RACE AMERICA

INNOVATION. TECHNOLOGY. RELIABILITY.

Model 2900 XL Professional

Dual Lane Drag Timing System Owner's Manual

Rev D

RaceAmerica Corporation
105 Bonaventura Drive
San Jose, CA 95134
(408) 988-6188
www.raceamerica.com
info@raceamerica.com

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RACE AMERICA

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PRODUCT INFORMATION LINKS

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PACKAGE COMPONENTS

Model 2900 Standard Package:

1 -2900 Series XL Timer Electronics Box
1 - 110/220 VAC DTSS 'Christmas' Tree with stand 02-2512
2 - Dual-Beam Emitter (5063R/L-Start Line)
2 - Dual-Beam Sensor (5163R/L-Start Line)
1 - Cable Timer to TREE (40 Ft)(05-2850)
2 - Cable Assemblies for STAGE/PRE-STAGE (05-2851)
1 - Starter's Push-button - 25 ft (06-23SB)
1 - PC USB to RS422 Cable 6' 45232A
1 - Communication POD 4500B
1 - AC Adapter for POD 6512A
1 - 07-3434 red RS422 serial cable - 100'
1 - XLscore PRO Control, Display and Race Management Software CD (3128B) Internet download
1- Test jumper
1 - Owners Manual

Centerline Cable Option includes: (Q-mile)
- 1 - Track Sensor Cable with drops for 60/330 Ft
- 1 - Cable for SPEED/FINISH
- 1 - Extension Track Sensor Cable with drops for 660/1000 Ft (for 1320' cable options)
- 2 - IR Beam Emitters (5040-Finish Line)
- 2 - IR Track Sensors (5140-Finish Line)

Outside Cable Option includes: (Q-mile)
- 1 - Timer to track side 'Y' Cable (50 ft/side)
- 2 - Track Sensor Cables with drops for 60/330 Ft
- 2 - Cable for SPEED/FINISH
- 2 - Extension Track Sensor Cables with drops for 660/1000 Ft (for 1320' cable options)
- 1 - IR Beam Emitter (5042 - Finish Line)
- 1 - Foam Stand (for 5042 Emitter) (7540C)
- 2 - IR Track Sensors (5140 - Finish Line)

Model 2900 Available Options:

Tree Options:
- 02-2502 110V Traditional/Floodlamp kit
- 02-2505 230V Traditional/Floodlamp kit
- 02-2513 12VDC DTSS
- 02-2522 110/220 VAC DTSS/Blue light
- 02-2523 12VDC DTSS/Blue light

6026A Add Guard Beam at Starting Line

Cabling Options:
- Centerline 200'/330'/500'/660'/1000'/1320'
- Outside 200'/330'/500'/660'/1000'/1320'

Speed Detection: (MPH or KPH)
- Centerline Cable option
  - 2 -IR Beam Emitters (5040)
  - 2 -IR Track Sensors (5140)
- Outside Cable option
  - 1 -IR Beam Emitter (5042)
  - 1 - Foam Stand (for Emitter) (7540C)
  - 2 -IR Track Sensors (5140)

Intermediate ETs - 60/330/660/1000 Ft:
- Centerline Cable option (each)
  - 2 -IR Beam Emitters (5040)
  - 2 -IR Track Sensors (5140)
- Outside Cable option (each)
  - 1 -IR Beam Emitter (5042)
  - 1 - Foam Stand (for Emitter) (7540C)
  - 2 -IR Track Sensors (5140)

6038S Timeslip Printer Package - serial
6038P Timeslip Printer Package - parallel
7540C Foam Stands
6070B Carry/Storage Case
6528/6828/6628/6428 5/8/15/24" respectively Single Line Dual Lane Scoreboard
6810/6610/6410 8"/15"/24" respectively Dual Line Dual Lane Scoreboard
4520A Wireless RF Communication Links
- PC to Timer
- Timer to Scoreboards
- Timer to remote Printers

6080A Heavy Duty Cable Bucket Winders (to 660 ft)
6085A Standard Duty Cable Reel Winders (to 300 ft)
7580 Floodlamp Kit (110/230 VAC)

THEORY OF OPERATION

The 2900 Series XL Professional Drag Timing System is a completely self contained race timing system made with the latest technology CMOS circuit components to provide a highly accurate drag timing solution. The system contains an internal quartz crystal clock for time accuracy and display of race results to one thousandth of a second.

Power is supplied to the tree, console and track sensor components from the 'Christmas' Tree power source.

The Beam Emitters and Track Sensors operate on invisible (to the unaided human eye) Infra-red light. The coded light frequencies are constantly received by the Track Sensors until a vehicle interrupts reception ('breaks' the beam).

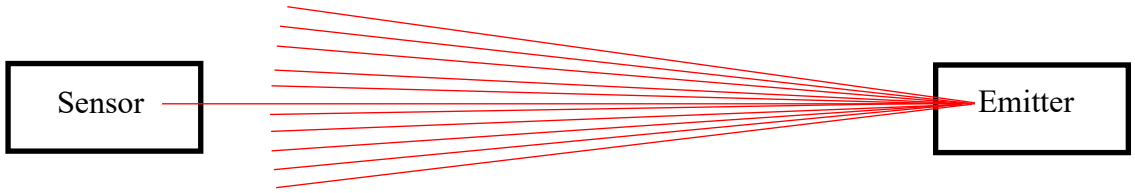
The IR Beam Emitter to Track Sensor transmission operates on Line-of-Sight principles. This makes alignment of these units critical. Tips are provided to aid alignment on surfaces that are other than ideal and flat. These units will operate over a wide range of conditions but should not be operated beyond the specification parameters (less than 4 ft or more than 50 ft down track electronics - Start beams 4 ft to 30 ft).

