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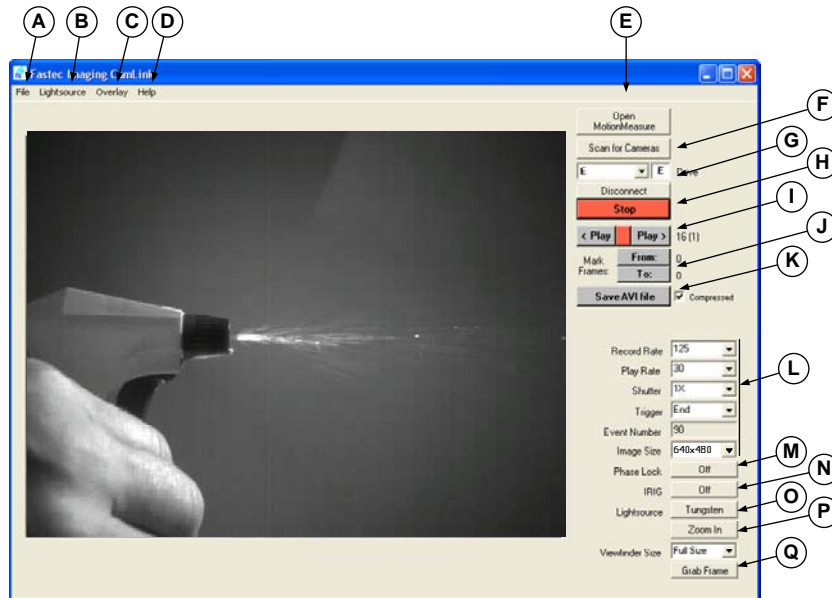
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# CAMLINK QUICK START GUIDE

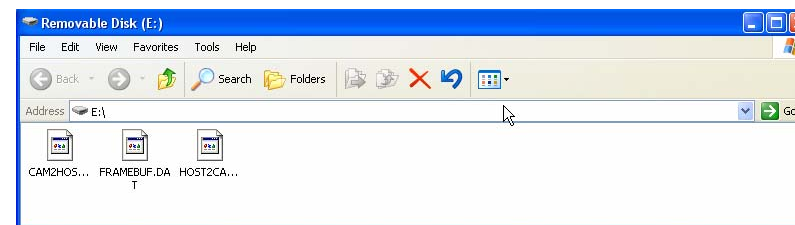
FIGURE 1: CAMLINK WINDOW



OPTION	DESCRIPTION
A File	Open MotionMeasure, Close CamLink
B Lightsources	Match camera color processing constants to external lighting or force an auto whitebalance on the image received from the camera
C Overlay	Load/Clear user supplied screen overlays
D Help	Open the Help utility program
E Open MotionMeasure	Open MotionMeasure application
F Scan for Camera (23 Maximum)	Scan system for connected camera(s) <ul style="list-style-type: none"> <li>Remove any Compact Flash cards before scanning</li> </ul>
G Disconnect	Disconnect CamLink from the camera
H Record/Stop	Record (store frames), Stop recording
I Play Rev/Stop/Fwd	Replay image frame data
J Mark Frames From/To	Mark range of frames to be saved
K Save AVI File	Save marked frames as an AVI file

OPTION	DESCRIPTION
L Camera Settings	Remotely change camera operational settings: <ul style="list-style-type: none"> <li>Record and Play Rates</li> <li>Shutter</li> <li>Trigger</li> <li>Image Size (640x480 or 320x240)</li> </ul>
MPhase Lock	Synchronize multiple cameras to record an event from different angles
N IRIG	Synchronize camera to external IRIG standardized time code
O Lightsource	Match camera color processing constants to external lighting
P Zoom In/Out	Zoom in/out on viewfinder window
Q Grab Frame	Copy currently displayed frame to the windows clipboard

FIGURE 2: CAMERA AS REMOVABLE DRIVE



## I. CAMERA SETUP

1. Install MotionMeasure/CamLink software on your computer.
2. Connect power to the camera.
3. Remove Compact Flash card from the camera.
4. Using a USB cable, connect the camera to your computer USB port.
5. Raise the LCD display.
6. Press the camera **POWER** button.
  - If the MotionMeasure software was installed correctly, a window opens indicating connection with the host showing the camera as a removable drive (Fig.2).
7. Position and focus the camera to capture an event.

## II. CAPTURE AN EVENT (REMOTELY)

1. Double-click on the **Camlink** desktop icon.
2. Click on the **Scan for Cameras** button (Fig.1: F)
3. Click on the desired camera drive letter (Fig. 1: F).
4. Change camera default control parameters as required (Fig. 1: L-O).
5. Left-click on the **RECORD** button (Fig. 1: H) to begin storing images in camera DRAM memory and display live image on the computer screen.
6. Click the red **STOP** button (Fig. 1: H) to stop storing images.

