

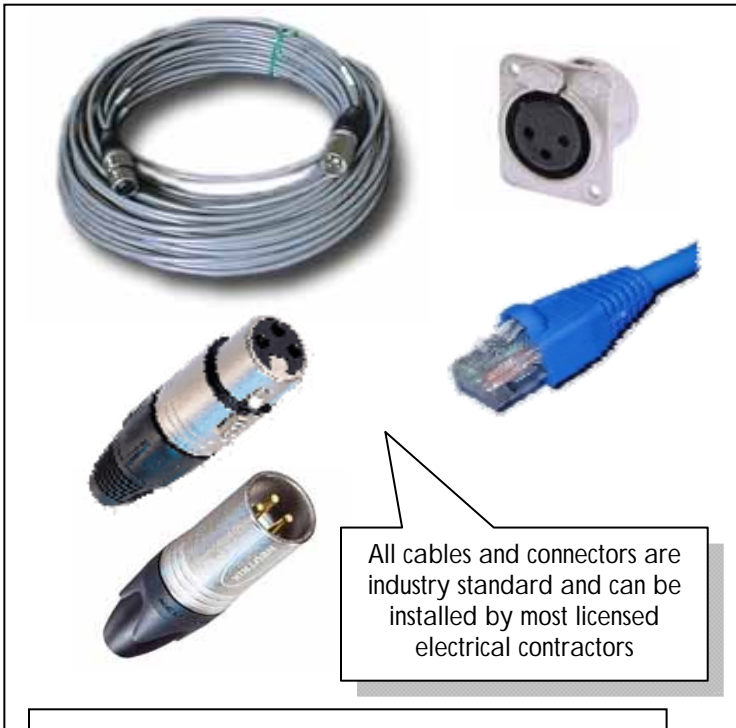
~ athletics ~
~ athletics ~
~ athletics ~
~ athletics ~

ATHLETICS INSTALLATIONS



Lynx presents an easy introduction to the technical aspects of athletic facility installations.

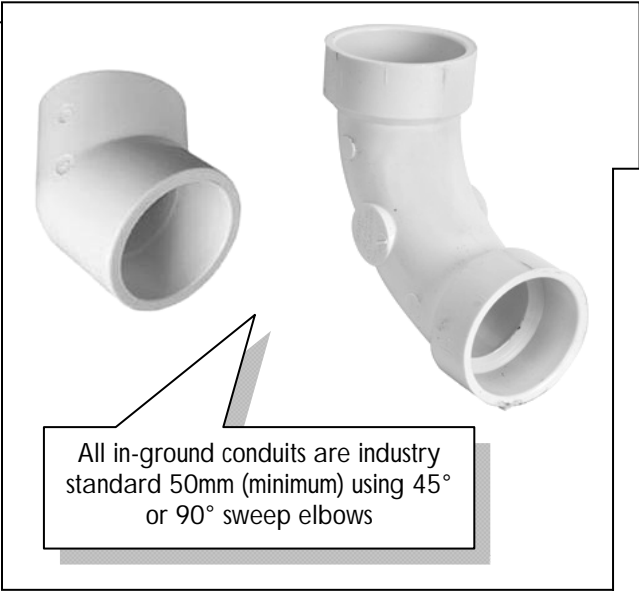
Key venues with customized FinishLynx installations include: University of Oregon, University of Arkansas, Harvard University



All cables and connectors are industry standard and can be installed by most licensed electrical contractors



DRAWINGS TO CONSTRUCTION ~ AN INFRASTRUCTURE GUIDE FOR FINISHLYNX DIGITAL PHOTOFINISH AND TIMING SYSTEMS



All in-ground conduits are industry standard 50mm (minimum) using 45° or 90° sweep elbows



All external weatherproofing can be achieved by using industry standard components

WHY INCORPORATE LYNX IN YOUR DESIGN?



The best Track and Field architects want their projects to cover all the needs of the institution, both on opening day as well as down the road. One area of Track and Field design where Lynx has been able to provide assistance to many of today's top architects is by helping to increase their knowledge of, and infrastructure planning for, a facility's Fully Automatic Timing (FAT) system. Every quality designed facility can expect to host at least a few meets per year that incorporate fully automatic timing. The necessary infrastructure should always be designed in and kept in mind to allow for easy upgradeability in the future.

Generally this infrastructure is already in place; however, it is not always in the optimal position or designed with adequate redundancy. Many schools are forced to adapt their timing system's setup due to infrastructure designed solely for football. With a small amount of foresight and minimal additional costs, every track facility can be designed to mesh with the needs of a football or soccer stadium.

