



INNOVATION. TECHNOLOGY. RELIABILITY.

*Track Safety Extended  
Software  
Owner's Manual*

*for use with  
Networked Track Safety Lights  
and Black Flag Displays*

rev C.6.4

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## PRODUCT INFORMATION LINKS

RaceAmerica Website	<a href="http://www.raceamerica.com">www.raceamerica.com</a>
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Product Warranty	<a href="http://www.raceamerica.com/legal.html">www.raceamerica.com/legal.html</a>
Service & Repairs	<a href="http://www.raceamerica.com/service.html">www.raceamerica.com/service.html</a>
Technical Assistance	<a href="http://www.raceamerica.com/techcall.html">www.raceamerica.com/techcall.html</a>
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Product Catalog	<a href="http://www.raceamerica.com/catalog.html">www.raceamerica.com/catalog.html</a>



NOTE: This software program utilizes an internal Server and/or Client to communicate with track safety devices and software programs.

Many of the Windows operating systems will detect this operation and alert the user with a choice to block this type of communications using the Windows Firewall. In order for this software to communicate properly with track safety devices and software, insure all network types (Private, Home, Public, etc) are selected (if applicable) and ALLOW ACCESS and/or UNBLOCK is selected. If the user's response to this prompt is to KEEP BLOCKING or CANCEL or ASK ME LATER, Windows will restrict the communications between this program and other devices and software and block the communications, limiting the effectiveness of this software program.

NOTE: These Windows Firewall prompts will occur only on the first time the Windows operating system encounters an attempt by this software to communicate. The user will not be prompted the next time this program runs making it invisible to the user of a blocked or unblocked communications path. The input at these prompts is stored by Windows Firewall and does not change after the computer is rebooted.



## THEORY OF OPERATION

The TrackSafetyEX Software runs on a standard 32-bit or 64-bit PC using Windows XP, Vista, Windows 7, 8 or 10 operating systems. The software communicates with the Intelligent Track Safety Lights (TSLs) and Black Flag Displays through hardwired RS485 or network connections. The software operates in two basic modes; SETUP and RUN.

Three setup modes: Track, Flag, & Lights configure all aspects of the software and hardware using drag and drop features.

Setup mode provides the ability to move and rotate TSLs on the PC screen to match their physical locations on the track using a user supplied track diagram image file to serve as the screen background. Brightness levels for the TSLs can be adjusted and TSLs can be grouped to illuminate the same flag by clicking on any one TSL in the group.

In Config Flag mode, 16 unique flags with 8 configurable segments each can be colored, animated, and interconnected to provide a series of flags to execute automatically.

In Config Light mode, each TSL can be enabled or disabled, assigned an ID and Panic Flag, and spare TSLs can be swapped in and out of use.

Run Event mode is designed for live practice or race event operation. Data Comm Link and Battery levels for each TSL can be monitored and displayed. If utilizing Black Flag Displays, numbers are entered through the number pad on the computer keyboard.

## INSTALLING THE PC SOFTWARE

To install the TrackSafetyEX software double click the setup icon and follow the program prompts to automatically install the software and all necessary files.

Connect the PC to the network to acquire an IP address. Connect each TSL to power and to the network using the IP TrackNet network interface. The PC and TSL's acquire their network IP Address through DHCP unless static addresses are requested by the customer. Network configuration will be transparent to the user.

The TrackSafetyEX software icon and the Owner's Manual icon will be placed on the computer's desktop. Double click the TrackSafetyEX icon to start the program.

## STARTING THE SOFTWARE

To start, double click the TrackSafetyEX icon. The program maintains an audit file date and time stamping actions by the operator as well as flags selected and displayed on each light on track. The audit file also logs issues when the program and each light is not communicating or the light is not responding to commands from the program. Each time the operator QUITs the program, the audit file is copied to the audit file folder and renamed with the date and a system generated number. In the event the program is started and ended multiple times, there will be several audit files with the same date stamp but different system generated number in chronological order.

In the event the program crashes or computer loses power, the audit file remains intact until the next time the program is QUIT retaining all logged entries since the previous QUIT. This insures no lost data in the log files.