Once the system is properly set up and aligned on the racing surface, the system microprocessor will 'monitor' the track sensors each time the tree is started and a run is made.

Accuracy of the speed detection is closely related to the placement accuracy of the Speed Trap emitters and sensors. The distance from the finish line to the speed trap Emitter/Sensor pairs must be exactly 66 feet. A three inch placement error will cause a 0.1 MPH error in the speed measurement at 100 MPH.

In preparation for a typical run, the Starting Sequence is selected and for Index or Bracket racing, the drivers times are entered before the race. Each lane is staged by interruption of the beams between the PRE-STAGE and STAGE Emitters and the PRE-STAGE and STAGE Sensors by the drag vehicle. Note - Illuminating the staging lights is not required to begin a race. Once staged the countdown starting sequence is started by the PC running the XLSCORE PRO Software. The driver starts on the Green light signal for their particular lane. The system begins timing the drivers reaction time when the last Yellow is illuminated unless Perfect '0'RT is selected. Elapsed Time begins and the Reaction time is stopped once the vehicle leaves the line and the Stage beam re-establishes (or the Guard beam is interrupted). As the car progresses down the track, breaking the optional 60/330/660/1000 ft beams captures the ET at those points. Breaking the optional Speed Detection beams at mid and/or the track start the speed detection process. Breaking the Finish Line beams end the speed detection and the vehicle's ET for that run. Red Light Fouls are indicated for each lane if the Stage beam re-establishes (or Guard is interrupted) prior to the illumination of the Green light.

Each system ships from the factory configured for speed output (MPH or KmH) and speed trap length (10ft/20M/66ft). XLscore software recognizes the configuration and results are displayed accordingly.



The Emitter throws a spot light like beam of infra-red light; the Sensor should be aligned near the center of the beam for optimal reception and alignment.

PRODUCT SPECIFICATIONS

The following listing provides the designed performance specifications for the 2900 Series timing systems:

Lane Width (5063/5067)	4 to 30 Ft
Lane Width (5040/5042)	4 to 50 Ft
ET Timer Capacity	up to 90.000 sec
Speed Capacity	up to 999.99
RT Timer Capacity	up to 9.999 sec
ET Time Accuracy	0.001 seconds
Speed Accuracy MPHor Km/H	0.01

Power Requirements:

Tree/system	110 VAC/20A 230 VAC/10A
IR Beam Emitter	AA-size Batteries
Dual-Beam Emitter	C-size Batteries

LOCAL REQUIREMENTS

Additional items required to operate the standard 2900 Series timing system package:

1 -110VAC 20 Amp (230VAC 10 Amp) circuit
4 -AA-size batteries per Beam Emitter (1 or 2)
4 -C-size batteries per Dual-Beam Emitter (2)
1 -PC or Laptop with CD Drive
- Pentium 100 mhz or better, 64 Mb RAM
- Color Monitor suggested
- Minimum one 9-pin Serial Port
- Windows 95 or newer Operating System

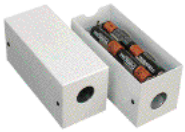
8 - 60W 110VAC Stage/Pre-Stage Bulbs
20 - 100 W 110VAC Floodlights (12 Yellow, 4 Green, 4 Red)

Extension Cords for 110VAC power (if needed):
50' - 12 Gauge wire with ground
100' - 8 Gauge wire with ground
200' - 6 Gauge wire with ground

230V Systems require equivalent 230 parts.

Infra-red Emitter and Sensor Offerings

Picture shows one unit from the top and one unit from the bottom.



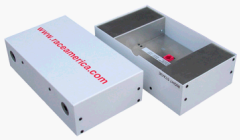
Model 5040/5042
IR Beam Emitter

Model 5140
IR Track Sensor

Emitters - note On/Off switch and placement for four 'AA' batteries for each Beam Emitter. The 5040 emits a single beam out one side; the 5042 emits a beam out each side - intended for center of track locations, operates on four 'C' batteries, and comes with a Foam Stand.

Sensors - note the cable connector is located in the side facing away from the track; all 5140 Track Sensors are fully interchangeable with one another.

Model 5063L/R
IR Beam
Pre-stage/Stage Emitter



Model 5163L/R
IR Track Sensor
for Pre-Stage/Stage

Emitters - note On/Off switch and placement for four 'C' batteries for each Beam Emitter. These emitters shoot a two beams out one side and are marked for Left/Right lane position at the outside of the track at the Start.

Sensors - operate opposite the Beam Emitters at the center of the track. Note position for Left/Right lane. Connect with cables to the XL Electronics box.

A 'Start' is recorded when the Stage beam re-establishes as the vehicle pulls away.

Infra-red Emitter and Sensor Option
6023A Option

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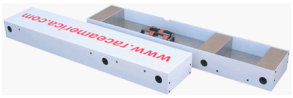

Model 5067L/R
IR Beam Emitters
Pre-stage/Stage/Guard

Model 5167L/R
IR Track Sensors Pre-Stage/Stage/Guard

Emitters - note On/Off switch and placement for four 'C' batteries for each Beam Emitter. These emitters shoot three beams out one side and are marked for Left/Right lane position at the outside of the track at the Stage location.

Sensors - operate opposite the Beam Emitters at the center of the track. Note position for Left/Right lane. Connect with cables to the XL Electronics box.

Adding the Guard beam will cause a 'Start' if either the Stage beam re-establishes or the Guard beam is interrupted.

SET-UP STEPS

This manual addresses the system setup with discussion of most available options and a Quarter mile cable. If the specific system does not have a particular option or it is not available because of cable length, simply ignore the references.

It may be desireable to set up the system in a simulated environment (driveway or garage) to become familiar with the operation without laying out a quarter mile of cable. Beams can be interrupted by walking through them; times reviewed, timeslips printed and scoreboards illuminated. This will verify all system operations.

