

K2 KIT ASSEMBLY INSTRUCTIONS

with Computer Serial Interface

(If you have ordered the Quick Mount or have a Best Track, the contents of your kit will differ from this list. Please refer to the Mounting instruction sheet for a list of mounting items.)

Kit Contents:

- 1 clear (or gray tinted) lexan **display panel** - cut to fit your track
 - 1 ABS black lexan **back panel** - cut to fit your track
 - 2 aluminum square tubing - **side posts**
 - 1 **top rail**
 - *1 **bottom rail** - 1/2" shorter than top rail (If you have the Quick Mount option, this part and those marked "*" will not be included in this kit).
 - 1 string of **circuit boards**
 - 1 pkg. of **hardware** containing: **4** 4-40 screws, spacers & small nuts per lane; ***2** 8-32 flat head screws; ***2** 6-32 round-head screws; ***2** large nuts; ***2** press nuts; **12** self-tapping screws, & ***1** black grommet per lane
 - 3 various size **decals**
 - 1 35 ft. wire with **reset switch**
 - 1 **AC adapter**
 - 1 computerized paper **template**
- A Computer Interface **Cable**, and a **USB Converter**. (This is included so you can send commands from your computer to your timer through your serial port.)

Tools Needed for Assembly:

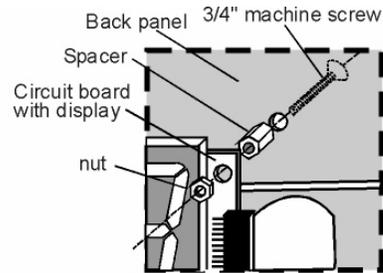
- drill and drill bits; 1/4" countersink
- Philips screwdriver
- Tape
- punch
- hot glue gun or silicon glue (If you use silicon glue, it will have to cure for 24 hours before you can use your timer).

Quick Test:

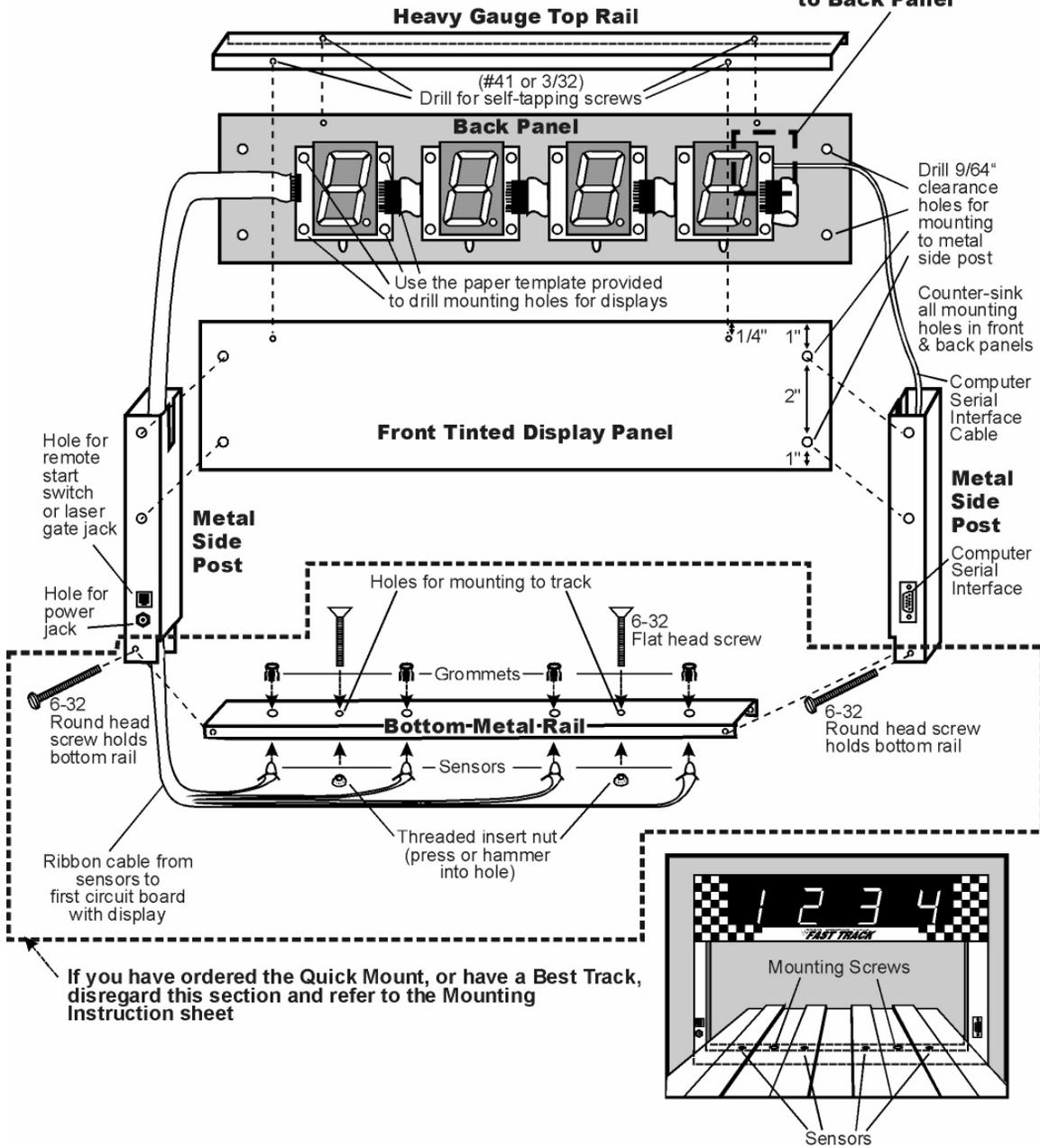
1. Lay boards on a nonconductive surface (wood, Formica, etc.). Make sure none of the boards are touching each other and that sensors have plenty of incandescent light.
2. Plug the power adapter into the timer then into an electrical outlet. All the display boards will light up with "0". If one or more boards displays a number other than "0", then its sensor is in the shade. Unplug unit and try again with more light.
3. Put the boards in test mode by depressing the remote start switch and keeping it depressed. Cover each sensor. Each board will display a dash "-". This is the correct reading for test mode. If you did not get this reading, please call us for help at: 1-888-693-3729 (office) or (859)380-3882 (cell).

