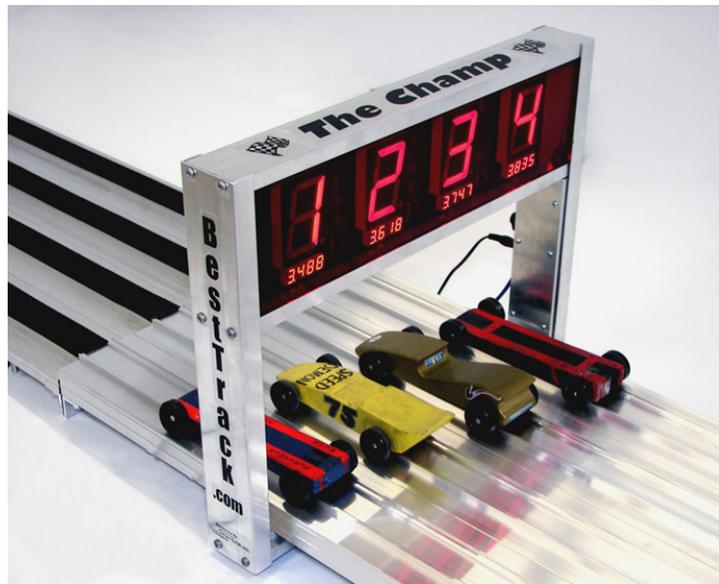


# DragMaster®

## Double Sided Finish Line Timer *Assembly Manual*

VERSION 4.0



**Timer Manufactured By:**  
**SRM Enterprises, Inc., Producers of BestTrack® Pinewood Derby® Tracks**  
P.O. Box 53, Forest City, IA 50436  
Phone: 641-585-2299  
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Timer Electronics By: 

[www.eTekGadget.com](http://www.eTekGadget.com)

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See  
Troubleshooting  
Tips on page 10

**IMPORTANT!** Unplug  
any solenoid start gate  
before using the  
Linesetup program with  
your timer.

**IMPORTANT!** Use only the 12V power supply  
supplied with your timer! Wrong power supply  
voltage will damage your timer & void the warranty!

# The Champ Timer Finish Line Overview

We thank you for purchasing the *BestTrack*® Champ Timer Finish Line system. This manual will assist you with the communication between the Champ Timer Finish Line system and a computer.

The *BestTrack*® Champ Timer Finish Line produces consistent instant race results. The Champ Timer is designed to produce results with excellent precision and ease.

Special features of the Champ Timer include:

- 1 to 8 lanes supported.
- Large (2 ¼ inch) displays, readable across a large room.
- 6.5 inch clearance above track.
- Race results instantly displayed to race spectators.
- Useable with or without a computer connection.
- Computer interface standard.
- Race times resolved to .00005 seconds.
- Race times selectable to send 3, 4 or 5 decimals.
- Reset button and/or timed automatic reset. (settable time or disabled).
- Start gate switch.
- Built-in sensor IR illuminators (no lamps are required).
- Built-in test functions.
- Easy to install.

The Champ Timer lends itself to dynamic racing, since the on-board co-processor can complete timing calculations with results being passed to a computer.

Champ Timer system consists of:

- 1- Champ Timer system unit with 1 – 8 displays.
- 2- AC Power Adapter.
- 3- 50 ft. RS-232 cable.
- 4- Reset/Start gate switch and mounting bracket
- 5- 50 ft. cable for Reset/Start Switch

## Warranty

**The Champ Timer has a 3 year warranty on the electronics and against manufacturing defects.**

**This warranty does not cover damages such as incidental or physical damage, damage due to misuse, modifications, or incompatible equipment/accessories being used.**