STEP 1 -

Familiarize yourself with the components pictured in this manual and how they interconnect. The 60/330/660/1000 ft, Speed, and Finish IR (infra-red) Sensors are model 5140 while the IR Beam Emitters at these locations are model 5040 (center line cable) or 5042 (outside cables). The starting line contains 5163L and 5163R Dual-Beam IR Sensors and 5063L and 5063R Dual-Beam IR Beam Emitters for Pre-staage and Stage positions. 5067L/R and 5167L/R Starting Sensors with the Guard Beam may be used at the Starting line.

The Tree contains a module referred to in this manual as the Tree Electronics. The enclosure containing the timing and control electronics is the XL Electronics Box.

The base system ships with several cables; review the cables and cabling diagrams in this manual for placement. The 40 ft cable with round four conductor connectors on both ends is the Tree Interconnect Cable, The two 10 ft cables with the 8-conductor RJ45 connector on one end and a 6-conductor RJ11 connector on the other end are the Dual-Beam Start Sensor Interconnect Cables.

All connectors are labeled for proper orientation, if required.

The free standing, battery powered Beam Emitters are placed on the race surface at the 60/330/660/1000 foot lines, speed line, and finish line opposite the IR Track Sensors per the cabling diagrams. Each of the 5040/5042 Beam Emitters or 5140 Track Sensor units are fully interchangeable with each other. Start Sensors and Emitters are position sensitive and not interchangeable.

The Tree is assembled as shown with the pipe clamp and then screwed into the threaded flange on the Base Plate. Bulbs can be screwed into the sockets once the Tree is assembled and standing upright. Additional base plates can be screwed together to add weight and increase stability in windy racing environments.

STEP 2-

Identify the emitter/sensor placement at the start line, 60/330/660/1000 foot, speed trap line, and finish line using the Cabling Diagram for your track. The lane width should be set at a maximum of fifty(50) feet. The XL Electronics Box is placed between the left and right Start Beam IR Sensors at the starting line. To help in determining initial Beam Emitter to Track Sensor alignment in larger track widths, eyeball a straight line between units

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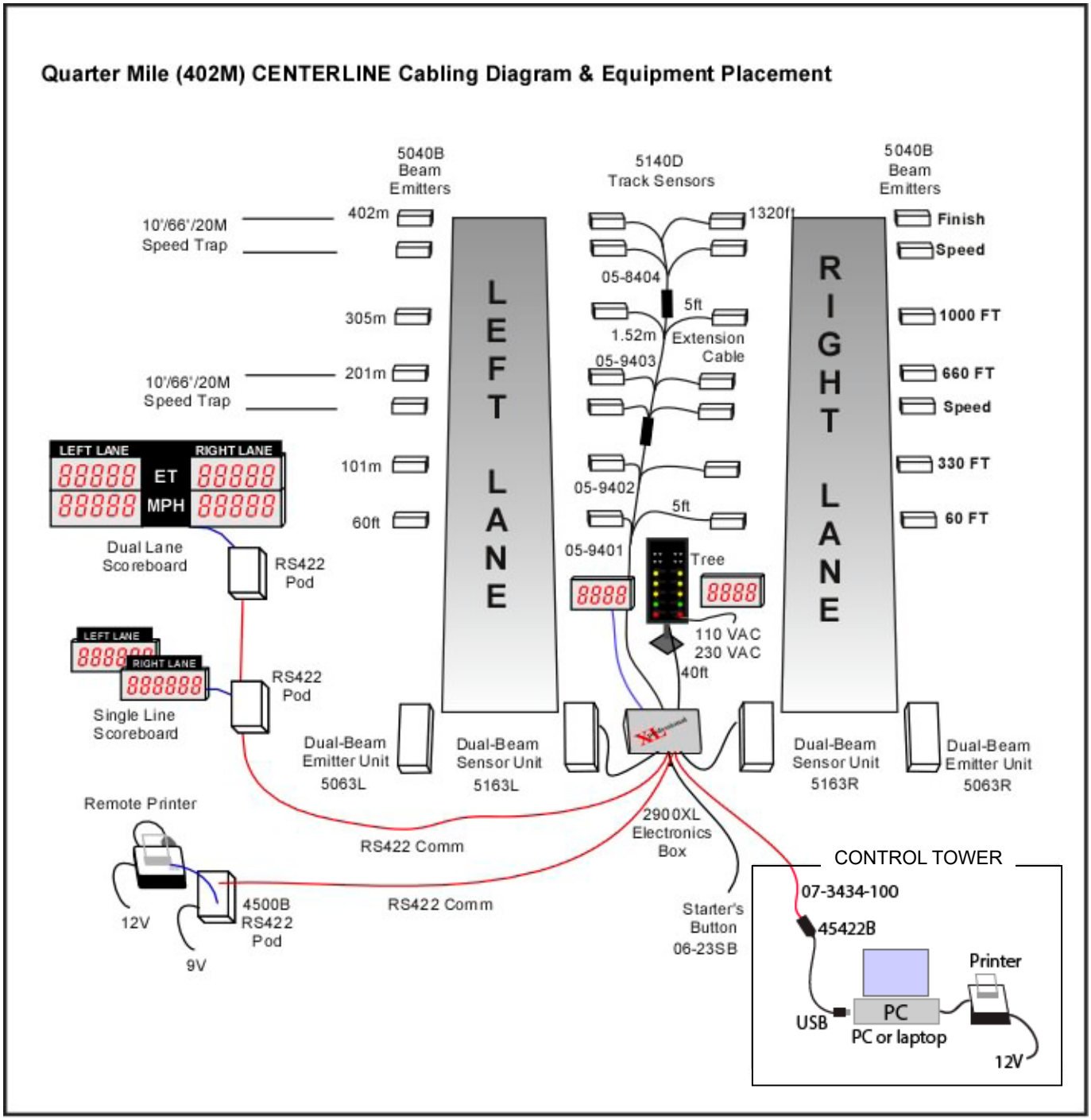
Quarter Mile (402M) CENTERLINE
Cabling Diagram and Equipment Placement

