LYNX
Lynx System Developers, Inc.

FINISHLYNX COMPETITION ELITE PACKAGE QUICK START GUIDE

FOR ETHERLYNX VISION CAMERAS

Competition Elite

FinishLynx Software

Auto Capture plug-in

RadioLynx plug-in

LynxPad

3L900

Alternate Wired Start Capability

3A100

3L400

1A205U

B-SPL

FinishLynx Primary

PoE Injector

C848M

5L500
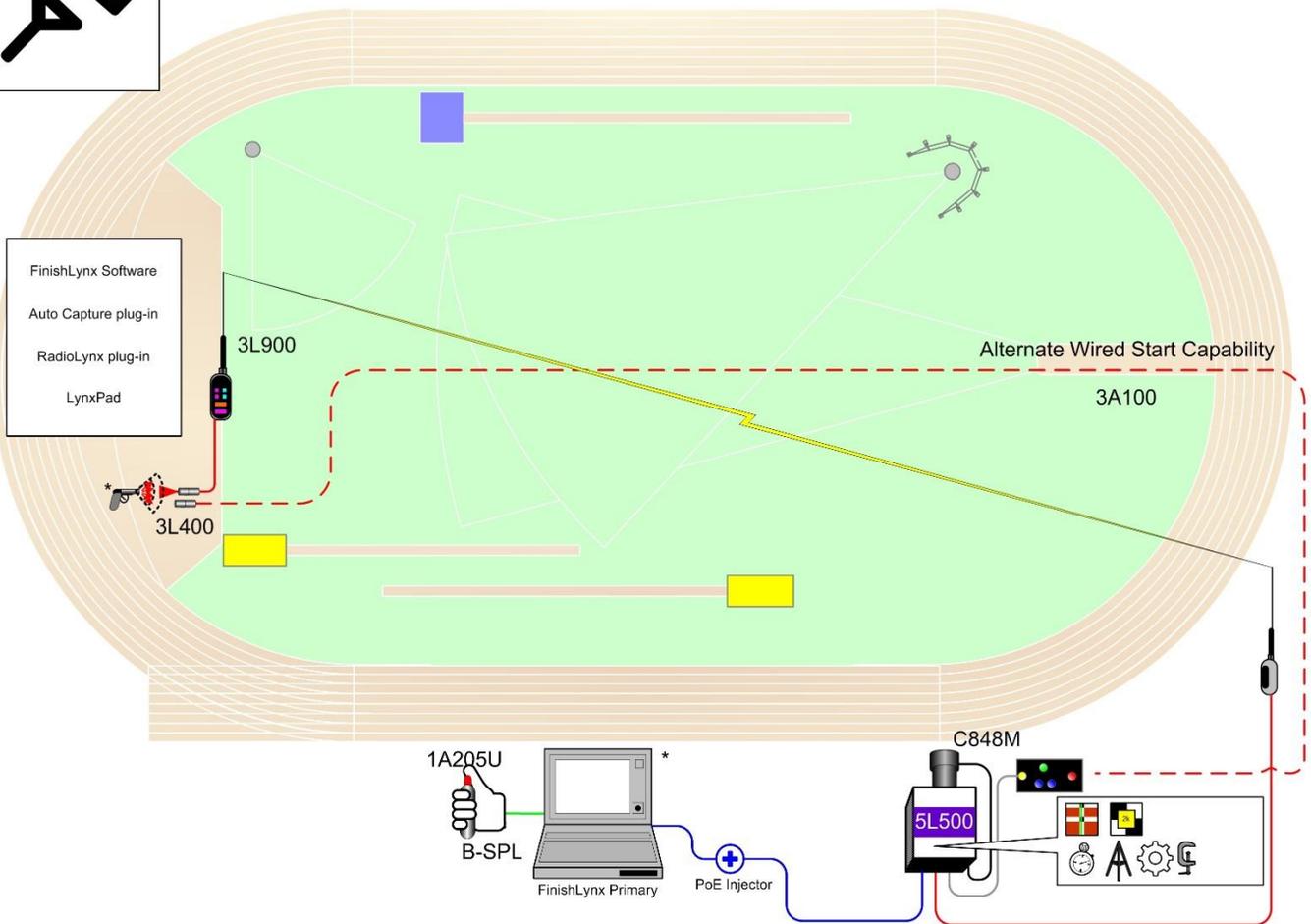
* Computers and starting pistol not included in package