This document aims to put knowledge at the architect's fingertips. It serves to educate you on what questions to ask the athletic director and coaches, as well as what recommendations to make when it comes to designing the track to be timing system ready.

We have all seen an Olympic track event on television. The athletes approach on the finish line at mind-boggling speeds and the officials are often at a loss in calling a close finish. Lynx System Developers manufactures the cameras that call those close races when they matter most – at NAAs, at the Olympic Trials, at horse races, and even at NASCAR events!

Thankfully, the basic infrastructure is essentially the same, whether you are designing a six-lane middle school facility or providing a venue suitable for the biggest Track and Field competitions in the country.



ENTRY-LEVEL (MULTI-USE) INFRASTRUCTURE

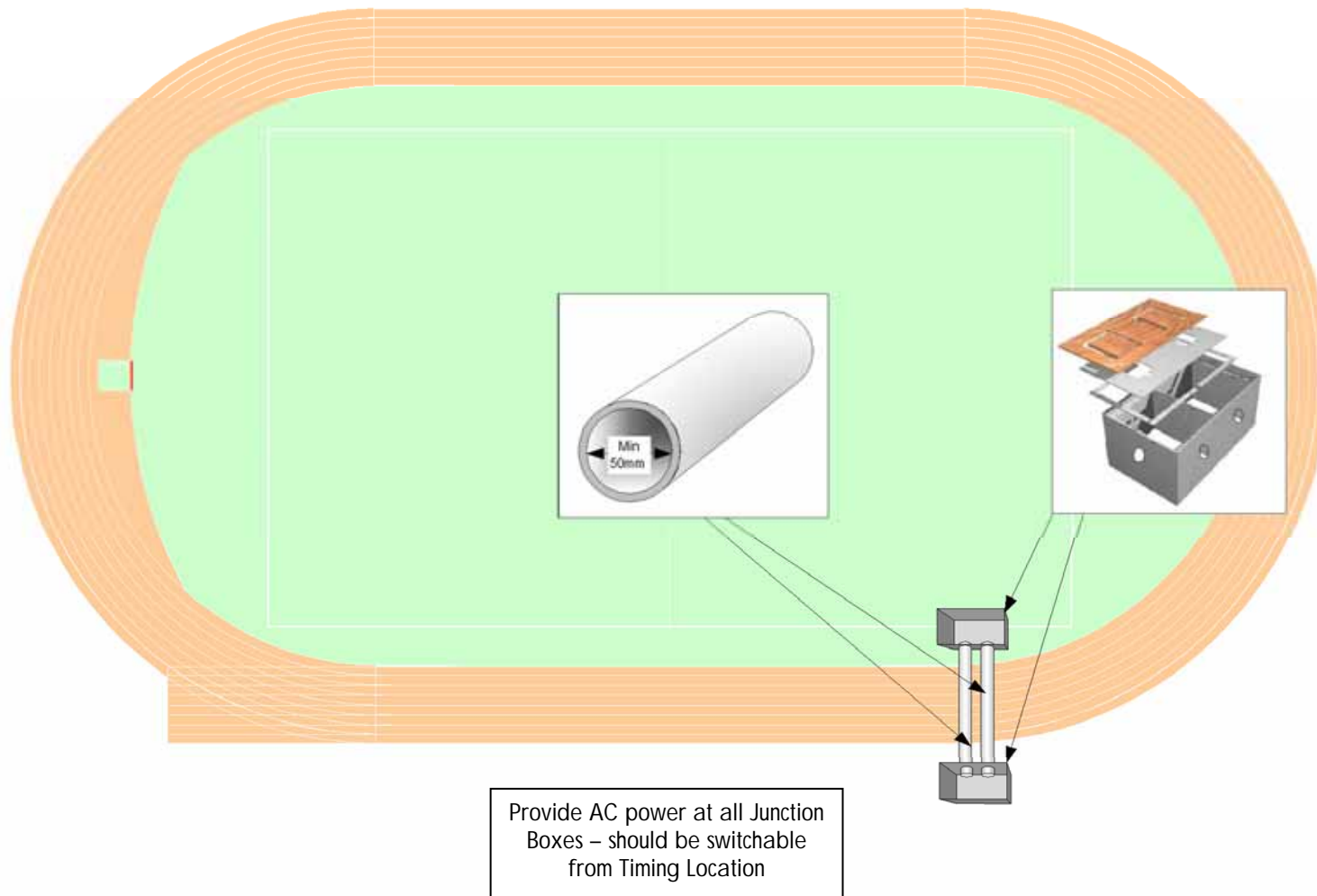


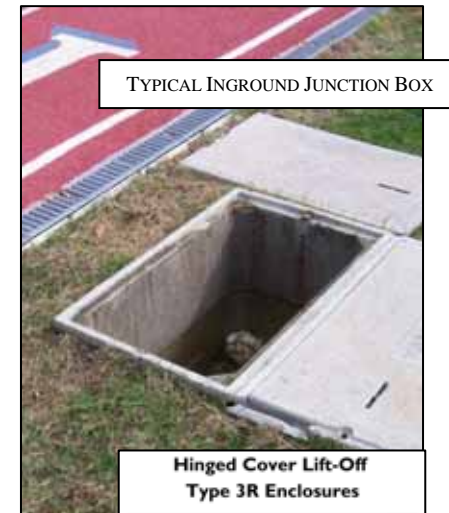
Figure 1

ENTRY-LEVEL (MULTI-USE) INFRASTRUCTURE

A pair of junction boxes – similar to the ones shown on this page – located inside and outside the track near the track’s finish line and connected by 2” conduit are the bare minimum for a track facility (See Figure 1). However, it should be noted that in a situation where it is not possible to place conduits under the track, in a refurbishment situation for example, it is possible to install a totally wireless infrastructure. Contact Lynx and talk to our Technical Staff if your project demands this solution.

As you will see from Figure 1, the infrastructure requirements for a basic timing system at an entry-level track facility are very simple:

- A pair of junction boxes located inside and outside the track close to the finish line
- An Ethernet cable running through the conduit under the track, connecting the primary EtherLynx finish-line camera with the FinishLynx computer.
- A power outlet for the EtherLynx camera, preferably on its own circuit breaker. It is preferable to have power both inside and outside the track to allow for future expansion to a two-camera system.