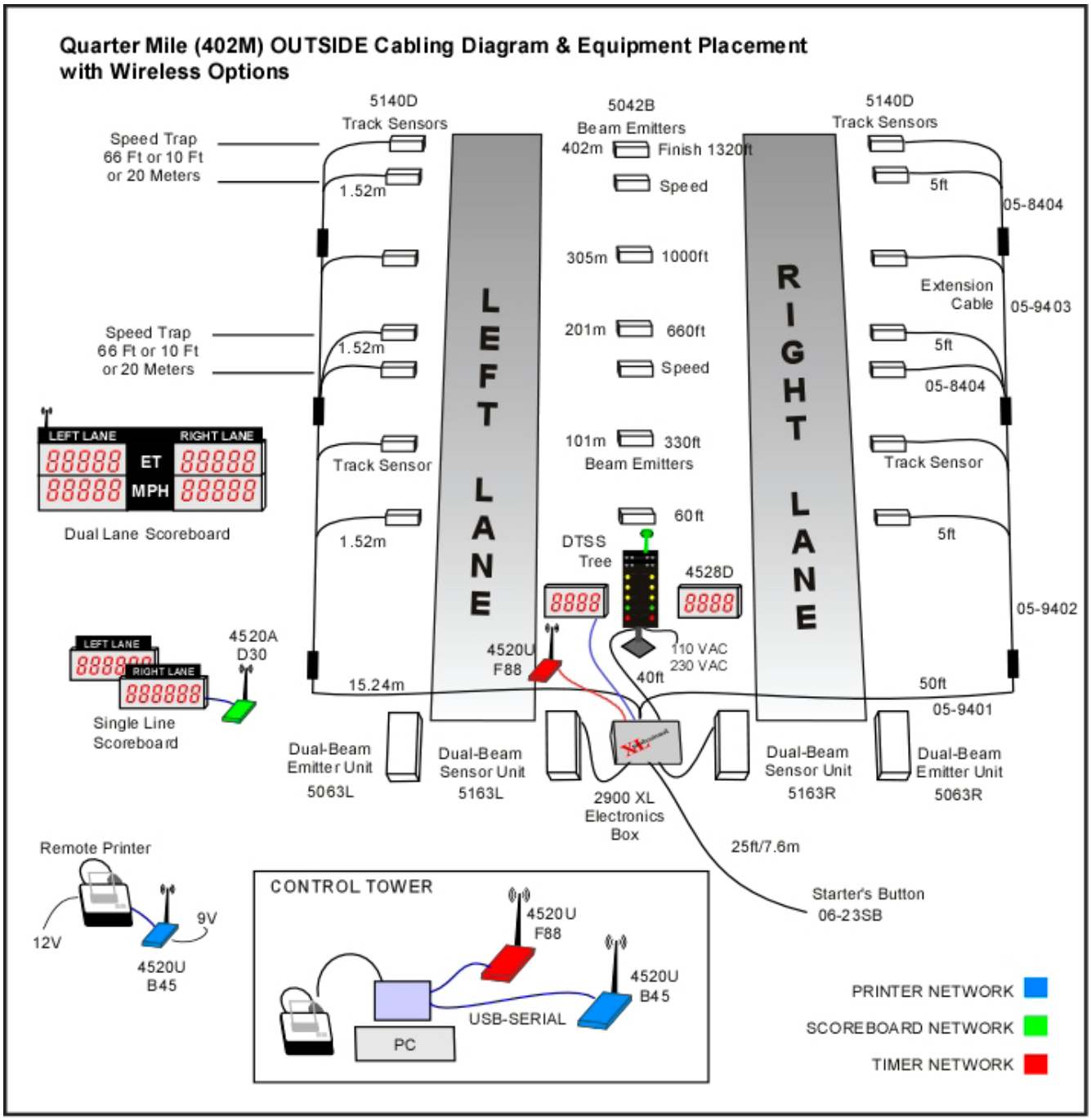


Centerline Sensor Cables

Cable diagram showing options available with XL System. Additional PCs can be utilized over ethernet networks or with RS422 communications.

Wireless communication options are available for XL Electronics Box to PC, Printers and Scoreboards.