Figure 1 will prompt to choose the Data Comm Link Type, Network or RS485. When using the RS485 DATACOMM, click on the desired PC COM port to proceed. If the desired COM port is not listed, QUIT the program and check the USB cable connections and restart the program. If this is demo software, the Demo Simulator will appear on the screen as shown in Figure 2b and the COM port selection will be skipped. The Demo Simulator is discussed later in this manual.

When NETWORK DATACOMM is selected, the pre-configured network port numbers are

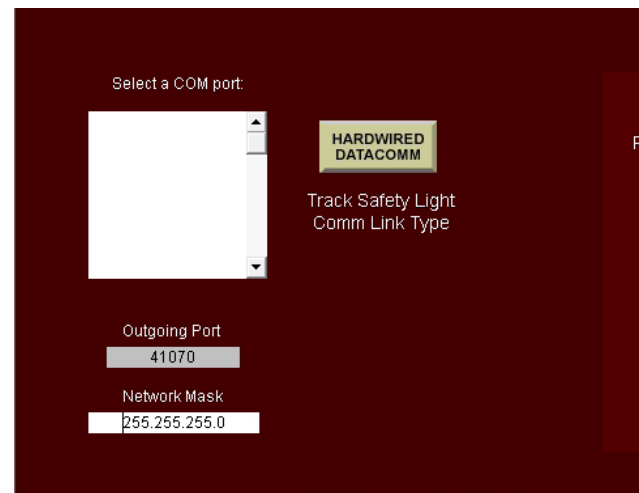


Figure 2 - Data Comm Selection

displayed. Enter the mask used by the network. The network port numbers cannot be changed and the software will auto configure the network connections

Once the desired Data Comm Link Type is selected, click SAVE SETTINGS to continue. Other software preferences and options are also displayed on this screen and discussed in depth later in this manual.

## INITIAL CONFIGURATION

To configure the software to match track and safety light hardware, perform the following steps selected from the Main Menu:

- 1) Click on Track Setup to position each safety light on the track and assign turn numbers to each safety light.
- 2) Click on Configure Lights to enable each safety light and assign an ID.
- 3) Click on Configure Flags to create custom and animated flags to match your race event.
- 4) Click on System Settings to select the desired options when running an event.
- 5) Click on Remote Control to configure iPad and iPhone Hand Control and third party software.

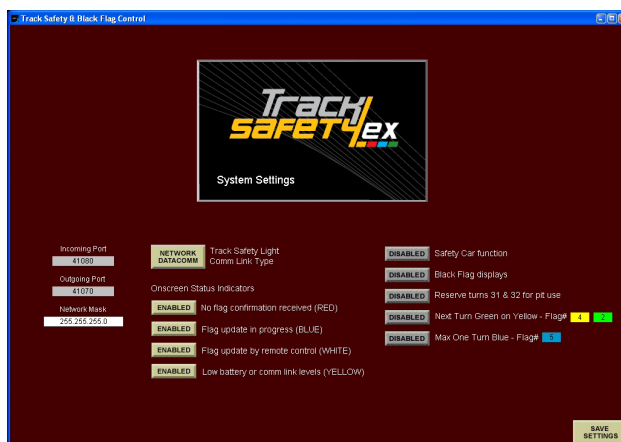


Figure 1 - Systems Settings screen

## MAIN MENU

The Main Menu is the next screen displayed as shown in Figure 3. The Main Menu displays all the setup, run, and monitoring functions of the software.

**LOAD** - Use to load a previously saved Track Safety file with background image, TSL placement, size and transparency, configured flags, and TSL enabled IDs and Panic Flag. *(Note: the software comes pre-loaded with a few sample files).* LOAD will prompt with a list of previously saved files to select from. Click on the desired file to load and preview the image onscreen.

**SAVE** - Stores the current image, TSL placement, size & transparency, configured flags, and TSL enabled IDs and Panic Flag. Enter the filename to save the current settings for recall using the LOAD function.

