

# *User's Guide*

## *TURBO Lite*

### *Pinecar Derby Timing System*



**Release 1.1**

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**NewBold Products, Atlanta GA**  
**[www.newboldproducts.com](http://www.newboldproducts.com)**

# 1. YOUR SHIPMENT

Thank you for purchasing the **TURBO Lite**, Derby Timing System. The **TURBO Lite** represents the ultimate in technology designed to enhance your race experience through a fair measurement for the racers and an exciting visual experience for the audience. Please take a few minutes to review this Manual to get the most from your equipment.

Your shipment includes a number of components that together form the complete system. Table 1 indicates the quantity of each component that is required for tracks from 1 to 8 Lanes. The quantities shown in Table 1 are the minimum quantity for a given number of lanes. Your order may include additional quantities and/or other items.

**Table 1. TURBO Lite Components**

Component		Number of Lanes							
		1	2	3	4	5	6	7	8
Timer Module w/ Sensor Interface Installed		1	1	1	1	1	1	1	1
IR Detector		1	2	3	4	5	6	7	8
Start Switch w/cable		1	1	1	1	1	1	1	1
15VDC Power Adapter		1	1	1	1	1	1	1	1
#2, 3/4 Inch Machine Screws		2	2	2	2	2	2	2	2

## 2. INSTALLATION

This section describes how to connect the **TURBO Lite** components and install the system on your track. Section 3 of the User's Guide provides instructions for how to test the system operation. Refer to Table 1 for pictures of the individual components referenced in the Installation steps provided here. Example pictures in this section are for a 4-Lane installation.

### Tools Required:

- (1) Drill with ¼" bit (2) Needle nose pliers (3) Tape or pencil to mark finish line

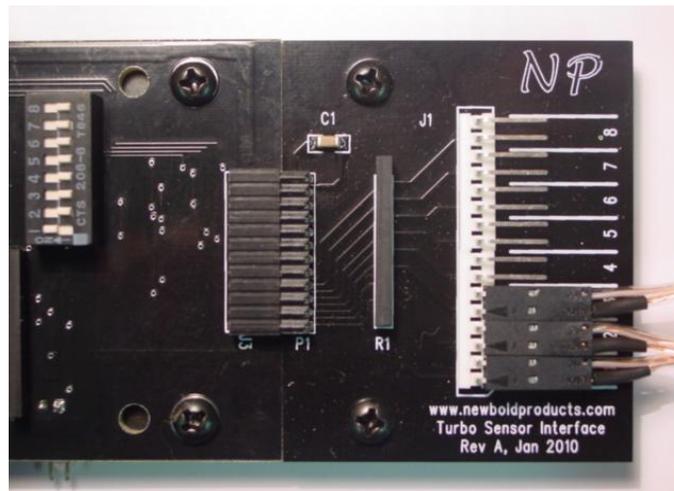
#### **Step 1 Install Stop Sensors into Finish Line**

- 1a. Determine where you want to position your finish line on the track.
- 1b. Use pencil, chalk line, or tape to mark across the track at the finish line. Mark the center of each lane with your pencil.
- 1c. Drill a ¼ Inch hole at each location marked in step 1b.

#### **Step 2 Connect Stop Sensors to Sensor Interface on Timer Module**

- 2a. Run Sensors through each ¼ Inch holes starting with the connector. Pull the cable through until the Sensor is flush with the track surface.
- 2b. Route the connectors for each Sensor underneath the track and to the side nearest to where the Timer Module will sit.
- 2c. Connect each Stop Sensor to the Sensor Interface on the Timer Module. Note that the connectors have a polarity and only connect to the Sensor Interface Card in one orientation. See the photo below and note the location of the wire marked with a black strip.

Note: Needle Nose pliers may be required to plug and unplug the Sensors.