Quarter Mile (402M) OUTSIDE
Cabling Diagram and Equipment Placement

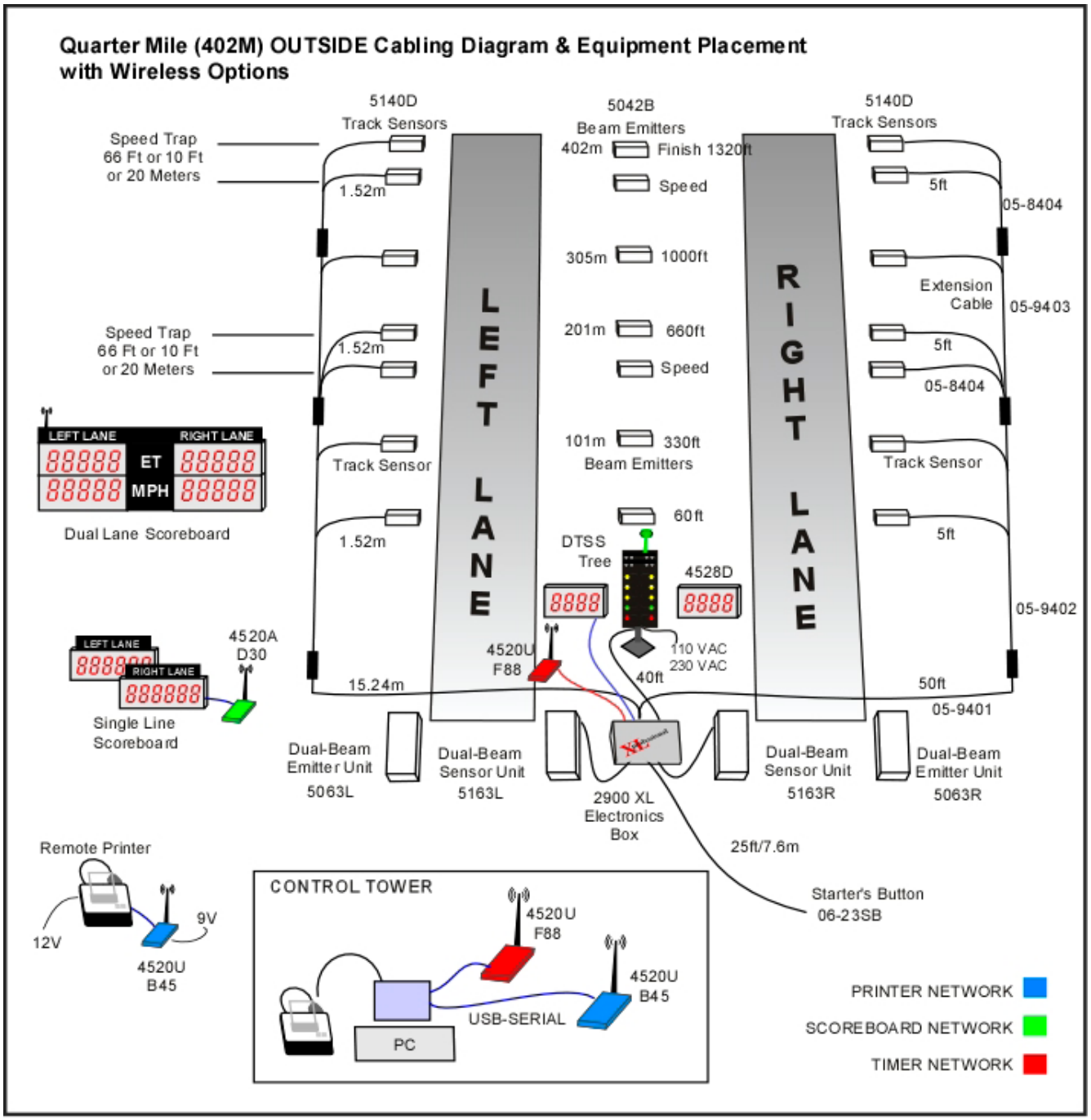


Outside Sensor Cables - Dual-Beam Emitters

Cable diagram showing options available with XL System. Additional PCs can be utilized over ethernet networks or with RS422 communications.

Wireless communication options are available for XL Electronics Box to PC, Printers and Scoreboards.

Quarter Mile (402M) OUTSIDE
Cabling Diagram and Equipment Placement
with Wireless Options

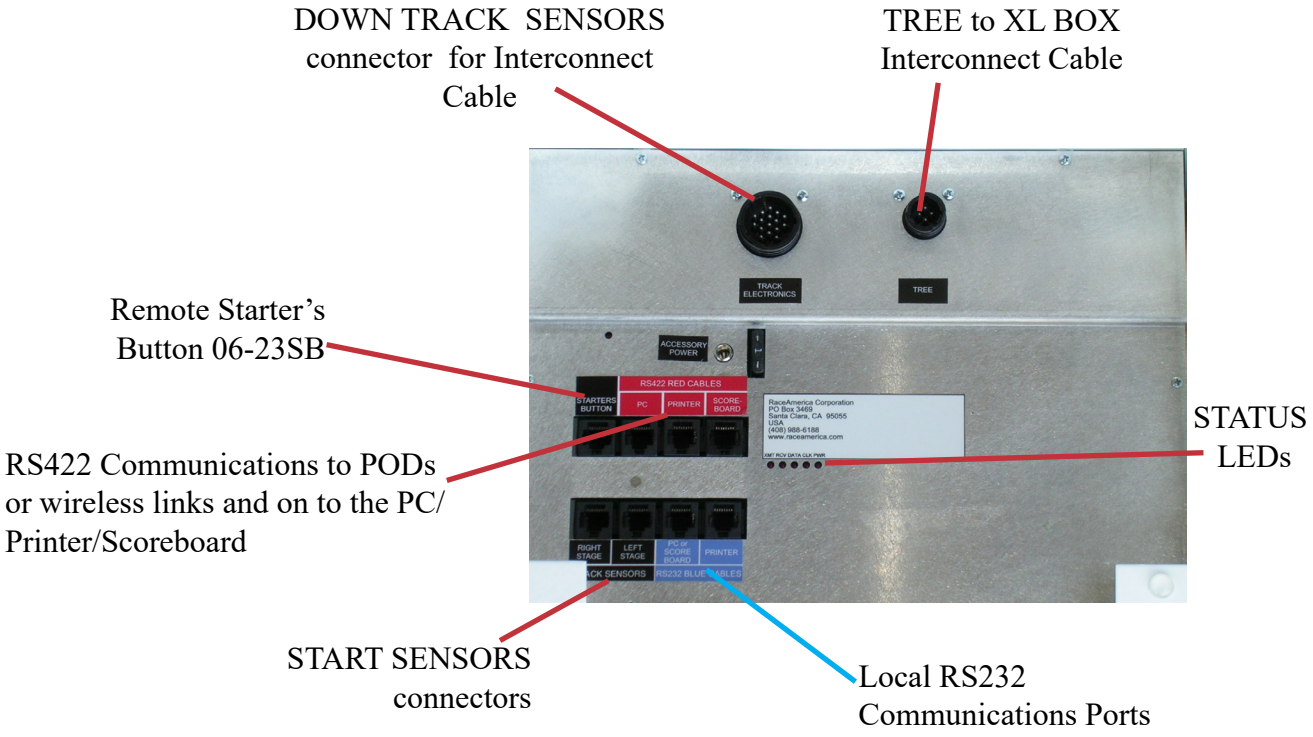


Outside Sensor Cables - Dual-Beam Emitters

Cable diagram showing options available with XL System. Additional PCs can be utilized over ethernet networks or with RS422 communications.