**We need to be notified of damaged/missing parts within 30 days of the delivery of your order.**

# 1 General Operating Instructions

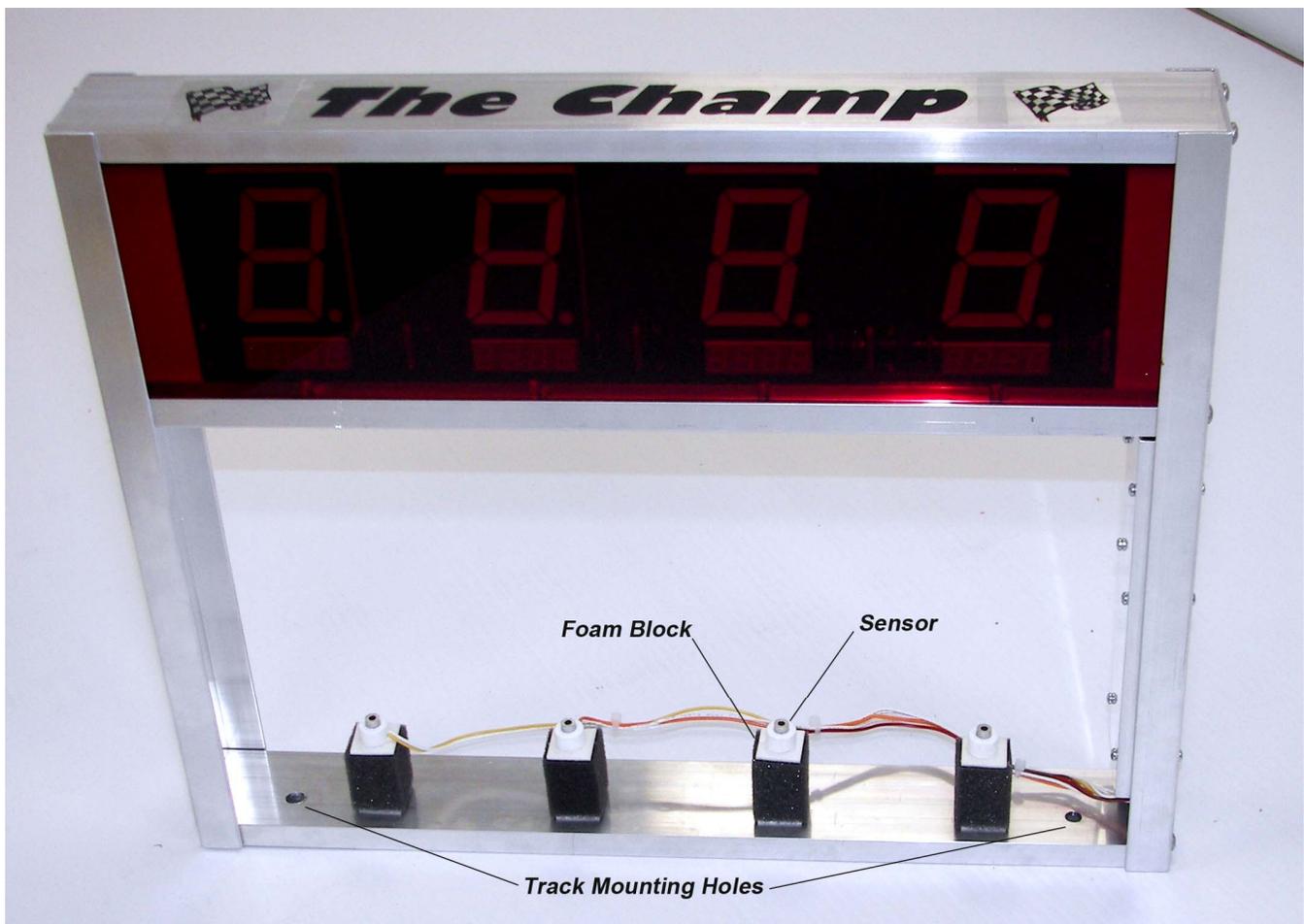
Champ Timer Setup Program – **Only use if needed to check timer settings**

The Champ Timer Setup Program (LINESETUP4.EXE) is available for download (see page 8) so that operating parameters may be easily set or changed to your preference; for example, to change the reset time on your timer.

