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Quick Start Tutorial



Video & EMG Acquisition and
Synchronization Software

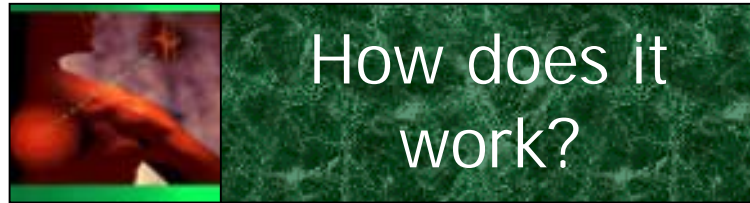


- Insert your MyoVideo CD into the CD-ROM drive of your computer
- Using Windows Explorer, click on the drive letter for your CD-ROM drive.
- Open the directory "MyoVideo" and double click on the "Disk1" folder.
- In the "Disk1" folder, find and double click the "setup.exe" file.
- Follow the InstallShield instruction. Unless you have a specific issue with directory and program group names, you can accept all the default values presented during installation.
- When finished, close all programs and re-boot your computer.
- Upon successfully re-booting, double click on the MyoVideo icon that is now on your desktop.
- When prompted for the password, enter "trial14days" and click OK.
- That's it!!! You now have 14 days to learn how MyoVideo can add to your EMG capabilities.

NOTE: For best performance, set your hardware acceleration setting to BASIC. This is done under Display Properties/Settings/Advanced/Performance.



If the *Dazzle video capture hardware has been included in your demo package, please install that software before continuing. You MUST have Windows 98 in order to use video capture.



EMG – The collection of EMG is done in the same manner as all of Noraxon's software. While specifically formatted for Noraxon EMG hardware, MyoVideo is able to record simultaneously up to 16 channels of any analog data. The program works with specific A/D (Analog-to-Digital) PC cards that convert the EMG waveforms into 12-bit digital signals. These signals are stored in the computer in a simple binary format that can be copied into MyoResearch with one mouse click. Furthermore, the files are structured so that the data can be easily extracted for use in the analysis software of your choice.

Video – The video capture is done by a device called a *Dazzle Digital Video Creator. This device and a simple camcorder are all you need to include video sequences of your subjects. The technology that makes this possible is called MPEG compression. The analog video source is captured at 30 FPS (Frames per second) and compressed to 1/10th its comparable size. As a result, you are able to acquire high resolution motion files without completely filling up your computer's storage space. Furthermore, this device interfaces to your computer via the USB port. This significant detail means that MyoVideo will work on notebook computers to provide the ultimate mobility.

Synchronization – Both the EMG and video data are collected at the same time. By integrating both acquisition capabilities, MyoVideo is able to synchronize the EMG data with each video frame. Once a measurement is recorded, you can play the sequence back, advancing frame by frame or real-time, to observe the EMG signal and the corresponding video frame. This allows you to place accurate markers to designate the various steps in a particular movement or activity. The synchronization is seen clearly as you step through a recording. When you click on a portion of the EMG signal, the video window jumps to the frame showing what the subject was doing at that time. Likewise, when you scroll to a particular video frame, the EMG cursor moves to the corresponding section of EMG.

The following pages describe the content of each part of the program.

DATABASE

When you first start MyoVideo, you arrive at the Database screen. This screen is the “jumping off” point of the program. From here, you can record a new measurement, view a previously recorded measurement, create and edit patient and measurement comments, and export files. The structure of the database file is 2 tiered consisting of Patients and Measurements. Creating a new patient is as simple as entering a name. You can add as much or as little detail as you wish to identify your subject. When you highlight a Patients name, every one of that patient’s recording is listed under Measurements. When you highlight a particular measurement file, the details of that recording are shown to the left, including the time/date, length of measurement, file size, sampling frequency as well as any comments or notes made about that recording. There is also a still shot of the corresponding measurement video sequence.

To review a measurement and to place/move markers, the measurement is highlighted and the “View” button is clicked.

VIEWER

Clicking on the “View” button takes you to the Measurement Viewer screen. The left side of the screen shows the EMG signals. On the right side are the video window and a comment section. Initially, the entire EMG measurement is displayed. As you click the mouse at any point in the EMG signal, you will notice that the corresponding video frame is also displayed. In the center of the bottom of the screen, the elapsed time from the beginning of the measurement to the point of the current cursor position is displayed. Also, in the center of each channel of EMG you will see the amplitude value of the signal at that particular time.

