FlashTiming
for FT-FAT200/120

User Guide
Version 1.1
# FlashTiming User Guide

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1 Introduction

*FT-FAT200* is a radio linked, fully automatic timing system, which allows you to host quality track meets with accurate times and fast results. The system includes three radio linked components, a unit for the starter, a camera, and an interface to your computer that runs our included software. Also included is a Power over Ethernet (POE) switch, which is used to power cameras and connect the capturing, reviewing, and scoring computers.

The system’s easy-to-use software is intuitive and provides an informative interface for the timing official to communicate with the starter. *FT-FAT200* software captures time stamped video of the finished line and provides a unique, easy-to-access file naming system for each heat recorded. Playback of captured results is easy and your results can be transferred to your meet management application with a click of a mouse.

The software that ships with the *FT-FAT200* works with both the *FT-FAT200* and our earlier *FT-FAT120* system.

1.1 Minimum System Requirement

Computer used for capturing videos, running *FlashTiming200*:

- Pentium i5, 2.5Ghz processor or better *
- 8 GB of RAM
- 200 GB Hard Drive
- 1024 X 768 resolution monitor. (1980 x 1080 recommended)
- Windows 7 or later, 64bit
- USB 2.0 port
- 1 Gigabit Network adapter (Ethernet)

* There are many variables that determine the computer’s speed. We suggest that you go to [www.cpubenchmark.net/cpu_list.php](http://www.cpubenchmark.net/cpu_list.php) and look up your computer’s processor. We recommend a processor with a rating above 4000 to achieve 200 frames per seconds. The FT-FA200 may be run at a lower frame rate to accommodate slower computers.

Computer needed for reviewing videos:

- Pentium 4, laptop or desktop computer
- 1.6Ghz, 2MB L2 Cache
- 1 MB of RAM
- 80 Gigabytes HD
- 1024 X 768 resolution monitor*
- XP with Service Pack 2 or 3, Vista, or Windows 7 Operating System
- Network adapter (Ethernet), if using multiple computers

* Computers with screen resolution at or near the minimum size need to have the text size set to normal (DPI = 96pt). Otherwise, portions of the user interface may not fit on the screen.
1.2 Installing the Software

The installation program, `setup200.exe`, is available for download. Download instructions are emailed to the user when the product is purchased.

Run `setup200.exe` on the computers you will use for capturing and reviewing videos. Do not plug in the FT-FAT200 camera or the USB radio until instructed to do so.

To install the software:
1. Run Setup200.
2. Accept all defaults in the Installation Wizard. The Installer installs .Net4.5.3 if needed, the FlashTiming FT-FAT200 software, Device Drivers for the camera and the USB radio.

1.2.1 Device Drivers

Device drivers for the USB radio and digital cameras are installed as part of the installation process. Connect the USB radio unit to your computer to install the device drivers.

1.2.1.1 Existing FT-FAT120 Users

The FlashTiming200 software replaces earlier camera drivers that were used with the FT-FAT120. Users with both the FT-FAT120 and FT-FAT200 systems should remove the FlashTiming120 software and use the FlashTiming200 software for both the FT-FAT200 and FT-FAT120.
2 System Set-Up

2.1 Hardware Setup

Follow these directions for setting up your FT-FAT200 system:

1. Attach the right angle antenna to the back of the camera cover.
2. Attach the power cord to the black Trendnet POE Switch. Plug the power cord into a standard wall outlet.
3. Connect the camera to the Trendnet POE Switch with a Cat6 Ethernet cable. Plug one end of the cable into the Ethernet port on the bottom of the camera cover. Plug the other end of the cable into one of the 4 ports on the back of the switch labeled POE.
4. Connect the POE switch to the computer with the provided 3ft Cat6 cable. Plug one end of the cable into any port on the back of the POE Switch. Plug the other end of the cable into the Ethernet port on your computer. You must have a 1Gbit Ethernet port for the camera to obtain 200 frames per second.
5. Connect the USB radio to the computer with the USB cable provided with the system.
6. Attach the right angle antenna to the USB radio or use the external antenna if in a metal press box or another setting that may impede the radios from communicating.
7. Attach the straight antenna to the top of the FT-FAT200 starter unit. Put three AA batteries in the battery compartment in the back of the starter unit. If the starter unit has batteries, turn on the unit by pressing the green button.

Turn off your Windows Firewall and any third party security software, such as Norton and McAfee. Exit all other applications and then launch FlashTiming200. Click on Video Capture on the start up window to bring up the capture screen. The preview area in the capture screen shows the live video image and the radio status in the upper right hand corner indicates that the radios have been initialized. See Section 3.3.4 in the manual if this does not occur.

2.2 Lens Aperture

The lens aperture, or iris, controls the amount of light reaching the camera sensor and should be adjusted based on a variety of performance tradeoffs. For most purposes it is recommended that this position be set about 20% away from the Open position. The adjustment is made with the middle thumb screw on the Tamron lens model 12VM412ASIR. This adjustment has a range from Open to Close and is labeled O on the open end and C on the closed end.

Fully opening the aperture will soften the image (i.e. slightly degrade the lens resolution), but will allow for the lowest possible exposure and reduce motion blur in environments with very low light levels such as night meets or poorly lit areas. For extremely bright situations such as direct sunlight, the camera image may be saturated white unless the aperture is further closed. The camera’s automatic exposure and gain settings are generally capable of compensating for these different conditions, and the optimal tradeoff is 20% away from the fully Open position.

See section 3.3.3 of the manual for information on controlling the camera’s settings.
2.3 Computers Setup

You can set up your FlashTiming System to work with one, two or three computers. One computer is sufficient when you have adequate time between races for one person to review the video and record the times. If you are hand-recording the results from the video then one person can easily capture and record the results. If you are exporting your results to a meet management/scoring program, such as Hy-Tek’s Meet Manager, and there are no changes to the heat sheets at the start of the race, except for scratches, recording the results of a lane race takes very little time. Non-lane races may take a few minutes to score as you have to match the finish order of the athletes with the times.

It is not unusual, especially at the middle and high school levels, for multiple changes to be made to the heat sheets at the start of the race. Heats and even events are often combined. If your meets are pre-seeded and you are exporting time results to a meet management application, you must update the heat sheets in the meet management application before recording the results. This may take some time and you may opt to have a second computer to review the video. In this situation, one person is dedicated to capturing the race and the videos are recorded and stored on the capture computer. Another person is responsible for reviewing the videos and recording the times on a second computer, the playback computer.

FlashTiming interfaces with the following third-party meet management and scoring software packages:

- Hy-Tek’s Meet Manager
- Apple Raceberry JaM’s ScoreMeetLynx
- DirectAthletics MeetPro
- Easyware’s Easy Meet Manager
- Enduro Meet Event
- RaceTab
- Runner Card
- Sports Automation’s TrackMate
- Sydex’s Track Gold and Meet Manager

If you are using one of these programs, you may opt to use a third computer dedicated to scoring the meet. This third computer is not required, and with two computers it is easy to switch between FlashTiming and the meet management application on the playback computer. However, three computers are most efficient for a larger meet or when you need to record the field and track events simultaneously. The meet management operator spends most of the time entering results from the field events into the meet management application. The review judge notifies the meet management operator when all times from a race are recorded and saved. The scoring official loads the times into the meet management application and the race is scored.

The *FT-FAT200* video camera requires at least a 1 Gigabit Ethernet connection and the system comes with a 1Gbit POE/Switch for powering your camera and connecting your computers. Your computers should be connected together on a local area network (LAN) isolated from other network traffic. We do not recommend using a wireless network (because of delays during playback) or a network with other computers that may be receiving network traffic during critical times during capture and playback. If the computers are connected to a larger network and any network traffic happens while you are
capturing, there is a potential that frames will be lost. Video Capture is CPU intensive and we recommend that the capture computer not be used in a way that would cause interfering software to be installed (adware, automatic updates, etc.) that might cause CPU usage during a capture.

2.3.1 Connecting Computers to a LAN

Setting up your local area network (LAN) can often be problematic. Follow these steps for the best results when using a router or switch:

1. Turn off wireless connections on all computers.
2. Turn off all computers.
3. Connect all computers to the switch with an Ethernet cable.
4. Connect the cable from the camera to the POE switch.
5. Turn on all computers. Verify that there is a light on the router for each connected computer.
6. Turn off all Windows and third party firewalls.

You need at least a 1 Gigabit router to connect the computers. Only the capture computer needs 1 Gigabit Ethernet port. Use a Cat6 Ethernet cable when connecting the capture computer and the camera to the router. See the appendix for more details on networking your computers.

2.4 The Capture Folder

Video from a meet is recorded and stored on the capture computer. When using two computers, the playback computer is used to retrieve the video from the capture computer, review the video and record the results. By default, FlashTiming stores your videos by meets in subfolders under the folder `c:\FlashTimingVideos`. FlashTiming shares this folder and allows other networked computers to read the videos. If you want to save your videos in another folder, you need to create that folder on the capture computer. If you are reviewing the videos on a second computer, you must share the new folder and be sure that the playback computer has read/write access to it. See the appendix for information on networking computers and sharing folders.

It is a good idea to copy the captured videos to CDs or a DVD at the end of the season and delete the subfolders and video files from your hard drive. The video files are large and take up a lot of disk space. One minute of video requires 200MB of disk space. A typical meet requires 20-40 minutes of video, or 4-8 gigabytes of disk space.

2.5 Scoring Data Folder Setup (Optional)

The Scoring Data Folder is the location on your scoring computer used to exchange data files between FlashTiming and one of the following compatible meet management software packages:

- Hy-Tek’s Meet Manager
- Apple Raceberry JaM’s ScoreMeetLynx
- DirectAthletics MeetPro
- Easyware’s Easy Meet Manager
- Enduro Meet Event
- RaceTab
Runner Card
Sports Automation’s TrackMate
Sydex’s Track Gold and Meet Manager

These applications can be used to schedule your track and field events, seed your athletes and score your meet. When configured to exchange data with FlashTiming, these applications generate a list of track events and their participants. FlashTiming uses the list of events to identify the upcoming races and name the resulting video file. It displays the names of the race participants when reviewing the video to determine the athletes’ times. After all times for a race are recorded, FlashTiming writes a file containing the race results, which is read by your meet management application.

You need to create or designate a scoring data folder on the scoring computer when you are using a meet management application. If you are scoring your meet on a separate computer, the scoring data folder must be set up for file sharing and allow other computers to write to it. See the appendix for instructions on how to network computers and set file sharing manually.

See the sections below for creating the data folder and setting your meet management application to exchange data files with FlashTiming.

### 2.5.1 Hy-Tek’s Meet Manager

Hy-Tek’s Meet Manager users need to purchase Meet Manager’s Photo Interface Option to exchange data with FlashTiming. You can check to see if the Photo Interface Option is included with your license of Meet Manager by doing the following:

1. Run T&F Meet Manager.
2. Click Help in the main menu bar.
3. Click About.
4. **Photo Finish Interface** is checked if you have the option.

#### 2.5.1.1 Initialize the Photo Interface

The first time you use the Photo Finish Interface in Meet Manager you need to set the appropriate options. You only need to perform this set-up once.

1. Run T&F Meet Manager.
2. Click **Run** on the main menu bar.
3. Click **Interfaces** on the menu bar.
4. Click **Setup**.
5. Click **Photo Finish**.
6. If you have Release 2.0 CD* or later, click **Flash Timing**. Otherwise, click **FinishLynx File Sharing**.
7. Click **OK**.
* The release version number is located in the lower left corner of the main screen.

#### 2.5.1.2 Erase Previously Created Event Lists and Time Files

We recommend that you remove the previously created event lists and time files from previous meets before starting your meet. You can remove any existing data files from
either the Meet Manager or FlashTiming application. To delete the files from Meet Manager:

1. Run T&F Meet Manager.
2. Click File on the main menu bar.
3. Click Purge from the drop down menu.
4. Click Remove Data Selectively.
5. Check Interface Files located at the bottom of the Remove Data Window.
6. Click OK.
7. Click OK when asked if you are sure you want to delete the files.

This deletes the event list and time results files from the data folder designated in the next step.

2.5.1.3 Save the Start List

It is recommended that you use the default Meet Manager folder for your data folder. The default folder is c:\tfmeets4 for version 4.0, c:\tfmeets3 for version 3.0 and c:\tfmeets for version 2.0 and earlier is c:\tfmeets. Once athletes and events are entered in Meet Manager, set the data folder location in Meet Manager and save the start list. From the Meet Manager application:

1. Click Run on the main menu bar.
2. Click Interfaces on the menu bar.
3. Click Photo Finish - Flash Timing (or Photo Finish - FinishLynx File Sharing Mode).
4. Click Update Start Lists to bring up the Update Start List Window.
5. Select a session in the Session List.
6. Check Activate update of start lists.
7. If you want to save the data to a folder other then the default:
   a. Click Change Data Location.
   b. Browse to the data folder and double click the folder name. Be sure the name of the selected folder is displayed at the top of the dialog).
   c. Click OK to return to the Update Start List Window.
8. Click OK to return to the Run Scene. A message appears, “Schedule and start list successfully copied to <data folder>”.

If you choose to reuse the default folder, c:\tfmeets or c:\tfmeets3, as the meet management folder, you do not need to reset the folder at the start of each meet. Just be sure to purge the interface data before starting. You can then save the start list from the run menu by typing <Ctrl-U>. You’ll see the same message as in step 10 above.

2.5.2 Apple Raceberry JaM’s ScoreMeetLynx

Apple Raceberry JaM users need to purchase the FinishLynx/FlashTiming interface option to exchange data with FlashTiming. The upgrade is called ScoreMeetLynx.

Once your meet is created, run ScoreMeetLynx and open the Roster.Tex file in the Seeded directory. Check the Records must be F.A.T. box in the Meet Parameter dialog.

After your heats are set up and late entries are added, you need to save the event list. Click File in the main menu and then Create Lynx/FlashTiming Input Files. ScoreMeetLynx
displays the standard file dialog opened to the Seeded directory. Save the lynx.evt file in the seeded meet directory. Do not rename the file.

