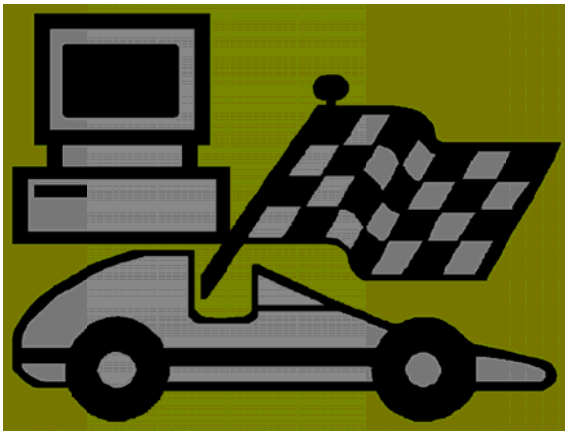

User’s Manual

SuperTimer Wireless
Pinewood Derby Timer

The most complete and most accurate
Race Timing System available

SuperTimer
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phone 800-654-2088
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This manual is available on the web at
http://www.supertimer.com

FCC ID:2AJXK-TIMER

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.

Introduction

1. System Overview.

• SuperTimer Wireless operates from a Win7 or later computer and provides timing to 0.0001 seconds for each lane. The results are spoken using your computer's speech circuit. During each announcement, a light blinks in the lane being announced. Speech and time options are available through settings in the RaceManager software. A racer-activated starting solenoid is also available.

• RaceManager is a Windows program that controls SuperTimer Wireless, manages the entire race and determines the winners. It requires a computer with a Windows 7 or later operating system and one available USB port.

• RaceManager has been designed for a standard 1280 x 720 screen size and defaults to that size when started. While it will work with other sizes, 1280 x 720 is the minimum recommended. While most screens expand by increasing space, the Race screen has been designed to expand using the maximum font for best projection. We recommend adjusting screen size to match your projector when one is used.

2. Terminology used in this manual.

• Heat: One or more cars running from start to finish.
• Period: All cars running exactly one heat.
• Set: As many periods as there are lanes, or when all cars have run once in each lane.

3. If you pass this on

If you pass this timing system on to another person, please have them check our website for the latest upgrades. http://www.supertimer.com/cdw

Organizing the Pinewood event.

This section has been placed early in this manual in the hope that you have ordered your SuperTimer Wireless early enough in the year that you will have time to read this and consider some of the recommendations included. There is no doubt that the use of SuperTimer Wireless can completely change the typical race day atmosphere.

Gone is the need for a judge with the eyes of Superman and the patience of Job. SuperTimer Wireless can be used to make the day much more of a Racer's day and closer to the ideal experience of a positive racer-parent-organization event.

We thank the many users who have been helpful in requesting changes in this manual and in the operation of SuperTimer Wireless and the RaceManager program. Their suggestions have been incorporated to help make your SuperTimer Wireless system including SuperTrack the most complete, most flexible and easiest to use system available.

Because the judging is un-contested, the complete race takes much less time than previously. You can expect about 2 minutes per heat (even faster if you're really organized.) If all cars run in all lanes once, the maximum number of heats is equal to the number of cars plus the number of lanes minus one. If you have more lanes, then each car runs more times, but the number of heats stays the same. Please read this paragraph again. It may not sound right, but the math is correct. You can also expect much less overall confusion and almost no re-runs. This extra time can be used a number of ways:

1. Involve the kids.

Let the racers place their car at the start. Other than car differences, the starting line placement (and having the car face forward!) is probably the most critical remaining difference in performance. While Racers have often been excluded from handling the cars, the controlled atmosphere provided by the SuperTimer/RaceManager allows a different approach. The pre-race schedule allows the racers to be called up ahead of time, take their car from the adult supervised “pit area,” place it at the start and then themselves at the finish line to watch their car run the track. Let the racer assigned to Lane 1 start the race! Each racer then returns their car to the “pit area.” The Racers stay alert for their name, are part of the action and get recognition when their cars run. They are part of the race, not merely watching the leaders. Order is easily maintained.