**RESET** - Clears all configured track, flag, and TSL settings and track image.

**SYSTEM SETTINGS** - Configure the software for type of communications and error reporting. The functions on this screen are discussed later in this manual.

**RUN EVENT** - Displays the screen used during a live practice or race event to control the flags displayed by each TSL on track. The RUN EVENT screen is discussed in detail later in this manual.

**TRACK SETUP** - Use to select the background image, position the TSLs onscreen to correspond to their physical position on track. The TRACK SETUP screen is discussed in detail on page 7 in this manual.

**CONFIG FLAGS** - Use to design and configure each of the 16 flags displayed by the TSLs to meet track and racing needs. The CONFIG FLAGS screen is discussed in detail on page 9 in this manual.

**CONFIG LIGHTS** - Use to enable or disable each TSL by ID number. Also used to swap out TSLs and reassign spare units. The default Panic Flag is configured on this screen. The CONFIG LIGHTS screen is discussed in detail on page 10 in this manual.

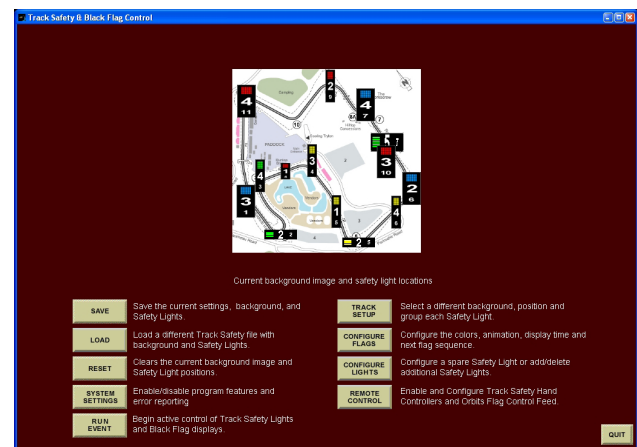


Figure 3 - Main Menu screen  
(No image appears first time program is run)

## TRACK SETUP SCREEN

This screen, displayed in Figure 4, is used to configure the onscreen overhead view of the track and position of each TSL.

Each TSL ID enabled on the CONFIG LIGHTS screen is displayed. IDs consist of a color (red, green, blue or yellow) and a number (1, 2, 3, etc.) combination. Position each TSL by clicking on an TSL ID and drag and drop in position on the track image. To rotate the TSL to a horizontal orientation, right click the TSL. Right click again on the TSL to change back to a vertical orientation onscreen. It is very important to insure the TSL ID screen location matches its physical location on track.

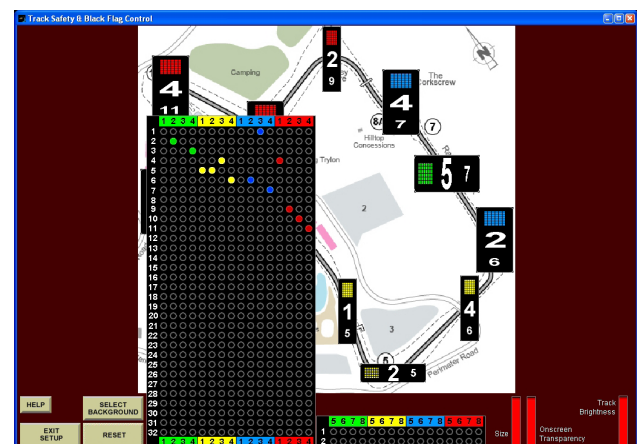


Figure 4 - Track Setup Screen



**SELECT BACKGROUND** - Click to select a file containing an overhead image of the track used by the software as the onscreen background track image. Compatible file formats are JPEG, JPG, BMP, GIF and PICT image files, either photos or drawings. The Track Safety program will prompt for the location of the track image file. After selecting the desired file, the software resizes the image to best fit the PC screen size. Higher resolution image files will result in clearer background images of the track.