*ScoreMeetLynx* assigns event numbers to the men and women’s event. It asks you for a numeric offset for event numbers to distinguish the men’s from the women’s event. FlashTiming uses the event number and description to name the video files and the resulting time results files.

*ScoreMeetLynx* creates a lynx.sch file after saving the lynx.evt file. Save the lynx.sch file in the same folder as the lynx.evt file. Click *Yes* when asked if you want to finalize the schedule.

You must resave the lynx.evt and lynx.sch files if you change your schedule of events or heat assignments.

### 2.5.3 DirectAthletics MeetPro

*FlashTiming* can read the events lists and heat sheets from *MeetPro*. Time results from FlashTiming can be saved to the computer’s hard disk and then read directly into *MeetPro* to score the meet. Create a data folder dedicated to exchanging data with *FlashTiming*, such as c:\FlashTiming. Once the folder is created, setup *MeetPro* to exchange data with FlashTiming:

1. Set up your track meet in *MeetPro*.
2. Click on **Interfaces, FlashTiming** and then **Setup**.
3. Browse and select the folder that will be used to exchange data with FlashTiming.
4. Select Auto-Update Start Lists if you want MeetPro to automatically update your start list when changes are made to the heat sheets or event list. Otherwise you can manually recreate the start list by continuing to step 5.
5. Click **Interfaces, FlashTiming** and then **Update Start List** to save the list of events and heats sheets. MeetPro will not create the start list if there are no races seeded.

### 2.5.4 EasyWare Easy Meet Manager

*FlashTiming* can read the events lists and heat sheets from EasyWare’s *Easy Meet Manager*. Time results from FlashTiming can be saved to the computer’s hard disk and then imported into *Easy Meet Manager* to score the meet. Create a data folder dedicated to exchanging data with *FlashTiming*, such as c:\FlashTiming. Once the folder is created and you created your events and seeded your athletes in *Easy Meet Manager*, you need to save the list of events and seeded athletes.

1. Run *Easy Meet Manager*.
2. Click **File** in the main menu bar and then **Create FinishLynx Type File** from the dropdown menu.
3. In the standard window file dialog, browse to your meet management data folder and click **Save**. Do not rename the file.

### 2.5.5 RaceTab

*FlashTiming* can read the events lists and heat sheets from *RaceTab*. Time results from FlashTiming can be saved to the computer’s hard disk and then read directly into *RaceTab* to score the meet. Create a data folder dedicated to exchanging data with *FlashTiming*, such
as c:\FlashTiming. Once the folder is created, setup RaceTab to exchange data with FlashTiming:

For RaceTab version 3:

1. Set up your track meet in RaceTab.
2. Click the Events tab.
3. Click the Get Times button on the right.
4. Browse and select the folder that will be used to exchange data with FlashTiming.
5. In the Timing System Interface window, select FT-FAT under What brand is your FAT System.
6. Select Race Results under Automatic Import
7. Events, Teams, Schedule and Athletes under Automatic Export.
8. Click Save and Done. Your event list and heat sheets are automatically saved and updated every time you change the event list or heat sheets.

Press the Get Times button after a race has been timed to bring in the times from FlashTiming.

For RaceTab version 4:

1. Set up your track meet in RaceTab. Be sure to select Yes for Fully Automatic Timing under the Setup tab
2. Click the RaceTab logo at the top left of the screen.
3. Click the Sources button that appears in the dropdown.
4. Select FAT Camera on the right hand side under Add a Source
5. Select FlashTiming as the Vendor:
6. Click Browse next to Data Folder:
7. Browse and select the folder that will be used to exchange data with FlashTiming.
8. Select Automatic to have RaceTab automatically update the event list and heat sheets when each heat is seeded
9. Click Save and Done.

Right click the Camera Icon in the top left and select Get Times after a race has been timed to bring in the times from FlashTiming.

2.5.6 Sydex’s Track Gold and Meet Manager

FlashTiming results can be saved to the computer’s hard disk and then read directly into Sydex’s Track Gold and Meet Manager with a click of a button.

1. Create a data folder dedicated to exchanging data between FlashTiming and Sydex, such as C:\Results (This folder name must contain less than 16 characters including “c:\”)
2. Set up your track meet in Sydex Track Gold and Meet Manager.
3. Click Meet Entry in the Main Menu.
4. Highlight your meet in the list and click on Change Meet under the Full Results Meets section
5. The Track Multi-Team Meet Entry window appears. Click Change Meet Info on the bottom left.
6. Check **Use Finish Lynx or FAT** in the Meet Information Dialog on the bottom right.
7. In the text entry box next to **Lynx/Timing Folder**: type the name of the folder you created in step 1 (such as C:\Results)
8. Press **OK** to return to the **Track Multi-Team Meet Entry** page
9. Double click on an event to open the **Event Options** dialog (or select an event and click **Process Event**)
10. Seed the event by clicking **View/Change Seed List**
11. When finished seeding the event, close the window by pressing the “x”
12. In the **Event Options** dialog select **Setup Flights/Heats**. The **Event Controls/Setup** dialog appears.
13. From this menu you can generate a new heat, change an existing heat, or delete an existing heat. Note the number of **Prelims, Quarts, Semis, and Finals**, which will be determined by the number of athletes in the event. If eight or less contestants are seeded, there will typically only be one **Final** and no **Prelims, Quarts, or Semis**.
14. Generate a new heat by clicking **Finals** under the **Generate New** section. If a **Notice**! appears warning that the race is already present, press OK to close the popup and change the heat by clicking **Finals** under the **Change Existing** section.
15. The **Current Heat Arrangement** dialog appears. Make any necessary changes to the heat and close the dialog by pressing the ‘x’
16. The LYNX.EVT file will be created in the designated folder (such as C:\Results). If the file does not appear, delete the heat by clicking **Finals** under the **Delete Existing** section, then regenerate the heat using by clicking **Finals** under the **Generate New** section.
17. If the file is still not being created, check to verify that the name of the specified folder matches the folder on your C:\ drive and that the file does not exceed 16 characters. Also verify that your race is seeded before generating heats. Sydex will not create the start list if there are no races seeded.

### 2.5.7 Sports Automation’s TrackMate

*FlashTiming* can read the events lists and heat sheets from Sports Automation’s *TrackMate*. Time results from *FlashTiming* can be saved to the computer’s hard disk and then read directly into *TrackMate* to score the meet. Create a data folder dedicated to exchanging data with *FlashTiming*, such as c:\FlashTiming. Once the folder is created, setup *TrackMate* to exchange data with *FlashTiming*:

1. Run *TrackMate* and click the **Timing System** button in the main window.
2. Click **Configure** in the Timing System window. This brings up the Configure Timing System Window.
3. Select **FlashTiming** from the **Select Timing System** List.
4. Browse to the folder that is be used to exchange data with FlashTiming.
5. Select **Hundredth of a second**.
6. Click **OK**.

Next, sort your events in the order they will be run. Click the **Event Schedule** tab in the Timing System Window. Click and drag the events to their correct position. A start list and schedule is automatically created when you create races/heats/flight in *TrackMate* and is stored in the designated folder.
3 Getting Started

Exit all other applications and disable firewalls and virus checkers before starting *FlashTiming200*. All windows and third party firewalls must be disabled to successfully access your *FT-FAT200* camera. Virus checkers may scan the video on capture and other applications may reduce the CPU usage allocated to *FlashTiming* resulting in dropped frames and loss of video data.

To launch *FlashTiming*, click the *FlashTiming200* shortcut located on your computer’s desktop, or open the **Start** menu, click **All Programs, FlashTiming** Folder and then **FlashTiming200** from the dropdown menu. The *FlashTiming200* startup screen appears. Select either **Video Capture** or **Video Review** from the startup screen.

- **Video Capture** shows live feed from the video camera and allows you to capture and save time-stamped videos of your races.
- **Video Review** allows you to play previously recorded race videos, record athlete’s times and transfer the race results to your meet management application.

Note: You must have administrative privileges to run *FlashTiming*. Depending on your user control settings, you may be logged in as administrator but may not have administrator privilege when running *FlashTiming*. If you receive a error message while running *FlashTiming* that you do not have sufficient privileges, exit the program and restart by right clicking on the *FlashTiming* icon and then clicking “**Run as administrator**.”

3.1 Configure

Before capturing or reviewing videos you must set your scoring preferences and tell *FlashTiming* where to store its data. The Configure Window automatically appears the first time you enter the capture screen. You can also set your options at a latter time by selecting **Configure** in the main menu bar.

The Configure Window allows you to specify the location of your video files and your meet management data when using a third party meet management application. If you are not using a meet management application, you may specify your preferred method for naming your captured videos.

3.1.1 Video Capture Folder

The video capture folder is the location where *FlashTiming* stores and retrieves your captured videos. When capturing videos, *FlashTiming* can create a folder for your race videos or you can select an existing folder to store your captured videos. When reviewing videos, you must select an existing folder, which contain the saved videos.

**Create or Select Meet Folder on this Computer**: Click this button if you are capturing videos on this computer, or you are reviewing videos stored on this computer. In the Create Meet Folder window enter the name and date of your meet and *FlashTiming* creates a folder on the computer’s C drive under *C:\FlashTimingVideos*. This folder is shared and the folder permissions are set to allow other users to read the files.

You may also select a previously created meet folder from the list.
It is recommended that you assign the computers to the same workgroup if you are reviewing videos on a separate computer. When selecting an existing meet, you will be able to easily find your meet folders by selecting the capture computer. See the Appendix for information on setting Workgroups.

Tip: Select Computer/Setup Info from the View menu to see the name, workgroup and IP address of the computer.

Browse to Select Folders on another Computer:
Click this button if you are reviewing videos stored on another computer.
1. Click on Network in the Browser for Folder Window. The list of network computers is displayed. This may take a couple of minutes for Windows to generate the list.
2. Click on the Capture Computer.
3. Click the folder, FlashTimingVideos.
4. Click the folder for your meet. The folder name is a combination of the date and meet name.
5. Click OK.

The captured videos folder must be set for file sharing and the Capture Computer’s firewall must be either turned off or setup in such a way that allows the Playback/Review Computer to access it. See the appendix for information on networking computers and sharing files.

3.1.2 Scoring Options

3.1.2.1 Meet Management Software
The next step is to specify which meet management application you wish to use with your meet. Click on the text box labeled Meet Management Software and select your meet management application from the list. Select None if you are not using a meet management application or if you are just reviewing video and are not recording times.

3.1.2.2 Scoring Folder
You need to specify the location for saving your race results. If you are using a meet management program to score the meet, you must first save your event list to the folder designated in your meet management program before selecting the folder in FlashTiming. See Meet Management Data Folder Setup in the previous section for more information. The program will remember the last scoring folder and you can click View Event List to verify that you have the correct event list. Otherwise, click Set Scoring Folder button.

Select the meet management data folder from the browser. This folder should be the same folder specified in your meet management application. If the data folder is on another computer, you must set the folder for file sharing with write permission. If you mapped the
folder to a network drive, the data path is listed in the browser as the drive letter. Otherwise, you can find the folder under Network in the folder browser.

You may save your results to a text file if you selected None for your meet management software. The default scoring folder in this case is \FlashTiming\Results. You may leave the folder as the default or select your own folder for saving the results.

### 3.1.2.3 Remove old results
If you reuse the same data folder for each meet, you should remove all old race results files from the folder before reviewing videos and determining times for your current meet. Check the box **Delete existing time results files** when you first configure FlashTiming for your meet. If you are unable to delete the files, check that you have write permission to the meet management data folder.

**Note:** This step is unnecessary for Sydex’s Track Gold user, since Track Gold deletes the results files once they are imported into Track Gold.

### 3.1.2.4 Number of lanes
Enter the number of lanes on the track where the meet is hosted. This is used to as the default number of entries in the results table.

### 3.1.3 File Naming Options for Non-Meet Management Users
If you are capturing videos and not using a meet management software package you must select a naming option for your captured videos. If you selected None as your meet management option, you have two choices for naming and saving your captured video: **FlashTiming File Naming** or **Import a List of Events**. You can ignore this selection if you are only reviewing video.

#### 3.1.3.1 FlashTiming File Naming
This option provides you with a set of menus for gender, event, division, round and heat when saving your captured video file. Your menu choices create a descriptive filename for your captured video.

You may customize the event and division menus by selecting the option **FlashTiming File Naming** Option and clicking on the **Customize File Menus** button.

The list of Selected Events shows the items that will be available when saving your captured video. Customize the menu by:

1. Adding events from the list on the Available Events: Select the event in the available event list and click **Add**. The event is added to the selected events list.
2. Remove events from the Selected Event List: Select the event in the Selected Event List and click **Remove**. The event is deleted from the selected events.
3. Add new events to the list of available events: Type in a new event in the text box and click **Add Custom Event**. The event is added to your list of available events. You may now add the event to your selected event list.
4. Delete events from the available event list: Select an event in the available event list and click **Delete Above Selected Item**. This removes the item from the available event list, but not the selected list.

Click the **Save** button to store your new menu setting.
3.1.3.2 Event List From Text File
You can create your own list of scheduled events, read in the list and use the list to generate the filenames for your captured videos. Sample entries may include:

- Girls Varsity 4X100
- Boys Varsity 4X100
- Boys JV 4X100
- Girls Varsity JV 1500
- Boys Varsity JV 1500
- Girls Varsity 100
- Girls JV 100 Heat 1
- Girls JV 100 Heat 2

The list is displayed in the Capture Screen and shows the upcoming events. When saving a video, you can select an event from the list to generate a descriptive filename for your captured video. The resulting filename is the event name with an “avi” extension, E.G.: Girls Varsity 4X100.avi, Girls Varsity JV 1500.avi.

The imported list must be a text (.txt) file and should contain all race events in the meet, sorted in the order they will be run. Each entry should be on a new line and the list should contain separate entries for each heat.

