K1 KIT ASSEMBLY INSTRUCTIONS

Kit Contents:
(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.)

- 2   black ABS **panels** cut to your track's width
- 2   aluminum square tubing - **side posts**
- 1   aluminum **top rail** - same length as ABS panels
- 1   aluminum **center rail** -2 inches shorter than top rail
- **1**   matte finish aluminum bottom **rail -** ½" shorter than top rail (If you have the Quick Mount option, this part and those marked with "*" will not be included in this kit).
- 1   electronically complete **circuit board** with attached **sensors,** telephone **jack** & **power jack**
- 1   package of mounting **hardware** which contains:
     4 4-40 phillip's head screws, spacers & small nuts per lane; ***2** 6-32 flat head screws; ***2** 6-32 round-head screws; ***2** large nuts; ***2** self-tapping screws, ***1** small grommet per lane, **1** large black grommet per lane, and **1** red plastic dome lens per lane.
- 1   **AC Adapter**
- 2   *Fast Track* **decal sheets**
- 1   Computer drawn **template** sheet
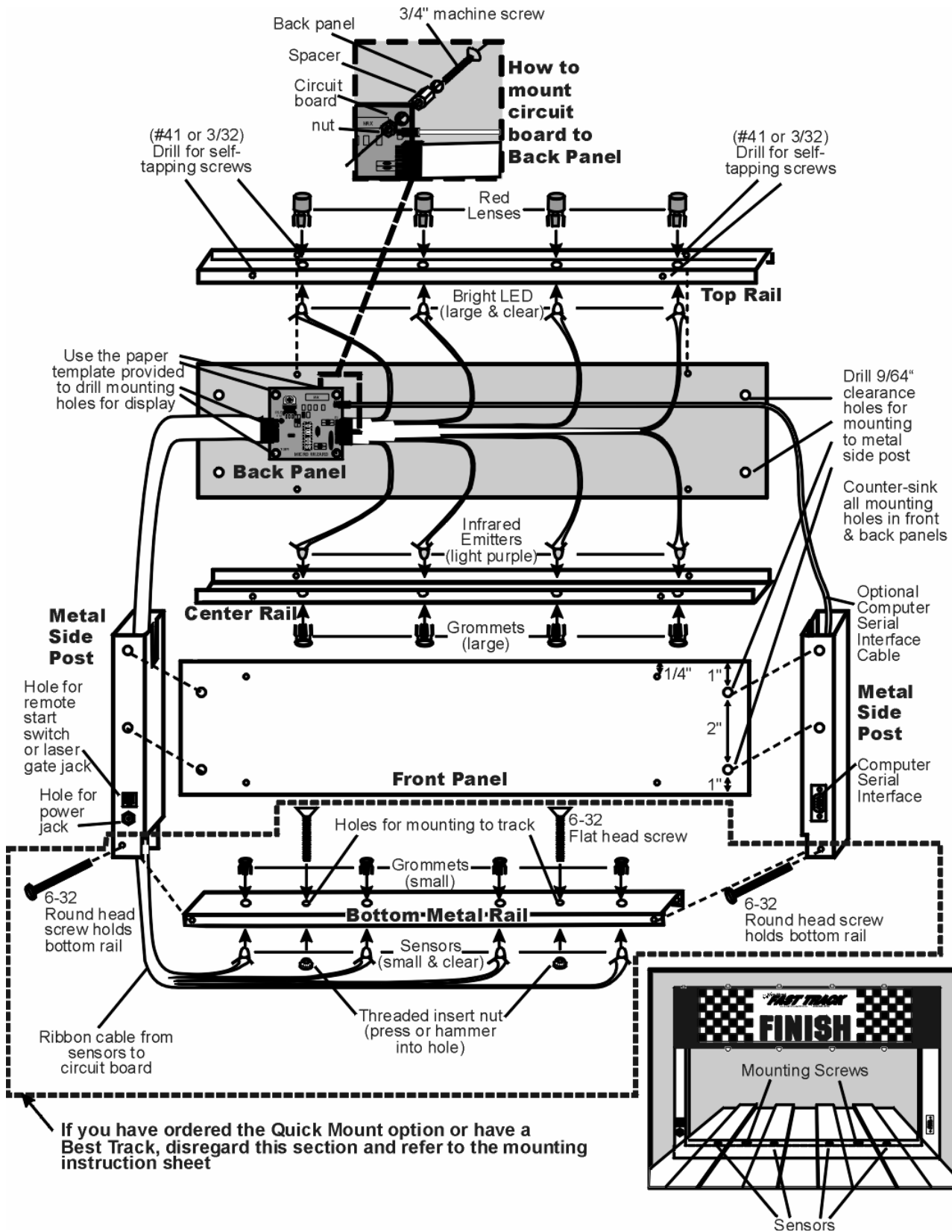
Tools Needed for Assembly:
- -   drill, drill bits and 1/4" counter sink
- -   Philips screwdriver
- -   Hot glue gun or silicon glue (If you use silicon glue, it has to cure for 24 hours before you can use your timer).
- -   Tape