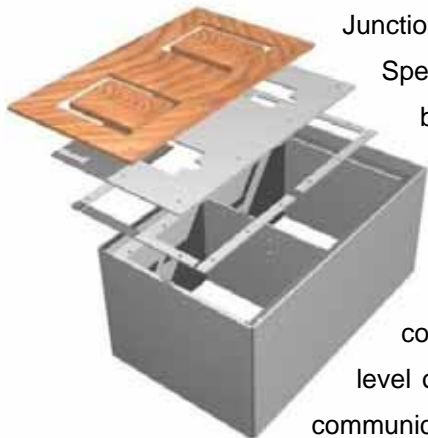


TYPICAL INGROUND JUNCTION BOX

Hinged Cover Lift-Off
Type 3R Enclosures



TYPICAL ABOVE GROUND JUNCTION BOX

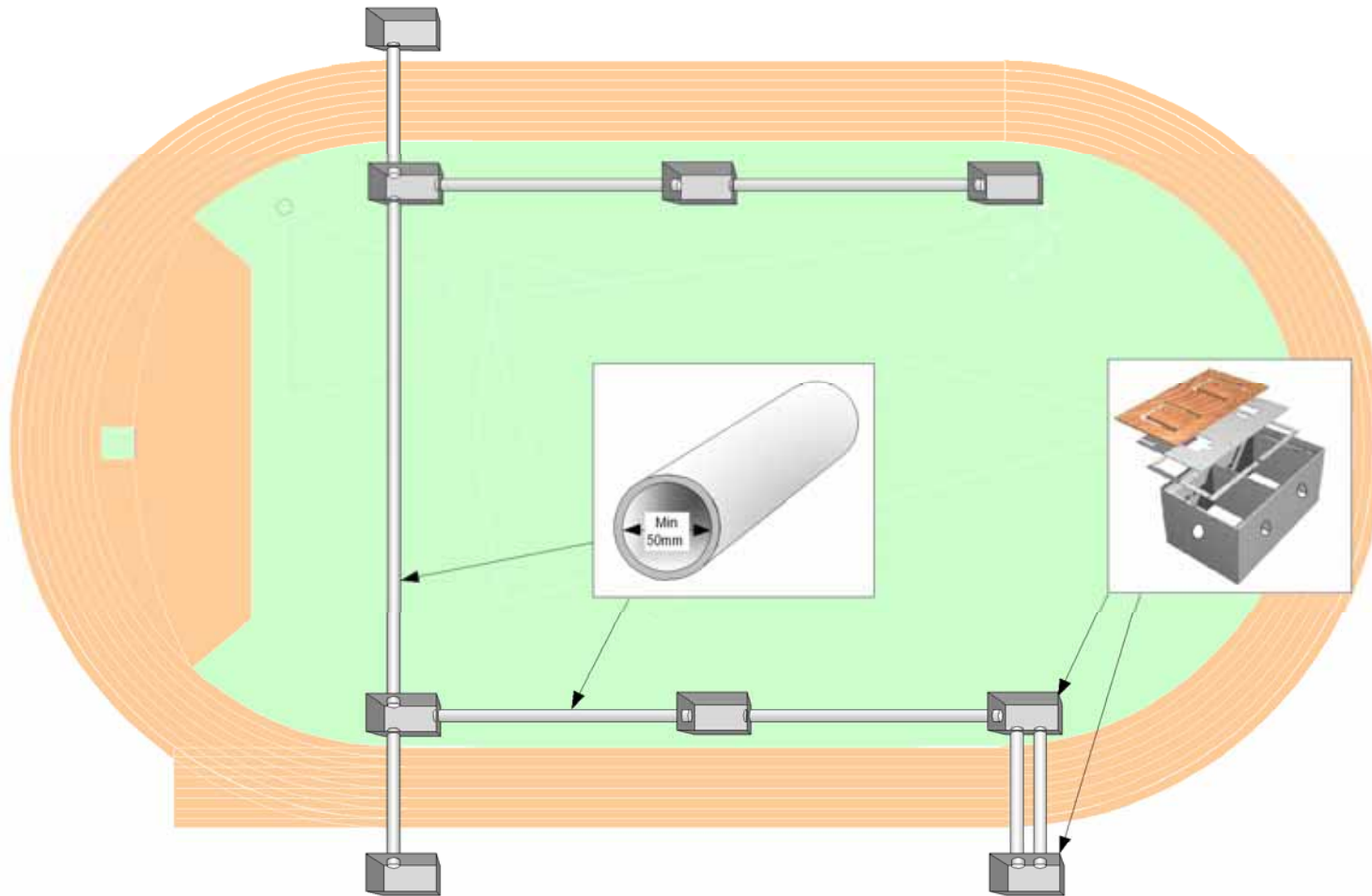


Junction boxes are made by a variety of manufacturers, including Gill’s VersaCom Boxes, Sportsfield Specialties’ ComBox units, and Christy Concrete’s Electrical Boxes. A typical in-ground junction box is installed with either a drainage pipe at the bottom or with an open bottom that drains to the substrate layer of the track.

When connecting the junction boxes via conduits under the track, it is done most commonly with 2” PVC pipe and two 45-degree elbows (or a sweep elbow) on each end. It is best to have at least three of these conduits at or near the finish line connecting the junction boxes inside and outside the track. This will provide an adequate level of redundancy and room for expansion. One