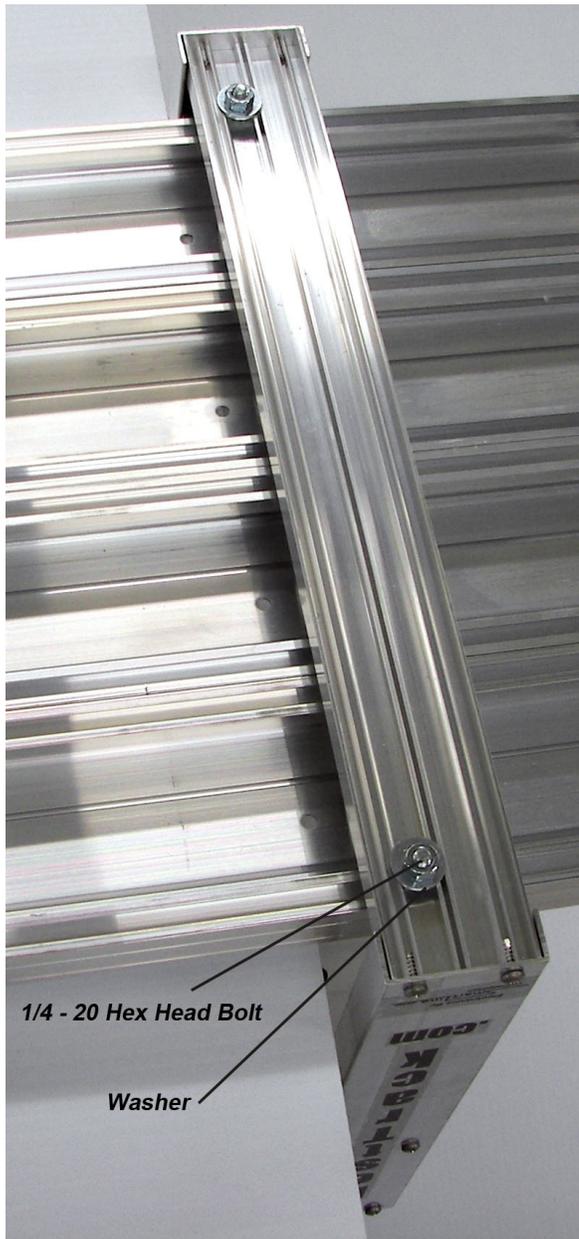
**IMPORTANT!** Unplug any solenoid start gate while using the Linesetup program.