VIDEO

When the Play (>) button is clicked, the video will start playing in real-time from the last cursor position. You will notice that the EMG cursor tracks along indicating the point in the EMG signal. Once the end of the recording has been reached, the video will loop back to the beginning of the measurement and

continue. The video can be paused by clicking the Pause (||) button. The video can then be advanced frame-by-frame by clicking the Forward (>|) and Reverse (|<) buttons. Also, once paused, you can click on the HAND icon. This will "grab" the current video frame and save it as a bitmap in the "C:\Program Files\Noraxon\MyoVideo\Pictures" directory. The file can then be used in any type of report or presentation. The All Forward (>>|) and All Reverse (|<<) buttons will bring you to the end and the beginning of the measurement respectively. The video window can be re-sized by clicking and dragging the bar between the video window and the EMG signals.

ZOOMING

There are numerous controls for zooming in and out and increasing and decreasing the amplitude scale. The UP ARROW (↑) on each EMG channel will allow you to view one channel at a time. There is Scale Zoom (+ & -) for individual channels and Scale Zoom (All+ & All-) for all channels together. Zooming in the time domain is done using Zoom+, Zoom-, and Whole buttons. Zoom+ will zoom in around the cursor position. Zoom- will zoom out around the cursor position. And Whole will display the entire EMG signal. Another way to zoom around a portion of the EMG signal is to select it first. Click the mouse to position the cursor at the start of the portion you wish to zoom. While holding the mouse button, drag the cursor to the end of the region you wish to look at. You will see that the selected portion turns black. Now, if you click the Zoom+ button, the selected portion will fill the screen. Clicking the mouse again on any part of the EMG signal will deselect the portion, returning the background color to white.

MARKING & PRINTING

To place a marker, you simply position the cursor at the time in the EMG that designates some event in the recording and either double-click with the mouse or click the "Mark" button. You will notice that a number appears under the cursor. This number is how the marker is identified. Each time you create a new marker, all the markers are renumbered so that they are in numeric order from left to right. Associated with each marker is a marker label. If you do not type a marker label in the text box before you hit the "Mark" button, it will automatically use the default label of "Marker". You can change that label by positioning the cursor over the marker until the "Mark" button changes to "Rename". Then simply change the label and hit the "Rename" button. The "Delete" button is only active when the cursor is placed over a marker. Clicking the "Delete" button will remove the marker and renumber all the remaining markers.

*NOTE: You must have the Digital Video Creator device in order to perform video measurements.

MEASURE SETUP

Clicking on the "Measure" button on the top menu bar will bring you to the Measurement Configuration screen. This is where you define the parameters of the measurement. You can choose an existing patient or create a new patient. The default sampling frequency is 1000 Hz and can be changed simply by typing in a different value. Checking the "Set test time" box will allow you to have a pre-defined measurement time. The sweep speed setting determines how quickly the EMG signals "sweep" across the screen. The lower the number, the quicker the signal will go from right to left. Unchecking the "Enable Video" box will turn the video capture part of the software off. This will allow you to save disk space if you are taking a measurement that doesn't require video synchronization. **[Uncheck this box if you do not have the video hardware]**. "Video Performance" determines the frame capture rate. For most applications, this should be set at High. Checking the "Audio" checkbox will capture sound if you have the proper recording hardware.

CHANNELS

In order to choose which channels you want to record, you have to define them under "Type". Double-click in the "Type" box next the channel you wish to record. Choose the appropriate type. EMG is for raw (bi-polar) signals. IEMG is for integrated (positive value) signals. You can create new channel types by going into the "Options" menu at the top of this screen. Double-clicking on the "Amplitude" box will allow you to change your amplitude scaling. This is the scaling that the display will be set to upon the start of your measurement. You will be able to change that setting once you begin recording if it needs to be adjusted. The "View" and "Rec" checkboxes will determine which signals will be viewed and which will be recorded respectively. You are able to load and save your configuration settings so that you do not have to manually change them between different measurement setups.