Quick Test

1.   Lay circuit board on a nonconductive surface (wood, Formica). Make sure sensors have plenty of incandescent light.

2.   Plug the power adapter into the power jack then into the electrical outlet. Each light will go on in position order then go off. Cover each sensor with your hand. The lights will display the finish ... **First place will light up and stay constant, second place flickers quickly, third place will blink slowly, fourth place will light up momentarily then go off (If you have fewer than 4 lanes, the last place light will flash once and stay off)**.

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

K1 Diagram

3/4" machine screw

Back panel

Spacer

Circuit board

nut

How to mount circuit board to Back Panel

(#41 or 3/32) Drill for self-tapping screws

(#41 or 3/32) Drill for self-tapping screws

Red Lenses

Bright LED (large & clear)

Top Rail

Use the paper template provided to drill mounting holes for display

Drill 9/64" clearance holes for mounting to metal side post

Counter-sink all mounting holes in front & back panels

○ **Back Panel**

Infrared Emitters (light purple)

Center Rail

Grommets (large)

Metal Side Post

Optional Computer Serial Interface Cable

Metal Side Post

Hole for remote start switch or laser gate jack

1/4"   1"

2"

1"

Hole for power jack

Front Panel

Computer Serial Interface

Holes for mounting to track

6-32 Flat head screw

6-32 Round head screw holds bottom rail

Grommets (small)

6-32 Round head screw holds bottom rail

Bottom Metal Rail

Sensors (small & clear)

Ribbon cable from sensors to circuit board

Threaded insert nut (press or hammer into hole)

FINISH

Mounting Screws

Sensors

If you have ordered the Quick Mount option or have a Best Track, disregard this section and refer to the mounting instruction sheet

K1 KIT ASSEMBLY

STEP 1- DRILL MOUNTING HOLES

Tape template to smooth side of black back panel. (Note: you may have to cut the template in the middle to fit the plastic.) Also tape front panel to back panel with rough sides together. With panels together, only drill holes for sides, top, and bottom mounting screws using 9/64 bit. Remove front panel. Drill circuit board mounting holes on back panel only, using 9/64 bit. Counter-sink holes on rough side of both panels.

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 jack from the side post into the circuit board now. Attach metal side posts with self-tapping screws to back panel. See diagram for proper placement. Attach power jack and remote start switch jack into holes on side post. Temporarily attach front panel to unit with self-tapping screws.

STEP 3- MARK AND DRILL TOP RAIL FOR RED LENSES

Measure center of each lane from left side of track. To mark top rail for location of red lenses centered over each lane of your track, add 1 inch to these measurements to allow for the width of the side posts. Drill holes with a ¼ bit.

STEP 4- MARK AND DRILL CENTER RAIL

Mark and drill center rail using the same measurements of the centers of your track using ¼ bit.

STEP 5- ATTACH TOP RAIL AND CENTER RAIL

Temporarily place top rail in unit. Mark mounting holes on top rail. Drill mounting holes in top rail using 3/32 bit. Temporarily place center rail in unit, mark mounting holes in rail, then drill these holes using 3/32 bit. Push red lenses in top rail. Push large grommets in center rail.

Attach top rail and center rail to back panel only with self-tapping screws. Remove front panel. Insert and glue lights (large clear bulbs) into red lenses, making sure top light goes into first hole from left, second light goes into second hole, etc. Insert emitters (large light purple bulbs) into grommets on center rail making sure first emitter from the **bottom** goes into first hole from left on center rail, second emitter from the bottom goes into second hole, etc. Attach front ABS panel to side posts, top rail, and center rail using self-tapping screws.

STEP 6- 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 ¼ bit. Press (hammer) threaded inserts into these holes through the bottom side of the rail. Press grommets into sensor holes from top side of rail. 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. If you use silicon glue, it will have to cure for 24 hours before you can use the timer. Test unit. (It does not need to be attached to track to do this.)