## 1.1 Setup Champ Timer Finish Line hardware

Follow these simple steps to install the Champ Timer Finish Line over the track



1. Your Champ Timer comes completely assembled, ready to be mounted on your BestTrack Pinewood Derby track



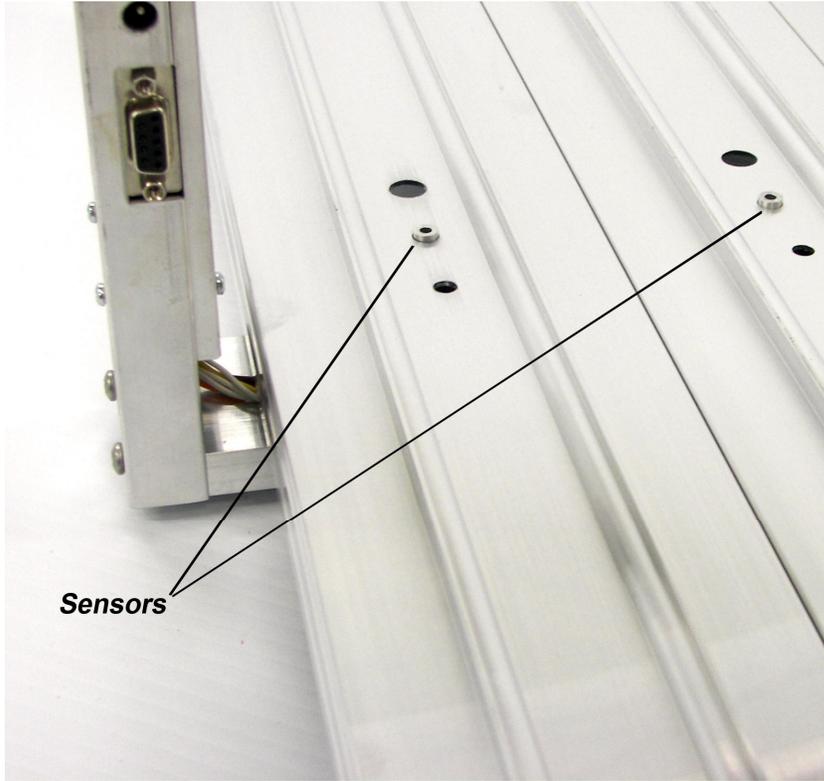
1/4 - 20 Hex Head Bolt

Washer

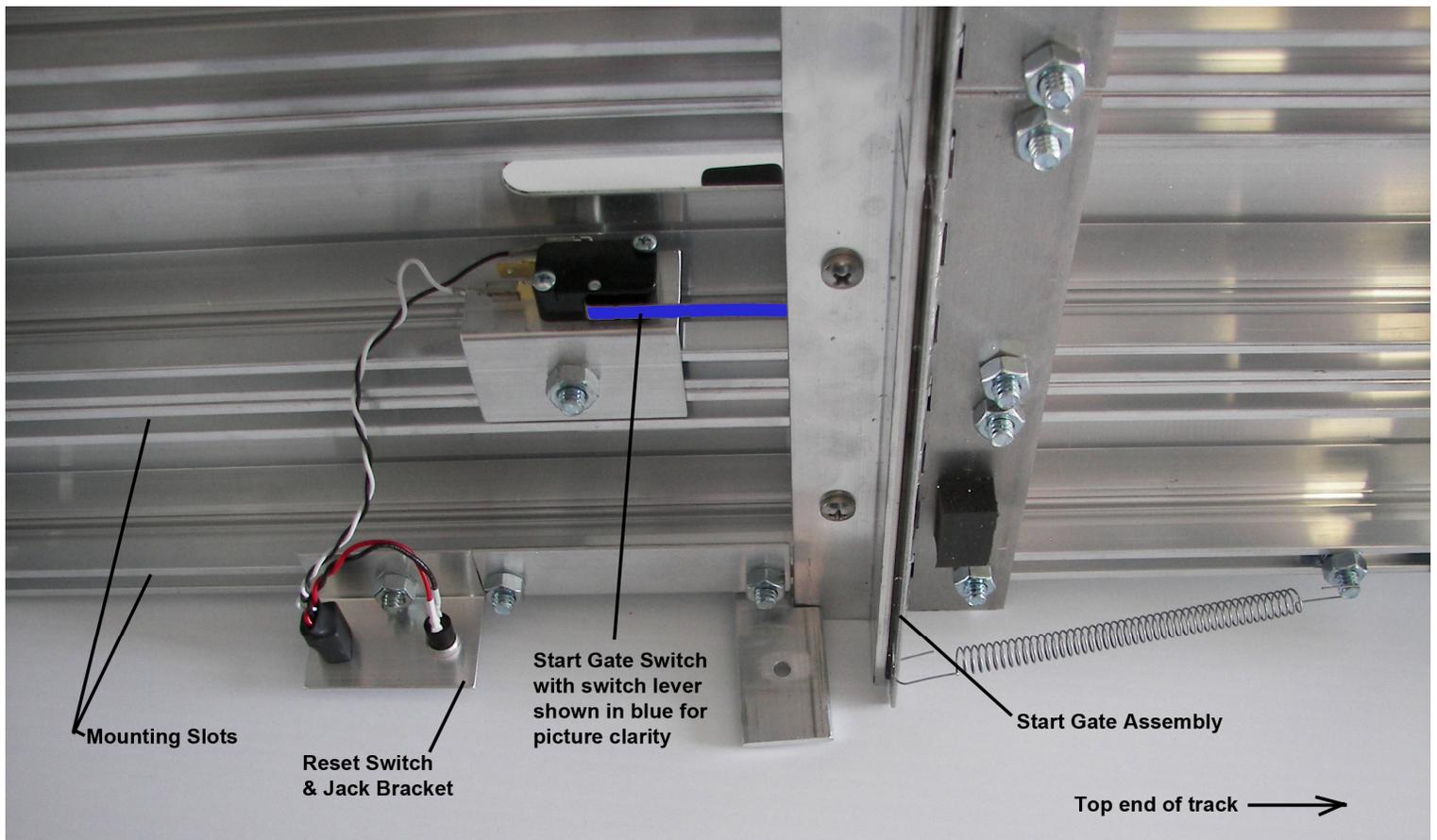
**Do Not Pinch  
The Wires When  
Attaching Your  
Timer!**