To import a text file:
1. Click the option named Event List from Text File
2. Click Import Event List Text File.
3. Browse to the folder containing the event list text file, select the file and click Okay.

There is an example of an event list text file on the FlashTiming CD.

Click OK to save your settings and close the configure window.

3.2 View Menu
The View menu, located in the main menu bar, is available from both the capture and review Screen. Use it to verify your computer, setup and event information.

3.2.1 Computer and Setup Information
The Computer Information dialog displays the computer’s name, IP address and workgroup. This information is useful if you are networking computers. The dialog also shows the name of the captured video folder and your meet management data folder.

- Click View from the Menu Bar and then click Computer/Setup Info.

3.2.2 Event Information
You may view the seeded athletes for each event if you configured FlashTiming to work with your meet management application. This option is not available if you are using the FlashTiming File Naming Menu Option to save your captured videos.

- Click View from the Menu Bar and then click Show Event List.
4 Video Capture

The Capture Screen allows you to capture and save videos. It displays the live feed from the video camera, the radio status, list of captured video and list of events. When you first enter the capture scene, the program, initializes the video camera, established radio communication between the radio units and displays the Configure Window. The camera needs to be connected to the computer, the USB radio needs to be plugged in, the starter radio needs to be powered on with good batteries, and an antenna attached to all three units for the camera and radio initializations to succeed. To bring up the capture screen:

- Click the Video Capture button on the start screen, or
- Click Capture Video from the main menu in the Review Screen.

4.1 Capture Video Startup

4.1.1 Initializing the Video Camera

The system may take up to one minute to initialize the video feed from the camera. If you just plugged in the camera and do not have an image in the preview area, wait one minute and select Camera from the main menu and then Initialize Video Interface. The computer will continually check for the video camera. If your camera does not appear in the list, review the setup instructions and verify that all connections between the camera and capture computers are secure. Also click Camera IP Address to verify that the IP address of the
camera matches the IP address of the computer. See the Camera Menu Section below for more information on initializing the camera and setting the camera’s IP address.

### 4.1.2 Initializing the Radio

FlashTiming will attempt to establish communicate with the starter unit and camera after it detects the video camera. The camera needs to be connected to the computer, the starter radio needs to be powered on with good batteries, and an antenna attached to all three units for the radio initialization to succeed. The first time connecting to a camera, the system detects all camera and starter FT-FAT radios in range. The Detect Radio window lists the radio’s serial numbers as they are discovered. Click the Stop button after all cameras and starters have been detected. If the radio you are trying to initialize does not appear, verify that the radio is powered and the antenna is attached. Press the Stop and Detect button to re-detect the radios. After the radios have successfully been initialized press the Close button.

See the FT-FAT Radio Menu Section below for more information on initializing the FT-FAT radios.

### 4.1.3 Configure FlashTiming

You first need to identify the folders to save your captured videos and meet results before capturing any videos. The Configure Window appears automatically the first time you enter the capture scene. See the Section above for details.

### 4.2 Camera Menu

#### 4.2.1 Initialize Video Camera

FlashTiming looks for the video camera when you first enter the launch the program and automatically displays the image in the preview area in the capture screen. If you connect the video camera to the computer after you started the FlashTiming program, you must initialize the video interface to receive a video signal:

- Click Camera for the main menu and then Initialize Video Camera.

A window appears with a list of attached video. The system continues to scan for new cameras every few second and it may take up to a minute for a new camera to be detected after you connect it to your computer.

If you have multiple video cameras connected, you may switch between them by selecting the desired camera then OK.

If you lose the connection to the camera, you’ll need to reestablish the connection by initializing the video camera.

#### 4.2.2 Camera Settings

You can change the video frame rate and adjust the camera’s exposure and gain values to compensate for different lighting.

- Click Camera from the main menu and then Camera Settings
4.2.2.1 Exposure and Gain
The camera’s exposure sets the shutter speed and determines how much light gets to the image center or reaches the camera’s chip. High exposure results in a brighter image; low exposure results in a darker image. The gain setting turns the brightness level of the image up or down once the camera receives the image. It allows you to get a brighter or darker image without changing a shutter speed. Be aware that the more you increase the gain, the noisier the image gets, or the grainier it becomes.

Click Auto Adjust for the program to optimize the exposure and gain for the frame rate and current lighting.

Check Manual Adjust to be able to set the exposure and gain with the slider controls.

4.2.2.2 Video Frame Rate
The FT-FAT200 system is capable of capturing video at 200 frames per seconds. When in capture mode, the software captures, compresses, encodes the time stamp on and saves each video frame. The host computer may not have enough computing power to process each frame as it is received, and as a result, will drop frames. Whenever you capture and save a video with dropped videos, the system will issue a warning. In this case, you may choose to decrease the video frame rate.

Click Auto Adjust and the program will perform a series of one minute capture tests to select the best frame for your computer.

Click Manual Adjust to set the frame rate with the slider control and perform a test at the selected rate.

Note: To optimize the frame rate, exit all other programs, remove any unnecessary background applications, and if connected, disconnect from the internet.

4.2.3 Camera IP Address
An Internet Protocol address (IP address) is a numerical label assigned to each device (e.g., computer, camera) on a computer network. The first 2 or 3 numbers of the IP Address identify the computer network. If the network address of the camera is different than the computer’s network address, the program will not be able to detect your video camera when you enter the capture screen.
Check the camera’s IP address if you don’t have an image in the preview area or the camera does not appear in the Initialize Video Window.

- Click on **Camera IP Address** from either the **Initialize Video Camera** Window, or from the **Camera** drop-down menu.

The IP Configuration Tool scans your computer for network connections and attached cameras. All discovered network connections are displayed in the top panel and information on the selected item is shown below. The FAT cameras are listed under Local Area Connection or Ethernet and have the name “ac800-200gc” (or “ac640-100gc” for FT-FAT120).

When you select a network connection, the information area displays the IP address and Subnet Mask of the network adapter. The camera and the computer must belong to the same sub-network for the computer to detect the camera. If the subnet mask of the network adaptor is 255.255.0.0, then the first 2 numbers of the camera’s and computer’s IP address must be the same. If the subnet mask is 255.255.255.0, then the first 3 numbers of the camera’s and computer’s IP address must be the same. Make note of the IP Address and Subnet Mask of the Local Area Connection/Ethernet that lists the camera.

Click the camera in the upper panel. Any problem with the camera is shown in the status column and additional information is given below. If your device is not reachable, you need to change the IP Address of the camera with one of the following methods:

- If your network adaptor is set for DHCP addressing, click **DHCP** on the left side and then **Save**. (You can try this, even if you don’t know how your network adaptor is set up).

- If there is still a problem and you are connected directly to the computer, click **Auto IP (LLA)** and then **Save**.

- If neither DHCP nor Auto IP succeeds, click Static IP and enter an IP address and subnet mask for the camera. In most cases, the subnet will be filled in to match your computer’s subnet address and the IP Address will be partially filled in and you just need to enter the last 1 or 2 numbers and these needs to be different than the computer’s IP address. Click **Save**.
When you click **Save**, the new IP settings are saved with the camera and retained when the camera is switched off and back on. When the camera status is listed as “OK”, click **Close** to return to the Capture Screen. Click on **Settings** and then **Initialize Video Interface** to connect to the camera.

When attempting to change the camera’s IP address, you may be require to enter a temporary IP Address and the Assign Temporary IP Address Windows automatically appears. Enter an IP address in which the first 2 or 3 number sets are the same of as the computers and the remaining set is different from the computer or any other computer on the network. Click **OK**. The camera retains this temporary address until you assign a new address or the camera is disconnected or powered off.

If the camera does not appear in the Pylon IP Configuration Tool:

1. Verify the camera is properly connected as described in Section 2.1 and that all connections are secure.
2. Make sure all firewalls are turned off, including Windows and any third party security programs, such as Norton or McAfee. To turn off Windows Firewall:
   a. Click on the Windows **Start Menu** and then **Control Panel**.
   b. **View by**: is located in the upper right hand corner of the Control Panel Window. If viewing by Categories, select **System and Security**.
   c. Select **Windows Firewall**.
   d. Turn off the firewall for all connected networks.

Click **Refresh** after making any changes to search for new cameras.

**4.2.3.1 Camera Name**

You can change the name of the camera in the IP Configuration Tool to help you identify a camera when you have multiple cameras around the track. To change the name:

1. Click **Camera** from the main menu and then **Close Camera**. (The camera cannot be in use when changing its name).
2. Click **Camera** from the main menu and then **Camera IP Address**.
3. Click on the camera you wish to edit in the top portion of the Window.
4. Enter a new name in the text box labeled “Device User ID”, located in the bottom window.
5. Click Save.

The new name will appear in the list of cameras when you are detecting and initializing cameras.

**4.2.4 Close Camera**

You need to close the camera to change the camera name. To safely turn off the camera:

- Click **Camera** from the main menu and then **Close Camera**.

You will need to reinitialize the video camera to view and capture video.
4.3 FT-FAT Radios

The radio status window in the upper left of the capture screen shows the current state of the starter, camera and USB radios and allows you to communicate with the starting official. The Initialize and Detect buttons are present if the FT-FAT system is not initialized. Once radio communication has been established, the status window shows the Ready and Abort Buttons for starting and stopping the race.

4.3.1 Initializing and Detecting Radios

FlashTiming detects all camera and starter units after the program is installed and the first time the program is run on a computer, or when a new camera or starter unit is used with the system. Once the radios are detected and the system initialize, the information is stored on the computer. When you later run the program, the system will attempt to initialize the previously detected set of radios.

If you receive a message you cannot initialize radios, verify the following

- USB radio unit is plugged into the computer.
- Antenna is attached to the USB
- Starter unit has good batteries
- Starter unit is powered on. Press the green button to turn on.
- Antenna is attached to the Starter unit.
- Camera is properly connected to the computer.
- Antenna is attached to the camera.

4.3.1.1 Initialize Radios

Initialize Radios attempts to establish communication between the attached camera and previously used starter unit. The result is displayed in the radio status box.

- Click FT-FAT Radio from the Menu Bar and then Initialize Radios, or
- Click Initialize button in the Radio Status Box if present.

It’s recommended that you initialize the radios whenever the starter moves to a new starting position around the track to verify that the radios are communicating.

4.3.1.2 Detect Radios

Detect Radios looks for all cameras and starter units. It pairs the radio with the device and stores the information for future use.

- Click FT-FAT Radio from the Menu Bar and then Detect Radios, or
- Click Detect button in the Radio Status Box if present.

The Detect Radio window starts searching for all camera and starter radios and lists them in the box as they are discovered. Once all known units are found, click Stop, or you can wait for the search to time out. Click Next to initialize the system. If using the system with multiple cameras or starters, the system will prompt you to select which starter and camera to initialize. Step through the Wizard by pressing the Next button.
If you have previously changed the radios channel, you may click the Channel Button on the first screen to search for radios on or different channel or reset all radios to the default channel, Channel 2.

4.3.2 Check Starter Battery
Click **FT-FAT Radio** from the Menu Bar and then **Check Starter Battery** to check the status of the batteries in the starter unit with this option. The Radio Status box reports the power level as Strong, Good, Fair or Low. Replace the batteries in the starter unit if the status is low. Communication with the starter unit is unpredictable at this level.

4.3.3 Change Radio Channel
Click **FT-FAT Radio** from the Menu Bar and then **Change Radio Channel** to set the radio channel. The radios default to channel 2 whenever you launch the program or initialize the radios. You may remotely change the channel if you suspect you are getting interference from other radio devices in the area. Enter a new channel number, 0-7 in the box in the Radio Status box and then click **Change Channel**.

4.3.4 Reset All Radios
Click **FT-FAT Radio** from the Menu Bar and then **Reset All Radios** to reset all radios in range to the default channel 2.

4.3.5 Close USB Port
Click **FT-FAT Radio** from the Menu Bar and then **Close USB Port** to safely shut off the communication with other **FT-FAT** radios. It is good practice to close the USB port before unplugging the USB radio device when the FlashTiming program is running. The program may become unresponsive if you unplug the USB Radio before closing the USB port.

More information on how to operate the radios can be found in Section 8, **FT-FAT Radios**.

4.4 Capture Screen Lists
The left side of the screen contains the **scheduled events** and **captured videos** lists. You can toggle between the two lists by clicking the appropriate tab at the top of the list. The list of scheduled events is not available if you did not set up FlashTiming to either use a meet manager application or an event text file to name your videos.

4.4.1 Scheduled Events
The scheduled events tab shows either the list of events created by your meet management application or the contents of your event text file. The meet management application or the text file name is displayed at the top of the list.

If you selected a meet management option then the list contains the scheduled events created in your meet management application. The Event List includes the event number, the round number, the heat number and a description. Rounds are numbered 1 through 4 and indicate preliminaries, quarterfinals, semi-finals and finals. If you are using Hy-Tek’s **Meet Manager Combined Event Option** then the round number indicates the sub-event in a combined-event, such as a decathlon, and has a value 0 through 9.
The **Reload Event List** button is located above the event list in the upper right of the event tab. Click this to update the event list between rounds such as preliminaries and finals to import the latest event list into FlashTiming, or to import any changes made to the event list during the meet.

### 4.4.2 Captured Videos

The *captured videos* tab lists all movie files (*.avi) in the capture folder. The name of the capture folder is displayed at the top of the list and there is a **Open Video** button at the bottom of the list. The captured video list is usually empty at the start of a meet. After you capture and store each race video, the filename of the captured video appears in this list.

The **Open Video** button is a shortcut to the review screen. Select a video in the list and click this button to go to the Review Screen. The selected video is loaded and ready for review.

Right click a filename in the list and a menu appears with the following items:

- **Open Video File** – This switches to the review screen and opens the selected video in the preview area. You can also open a video by selecting a video file and clicking the **Open Video** button.

- **Rename File** – This allows you to select a new name for the selected file. The Select Filename dialog appears. Select a new name and click **Rename**. You are not able to rename the video if the video is currently being viewed on the review computer.