2. Have a parent’s race.

We all know that some racer’s cars are actually made by their parent. Now there is enough time to have a Parent Race. Let the parent place and recover their car too. Let a parent start the race! It’s great fun.

3. Have style competitions.

Originality, most colors, fastest looking, etc. Another way to have even more winners. Note, that pre-manufactured, very stylish cars are available from a number of sources. These cars often win style competitions when the judges are unaware of the opportunities available in this realm. Check your local hobby stores well before race day to see what’s available.

4. Raise money the painless way.

Schedule your race for Saturday at 11:00. Take a little more time between periods to print out the results so that the fund-raising food concession can do more business. While this is an easy way to raise money, it’s also a way to make the event more of a family affair.

5. Use the Team function.

RaceManager, using the same results that produce the overall winner, will also tell you, for example, the winner in each Den as well as the fastest Den. This Team function fosters cooperation instead of pure competition. It also makes for lots more winners and lots more happy racers.

6. Have a ‘trial’ night.

Nothing is more embarrassing to a youngster than having a car fail to reach the finish line in front of all their peers. Set up SuperTimer Wireless without the RaceManager and set it to announce the times for all lanes. Then let all the racers run, tweak and run again as often as they like. It’s lots of fun and Race Day will be that much better.

7. Special Note:

SuperTimer Wireless and RaceManager allow you to run your race your way. In fact, the possibilities exceed the space allowed in this User Manual. If you want to do something a little different, we suggest you use one or more of the three suggestions below:

a. Try it yourself ahead of time.

b. Check out www.supertimer.com, which has much more space to explain things including a free downloadable book on How to Run the Pinewood Derby.

c. Call us, we’re always happy to hear from you. If you want to do it, chances are so does someone else. If it can’t be done today, perhaps it can be done tomorrow.

Setting the Rules.

In the past the difficulties of judging, arguing over the calls, re-racing and paperwork have slowly changed the atmosphere of the race so that the rules were made with the goal of making the leader's job possible. SuperTimer Wireless with the RaceManager option allows rulemaking to enhance the experience for the racers.
Be sure that you have spelled out the rules (keep them simple) and repeat them before the race.

1. Lane jumping.

a. What happens if a car jumps its lane and goes off the track?
b. What happens if a car jumps its lane and hits another car?
If you decide that in either of the above conditions you will re-run the cars, RaceManager will allow you to do so either before you accept the results or after. See the Race and Re-race Tab options.

2. Weight.

The standard rule is 5 ounces. How accurate and precise is the scale you will use? What happens a weigh-in time if the car is over/under weight? Can it be fixed, how many tries, how close is close enough? Be sure you have a precision scale, not a cooking scale.

3. Lubrication.

Graphite is usually used. Will the cars be lubed at check in, by whom, after each heat or not? In general, graphite works better after the excess is gone. Some places forbid it because of the mess it can make on carpets and floors.

4. Wheels.

Can they be sanded, or lathe centered or given a knife edge? Who will inspect them? Will you specify a manufacturer for wheels as well as cars? Will you allow the 'special' ones available from the web?

5. Axles.

Can they be polished or plated? It's almost impossible to check for this, but it makes a difference.

6. Shape.

The wooden block limits length and width and height is generally lowered to reduce air drag. However, ground clearance (usually guide rail clearance) is often a problem because the weight can be put on the bottom to lower the center of gravity. A wooden box can check length and width. Check bottom clearance at the sharpest curved part of the track to be sure that the bumpers don't rub.

7. Wheelbase.

Slots in the standard block normally fix the distance between the back and front axles. Increasing this distance can help the car go faster. Will your rules allow it?

8. Philosophy.

Just because some trick is perceived to make a car go faster doesn't mean the car will actually go faster. This author believes in two ideas. Keep the rules few and simple. Require that the winning racer (and parent) conduct a seminar for all other racers (and parents) detailing just what they did to make a winning car. Let the racers learn that creativity can be rewarding instead of learning that bureaucracy can be tedious and inhibiting and that cheating is the way to beat it. "Innovate, don't legislate."