MEASURING

Once everything is configured, you can begin your measurement by clicking the "Start" button. Again, the EMG signals appear on the left side and the video window and comment section are on the right. The display of the signals can be adjusted much like in the Measurement Viewer screen. The (+, -, ↑) symbols are used in the same way. The yellow dot (●) can be pressed to calibrate a single channel. The checkmark (✓) when depressed allows that particular channel to be calibrated during a global calibration (see below). The Zoom+ and Zoom- buttons adjust the amplitude scaling for all channels at once. The Faster and Slower buttons adjust the sweep speed of the EMG signals. The video window can be re-sized by clicking and dragging the bar between the video window and the EMG signals.

RECORDING

Before you begin to record, it is important to calibrate the EMG signals. The yellow ruler just below the video screen should be clicked right before you start your recording before the subject begins a movement. To start recording the measurement, click the red dot (●) under the video screen. The video window will black out for a moment and the EMG signals will turn from green to red. This indicates that you are now recording data. The elapsed time is displayed on the bottom center of the screen. Marking is performed in the same fashion as in the Measurement Viewer screen. When you click on the "Mark" button, you will see a line on the EMG signals indicating that you have successfully placed a mark. Once again, if you do not insert a name into the text box next to the "Mark" button, the default marker label of "Marker" will be used. Of course, this label can be changed later in the Measurement Viewer. You can pause the recording by clicking the Pause (||) button under the video window. You will notice that the EMG signals again turn green indicating that the recording has ceased. Clicking the Pause (||) button again will resume the recording. Once you have completed your measurement, click the Stop (■) button. A dialog box will appear and ask you to type a name for your measurement. If you click "Discard", the file will not be saved.

MYORESEARCH

In order to analyze your EMG data, it is necessary to export your files into MyoResearch. This is done using the "Copy" function in the Database screen. Copying entire Patients or individual Measurements is done in the same way. To copy a Patient, you must highlight the particular patient name and click on the "Copy" button under the Patient window. To copy a Measurement, you must highlight the measurement name and click on the "Copy" button under the Measurement window. Once clicked, you will go to the Copy menu. On the right-hand side will be the "Copy to" column. Here you will need to choose which type of copying you wish to do. Choose "MyoResearch" as your format. You will then have to specify the location of your MyoResearch software. In most cases, the directory will be "C:\Mr202". Then, choose which existing MyoResearch project you wish to copy the files into. Once you have defined your project, simply highlight the file that you wish to transfer in the left-hand column and click the double-arrow (>>) button. The file name will appear in the right-hand column indicating that it has successfully been copied. If you are copying measurements, you will have to choose the MyoResearch Patient as well as the Project.

The copied files when viewed in MyoResearch will have the EMG data, the Markers, the Patient information, and the Patient and Record comments that have been entered.

Under the OPTIONS section of the Database menu, you can set up an automatic export routine. By specifying the MyoResearch directory and checking the automatic export box, every file that is recorded in MyoVideo will be exported to MyoResearch immediately after the data is named and saved.

The data can also be exported in ASCII format using the copy function. This will allow you to view the data in standard spreadsheet and statistical programs.

System Requirements

In order for MyoVideo™ to function at its optimum level, the following computer requirements must be met or exceeded:

PROCESSOR:	Pentium III® at 450MHz
MEMORY:	64MB RAM
HARD DRIVE:	9.0 GB
FLOPPY DRIVE:	3½" 1.44 MB
CD-ROM DRIVE:	20X Speed
VIDEO CARD:	2 MB SVGA 800x600
MONITOR:	13" TFT Active Matrix Monitor
PCMCIA:	2 Type II Slots
KEYBOARD:	Standard PC Keyboard
MOUSE:	Microsoft® Compatible Mouse
PORTS:	1 Serial, 1 Parallel, 1 USB
O/S:	Windows 98® (Only)

*** It is also highly recommended that the system be used with a portable mass storage device (i.e. – CD-writer, ZIP® Drive, etc.).

While MyoVideo™ may work on computer systems that do not meet these requirements, it is possible that there will be performance issues. Specific problems may be found in the quality of the video image.

For best performance, set your hardware acceleration setting to BASIC. This is done in Windows® under Display Properties/Settings/Advanced/Performance.

Contact Noraxon

Now that you've had a chance to experience MyoVideo, please don't hesitate to call us, email us or visit our web site. We will be more happy to answer your questions and provide any additional information that you might need.

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