- **Delete File** – This deletes the current file. You are asked to verify your choice. You are not able to delete the video if the video is currently being viewed on the review computer.

### 4.5 Before the Race

Check the camera focus and test the *FT-FAT200* radios before each meet. For both tests, connect the USB radio and camera, launch FlashTiming200 and click **Capture Video** to bring up the Capture Screen with a view of the finish line in the preview area.

#### 4.5.1 Focus the Camera

Adjust the lens on the camera until the live feed displays a crisp image. If the camera is positioned in the same position at each race, this step only needs to be performed once provided no one changes the lens position between races.

The finish line should be located in the center of the preview area and perpendicular (at a right angle) to the bottom edge of the preview window. Always check the camera feed and give yourself time to adjust the focus and position of the camera before each meet.

#### 4.5.2 Test the Timing System

The program initializes the radios and tests the radio communication each time you enter the capture screen. The Radio Status box indicates if communication has been established with the radio.

The starter unit has a power save mode to conserve the battery power and will go into this mode after 10 minutes on non-use. Press the green button on the starter to take the starter out of power save mode. The radio status indicates that the starter radio was turned on.
See Section 7 for complete instructions on operating the radio units and trouble-shooting tips.

It’s recommended that the officials test the FT-FAT system once the video is in focus and communication between the radios is established before starting the meet. Follow these steps to test the FT-FAT200 timing system:

- Position the starter at a starting location on the track with the FT-FAT200 starter unit.
- Have the starter press the Green Go Button on the starter unit. The green light flashes on the starter unit. On the capture computer, the READY button in the Radio Status box flashes and the status message indicates that the starter wants to start the race.
- Click the flashing green button on the capture computer to indicate that you are ready for the race. The green blinking light on the starter unit and the green flashing Ready button on the capture computer both turn solid green, indicating both the timing official and starter are ready.
- Have the starter fire the pistol or tap lightly on the speaker to simulate the gun blast. The red and green lights on the starter unit turn solid and the unit beeps for 15 seconds, indicating that the race is running. The READY and ABORT buttons on the capture computer turn green and red, respectively, and the race time appears in the Race Time box above the preview area.
- Press the ABORT button in the Radio Status box on the capture computer to stop the race clock.

**Important:** Hold the starting pistol at least 12 inches from the starting unit when firing the gun. Positioning the gun any closer may damage the starter unit’s sensor.

### 4.6 Capturing a Race

Bring up the Capture Screen with a view of the finish line and the radios initialized. If you have a list of scheduled events, click the Scheduled Events tab to display the list and then select the first race.

#### 4.6.1 Capturing with FT-FAT200

The Radio Status box needs to indicate that the radios successfully communicated or that the radios are in their idle state. The Race Time on the screen displays “00:00.000”

The red light on the starter unit should be off and the green light should pulse every five seconds.

The starter presses the Green “Ready” button on the starter unit to indicate that he/she is ready to start the race. The green light on the starter unit will blink. The timing official then clicks the Ready button on the capture computer to indicate that the timing system is ready. The green light on the starter unit and the green READY button on the capture computer turn solid green to indicate both officials are ready for the race to start. When the gun is fired, the red and green lights on the starter unit turn solid to indicate that the race is in progress. The READY and ABORT button in the Radio Status box on the capture computer
turn green and red respectively and the running race time is displayed on the screen in a red box above the preview area.

The video in the preview area and the race time will pause for a couple of seconds when the race starts while the system initializes the race clock. This is normal behavior and does not influence race time.

If there is a problem with the video or timing system before the starting pistol fires, the timing official may abort the start procedure by clicking the ABORT button in the Radio Status box. This alerts the starter by flashing the red light and sounding a busy alarm on the starter unit.

Likewise, the starter can abort the procedure at any time by pressing the red Stop button on the Starter unit. This displays a message in the Radio Status box on the capture computers and plays an audible warning beep.

See the Section on FT-FAT for complete instructions on using the FT-FAT200 radios.

4.6.2 When to Capture

It is not necessary to capture the entire race. It’s best to start capturing when the first runner approaches the finish and stop when the last racer crosses the line. Otherwise your resulting video will be large and contain useless footage.

Click the Capture button when the first runners are approximately 50 meters from the finish line.

Click Stop when the last runner crosses the finish line. This stops the race clock and allows the user to save the video file.

*Note: Any video captured before the race start will be discarded.*

4.6.3 Saving the Video

The Select File Name window appears when you click Stop.

- If you selected a meet management option the Meet Management Event List appears. Select the captured event from the list and select Okay. If you have previously selected an event in the Meet Management List on the Capture Screen, the event is highlighted in the list and the name appears in the Filename text box.

- If you are not using a meet management option and you imported an event list, the event list text file appears. Select the name of the captured event and select OK. If you have previously selected an event in the Imported Event List on the Capture Screen, the event is highlighted in the list and the name appears in the Filename text box.
• If you are not using either a meet management or an imported event list, a set of menus appears. Create the file name by selecting the options for gender, event, division, round and heat.

The selected name appears in the filename text box at the bottom of the dialog. You can edit the filename in addition to selecting the name from the list.

Important Note for Meet Management Users: The first 8 characters of the meet management filenames are the event #, round # and heat # separated by an underscored (_). This information is used by FlashTiming to retrieve the list of athletes for the event and should not be modified. The one exception is the heat #. If a heat was added for an event and is not included in the Meet Management List, you can increment the heat number with the heat number control box above the file name.

When you click Okay the standard system file dialog appears. Click Save to store the video and return to the Capture Scene. If you have previously selected an event in the scheduled events list before saving the video, the highlight advances to the next event in the list.

The saved file will also appear in the Captured Video List.

4.6.4 Bookmarks
You may add bookmarks to your videos while capturing by clicking the Bookmark button below the preview area or pressing the spacebar key. The bookmark counter will increment whenever you add a bookmark. Bookmarks are especially useful in long races where the athletes do not finish in lanes. Add a bookmark whenever an athlete finishes the race. This will make it easy for the reviewer to quickly locate a frame where the runner is close to the finish line. The reviewer can then quickly move to the frame that shows the runners torso breaking the near plane of the finish line and determine the FAT time for that runner.

4.6.5 Pause Video Capture
You may temporarily suspend the recording while capturing the video. This feature is useful during long races where there may be long stretches between athletes crossing the finish line and you do not want to capture the irrelevant video. Click Pause to temporarily stop capturing the video. The Pause button toggles to a Resume button. Click the Resume button to restart the video recording. Each pause is recorded as a bookmark.

4.6.6 Backup Timer
There may be instances when the timing system does not capture the start of the race and the timer does not start. Most of these situations can be avoided by reviewing the FT-FAT200 start procedures with the starter and timing official before the start of the meet. Regardless
of the procedures you put in place, it is prudent to have a back-up timer or establish a
method to recall the runners if the timer does not start.

The calibrate feature in FlashTiming allows you to record hand times of all runners with one
backup timer. In the event that the timing device does not start when the race commences,
you should still capture the video. Start capturing the video when the first runner approaches
the finish line. The backup timer records the time of a runner with a stop watch. When
reviewing the video, calibrate the frame of the runner crossing the finish line with the
recorded hand time. FlashTiming then computes the times of all other runners based on that
hand time.

4.6.6.1 Stop Watch
FlashTiming has a built in stopwatch, which may be use to obtain a backup hand time for a
race. The StopWatch button is the leftmost button on the bar underneath the preview area.
If the capture official clicks the StopWatch button when the starting pistol is fired the built
in stopwatch will start and the button will turn red to indicate that it is running. In most
cases, the FT-FAT race time is also showing in the Race Time windows. In the few
instances when the FT-FAT race clock does not start, the stopwatch can be used to calibrate
the first frame of the video to when the capture official presses the Capture button.

It’s also possible to set a start time for the built-in stop watch. This is useful if you are
timing cross country events that start in wave. Time each wave with a stopwatch and then
sync the race time to FlashTiming’s stopwatch and capture each wave separately.

See Calibrate Video in the Video Review section for more details on calibrating the video
and the stopwatch.

4.7 Race Clocks
FlashTiming can display the race time on a FT-Display, Daktronics Galaxy Matrix Displays
or All Sports Scoreboard and any display that can accept HDMI, DVI, or SVGA formats.
See Display Section below for setting up your displays to show the race clock.

Once the race clock is initialized, a toolbar appears at the top of the screen, just below the
menu bar that allows you to clear and reset the race clock.

The race time appears on the display when the start is detected by the FT-FAT system. The
race clock will continue running until the race is stopped by either stopping the video
capture or clicking the Abort button. The race clock can also be started and stopped with
the built-in stopwatch.

See Section 6 for information on setting up matrix displays to show the race entries.

4.8 Keyboard Short Cuts
The following keyboard short cuts are available to access functions in the Capture Screen:
C – Capture Video
S – Stop the Video Capture
V – Go to Review Screen
W – Start the Stopwatch
O – Open Video when the list of captured videos is displayed and a video is selected
SpaceBar or B – Add bookmark.
5 Video Review

The Video Review Screen allows you to open and playback a video. When you first open the review screen, the window shows a list of videos stored in the Captured Video Path. This folder is set up in the Configure dialog (see Configure section).

5.1 List of Captured Videos

The list of captured videos contains all movie files (*.avi) in the capture folder. To review a video, select a filename from the list and click the Open Video button. The first frame of the video appears in the preview area. You may also open a video by double clicking on the filename.

There is a check box preceding each filename. This box is automatically checked whenever you review a video and save the times of the athletes. You can click the check box at any time to manually keep track of reviewed videos.

Right click a filename in the list and a menu appears with the following items:

- **Open Video File** – This opens the selected video in the preview area. You can also open a video by selecting a video file and clicking the Open Video button.

- **Rename File** – This allows you to enter a new name for the selected file. The Select Filename dialog appears. Type in a new file name or select an event from the list and click Rename. You are not able to rename the video if the file is stored on another computer and you do not have write permissions to the folder.
- **Delete File** – This deletes the current file. You are asked to verify your choice. You are not able to delete the video if the file is stored on another computer and you do not have write permissions to the folder.

- **Close Video** – This option is available if the selected video is loaded in the preview area. It will close the video.

- **Check/Uncheck Video** – This will place/remove the checkmark before the file name. It is the same as clicking the check box.

### 5.2 Video Controls

The video controls are located under the video preview area and allow you to advance and rewind the video. Once you open a video, use the video controls to navigate through your video and display a finish line over the video.

The red lines located under the track bar indicate bookmarks placed on the video during capture. The blue lines indicate where the video was paused during captured. You can drag the track bar to the red or blue indicator or use the bookmark controls to advance the video to a bookmarked or paused frame. If there are no bookmarks or pause marks, the bookmark controls are disabled.

The finish line controls allow you to superimpose a yellow line over the finish line on the video to make it easier to determine the instance when an athlete’s torso crosses the near plane of the finish line.

The video controls located from left to right are as follows:

**Playback Controls:**

- **Track Bar**: Click and drag the position indicator on the track bar to move quickly to any frame in the video.

- **Play/Pause**: Click this button to start the video. Clicking this button a second time stops the video.

- **Video Start**: Click this button to rewind the video to the first frame.

- **Step Back**: Click this button to rewind the video one frame.

- **Step Forward**: Click this button to advance the video one frame.

- **Video End**: Click this button to go to the last frame of the video.

**Zoom:**

Select the preferred zoom mode from the drop down menu:

- **Fit to Area**: Scales the video to fit in the preview area.

- **Video Size**: Displays the video at the recorded resolution. The FT-FAT200 video size is 600 x 800. The FT-FAT120 video size is 658 x 492.
• **2X:** Displays the video at twice the resolution.

Viewing the video at its original size or 2X may give you a clear image, but may not fit in the preview area. Reposition the viewable portion of the image by clicking on the video and dragging it in any direction. You can also play the video while in zoom mode, but may miss runners in the upper or lower portion of the screen.

**Bookmarks:**

- **Previous Bookmark:** Click this to move to the bookmark to the left of the track bar indicator.
- **Next Bookmark:** Click this to move to the bookmark to the right of the track bar indicator.

**Finish Line:**

- **Finish Line Color Box:** Click the Finish Line box to display or remove the superimposed finish line from the video. Select the desired color for the finish line from the pop-up menu. Use the finish line controls to align the superimposed line with the actual finish line in the video.
- **Finish Line Left Arrow:** Click this to move the finish line to the left.
- **Finish Line Right Arrow:** Click this to move the finish line to the right.
- **Finish Line Rotate Counter Clockwise:** Click this to rotate the superimposed finish line counter clockwise.
- **Finish Line Rotate Clockwise:** Click this to rotate the finish line clockwise.

Other means for controlling the video include:

- **Left Arrow Key** – Press the **Left Arrow Key** on the keyboard to rewind the video one frame. Press and hold the arrow key to rewind the video in slow motion.
- **Right Arrow Key** – Press the **Right Arrow Key** on the keyboard to advance the video one frame. Press and hold the arrow key to advance the video in slow motion.
- **> or . Key** – Press the **> or . Key** on the keyboard to advance to the next bookmark.
- **< or , Key** – Press the **< or , Key** on the keyboard to rewind the video to the previous bookmark.
- **P** – Plays or pauses the video.
- **Preview Screen** – Click the preview area when the video is playing to stop the video.
- **Mouse Scroll Wheel** – Use the mouse wheel to advance and rewind the video.
5.3 Calibrate the Video

The **FT-FAT** system encodes the race time on each video frame during capture. When reviewing the video, FlashTiming retrieves and displays the time from the captured video file. The encoded time on the video frame that shows the runner crossing the finish line is the time that is assigned to the athlete. If the timing device did not activate at the start of the race, you can calibrate the video by assigning a time to any video frame. FlashTiming can then compute the time for each video frame based on the time of the calibrated frame. This feature allows you to record hand times of all runners with only one backup time.

