

PORTATREE TIMING SYSTEMS, INC.

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SNOWMOBILE DRAG RACING INSTRUCTIONS INSTALLATION PROCEDURE

1. Unpack all of the equipment and immediately inspect for shipping damage. Damages should be immediately reported to the carrier and noted on the carrier's receipt. Hidden damage should be documented and shown to the carrier's representative. Check the contents and match up to the invoice and packing list.
2. The first track function is to layout the track. The starting line should be selected and temporarily marked. The starting line will consist of a pre-stage (which you will be using as a stage) and a stage (which you will be using as a start e.t.) infrared photo cell in both lanes. The connectors are marked. In snowmobile drag racing the stage (prestage) should be 15 inches before the start e.t. photo cell. All downtrack detector locations should be measured from the start e.t. photo cell beam line. The start e.t. photo cell has a reversed output and when used, illuminates the stage light on the tree constantly.
3. When the starting line is marked, you can mark the 594 and the 660 foot locations by measuring down the sides of the track. All measurements are from the start e.t. beam location. Use some sort of stable marker to mark the track surface at the left side, center, and right side of the track surface so that if someone hits any of the locations, they can be readily accessed.
4. After the entire track is marked, you can begin locating the detectors. The banner SBL1 reflector type infrareds will be used at all locations. A reflector stand will be mounted on the outside of the track at each of the downtrack locations and should be securely fastened so that they will not be unsecured while racing.
5. All mounting stands and brackets should be made of very rigid material so as to resist vibration and flexing. The starting line detectors will be mounted back to back with plenty of adjustment for moving the detector up/down and left/right.
6. The mph, and finish infrareds should be mounted in the middle of the track surface. Run a pull line tight across the track and align the photo cells so that they are even with the outboard reflectors and the marker line.
7. The wiring of the track can now begin. All wires for the starting line are pre-wired at Portatree and only need to be routed to their respective locations.
8. The Christmas tree should be located about 25 to 30 feet out in front of the starting line. The cable is long enough to give you the distance option. An extension cable can be purchased locally if you wish to locate the tree further down the track.

NOTE: LIGHTNING DAMAGE IS THE MAJOR CAUSE OF TIMING SYSTEM FAILURE AND IT IS MAINLY CAUSED BY WIN LIGHTS. PLEASE MAKE EVERY EFFORT TO PROTECT YOUR SYSTEM FROM LIGHTNING AND COSTLY DOWNTIME. ALSO MAKE SURE ALL PHOTO CELLS, PORTATREE PROFESSIONAL, CHRISTMAS TREE AND TIMESLIP PRINTER AND/OR SCOREBOARDS ARE DISCONNECTED WHEN NOT IN USE.

9. Before connecting the computer (do not connect the PORTATREE PROFESSIONAL at this time), power up the interface box by connecting the red wire to positive and the black wire to ground 12 Volts D.C. an AC to DC converter can be used but it must have a minimum of 2 amps of supply current (please do not use an inexpensive converter or you may have operation problems). We recommend a 12 volt automotive battery as it is probably the best source of D.C. power you will find. We generally like to see between 12.5 and 14.0 Volts D.C. when measured on the buss bars with a volt meter. Run a 6 amp battery charger on the battery.

- Note:**
- A. Do not power up the PORTATREE PROFESSIONAL Computer until all tree and Track connections are properly attached to the Sub D Connectors.**
 - B. Do not use the small transformer to power up the Portatree Professional in conjunction with the interface box. The interface box will power up the Portatree Professional.**
 - C. Power level voltage is CRITICAL!! If you seem to have a staging problem (.000 reaction time) in one lane, you more than likely have a low voltage level problem. Check with a volt meter.**

WARNING!!!! DO NOT ATTEMPT TO ADJUST SENSITIVITY OF THE PHOTO CELLS UNLESS YOU HAVE READ ALL OF THE INSTRUCTIONS AND ARE KNOWLEDGEABLE OF THE PORTATREE PROFESSIONAL SYSTEM. PLEASE NOTE THAT THE INFRARED PHOTO CELLS SHOULD REQUIRE NO ADJUSTMENT.

10. After powering up the interface box you will have power to all of your detectors but the pre-stage and stage lights on the Christmas tree will not work until the computer is connected. You can align all of the detectors by sweeping left/right and up/down. The red L.E.D. will illuminate when the detector is aligned. Read the literature on the banner units to efficiently align them. They may require sensitivity adjustment (please see warning above). All reflector type banner units should be aligned on center of the target so that they will be perfectly aligned. Half of the target should be able to be covered before the L.E.D. on the top of the unit goes out. If the target has to fully covered, to make the L.E.D. go out, then it is set too sensitive, It must go out when half or a little more than half of the target is blocked. **Warning!! Adjustment can be made by removing the adjustment access plug and turning the adjustment screw with a very small screwdriver. Read scanner alignment information so that you become familiar with scanner alignment techniques. Note: Reflectors can go bad due to moisture. Try a new reflector.**
11. The computer can be connected after the detectors are all working. Disconnect the 12 volt power to the interface box and then plug the two 25 pin Sub D Connectors into their respective positions. Power up the interface box. Read the manual and watch the video on the Portatree Professional Computers operation. The Portatree Professional Computer is set up at the factory and should be ready to operate. Set the computer accordingly if required.

Please note that you must operate this system with SS : “Y” (YES) so that if there is a bye run, the empty lane will red light when the starter’s switch is contacted. This is due to the fact that the stage light is always on so that the computer thinks that a race vehicle is in both lanes--all the time.

THIS IS HOW ASPHALT DRAG TRACKS SET THEIR SYSTEMS-FOR YOUR INFO ONLY

12. Now the starting line can be set using the pre-stage and stage lights on the Christmas tree. Use the Portatree Video to understand how rollout is set and build a rollout wheel to set the rollout. After the rollout is set and the starting line is securely fastened, we must limit the field of vision of at least the stage receivers so that unwanted reflections will not affect their performance. This is done by locating 1 inch steel pipes - - 24 inches long - - in front of the receiver - - so that it is between the stage receiver and the emitter. Position the pipe so that the red L.E.D. on top of the banner receiver stays on and is unaffected by the pipe. Only the receivers need this protection. A bracket must be made to fix the pipe in position. The pipe should be painted inside and out with flat black paint (not

semi-gloss or satin). You can do the same to the pre-stage, but it is not necessary. After the detectors are set and aligned, covers must be made to keep the detectors out of the direct sunlight and heavy moisture conditions (direct rain).

13. All detectors must have covers over them to keep them out of the weather and to keep the sun from directly contacting them. The starting line can take additional to set up correctly so you may want to make permanent type fixtures that allow for quick setup.

Please be very careful during installation to avoid lengthy trouble shooting. If you have any questions, please call.

We recommend setting the system up in good sized building first and running some indoor foot races to fully understand the system.

Please read the attached snowmobile photo cell height and distance sheet that is attached.

IF YOU HAVE ANY QUESTIONS PLEASE:

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