User's Guide

DerbyStick™

Pinecar Derby
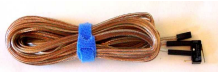## *Timing System*

Release 1.0

1/8/2012

NewBold Products, Atlanta GA
www.newboldproducts.com

1. YOUR SHIPMENT

Thank you for purchasing the *DerbyStick™* timing system. The **DerbyStick** is built using the same proven timing hardware architecture as in our prior DT8000, Turbo, and Turbo Lite systems. We have incorporated the latest technologies in electronic components and manufacturing techniques to dramatically reduce both the size and cost of the **DerbyStick**. Like all of our models this timer is designed to enhance your race experience through a fair measurement for the racers and an exciting visual experience for the audience when using a computer and projected display. 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 4 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. *DerbyStick* Components

Component		Number of Lanes			
		1	**2**	**3**	**4**
USB Timer		1	1	1	1
Stop Sensor *(default is 10 feet)*		1	2	3	4
Start Switch w/cable *(default is 40 feet)*		1	1	1	1
Documentation and USB Installation CD		1	1	1	1

2. INSTALLATION

DerbyStick is simple to install and use. The basic steps are as follows:

1. Install Stop Sensors at finish line.   (see 2.1)
2. Install Start Switch at Starting Gate (see 2.2)
3. Install Incandescent Light Source (see 2.3)
4. Install USB Driver and Test USB   (see 2.4)
5. Open Race Software or Terminal Program (see 2.5)
6. Begin Racing (see 2.6)

2.1 Install Stop Sensors

Refer to Table 1 for pictures of the individual components referenced in the Installation steps provided here.

Tools Required:

(1) Drill with ¼" bit   (2) Tape or pencil to mark finish line

Step 1   Drill Holes for Stop Sensors
1a. Use pencil, chalk line, or tape to mark across the track at the finish line. Mark the center of each lane with your pencil.
1b. Drill a ¼ Inch hole at each location marked in step 1b.

Step 2   Install Stop Sensors and Connect to *DerbyStick*
2a. Install Stop Sensors into each ¼ Inch hole. They can install most easily from below the track, but can also be installed from the top starting with the connector. Install so that the sensor is flush with the track surface or slightly recessed.
2b. Route the connectors for each Sensor underneath the track and to the side to where the Timer Module and Computer will sit.
2c. Connect each Stop Sensor to DerbyStick. Note that the connectors have a polarity and only connect to the timer in one orientation. See the photo below and note the wire marked with a black band.
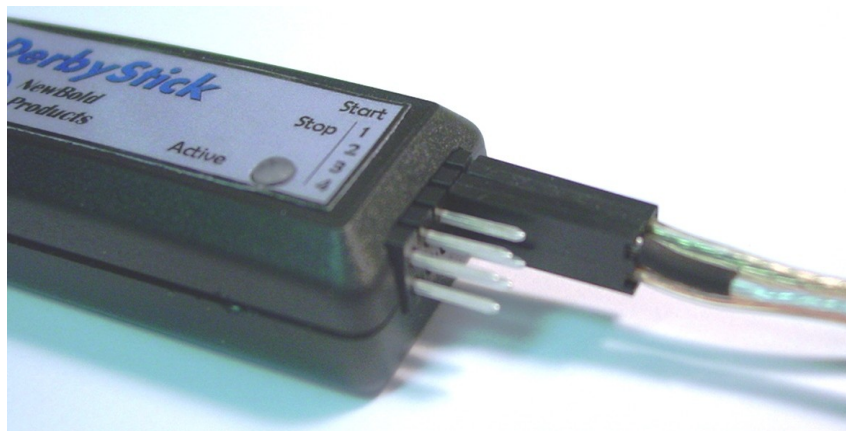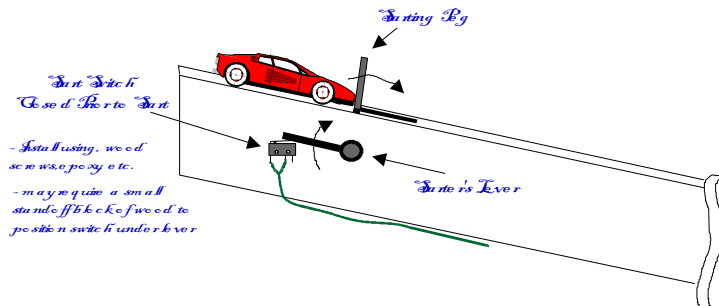
2.2 Install Start Switch

Step 1 Install Start Switch

1a. Determine the best location to mount the start switch for your particular track and starting lever mechanism.

1b. 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 2 Connect Start Switch

Connect the Start Switch connector to the **DerbyStick** connector labeled "Start".

2.3 Install Incandescent Light Source

The Stop Sensors 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.

2.4 Install USB Driver and Test USB

The CD that shipped with your timer has a folder within the DerbyStick folder for "USB Driver". There are also two readme files with screen captures for installations on Windows XP and Vista computers. Installation is also supported for Windows 7 with steps similar to that used for Vista. The USB interface on **DerbyStick** is also supported natively on most Linux distributions.