Installing the RaceManager software in your computer.

You must have a Windows 7 or later computer and an available USB port. It is assumed that you are familiar with the basic operation of Windows programs. If you are not, please ask your child.

Place the RaceManager CD-ROM in your CD-ROM drive. It should start and run automatically. The menu will allow you to install RaceManager as well as view this manual, the SuperTrack video, review the Parts lists and other documents. If you don't have a CD drive, you can download the installation software from http://www.supertimer.com/cdw.

Lots more information is available in the GettingStart.rtf file which is available on the CD and online.

Installing SuperTimer Wireless.

1. Installing the Start Gate assembly in a conventional WOODEN track.

NOTE: If you are using SuperTrack, please ignore this information and watch the 5 minute video.

See http://www.supertimer.com/pinewood/TechSupport.html or http://www.supertimer.com/track/supertrack.html for example pictures on many different tracks. (Some examples are for previous versions of SuperTimer or of SuperTrack.)

These instructions assume a 'conventional' track.
A. Be sure that a small space exists between the top of the start bar and the bottom of the track. Interference here will put great side pressure on the solenoid plunger and may prevent it from retracting. Paper thickness is enough space.

B. Support the Start section of the track so that the start gate can be closed and the track can be worked on with the racing surface facing the floor.

C. Using the drawings as a reference, mark and drill a ¼" hole in the starting bar, 1" deep. Be sure the hole clears the lane dowel and that the adjacent lane dowel will clear the back of the solenoid board. Insert the blue rod in the hole, sharp edge toward the underside of the track. If it's loose, don't glue it, use a shim (e.g. a piece of paper).

D. Place the solenoid board so that the fully retracted plunger JUST clears the flat edge of the blue rod. Mark the holes for the solenoid board and screw it in place using two #4 x ½" wood screws. The slots in the solenoid board allow some adjustment. Close the gate so that the blue rod is above the plunger. When it is the plunger should spring out. If the plunger will not clear the blue rod, move the plunger higher by adding the provided blue spacer or additional spacers as needed under the solenoid board.

Pulling the plunger out too far will make it weaker and potentially cause intermittent operation. When testing, the LED marked Solenoid will light when the Solenoid is energized.

E. Drill a ¼" hole, ½" deep, directly opposite the magnetic sensor on the solenoid board. Push the magnet into the hole. This magnet/sensor combination detects the start gate position and starts the timer when the gate drops.

The additional hardware in the Start Assembly bag may be used at the finish line.

Running SuperTimer Wireless.

1. Connect the Pinewood Derby Timer.

Full operation of SuperTimer Wireless requires a computer with at least a Windows 7 operating system and one USB port with the Pinewood Derby Timer connected. If the Pinewood Derby Timer will not fit directly, use the short extension cord provided or any USB extension cord. Be sure RaceManager is installed and running.

2. Modes.

In addition to the Test Mode which is available with just the Start Board and Finish Board, other Modes become available once RaceManager is started.

- Test Mode
  This mode exists whenever RaceManager is off or whenever the RaceManager “Monitor” tab has been selected and remains until the RaceManager “Race” tab is selected.

- Standby
  This mode exists whenever the RaceManager “Race” tab is selected and remains until the RaceManager “Monitor” tab is selected or the Modes below occur as a result of additional events.

- Ready
  This mode occurs only in the “Race” screen if Heats have been created by selecting Create Heat Order, then Run Heat has been selectedand the Ready switch on the Start Board has been pressed and held by the starting gate operator. SuperTimer is now awaiting the drop of the starting gate. If the Ready switch is released or Click to Pause Heat or any other Tab is selected, SuperTimer will return to Standby or Test Mode as appropriate.

- Racing
  This mode occurs when the starting gate drops and continues until the end of the heat or until Cancel Heat is selected. Cancel Heat returns to Standby. The heat ends automatically whenever all the cars have crossed or the time out time occurs whichever comes first.