Updated September 2020

Quick-Start Guide - FinishLynx Competition Elite Package Timing System

Please verify that your FinishLynx Competition Elite Package contains all the components pictured here. If something is missing, or if you have questions setting up your system after following this quick start guide, call: (978)-556-9780. For additional tech support documents and downloads, visit **www.finishlynx.com/support/**

| Item	Description	Part #	Item	Description	Part #
	Carrying Case	1A207		Normally closed start sensor with light	3L400
	EtherLynx Vision high sensitivity camera	5L500		500 ft. start sensor cable	3A100
Not pictured	Timer-Enabled option for 5L500 camera	5LTE	Not pictured	High-Resolution Option for 5L500 Camera	5LHR
	Internal RadioLynx	Int-DEC-004			
	C-Mount 8-48mm f1.2 Motorized Zoom Lens	C848M		Connection box	C-Box
	CS Mount 2.8-10mm P-Iris lens	CS2810P		Connection box cable	451
	CS Mount to C Mount Adapter	MCS-C		100 ft. Ethernet cable	C10BT-100
	Geared head	BG3275		Capture button and USB/Serial adapter	1A205U
	Super head clamp	BG2909		Power Injector for Power Over Ethernet	IDL-PoE
	Camera tripod	BG3036		RadioLynx Transmitter, includes RadioLynx start sensor (red case)	3L900
	Lynx USB Flash Drive with FinishLynx32, LynxPad, and ACM/RadioLynx Plug-ins	5LSW and 9LSW01			
Be sure to keep your USB flash drive safe. It includes your Serial Numbers, Software, & Quick-Start Guides. To access the files, insert the flash drive in your computer and click on START.html					

Items not included

- **Laptop or netbook** computer running Microsoft Windows. Your computer needs: 1 available serial port (or USB port with serial adapter) and 1 available Ethernet port.

- Plumb bob and string. The plumb bob is available at your local hardware store, and you can use any type of string, as long as it is at least the width of your track (optional).

- **Printer** (optional)

Introduction

In this QSG, you will learn how to configure the FinishLynx network, set up the EtherLynx Vision camera and align it with the finish line using the EasyAlign software feature. You will also learn how to capture, evaluate, and print a FinishLynx results image, and import a start list created in LynxPad.

Step 1. Go to the track

Bring your FinishLynx system (and an assistant) to the track. Make sure there is **power** available for your computers and for the Power over Ethernet injector. The EtherLynx Vision camera will receive power via the Ethernet data cables.
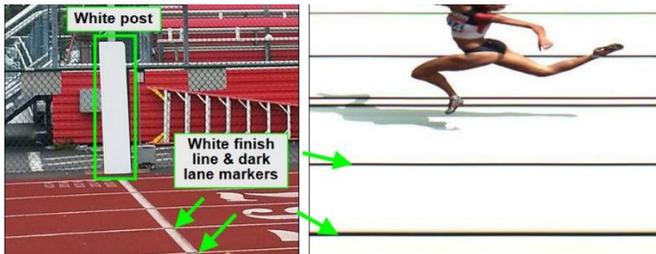
Set up a table near the finish line, ideally on the infield if power is available. The finish line should have black lane markers painted or taped on the finish. If not, we suggest you use black matte tape to designate lane lines. This will help you align the camera and get clearer images.

Step 2. Install the software

A. FinishLynx Software and Plugins

Insert the Lynx USB flash drive in your computer and click on **START.html** to access the software installers and serial numbers. You can also download the latest version of FinishLynx on our website:
www.finishlynx.com/product/software/finishlynx-results-software/

Install FinishLynx, the RadioLynx Plug-in, and the Automatic Capture Mode (ACM) Plugin directly from the **START.html** page on your flash drive. When prompted, enter the serial numbers found on your flash drive.

1) Start FinishLynx by clicking the Windows **Start** button and selecting **All Programs** | **FinishLynx**.