**RESET** - Click to clear the track image file and reset the TSL position onscreen.

**TSL TURNS** - This function is used to group TSLs together so all TSLs in a turn group will always display the same flag when one of the TSLs is selected. For tracks with difficult corners requiring multiple lights to effectively alert drivers, multiple safety lights can be grouped together to function as a single safety light. 32 different turns are available designated as turn 1 through 32. Notice in Figure 5, there are two turn group tables at the bottom of the screen containing TSL IDs 1 thru 4 in the left popup and IDs 5 thru 8 in the right popup. To link TSLs into a turn group for a specific turn, locate the ID color and number, then move down to the desired turn number and click in the circle. The circle will change color and the TSL onscreen will display the turn number selected. To remove a TSL from a turn group, click on the colored dot again. To change turn groups, click on the circle of a different letter and the TSL will transfer to that turn group.

**SIZE** - To change the displayed size of the TSLs, click and hold down while dragging the red bar up or down within the Size bar. Note the size of the TSLs onscreen will change as the red bar

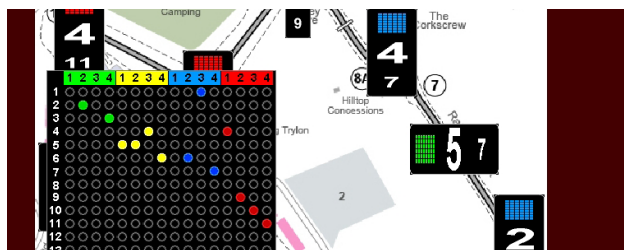


Figure 5 - Linked Turn Groups

expands and shrinks in size.

**TRANSPARENCY** - To change the displayed transparency level of the TSLs onscreen, click and hold down while dragging the red bar up or down within the Transparency bar. Note the onscreen TSL will become more transparent as the red bar shrinks in size. Compare size and transparency settings and TSLs in Figure 4 and Figure 6.

**BRIGHTNESS** - To change the brightness level of the physical TSLs on track, click and hold down while dragging the red bar up or down within the Brightness bar. Note the brightness levels of the flags displayed on TSLs on track will dim as the red bar shrinks in size.

**HELP** - To view a 'cheat sheet' explanation of the functions on this screen.

**EXIT SETUP** - Returns to the MAIN MENU screen.

**NOTE:** to expand the software screen to the maximum size, click on the maximize button located in the upper right corner of the window containing the program. The image will be expanded to best fit the new screen size.

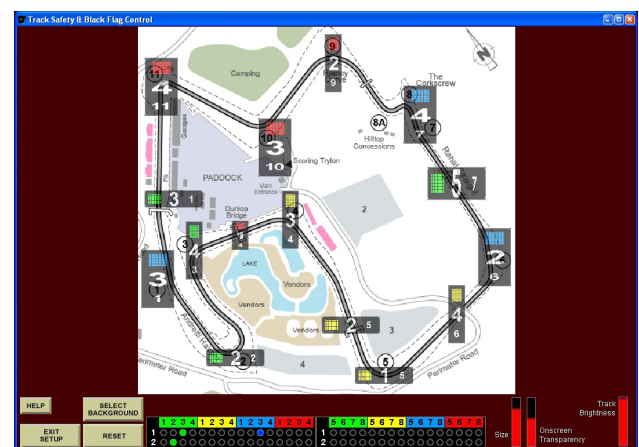


Figure 6 - Size and Transparency example (compare to Figure 4)

## CONFIG FLAGS SCREEN

Figure 7 illustrates the Config Flag screen layout. Each TSL has a full size LED display panel designed with eight individually configurable segments of LEDs. Five segment colors are available, red, green, blue, and yellow and, of course, black or no color. The Config Flags Screen contains 16 configurable flags to meet the needs of the race event and safety flag requirements. When the software is first run, there are six flags preconfigured as examples. To change a segment on a flag, click the segment. Rotate through each available color by repeated clicking. To duplicate a flag, right click an existing flag, then drag and drop onto a second flag. The segment colors will be duplicated on the second flag.

**FUNCTION KEY SHORTCUT** - Once all eight segments of a flag are configured, a keyboard shortcut can be assigned using one of the 12 Function Keys generally available on a PC keyboard, F1 through F12. Click on the Function Key box directly below the flag to select a function key. Once selected, the function key is displayed on the flag.