- Reporting
  This mode immediately follows a completed heat. The results are displayed and announced. The results may be partiallyor completely accepted. Once accepted, SuperTimer returns to the Standby mode.

Using RaceManager.

3. Using RaceManager

To install RaceManager, see Page 8. The Setup program will place a SuperTimer icon on your desktop. Simply double-click the icon to start the program. A ‘splash screen’ that shows the program revision number will appear as the main program loads. This screen can be seen again by clicking on ‘About’. RaceManager opens a blank dataset named “Pinewood” or the dataset you were last using. You can create separate datasets with File/Open and switch between them at almost any time.

2. Connecting to SuperTimer Wireless.

During startup, the program will also test to see if it can find SuperTimer Wireless. Four blocks along the bottom of the page will show the current Mode, the presence of the Start and Finish Boards as well as the Battery condition in the Finish Board. Error conditions are noted and audible alarms sounded as necessary. The alarms may be muted in the Setup Screen. All modules are required to run a race but even without any modules racer data may be entered and saved.

The File-MiscMenu

1. File-Misc Open existing or Create new race.

You may pick your data from the files listed or simply enter your desired new file name into the box labeled “File Name”. The length of the name you choose is limited to 8 characters because it is used in displays and reports. Folders and extensions are ignored. Clicking on an existing name is the usual way to switch between TOTALLY SEPARATE GROUPS RACING TOTALLY SEPARATE RACES. It is more commonly used to allow you to enter the racers ahead of time and then select that dataset when the program starts.

You can use the data-naming feature to separate groups for racing on the same or separate days. Avoid creating lots of small groups as this defeats the advantages provided by the speed matching software. Mostorganizations race everyone together and use the group results to provide separate winners in each group.

2. File-Misc Import Racer Data (.txt) to this race.

Use this to import Racer names and teams from Pack Administration software. The imported file must be comma delimited text in a .txt or .csv file in first name, last name, group1, group2, group3,misc, car# order. Fields may be blank. Car Numbers may be specified or will auto-increment from the previous number. One racer per line. Unused fields may be omitted but must have their comma. Single, double or no quotes are acceptable. Example: John,Doe,’135’,,”BEAR”

3. File-Misc Save Current Data.

This selection does absolutely nothing. All current data is automatically saved whenever it is created.

4. File-Misc Save as (make a second copy).

Allows you to save the current data set under a new name. RaceManager will continue with the new name leaving the original data set stored and unchanged.

5. File-Misc Start Over - clear ALL heats - leave racers..

Removes all heat and team results while leaving intact the basic racer information. This choice only appears if heat data exists. It is usually used to clear test heats before an actual race or to clear last year's heat datafrom a copy used this year with many of the same racers.

6. File-Misc Clear this Period only.

Identical to Start Over, but only for the current period or current Heat Schedule.

7. File-Misc Repair/Recalculate current data.

While unlikely to be needed, this function re-indexes all data tables and regenerates the team and racer averages and positions. It is called automatically the first time a racers' team assignment is changed after heat data exists. You must select it manually if further team assignments are changed.

8. File-Misc Join two sets of race data.

Joins the results from two or more separate races. Results with unique car numbers will produce one large race. Non-unique car numbers (Father/son raced separately but had the same car number), will be merged by number to reveal the pair results. Team data must also match or not be used.

9. File-Misc Delete old races.

Allows you to easily remove all the files used by the dataset name you entered. You cannot delete "Pinewood" or the currently active dataset. Pinewood will become the active dataset when you complete the Delete Filesoperation

10. File-Misc Create text logs (racers/heats).

Turns on or off text logs of the racer and heat information which can be used by knowledgeable persons on anetwork computer for special purposes. The program is faster if Create Text Log is left off. The logs may beviewed with any text editor.

11. File-Misc Exit RaceManager..

You may exit the program at virtually any time. If exit occurs during a heat, that heat will be the only data lostand the heat will be re-scheduled as the first heat when you re-enter the program. This includes the possibility of a crash caused by computer malfunction or power failure.

