K2 KIT ASSEMBLY INSTRUCTIONS

(If you have ordered the Quick Mount or have a Best Track, the contents of you 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** - tapped for voltage regulator
*1 **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 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 **decal sheets**
1 **AC adapter**
1 custom paper **template**

Tools Needed for Assembly:

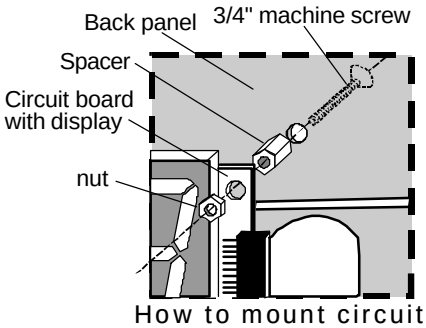
- drill and drill bits; ¼" countersink
- Philips screwdriver
- Tape
- punch
- glue gun or silicon glue (If you use silicon glue, it will have to cure for 24 hours before you can use your timer).

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. Cover each sensor and wait for timer to reset itself (8 seconds or so). 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



How to mount circuit board with display to Back Panel

Heavy Gauge Top Rail

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

Back Panel

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

Use the paper template provided to drill mounting holes for displays

Counter-sink all mounting holes in front & back panels

1/4"

1"

2"

1"

Front Tinted Display Panel

Computer Serial Interface Cable

Hole for remote start switch or laser gate jack

Metal Side Post

Metal Side Post

Computer Serial Interface

Hole for power jack

Holes for mounting to track

6-32 Flat head screw

Grommets

6-32 Round head screw holds bottom rail

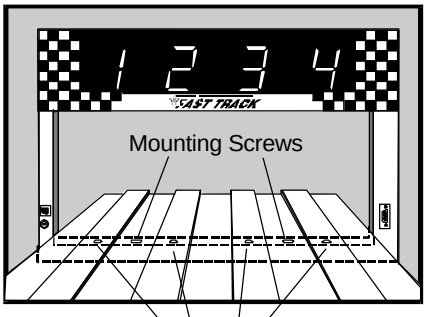
Bottom-Metal-Rail

6-32 Round head screw holds bottom rail

Sensors

Threaded insert nut (press or hammer into hole)

Ribbon cable from sensors to first circuit board with display



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

K2 KIT ASSEMBLY:

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 and punch mounting holes on top rail. 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 ¼" 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).

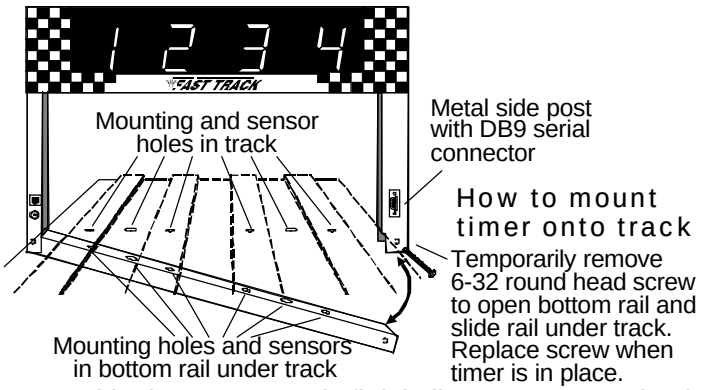
How to install your *FAST TRACK* K2 single digit sequence of finish display timer

(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.

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. 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.

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.

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, 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.

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

Using the AC adapter, plug the unit in. All displays should be zeros. If a display is showing a dash, then something is blocking it's 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 <u>with</u> a decimal point when the timer is held in reset mode).

Put the cars in their starting position. Wait for the timer to reset itself (it takes about 8 seconds). Release the starting gate. Watch as the cars race toward the finish line. 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

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NOTE: **In order to run Race Management Software with this timer, you must have purchased the Computer Serial Interface (PS) option.**

within less than 0.0002 of a second, a tie will be displayed. Ties are very rare. The timer should reset itself after 8 seconds, and you will be ready to run the next race.