2) Verify that you have correctly installed the ACM and RL Plug-ins by clicking **Help** from the Menu bar and selecting **About…**. When the **About FinishLynx** dialog appears, the ACM and RL Plug-ins are listed with the serial numbers you entered during installation.

B. LynxPad

Install using the Lynx USB Flash drive or download the latest version of LynxPad at:
www.finishlynx.com/product/event-management/lynxpad/

Install LynxPad and enter the serial numbers found on your flash drive.

Note: You should **Right Click** on the installer and select **Run as Administrator** to install LynxPad, if you do not, you will not be able to print from LynxPad.

Step 3. Evaluate a sample image

1. Start FinishLynx. Click **File** - **Open…**.
2. Double-click **Sprint.evn** to open the sample event.

Note: This sample is a two-camera image. Your Competition Elite System uses only 1 line-scan camera and produces single-camera images.

3. Click the mouse once on the torso of a competitor on the left side of the screen. A red hairline appears. Enter the lane number for the athlete in the identification box.
4. Press the **Enter** key on your computer. The finisher's time appears in the start list above the image.
5. Repeat these steps for all of the competitors on the screen. You have just successfully evaluated a race in FinishLynx.
6. Click **File** | **Close window**. If you want to reuse the image later for practice evaluation, click **No** when asked to save your changes. Close FinishLynx.

Step 4. Configure the network for Windows OS prior to Windows 7 *(See Step 5 below for Windows 7,8 and higher)*

1. Click the Microsoft Windows **Start** button and select **Control Panel**, *or* click **Start** | **Settings** | **Control Panel**.
2. Double-click **Network Connections**.
3. Right-click the **Local Area Connection** associated with the network interface card (NIC) in use and select **Properties**. The **Local Area Connection Properties** dialog appears.
4. Make sure you see a line that reads, **Internet Protocol (TCP/IP)**. You may have to scroll down to see it.
   a. Click **Install** and select **Protocol**.
   b. Click **Add....**
   c. Click to select the **Microsoft TCP/IP** option and then click **OK**.
5. Check the box next to **Internet Protocol (TCP/IP)**.
6. Click to select **Internet Protocol (TCP/IP)** and then click **Properties**. The **Internet Protocol (TCP/IP) Properties** dialog appears.
7. Click the **Use the following IP Address:** button and then type the following numbers:
   ▪ IP address: **192.168.0.5**
   ▪ Subnet mask: **255.255.255.0.** Click **Ok** and then click **Ok** again.
8. **If you are running Windows XP, follow these steps to disable the firewall. Otherwise continue to Step 6**
   d. Open the Windows **Network & Sharing Center**.
   e. Right-click the **Local Area Connection** associated with your system, and select **Properties**. The Local Area Connection dialog appears.
   f. Click the **Advanced** tab.
   g. Make sure the box **under Internet Connection Firewall** is *unchecked*.
   h. Click **Ok** and then exit the Network Connections screen. **Restart your computer**.

Step 5. Configure the network for Windows 7 & 8 *(if applicable)*

**Note: Sections 1 and 2 should be completed on both FinishLynx and Meet Management computer.**

1. Go to the windows **Control Panel**. On the top right is **View By** with a drop down arrow. Click the drop down arrow and choose Small or Large Icons.

2. Find and double click on **Network and Sharing Center**. They are listed alphabetically by icon name.

3. This will open the **Network and Sharing Center**. On the left is a blue section titled Control Panel Home.

4. Click on the **Change Adapter Settings** icon.

5. A new window will open displaying your network connections. Right click on the **Wireless Network Connection** and select **Disable** from the list of items. This is only necessary for the FinishLynx Capture computer.

6. Right click on the **Local Area Connection** and select **Properties** from the list of items. A new window will appear with a list of connection items. Click to select **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button.

7. A Properties window will appear and is typically set to **Obtain an IP address automatically**. Click to select the radio button for **Use the following IP address**. In the box for IP address, enter 192.168.0.5 for FinishLynx and hit **Tab** key to auto fill in Subnet mask 255.255.255.0

8. Click OK and navigate back to the Control Panel. In the control panel click on the Windows Firewall icon. Under Control Panel Home, on the left, click on **Turn Windows Firewall on or off**.

