

Timestopper Model TS300

Installation and Operations Manual

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Unit Installation

The complete Timestopper Model TS300 is shown in Figure No. 1. The major components are as follows:

- A. **Electronics enclosure and Stop sensors.** The unit may have 2, 3 or 4 stop sensors to time 2, 3 or 4 lane races.
- B. **Start Gate Sensor and cable**
- C. **RS-232 Interface Cable**

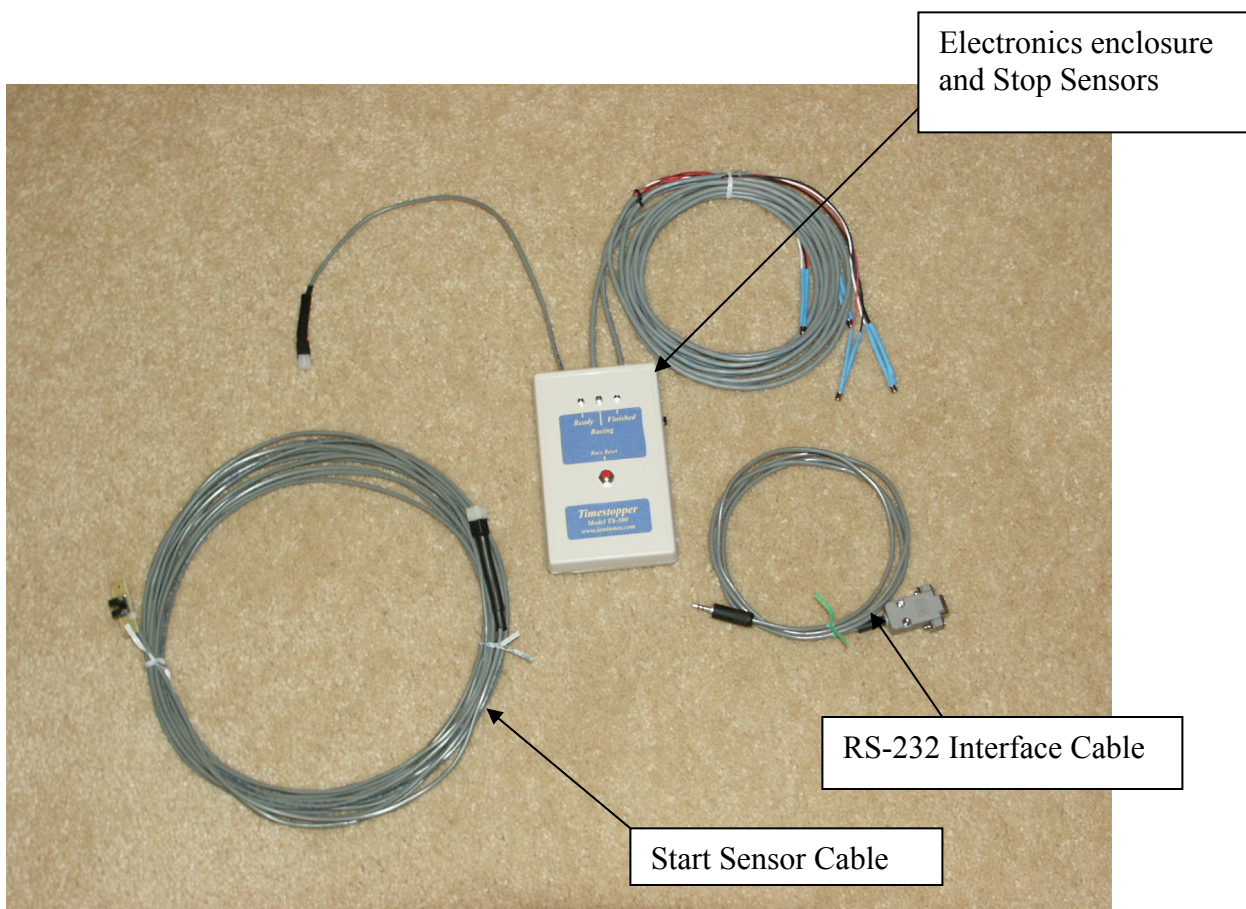


Figure No. 1
Timestopper Model TS300 Components

Sensor installation

Install the Start Gate Sensor and Photo-transistor Finish Line sensors on your race track using the instructions and drawings found at the Internet web-page with address www.iawinner.com and clicking on the link to “TS300 documentation” found next to the TS300 ordering information, and then on the subsequent link to “Inspection and Detailed Installation Drawings of TS300 Start and Finish Sensors”.