You can change the automatic reset time with the utility software included with your timer. See LX(A-O) on the "Commands that can be given through the serial port using Hyperterminal" sheet.

If you have problems

1) If a display shows a dash after the timer has reset itself, 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.

2) If nothing is working, make sure the outlet is functional and replug it in. Put your hands over all the holes in the finish line. The display lights should now work. 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.

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.

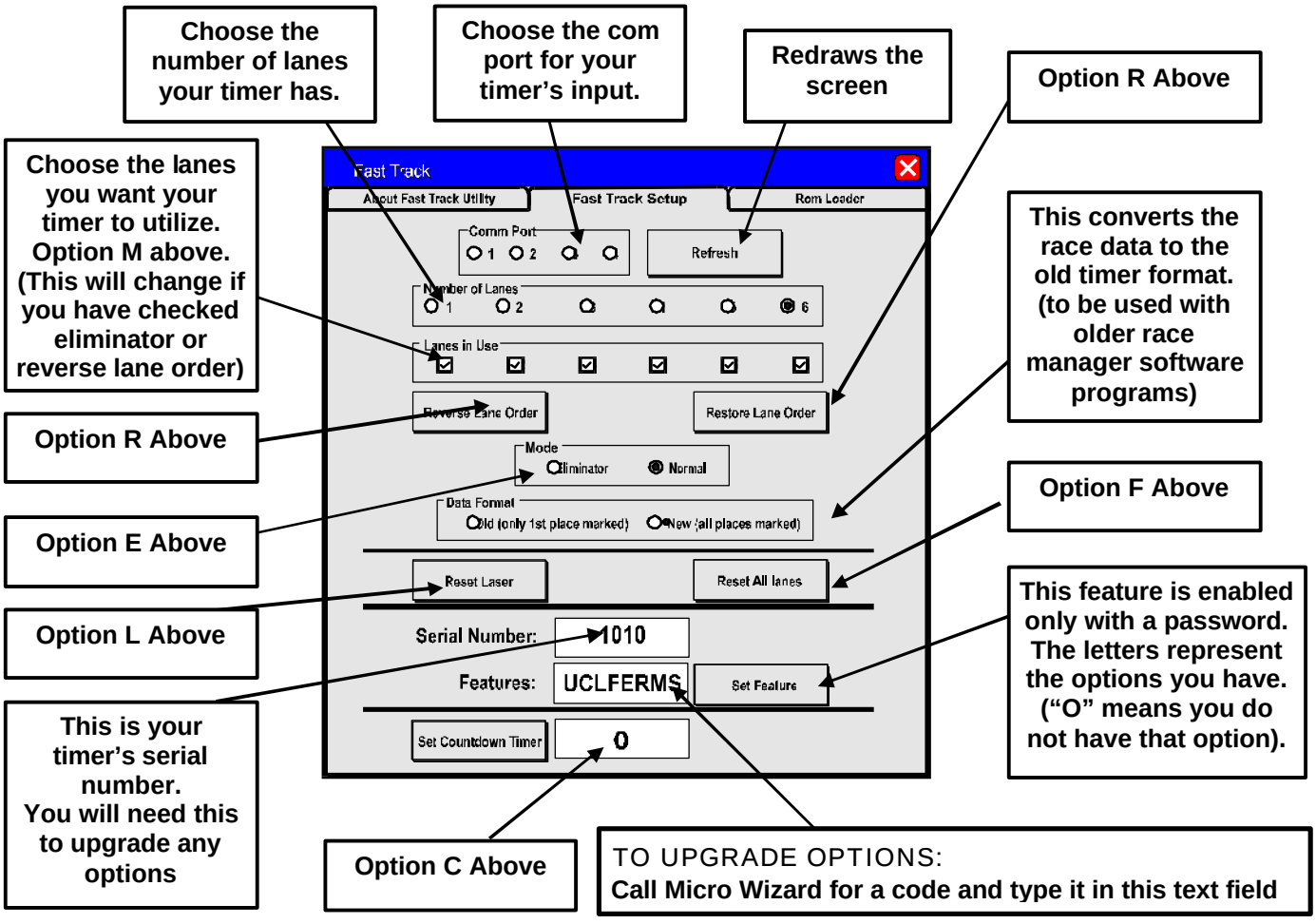
Computer Data Option

Your K2 timer is fully duplexed and software upgradable via your computer com port.