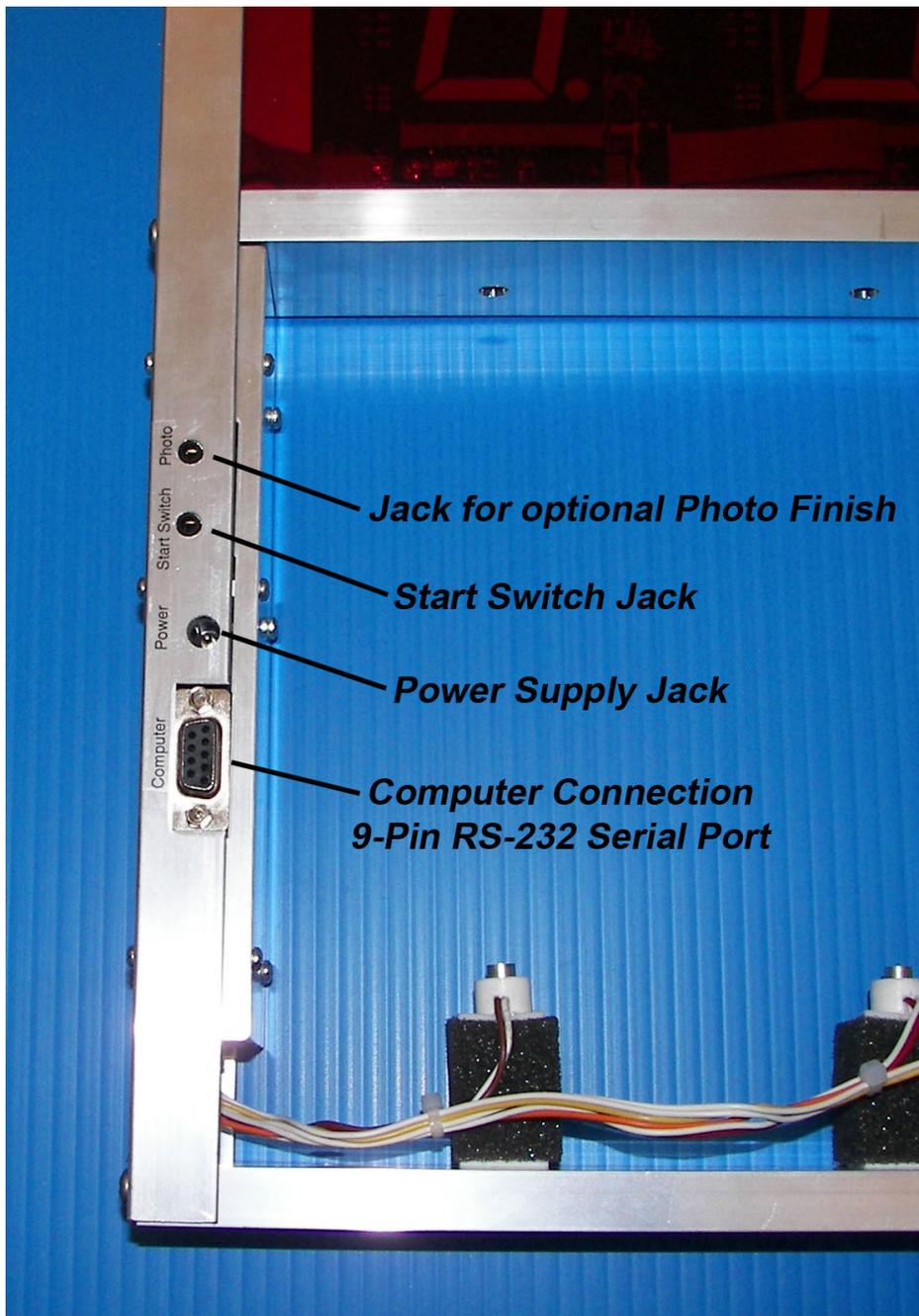
2. Slide two 1/4-20 X 1" long hex head bolts (included) in the outer mounting slots of the first & last lanes of your timer section of track. (You will have to remove the connector angle at one end of the timer section if your track is already assembled.) Align these bolts with the center timer hole punched in your track. **Tighten a nut on this bolt to hold it in location. This nut also provides spacing so the sensor wires will not get pinched.**
3. Slide the timer over the end of the track with the foam blocks holding the sensors beneath the track. Align the timer mounting holes with the bolts installed in step 2. Place a washer over each bolt and secure the timer with two additional nuts. **Do not over tighten.**





4. Align the sensor housings on each foam block so they fit into the timer holes punched in the middle of each lane. The foam block acts as a spring to keep the sensor securely in place.
5. Slide a 1/4-20 hex head bolt into the mounting slot at the edge of the track near the start lever and mount the Reset Switch Bracket as shown in the picture below. Use a hex nut to fasten the bracket to the track.
6. Attach the Start Gate Switch in the same manner using the 3<sup>rd</sup> mounting slot from the edge of the track. Slide the start lever (shown in blue for clarity) under the start gate as shown so that the switch is activated as the start gate drops. See below.