**FLAG ANIMATION** - Each flag can be animated using one of the 16 pre-configured animation patterns listed on the right side of the PC screen. To select an animation, click on the Animation box directly below the flag to

be animated. To view the flag animation with the color segments selected, click the TEST ANIMATION button. All 16 flags will display their selected animation pattern using the color segments of each flag. Click EXIT ANIMATION to return to the Config Flags screen.

### TIME TO ALTERNATE and

**ALTERNATE FLAG** - A sequence of flags can be interconnected to provide a more noticeable flag pattern to the drivers. An example would be to click on a flashing green flag that would change automatically to a solid green flag after 5 seconds and turn off the green after 10 more seconds. The flag to be displayed first would be configured for the number of seconds before the next flag is displayed. Enter the number of seconds (up to 999 seconds) into the Time To Alternate field directly below the first flag. Enter the next flag number in the Alternate Flag field below the number of seconds entered.

For example, enter 10 in the Time To Alternate field of flag #2 and a 6 in the Alternate Flag field of flag #2. When flag #2 is selected on the Run Event screen, it will display for 10 seconds then change to flag #6. Furthermore, also entering a 5 in the Time To Alternate field in flag #6 and a 10 in the Alternate Flag field of flag #6 will further extend the flag changing. Now selecting flag #2 on the Run Event screen will cause flag #2 to display for 10 seconds, then change to flag #6 which will display for 5 seconds before changing to flag #10. This function allows multiple color patterns and multiple animations to be used to more effectively get the driver's attention separating the safety lights from other lighting on the track. When a flag is configured to change to an alternate flag, an arrow will appear in the upper right corner of the flag. Zero seconds disables the alternate flag function for a given flag.

**NOTE:** When multiple flags are interconnected, there are times one of the alternate flags will never be used by itself. Removing intermediate flags from the Run Event screen is helpful to reduce flag selection error. To remove the flag from the Run Event screen, click on the flag number above a flag and a red

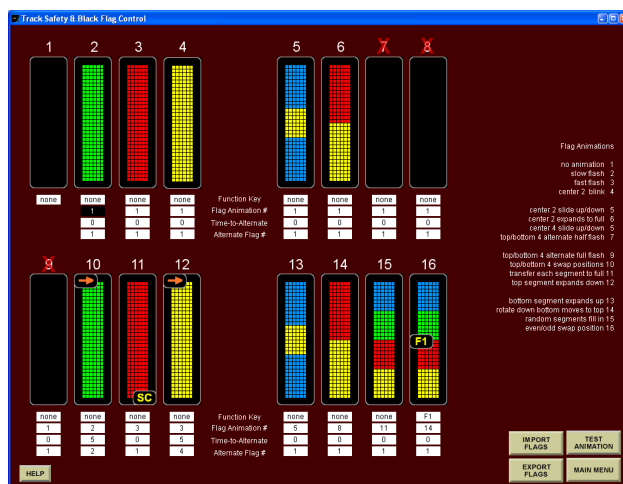


Figure 7 - Config Flags Screen

*X will appear to confirm.*

**IMPORT/EXPORT FLAGS** - To save a copy of the 16 configured flags with function keys, animations, and alternate flags functions, use the Export Flags function and enter a filename. To load a previously saved set of flags, use the Import Flags function and select the filename for the desired set of previously exported flags.

**HELP** - To view a 'cheat sheet' explanation of the functions on this screen.

**MAIN MENU** - When finished configuring flags, click to return to the Main Menu. If a flag was altered or a flag set loaded, the software will prompt to keep the changes, discard the changes, or return to the Config Flags screen.

## CONFIG LIGHTS SCREEN

Up to 32 safety lights can be enabled by the program and up to 3 spares safety lights can be made available to be swapped into service or added to the already enabled safety lights as shown in Figure 8. When this screen is displayed, the program polls the track for all active TSL IDs and spare TSL IDs. All active TSLs on track display their ID code as one of four colors (red, green, blue, or yellow) and a number of illuminated segments (1, 2, 3, etc).