NOTE: In order to run Race Management Software with this timer, you must have purchased the Computer Serial Interface (PS) option.

Software Options that can be purchased from Micro Wizard (visible in the "Features" box)

S	-	Serial Race Data	Sends the actual time race data from the Micro Wizard timer to the computer. This is the raw data for any race management software.
M	-	Mask Lanes	This command will prevent data from being sent from unused lanes – useful for eliminator races or trials.
R	-	Reverse Lanes	This command reverses the data stream sent from our timer. Some race management software will require the data sent from the timer in reverse lane order. This can also be used with our remote display to make a double-faced timer at the end of your track.
E	-	Eliminator	Sets timer to 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.
F	-	Force Print	Forces the timer to end the race and send the results of all lanes that have finished. This is a great feature for when a car crashes, burns and falls off the track.
L	-	Reset Laser	When the race is over, you can actually reset the laser gate from your computer! Does nothing if you do not have a laser gate.
C	-	Count Down Clock	Enter the minutes from which the timer will count down. Click "set countdown time" button and watch it go! Nice feature to show the intermission length between race events.
U	-	Unused	For future use.



Commands that can be given through the serial port using hyper terminal and the additional serial cable (some of these commands require purchased computer options)

Commands:

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** (0-6 indicates the 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 (see next page for definition):
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 tracks 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>

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

PCXX* **Count Down Timer** XX=00-99
Enter the minutes you want the timer to count down from

* Purchased options are required to use these commands.

Race Data Finish Order Punctuation:

21h	-	!	-	First Place
22h	-	"	-	Second Place
23h	-	#	-	3rd
24h	-	$	-	4th
25h	-	%	-	5th
26h	-	&	-	6th

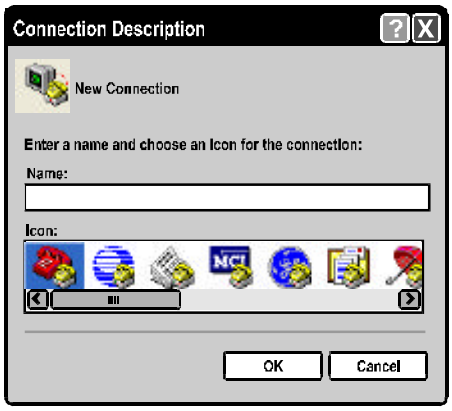
To change Options or view times on your computer in Hyperterminal (You can view times only if you have purchased the computer serial interface - PS - option):

- Plug your timer into a power source
- Using the computer serial cable, plug your timer into the com port on your computer

On your Computer desktop – go to **Programs**

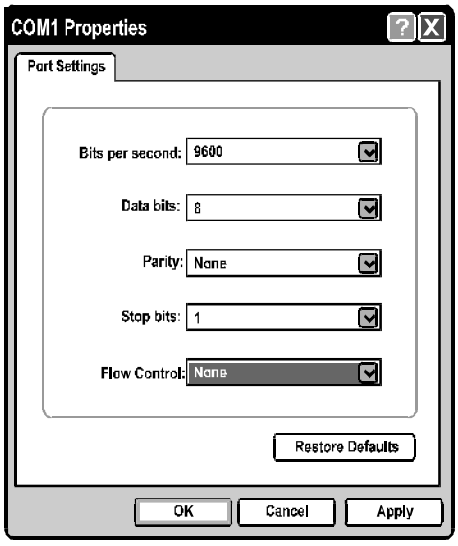
- choose **accessories**
- choose **communications**
- choose **hyperterminal** (the one with the phone icon)

1. This window will come up:
   - put a name on it
   - click **OK**



2. A New Window will come up:
   - Click the down arrow on the “Connect using” box and choose the comport that is connected to your timer
   - click okay

3. Another New Window will come up:
   - Choose the options below
   - 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. See the “Commands using Hyperterminal” sheet.

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.