Wireless communication options shown for XL Electronics Box to PC, Printers and Scoreboards.

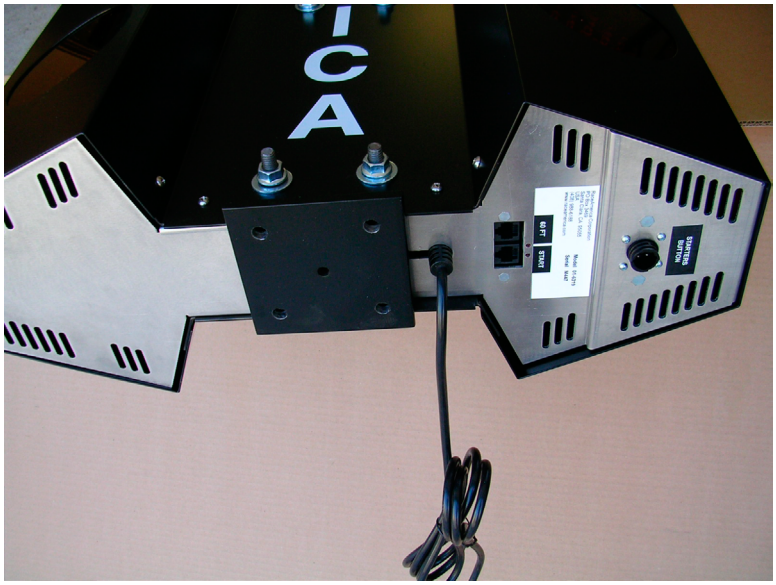
WIRING AND CONNECTOR DEFINITION



XL Timer Electronics Box

DTSS TREE ASSEMBLY

The DTSS Tree as seen from the back bottom with post stand stored and clamped inside. The removable Tree Electronics module is shown on the right (actually left side of Tree from the front).

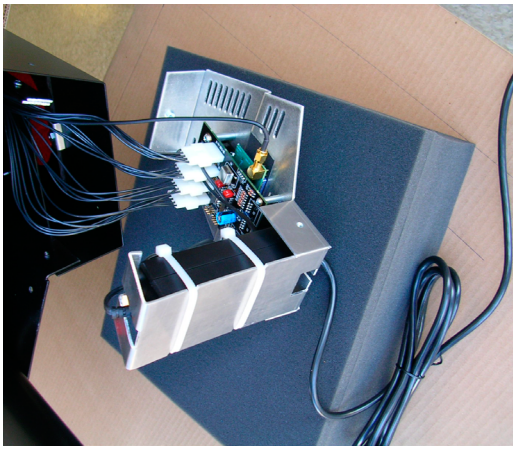


DTSS Tree bottom

Picture below shows the post partially extended. There is an internal stop so the post will not come out too far. Loosen/tighten the clamp nuts on the U-bolt (9/16 in deep socket) at the desired position. Four 1/4-20 wing nuts secure the post to the base.

Post extension

DTSS Tree Electronics



The DTSS tree electronics module (shown on the right) can be removed and disconnected from the tree for upgrades and service.

Unplug the Tree before proceeding.

Three screws hold the module - front and back plus left side at the bottom. A #2 Phillips screw driver will handle the job. After the screws are removed, as the module comes out, unplug any cables and antenna cables.

Reassemble in the reverse order

or use a string stretched between the Beam Emitter and Track Sensor. The speed trap line for Mile per Hour measurements is located 66 feet before the finish line for NHRA 1/4 mile drag racing. For other drag racing programs with track lengths shorter than 500 feet, the speed trap is designed to be 10 feet before the finish line. The speed trap line for Kilometers per Hour measurements is located 20 meters before the finish line.

STEP 3 -

There are three main cables connecting the XL Electronics Box and the IR Track Sensors at 60/330/660/1000 foot, speed, and finish lines for a standard 1320ft track. One cable connects the XL Electronics Box at the start line with the 60/330 ft sensors and ends approximately midtrack. The second cable is the Extension cable which adds 594 feet with 660/1000 foot sensor drops and ends near the speed line. The third cable connects the speed and finish line sensors to the other two cables. Layout the long Track Sensor Cables on the track site as illustrated on the appropriate cabling diagram. The round connector connects to the XL Electronics Box and the smaller connectors (RJ11) connect to the Track Sensors at the 60/330/660/1000 foot, the speed and finish line as indicated on the cable near the RJ11 connector.

The 10 ft Start Beam Cables connect between the XL Electronics Box and the Start Beam Sensor units. These cables connect into the LEFT STAGE SENSOR and RIGHT STAGE SENSOR jacks in the XL Electronics Box.

To record accurate speeds, the SPEED/ FINISH Sensors and Emitters must be carefully spaced on the track. The System is configured to provide speed based on either a 10 foot trap (MPH), 66 foot trap (MPH), or a 20 meter trap (Km/H). Small errors in placement and out of square relative alignments will result in significant errors in speed information.

STEP 4 -

Connect cables to the underside of the XL Electronics Box in the appropriate connectors.