For Windows PCs, run the USB Installation program to install the USB driver. Once the USB driver installation completes plug in the USB Timer. On Windows computers you should hear a "chime" sound indicating that the USB device was recognized by the operating system. The driver will assign a "Comm" port number to the USB Timer. To find this assigned number look in your Windows Device Manager. Look under <Start>, <Control Panel>, <Systems>, <Hardware>, <Device Manager>.

In the Device Manager you should find a "Ports" line if the USB Timer was recognized by the System. Under Ports look for a Comm Port # Assigned to the new device. (You may see the device called out as Silicon Labs.) **This Comm Port # is what you will use when using the timer with Race Management software or a Terminal Program.**

2.5   Open Race Software or Terminal Program

If you plan to use race management software such as GrandPrix Race Manager, DerbyMaster, or RaceTender you need to start the program and select the NewBold Products timer as your hardware. Configure the software to use the same Comm Port found in the Device Manager (Section 2.4)

If you don't want to use Race Management software you can also use a terminal program such as Hyperterminal to receive and display race results from **DerbyStick**.

Note: Hyperterminal cannot run correctly if other race software is also in use. Only one program can connect to the DerbyStick Comm port at a time.

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>. If you do not have Hyperterminal on your PC you can download it from the Internet – see the link below for a website where you can download Hyperterminal.

Once you have started Hyperterminal (or other terminal program), go to <File>, <New Connection>. The program will prompt you for a name, you could call the session "**DerbyStick**" 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 "**DerbyStick**" or another name and each time you use the **DerbyStick** you can startup Hyper Terminal and simply load this file.

The data sent from the **DerbyStick** to your PC will have the following format, assuming 4 Lanes are in use (shows 1st Place Lane #, 1st Place Time, 2nd Place Lane #, 2nd Place Time,……):

DerbyStick4L v1.0 - 4 Lanes Found

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

Downloading Hyperterminal Software:

Hyperterminal is provided on the CD that came with **DerbyStick.**   To install just open the Hyperterminal folder and doubleclick on the "htpe63" icon and follow the instructions to complete the installation.

Hyperterminal can also be downloaded for free from one of the following websites. Or just Google "Hyperterminal" to find other sites that have it available for download.

http://download.cnet.com/HyperTerminal-Private-Edition/3000-2155_4-10966768.html

http://www.freedownloadscenter.com/Network_and_Internet/Terminals_and_Telnet_Clients/HyperTerminal_Private_Edition.html

2.6 Beginning to Race

After you have installed the stop sensors, start switch, and light source you are ready to perform the Initial Reset and then start racing.

Initial Reset (Done once only – after DerbyStick is plugged in)
When the DerbyStick is first plugged into the computer you need to wait a few seconds for the USB Driver to load (may hear a chime sound).   Then perform the Initial Reset by moving the Start Switch from Open to Closed and back to Open - holding the Switch Closed for at least 0.5 seconds to Reset the timer.   After this Reset the timer will do the following:

1. Check the sensor interface for connected stop sensors.
2. Send information to the PC about timer model and # of Lanes Connected
   for example: "DerbyStick4L v1.0 - 4 Lanes Found" would display on the computer for a 4 lane setup.

3. Flashes the "Active" LED – Once for each sensor found connected.   ***Note: If no lanes are found connected to the timer the Active LED will flash slowly until the timer is removed from the USB port and reinserted.***

Ready to Race
After the Initial Reset you are ready to race. Hold the Start Switch closed for at least 0.5 seconds. When the Start Switch opens the timer will begin timing the race – the "Active" LED will turn on while racing. When all cars have finished OR 9.8 seconds has elapsed the timer will stop and the "Active" LED will turn off.

Normal Resets
After the each race the timer needs to be Reset in order to run the next race.   Your Race Management software can Reset the timer for you if desired. If you are using a terminal program such as Hyperterminal, press the Space bar to Reset the timer.

3. 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.
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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
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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 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.
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Symptom: - One or more of the lanes is not found at the First Timer Reset.

Cause: - Stop Sensor may be plugged in with wrong polarity or not enough light is used.

4. 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.

DerbyStick Hardware – questions on operation, installation and upgrades:
>Contact: NewBold Products
>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
>www.grandprix-software-central.com
>1 (303) 362-1300

DerbyMaster Race Software – all questions on installation, operation etc.
>Contact: Enterprising Ideas
>support@enterprisingideas.com
>www.enterprisingideas.com
>1 (972) 394-0381

5. Contacting NewBold Products, Warranty and Return Policy

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

>Send us email: newboldproducts@gmail.com   Preferred!
>Mail: NewBold Products, 1200 Oakhaven Drive, Roswell, GA 30075

1- Year Parts & Labor Warranty

NewBold Products provides a one-year warranty for the *DerbyStick* system, starting from date of purchase and covering parts and labor.   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.