

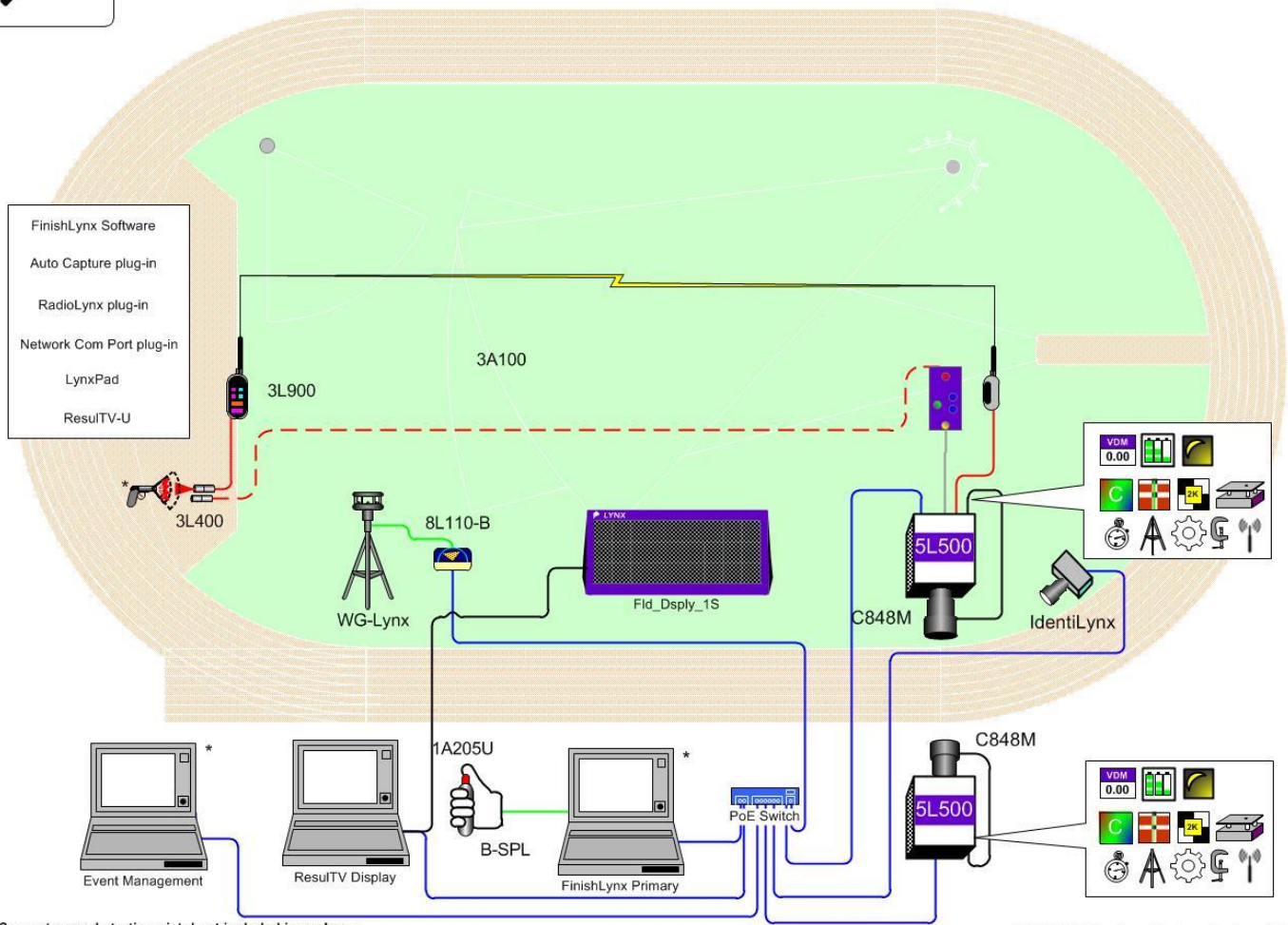
FinishLynx Diamond package

Quick Start Guide

For EtherLynx Vision Cameras



Diamond - Track



* Computers and starting pistol not included in package

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Quick-Start Guide - FinishLynx Diamond Package Timing System