If you need to recapture the event, press the **RECORD** button and repeat step 6.

## III. OBSERVE A STORED EVENT (REMOTELY)

1. Set **Play Rate** to the desired speed (Fig.1: L).
2. Press the **PLAY** buttons (Fig. 1: I) to observe the stored event in camera memory.
  - Play >** = Increment frames, start with the earliest frame stored in memory (-2183 or -4367).
  - < Play** = Decrement frames, start with the most recent frame stored in memory (-0000).
  - If Play Rate is not in **Step** mode, use the red **Stop** button between Play buttons to stop playback.
3. Note the beginning and ending frame numbers of the stored event of interest.
4. Images in memory are displayed in a continuous loop until the red **STOP** button (Fig. 1: H) is pressed.

## IV. SAVE A STORED EVENT TO AVI FILE

1. Set **Play Rate** (Fig.1: L) to a speed that will allow you to closely mark the first and last frame of event of interest.
  - In many cases, only a small subset of memory frames will contain the event of interest
2. Use the **PLAY** buttons (Fig. 1: I), display the first frame of the stored event of interest.
3. Click the **From:** button (Fig. 1: J) to mark the first frame.
4. Using the **PLAY** buttons (Fig. 1: I), display the last frame of the stored event interval of interest.
5. Click the **To:** button (Fig. 1: J) to mark the last frame.
6. Press the **Save AVI File** button (Fig. 1: K) to save the marked frame interval as an AVI file on the computer.
  - The Save AVI File button stays red while the images are being saved to the AVI file

## TRIGGER OVERVIEW

Images stored in memory are organized around the frame that's recorded the moment the stop trigger is detected. Triggers:

1. End – Store all memory frames recorded up to the moment the trigger is detected
2. Start – Fill frame memory after trigger is detected.
3. n% – Retain n% of frame memory after trigger is detected. Record new frames in remaining memory.