To calibrate the video when there are no times on the video and you have the time of a runner, advance the video to the frame showing the torso of the timed athlete crossing the near plane of the finish line. Enter the athlete’s hand time in the text box to the right of the calibrate button and click **Calibrate**.

If the capture official used the FlashTiming’s built in Stopwatch to hand time the race, you can click the **Stopwatch** button to calibrate the video. This option is not available if the stopwatch feature was not used.

The time appears in the **Race Time** box rounded up to the nearest hundredth of a second. If times are displayed on the video you can verify the calibrated time and the current time are correct. As you navigate through the video, the current time tracks the video time to the nearest hundredth.

Click the **Clear Calibrate (X)** Button if you calibrated a video that has **FT-FAT** encoded time and you want to revert back to the **FT-FAT** encoded time.

*Note: If the video was paused during capture, the calibrated times are only accurate between the paused bookmarks.*

5.4 Determining an Athlete’s Time

Advance the video to the frame showing the first runner crossing the finish line. Toggle the **Play/Pause** button or click and drag the **Track Bar** located under the video to locate a video frame of the runner nearing to the finish line. Use the **Step Backward** and **Step Forward** buttons to position the runner’s torso on or beyond the near plane of the finish line. You can also use the mouse wheel and the left and right arrow keys to step through the video frames.

NFHS rule 5-8, article 1 states that the runner’s time is the moment when his or her torso crosses the near plane of the finish line. The time encoded on the video frame with the runner’s torso on or over the finish line is the athlete’s fully automatic time, also known as **FAT**. If the timing device failed to start and you are using the calibrated times based on a stop watch, then the athlete’s times is displayed in the **Race Time** box are considered hand times and are not automatic times.

To determine the athletes’ place in a close race, it may be necessary to enlarge the video by selecting one of the zoom options. You may reposition the viewable portion of the image by clicking on the video frame and dragging it in any direction.
5.5 Record Times

You can record the athletes’ times for a race in FlashTiming, save the results and export those results if you selected a scoring option. You can then import the results into your meet management application. To do this, you must first have set the scoring option and the data location path in the Configure dialog. Click the Record Times tab at the top of the video list to start recording the times from the videos.

5.5.1 Verify the Race Information

You can show the list of participating athletes for each race if you are using a meet management program. You must first verify the race information and load the athletes before recording the times. Skip this step if you are not using a meet management program.

The race information is displayed at the top of the Record Times Tab including the event number, round number and heat number. This information is generated by your meet management application and extracted from the video filename. Verify that the event, round, and heat numbers are correct for the event you are recording. If the capture official edited the filename or incorrectly saved the video under another event, you may have to enter the event information.

- **Even**: This is the number assigned by the meet management application for the event.
- **Round**: Rounds are numbered 1 through 4 and indicate preliminaries, quarterfinals, semi-finals and finals. In a multi-event, such as a decathlon, the round number is the sub-event and has a value 0 through 9.
- **Heat**: This is the heat number for the current event.

5.5.2 Load Athletes

You have four options for loading the athletes and determining their times:

- **Do Not Show Athletes**: This option allows you to record the times for a race without regard to who the participants are. The meet management operator is responsible for making sure the athletes ran in their assigned lanes. This option is not available with Sydex’s Track Gold Meet Management.

- **Load Athletes**: This option loads participating athletes’ name, competitor number and team affiliation into FlashTiming and allows the reviewer to extract race time for an athlete and assign a time to their performance. Any changes to the race start list/heat sheets must be made in the meet management program and saved before loading the athletes and recording their times.

- **Load Bookmarks**: This option allows you to load the times of all the bookmarks associated with the captured bookmark. It is used mainly for getting time for cross country events where times are matched with a list of athletes in the scoring package.

- **Load Athletes from Multiple Events**: Events, such as the boys and girls 3200M, are sometimes combined into one race but still scored separately. This option allows
you to easily run multiple events together and score them separately. Changes to the start lists for all events must be made in the meet management program and saved before loading the athletes and recording their time.

Click **Continue** in *FlashTiming*’s Record Times tab to display the results table for recording the times. You may record the times as soon as the race is over and the video file is saved if you choose not to show the athletes’ names. If you choose either of the Load Athletes options, then you must first make adjustments to the heat sheets before recording the times if there were any lane reassignments. These changes must be made in the meet management program and saved before you load the athletes in *FlashTiming* and record their times. After a race, get the heat sheet/start lists from the clerk of the course and update the participants and their lane assignments in your meet management application to match those who actually competed in the event. You do not need to update the lists if the only changes to the original start lists/heat sheets are scratches.

If you made changes in the meet management application after you loaded the athletes into *FlashTiming*, click the **Continue** button again and the results table updates with the new data.

You cannot continue if the event is not defined in your meet management application.

*FlashTiming* exchanges event lists and heat sheets with your meet management application by writing files to the shared data folder. If results have previously been saved for this race, a dialog appears asking if you want to load the previously saved results. Click **Yes** to retrieve your previously saved results. If you have not saved any results for a race and you see this dialog, it is an indication that there are old results in your meet management data folder. We recommend that you always delete any previous results files before starting the meet. Otherwise, you may inadvertently read files created by a previous meet. You can delete old time result files in the configure dialog.

### 5.5.3 Record the Times for Each Athlete

When you are ready to record the times, advance the video to the frame showing the first runner crossing the finish line. Use the Video Controls located under the video to navigate through the video. When the runner’s torso is positioned on or over the finish line, record the time by clicking the appropriate row in the table containing the athlete’s name or lane number. For lanes 1 thru 10 you can type in the lane number on the keyboard (type 0 for lane 10). The time on the current video frame is entered in the list. Advance the video to the next runner and repeat until all athletes’ times are recorded.

#### 5.5.3.1 Do Not Show Athletes

This is the quickest way to record the times as you do not need to know who participated in the race. This is the only option available if you are not using a meet management scoring package. If you are using a meet management scoring package there is no need to update the participants in the meet management application before recording the time.
This can be done later when the participants are known and then the times can be associated with the participants.

You associate the time with a lane for races that are run in lanes. Once you have a runner’s torso positioned on the finish line, you click in the row that corresponds to the athlete’s lane. The time on the current video frame is entered in the Time column next to the lane #. Continue with each athlete. If no one ran in a lane, leave the time blank. Any changes to the lane assignments must be made in the meet management program before importing in the times into the application.

For a race that does not finish in lanes, record the times of the athletes in the order they cross the finish line. First, enter the number of participants in the box labeled # of Lanes/Athletes. This redraws the table with the number of lanes/rows entered. Place the first athlete’s torso on the finish lane and click in the first row. Advance the video to the frame that shows the second athlete crossing the finish lane and click on the second row. Continue until you have recorded all athletes. You must re-order the athletes in the meet management program to match the finish order before the times are imported.

This option is not available with Sydex’s Track Gold and Meet Manager.

5.5.3.2 Load Athletes

This option allows you to make changes to lane assignments in the meet management application and save them before loading the athletes into FlashTiming. If the only changes to the heat sheets are scratches then you do not have to make the change in the meet management application. When you click Continue, the table only displays the lanes that have athletes assigned.

Lane races are scored the same as if you did not show the athletes’ names. Position the runner’s torso on the finish line and click in the row that corresponds to the athlete’s lane. The time on the current video frame is entered in the Time column next to the lane #. Continue with each athlete. If an athlete did not run, leave the time blank or right click on the athlete’s name and select the status from the drop down menu.

For a race that did not finish in lanes, you must know the order in which the athletes finished the race. After you obtain the finish order from the finish line judge, position the first athlete on the finish line in the video, locate their name in the list and click the row. If you assigned competitor numbers to the athletes, you can also enter the number in the text box above the athletes’ list. This finds the athlete in the list and assigned the time of the current video frame.

Check the Auto Sort box to sort the times as you record them. This moves all entries with times to the bottom of the list and makes it easier to find athletes in non-lane races which have lots of participants.

5.5.3.1 Load Bookmarks

The load bookmarks option brings in all the bookmarked times associated with the video. This option is most useful when scoring cross country events. It lists all the bookmark times in the results table, which can then be saved and imported into your Cross Country
Scoring Package. You enter the athletes in their finish order in the Cross Country Scoring Package and then match the runners to the times.

5.5.3.2 Load Athletes from Multiple Events

It is not uncommon for longer non-lane races, such as the boys and girls 3200M, to be run together at some smaller dual meets. This option is useful if you combined events but still need to score the events separately. First, make any adjustments to the start lists of each of the combined races in the meet management program and save them before loading the athletes. When you press Continue, a list of scheduled events appears. Select the events that were run together and hit Okay.

Your result table contains the athletes from all the selected events. Above the table is a list of the events you selected. If you click an event, the athletes in that event are highlighted.

Record the times for the athletes as you would for a non-lane race. Get the finish order of all the athletes and record their times either by clicking on their name in the list or entering their competitor number. When you save the times, FlashTiming separates the athlete’s into their events and writes a separate result file for each event.

5.5.4 Athlete’s Menu

Right click on any row in the results table and the athlete’s menu appears. The athlete’s menu allows you to select the status of a registered athlete in the event, edit an existing time or go to the video frame showing the athlete’s time.

The menu contains the following status codes for the athletes.

- SCR for Scratch
- DNF for Did Not Finish
- DNS for Did Not Start
- DQ for Disqualified
- FS for False Start
- NT for No Time

Select one of the codes and it will be entered in place of the time.

5.5.4.1 Edit an Athlete’s Time

The athlete’s menu also allows you to edit or clear the recorded time. To change a previously recorded time of an athlete either select Edit Time from the athlete’s menu or position the video on the frame containing the new time and click the athlete or row in the list. A dialog appears warning that the time is already recorded. You may accept the time from the current frame, manually enter a new time, clear the time or cancel the dialog.
5.5.5 **Determining Athletes in Non-Lane Races**

It is not always possible to identify a runner or read a hip number on the video. Therefore, we strongly recommend that the finish line official records the finish order of the athletes in all races that do not finish in lanes. The official reviewing the video can then match the name with the athlete and time in the video.

Athletes often lap the slower runners in longer races such as the 3000M or 3200M races. Sometimes, the field of view on the video is not large enough to show whether the runner stopped or continued running and this makes it difficult to determine the finishers. We suggest that you use the bookmark feature when capturing to place a marker in the video when an athlete nears the finish line. You can use these markers in the review screen to quickly advance to the video frame showing the athlete near the finish and then record the FAT time by positioning the torso on the finish line. It is also useful to have someone stand on the finish line opposite the camera and raise a flag when a runner finishes. Both the bookmarks and the raised flag help identify the finishers and skip over those runners who still have a lap to go. Another method is to form a chute or place a cone in an outer lane. Instruct the runners coming off the last curve of the race to run for the cone. This makes it straightforward in the video review to separate the finishers from the athletes that have more laps to run.

5.5.6 **Save the Times**

Click the **Save Times** button after the times for all the athletes have been recorded. This saves a result file in the scoring data folder. If you are using a meet management scoring package, the results are saved in a file with a “.lif” extension. If you are not using a meet management scoring packet, then the result file will be saved in the scoring folder with a file name the same as the video file and a .txt extension. E.G. If the video file is named “Girls 100M JV.avi”, the results are saved in “Girls 100M JV.txt”.

You are given the option to replace the existing bookmarks with the race results when you save the times. If you select to replace the bookmarks, all current bookmarks are erased and replaced with markers to the athletes’ times.

*Apple Raceberry JaM’s ScoreMeetLyn* and *EasyWare’s Easy Meet Manager* users must select the results files when they import the times, so it’s important to note the filename when you save the times.

A checkmark is added in front of the filename in the captured video list to indicate that the times have been recorded for the event.

5.5.7 **Print the Times**

You may also print the race results to the default printer. Click **File** in the main menu and then **Print Results** to obtain a printed copy of your results.

5.6 **Radio Communications**

All communications with the radios occur in the capture screen. You can initialize the radios in the capture screen and then navigate to the review screen to review existing videos. If the starter presses the Ready button on the starter unit while you are in the review screen, you’ll receive a message that the starter is ready. The system will send an abort message to
the starter. You will need to return to the capture screen to send a ready message to the starter.

5.7 Display Race Results
FlashTiming can display the race results on a FT-Display, Daktronics Galaxy Matrix Displays and any display that can accept HDMI, DVI, or SVGA formats. See the Display Section below for setting up your displays to show the race clock.

Once a display is initialized, a toolbar appears at the top of the screen, just below the menu:
- **Clear** – Clears the display
- **Results** – Post the race results on the displays. This will display the results for athletes whose times are recorded in the result table in the review screen.
- **Auto Results** – Turn On auto results to display the athletes times as they are being determined in the review screen. This will update the results on the display every time an athlete’s time is entered in the results table.

5.8 File Menu
The file menu allows you to open video files, save and print video frames and print race results.
- **Open** – You may open a video file in a folder other than the Captured Video Path. Click **File** from the menu bar and then **Open**… Use the standard Windows Open Dialog to browse to the folder and open the video file.
- **Save Image As** - You may save the current video frame as a Bitmap (.BMP). Click **File** from the menu bar and then **Save As**… Use the standard Windows Save Dialog to save the image.
- **Print Preview** – You may preview the printed image of the current video frame. Click **File** from the menu bar and then **Print Preview**.
- **Print Video Frame**– You may print the current video frame. Click **File** from the menu bar and then **Print Video Frame**… Use the standard Windows Print Dialog to print the image.
- **Print Results** – You may print the current race results to your default Windows printer. Click **File** from the menu bar and then **Print Race Results** to print the data displayed in the race result table.
- **Exit** - Click **File** from the menu bar and then **Exit** to exit the application.
6 Displays

Race times and results can be displayed on FT-Displays, Daktronics Matrix displays and externals monitors with HDMI, DVI, or SVGA formats. Additionally, you can display race times on Daktronics All-Sports scoreboards.

6.1 FT-Displays

FlashTiming communicates with the FT-Display via a wireless radio link using the FT-FAT radios. If displaying the race time, use the same USB radio that communicate with the camera and starter. If showing results from the review computer, plug in the USB radio to the review computer.