Verify that your FinishLynx Diamond Package contains the components pictured here. If not, or if you need help, call: (978) 556 9780 - USA

Item	Description	ID	Item	Description	ID
	EtherLynx Vision high sensitivity Primary camera (x2)	5L500	Not Pictured	ResulTV Software License USB	ResulTV
Not Pictured	Timing, Video Display Module, High Resolution, LuxBoost options embedded in camera	5LTE 5LHR 5LVDM 5LLUX4		C-Mount 8-48mm f1.2 Motorized Zoom Lens (x2)	C848M
	Connection box cable	451		Normally closed start sensor with light	3L400
	Remote Positioner (x2)	2L102		100 ft. Ethernet cable	C10BT
	25 ft. Ethernet cables (x4)	C10BT		500 ft. start sensor cable	3A100
	Tripod (x3)	TP105 BG3036		IdentiLynx+ Full-Frame Video Camera kit	IdentiLynx
	Geared head (x2)	BG3275		8 port 10/100 Power-over-Ethernet switch	PoE-Switch
	Super head clamp (x2)	BG2909		Connection box	C-Box
	Capture button and USB/Serial adapter	1A205U		RadioLynx Transmitter and Receiver (includes RadioLynx start sensor (red case))	3L900
	Carrying case (x2)	81A207		Button Splitter	B-SPL
	Wired/Wireless SerialLynx w/ External Battery Pack	8L110-B		Sonic Wind Gauge with Tripod and 50m cable	WG-Lynx-SA
	1-Sided LED Video Display & Wheel Assembly Kit	FLD_DSPLY-1S FLD_D1S_WA		CS-Mount 2.8-10mm P-Iris lens (x2)	CS2810P
	CS-Mount to C-Mount Adapter	MCS-C		Lynx USB Flash Drive with FinishLynx32, LynxPad, and Plug-ins	5LSW, 5LPRW 5LPACM 5LPNCP and 9LSW01
<p>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</p>					

Items Not Included

- Laptop running Microsoft Windows. Your computer needs: two available USB ports, and one available Ethernet port.
- Flathead screwdriver. (optional)
- Step ladder and table. (optional)
- Plumb bob and string. (optional)
- Printer (optional).
- *Recommended:* UPS – Uninterruptible Power Supply (Battery Backup)

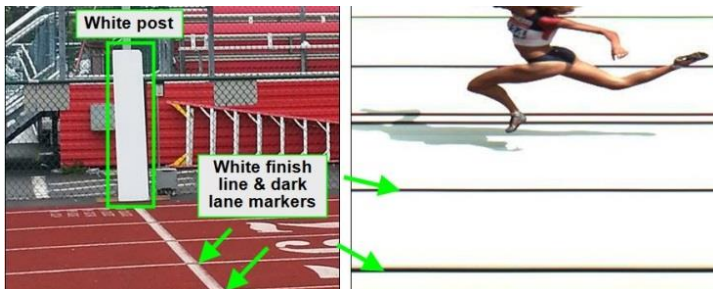
Introduction

In this quick start guide, you will learn how to set up and configure the FinishLynx network as shown in the diagram above: set up the EtherLynx Vision cameras and align them with the finish line using the remote positioners and remote lens, capture, evaluate, and print a FinishLynx image and results, configure FinishLynx to work with the 1-Sided LED Display, import a start list and export results of competitors that you have created in LynxPad. For more answers to common questions, visit <https://www.finishlynx.com/support>.

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 switch. The EtherLynx Vision camera and the IdentiLynx camera will receive their 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

Install from the Lynx USB Flash Drive that came with your system or download the latest version of FinishLynx at:

www.finishlynx.com/product/software/finishlynx-results-software/

Follow the instructions on your screen to install FinishLynx and the RadioLynx (RL), Network Com Port (NCP), and Auto-Capture Mode (ACM) Plug-ins. When prompted, enter the serial numbers 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 RL, NCP and ACM Plug-ins by clicking **Help** from the Menu bar and selecting **About....** When the **About FinishLynx** window appears, the NCP, ACM and RL Plug-ins are listed with the serial numbers you entered during installation.