*If you have ordered the Quick Mount option, these items will not be included in this kit.

K2 Diagram (With Computer Serial Interface)



How to mount circuit board with display to Back Panel



If you have ordered the Quick Mount, or have a Best Track, disregard this section and refer to the Mounting Instruction sheet

K2 KIT ASSEMBLY:

with Computer Serial Interface

STEP 1- DRILL MOUNTING HOLES

Tape template to smooth side of black back panel. Also tape display panel to back panel. Center punch where the template indicates a hole should be drilled. With panels together, only drill holes for sides and top mounting screws using 9/64 bit. Remove display panel. Drill circuit board mounting holes on back panel only, using 9/64 bit. Counter-sink holes on front side of display panel and rough side of back panel.

STEP 2- ATTACH CIRCUIT BOARDS

Anchor circuit boards to back panel by inserting 4-40 screws from textured side; anchor spacers, then circuit board, then small nuts. Connect the brown plug coming from the serial side post to the brown connector on the back side of the circuit board making sure teeth align properly. Attach metal side posts with self-tapping screws to back panel. See diagram for proper placement. Feed ribbon cable with the jacks and sensors into metal side post. Attach power jack and remote start switch jack into holes on side post.

Attach display panel to unit with self-tapping screws.

STEP 3- MARK, DRILL AND ATTACH TOP RAIL

Temporarily place top rail in unit. Mark mounting holes on top rail and punch. Remove top rail and drill mounting holes in top rail using 3/32 bit. Attach top rail with self-tapping screws. (HINT: use soap on threads of screws.)

STEP 4- MARK, DRILL AND ATTACH BOTTOM RAIL

(If you purchased the "Quick Mount" or have a Best Track, disregard this step and refer to the "Mounting Instructions" page)

On bottom rail, mark off 3/4" from left side. From that point, mark and drill holes for sensors using same measurements of centers of lanes of your track using 3/16 bit. Mark and drill 2 timer mounting holes between outer sensors using 1/4" bit. Press (hammer) threaded inserts into these holes through the bottom side of the rail. Press grommets into sensor holes. Place bottom rail between ends of side posts making sure sensor holes measure same as centers of lanes on track. Drill a hole through both side post and bottom rail using 9/64 bit. Secure with 6-32 round head screws and nuts. Push sensors into grommets. Glue wire and sensors in place with hot glue or silicon glue (if you use silicon glue, it will have to cure for 24 hours before you can use your timer).

