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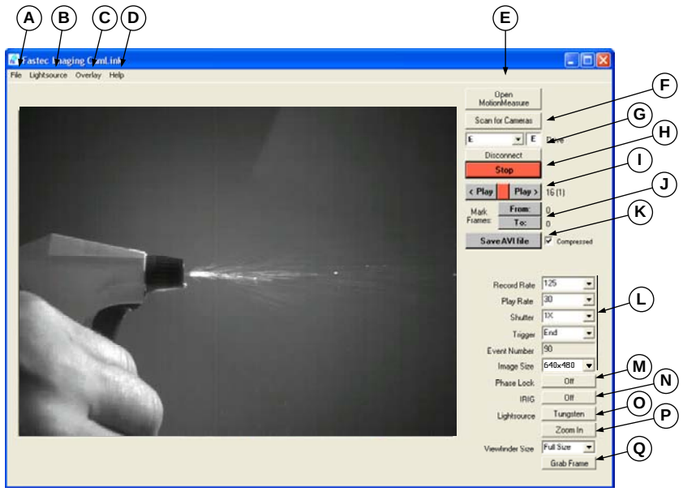
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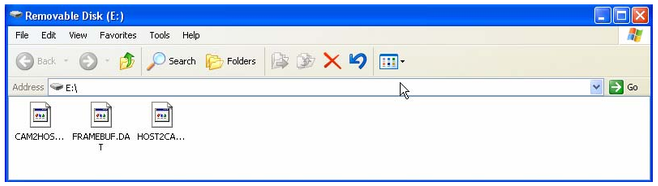
CAMLINK
QUICK START GUIDE

FIGURE 1: CAMLINK WINDOW



OPTION	DESCRIPTION
A File	Open MotionMeasure, Close CamLink
B Lightsource	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) • Remove any Compact Flash cards before scanning
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
L Camera Settings	Remotely change camera operational settings: • Record and Play Rates • Shutter • Trigger • Image Size (640x480 or 320x240)
M Phase 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.

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MOTIONMEASURE QUICK START GUIDE

FIGURE 1: AVI PLAYER WINDOW

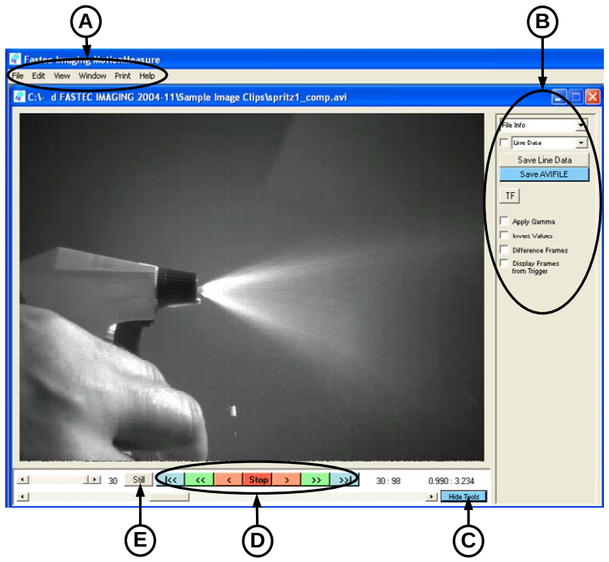


FIGURE 2: AVI STILL IMAGE WINDOW

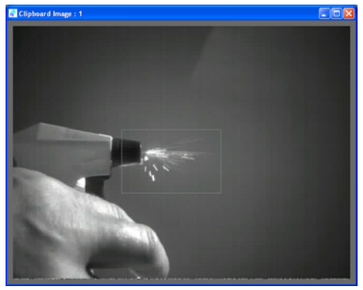
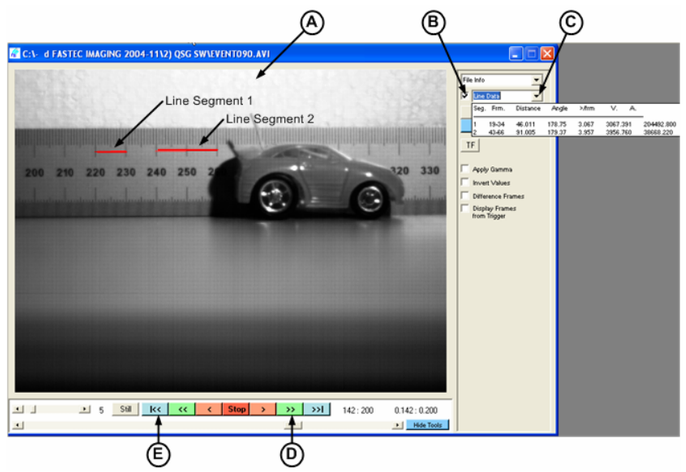


FIGURE 3: MEASUREMENT LINE DATA



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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