B. LynxPad

Install using the Lynx Flash Drive or download the latest version of LynxPad at:

www.finishlynx.com/product/event-management/lynxpad/

Follow the instructions on your screen to install LynxPad. When prompted, enter the serial number found on your Lynx USB 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.
3. Click the mouse once on the torso of a competitor on the left side of the screen. A red hairline appears. You can click and hold the red crosshair and drag it up or down to the correct lane number on the left side of your screen.
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 10

Follow the instructions on the [Windows 10 Networking QSG](#).

Step 5: Set up the Primary Camera and Tripod

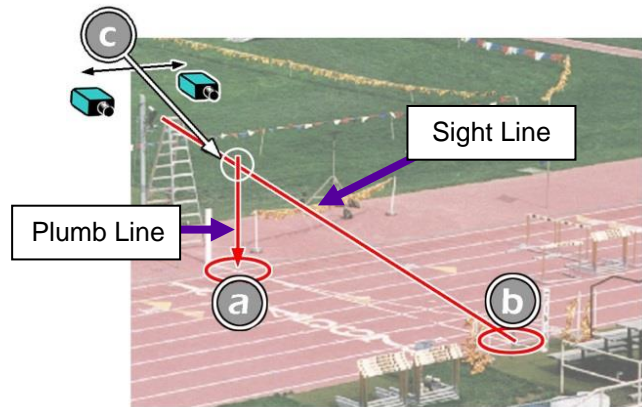
Set up the tripod in line with the finish line, preferably on the infield and approximately **15 feet back**.

NOTE: Minimum recommended camera distance from the track is 12 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 2.8 - 10mm lens supplied with your Diamond package. (See last page of QSG for these instructions)

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 taut. 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 6: Set up the Reverse Angle Camera and Tripod

1. Repeat instructions above for Secondary Camera on the opposite side of the track

Step 7: Attach the Cameras to the Tripods

NOTE: Primary camera is marked TIMING ENABLED on camera ID plate on base of camera.

1. Secure the remote positioner to the camera bottom by turning the black handled thumbscrew. Make sure the FinishLynx label faces in the same direction as the camera lens will face.
2. Connect the cable that comes with the remote positioner to the port on the positioner and the port on the back of the camera labeled **Remote**.
3. Connect the cable on the remote lens to the remaining serial port on the remote positioner.
4. Secure the geared head to the top of the tripod.
5. Note how the 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.
6. Tighten the mounting plate to the bottom of the remote positioner by turning the screw with a flathead screwdriver. Make sure the **Lens** marking on the bottom of the plate is facing the front of the remote positioner (where the Lynx label is affixed).
7. Attach the camera with the remote positioner and mounting plate to the tripod by clicking the mounting plate into place on the geared head.

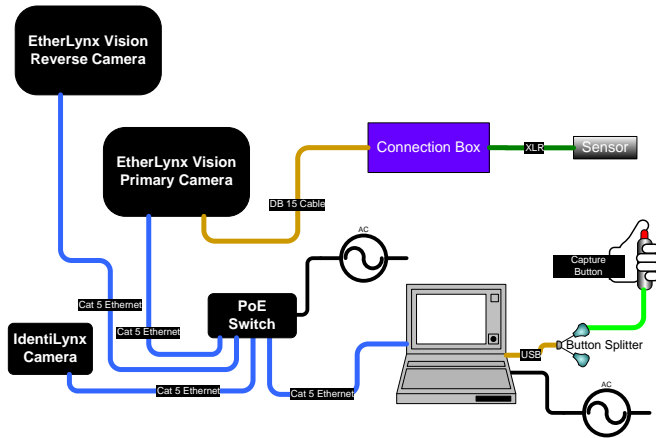
8. With the camera lens lined up with and facing the finish line, make minor adjustments to the tripod legs so both bubbles on the tripod are centered.
9. Turn the black knob on the geared head that controls the **tilt** of the camera so that it is at about a 30 degree angle to the ground.
10. Repeat this process for the second EtherLynx Vision camera.