9. Turn off both Home and Public Firewalls (Domain for Windows Pro).

Step 6. Set up the camera and tripod

Setup the tripod in line with the finish line, preferably on the infield and approximately **10 feet back**. **Note**: Minimum recommended camera distance from track is 8 feet (at this distance you may not be able to see the feet of the athlete in Lane 1 – being able to see the feet is not a requirement for accurate timing on the Torso of the athlete). If you need to be closer than this you may have to use the optional 6mm lens supplied with your Competition Elite package.

1. Extend the tripod legs so the geared head is approximately 7 ft high.

2. On the near side of the finish line, hold a plumb bob so that it is suspended directly above the middle of the finish line. This is the **plumb line**, shown as **a** in the image below.

3. Tie string to the screw on the top of the tripod head. Have your assistant take the other end of the string to the far side of the finish line and hold the string taught. This is the **sight line**, shown as **b** in the image below.

4. Move the tripod to the left or right until the plumb line and sight line touch at position **C** in the image below. The tripod is now in the plane of the finish line.
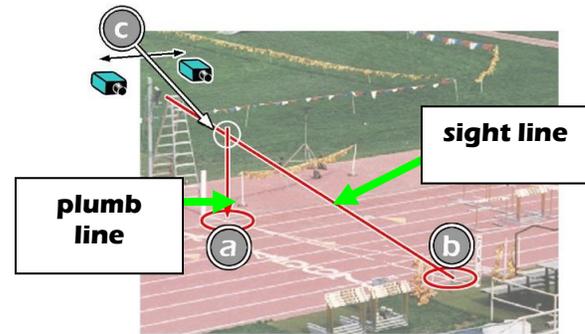

Step 7. Attach the camera to the tripod

1. Secure the geared head to the top of the tripod.

2. Note how the camera mounting plate is attached to the top of the geared head. Then, pull back on the lever at the top of the geared head to release the mounting plate.

3. Tighten the mounting plate to the bottom of the camera by turning the screw with a flathead screwdriver.

4. Attach the camera and mounting plate to the tripod by clicking the mounting plate into place on the geared head.

5. With the camera lens lined up with and facing the finish line, make minor adjustments to the tripod legs so both bubbles on the tripod are centered.

6. Connect the Remote Lens cable (attached to the lens) in to the port on the back of the camera labeled **Remote.**

7. When you are finished, your camera assembly should resemble the picture below.

8. Turn the black knob on the geared head that controls the **tilt** of the camera so that it is at about a 30 degree angle to the ground.

Step 8. Connect the cables
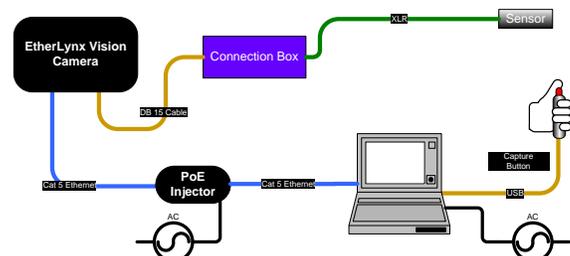
1. Connect the female end of connection box cable to the port on the back of the camera labeled **Connection Box** and the male end to the left side of the connection box.
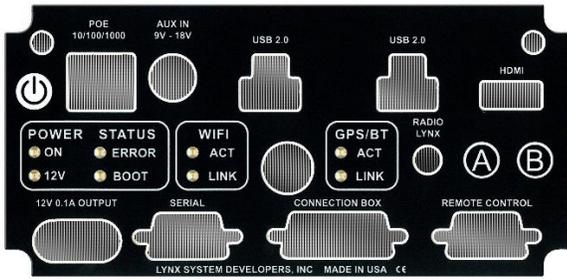
2. Connect an Ethernet cable between the back of the camera labeled *POE 10/100/1000* to the port labeled *Out* on the Power over Ethernet injector.

3. Connect an Ethernet cable to the network connection on your computer and the other end to a port labeled *In* on the Power over Ethernet injector.

4. Connect the male end of the start sensor cable to the connection box where it says *Start*. Attach the start sensor to the other end of the cable and keep the start sensor close by.