Test unit. (It does not need to be attached to track to do this.)

STEP 5- DECORATE

"Cut & paste" the *Fast Track* decals to the front and back panels of your timer for a professional look (see drawing of finished timer on the diagram).

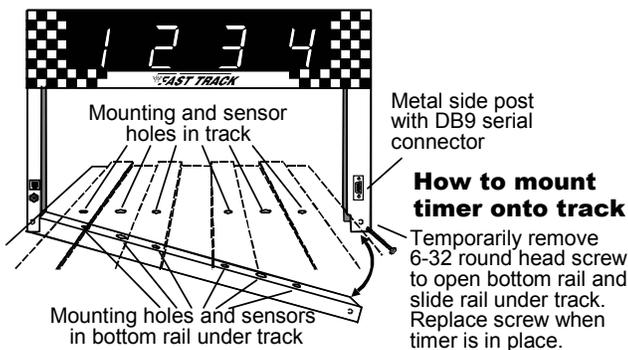
How to install **FAST TRACK K2** sequence of finish display timer with Computer Serial Interface

Enclosed you will find the Fast Track finish line, AC adapter, remote start switch, a computer interface cable and USB converter* (plus any optional equipment ordered). The Fast Track finish line contains all the electronics, sensors and displays for the Fast Track system.

(If you ordered the Quick Mount or have a Best Track, disregard this section and refer to the Mounting Instruction sheet for installing your timer).

To install the Fast Track finish line to your track, mark the finish line on your track with a pencil. Now mark the midpoint of each lane where it crosses the finish line. This should be the same spacing as the sensors in the bottom rail of your Fast Track timer and was manufactured according to the measurements provided on the order form. If the spacing is not the same, call me at 1-888-693-3729 (office) or (859)380-3882 (cell).

If the spacing looks correct, then drill a hole in the center of each lane with a 3/16 drill bit. Measure the distance from the mounting screws on the Fast Track timer to the closest sensor. Mark the spots between lanes on your track where the mounting screws go and drill them with a 3/16 drill bit. These mounting holes should be countersunk with a 1/4 inch bit so that the heads of the mounting screws are flush with the surface of the track.



Once these holes are drilled, you are ready to mount the Fast Track finish line to your track. Remove the screw in the bottom corner of the finish line opposite the power jack. With this screw removed, the finish line can now hinge open. (If you remove the wrong screw, it can't be opened due to the wires running to the sensors). Remove and save the 2 mounting screws.

With the Fast Track finish line open, run the bottom rail under the track. Close the finish line and replace the bolt. Check for proper alignment of all of the holes in the track. If a hole in the track does not match that of the sensors in the rail or the mounting holes, you will have to ream out the holes in the track that do not match.

Once you have good hole alignment, make sure the sensors are located at least 1/4" below the surface of the track. (If the track is too thin add a board between the bottom of the track and the timer sensors to achieve the proper thickness). Now insert the two mounting screws in the countersunk holes through the top of the track and into the threaded holes in the bottom rail.

Connecting the start switch and AC adapter

Connect the start switch to your track so that the car release lever on your track closes the start switch as the cars wait at the starting line (see illustration on next page). When the cars are released, the switch should open. Run the start switch cable under the track all the way back to the finish line. Plug the start switch connector into the small socket in the side post of the timer. Once the finish line is secured to the track, you can connect the AC adapter (or optional battery pack if ordered) to the large socket in the side post. Plug it in and you are ready to run.

How to operate the **FAST TRACK** timer

Close the starting gate so that the start switch is pushed in. All displays should be zeros. If a display is showing a dash, then something is blocking its sensor. If one or more displays show a dash, then skip this section and read "If you have problems" below. If all zeros are displayed without a decimal point, then you are ready to race. (The zeros will appear with a decimal point when the timer is held in reset mode.)

*The computer cable and USB converter is included so you can send commands from your computer to your timer using hyperterminal.