NOTE: Cables omitted for clarity and actual lens may vary from model shown

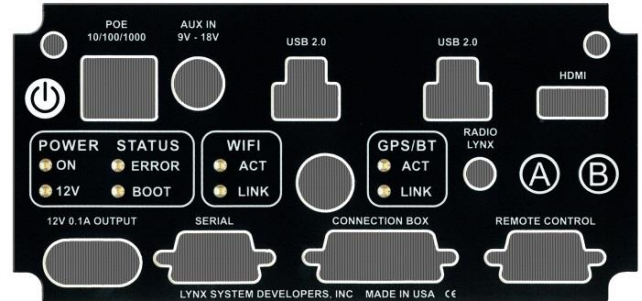
Step 8: Connect the Cables to your Cameras

Primary camera (Marked **TIMING ENABLED** on camera ID plate on base of camera)



1. Connect an Ethernet cable to the network connection on your computer and the other end to a port on the Power over Ethernet switch

2. Connect an Ethernet cable between the back of the Primary camera labeled **POE 10/100/1000** and a port on the Power over Ethernet switch.
3. Turn on the camera by pressing and holding the white power button on the back.





Step 9: Align the Primary 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 before starting FinishLynx and while the camera is booting.

Start FinishLynx. Wait while the green status bar in the lower right corner of the screen completes its cycle. After this is complete, repeat Step 8 parts 3-5 to connect, power, and boot the reverse angle camera. Allow the green status bar to complete its cycle.

Align Vision Camera in EasyAlign 2-D Video Mode

1. **Activate EasyAlign** by clicking on the 2-D Align Icon  in the top left-hand corner of the FinishLynx **Hardware Control** screen.
2. 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 on the painted white finish line and near its front edge.**
3. **Adjust Remote Lens/Positioner Controls** – Adjust the remote lens/position controls on the right of the FinishLynx hardware control screen.

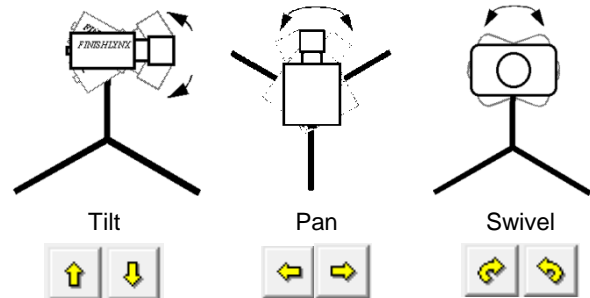
Center Remote Camera Positioner

Click  to center the camera automatically using the remote positioner.

Remote Camera Tilt, Pan & Swivel

Use the remote **Tilt**, **Pan**, and **Swivel** buttons to adjust the 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 they appear 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's position is correct, you can then optimize the remote lens settings.





Remote Iris (adjusts amount of light in lens)



Enable the Auto-Iris feature to allow the software to remotely and automatically adjust the camera iris as the lighting changes:

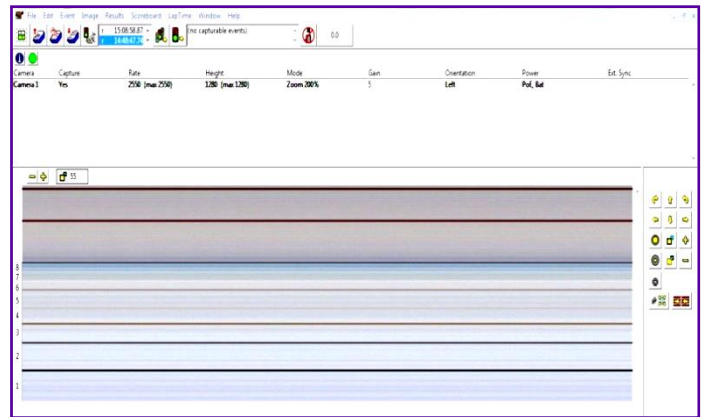
1. Access the **Camera Settings** .
2. Under the **Parameters** tab, set **Gain Method:** to **AGC**.
3. Check **Auto-Iris**. Click **Ok**. The iris will now open or close to maintain the AGC Parameters.