5. Connect the capture button to a 9-pin serial port, or a USB port with the supplied adaptor on your computer.

6. Turn on the camera by pressing and holding the power button on the back plate.

Step 9. Align the EtherLynx camera

Note: The EtherLynx Vision camera can be aligned using either 1-D mode or 2-D EasyAlign mode. We recommend using EasyAlign. If you are using an older model EtherLynx camera, however, it must be aligned using classic 1-D mode.

NOTE If running a wireless Ethernet card on your computer, we recommend that you disable it while the camera is booting.

Start FinishLynx. Wait while the green status bar in the lower right corner of the screen completes its cycle.

Align Vision Camera in EasyAlign 2-D Video Mode

1. **Activate EasyAlign** by clicking on the 2D align Icon in the top left hand corner of the FinishLynx **Hardware Control** screen.

   The icon turns green and the 2-D video viewer appears within the software. The 2-D viewer makes it easy to see how your camera is aligned on the finish**. The goal is to align the green vertical line with the painted finish line and near its front edge.**

2. **Adjust Camera Orientation**

Use the tripod's **Tilt, Pan**, and **Swivel** knobs to adjust the camera orientation of the camera on the finish. You want to ensure that the green vertical line is perfectly aligned on the white finish line and that all lanes are visible in the viewer.
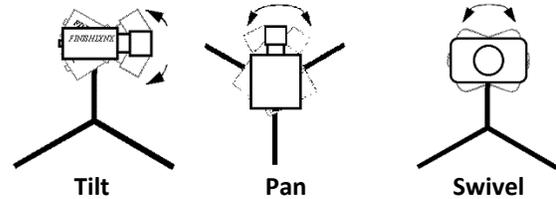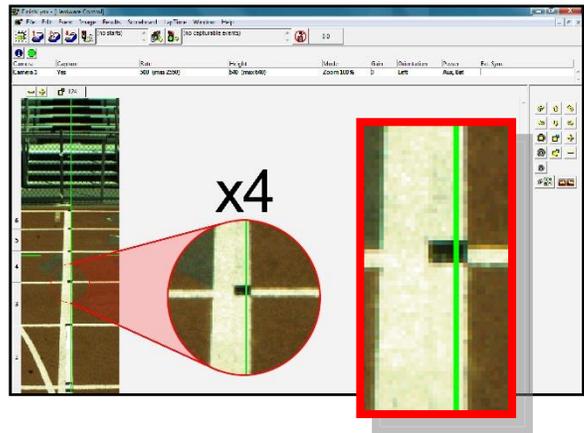
Have your assistant run through the finish line and watch where he/she appears on the computer monitor. The goal is for the runner's torso to be fully visible in both the inside and outside lanes. Once the camera position is correct, you can then optimize the remote lens settings.

3. **Adjust & Optimize Lens Settings** -Adjust the remote lens controls on the right of the hardware control screen.

Remote Iris (adjusts amount of light in lens)
Open or Close the remote iris to bring the ACM value as close to 1 as you can by clicking and holding the remote Iris buttons.

Remote Focus (adjusts near/far image focus)

Click and hold the and buttons on the keypad on the right of the FinishLynx screen until the image becomes crisp. Start by focusing on the far lane and adjust until all lanes are in focus. Ensure that athletes in all lanes (near and far) are in focus.
**Note**: If you are having a hard time getting crisp focus, try opening your lens iris and allowing the AGC to drop closer to zero.

4. Once the camera appears to be aligned, **Click**, the green alignment icon to close 2D alignment and then click on the red 1-D alignment icon ..

   You will know when your camera is aligned on the finish line because the 1-D image will be primarily white. See image below for proper 1-D alignment.