Battery Installation

Slide the battery compartment cover open and install a 9 volt battery. If the unit will be used for several hours during a Pinewood Derby competition, install a new battery so the races won't be interrupted and possibly not accurately time a race due to low battery voltage.

Computer Connection

The Timestopper Model TS300 requires a computer terminal to display race results and other information. Connect the Timer to the computer using the provided adapter cord. If the computer doesn't have a 9 pin RS-232 connector, a USB to RS-232 converter must be used. The data will be displayed using the terminal emulator HyperTerminal or an equivalent software package.

The Model TS300 has the following RS-232 parameters:

9600 baud
8 data bits
No parity bits
One stop bit

Timer Front Panel and Controls

Figure No. 2, below, shows a close view of the Model TS300 front panel with the major components identified. As indicated, the three front panel LEDs show the timer modes,

Ready	conditions are correct for timing a race
Run	race is being timed
Finished	race is over and results are available

Where power is first applied, three LEDs flash together to indicate the number of lanes that can be timed, two flashes -- two lanes, three flashes – three lanes and four flashes – four lanes. In addition, when the timer receives a reset command and the gates are in a race ready, the three LEDs will flash several times to indicate it is being reset in preparation for timing the next race.

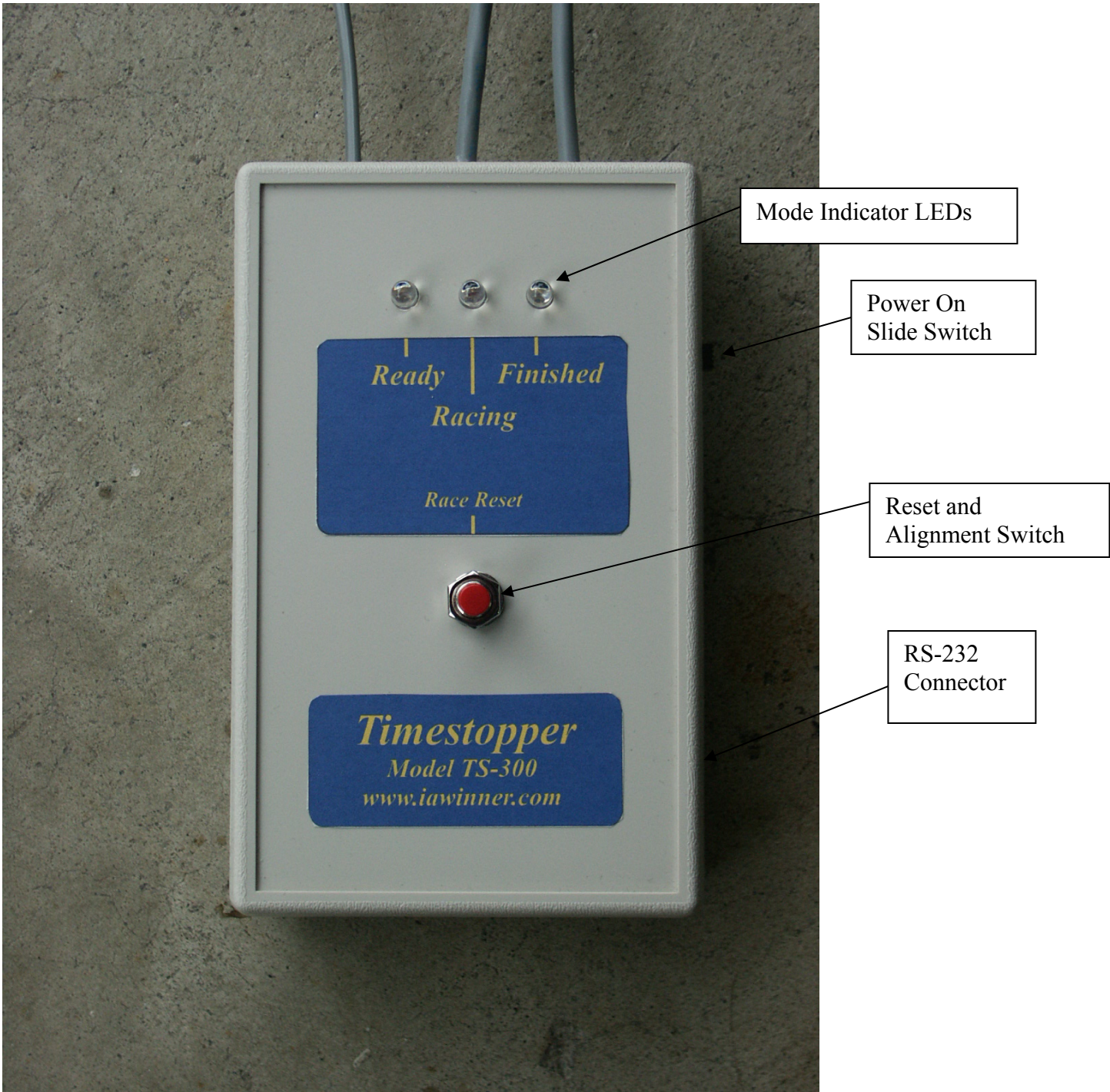


Figure No. 2 Model TS300 Front Panel

Alignment Mode

The alignment mode is used to adjust the over-head light and the photo-transistor sensors to give a positive response to the racer crossing the finish line. To activate the Alignment Mode, depress the Race Reset Switch and at the same time slide the Power Switch to the On (Up) position. The computer terminal display should be similar to that shown below in Figure No. 2. When in this mode, the all sensors are being constantly scanned and the display updated. This scanning is indicated by a dash which can be seen as it moves across the line showing the present state of each sensor.

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Software version 1.0 - 00				
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SENSOR ALIGNMENT PROCEDURE				
Start	Lanes			
	1	2	3	4
X	0	0	0	0

Figure No. 3

The X symbol in the Start position indicates that the Start Gate is not closed. This position should indicate an 0 when the Start Gate is closed and ready to start timing a race.

The Lanes position indicators will be 0 when fully illuminated by the overhead light. Block the beam using your finger or some other opaque material, the appropriate lane indicator should change to an X.

Adjust the height and positions of the light until all Lane indicators are 0. It may be necessary to check the positioning of the photo transistor sensors mounted in the track.

After proper adjustment is done, double check the setup by blocking the light reaching each individual photo transistor sensor and checking that lane indication changes from 0 to X to 0.