- Click Displays from the main menu and then FT-Display

FlashTiming first searches for all FT-Displays in radio range and lists the displays as they are detected. When all known displays are detected click Stop and then Next.

For each display, check whether the computer will send race times and/or results to the device. If setting up the display on the capture computer, you can select multiple displays to show the race clock. You may only select one display to show the race results. Do not check race clock if you are not using a computer for capture. If you have multiple displays or want to test the radio communication click the Test button next to each display to verify and identify the displays. The Test button will clear all displays in radio range and show a test message on the selected display.

Click Next once you have selected the displays to use and FlashTiming will initialize the displays.

6.2 Daktronics Displays

FlashTiming can display race times, entries and results on a Daktronics Galaxy Matrix Displays controlled by a Venus 4600, Venus 5000, Venus 6000, Venus 6500, or Venus 7000 console. You may display race times on All-Sports Scoreboards. First setup the communication protocol for sending data to the display and then set the display parameters. Daktronics Communications Server (DCS) is software that receives and sends out Real Time Data (RTD) from your timing system to your display. DCS must be running on the computer that operates your display and the computer must be connected to the timing system via serial port or Local Area Network. See Daktronics support for instructions on how to make these connections and utilize that software. To set up FlashTiming to use the Daktronics Display:

- Click Display in the main menu, then Daktronics Displays

Select the method for sending data to the Daktronics Display:

- Serial Port: Click the Com/Serial Port option and select the com port and baud rate.
- UDP: Click the UDP Ethernet option. Enter the IP address and socket number of the scoreboard computer.

Refer to your Daktronics manual for more information on setting up the scoreboard.

Select the data you want to send to the display: Race Times and/or Results.
6.3 Show Race Times/Results in a New Window

You can connect a second monitor, large screen TV or other displays to your computer via HDMI, DVI, or SVGA port and use it to display race time and results.

- Click Display from the main menu and then Show Race Times in Windows, or Show Results in Windows.

This will bring up a window that can be moved and resized to the external display.

6.4 Display Options

You can set the display options after initializing a display. Click on Display and then Display Settings to bring up the display option window.

6.4.1 Daktronics and New Window Displays

Lines of Text: For Daktronics Displays, enter the number of lines of text your display is setup to show. For a Window display, set the number of lines you want to display.

Characters per Line: (Daktronics only) Enter the maximum number of characters your board can display across one row. The number of characters across on a window is determined by the width.

Cycle Time: The display will cycle through the “pages” of text if the results or entries contain more lines of text than will fit on the screen. Cycle Time is the amount of time in seconds that a page will remain on the screen before the next page is displayed.

# of times to cycle: Enter the number of times the display should cycle through multi-page results or entries. Enter ‘0’ to continue cycling through the results until the next set of data is sent to the display.

Note: If all data for the entries or results fit on the display, the data will remain on the screen for Cycle Time X # of times to cycle seconds. If # of times to cycle equals 0, the data will remain on the display until new data is sent to the display.

# of lines for Race Description: You may specify the number of lines to be used for the race description (0, 1 or 2 lines). This is useful if your display can only show a few lines of text. 1 line will show the race description. The second line shows the heat #.

Display Race Description on all screens: Check the box if you want the race description to be displayed on all screens of a multi-page results or entries. Again, this is useful on smaller displays.

Automatically send saved results to display: Check the box if you want race results to be sent to the display whenever you click the Save Times button in the Review Screen.

Test Connection (Daktronics Only): Click this button to send a test message to the display.
6.4.2 FT-Display

When capturing video, you may choose to display the first bookmark as the unofficial winning time:

- Check **Show Split Time on first bookmark**

Enter the time to pause the clock before resuming the race time. Enter 0 to stop the clock.

Enter the **Cycle Time** and **# of times to cycle results** if using the FT-Display to show results (see description above).

You may also change the brightness and check the battery status from the Display Settings. Select the display from the drop down menu. Use the slider to adjust the display’s brightness and Click **Check Battery** for the battery status.
7 Reading Times into the Meet Management Application

You need to import the results into your meet management application after the times for a race have been recorded and saved by FlashTiming.

7.1 Hy-Tek’s Meet Manager
Click Run in the main menu of Meet Manager. In the Run the Meet scene, click the race in the event list and press the Get Times button. Your FlashTiming results are read in and recorded. If an event had multiple heats, you must get the times for all heats before scoring the event.

7.2 Apple Raceberry JaM’s ScoreMeetLynx
The FlashTiming results files are automatically named using the event number, round number and heat number. The numbers are separated by ‘-’ and the filename has the extension “lif”. For example, the results file for event 12, round 1, heat 3 is named “012-1-03.lif. ScoreMeetLynx users must select the corresponding result file for each heat when importing the times from FlashTiming. Be sure to note of the filename when you save the times in FlashTiming.

To read the results into ScoreMeetLynx:
1. Click the Enter Results button.
2. Select the event in the event list and click Okay
3. Enter the heat number, check Get times from Lynx/FlashTiming/MacFinish file and then click Okay.
4. You are asked to locate the file with a standard File Open dialog. Locate the results file in your meet management data folder. Click Okay and the results are imported.

7.3 DirectAthletics MeetPro
Click the Enter Results Tab to score your meet. Click Get Event Results button (above the entries grid) and your FlashTiming results are read in and recorded. If an event had multiple heats, you must get the times for all heats before scoring the event. To import just the currently selected heat, toggle the Get Event Results button to Get Heat Results.

7.4 EasyWare Easy Meet Manager
The FlashTiming results files are automatically named using the event number, round number and heat number. The numbers are separated by ‘-’ and the filename has the extension “lif”. For example, the results file for event 12, round 1, heat 3 is named “012-1-03.lif. Easy Meet Manager users must select the corresponding result file for each heat when importing the times from FlashTiming. Be sure to note the filename when you save the times in FlashTiming.

1. Click Enter Results from the Easy Meet Manager’s main menu bar.
2. Select FlashTiming from the Type of Electronic Timer drop down menu and then Ok.
3. Select the event and heat to score.
4. In the lower right corner, select **Match by Time Order** if the event did not finish in lanes and you did not show the athletes when recording the times in *FlashTiming*. Otherwise, select Match by **Lane/Bib/Position**.

5. Click **Retrieve from File** and the Import Text File of Times Window appears.

6. Browse to your meet management data folder and select the lif file for the heat.

7. Click on **Import File** and your times are read into the athlete’s table.

### 7.5 RaceTab

Click the **Event** tab and select the event from the list on the left side. Click the **Get Times** buttons and the times from *FlashTiming* will be imported for the select event.

### 7.6 Sydex’s Track Gold and Meet Manager

Results from FlashTiming are automatically read in when you process results for a race in *Track Gold*, provided they are present in the designated data folder. *Track Gold* removes the results file from the data folder once it is read.

### 7.7 Sports Automation’s TrackMate

*TrackMate* monitors the data folder and flashes the **Timing System** button red and yellow in the main window whenever it detects a new results file. Click the flashing **Timing System** button and the Pending Results window appears. Select the events for which you want to get the times and then press the **Assign** button to import the times to the proper events.

Note that you can also read in times for each individual heat from the **Enter Results** window. When results are available for a particular heat, a flashing button appears on the heat page. When you press this button, you can “assign” the results for the heat.

### 7.8 Keyboard Short Cuts

The following keyboard short cuts are available to access functions in the Review Screen:

- **S** - Save Times
- **P** – Play or Pause the video
- **V** – Go to Capture Screen
- > or . – Next Bookmark
- < or , – Previous Bookmark
- 0-9 – You may enter a number when the record tab is opened and the results table is displayed. This will enter the time from the current video frame into the table with the lane number. Pressing 0 enters the time into lane 10.

Shortcut keys are not active when the cursor is positioned in a text entry box, such as the calibrate box.
8 FT-FAT200 Radios

8.1 Overview

It is crucial that the starter and timing official at the capture computer communicate before the start of each race to indicate that they’re both ready for the race to begin. The FT-FAT system has this essential communication integrated into the Starter unit and the FlashTiming software. On the starter end, the READY button is used to alert the timing officials of a request to start a race and the green light on the Starter unit is used to indicate that the timing official is ready to start the race. (The timing official can also initiate the communication sequence.) The STOP button is used to abort a race due to a false start or other reason. The flashing red light alerts the starter to hold off. The READY and ABORT buttons on the computer screen let the timing official communicate with the starter and the Radio Statue box notifies the official of the radio status.

FT-FAT200 includes three radio-linked units, a Starter unit, a USB Radio unit and a radio linked camera. The Starter unit, located next to the starting official, detects the start of the race when the starting pistol is fired and establishes the start time. The camera radio unit receives the start time from the starter unit and encodes the race times on the video. The USB radio unit reports the status of the radios and allows the computer operator to communicate with the starter to coordinate the race start.

8.2 The Starter Radio Unit

Communication at the Starter unit is done with push buttons, lights, and sounds. They indicate the official’s readiness to start the race. There are two light/button combinations on the unit: the green light/ready button and the red light/stop button. The starting official communicates with the timing official at the capture computer by pressing the buttons.

- **Green/Ready Button**: is used to signal that he/she is ready to start the race.
- **Red/Stop Button**: is used to signal that he/she is not ready to start the race or to recall the race.

The lights and sounds on the starter unit convey messages and indicate the current state.

- **Idle State**: The green light pulses every 5 seconds when the unit is in the idle state. This indicates that the unit is on and waiting to receive a signal.
- **Are You Ready? State**: This state is indicated by the green blinking light and it can be initiated by either the starter or timing official when the radios are in their idle state. The starter initiates the sequence by pressing the green button on the radio. The green button blinks on the starter unit and the READY button on the computer flashes green and beeps every few seconds to notify the timing official that the starter is ready to start a race. On the other hand, the timing official may initiate the start sequence by clicking the READY button. The Starter unit will flash green and beep twice every 5 seconds to indicate that the starter needs to respond to the Timer’s Are you Ready? Request.
• **Ready to Start Race State:** This state is indicated by a steady green light and occurs when either official acknowledges the *Are You Ready* signal. The starter presses the blinking green button in response to the timing official request, or the timing official clicks the READY button to response to the starter request to start the race. In both cases, the ready light on the Starter unit and the READY button on the computer turn solid green.

• **Race in Progress State:** The solid green and red lights on the Starter unit indicate that the race is in progress. The Radio Status box on the computer displays the race running message and the race time is displayed above the preview area.

• **Not Ready Signal:** This state is indicated by a flashing red light and busy tone on the Starter unit. The ABORT button on the capture computer flashes red and plays an audible warning sound.

• **Radios not Communicating Signal:** This is indicated by a flashing red light and a rapid busy tone on the Starter unit. The ABORT button on the capture computer flashes red and the Radio Status box on the computer displays the error.

### 8.3 Powering the Unit

#### 8.3.1 Power Save Mode

The Starter unit goes into power save mode after 10 minutes of inactivity to conserve battery power. Pressing the READY button returns the starter to full power mode and sends an “*Are You Ready?*” signal to the capture computer. A flashing green light indicates success. A red flashing light accompanied by a rapid busy signal on either unit indicates that the other radio units were not detected. Press the red button to turn off the flashing light.

The Starter unit can manually be put in power save mode by pressing the STOP button for five seconds.

The capture computer receives a signal when the Starter unit goes into power save mode and displays a message in the Radio Status box. The capture computer cannot communicate with the Starter unit while the unit is in power save mode.

#### 8.3.2 Battery Test

You may check the voltage of the batteries in the Starter unit when the unit is in power save mode by pressing the Red Stop button. The number of chimes indicates battery strength:

- 4 - full battery charge
- 3 - good batteries
- 2 - Batteries are near the end of their life/
- 1 - Low battery. Change the batteries before the race.

The timing official can also remotely check the batteries in the starter unit from the capture computer by clicking **FT-FAT Radio** in the main menu bar and then **Check Starter Batteries** from the drop down menu. The battery state is reported in the Radio Status box. It is recommended that you check the battery level before each meet. Communication between the radio units is unpredictable when the voltage is low and the batteries should be replaced.
The starter unit requires 3 AA batteries. Replace all the batteries at the same time. Do not mix used batteries with new batteries. All batteries should be of the same type.

### 8.4 Radio Channel

The radio units communicate over a preset radio channel. The preset channel is channel 2. In some cases, the pre-selected channel may interfere with other radio operations in the area and the radios may not be able to communicate with each other.

To verify that the units are communicating:

- Verify that the voltage level of the starter unit’s batteries is Fair or better,
- Place the starter unit within a short distance (1-400 feet) of the capture computer with no obstacles in between the two.
- Select **FT-FAT200 Radio** from the main menu on the capture computer and then Test Radio Communications.

The Radio Status box indicates whether the radios are communicating. If the units are not communicating, you may need to change to another channel. From the capture computer, select **FT-Fat Radio** from the main menu then select Change Radio Channel. Enter a new channel number in the Radio Status box and click Change Channel. The program changes the radio channels on all three radios. If you initialize the radio channels, they will be reset to channel 2.

The camera and starter radios initialize to channel 2 when they are powered on. If you change the radio channel, and then disconnect the camera or remove the batteries from the starter unit, the radios will not communicate because the powered down units revert to channel 2 when powered up. You must reinitialize the radios to reestablish communication.

### 8.5 Setup

The Starter unit is positioned next to the starting official on the starting line. The unit should be located about 12-18 inches from the starting pistol when the gun is up but no closer to avoid powder burns on the unit and damage to the sound sensor. It can attach to the starter stand or a tripod, or be held in the starter’s other hand.

The USB Radio unit is attached to the capture computer through a USB port. The **FT-FAT200** camera unit is located at the finish line and is connected to the POE injector and capture computer with a Cat 6 network cable.