half of each box will be used for power cables, and the others will be for communication wires. If possible, these conduits should be capped and watertight.

It is important that if fiber-optic cable is ever run under the track, the conduit should not have a sharp 90-degree elbow on either end. Fiber-optic cabling requires a more gradual “sweep elbow” so that the fiber-optics don’t break when they are pulled through.

ADVANCED INFRASTRUCTURE



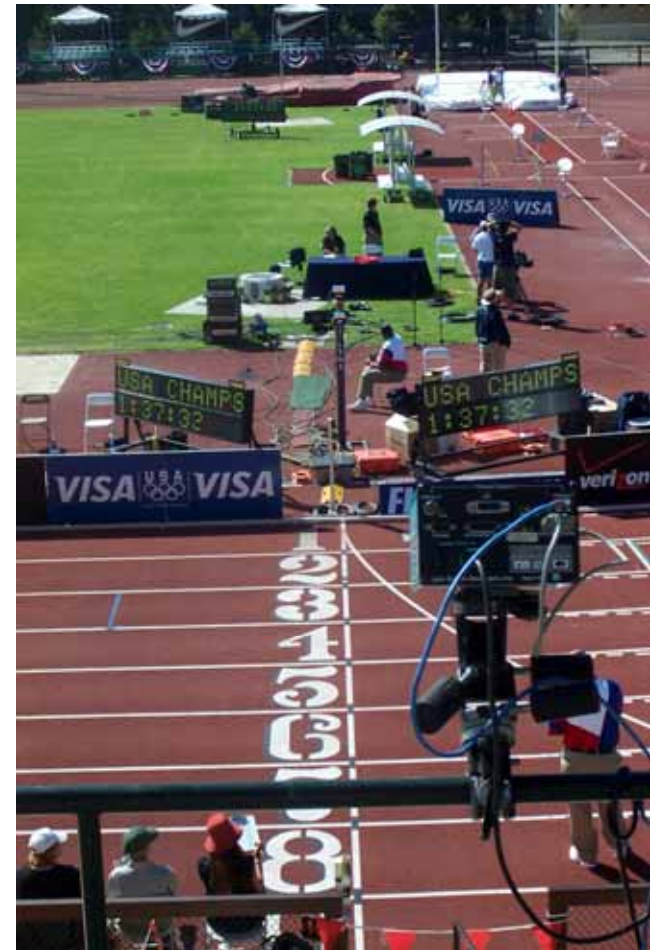
Provide AC power at all Junction Boxes – should be switchable from Timing Location

Figure 2

ADVANCED INFRASTRUCTURE

If you are planning for a full timing system in a multi-purpose facility, there will need to be a few more sets of boxes. A sample layout is shown in Figure 2 (opposite page). For a cabling diagram we will need to see a proposed layout for your specific installation – call for more information.