12. Data from 2nd Computer.

If you wish to create a dataset on one computer and race on a different computer, you will need to install theRaceManager software on the second computer. And, when you are done copy ALL files (9) that begin withyour selected name to the race computer. Be sure all nine files go in the C:\SuperTimer Wireless folder.

WARNING - Reading the individual data files over a network by knowledgeable programmers is permitted. Writing is likely to cause major problems. Neither is well documented nor supported. Use the .txt files.

About Menu

Selecting About will show a screen with the FCC statement as well as the Revision number of RaceManager (currently 3.00), the Revision number of the SuperTimer Wireless firmware (currently 3.00), the number of Lanes purchased and the current Wireless Channel (usually 6). Note, other channels are available if more than one SuperTimer Wireless system is used in one location at the same time, call us.

Getting Started

Selecting Getting Started will bring up a useful checklist, especially for new users, to turn the system on.

The Setup Tab

The Setup Tab is always active at the beginning of the RaceManager program and when changing datasets.The choices on this screen are saved with the current data set.

1. Announcement Style

RaceManager allows five choices of announcement as shown in the examples below for three lanes. (P) indicates a pause.

Lanes in Finish order only:
"Winner Lane 2 (P) Second Lane 1 (P) Third Lane 3"

Lanes and Winner Time
"Winner Lane 2, Time 2.3456 Seconds, Second Lane 1 (P), Third Lane 3 (P)"

Lanes and all Times
"Winner Lane 2, Time 2.3456 Seconds, Second Lane 1, Time 2.4567 Seconds Third Lane 3, Time 2.6789 Seconds"

Lanes and Differences
"Winner Lane 2, Time 2.3456 Seconds, Second Lane 1, Difference .1111 Seconds, Third Lane 3, Difference .1111 Seconds"

No Announcements
""

Audio Test speaks all possible words and phrases. It can be usedto adjust speaker volume.

2. Time Select

Allows precise control of Heat End Time and Tie Time. Click on the arrows to adjust thetimes. End time is used to end the race if an expected car does not finish in its lane. It should be at least as long as the slowest car. Tie time sets the difference limit for two cars to be called "Tied". All times are kept in full precision for recording and calculating purposes.

3. Category Names

Allows you to customize the names of groups for your particular organization. Each racer can be individually assigned to each group. While the racers all run together, the results are available based on these groups.

In the simplest implementation this would allow for one group (e.g. Dens) to produce the winners in each Den and the Dens in speed order as well. This Team competition can be very useful in producing more winners. A slow car on a winning team still gets bragging rights. To change a name, simply click on the old name and type the new one. The new name will appear on all reports and screens where needed. Because of report size limitations the length of the name you choose is limited to 8 characters.

However, because of proportional letter spacing some 8-character names, for example "AMERICAN", will appear with the ends truncated in some locations. Using at least some lower case letters, for example "American" easily solves this.

4. Lanes Used

Shows the Lanes purchased and the Lanes that will actually be scheduled. It allows you to shut down a lane if it is particularly rough. In the absence of a connection to SuperTimer Wireless or when racing has started, a message appears and the lanes used choice is unavailable. A lane that becomes defective during a race can be eliminated from final judging for all cars by using the Clear All Lane Results choice within the Re-Race tab.

5. Show Help when mouse over selection

If checked, then when the mouse pointer is paused over a selection or other screen area detailed information about that selection or area will be displayed for five seconds. This can be very helpful to your initial understanding of the RaceManager software. However, once you are familiar with the software it may become annoying. If you un-check the selection the help hints will not appear. In addition, your choice of checked or un-checked is remembered when you leave the program and re-established when you begin the program again.

6. Mute Warning Tones

If not checked, then the absence of a module or the presence of a weak Finish Board battery will be signaled audibly. Checking this selection will mute the warning. Your choice is not remembered and always defaults to unchecked when RaceManager begins.

The Entries Tab.