STEP 5 -

Connect the RS232 blue PC cable to the RS422 Communications POD (4500B) at the blue port marked RS232; connect the 9-pin connector to the serial port of the laptop or PC to be used to control the XL Timing System. Connect the XL Electronics Box to the POD with the 07-3434 red cable at the connector marked PC under SERIAL RS422 COMMUNICATIONS (XL Box) and at the red POD RS422 connector. See directions for Wireless Data Network if the option is purchased. Alternately, use the USB to serial data cable (45232A) to go to the POD or a wireless module.

STEP 6 -

Connect the Tree cable to the XL Electronics Box connector marked TREE and to the round connector on the back of the TREE.

STEP 7 - Connect the AC power cord to a typical 110VAC/20A (230VAC/10A) line. A surge suppression strip is strongly recommended to minimize line loading.

See notes regarding use of extension cords.

STEP 8 -

Connect the Starter's Button to the XL Electronics Box connector marked STARTER'S BUTTON. This button allows starting of the tree on the track between the vehicles.

For power-up test diagnostics, a Test Jumper is included. For initial power-up, insert the Test Jumper into the Starter's button connector.

STEP 9 -

Final alignment of all Emitter/Sensor pairs is accomplished after the timing system is powered up, completion of the tree self-test, and the XLSCORE PRO PC Software is loaded and running in the PC. This step is covered in detail under the next section titled SYSTEM POWER-UP and in the XLSCORE PRO software manual.

SYSTEM POWER-UP

STEP 1 - POWER-ON SELF-TEST

Turn the power on at each IR Beam Emitter. Turn on the AC power to the system. Each time power is applied to the timing system, a self-test sequence is initiated by the microprocessor to insure proper operation of the display and electronics. To insure all visual components are operational, the following sequence should be observed:

Light Tree:

Each light on the left side, then the right side will illuminate in sequence starting from the bottom RED light up through the staging lights.

Both lanes will sequence together starting with the staging lights down through the RED lights.

All lights will illuminate in sequence starting from the bottom left up to staging then the bottom right up to staging. The speed of the test will be at 2 times the previous sequence.

All lights will go out in sequence starting with the bottom left up to the staging then the bottom right up to staging. Rate of change will remain at 2 times.

All lights will then flash off and on, then turn off (assuming the Starting line beams are powered on and aligned). Lastly, the bottom yellow lights will be illuminated indicating that communications have not been established with the XLSCORE PRO software on the PC.

Visually inspect the Light Tree for proper operation. All other circuitry is internally tested by the microprocessor. Upon completion of the self-test, the timing system will be ready for use with all tree lamps off (except the bottom Yellows) and the Stage, PreStage, and Redlight lamps active when the respective beam is blocked at the starting line. If an error occurs, the timing system will not respond or the sequence above will not start or follow to completion.

A Test Jumper has been provided to assist with initial power-up troubleshooting to evaluate proper operation of the Tree and output to printers and scoreboards. The jumper when installed in the Starter's Button connector at power-up will cause the system to cycle through several simulated races flashing lights on the Tree and sending results to available printers and scoreboards. This is useful to verify the proper connections are open and operating without the PC being connected.

STEP 2 - LOAD THE XLSCORE PC S/W

The XL Timing System is controlled by software programs running in a Windows operating system PC or Laptop computer. Refer to the XLscore PRO manual for complete integration of the Timing System and System control and race management software.

SENSOR ALIGNMENT

All RaceAmerica timing systems have an alignment mode. This is very useful for verifying correct Emitter/Sensor alignment. After the track layout has been determined and the Sensors and Emitters placed in the proper positions (open holes facing each other), and the system powered ON, the PRE-STAGE and STAGE are active so these beams can be aligned without the PC.

The standard Dual beams (5063/5163) and the optional Tri beams (5067/5167) utilize different infra-red codes to differentiate one beam from the other; the Tri beam also contains internal logic which requires a special procedure to check alignment. This is because the ET will begin either when the Stage beam is unblocked or the Guard beam is blocked.

Test the dual beam function of the PRE-STAGE/STAGE (5163) sensors as follows. When aligned, both PRE-STAGE and STAGE lights will be OFF. Blocking any PRE-STAGE/STAGE beam should illuminate the respective lights. Rotating the sensor across the operating range will determine an optimal central location (which may not appear perfectly parallel to the emitter unit).

To check for proper alignment when using the optional Tri-beams, place the beam enclosures in the approximate locations on the track parallel to each other with the emitters ON. The PRE-STAGE/STAGE lights should be OFF. Block the STAGE sensor and the STAGE lights should turn ON for the respective lane. While blocking the STAGE beam, block the GUARD beam. If properly aligned, the STAGE lights should turn OFF. With the Tri-beam in this location, blocking the PRE-STAGE beam should turn on the PRE-STAGE lights for the respective lane. Rotating the Tri-beam sensor will establish the operating range so the sensor can be left to operate in an optimal position (which may not be perfectly parallel to the emitter).

To maximize the alignment of the single emitter/sensor pairs, it is suggested to rotate the beam emitter slowly left and right until the alignment for that pair begins to count. This technique will determine the maximum lateral detection angle. Rotating the beam emitter up and down until the alignment starts counting determines the maximum vertical detection angle. Once these extremes are established, position the Beam Emitter in the center of the left/right detection angle and up/down detection angle. Repeat this same process with the other beam emitters and track sensors. This will maximize the alignment accuracy.

Remember, the beam emitters and track sensors operate on a 'Line-of-Sight' concept and may require shims if they are installed on a surface with a crown. Leaves, people, and other debris will also break the beams and could give false signals, so keep everyone and everything clear of the beam emitters and track sensors during racing activity. Lane width should be between four and fifty feet; a string stretched between the emitter and sensor may aid alignment or just eyeball a straight line.

Refer to the Alignment section of the XL SCORE PRO manual for performing alignment checks on downtrack sensors.