- First, many institutions require the flexibility to be able to reverse the direction of the 100 and 200-meter dashes to avoid headwinds. This will entail another set of junction boxes at every position where a race would finish.
- Most large facilities run their starting gun cable underground to keep it away from competitors' spikes. If your customer prefers this, you will need three additional long conduit runs and junction boxes at the inside of the beginning of each straightaway. The first conduit should run from the main infield junction box at the finish line along the straightaway to the beginning of the 100-meter dash. The second conduit will run from the 100-meter start under the infield to the beginning of the 200-meter start. The third conduit will run from the 200-meter start to the 1500-meter start. It is important that the electrical contractor in charge of installing this wiring splices both a male and a female XLR connector at each infield junction box location so the starter can plug into this system.
- Many multi-purpose track/soccer/football facilities have junction boxes with power and communication conduits on the infield. Usually they are located at the mid-point of both straight-aways, with conduits running to the press box or coach's boxes from the corresponding junction boxes on the outside of the track. In a track and field situation, these junction boxes can be used to provide power for wind speed gauges, and a data connection to the EtherLynx camera for the wind speed information.
- Finally, if the facility has standalone play clocks or scoreboards, the positioning for these should be taken into account with regards to conduits, power, and wiring as well.



CHOOSE FROM ONE OF OUR PACKAGED SOLUTIONS ~ FROM BASIC TO INTERNATIONAL

<p>1. COMPETITION PACKAGE</p> <hr/> <p>I.A.A.F. Approved – Single Camera Complete Color Photo Finish System with zoom lens</p>	<p>3. CHAMPIONSHIP PACKAGE</p> <hr/> <p>I.A.A.F. Approved Complete Two Camera Photo Finish System, Remote Camera Adjustment, Ultrasonic Wind Gauge</p>	<p>5. GRAND PRIX PACKAGE</p> <hr/> <p>I.A.A.F. Approved Complete Two Camera, Fully Independent, Photo Finish & Timing System, Wireless High Resolution Photofinish Primary Camera with Color Reverse Angle/Backup Camera, Remote Camera Adjustment, Wind Gauge, and Clock/Scoreboard</p>
<p>2. COMPETITION ELITE PACKAGE</p> <hr/> <p>I.A.A.F. Approved Single Camera Complete Color Photo Finish System with Through-The-Lens Viewer and Wireless Start System</p>	<p>4. CHAMPIONSHIP ELITE PACKAGE</p> <hr/> <p>I.A.A.F. Approved Complete Two Color Camera Photo Finish System, Remote Camera Adjustment, Ultrasonic Wind Gauge, and Alphanumeric Clock/Scoreboard</p>	<p>6. GRAND PRIX ELITE PACKAGE</p> <hr/> <p>I.A.A.F. Approved Complete Wireless High Resolution Photofinish Camera With Digital Zoom, Timing Enabled Color Backup/Reverse Angle Camera, Remote Camera Adjustment, Ultrasonic Wind Gauge, Running Time Clock, Graphics-Capable Scoreboard And TV Capable Display Software.</p>

CHECKLIST:

- Power on both sides of the finish line
- Minimum 50mm diameter conduits
- Adequate drainage for junction boxes
- Redundant conduits to allow for expansion
 - (Advanced Install) Conduits and junction boxes for XLR starter cable
 - (Advanced Install) Sweep elbows for fiber-optic cables
 - (Advanced Install) Conduit and junction box for wind gauge
 - (Advanced Install) Junction boxes at end of alternate straightaway

- Start Signal Cable – Belden 9533
- Start Signal Connectors - 3 pin XLR
- Ethernet Network Cable Options
 - Industry Standard Cat 5 (T568A/B RJ45)
 - Industry Standard Fiber Optic with applicable Transceivers

If you have any questions, please contact Alan Bernier in Domestic Sales and he will be happy to provide assistance.

abernier@finishlynx.com

CABLE SPECIFICATIONS