Remote Focus (adjusts near/far image focus)

1. 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.
2. Once the camera appears to be aligned, click the green alignment  icon to close 2-D 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 to the right 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:



LuxBoost Low-Light Capture

In low-light conditions, enable the Auto-LuxBoost feature to allow the software to automatically adjust the image brightness when opening the iris alone is unable to maintain the AGC parameters:

1. Access the **Camera Settings** .
2. Under the **Parameters** tab, expand the **LuxBoost:** drop-down list, and choose the highest number listed.
3. Check **Auto-LuxBoost**. Click **Ok**. The camera will now adjust the amplification of the image brightness when needed.

Step 10: Align the Reverse Angle Camera

1. Repeat Step 9 for the Reverse Angle Camera.

Step 11: Mount & Install IdentiLynx Camera

Follow the instructions on the [IdentiLynx Quick Start Guide](#)

Step 12: Setup RadioLynx Wireless Start

Follow the instructions on the [Internal RadioLynx Quick Start Guide](#)

Step 13: Connect Scoreboard

Follow the instructions that are provided with the Infield Video Display (Setup Guide and Video), as well as the [ResultTV Manual](#)


Step 14: Setup Wind Gauge

1. Connect the wind gauge to the SerialLynx unit, and connect both of these to their batteries. Connect the SerialLynx unit to your network via an Ethernet cable.
2. In FinishLynx, go to **File | Options**
3. Select the **Wind** tab.
4. From the **Wind Module:** drop-down list, select **Lynx**. Then, click **Ok**.
5. In the **Serial Port** drop-down list, select **Network (Connect)**
6. Enter the corresponding **Port** and **IP Address** settings that are on the label on your SerialLynx unit.
7. In the **Default Mode** drop-down list, select **100M**. Click **Ok**.
8. Exit FinishLynx and then restart it to save the settings.

Step 15: Automatic Capture Module (ACM) Setup and Operation

A: Using ACM to Stop Running Time

The following information will help to set up the ACM feature for automatically capturing the athletes as they cross the finish line.


1. In the Hardware Control window, click the **Camera Settings** .
2. Navigate to the **Capture** tab and set **Capture Method** to **Automatic**, and uncheck **Manual**.

B: Using ACM to Stop Running Time

The following information will help to set up the ACM feature for stopping or pausing the running time with each race. ResultTV must be running for this section with Time and Results layouts open.

1. In the **Camera Settings**, navigate to the **Inputs** tab and set **Photo Eye** to **Internal**. Click **OK** to close the Camera Settings.
2. Go to **Scoreboard | Options** and set the Offset to **0.03**.

C: Manually Control ACM

1. Click **File | New** to create a new blank event or click 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 Infield Video display.
4. Click the Capture icon  to enable capture and then hit the **Alt + F** keys and it will say Finishing to the right of the race clock (click **Scoreboard** for shortcut keys).
5. Have someone run through the finish line. The camera should capture image, and the running time should stop and display the time to the hundredths.
6. As you evaluate the image, the results should populate and page on the Infield Video Display.

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

D: 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 **Scoreboard | Options**.
2. Under **Running Time:** on the third line is **Autobreak**, these settings allow it to occur automatically.
3. Checking **Finish** will cause the running time to stop when capture is enabled and the competitors cross the finish line.
4. Checking **Pause** will pause the running time each time competitors cross the finish line in multi-lap races when capture is enabled.



Step 16: Create a Competition Directory for FinishLynx and LynxPad to Share

1. Follow the instructions on the [Windows 10 Networking QSG](#).
2. In FinishLynx, click **File | Options | Event tab**. Click the **Browse** button on the **Event Directory:** and navigate to the directory you created in Step 4, and click **Ok**.
3. Open the LynxPad software.
4. Click **File | Options...** and **uncheck** the **Load Existing Results on Program Start** box. Then, click **Ok**.
5. Open the sample competition by clicking **File | Open**. Navigate to **C:\LynxPadData\Sample** and then double-click

the **lynx.cmp** file. A practice competition opens on the screen.