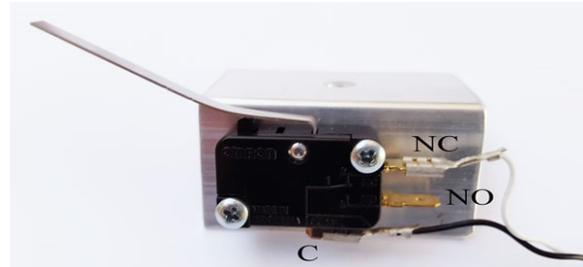


7. Plug the power supply into the mating connector on the Champ Timer unit.  
**IMPORTANT! Use only the 12V DC power supply supplied with your timer!**  
**Wrong power supply voltage will damage your timer & void the warranty!**
8. Plug the 9-pin RS-232 interface cable into the Champ Timer and any COM port on your PC. You may also use an RS-232(Serial) to USB conversion cable to use a USB connector on your computer. Use the CD that comes with the USB to Serial adapter to install the driver.
9. Plug one end of the Reset/Start Switch cable into the vertical post of the timer and the other end into the jack with the Reset/Start Switch. Make sure that it is fully inserted. You may mount the Start Switch onto your track or use the timer without it.

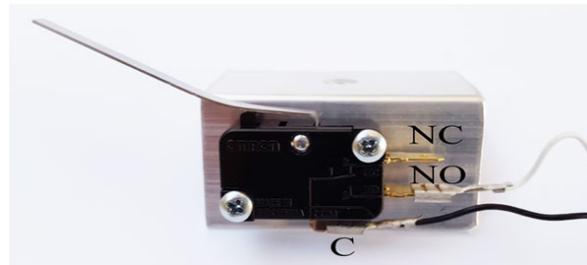
If you do decide to mount the start switch, please note the following wiring information.

**WIRING INFORMATION:** The supplied sensor switch has three terminals marked C(Common), NC(Normally Closed) and NO(Normally Open). The preferred method is to have the switch pressed before the race and un-pressed when the race starts. This method requires the use of the C and NC contacts.

**Use this method for GrandPrix Race Manager and Derby Master software.**



If you want the switch to be un-pressed before the race and pressed when the race starts, then the push-on terminal needs to be on the NO contact as indicated below.



10. Lastly, using the AC adapter, plug the Champ Timer Finish Line timer into a source of power.

**IMPORTANT! Use only the 12V DC power supply supplied with your timer!**

11. **Please note:** Check to make sure the start gate switch is fully depressed when the start gate is in the up position. If not, you may need to slightly bend the lever on the switch down towards the floor.

12. **Timer Sequence:**

When the timer is first plugged in, you will see either a 5L or an L5 on the display, depending on which side of the display you are looking at. The display will then blank out if the start gate is in the up position, or change to dots if the start gate is in the down (released) position.

When the start gate is rotated up into the start position and ready to race, the display will blank out.

When the start gate drops, the display changes to dashes until each car crosses the finish line. Each car should then show a place of finish and the elapsed time.

# Champ Timer Setup Program

## Only use if needed to check timer settings

Download here if needed: <http://besttrack.com/LINESETUP4.exe>

**IMPORTANT!** Unplug any solenoid start gate while using the Linesetup program.

The Champ Timer Setup Program (LINESETUP4.EXE) is used to establish the initial communication and also for updating any settings that you may wish to change.

The LINESETUP4 program can be downloaded to your desktop or copy it to any directory of your choice. You only need the one file: LINESETUP4.EXE to run this program.

Before you start the LINESETUP4.EXE program make sure that the Champ Timer Finish Line Timer is plugged into the computer and turned on.

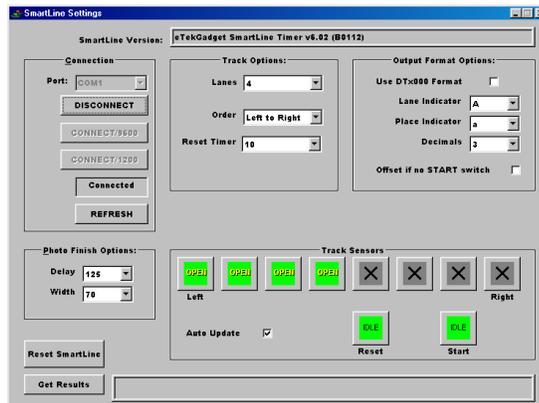
Make sure that you do **NOT** have any other programs running that use the same COM port, such as a race manager program.