The three **FT-FAT** radios may need to be in sight of each other to communicate. The radio signals travel up to 1000 feet reliably and up to 1 mile in ideal conditions. Glass windows of a press box should not impede communication. The signals may travel through a wood structure, but should be thoroughly tested before the meet. Metal structures may obstruct the radio signals. An external antenna with a magnetic base and a 13 foot cable is provided to allow the USB radio to extend its antenna outside a structure or to raise it above obstacles.

### 8.6 Starting a Race

Once the runners are ready, the starter and timing officials must check with each other to establish that they are both ready to start the race. The starter usually initiates this exchange by pressing the Green Ready Button on the starter unit. This sends an “Are you ready?”
signal to the capture computer. The green lights on the starter units blink and the Radio Status box on the capture computer displays a message indicating that the starter is ready and waiting for the timing official to acknowledge the signal. The capture computer also beeps every 5 seconds to attract the attention of the timing official.

The timing official confirms that the timing system is ready to capture video of the next race by clicking the flashing green READY button on the screen. This sends a “Yes, I’m ready” signal back to the starter and the ready light on the starter unit turns solid green. The Radio Status box on the capture computer indicates that both the starter and timer are ready for the race to begin.

This example shows the starter initiating this “handshake procedure”, but the timer may also send the “Are you ready?” signal to the starter by clicking the READY button, in which case the starter responds by pressing the flashing green button when the starter is ready for the race to start.

The starter has 5 minutes to start the race after the Ready Light turns solid green. The race clock starts when the starter fires the starting pistol. Once the race clock starts, the red and green lights are illuminated briefly on the starter unit, indicating the race is in progress and the timer is running. The Radio Status box on the capture computer indicates that the race is running and the race time appears in a red box above the preview area after a few second delay. The lights on the starter unit remain on for 5 seconds after the race begins. The starter may recall the race in this time period by pressing the red Stop button. This resets the units to their ready state. After the 5 second reset period, the lights on the starter unit turn off to conserve the batteries and only the timing official can stop the race clock. The timing official presses the CAPTURE button when the first runner approaches the finishline. The timing official may stop the clock by either clicking the ABORT button in the Radio Status box or the STOP button above the preview area. Both button stops the race clock and sets the radio units to the Idle State. The STOP button also stops the video capture and allows the timing official to save the video.

8.6.1 Abort the Start Procedure
Both the starter and the timer may abort the process at any time before the starting pistol is fired by pressing the Red Stop Button on the starter unit or the ABORT button on the capture computer. This sends a “Not Ready” signal to the other unit. The starter unit sounds a busy signal and flashes the red light. The flashing light and sound stop after 10 seconds or when the Red Stop button is pushed on the unit. The capture computer displays a message in the Radio Status box and plays an audible warning beep.

8.6.2 No Response/Time Out
An official has 5 minutes to respond after the other official’s request to start the race. The units time out if an official does not respond to an “Are you ready?” request within 5 minutes, or the race does not start within 5 minutes of a ready acknowledgement. The starter unit will sound the busy signal and flash the red light. The Radio Status box displays a message indicating that there was no response. Either official must reinitialize the “Are you ready?” signal before continuing.

The green light blinks rapidly and the unit starts beeping for the last 30 seconds of 5 minute time period to indicate the system is about to abort. This is a signal that the starter only has
a few seconds to start the race. If this occurs, it is recommended that the starter aborts the process by pressing the red STOP button. This ensures the starter has enough time to adequately start the race and the timing official is ready. It’s also a safeguard against the units timing out just as the starter pulls the trigger.

8.6.3 Recall the race

After the race starts, the starter may press the Red Stop button to recall the race up to 5 seconds after the race begins when both the red and greens lights are on. This resets the race clock and restores the system to the Ready to Start Race state. (I.e. Ready light is solid green on the starter unit). The starter then has 5 minutes to restart the race before the system time out. The officials must reinitiate the “handshake” procedure if the starter does not press the red stop button within the recall period or if the units timeout before the restart.

Whenever the timing official clicks the ABORT button on the capture screen the race clock resets and units are set to the Idle state. This also occurs if the STOP capture button is clicked. If the timing official resets the clock within the first 5 seconds of the start, the starter unit sounds a siren warning signal. This indicates a possible issue with the timing device and the starter may recall the race.

If there is a malfunction and the race clock does not start on the capture computer, the FlashTiming software can calculate the times of all the runners from the video based on one hand time. The resulting times will not be FAT but the video will determine the order position and all runners times will be based from the one hand time. The protocol for the timer to recall the race should be discussed before the race. If FAT times are not necessary, you may decide not to recall the race and use the calibrated hand times from the video.

8.7 Race Clock Inadvertently Starts

The race clock starts after the units are in the Ready to Start Race state and the starter unit detects the loud bang from the starting pistol. The race clock may inadvertently start due to a loud sound or from the unit being bumped. The starter unit beeps and the green and red lights both turn on when this occurs. The starter can press the Stop Button within 5 seconds of this occurring and the unit will go back to the Ready to Start Race state. Otherwise, the timing official may stop the race clock from the capture computer and the units are reset to the idle state.

8.8 Radios Do Not Communicate

The Radio Status box notifies the timing official at the capture computer if the radio units are unable to communicate and the red light flashes on the starter unit along with a rapid busy signal. It is recommended that the timing official test the radio communication whenever the starter moves to a new starting position on the track and before the next race. Click FT-FAT Radio from the main menu on the capture computer and then Test Radio Communication to perform the check. The Radio Status box displays the test results.

There are several reasons why the radios may not communicate:

1. Metal Stadiums may deflect or interfere with radio communication. The FT-FAT system includes an external antenna with a 13-foot extension cable and magnetic base for use in metal spectator stands and/or press box. To use:
a. Unscrew the antenna on the timer unit and replace with the 13ft cable connected to the magnetic base.
b. Remove the black cap on the magnetic base and screw the external antenna to the base.
c. Attached the magnetic base to the exterior of the press box and in line of sight of the starter unit. Ideally, the antenna should be placed outside the press box or high enough to avoid human traffic in the radio path.

2. The receiving unit is in power save mode.
Verify both units are turned on. The Starter unit turns itself off after a period of inactivity to conserve power. Press the green button to turn on this unit.

3. The batteries are low on the starter unit.
Perform a battery check on the starter unit. This test should be done at the start of each meet and part way through a long meet.

4. There is an object interfering with the radio communication.
Be sure there is line of sight between the radios. Sometimes, just moving the position of either the starter or the USB radio units a short distance may correct the problem. Something as narrow as a goal post can interfere with the radio communication if it is exactly on a line between the two units.
Body mass is another source of interference. Make sure the starter has the starter unit in sight of the USB and camera radios. If you are operating your computers at the finish line, do not let a crowd of gather in the line of sight between the USB Radio antenna, Starter antenna or Camera antenna.

The next set of causes are less likely to occur during a meet, but should be checked if communication is not established after checking the above items.

5. There is interference on the radio channel.
Someone is operating a radio on the same channel. Even if the radios were successfully tested before the start of the meet, there is a possibility that another device is using the same radio channel and causing interference. Select a new radio channel. Refer to section 7.4, Radio Channels, for more information on setting channels. If two FlashTiming radio systems are being used in a meet, they must operate on separate channels.

6. The radios are out of range.
The radios are able to communicate over 1000 ft. under most conditions. This distance should be sufficient for most track events.

8.9 Test the Units
It is recommended that you test the radio communication at each of the start positions before your track meet. Try several positions at each starting line to identity any “dead” radio zones. Let your starter know if they exist to minimize problems during the meet.

8.10 FCC Notice
The following notice applies to the Starter Unit, the USB Unit and Camera:

Contains FCC ID: MCQ-XBPS3B
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Appendix A: Tips for Hy-Tek Meet Manager Users

Times are loaded into Meet Manager from the Run the Meet scene in the Meet Manager application. Click the race in the event list and simply hit the Get Times button. Your FlashTiming results are recorded. Here are some tips for importing times from FlashTiming into Meet Manager

Before the Start of the Meet:

Set up your Meet Manager Data Location. From the Run scene:
1. Select Interfaces from the Menu Bar.
2. Click Photo Finish - FlashTiming. For Meet Manager users with release prior to version 2.Bg, click Photo Finish - FinishLynx File Sharing Mode.
4. Check the Activate update of start lists.
5. Click Change Data Location and select the folder to store the Meet Manager Data.
   NOTE: Be sure to double click the folder in the list and verify that the folder name is displayed at the top of the dialog before you hit okay. (If you just single click and hit okay, it doesn't accept the new folder. It looks like it accepted the change because the folder name is highlighted.)
6. Click Ok in the Update Start List dialog.

These steps need to be completed before you configure FlashTiming to use Meet Manager. Be sure that the Activate update of start list box is checked (step 4). This allows you to update the start list from the run scene.

Make Corrections to the Heat Sheets

You must update the race participants in Meet Manager before you record the times in FlashTiming if you select Load Athletes in FlashTiming’s Record Time tab. If you select Do Not Show Athletes, you must update the athletes before importing the times into Meet Manager.

1. Get the heat/finish line sheets from the clerk of the course. If there are no scratches, changes to lane positions or addition of athletes, you can go ahead and record the times in FlashTiming.
2. Make changes to the Athlete's list. From the Run the Meet scene:
   a. Click the race in the event list. If you need to add a heat, type <Ctrl-H>.
   b. Click the Adjust Button in the middle section of the screen - the preview/adjust screen is displayed and shows all heats of the events.
      • To scratch an athlete, double click the athlete's name and select Yes in the confirmation dialog.
      • To change the lane position of an athlete, click and drag the athlete's name to a new lane. If the new lane is empty, the athlete is moved to the lane. If there is someone in the new lane, the athletes’ positions are switched.
- To add an athlete, click the **Show Eligible Athletes** button. (For relay races, click **Show Schools**.) Click and drag a name from the Eligible Athletes List to an empty lane position in the event. If the athlete name is not in the **Eligible Athletes List**, click the **Athlete Menu** button and add the athlete.

When all the updates have been made, click **Accept**. This returns you to the **Run the Meet** scene with your updated athlete list.

You can scratch and reposition athletes within a heat without going to the Adjust Menu. Simply follow the same steps on the athlete list in the Run Menu as you did in the Adjust menu.

- To scratch an athlete, double click the athlete's name and select **Yes** in the Confirmation dialog.
- To change the lane position of an athlete, click and drag the athlete's name to a new lane. If the new lane is empty, the athlete is moved to the lane. If there is someone in the new lane, the athletes’ positions are switched.

If the only changes to a race are scratches, you can record the times in **FlashTiming** and leave the times blank for any athletes who did not run. You can delete the athletes in **Meet Manager** after you import the times for the race.

3. **Save your changes for FlashTiming**. Type `<Ctrl-U>` from the Run scene to save your changes to the **Meet Manager** Data Location Path. There is a confirmation message "**Photo Schedule and start lists successfully copied to <folder>**".

   **NOTE**: You may get a similar message that states, "Schedule successfully created". This is an indication that the **Activate update of start lists** box is not checked in the Update Start List dialog and your changes are not saved.

4. **Record your results in FlashTiming** – Once all changes have been made to the athlete list in **Meet Manager** and the changes have been saved you can record the times in FlashTiming. On the Playback computer, load the video and the athletes. If the video and athletes were loaded before the updated athlete list was saved from Meet Manager, simply click the **Load Athlete** button to load the new list.

Import Results into Meet Manager

Once all the updates have been made to the list of participants, select the event from the event list, and click the **Get Times** button. Your **FlashTiming** results are automatically entered for the event.

If the list of athletes and lane assignments from **FlashTiming** do not match the **Meet Manager** list, **Meet Manager** displays the edited list when you attempt to get the times. Make the adjustments to the **Meet Manager** list and then click the **Get Times** button again. If you accept the list without making the adjustments, only the times for the matching athletes are loaded.
APPENDIX B: Tips for Sydex Users

Sydex and FlashTiming exchange information by storing data in a mutually agreed folder. When setting up the meet we must make sure that the two pieces of software can communicate properly. This can be accomplished by making sure that the folders the software uses are synced properly by each. Follow the steps below to ensure FlashTiming and Sydex Track Gold work properly together.

Data sharing:

1. Open Sydex Track Gold’s Main Menu
2. In Add/Change Data - Choose Meet Entry
3. Choose the Meet you wish to score at the top of the page
4. Under Full Results Meets – choose Change Meet
5. Now choose Change Meet Info:
   a. We must now set the folder that the programs can use to share data:
   b. Check the boxes for Use Field Lynx and Use Field Lynx or other FAT
   c. Set the folder for the data (Default is C:\LYNX) This file path cannot be greater than 16 characters including "C:\".
   d. When configuring Flash Timing, Set Meet Management Data Folder these two must match exactly.
   e. Click OK.

Event Sequencing and Numbering:
Now choose Select Events at This Meet

1. Men’s & Women’s Selected Events: Make the order of events mirrored in the top and bottom windows
2. Each event must be assigned a unique number.

3. If you are running a Men’s and Women’s meet make the top windows numbers even in sequence and make the bottom window numbers odd in sequence*** (Critical)
4. Flash Timing needs each event by gender to have a unique event id number. If the Men’s 100 Dash and the Women’s 100 Dash are both event 12 Flash Timing can not differentiate between the two. Sydex will not process the results properly.
5. Hit **Save Setup For Future Meets** when the events are all set.

**Data Files in C:\LYNX Folder**

Once the meet is set go and you have processed the events to the C:\LYNX folder on the machine. You will find the LYNX.EVT. You can open this file in Notepad.

The LYNX.EVT file will show the Events and Seeding that Flash Timing uses when you are processing an Event and Load Athletes to determine their times.

After you process each event and **Save Times**, Flash Timing creates an LIF file that Track Gold uses to load the times into the software to create Results. After Track Gold processes each event it deletes these files.

**Processing the Results**

To process the results from Flash Timing with the Track Gold software follow the next steps.