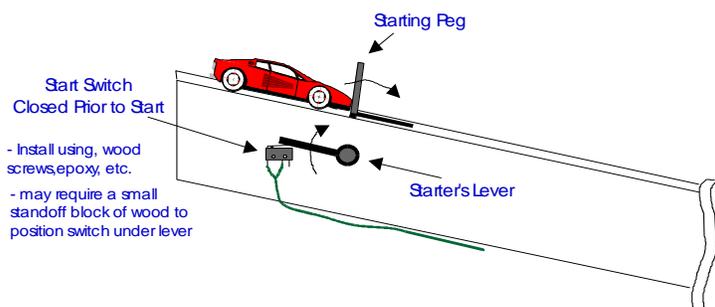


### Step 3 Install Start Switch

**3a.** Determine the best location to mount the start switch for your particular track and starting lever mechanism.

**3b.** Use the two, #2 machine screws to mount the start switch to your track. You may need to mount the switch to a smaller block of wood and mount that block to your track, to align the switch with the start lever or mechanism.

*Note: The exact installation is dependent on your track design. The switch should be installed so the **switch opens** when the starting lever of your track moves to start the race. Also be sure to move the lever quickly so that cars are not leaning on the Starting Peg as it moves forward. If you impede the car's progress with the Starting Peg, the elapsed times can vary from race to race, dependent on the speed at which the lever is moved.*



### Step 4 Connect Start Switch

Connect the Start Switch connector to the Timer Module connector labeled "ST".

### Step 5 Install an Incandescent Light Source

The Stop Sensors will require an overhead light source. We recommend using a standard incandescent light bulb. Normally a 60-100W light bulb is sufficient for every 3-4 lanes. A desk lamp with adjustable spring loaded arms works great and if possible use one with a reflector to focus the light down towards your track.

### Step 6 Connect Power Cable & PC Cable (if used)

**6a.** Connect the DB-9 PC Cable to the Timer Module at the connector labeled "RS-232".

**6b.** Connect the plug from the AC Adapter to the Timer Module at the connector labeled "15 VDC". This will turn the **TURBO Lite** on.



**Note 2:** Within the race software you can select “TURBO” or “DTX000” as the timer interface. Both timer families use the same communications protocol. You do not have to configure anything else on the serial port to use GPRM, DerbyMaster, Raceview or Racetender programs.

**Note 3:** If you are using the NewBold Products internal USB interface, you must install the driver software for the USB interface before you can communicate to the **TURBO** using USB. See the instructions located on the **USB Driver CD** for installation information.

If you are using the Windows operating system on your computer you likely have the terminal program “Hyper Terminal”. This program can be found under <Start>, <Programs>, <Accessories>, <Hyper Terminal>. Once you have started this program, go to <File>, <New Connection>. The program will prompt you for a name, you could call the session “**TURBO**” or whatever you prefer. After giving a name, you will have a phone number dialog box. From this dialog box edit the “Connect Using” box to say “Direct to Comx”. Where Comx is Com1, Com2, etc. The serial port for many PCs will be Com1, but this varies. After entering your Com port and <OK>, you will see a Comx Properties dialog box. At this box enter the connection properties as Bits per second = 1200, Data bits = 7, Parity = none, Stop bits = 2, Flow control = none. Once you have setup your session you can save it as “**TURBO**” or another name and each time you use the **TURBO** you can startup Hyper Terminal and simply load this file.

The data sent from the **TURBO Lite** to your PC will have the following format, assuming 4 Lanes are in use (shows 1<sup>st</sup> Place Lane #, 1<sup>st</sup> Place Time, 2<sup>nd</sup> Place Lane #, 2<sup>nd</sup> Place Time,.....):

```
TURBO NewBold Products
1 2.5455 2 2.9831 3 3.7745 4 3.8224
1 2.6790 3 3.1288 2 3.2092 4 3.5644
:
3 2.8820 1 3.5109 4 3.5134 2 3.6202
```

#### Running Test Races:

After power is applied to the **TURBO Lite** and Reset is pressed all of the LEDs will be cleared on the Timer Module. At this point the timer is ready to start a race. The Timer Module waits for the Start Switch to close and remain closed for at least 0.5 seconds. When the start switch opens, the timer begins counting the elapsed time and monitoring each lane for the finish event.

Once all lanes have finished OR 9.9999 seconds has elapsed, the race will conclude. Once the race concludes the timer sends the finish order and all times to the PC port and will display the elapsed time for either the winning lane or all lanes, depending on the configuration set using Switches 1 and 2 (see “Configuring the Elapsed Time Display” section above).

## **4. TROUBLESHOOTING**

Before racing, run multiple test runs to test all lanes and several finish order combinations. Make sure that the light source is sufficiently illuminated the Stop Sensors.