STEP 7- DECORATE

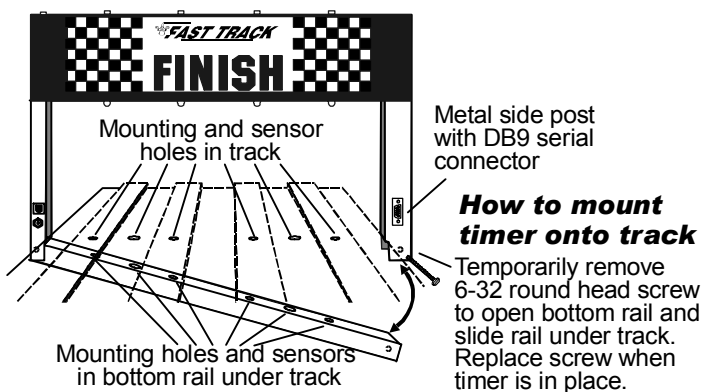Attach decal sheets to front and back panels.

How to install your *Fast Track* K1 flashing light display timer

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

Enclosed you will find the Fast Track finish line and AC adapter (plus any optional equipment ordered). The Fast Track finish line contains all the electronics, sensors and displays for the Fast Track system.

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. These marks should align with the location of the sensors in the bottom rail of your Fast Track timer, which was manufactured according to the track measurements provided on the order form.

Next, measure from the nearest sensor to the mounting screws. Mark this spot where it crosses the finish line. This marks the spot to put the mounting screws. The other marks are for the sensors that are mounted in the bottom rail of the Fast Track finish line. Now carefully drill these marks in the finish line of your track with a 3/16 inch drill bit. The sensor holes should be in the middle of each lane. The two other holes are for mounting and should be countersunk with a 1/4 inch bit so that the mounting screws are flush with the surface of the track.

FINISH

Mounting and sensor holes in track

Metal side post with DB9 serial connector

How to mount timer onto track

Temporarily remove 6-32 round head screw to open bottom rail and slide rail under track. Replace screw when timer is in place.

Mounting holes and sensors in bottom rail under track

Once these holes are drilled you are ready to mount the Fast Track finish line to your track. Remove one bolt in the bottom corner of the finish line. With this bolt removed the finish line can now hinge open. (If you take out the wrong bolt the finish line will not be able to open because of wires that are in that side of the finish line.) Remove and save the mounting screws. Now 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 in the rail doesn't line up, you will have to ream out the holes in the track that do not match. When you have good hole alignment, you can insert the two mounting screws through the top of the track and into the threaded hole In the bottom rail. Be careful that the sensors fit into the holes you drilled in the track.

Plug the AC adapter into the round socket in the side post, or use the optional battery pack if you ordered one. Plug the AC adapter into a wall outlet and you are ready to roll.

How to operate the *Fast Track* timer

Put the cars in their starting position. Open the start gate and release the cars. When the first car crosses the finish line, the light over that lane will light and remain lit. As the second place car crosses the finish line, the light over that lane will flicker on and off very fast. When the third

NOTE: In order to run race management software with this timer, you must have purchased the Computer Serial interface (PS) option.

place car crosses the finish line, the light over that lane will blink slowly. The fourth place light flashes once as the last place car passes over the sensor and stays off. (If you have fewer than four lanes, the last place light will flash once and stay off.)

After recording results, the timer will automatically reset itself. Ties can also be displayed if two cars cross the finish line within less than 0.001 of a second. Two or more continuous lights would indicate a first place tie. Two flickering lights would indicate a second place tie. Ties of any kind are very rare.

If you have problems...

1) If you are not getting any readings at all, the problem could be that too much ambient light is getting to the sensors in the bottom rail. To test for this, put your timer into a dark room, plug in the AC adapter, and trip the bottom sensors with your hand. If the timer works, there is a light problem with the bottom sensors. Possible problems: the hole might be too big (it should be 3/16"), the sensors might be placed too close to the surface of the track (they should be recessed at least ¼" from the top edge of the track), or there might be too much light getting in from under the track (solve this by covering the sensors underneath with duct tape, or dark plastic).

2) If nothing is working: unplug the power adapter from the side post of the finish line banner. Make sure the outlet is functional. Reconnect the power adapter and plug it In.

3) If you still have a problem: give me a call, Stuart Ferguson, at (888) 693-3729 (office) or (859) 380-3882 (cell phone). We have a two year warranty on the Fast Track system. 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.