On the Track Gold Main Menu hit **Meet Entry** and choose the meet you are scoring. Then choose **Change Meet** and in the main window double click the event to process. The **Men's/Women's Event Options** window will open. You must click on **Process Results**. This will open the **Events Result Control** window. In the event windows double click on the event to process. The **Event Results** window will now open and pull the times into Track Gold. You will see the processed results from Flash Timing.

This process deletes the LIF file from the C:\LYNX folder and you can now see the results when you **View/Print Results** in the **Track Gold Main Menu**.

To save the LIF files you can follow this procedure. Create a shortcut to the C:\LYNX folder on the desktop. After you have Saved Times in Flash Timing open the C:\LYNX folder and you will see three files: LYNX.EVT, and the Event LIF. Right click in the window and create a new folder, name it **Meet Name Data**. Right click the LIF file and copy it then right click on the folder you have created and Paste. This will create a copy of the LIF file that you can have access to at a later time. Remember after you Process the event, the LIF file will be deleted unless you save it as previously outlined.
Appendix C: Networking your Computers

The ideal setup when running your meet is to have two or three computers networked together: the capture computer, the review computer and the scoring computer. The operator of each computer is responsible for the following tasks:

- **Capture Computer** – Reads list of scheduled events from the scoring computer. Captures video of the finish line for the events and saves the video files on the capture’s computer hard drive.

- **Review Computer** – Retrieves video from the capture computer and a list of race participants from the scoring computer. Reviews the video, determines the athlete’s times and saves the results on the scoring computer.

- **Scoring Computer** – Maintains the list of events and heat sheets from your meet management software and shares those lists to FlashTiming software. Retrieves the time results and scores the event.

If only using two computers, it’s recommended that you dedicate one computer for capturing and the second computer is used to review videos and score the meet.

The computers must be networked together and folders must be set for sharing to enable the above tasks. We recommend that you turn off your wireless when using FlashTiming and connect your computers with a switch or router.

Many of the following instructions direct you to open the control panel. To do so, type in the control panel into the Windows Search Box.

*Windows 7 or Windows 10:* Click the Start button 🎉. The Search box is located at the bottom of the start menu.

*Windows 8:* If the desktop is visible, click the window key to bring up the Windows 8 Start Window. Start typing and the search box appears in the upper right.

The appearance of the windows on your computer may be slightly different than the images below. Look for the corresponding text on your computer if the image does not exactly match.

The control panel may be viewed by Categories, Small icons or Large icons. You can change the control panel appearance by clicking **View by:** in the upper right hand of the control panel. The instructions below assume that View by is set to large or small icons.

Follow these steps to network your computers and share files.

1. Assign computers to the same workgroup
2. Turn off the wireless network.
3. Set the computers to a private network.
4. Set the computers’ sharing options
5. Turn off firewalls.
6. Set folders for sharing.

You may need special permissions if you are using a school computer and may need help from your tech staff to do these steps.
**Managed vs Unmanaged Network**

The *FT-FAT* system ships with a Trendnet 1Gbit POE Switch. This switch powers the camera and allows Ethernet computers to communicate with each other. It is an unmanaged switch, which by default will assign an Auto IP, starting with the numbers 169.254.x.x. It runs a CPU intensive process in the background to manage the network traffic, which results in dropped frames when capturing video. Therefore, it is necessary to assign static IP addresses to your computer to avoid this problem.

A managed switch, usually referred to as a router, will assign IP addresses to the computers on the network and provides control of the network traffic. Users may opt to attach a router to the Trendnet for this purpose.

**Assign all Computers to the same Workgroup**

Assigning computers to the same workgroup makes it easier to share and locate folders on a network. Windows create a Workgroup by default named `WORKGROUP`, and in most cases, there is no need to change it.

1. Open the control panel and click on **System**.
2. The System Window appears with the title “View basic information about your computer”. Scroll down to the section “Computer name, domain and workgroup settings.”
3. Make note of each computer name and verify that all computers belong to the same workgroup or domain.
4. If your computers are on different workgroup or domains. Click the **Change settings** button and make the Workgroup Name the same on all computers. You can also change the computer name. Click OK.

You need to reboot the computer for the name and workgroup change to take effect. Before you reboot, connect the computer to the network switch or router with an Ethernet cable. After you reboot, turn off your firewall and set the captured videos and the meet management data folders for sharing.

*Note: You will not be able to discover all the computers on the network if any of the computers have the same name.*

**Win10 Computers**

Follow these instructions if on a Windows 10 computer. Go to section 13.4 if using Windows 7 or Windows 8.

**Turn Off Wireless Network**

1. Right Click the Window Start Icon in the lower left of the screen.
2. Click **Network Connection**
3. In the Status Window, click **Ethernet** in the left-hand column.
4. Click Change Adapter Options
5. If the Wi-Fi adapter is Enabled, right click the Wireless adaptor and click **Disable**
Unblock Messages from other computers
Windows 10 added a feature that allows you to block other computers. Check that this feature in not enabled:

1. Go to Control Panel
2. Click on Programs and Feature
3. Click on Turn Windows features on or off, located in the left column
4. Find SMB 1.0/CIFS File Sharing Support in the list. Expand the list.
5. Check both SMB 1.0/CIFS Client and SMB 1.0/CIFS Server.
6. Click OK.

Next check that the network services are not blocking other computer
1. Click on the Window Key in the lower left corner and type in services.
2. Locate the following items in the list. If the Start Type is not set to Automatic, right click in the StartUp Type column and select Automatic.
   a. Function Discovery Provider Host
   b. Function Discovery Resource Publication
   c. SSDP Discovery
   d. TCP/IP NetBIOS Helper
   e. UPnP Device Host

Change from public network to private network.
It’s necessary to set the network to private to avoid dropping frames

Using a Router
If you are connected to a router which assigns IP address:
1. Right Click the Window Start Icon in the lower left of the screen.
2. Click Network Connection
3. In the Status Window, click Ethernet in the left-hand column.
4. Click Change Connection Properties, in the center section.
5. Click Private under Network profile.
6. Click X in the upper right to dismiss the window.

Windows 10 Pro
You can permanently set the network to private if using a computer with Window10 Pro Operating System.
1. Type in secpol.msc in the Windows search box. This will bring up the Local Security Policy Window.
2. Click Network List Manager Policies in the left column.
3. Double click on Unidentified Networks in the right side.

4. Change Location Type to **Private** in the Unidentified Network Properties Window.
5. Click OK.

**Windows 10 Home**

If you are running Windows 10 Home on an unmanaged network or you don’t see the option to change to private in the Network Status window, follow the steps below.

1. Click the Window start menu in the lower left of the screen.
2. Search for **Windows PowerShell** in the menu and click the down arrow.
3. Right click on **Window Power Shell** in the expanded menu and click **Run as Administrator**.
4. Type in:  
   ```bash
   Set-NetConnectionProfile -NetworkCategory Private
   ```
   (You may copy and paste the string in to window)
5. Click X in the upper right corner to close the PowerShell.

Window 10 users skip next section and go to Section 13.5.

**Windows 7 and Windows 8**

**Connect your computers to a router or switch.**

Connect your computers to a router or switch. Be sure your wireless is turned off.

1. Open Network and Sharing Center:
   - Go to the Control Panel and click **Network and Sharing Center** in the list.
2. Click **Change adapter settings** in the upper left panel (1 in figure below)
3. Right click on the Wireless Connection and click Disable.

Many routers and switches have lights on the front panel corresponding to the port on the back. Check that the correct lights are showing on the front panel.

**Set computers to a private network**

Follow these steps to set the network to private on all WIN7 and WIN8 computers.

1. Open Network and Sharing Center: Go to the Control Panel and select **Network and Sharing Center**.
2. Check if you are on a private or public network (2). If private, go to the next section.
3. If the text, **Public Network**, is not selectable, click on **HomeGroup** (3) in the lower left panel of the Network and Center.
   a. Click on **Start the HomeGroup troubleshooter** at the bottom of the window titled “Change homegroup settings”.
   b. Click on **Next** in the window titled “Troubleshoot and help prevent computer problems”.
   c. A window displays “Detecting Problems…” followed by the “Troubleshoot network problems” window. Click **Skip this step**.
   d. A diagnostic window appears, followed by a window titled “Change the network location to Home”. Click **Apply this fix**.
   e. Click **Cancel** in the next window.

You are now on a private network.

**Set the Private Sharing Options**

Go to the Control Panel and click on Network and Sharing Center.
Click on **Change advance sharing settings** (4) in the upper left panel.
Set the following options:

**Windows 7:**

Expand the options for Home or Work and set the following:
1. Turn on network discovery
2. Turn on file and printer sharing
3. Turn on sharing so anyone with network access can read and write files in the Public folders
4. Use 128-bit encryption to help protect file sharing connections
5. Turn off password protected sharing
6. Use user accounts and passwords to connect to other computers.
Windows 8 and 10:

Expand the options for Private and set the following:
1. Turn on network discovery and check turn on automatic setup of connected devices.
2. Turn on file and printer sharing
3. Use user accounts and passwords to connect to other computers.

Expand the options for All Networks and set the following:
4. Turn on sharing so anyone with network access can read and write files in the Public folders
5. Use 128-bit encryption to help protect file sharing connections
6. Turn off password protected sharing

If you made any changes, click Save changes at the bottom. You’ll need to log off and back on for the changes to take effect.
**Turn off all firewalls and virus checkers**

Firewalls and virus checkers may interfere with a networked computer's ability to access shared folders. Users should either turn off their firewall or allow FlashTiming to communicate through the firewall. To turn off the Windows Firewall:

1. Click on Windows Firewall (5) in the Network and Sharing Center; locate in the lower left panel. The Windows Firewall Windows appears.

2. Click **Turn Windows Firewall on or off** in the left panel.

3. Turn the firewall off for your network type (private or home).

Your anti-virus software, such as Norton or McAfee, may have a separate firewall. Be sure that any firewall and virus checking is turned off.
**Set Folders for Sharing**

You must set your video capture folder for sharing if you are reviewing videos on a separate computer than the one on which you are capturing videos. If you are scoring on a separate computer, then your meet management folder must also be set for sharing. You must also enable others to write to the folder if you are reviewing videos on one computer and scoring on another.

1. Right click the folder you wish to share.
2. *Win7 and Win8:* Right click on the filename, click **Share With** and then **Specific People.** The **File Sharing** window appears.
   *Win10:* Right click on the filename, click **Give access to** and then **Specific People.**
   The **Network access** window appears
3. Click on the pull-down arrow and select **Everyone** then click **Add.**
4. **Everyone** will appear in the bottom window. Click in the column arrow under **Permission Level** and change to **Read/Write.**
5. Click **Share** then **Done.**

Verify that the computers are networked once all these steps are completed,

Bring up a file browser and select **Network** from the left panel. A list of networked computers appears on the right side under "Computers". On the Review computer:

- Click on the Capture Computer and you should see the folder "FlashTiming Videos".
- Click on the Scoring Computer (if different than the review computer) and you should see the scoring folder. E.G. "tfmeets6 if running Hy-Tek Meet Manager Version 6.

On the Capture Computer, click on the Scoring Computer and you should see the scoring folder.

If you don't see the other computer, verify the IP addresses are correct.

*Window 10:* If the other computers do not appear, type in the either the computer name or the IP address in the address bar preceded by “\”. E.G. \192.168.1.19 or \CAPTURECOMPUTER. See if the share folders appear.

**Check the Computer’s IP Address**

The computers’ IP Addresses must be set appropriately to be able to find the other computers on the network.

To find your computer's IP address
1. Click on **Change adapter settings (1)** in the Network and Sharing Center, located in the upper panel. The Network Connections window appears.
2. Double click the active network connection. The Local Area Connection Status appears:
3. Click **Details**. Your computer's IP address appears in the Value column, next to IPv4 Address.

Check the IP address and subnet mask to be sure that the computers are on the same network.

If the subnet mask is “255.255.255.0” then the first 3 sets of numbers for the IP address need to be the same on all computers and the last number of the IP address needs to be different for each computer.

If the subnet mask is “255.255.0.0” then the first 2 sets of numbers of the IP address need to be the same on all computers and the last number of the IP address needs to be different for each computer.

You will not be able to see all the computers if:

- the leading group of numbers of the IP addresses is different, or
- any of the computers have the identical IP address.

**Set the Computer's IP Address**

1. Stay in the Network Connection Window. (Click on **Change adapter settings** (1) in the Network and Sharing Center, located in the upper panel.)
2. Right click on **Ethernet** (or **Local Area Connection** on some versions or Win7) and then **Properties**.
3. In the Networking Tab, click the box labeled **File and Printer Sharing for Microsoft Networks** if it is not checked. This enables you to share files on the network.
4. Click on **Internet Protocol Version 4 (TCP/IPv4)**.
5. Click on the **Properties** button.
6. If you set the properties for all computers to **“Obtain an IP address automatically”**, Windows will assign IP automatically if using Windows 7 or greater.
7. If you are using a router, click on **Obtain an IP address automatically**, and then **OK**. If you are using only the Trendnet POE switch that comes with the system, assign a
static IP address:
   a. Click on **Use the following IP address**.
   b. Enter **192.168.1.1** for the **IP Address** on first computer.
   c. Enter and **255.255.255.0** for the **Subnet mask**.
   d. You can ignore the other fields. Click Okay.
   e. Repeat these steps on each computer, incrementing the IP address. Assign
      the second computer an IP address of 192.168.1.2. If you are using a third
      computer, set the IP address to be 192.168.0.3.

There is a red X next to Local Area Connection in the Network Connection Window if you
are not connected to the network router or switch. This disappears once you connect to the
switch or router. A yellow exclamation mark indicates that the IP address is incorrect.
Appendix D: Technical Support
We are committed to providing high quality fully automatic timing systems with excellent customer service. FlashTiming support personnel are available for assistance to help ensure your success. Telephone us Monday through Friday, from 8AM until 8 PM Pacific Time.

FlashTiming Support:

- email: support@flashtiming.com
- phone:
  (971) 998-2349  PST
  (309) 274-2970  or (309) 369-6208  CST
- fax: (503) 647-2090