   If you followed the steps closely in 2-D align, the camera should already be aligned in 1-D mode as well. The 1-D

image should look similar to the following screen capture:
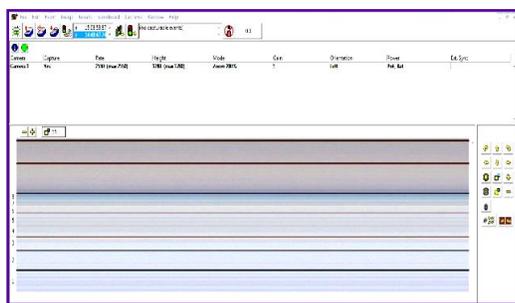
Step 10. Adjust the camera settings

1. Click **Camera Settings Icon** to open the Camera Settings dialog.

2. Click to select the **Setup** tab:

   a. **Name**: enter a name to identify the camera(s)

   b. **Image Orientation**: select the correct orientation for finish (infield would be Left orientation)

   c. **Identify By**: select Lane for track Competition Elite

   d. **Lanes**: enter the number of lanes on the track; the remaining should be left as default.

3. Click to select the **Parameters** tab

   a. **Rate**: type a value in the field between 800-1000 for sprints (400m and under) or type 600-800 for distance events. Change this value when moving between sprints and distance races, or else the competitors in your FinishLynx image appear distorted.
   Note: Image distortion does not affect timing accuracy.

   b. **Frame Height**: will vary by camera models, 640 is recommended for most track Competition Elites;

   c. **Gain Method**: set to **AGC** for outdoor light and set up. Set **Brightness** to 70. Use **Manual** when needed. Adjust the value based on quality of image in alignment mode.

4. Click to select the **Inputs** tab:

   a. **Start Sensor**: is defaulted to **Closed** for the wired gun start.

5. Click to select the **RadioLynx** tab:

   a. **Port**: RadioLynx Port

   b. **Setup ID**: **should** be 000 and select Start Sensor on the next line, **Name**: will fill in automatically with Start 000.

6. Click to select the **Capture** tab:

   a. **Capture Method**: select **Manual** if using the Capture Button or **Automatic** if using ACM plug-in (both **methods** can be active at the same time by selecting both).

7. Click **OK** to close the **Camera Settings** and it is advised to restart the FinishLynx software.

8. Set White Balance

   a. Open a new event in FinishLynx by clicking in the top left corner of the screen.

   b. Capture a small amount of image containing a white object, like a person wearing a white shirt.

   c. Right-click and draw a box around a small amount of the white image. You may need to zoom in to the image to do this.

   d. Click **Image** from the Menu bar and select **Set | White Balance**.

Step 11. Create a shared directory for FinishLynx and LynxPad

1. Right-click on your computer desktop and select **New | Folder**. When the **New Folder** appears, change the name to *Practice Competition Elite*.

2. In FinishLynx, click **File | Options…**. Click the **Browse** button on the **Event Directory:** and navigate to the *Practice Competition Elite* directory you just created. Then, click **Ok**.

3. Still in FinishLynx, click **File | Options…** and click the **Database** tab. Click the **Browse…** button next to the **Output Directory:** and navigate to the *Practice Competition Elite* directory. Then, click **Ok**.

4. Now, start LynxPad by clicking the Windows **Start** button and then **All Programs | LynxPad**.

5. Click **File | Options…** and *uncheck* the **Load Existing Results on Program Start** box. Then, click **Ok**.

6. Open the sample Competition Elite by clicking **File | Open.** Navigate to **C:\LynxPadData\Sample** and then double-click the **lynx.cmp** file. A practice Competition Elite opens on the screen.

7. Still in LynxPad, click **File | Options….** Click the **Browse** button next to the **Directory:** text field. Navigate to the *Practice Competition Elite* file you created earlier. Select it and click **Ok**. Click **Apply** and then click **Ok** again.

8. Still in LynxPad, click **File | Save as…** and navigate to the *Practice Competition Elite* folder. Then, click **Ok**. Now, FinishLynx can get start lists created in LynxPad, and LynxPad can import results generated by FinishLynx.

Step 12. Use FinishLynx with LynxPad Data

1. In FinishLynx, click to load the schedule of events from LynxPad. The **Go To Event** dialog appears.

2. Click the **Load Schedule** button once. Click the drop-down list under the **Load Schedule** button. A list of events appears. Click to select the "*110 Meter Hurdles Men (9, 3, 1)*" event in the list, and then click **Ok**. The

first heat of the third round of the men's 110m hurdles opens on the FinishLynx screen.