**Symptoms:** - timer gives very low times for one or more lanes or incorrect finish order  
or - when power is applied, not all lanes are found

**Cause:** -Stop Sensors are not receiving enough light

**Symptom:** - timer serial port connects to Hyperterminal, but will not connect to DerbyMaster or GrandPrix Race Manager.

**Cause:** - Comm port may be assigned to another serial port device such as a Palm Pilot. OR Hyperterminal may still be open. Make sure Hyperterminal is not running if you are using another software package such as DerbyMaster or GrandPrix Race Manager.

- Symptom:** - One or more of the lanes is not found after the timer cycles the display from 0 to 9.  
**Cause:** - Stop Sensor may be plugged in with wrong polarity.

## 5. TECHNICAL SUPPORT

For technical support on your product, please use the following methods to reach the correct person to help you. NewBold Products does not provide technical support for Race Management software that we distribute for the companies listed below.

TURBO Hardware – questions on operation, installation and upgrades:

Contact: NewBold Products  
[support@newboldproducts.com](mailto:support@newboldproducts.com)  
www.newboldproducts.com  
1 (678) 812-4585

Grand Prix Race Manager Software – all questions on installation, operation etc.

Contact: Lisano Enterprises  
[info@grandprix-software-central.com](mailto:info@grandprix-software-central.com)  
www.grandprix-software-central.com  
1 (303) 362-1300

DerbyMaster Race Software – all questions on installation, operation etc.

Contact: Enterprising Ideas  
[support@enterprisingideas.com](mailto:support@enterprisingideas.com)  
www.enterprisingideas.com  
1 (972) 394-0381

## 6. ABOUT NEWBOLD PRODUCTS AND THE TURBO Lite

NewBold Products began designing and building pinewood derby timers in 1996. The first timer marketed was the DT1000. The DT8000 was our second PWD timer released in 1998 and provided a major increase in capability and performance. In 2001 we released DerbyTV, a direct interface to TV sets that allows the DTX000 family of timers to display race results directly to a standard TV. We began selling our top of the line product, The **TURBO** in 2005. Our most recent system is the **TURBO Lite**. As always, we built this system to be upgradeable and affordable. We hope you like it!

### TURBO FEATURES

- Timing resolution of 0.1 ms (.0001 sec)
- Maximum time measurement of 9.9999 seconds
- 5 Digit LED display on Timer Module, can display all elapsed times.
- Designed to fit tracks with any lane spacing or track length
- PC Interface, connects to any PC serial port, with 9 pin serial connector
- PC Interface can be used with virtually any PC and NO custom software is required
- PC can reset timer, by pressing space bar <SPACE> (PC sends 20h to **TURBO**)
- Accepts optional DerbyTV module to send finish order and times to TV
- User upgradeable to maximum of 8 lanes
- Factory upgradeable to provide built-in USB interface.
- Can be upgraded with Bridge and Lane Modules to become the full **TURBO system**.

## **7. Contacting NewBold Products, Warranty and Return Policy**

We would very much like to HEAR from YOU regarding the **TURBO Lite** and how you used it for your race event. Thanks for your input!

Send us email: [newboldproducts@gmail.com](mailto:newboldproducts@gmail.com) Preferred!  
Call us: (678) 812-4585 Fax: (815) 301-3426  
Mail: NewBold Products, 1200 Oakhaven Drive, Roswell, GA 30075

### **6- Year Parts & Labor Warranty**

NewBold Products provides a six-year warranty for all equipment, starting from date of purchase and covering parts and labor. The warranty period is 1 year for equipment used commercially such as in track and timer rental to other groups. If you believe your equipment needs warranty repair contact us to let us know the nature of the problem so that we can resolve it over the phone if possible. If the problem cannot be corrected over the phone we will request the equipment be returned to us for repair. The customer is responsible for shipping the product back to NewBold Products. NewBold Products will repair and return the equipment via Priority Mail or FedEx Ground. Faster shipping is available at actual cost and at the customer's expense. Warranty repairs are not applicable for modified or damaged equipment.

### **90 Day Return Policy**

If for any reason, you are not satisfied with your equipment purchase, you may return it within 90 days of purchase for a full refund (excluding shipping charges). Once equipment is received and inspected we will issue a refund. This return policy does not apply to any modified or damaged equipment.