This screen is used to enter the racers. A Car number and First name are required. Car number may be entered (e.g. 12) or RaceManager will find the lowest available number greater than the last viewed record and assign it. If you enter the number and it exists, you will view that record. If you change a number to 0, it will be re-assigned to the lowest available number greater than 0, Same for 100, 200,etc to lowest greater than 100, 200, etc.

You can also import racer names from most Pack Administration programs that output “comma delimited text”. See File-Misc Import Racer Data on page 13.

Moving between fields may be done with <Tab> (the Windows standard) or with <Enter> (the typist standard).Entering a period in front of the first name (e.g. .John) will allow the racer to race but not appear in or affect the scoring overall or of their team. This is used when the car doesn’t meet the rules for reasons not associated with the racer. The racer will appear in non-time order reports but without time or position and will not appear in time order report. They cannot set a record but are included in lane balance calculations.

There are three ways to start a new record:

1. Hit <Tab> or <Enter> from the Miscellaneous field. This method requires confirmation. If not confirmed, then the next record will be shown instead.
2. Click on Add from any field.
3. Hit the Down Arrow from any Group field. This is especially helpful in creating many entries quickly.

A name entered in any group automatically creates a team within that group. Previous Group information isrepeated in the new record. Team names may be selected from a drop down list.

You can enter data ahead of time and simply un-click ‘Running’ if the racer does not appear on race day. Youcan re-click ‘Running’ if they appear later and their heats will be made up automatically. ‘Running’ is repeated for the next racer added. Double click on either ‘Running’ will allow you to set all racers as running or not running.

First, Previous, Next and Last allow you to browse the racer data. Delete is used to PERMANENTLY erase aracer’s record, consider using 'running' instead.

The Car#/Name/Time choice selects the order in which entries appear on this screen. Car# is moreuseful when entering data. Name can be helpful when trying to find a particular racer. Time shows cars in speed order and can be a useful way to eliminate cars that “don’t make the cut.” (Generally not a good thing.) Note that cars that have not run have a time zero and appear first on this listing. However, the slowest running cars can be found by clicking LAST and then PREV.

The Race Tab.

The most likely next choice is Race. There are two large buttons that appear immediately although they may not be accessible. Near the buttons are displayed the set, period, heat, the number of cars scheduled to race, the number of cars that have already raced in this period and the total number of cars running. At different points during the race some of these numbers may be blank because they are unknown.

1. Create Heat Order

Usually, you will select Create Heat Order (AFTER you've entered all the Cars) and a report will appear which you can print. You will probably want to print several copies, one for the pit area, one for the computer operator and, most important, one for the announcer who will call the racers to the pit area a heat or two ahead of time. If you leave before printing and want more copies, check the Reports Tab. In the absence of a connection to SuperTimer Wireless you will be unable to create a Race Order since the routine must know the number of lanes.

Racing order changes depending on the period. In the first period, the cars are assigned in increasing car number order. After the first period, the cars are assigned in reverse speed order, changing lanes to a lane that is available and has not been used by that car. Thus all cars will run in all lanes and will be racing similarspeed cars after the first period. And, the fastest cars will run last. The winner is the car with the fastestaverage time, but may not be the car that wins the last heat. A less than full track will result when thenumber of cars is not evenly divisible by the number of lanes. Empty lanes occur only with the slowest cars. The RaceManager virtually always prevents a car from running alone.

2. Run/Pause Heat

Once you have the Heat Order, simply click on Run Heat, which is now available. The lanes, car numbers andracers names for the next heat will be listed, the Run Heat button will change to "Click to Pause Heat". If or when the Starter is ready, the Green Led on SuperTimer Wireless will light and the speakers will say, "Ready!" Run and 'Pause' Heat are the equivalent of pushing/releasing the Ready switch at the Start. Run Heat must be clicked and the Ready switch held for "Ready" to be announced.

An 'On Deck' list and the current record speed will appear on the bottom of the screen.