To start the Champ Timer Setup Program, simply double-click on the LINESETUP4.EXE program name.

Select the COM port you will be using for communication in the Connection box.

Click the “CONNECT/AUTO” button. The “CONNECT” button is currently displaying “DISCONNECT” in the picture below because it has already been pressed and the status is “Connected”.

The Champ Timer Version should appear at the top of the box. The Track Sensors area will show the state of the sensors and switches.



This is the display as it appears when there are 4 lanes and communication has been established successfully. Waving a hand under the sensors triggered the timer and the ‘Get Results’ button was pressed in order to see the result string from the timer.

## 1.2 Setup the Champ Timer for use with various race management software packages.

### GrandPrix Race Manager V5.0 and above–

Select the Champ or Smartline Timer in the GrandPrix Race Manager's Hardware Setup Options screen. Select the COM port that will be used.

You may test the communications at this point by pressing the Start Test button. The GrandPrix Race Manager V5.0 and above will send the appropriate commands to the Champ Timer to get the readings from the next race. You may trigger the sensors, simulating a race, and the results will be displayed. You may also send individual commands to the timer.

When you select the Champ Timer or Smartline Timer in the Hardware Setup screen, a new tab will appear for setting the Photo Finish values. You may set the photo finish delay times at any time during the race. This option is available only in the GrandPrix Race Manager V5.0.1 and above.

### DerbyMaster Software

For DerbyMaster version 8 & higher, select the Champ/Smartline Timer in the hardware setup. If you have version 7 or lower we suggest upgrading to version 8 or higher.

**Do not run the Champ linesetup.exe at the same time with any racing software as the programs will interfere with each other.**

### 1.2.1 An optional method of setting up the timer parameters.

You may use a terminal program such as Tera Term Pro if you are familiar with communications protocols. This program is free and may be found as a link through the web site <http://www.eTekGadget.com> .

## 1.3 Champ Timer Finish Line Test Mode

The test mode is useful for testing the sensors. To enable the test mode, hold the reset button down until you see a capital L on the displays. You may then release the reset button.

The L will display for a short time (approximately 2 seconds) and then the lane number will be displayed in the display above the respective lane for approximately 2 seconds. The display will then show either a lower case c or an underscore. The c indicates that the sensor is covered as if a car were sitting on the sensor. The underscore (lowest segment on the display) indicates that the sensor is open (nothing is on the track). **To return to the normal racing mode simply tap the reset button.**

## Notes on using a Serial to USB Adapter

If you are using a Serial to USB adapter to hook up your Champ timer to a laptop or other computer, be sure to install the drivers on the miniature driver disc that came with your USB adapter. Your timer will not communicate with the computer if you do not have the drivers installed for a Serial to USB adapter. If you have misplaced the driver disc that came with your Serial to USB adapter you can download a new version from the manufacturer's web site. If you bought the Serial to USB adapter from us, we link to the driver downloads for the adapters that we have sold at the bottom of our Champ Timer web page.

### **TROUBLESHOOTING:**

**If you have a “c” in one or more lanes**, this means that the lower sensor cannot see the infrared LED light shining down on the track from the upper part of the timer. Check to see if the lower sensor is completely set into the hole on the track and pointing straight up. Check to make sure that no debris is blocking the sensor. Look at the LED light that shines down on to the track and make sure it is pointing straight down and did not get pushed up into the aluminum housing; the LED can be gently repositioned if needed. The LED light should be about flush with the bottom surface of the extrusion that it is shining through.

Check to see that no wires were pinched when the timer was mounted. Was a nut put on the 1” long mounting bolt before the timer was attached? This nut provides clearance for the sensor wires (see page 4).

**If the first car is showing a “0.000” elapsed time on a race**, the timer is not receiving the start signal from the start switch. Check to make sure the start switch/reset cable is plugged in all of the way. Also, check to make sure the start switch lever is fully depressed and that you can hear it “click” when the start gate is put up into the “ready to race” position. You may need to slightly bend the metal lever of the start switch down towards the floor so that it contacts the start gate sooner.

**If you are getting 9.999 for all of the times for your cars**, you may have the start switch hooked up incorrectly. See first diagram shown on page 7.

**The middle connector of the start switch should not be connected, see first diagram shown on page 7.**