Put the cars in their starting position. Press and release the remote start switch. Release the starting gate. When the first car crosses the finish line, the display over that lane will display a "1". As the second car crosses, it's display will show a "2" and so on for each lane of your track. If two cars cross the finish line together within less than 0.0002 of a second, a tie will be displayed. Ties are very rare.

If you have problems

1) If a display shows a dash with the reset button depressed then the infrared sensor in the bottom rail is not receiving the signal from the infrared transmitter in the top of the finish line banner. Check the holes in the track. Make sure nothing is blocking them. Can you see the infrared sensors through the holes in the track? Check the infrared transmitters in the top of the finish line banner. They should be positioned directly over the sensors, if not, they can be gently bent to give a more perfect alignment with the sensors below.

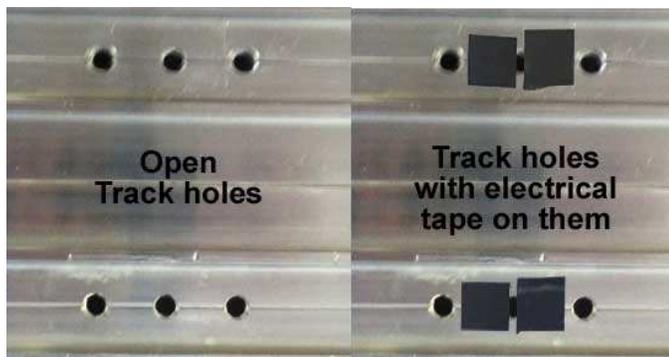
If nothing is working: Unplug the power adapter from the side post of the finish line banner. Now reconnect the power adapter. Make sure the outlet is functional and plug it in. Put your hands over all the holes in the finish line. If the display lights now work then there may be a problem in the remote reset switch.

If you still have a problem, give me a call, Stuart Ferguson, at 1-888-693-3729 (office) or (859)380-3882 (cell). We offer a full 2 year warranty. If it hasn't been abused we'll fix or replace it free, including ground shipping, or refund the purchase price if we are unable to meet your satisfaction.

If you are trying to use the timer in direct sunlight

You may have trouble running our timer in direct sunlight, although it may run in shade. Here are several ways to improve the performance in sunlight:

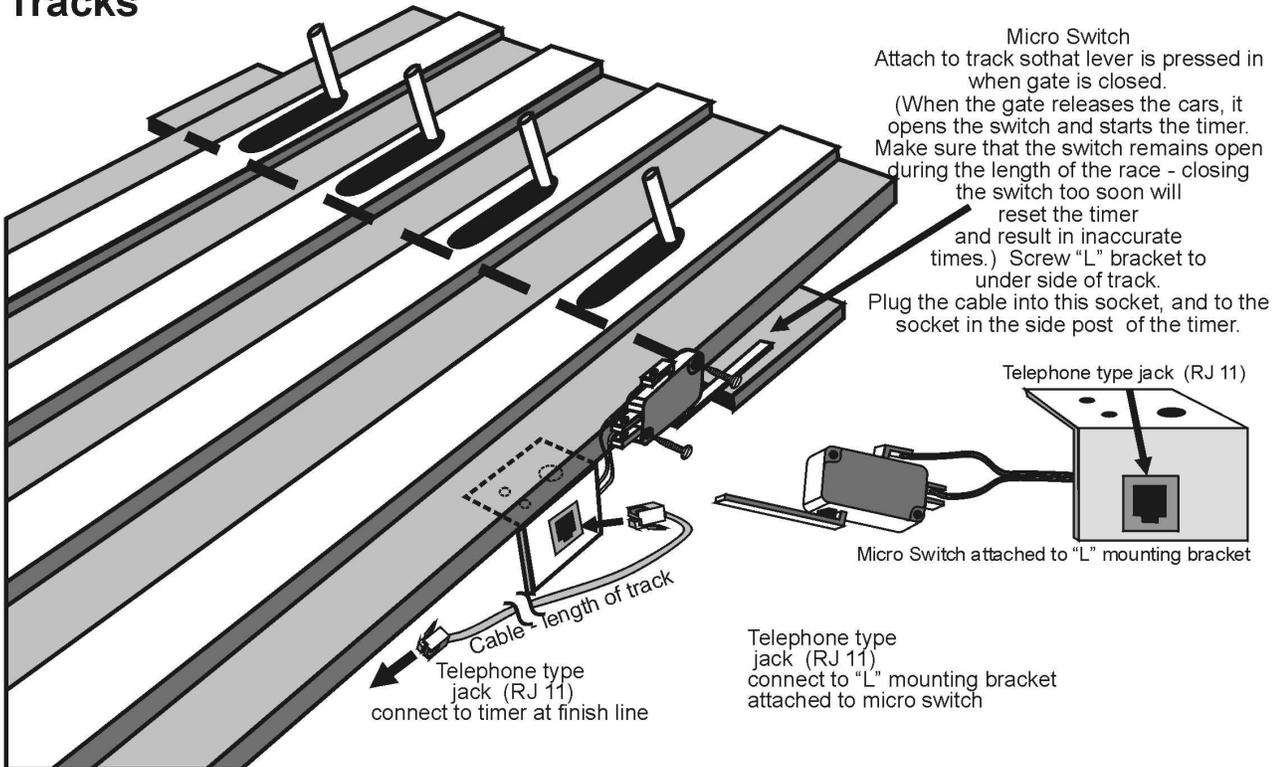
- Make sure no light is getting to the back of the sensors. Cover the back of the sensors with black tape.
- Use a small hole in the track. 1/8 inch hole should work fine.
- Make the interior of the hole flat black, or other dark color, so indirect light is not reflected down to the sensor.
- Make the sensor hole deep. It should be at least 1/2 inch deep for best results.
- Put black electrical tape on either side of the hole in the track below the infrared transmitters to make a slot that will let in less light. See photo below.