Open Track holes

Track holes with electrical tape on them
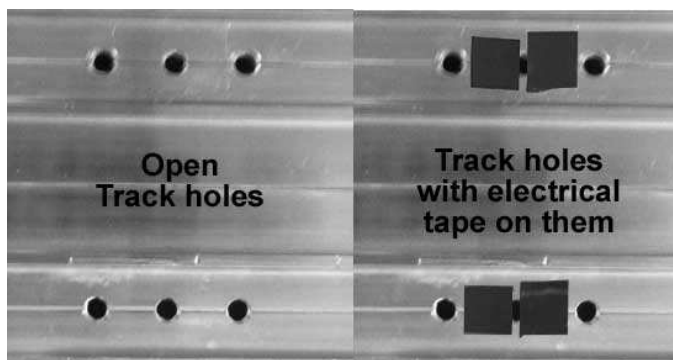
Commands that can be given through the serial port (some of these commands require purchased computer options):

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 secondss 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"
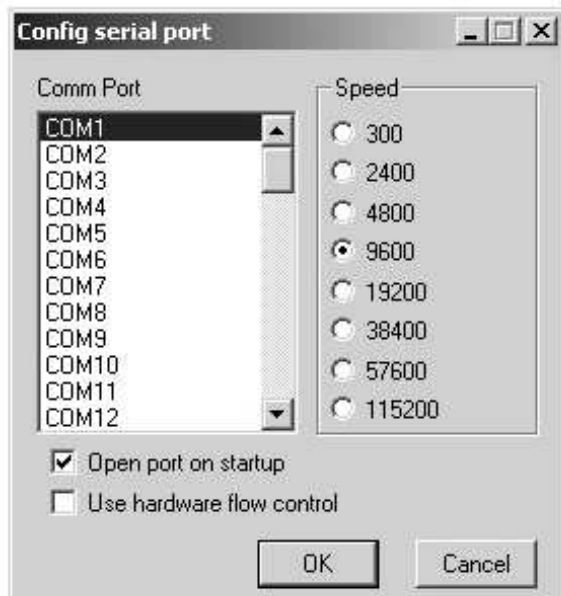- This is a stand alone program that doesn't require an install
- Double click on the saved FUNterm.exe file
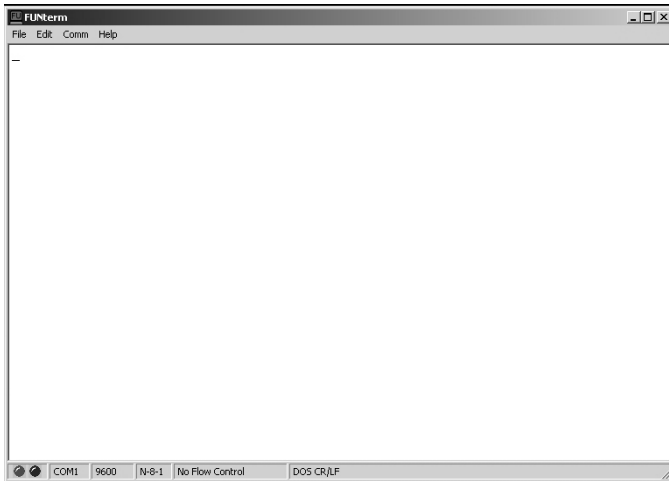
1. This window will come up
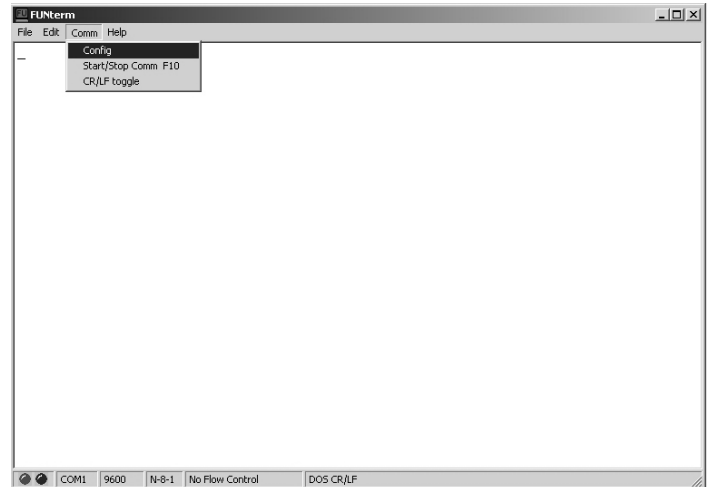
2. Put down Comm
- Click on Config

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.