# MOTIONMEASURE QUICK START GUIDE

FIGURE 1: AVI PLAYER WINDOW

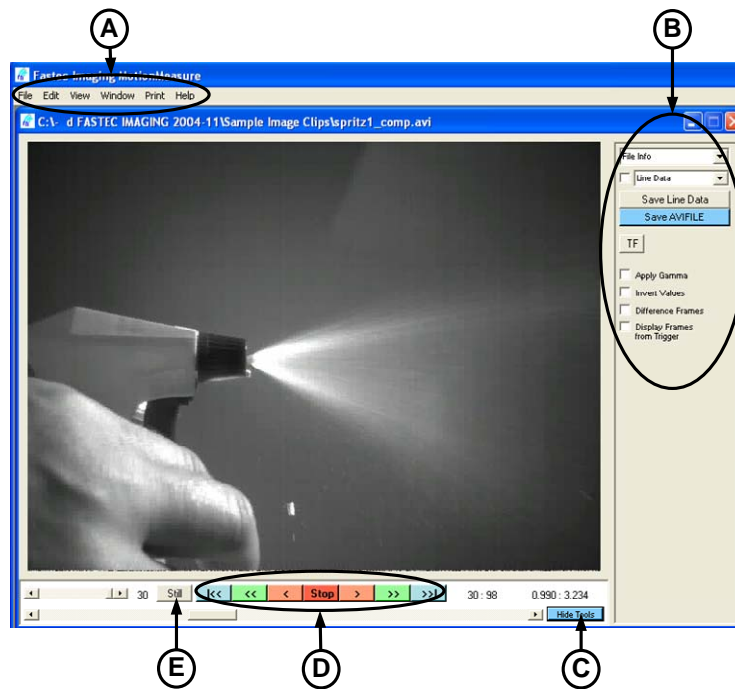


FIGURE 2: AVI STILL IMAGE WINDOW

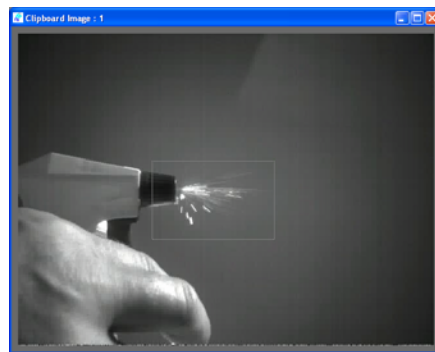
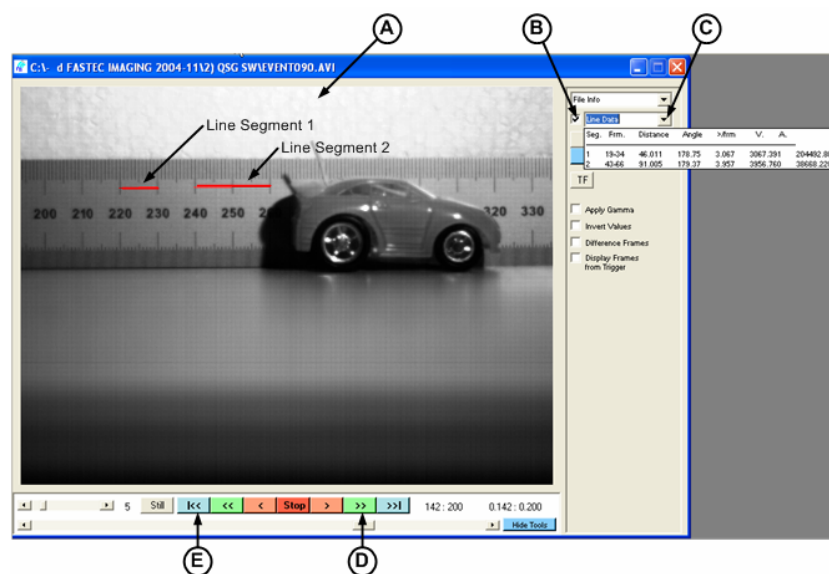


FIGURE 3: MEASUREMENT LINE DATA



## I. MOTIONMEASURE FUNCTIONAL OVERVIEW

Overview of software functions:

1. Remotely control multiple Troubleshooter cameras using the **CamLink** application (see reverse side of this QSG).
2. Open and image process multiple **AVI file Playback** windows (Fig. 1).
  - Display and save AVI file and line information
  - Capture still frame
  - Perform Gamma, Invert Values, Difference Frames (difference comparisons between adjoining frames)
  - Display frame numbers relative to the trigger point
3. Open multiple **Still Image** windows (Fig. 2) and perform **standard** image editing and processing operations using the **mouse pop-up** menu (Fig. 3: A).
  - Drag, crop, copy and paste regions of the image
  - Clone and smear pixels, perform an image histogram
  - Display magnified subset of pixels using the image spyglass tool
4. Open multiple **Still Image** windows (Fig. 2) and perform **advanced** image processing operations using the **Edit Tool** window (Fig. 3: B).

## II. OPEN, EDIT, AND SAVE AN AVI FILE

1. Double-click the **MotionMeasure** desktop icon to start the program.
2. From the **File** menu (Fig. 1: A), left click the **Open** option. The Open window is displayed.
3. Locate and left-click on the desired AVI file name, the file name is highlighted.
4. Left-click the **Open** button, the AVI file is displayed in an AVI Player window (Fig. 1).
5. Use the playback controls (Fig. 1: D) to view the AVI file contents.
6. Click on the **Show Tools** button (Fig. 1: C), the AVI Edit tools (Fig. 1: B) are displayed.
  - View AVI file information or capture line data
  - Save line and AVI file data
  - Trigger Frame reset
  - Apply Gamma, Invert Values, Difference Frames and Display Frames from Trigger
7. To open the Save As window:
  - Click the **Save AVIFILE** button (Fig. 1: B) to save AVI file edits
  - Click the **Save Line Data** button (Fig. 1: B) to save line data as an XLS file

## III. DRAW MEASUREMENT LINES

1. Open the AVI file of interest (refer to Section II).
  - Ensure the field of view contains a measurement reference (i.e. Metric ruler in Figure 3)
2. In the **AVI Edit Tools** window, click on the **Line Data** check box.
3. Example: To calculate **pixel width**, draw a reference line segment of known length in a single frame.
  - Place cursor on line starting point (Fig. 3: A, 220 mm)
  - Hold down the left mouse button, move cursor to line end point (Fig. 3: A, 230 mm), release mouse button
  - Line segment 1 data (Fig. 3: C) now contains the number of pixels in 10 mm (data is used to calculate the width of one pixel)
4. Example: To draw a **measurement line** (Fig. 3: A).
  - Use the Pg Up/Pg Down keys to view the first frame of the event of interest
  - Place cursor on the event starting point, depress and hold the left mouse button
  - Toggle the Pg Up key to advance frames to the event end point, position cursor on end point, release the left mouse button. A new measurement line (Line segment 2) is created
5. Repeat step 4 to draw another line segment.
6. Left-click **Line Data** dropdown (Fig. 3: C) to view the following line data.
  - Line sequence number
  - Start and stop frames
  - Distance between line end points in pixels
  - Line angle (9 o'clock = 0 degrees, 12 o'clock = 90 degrees)
  - Number of Pixels/Frame
  - Velocity and acceleration in Pixels/Second
7. To clear line data, uncheck the **Line Data** check box.
8. To save Line Data, click the **Save Line Data** button.

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This Quick Start Guide is intended for use as a supplement to the MotionMeasure User's Guide located on the CD provided with your camera.



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