3. Either use a starting gun, or knock the sensor sharlpy against a hard object - this simulates the firing of the starting gun and starts the yellow FinishLynx timer.

4. Have your assistant run through the finish line while you press down and hold the red capture button to capture the image. Release the button as soon as he/she has run completely through the finish line.

5. Practice evaluating the image by following the same steps you followed earlier in Step 3

6. Click **File** | **Save** to save the race to the *Practice Competition Elite* directory.

7. Crop space between competitors in your FinishLynx image by right-clicking and drawing a box around the unwanted space. Release the mouse button and select **Crop** from the dialog that appears.

8. **(Optional)** Print the results and a portion of the FinishLynx image by right-clicking on the image and drawing a box around the portion you want to appear in your printout. For example, the first place finisher or a close finish between two competitors. Click **Ok** and then select the printer from the **Print** dialog to print the image and results.

9. Click **File** | **Close window** and then click **Yes** to save changes you made to the FinishLynx image when you cropped it.

10. In LynxPad, click to highlight *Men 110 Meter Hurdles* in the **Events** window. The start list appears in the **Heats** window.

11. Still in LynxPad, click **Competition Elite** | **Refresh All Results**. The results from the race you just evaluated appear in LynxPad.

Step 13. Setup RadioLynx wireless start

Follow the instructions on the separate Internal RadioLynx QSG.

Step 14. Automatic Capture Mode (ACM) Setup and Operation with a Scoreboard (not supplied with this package)

A: Using ACM to Stop Running Time

The following information will help to setup the ACM feature for stopping or pausing the running time on a scoreboard.

1. In the Hardware Control window, click on the **Camera Settings** (blue circle with white "I" in upper left).

2. In the Camera Settings, click on the **Inputs** tab and set **Photo Eye** to **Internal**.

3. Next, click on the **Capture** tab and set **Capture Method** to **Automatic**.

4. Click **OK** and close the Camera Settings.

5. Click on **File | Options** and the select the **Scoreboard** tab.

6. Select the scoreboard driver file that corresponds to your scoreboard (contact scoreboard manufacturer for details).

B: Manually Control ACM:

1. Click on **File|New** to create a new blank event or click on the **Create New Blank Event** button in the upper left.

2. In the Event Window make sure there is an **A** for Armed and **S** for Scoreboard and it says **Armed** to the right of the race clock (when using ACM the C for capture will not show until capture is enabled).

3. Create a start for the event and confirm that the running time is showing on the display.

4. Click the Capture icon to enable capture and then hit the **Ctrl+F** keys and it will say Finishing to the right of the race clock (click on Scoreboard Menu for shortcut keys).

5. Have someone run through the finish line and the camera should capture image and the running time should stop and display the time to the hundredths.

NOTE: In multi-lap races you can use **Alt+P** to pause the running time as competitors pass in front of the camera.
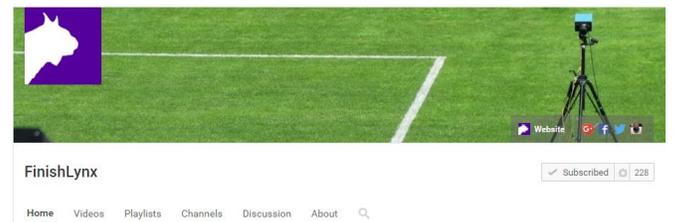
C: Automatic ACM Setting:

NOTE: Autobreak settings will occur automatically for every race so play with your settings to make sure it fits the way you want to handle each race, even multi-lap races.

1. Go to **File|Options** and select the Scoreboard tab.

2. Under Running Time on the third line is **Autobreak**, these settings allow it to occur automatically.

3. Selecting **Finish** and **If Capturing** will cause the running time to stop when ACM is on and the competitors cross the finish line.

4. Selecting **Pause** but NOT **If Capturing** will cause the running time to Pause each time competitors cross the finish line in multi-lap races when capture is not enabled.

This completes the FinishLynx Competition Elite Package Quick Start Guide.

Looking for more resources? Visit our YouTube Channel for setup and support videos.

https://www.youtube.com/user/LynxSystemDevelopers/

Notes: