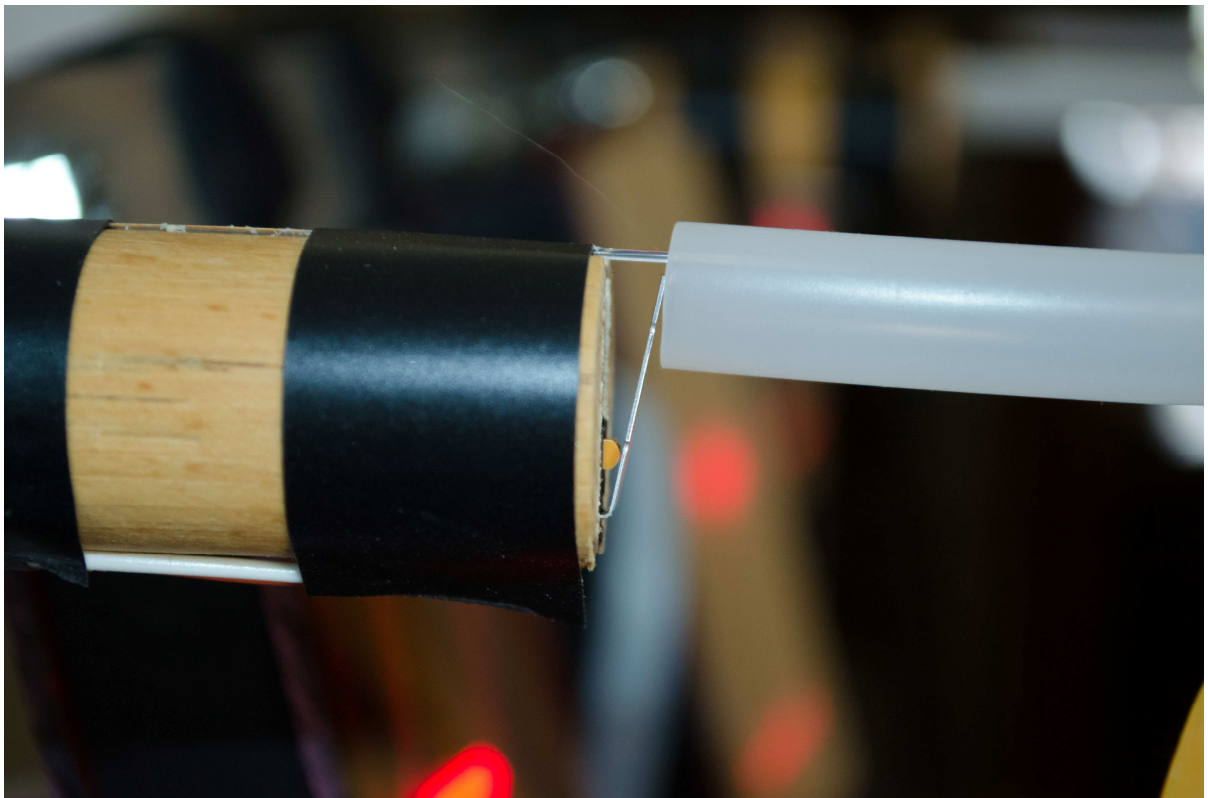




SPACE DERBY MANUAL

Wire Mounted Sensor Version

VERSION 5.04



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Space Derby Finish Line Timer

A Quick Overview

We thank you for purchasing the SmartLine Space Derby Finish Line Timer System. This manual will assist you with the installation of the SmartLine Timer sensors, displays and computer unit onto a frame of the Space Derby track. We ask that you use these instructions as a guideline and offer any input that will improve our product.

Specially Designed Wire Mount Switch Sensors

The sensors we supply are made up of a momentary switch mounted in a specifically designed holder that is mounted onto the wire with vinyl friction tape. There was one sensor unit for each lane. The four sensors may be connected to a SmartLine or a Champ computer and display unit.

Why do we use vinyl friction tape? It keeps the fishing line snug in the groove in the top of the sensor mount and the adhesive on the tape prevents the sensor from changing position along the length of the fishing line. We supply a colorful roll of tape for you to use.

Build the Space Derby Track

You can use either the aluminum BestTrack Space Derby track or the wooden frame from the BSA How-To-Book.

You will need to build the BestTrack Space Derby track as shown in BestTrack's installation manual.



-OR-

You will need to build the Space Derby track as shown in Figure 1 Basic Track diagram on the next page.

Basic Track Plan From BSA How-To-Book

The BSA How To Book shows the dimensions of a basic track. A good choice of wood for construction is 1"x3".

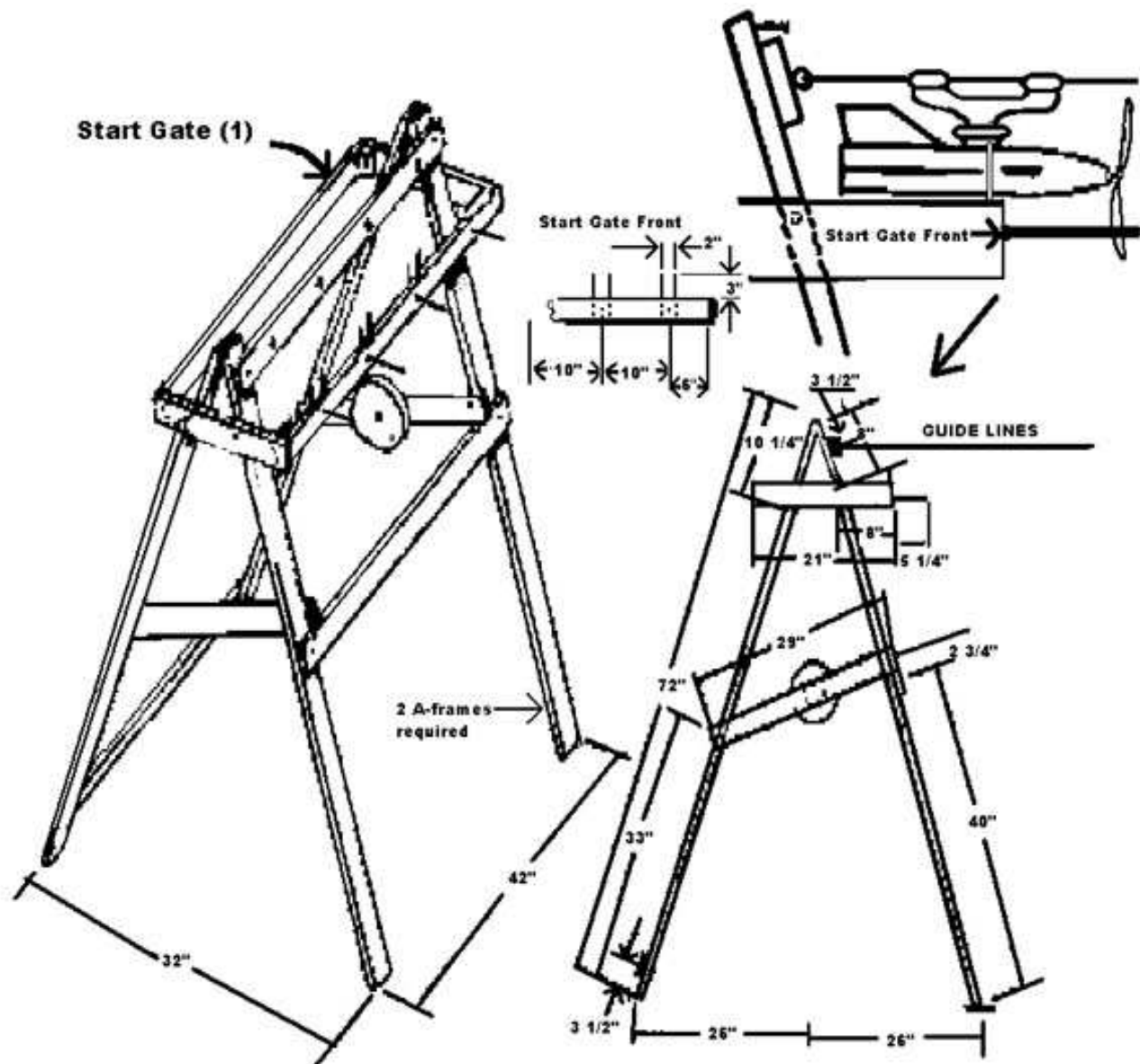
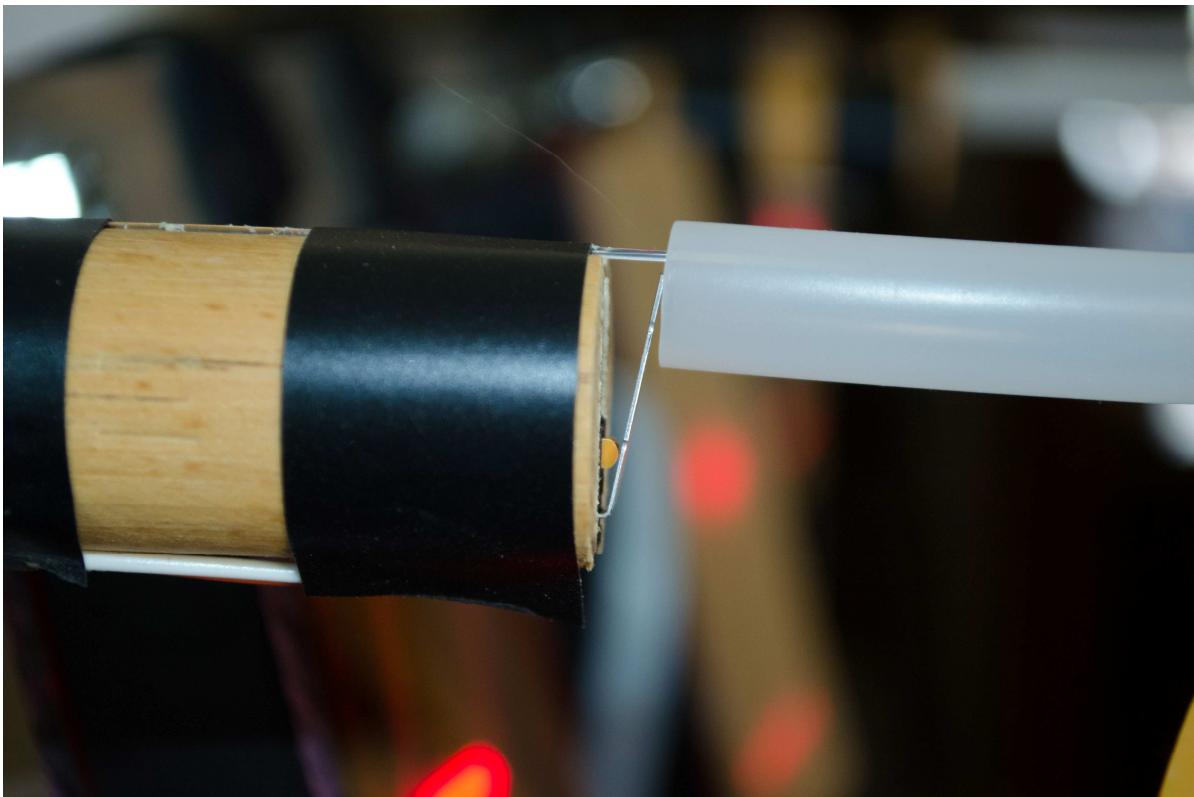


Figure 1 Basic Track

Line, Tubes, Carrier and Sensor Mounting

Mount the plastic tubes and carriers onto the line as you string it onto the track. Note the direction of the carrier and make sure the tube is on the sensor side of it. We supply the plastic tubes that are to be mounted in front of the sensor switch so that the propeller will not hit the sensor. The best way to install them is to slide them onto the string before tying the string onto the frame. There is a slit in them so you may slip them on after the sensor switch is mounted but this is not as easy. They are slit so you may install them either way but mostly so they can be removed to correct a problem.

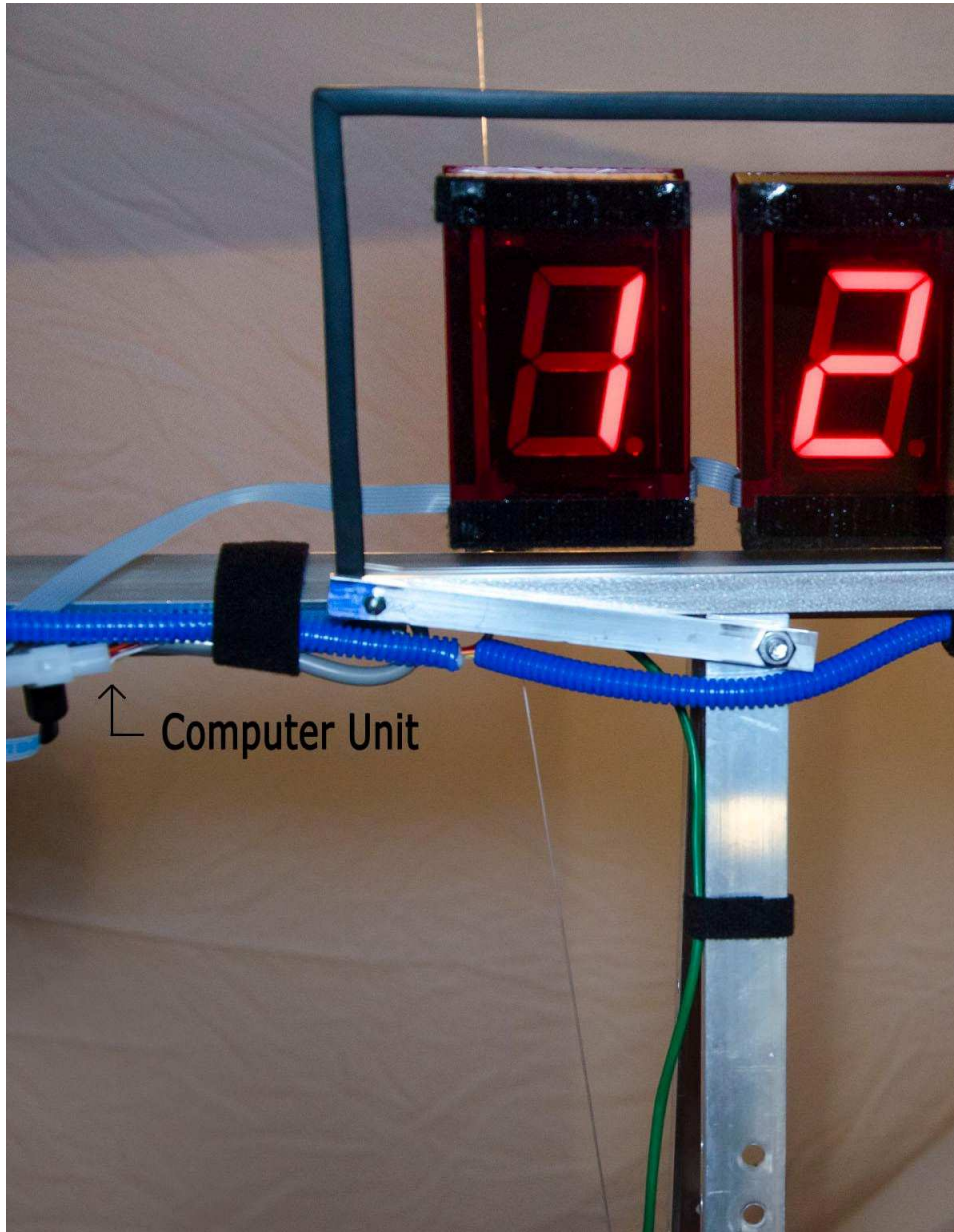
Install a sensor switch onto each lane. Each sensor must be mounted on the fishing line wire with the vinyl friction tape. Make sure to place the wire into the groove and that the tape is close to the front so that the switch is held close to the wire. Please refer to the black tape on the sensor in the picture below. We send it with a piece of tape already installed so all you need to do is peel the tape back and fold it over the wire to install the sensor.



Computer Unit and Wire Mounting

We supply the self-grip Velcro wraps to secure the Computer Unit and wires into place under the bar at the finish line. We also supply a piece of Velcro hook and loop to attach the Computer Unit under the bar. If you are mounting the timer to a wooden frame you may use the Velcro to hold it in place behind the horizontal bar. The communication and start switch wire should be **taped** to the leg of the track so they will not pull on the Computer unit if someone trips on the wire.

Please refer to the pictures at the end of this document for more details.



Display Mounting

Mount the Display Plexiglas Panel onto the top of the Finish Line frame.

BestTrack Track installation:

We supply the Plexiglas Panel with 2 brackets designed to screw into spare holes in the BestTrack track. The nuts and bolts are provided.



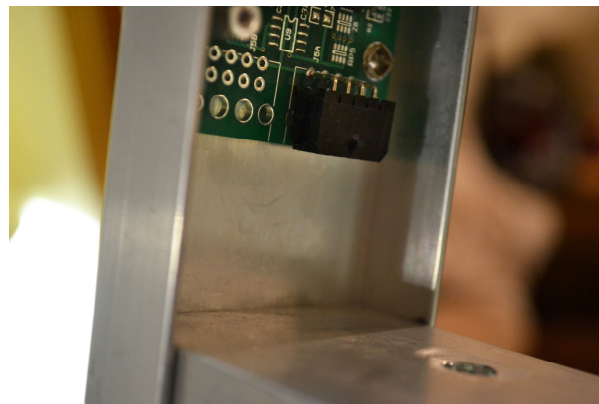
Back view of the BestTrack Space Derby Track

Wooden Frame installation:

You will need to drill holes in the wood at the current holes position. Mount the Plexiglas panel with wood screws onto the back of the finish line frame.

Using the BestTrack Champ Timer

Our sensors will work with the Champ if you have ordered this option. Mount the Champ onto the track as shown below. We advise that you bolt 2 long 10-24 Machine Screws (approximately 4 inches) into the spare holes at the back of the finish line frame to support the Champ more securely. You may also remove the bottom sensor bar from the Champ. It is not needed and may be easier to plug the sensors in.





Add the Start Gate Switch

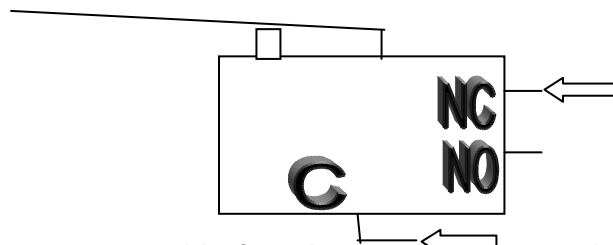
The start gate switch must be mounted on the starting gate frame. The timing is triggered in the timer when the switch is opened. See the start switch wiring directions below.

An easy way to tell if you have the start gate switch wired properly is when the cars or ships are racing down the track the displays will be showing a dash in the center of the display. When the dash is showing, the timer is timing. The dot on the displays indicates that the timer has reset, but the start gate is still open and needs to be shut. If you are using race management software, you must use the start switch.

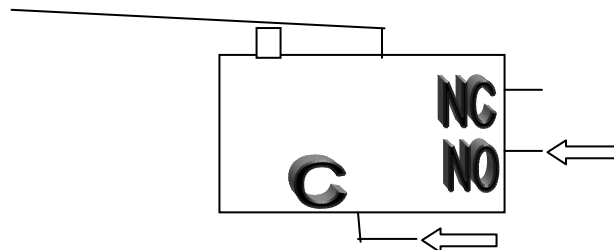
We supply a large binder clip to hold the start gate switch onto the track as in the following pictures in the details section. You may attach it to a piece of metal or wood and bolt it to the track using one of the existing unused holes.

Details on installing the Start Gate Switch

1. **WIRING INSTRUCTIONS:** 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. **The timer is shipped with the green wire on C and the white wire on NC.**

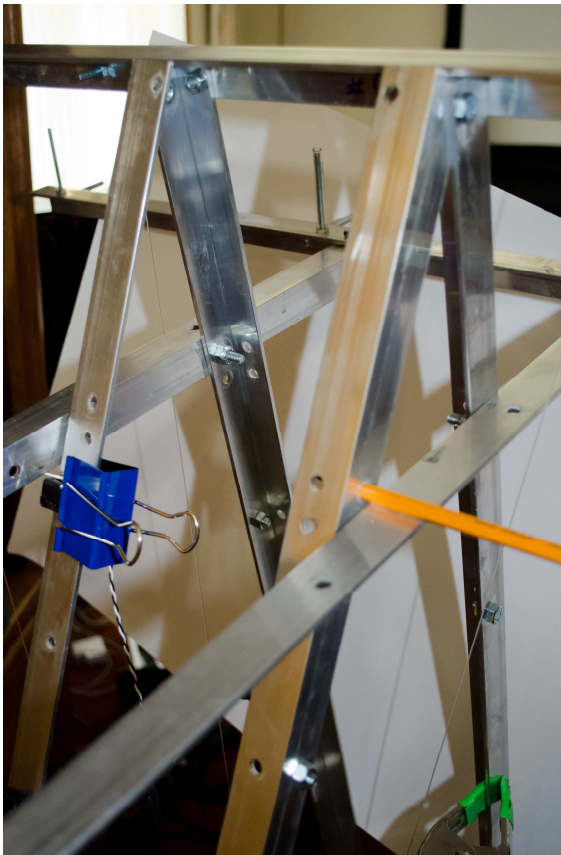
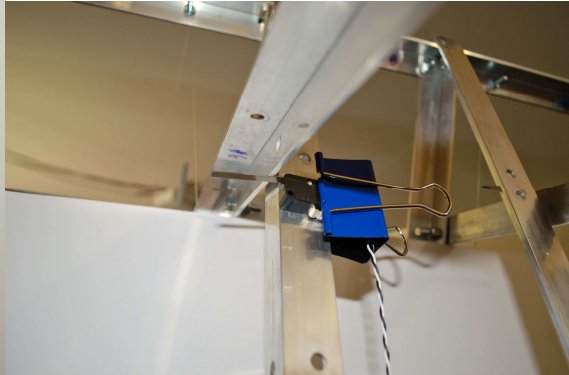
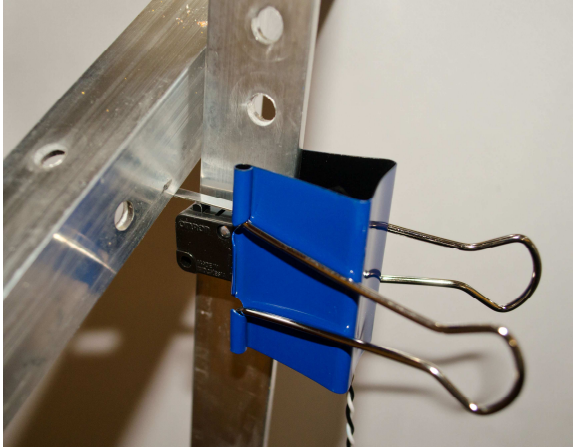


If you want the switch to be un-pressed before the race and pressed when the race starts, then the push-on terminal needs to be on the NO contact as indicated below.



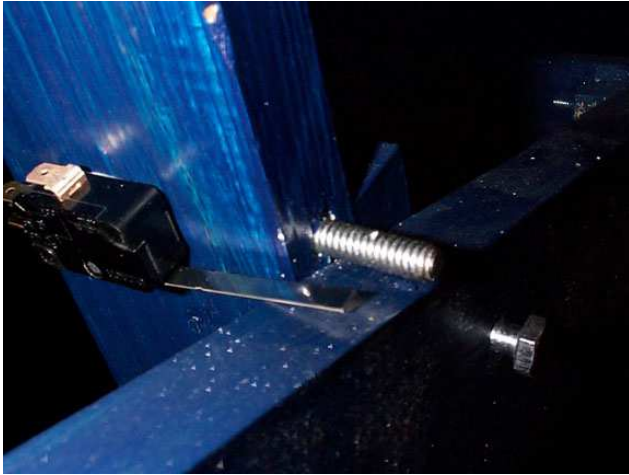
Installing the Start Gate Switch on the BestTrack Track

The start gate switch shown below is mounted on the BestTrack track with large binder clip. You may decide to permanently mount the switch by attaching the switch to a metal or wood piece and bolting it to one of the existing unused holes in the track. The important thing is that the switch is depressed (closed) when the gate is closed and opens when the race starts as it is wired when shipped.

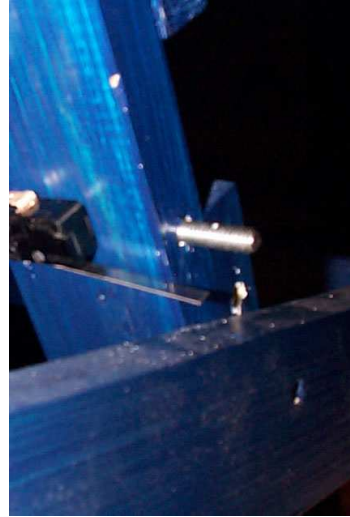


Installing the Start Gate Switch on the BSA Wooden Track

The start gate switch mounted on the wooden BSA track as shown here:



Outside view 1- Closed Position

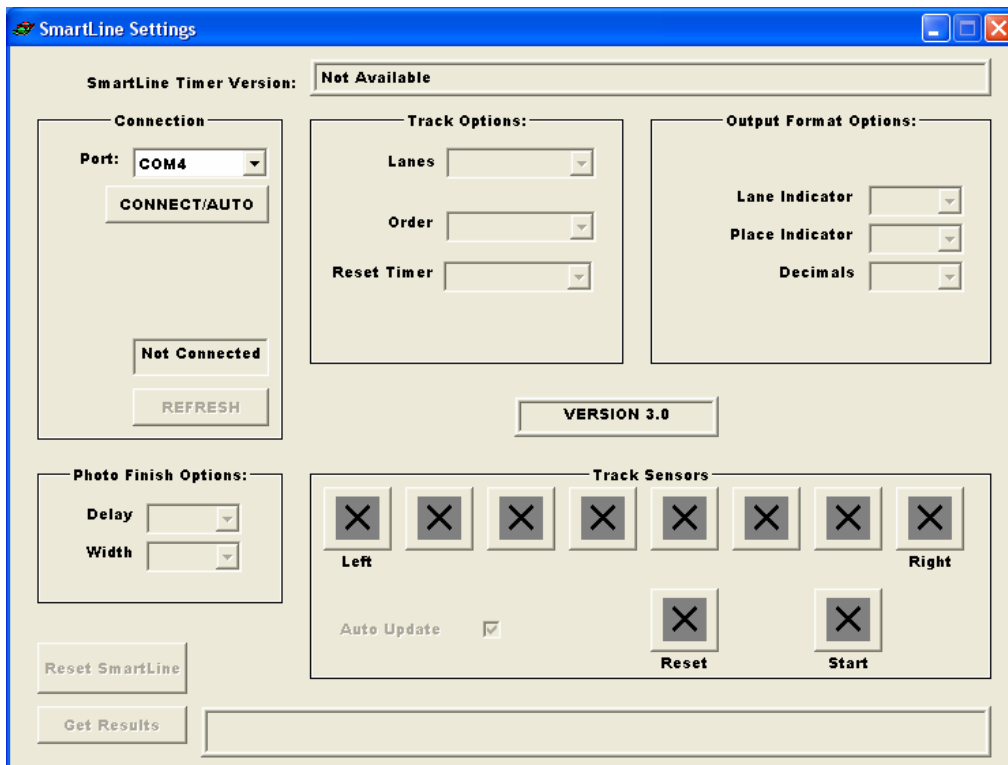


Outside view 2- Open Position

Install and Run the SmartLine Setup Program

You may use the SmartLine Setup Program (LINESETUP3.EXE) provided on the CD as explained in the “SmartLine Pinewood Derby Quickstart instructions”. It is a utility program that is meant only to use for setting the various options such as automatic timeout. We set the automatic timeout to be 20 seconds.

To start the SmartLine Setup Program, simply double-click on the LINESETUP3.EXE program name. You will see the following screen:



This is not a driver program for the timer. The timer does not need this program to operate.

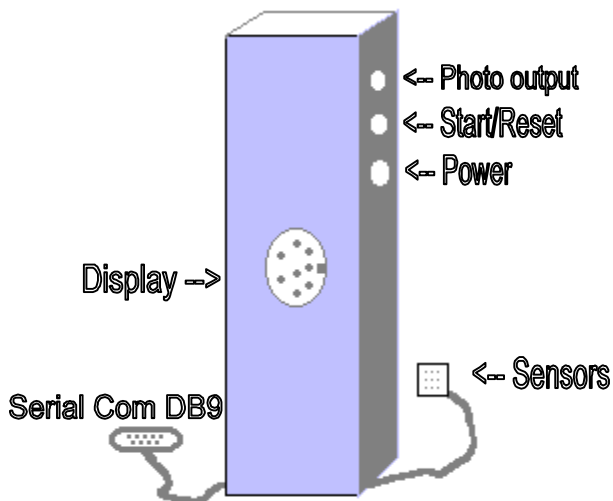
Connections on the SmartLine Computer Unit

SmartLine system consists of:

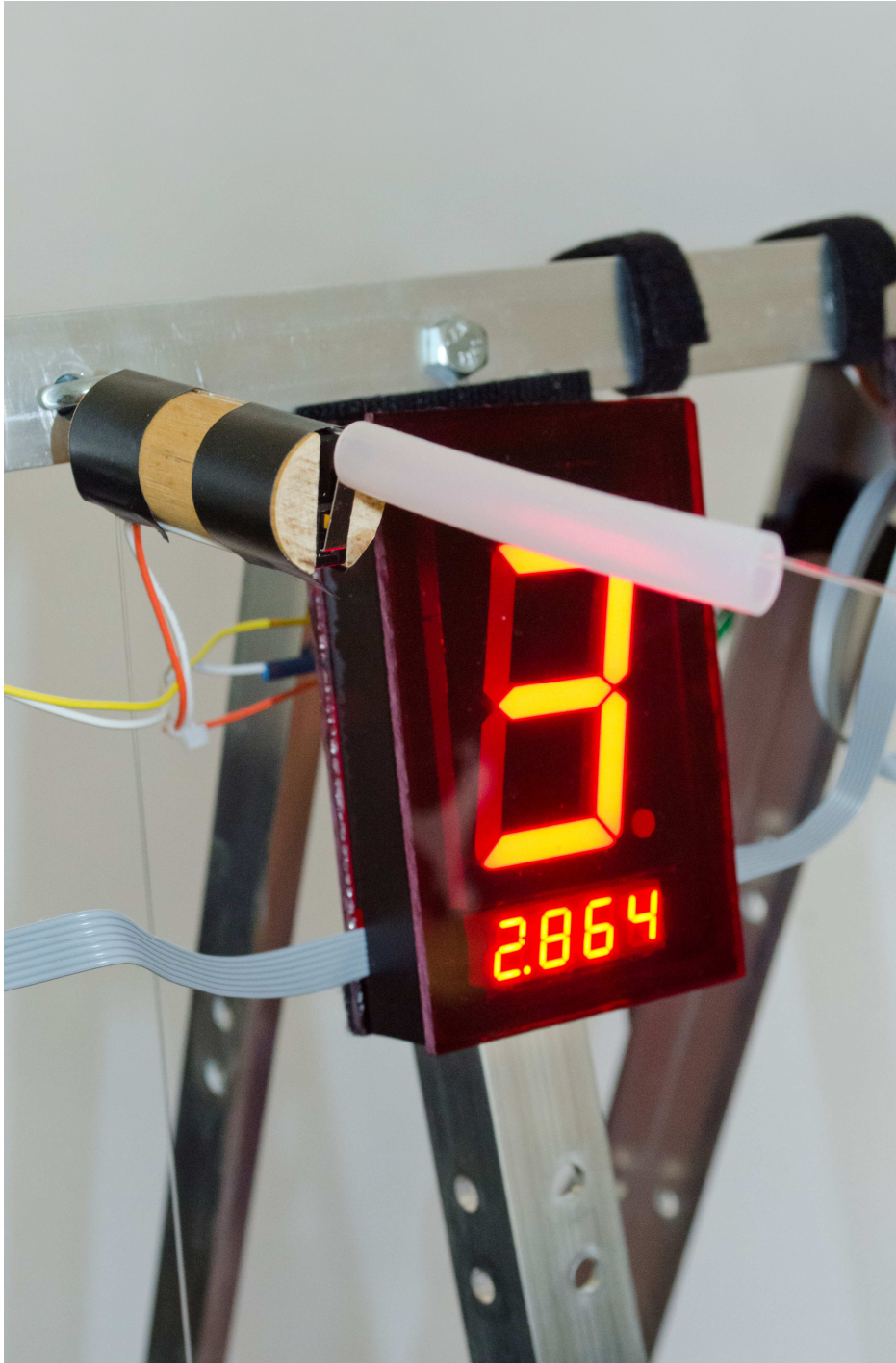
- 1- SmartLine Timer system unit.
- 2- 1 – 8 displays.
- 3- AC power adapter.
- 4- Serial cable attached to SmartLine Timer.
- 5- Reset/Start gate switch included on 35' - 55' cable

Follow these easy steps to complete the installation:

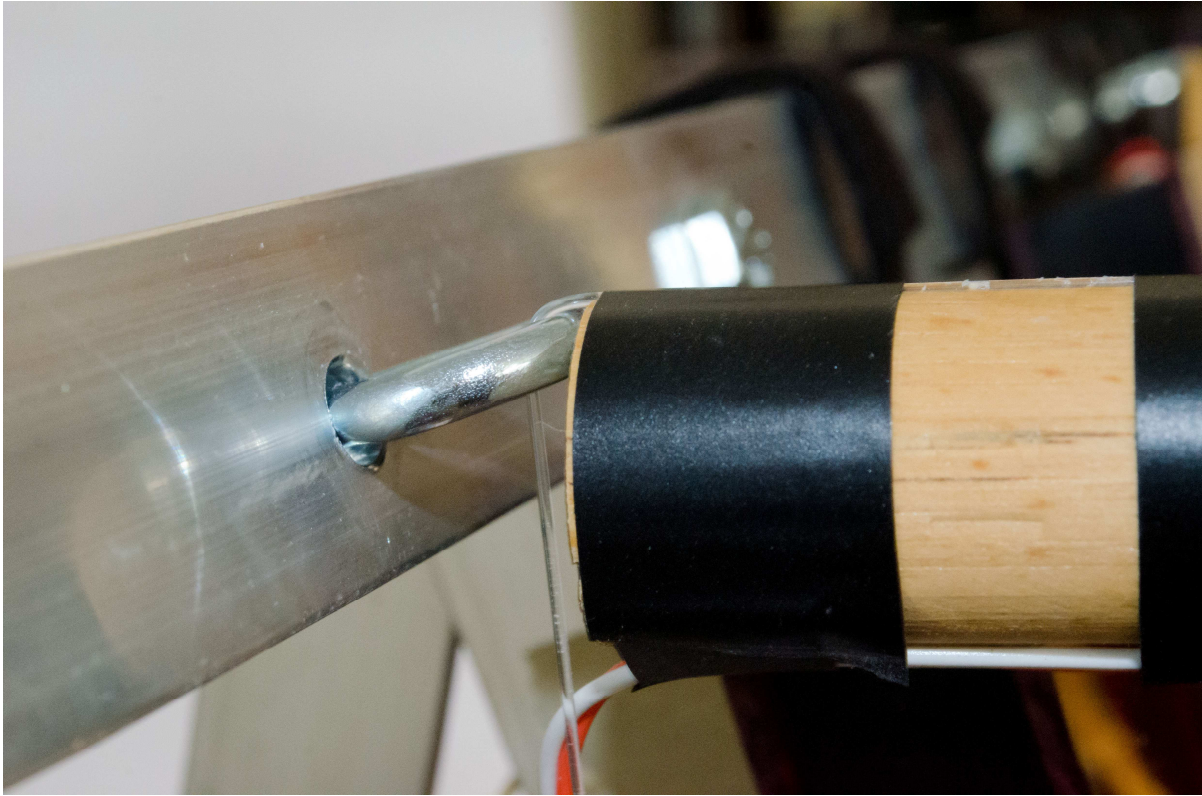
1. Plug the **Display** connector into the socket on the leg of the timer as indicated on the chart below. This socket is keyed so that it can only be inserted in one direction. A RED paint mark helps to align them correctly. Note: The displays are attached with Velcro pads. This allows the displays to be moved to another finish line frame without having to buy another set of displays.
2. Plug the **Start /Reset** button cable into the leg of the timer.
3. Plug the **9-pin Serial Com** cable into the SmartLine Finish Line and a serial (COM) port on your PC. You may also use a USB to Serial cable if needed.
4. Plug the **Power** cable into the socket of the SmartLine Finish Line Timer.
5. Using the AC adapter, plug the SmartLine Finish Line Timer into a source of power. We use a 12V 500mA or more Center positive power supply.



Additional pictures to help you.



The displays are mounted directly on the front of the frame in these pictures. The best way to mount them is over the frame with a panel.



We are always striving to improve our products. If you have any comments or questions, please email us. Send any pictures, comments or suggestions to nfritz@etekgadget.com. We appreciate any input you can provide.

Thank you!

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