3. Racing

A racer pushes the Big Green Button, the solenoid fires or the Gate operator releases the solenoid to start a heat. For convenience during testing, the solenoid may be fired from the Race screen but the Big Green Button is preferred to enhance the experience of the racers. The actual method of releasing the start gate is irrelevant to the timing. The start is detected by the small black magnetic sensor on the edge of the Start Board. During the race the Green Led on the Finish Board changes from solid on to fast blink. When the cars have crossed, or when the time has expired (whichever happens first) SuperTimer Wireless starts announcing and flashing Lane Leds and the results appear on the screen with Position, Lane number, Car number, Racer name, Time and Time difference.

If the winner time is a new record, then "RECORD" will appear in the difference column and "A NEW RECORD" will be announced. If the difference between cars is within the tie time, then TIE will appear instead of the next position and "Tied for" will be announced.

4. After Race

You can then choose from a new set of two buttons.

1. Re-Race Some – used if there was a problem such as a car jumped the track or was in the wrong lane.
2. Accept All –The results are permanently stored. Prior to pushing this button the results are “unofficial”.

Once you have accepted the results, the screen reverts to the pre-race Standby mode. Clicking on Run Heat will start the Heat process again. If you select Re-Race Some a screen will appear allowing you to accept or re-race each car on an individual basis. If you inadvertently accept a faulty heat, you can use the Re-Race tab immediately or later.

Heats are usually run until the period is over. However, you may exit before the period is over if you wish andwhen you return, you will return to the point where you left off. WARNING, if you had unaccepted results in view when you left, those results are lost and that heat must be re-run. A warning message will appear to help you avoid this problem.

When the Period (and when the Set) is over, a message will appear on the screen informing you and suggesting you print the results to this point. We highly recommend this and the program will automatically jump to the Reports Screen to help you do it.

Since the program runs slow cars against slow cars it is quite possible for a car to win many of its heats andstill be way down the list of finishers. If you don’t announce the results along the way, a racer who has won his heats but has a slow car may think he’s the overall winner. (It HAS happened!)

Most users stop when the SET is over, that is the time when all cars have raced in all lanes. The most common exception is users with only two lanes. The next most common exception is users with very few racers. Note: The screen will turn blue and the computer speaker beep when the End of Set warning message appears.

The Reports Tab.

There are eight separate report possibilities and two summary lines printed on the bottom of the screen.

The reports are:

1. All the racers in Car Number order, useful for the pit area.
2. All the racers in Name order, useful for check in.
   Note: In Car Number and Name order lists, Cars that are not running have their numbers shifted left and a minus sign placed in front (e.g. -32) so they are easily identified.
3. Print Schedule, in case you didn't print enough copies.
4. Results by Group using your name. Each team is listed separately in team speed order, that is the fastest average team comes out first, the second – second, etc. with team members in speed order within each team. In addition, a 'TEAMWORK AWARD' appears in the heading of the team with the smallest difference between their first and last place team members indicating the team that most probably did the best job of sharing expertise.
5. Detail shows all cars in time order and every heat they ran with the lane used and the time in that lane. It also shows their place and average time. These individual lane results are in the order that the racer ran the lanes.
6. Speed is a condensed report of all the cars in time order

The summary lines are:

1. Lane Average – a listing of each lane used and what the average of all the runs in that lane. This information can help ease concerns about a slow or fast lane and help track maintenance even though all cars run in all lanes.
2. Record - The current record time with the car number and racer name (also shown on the Race screen). The speed ranking counts cars with more heats as automatically faster than cars with fewer heats. Thus, for instance, a car with the record speed that ran only one heat and then broke would finish very near the end, but ahead of those cars with only one heat or cars that never finished.Within any report a 'Place' with an '*' or the word 'Tie' indicates a tie exists for that place. Tie indicates that the results are within the Tie Time specified on the Setup screen. All results are maintained to full precision. Re-sizing, Saving (in several different formats) and Printing of Reports are done from the report using standard Windows icons." Once you've seen it you will understand.

Any of the Reports may be saved to disk in one of five formats by clicking on the 'disk' icon:

1. .QRP – The normal style, used only within the RaceManager.
2. .HTM – Web page style but appearance depends on screen size and it's difficult to edit or change.
3. .TXT – Plain ASCWireless text, the most universal.
4. .RTF – Rich Text Format, ASCWireless with fonts, colors, etc. Editable.
5. .XLS - Excel spreadsheet but it will need work to remove the extra text.
6. .PDF – Probably the most useful, especially for web publishing.