To exit the Alignment mode, turn timer Power switch to Off.

Race Mode

The Race Mode is selected when the Power Switch is turned to the On (slide to upper position) without holding down the Reset Switch.

When the Power is turned ON, the front panel LEDs will flash in unison and the number of flashes indicates the number of lanes that can be timed: i.e. 2 lane configuration flashes twice, 3 lane configuration flashes 3 times, and 4 lane configuration flashes four times. Along with the LED indication, the timer will output a start up message to the computer terminal. An example of this start up screen is shown in Figure No. 3. The first two lines indicate Timestopper model and software version. The third and fourth lines indicate the copyright information and company name. The fifth line indicates the number of active lanes and for this model this can be 2, 3 or 4 lanes. Following the sign on information, will be one or more messages indicating the track sensor conditions. Examples of these messages are shown in the figures below:

```
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Lanes 4

Timer Ready
```

Figure No. 4
System is ready to time a race

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Lanes 4

Check Start Gate
```

Figure No. 5
Start gate is open

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Lanes 4

Check Start Gate
Check Stop Gate Lane 2

Figure No. 6
Start gate is open
Lane 2 sensor is blocked 4

The possible messages depend upon the number of lanes and are as follows:

Two Lane Configuration

Timer Ready

Check Start Gate
Check Stop Gate Lane 1
Check Stop Gate Lane 2

Three Lane Configuration

Timer Ready

Check Start Gate
Check Stop Gate Lane 1
Check Stop Gate Lane 2
Check Stop Gate Lane 3

Four Lane Configuration

Timer Ready

Check Start Gate
Check Stop Gate Lane 1
Check Stop Gate Lane 2
Check Stop Gate Lane 3
Check Stop Gate Lane 4

A race cannot be timed unless the Start Gate is closed (bars up to hold the racing cars) and all Stop gates are illuminated by the overhead light. This condition will result in the Timer Ready message.

Computer Displayed Results

This section will show a typical race condition from power on through two races.

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Power On message

Lanes 4

Timer Configuration

Timer Ready

Timer is ready

Lane 1 1.819 Seconds First Place
Lane 3 2.996 Seconds Second Place
Lane 4 3.903 Seconds Third Place
Lane 2 5.052 Seconds Fourth Place

Results of first race

Timer Ready

*Timer reset
(Manual reset command)*

Lane 4 2.514 Seconds First Place
Lane 3 3.441 Seconds Second Place
Lane 2 4.182 Seconds Third Place
Lane 1 4.862 Seconds Fourth Place

Results of second race

After each race, the timer must be reset to clear the previous race data and setup the timer so it is ready to time the next race. This reset can be done by using the front panel RESET pushbutton and by using the keyboard "R" or "r".

Along with the race results, the computer can also be used to input commands to the Model TS300. The two support commands are as follows:

r or R	Unit reset, same as pressing the front panel switch
p or P	Reprints the race results
s or S	