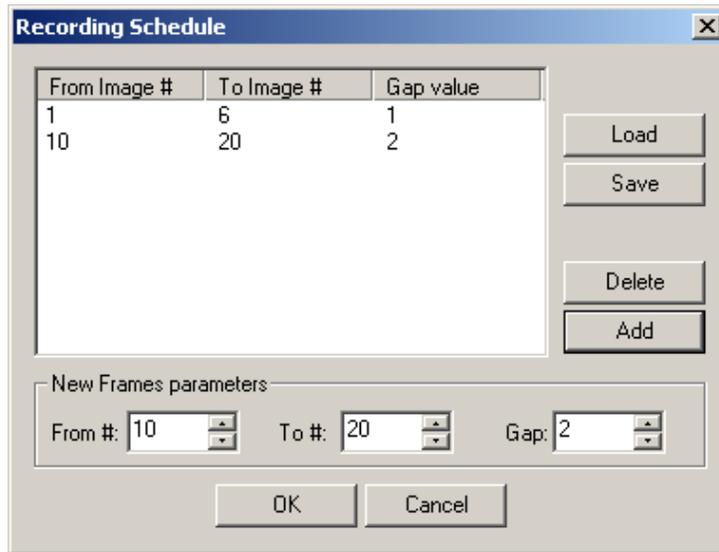


Figure 6: Recording schedule

To add a new entry to the table the user has to define the desired “From frame number”, the “To frame number” and the frame skip “Gap” - in the new frames parameters and press the “Add” button. In case of a conflict between the new parameters and the table, an error message will appear.

In order to delete an entry in the table the user has to select that line in the table and press the “Delete” button.

The record table data can be saved to a file by pressing the “save” button, and can be loaded from a file by pressing the “Load” button and selecting a desired file.

If the recording records have a gap in them then the recording will continue at the settings from the last active.

Should you wish to have a gap, add a record with a large gap value.

IV. GENERAL INFORMATION

The recording schedule only functions during recording to hard disk.

A. TROUBLESHOOTING

There are several things you can try before you call Alacron Technical Support for help.

- _____ Make sure the computer is plugged in. Make sure the power source is on.
- _____ Go back over the hardware installation to make sure that the system is properly installed.
- _____ Go back over the software installation to make sure you have installed all necessary software.
- _____ Run the Installation User Test to verify correct installation of both hardware and software.
- _____ Run the user-diagnostics test for your main board to make sure it's working properly.
- _____ Insert the Alacron CD-ROM and check the various Release Notes to see if there is any information relevant to the problem you are experiencing.

B. ALACRON TECHNICAL SUPPORT

Alacron offers technical support to any licensed user during the normal business hours of 9 a.m. to 5 p.m. EST. We offer assistance on all aspects of processor board and PMC installation and operation.

Contacting Technical Support

To speak with a Technical Support Representative on the telephone, call the number below and ask for Technical Support:

Telephone: **603-891-2750**

If you would rather FAX a written description of the problem, make sure you address the FAX to Technical Support and send it to:

Fax: **603-891-2745**

You can email a description of the problem to support@alacron.com

Before you contact technical support have the following information ready:

- _____ Serial numbers and hardware revision numbers of all of your boards. This information is written on the invoice that was shipped with your products.
- _____ Also, each board has its serial number and revision number written on either in ink or in bar-code form.
- _____ The version of the FastMotion software that you are using.
- _____ You can find this information in the About Dialog box.

- _____ The type and version of the host operating system, i.e., Windows XP
- _____ Note the types and numbers of all your software revisions, daughter card libraries, the application library and the compiler
- _____ The piece of code that exhibits the problem, if applicable. If you email Alacron the piece of code, our Technical-Support team can try to reproduce the error. It is necessary, though, for all the information listed above to be included, so Technical Support can duplicate your hardware and system environment.

Returning Products for Repair or Replacements

Our first concern is that you be pleased with your Alacron products.

If, after trying everything you can do yourself, and after contacting Alacron Technical Support, you feel your hardware or software is not functioning properly, you can return the product to Alacron for service or replacement. Service or replacement may be covered by your warranty, depending upon your warranty. The first step is to call Alacron and request a "Return Materials Authorization" (RMA) number. This is the number assigned both to your returning product and to all records of your communications with Technical Support. When an Alacron technician receives your returned hardware or software he will match its RMA number to the on-file information you have given us, so he can solve the problem you've cited.

When calling for an RMA number, please have the following information ready:

- _____ Serial numbers and descriptions of product(s) being shipped back
- _____ A listing including revision numbers for all software, libraries, applications, daughter cards, etc.
- _____ A clear and detailed description of the problem and when it occurs
- _____ Exact code that will cause the failure
- _____ A description of any environmental condition that can cause the problem All of this information will be logged into the RMA report so it's there for the technician when your product arrives at Alacron. Put boards inside their anti-static protective bags. Then pack the product(s) securely in the original shipping materials, if possible, and ship to:

**Alacron Inc.
71 Spit Brook Road, Suite 200
Nashua, NH 03060
USA**

Clearly mark **the outside of your package:**

Attention RMA #80XXX

Remember to include your return address and the name and number of the person who should be contacted if we have questions.

REPORTING BUGS

We at Alacron are continually improving our products to ensure the success of your projects. In addition to ongoing improvements, every Alacron product is put through extensive and varied testing. Even so, occasionally situations can come up in the fields that were not encountered during our testing at Alacron.

If you encounter a software or hardware problem or anomaly, please contact us immediately for assistance. If a fix is not available right away, often we can devise a work-around that allows you to move forward with your project while we continue to work on the problem you've encountered.

It is important that we are able to reproduce your error in an isolated test case. You can help if you create a stand-alone code module that is isolated from your application and yet clearly demonstrates the anomaly or

flaw.

Describe the error that occurs with the particular code module and email the file to us at:

support@alacron.com

We will compile and run the module to track down the anomaly you've found.

If you do not have Internet access, or if it is inconvenient for you to get to access, copy the code to a disk, describe the error, and mail the disk to Technical Support at the Alacron address below.

If the code is small enough, you can also:

FAX the code module to us at 603-891-2745

If you are faxing the code, write everything large and legibly and remember to include your description of the error.

When you are describing a software problem, include revision numbers of all associated software.

For documentation errors, photocopy the passages in question, mark on the page the number and title of the manual, and either FAX or mail the photocopy to Alacron.

Remember to include the name and telephone number of the person we should contact if we have questions.

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