In addition there are two Printer buttons.

1. Fast Printer – prints gray or colored bands to improve report readability.
   Slow Printer – eliminates the bands to improve speed for older, slower printers.
2. Team per Page
   Yes – separates each team when teams have lots of members.
   No – saves paper when teams have few members.

The Re-Race Tab.

This is the ‘oops’ button. If you inadvertently accepted the results of a heat with a problem or didn’t find out about the problem until later, this screen allows you to fix it. Simply enter the car number(s) and lane(s) that need to be fixed and click on ReRace Car. For clarity the racer information is provided once you enter a car number and numerous traps prevent possible errors.

1. ReRace Car

Pressing this button will cause the existing results for that car and heat to be erased and a Heat to be added at the end of the current period or a new heat schedule will be created if the period is over. Multiple cars can be re-raced in this mode and the minimum number of heats will be created. That is, if two or more cars need to be re-raced and they use different lanes, only one heat will be created. This is one of the few places where it is possible for a car to run alone since there may be only one car to re-race or the cars to be re-raced all had problems in the same lane. See Clear Result Only below for more options with a bad lane.

2. Show All Heats

This is the equivalent of Schedule in the Report Screen. It will show all the scheduled heats remaining to be run. This allows you to check your work from this screen to be sure you have handled all the possible issues.

3. Clear All Lane __ Results

In the rare event that a lane or a sensor went bad during a race, this button can be used to eliminate all results for that lane. It cannot be undone. Once you exit the ReRace screen, all results will be recalculated with the removed lane eliminated from the calculation.

The Monitor Tab.

This visual and specific indication of all SuperTimer Wireless functions. By definition, SuperTimer Wireless is now in the Test Mode and will remain in the Test Mode until the Race tab is selected.

1. Signal Strength and Quality

The meters show both signal strength and quality from the Master Module to and from both the Start Board and Finish Board. No direct communication occurs between the Start and Finish Boards so no meters are shown for that function. Good communication requires both a strong signal and good quality since a strong signal alone could be from an interfering source. The modules communicate about 15 times per second under most circumstances with repetitive data and secure acknowledgement so robust communication is to be expected. Should difficulty arise, these meters should help resolve the issue.

2. Start-Finish Time Offset

The run time of any car is the difference between the start time and the finish time. This requires that the Start Board clock and the Finish Board clock be synchronized. Because they operate from separate frequency crystals and have slightly different firmware programs, there is always a slight difference between the two. This display shows that difference which is never allowed to be more than 9 millionths of a second. This is ten times less than is needed for accurate measurement and is shown here just to confirm proper operation.

3. Finish Line Battery

While the general status of the battery is shown on all screens, this shows the actual battery voltage. It is expected that a new AAA alkaline battery will last in excess of 10 hours of racing.

With the battery voltage above 1.1 Volts the Battery status message will read “Battery Okay”. Below 1.1 Volts the message will change to “Battery Caution” indicating about one and a half hours of racing left at the time of the change. Below 1.0 Volts the message will change to “Battery Warning” indicating about a half hour of racing left. Should you continue racing until battery failure, only the heat being run at the time of failure will need to be rerun. Rechargeable NiMH batteries may be used with similar performance although “Battery Caution” is likely to mean “Change Right Now!”

4. Starting Gate

This control and two displays show the current status of the Start Board. Clicking on Gate Trip will fire the solenoid. Hardware and firmware design preclude re-firing the gate within two seconds. While fired, the background of this button will show red. The Ready and Gate boxes show the current status of those two switches.

5. Finish Line

The Go Switch and Go Led show the status of the Big Green Button and its Led. The Lanes box shows briefly any lane sensor triggered.

FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device is measured RF output power is less than the SAR exclusion threshold value for human head and body. Therefore, SAR test is not necessary.