TROUBLE SHOOTING

Some operational conditions which may cause operational problems or be symptomatic of problems which should be addressed are listed here with solutions.

Alignment problems - Use new emitter batteries; interchange positions of similiar units to isolate specific emitter, sensor or cable problems; disable positions to continue event.

Tree Light says ON/OFF - Using Alignment Mode, switch sensors to isolate the problem to the tree, cables or sensors.

Intermittent flickering of tree lights - check power supply for momentary over voltage condition.

System resets when the Tree comes down - Check power supply for low voltage condition; may manifest itself as a generator surging or bogging down; check for adequate cable gauge for long power runs.

Q-Mile Speed/ETs give false/very low values - Symptomatic of low voltage or insufficient current as the Tree comes down. Try disconnecting bulbs on back of tree; check power cable for gauge/distance from source.

MAINTENANCE

The 2900 Series Electronics, Beam Emitters, and Track Sensors do not require any maintenance beyond normal cleaning to insure good electrical connection and optical performance of the infrared beams.

To insure uninterrupted operation on raceday, it is suggested to keep track of battery usage hours so as to have fully charged batteries. Plan to replace the batteries in the Beam Emitters after about 60 hours use. If you are using rechargeable cells, recharge them each day. Low battery voltage (Emitters below 4.5V DC) will cause intermittent operation of the system resulting in intermittent cars detected at the starting line or the finish line as the batteries power weakens.

To maintain the highest level of timing accuracy and minimize false trips, annual preventative maintenance and calibration should be performed on all system track sensors and beam emitter units.

SPARE PARTS

Further to minimize race program interruptions, RaceAmerica recommends some spare parts. A spare emitter/sensor pair and end of track cable sections should be available in the event of an unfortunate accident during a program. Contact RaceAmerica for availability and pricing of spares items.

SUPPORT AGREEMENTS

Support agreements are available from RaceAmerica providing Telephone Assistance on technical issues and operational questions, repair and/or replacement of hardware failures, Software and Firmware updates and bug reporting, and Annual Preventative Maintenance on all system track sensors and beam emitter units. Contact RaceAmerica for more information and pricing of Support Agreements.

DEFINITIONS OF THE TREE LIGHTS

Intermediate Alignment

Tree Alignment Positions

Pre-Stage

Stage

60 FT

330FT/101M ET

Midtrack Speed

Midtrack ET

Fulltrack Speed

1000FT/305M Speed

Fulltrack ET

1000FT/305M ET

Tree Racing Indications

The dual white lamps at the top of the tree will illuminate when a vehicle breaks the Pre-stage beam (if sensors are present), or functions as configured (Config Tree).

The dual white lamps at the top of the tree will illuminate when a vehicle breaks the Stage beam.

The center Yellow light illuminated indicates a bracket/index breakout in this lane when compared to the Dial-in (Tree Config Option 1).

Green light illuminated indicates the winning lane after applying NHRA rules. (Tree Config Option 1).

The Red light illuminated indicates an early or fouled start in this lane.

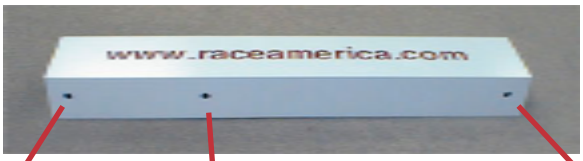
The Tree displays sensor alignment by illuminating a bulb for each sensor position when in alignment mode or Intermmediate alignment mode (left legends)
The Tree also displays a full variety of information during racing activity (right legend).

Dual-Beam Sensor (5163)
(Standard)

Pre-stage Beam

Stage Beam

Tri-Beam Sensor (5167)
(Optional)

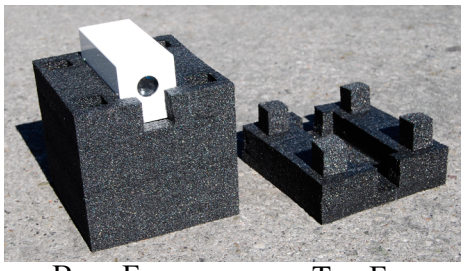


Pre-stage Beam

Stage Beam

Guard Beam

7540D - Foam Stand Assembly Instructions



Base Foam Top Foam

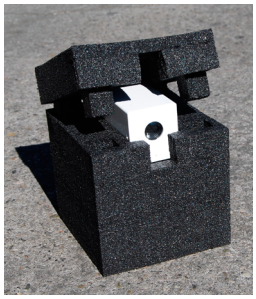
Emitter

Sensor

Assembly Components

'AA' Battery Emitter (5040B, 5050B & 5058B)

1. Install batteries and turn on the Emitter.
2. Separate the Base of the Foam Stand from the Top.
3. Place the 5040/5050/5058 Emitter into the Base foam with the battery side down.
4. Slide the Top on the Base paying attention to the four corner pins and thier lignment with the corresponding Base holes. Place on the track.



Sensor/Emitter placement in Foam Base

Track Sensor (5140D & 5158D)

1. Separate the Base of the Foam Stand from the Top.
2. Connect the cable to the sensor
3. Place the 5140/5158 Sensor into the base (open end down)
4. Slide the Top on the Base paying attention to the four corner pins and thier lignment with the corresponding Base holes. Place on the track.

Sensor back
Note cable routing

'C' Battery Emitter (5042B)

1. Same as above except place the 'C' Battery pack in the Base standing on its edge.

For additional stability

1. Place weight in the Base well as required.

Outside Dimensions:
6.5" W x 7.25" L x 7.5" H

Complete Assembly

REVISION HISTORY

A - 07/11- Initial upgrade from 2850 product adding DTSS tree and mid-track speed
B - 12/14 - Updated PC connections for part#45422B
C - 05/15 - Updated tree info to DTSS and Foam from 7540C - D