6. Still in LynxPad, click **File | Options....** Click the **Browse** button next to the **Directory:** text field. Navigate to the directory you created earlier. Select it and click **Ok**. Click **Apply** and then click **Ok** again.
7. Still in LynxPad, click **File | Save as...** and navigate to a location you wish to save the LynxPad data. Then, click **Ok**. Now, FinishLynx can get start lists created in LynxPad, and LynxPad can import results generated by FinishLynx.

Step 17: 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 then expand the drop-down list; a list of events appears. Select the **110 Meter Hurdles Men (9, 3, 1)** event, 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 tap the end of the sensor with your hand. This simulates the firing of the starting gun and starts the yellow FinishLynx timer.
4. Toggle the Capture by clicking the button next to the yellow timer , then have your assistant run through the finish line.
5. Practice evaluating the image by following the same steps you followed earlier in Step 1:
6. Click **File | Save** to save the race to the **Practice competition** directory.
7. **(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 send the image with results to the printer.

8. Click **File | Close window** then click **Yes** to save changes you made to the FinishLynx image when you cropped it.
9. In LynxPad, click to highlight **Men 110 Meter Hurdles** in the **Events** window. The start list appears in the **Heats** window.
10. Still in LynxPad, click **Competition | Refresh All Results**. The results from the race you just evaluated appear in LynxPad.

NOTE: If you plan on using the same directory for each meet, it is recommended that you move all of the contents to another directory prior to the start of the next meet. This will archive your files in case you need them for results verification, as well as keep the main directory from becoming cluttered.

Optional: Using the 2.8-10mm P-Iris Lens



First, connect the lens cable to the Remote serial port on the back of the camera. Then, configure your camera settings to use the 2.8-10mm P-Iris lens: in FinishLynx, access the camera settings by clicking . Under the Setup tab, locate the **Iris Type**: setting and select the *P-Iris* radio button. Click Ok.



Remotely adjust lens aperture to control the amount of light in the lens. If your picture looks too white or washed out, use the Close Iris button in FinishLynx to let less light in. Likewise, if your picture looks too dark, use the Open Iris button in FinishLynx to let more light in. To enable the Auto Iris feature: click | Parameters tab; check Auto Iris, and then click OK. FinishLynx will now automatically remotely open and close the iris depending on the amount of light.

Note: By default, the iris will be in the *closed* position, so it is normal for the image in FinishLynx to be very dark or black at first, until you open the iris.

Manually adjust lens focus and zoom rings. This lens is a *varifocal* lens, meaning it will not stay in focus when you change the zoom. This step will require some fine tuning to get the proper zoom and focus in order to achieve a good image.

- 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.

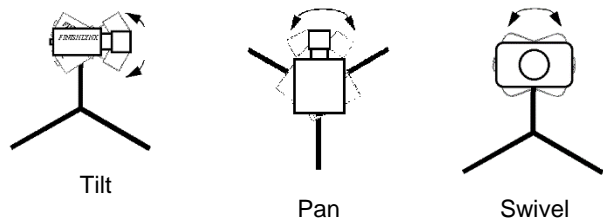
If you followed the steps closely in 2-D align, the camera should already be aligned in 1-D mode as well. The 1-D image should look similar to the following screen capture:



Note: If your picture looks washed out by too much light, turn the aperture ring to a higher f-number to let less light in.

- Have your assistant run through the finish line and watch where they appear on the computer monitor. The goal is for the runner's torso to be fully visible in both the inside and outside lanes. Now, have your assistant run through the inner-most and outer-most lanes. Adjust the **tilt** of the camera until they are clearly visible on both ends of the finish line.

Note: It may be necessary to move the camera further back from the track if you cannot see all lanes in the image.



- After the image on the computer shows a white background and black lane lines and your assistant appears in the inner and outer-most lanes, adjust the camera lens focus ring again until all lanes appear crisp and in focus.

This completes the FinishLynx Diamond Package Quick Start Guide.

Looking for more resources? Visit our [YouTube Channel](http://www.youtube.com/finishlynx) (www.youtube.com/finishlynx) for setup and support videos.