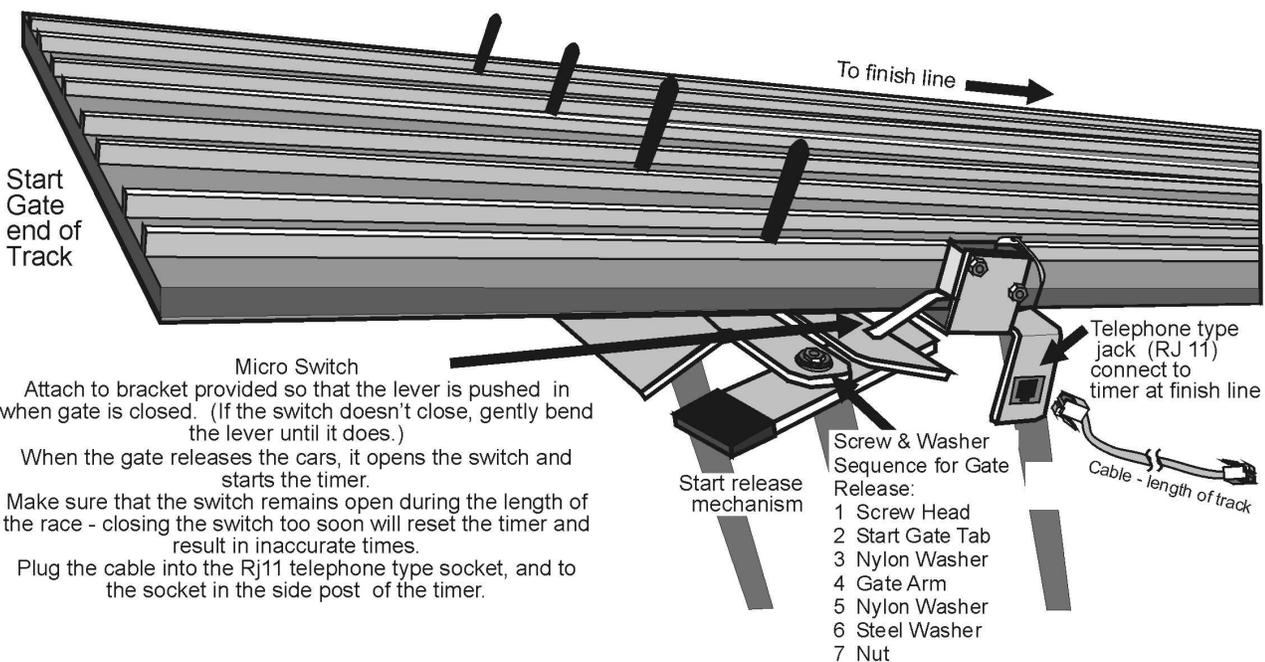
We have used J-B Weld, or J-B Kwik epoxy to fix holes that were too big. You can fill the big hole with the epoxy, then redrill them to a smaller size. The new hole is a flat gray color that works well.

Remote Start Switch Diagram

Most Wooden Tracks



Micro Wizard & Piantedosi Aluminum Tracks



Commands that can be given through the serial port:

- M(A-G) Mask unused lanes**
MA would mask out lane A. **MB** would mask out lane B and so on. **MG** would enable all lanes by clearing the mask.
- RL (0-6*) Reverse lane if 0 is set to normal** * Number of Lanes of your track
This command reverses the data stream sent from our timer to your computer or remote time display – ie- Lane ABC becomes CBA on your computer.
- RE Reset Eliminator mode**
If the timer is in the Eliminator mode, it will reset back to the standard mode of racing.
- RF Return features in binary**
This command will return 8 binary bits like 0011 0111. A 1 means the option is enabled:
1111 1111 all feature bits set. 0000 0000 all feature bits clear
- RS Return serial number**
- RA Reset lane – Force results**
Force the timer to end the race and send the results of all lanes that have finished. This is great feature for when a car crashes, burns and falls off the track.
- LR Reset laser gate**
When the race is over the computer can reset the laser gate. This can work like the RA command, but does nothing if the customer does not have a Laser Gate.
- LE Set timer for Eliminator mode**
Eliminator will score only a first and second place for lane pairs. Makes 3 races on a 6 lane track or 2 races on a 4 lane track.
- LF Load feature**
This feature is enabled only with a password – guessing a serial number will give you an error and may disable features in your timer.
- LX (A-O) Change time or disable automatic reset**
In the command line, each of the letters of the alphabet A through O will add 2 seconds to the reset time. So to change the automatic reset time to 6 seconds enter: LXC, and to change the automatic reset time to 25 seconds enter: LXO
To disable the automatic reset enter: LXP
- N0 Old format**
Converts the race time data to the old timer format:
A=3.001! B=3.002 C=3.003 D=3.004 E=3.005 F=3.006 <LF> <CR>
- N1 New format**
Converts the race time data to the new timer format:
A=3.001! B=3.002” C=3.003# D=3.004\$ E=3.005% F=3.006& <CR> <LF>
- N2 5 digit time format start switch closed and open status**
Only on 2012 and newer timers.

RM Read mode

Shows the current modes set for the timer:

6 000011 0 0 0

Number of lanes used in reverse order mode - 6

Lanes E and F are masked - 000011

Lanes are not reversed - 0

Not in eliminator mode - 0

Old data format - 0

RG Returns start switch condition

The timer will return a "1" if the start switch is closed and "0" if the switch is open.

LO Turns off the laser bit or gate release bit

LN Turns on the laser bit and causes the motor gate to open

Only for the automatic gate release.

LG Pulse laser bit for solenoid style gate release

RV Return version of firmware and serial number

RX Simulate the closing of the start switch for half a second

This ends the race and sends any results to the computer. You must have the "Force Print" option.

LX(0-9) (K2 & K1 Models A-O) Change time or disable automatic reset

In the command line, each number after the x will multiply 2 seconds to the reset time.

So, to change the automatic reset time to 6 seconds enter **LX3**, and to change the

automatic reset time to 18 seconds enter **LX9**.

To disable the automatic reset enter **LX0**.

LX K3 model time interval between alternating position then times on the finish line display

In the command line, each number after the x will multiply 2 seconds to the alternate

time. So, to set the rate of change to 6 seconds enter **LX3** and to set the rate of

change to 18 seconds enter **LX9**.

To display only the time without displaying position enter **LX0**.

Race Data Finish Order Punctuation:

21h - ! - First Place

22h - " - Second Place

23h - # - 3rd

24h - \$ - 4th

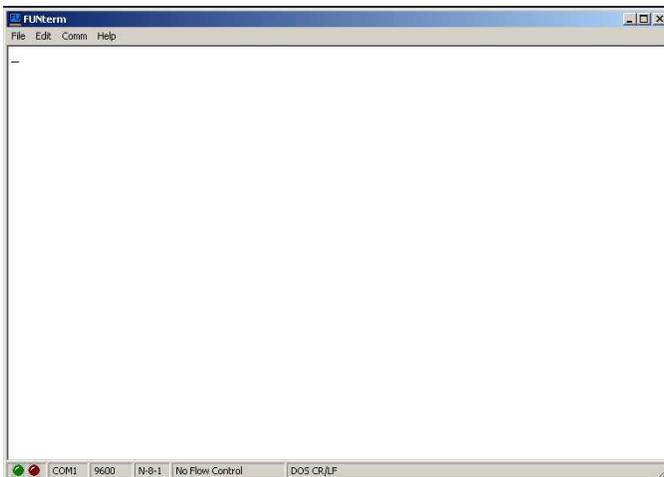
25h - % - 5th

To change Options or view times from your race in FUNterm:

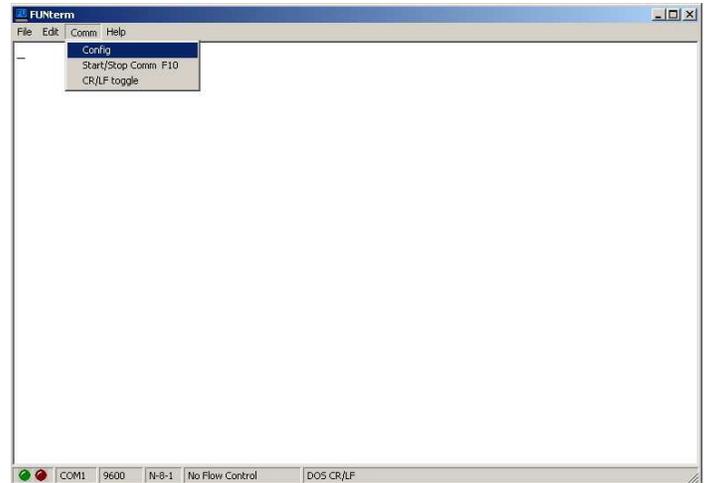
- Plug your timer into a power source
- Using the computer serial cable and/or the USB converter, plug your timer into the com port or USB port on your computer

Go to Microwizard.com and under “downloads” on the menu, download the program “FUNterm.exe”

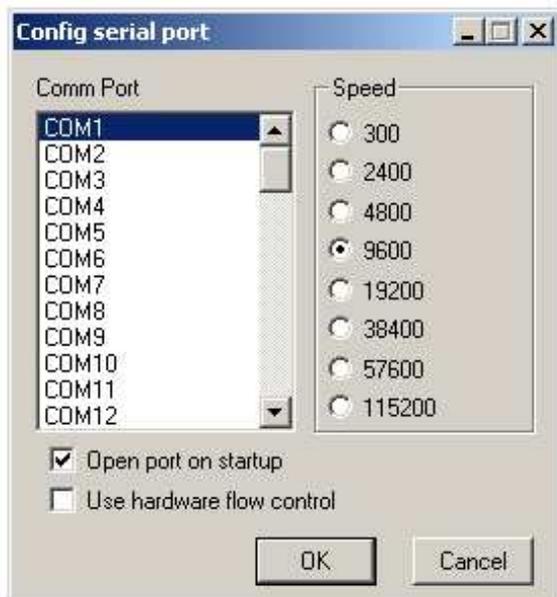
- This is a stand alone program that doesn't require an install
- Double click on the saved FUNterm.exe file



1. This window will come up



2. Put down Comm
- Click on Config



3. A New Window will come up:
- Choose the correct comport that your timer is connected to. Don't change anything else because the timer uses the default settings.
- click okay

4. You should now be able to type commands to the timer through the computer, or, once all the cars have raced and the lanes have finished, the times should automatically display.

To enter commands - type RV and hit enter. The version number of the timer should display on your computer screen. If it does, you are ready to enter the option commands of your choice.

If you don't see the version number, you probably have a comport conflict. See “Frequently Asked Questions” on our web site for a list of ways to trouble shoot the problem.