**ENABLE/DISABLE ALL** - To enable all IDs for use by the software, click the ENABLE ALL button. All onscreen IDs will be illuminated. To disable all TSLs, click the DISABLE ALL button and all onscreen IDs will be grayed out. To enable a single TSL, click on the onscreen ID

and the ID will illuminate. To disable a single ID, click on an illuminated onscreen ID. All enabled TSLs will be available for use on the Track Setup and Run Event screens.

**NOTE:** *It is important to insure only active TSLs are enabled on this screen to maximize the efficiency of the communications between the tower and the on track TSLs. IDs enabled onscreen but do not exist on the track will cause the software to repeatedly poll attempting to establish communications with the missing safety light.*

**TIMEOUTS and PANIC FLAGS** - When an TSL responds, its on track ID is loaded below the corresponding onscreen ID as well as its Revision level, configured Timeout parameter and configured Panic Flag as shown in Figure 8. A Panic Flag will be displayed on an TSL if there is a complete breakdown in communications with the tower or an electrical failure occurs with the TSL. This is a safety backup function to continue to insure the correct flag is displayed by each safety light on the track.

In Figure 8, ID Green 1 is configured to change to an all yellow flag if there is a communications breakdown or it is unable to communicate with the tower for 10 seconds. In the case of ID Blue 2, the Panic Flag configured in the safety light does not match any of the configured flags being utilized by the software and a question mark displays. To change the Panic Flag and/or Timeout, select a Default Panic Flag at the bottom of the screen and enter the number of seconds in the Timeout field, then click ASSIGN PANIC FLAG. A value of 0 seconds disables this function.

**REASSIGN IDs and SPARES** - To change the assigned ID of an TSL on track, click on an existing ID. Note the flag sticks to the cursor until it is placed over a different ID and clicked again to reassign. The next software polling of the track will display the ID change and the TSL will display the newly assigned ID.

**HELP** - To view a 'cheat sheet' explanation of the functions on this screen.

**MAIN MENU** - When finished configuring

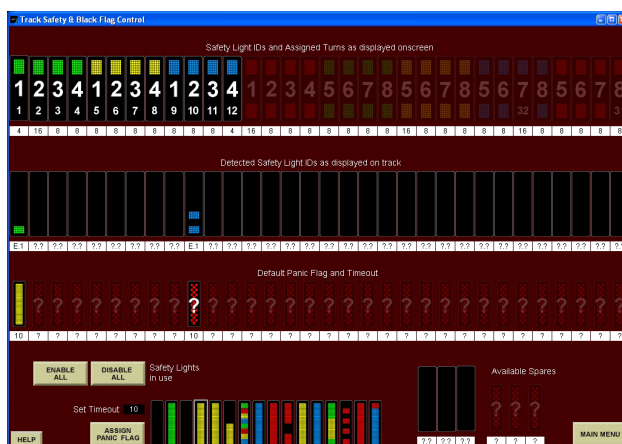


Figure 8 - Config Lights Screen

lights, click to return to the Main Menu.

## RUN EVENT SCREEN

Figure 9 illustrates the main screen used when running a live practice session or race event. The track image, enabled TSL placement, turn group assignments, and configured animated flags all appear on this screen. To assign a flag to a TSL, first, click the desired flag and a blue frame appears to confirm. Second, click the safety light onscreen to assign and a blue frame will flash to confirm (if enabled in System Settings). The onscreen TSL will display the assigned flag and animation while the program sends the new flag information to the TSL on track. If other TSLs are turn grouped with the selected TSL, they will also be updated with the new flag and animation. If the desired flag is already highlighted with the white frame, click additional safety lights on screen to assign.

Two specialty flags are also available: all white (one lap to go) and alternating white/black (finish flag). These two flags combine all the TSL colors to produce a simulated white flag color.

When the SC is assigned to a flag and to minimize accidentally turning the SC displays on at the wrong time, the program will prompt for confirmation of the SC display.

**UPDATE ALL** - After selecting a flag to be displayed, click on this button to assign the flag to all enabled TSLs. This is convenient when red flagging the entire track in one click.

**LINK AND BATTERY** - The program

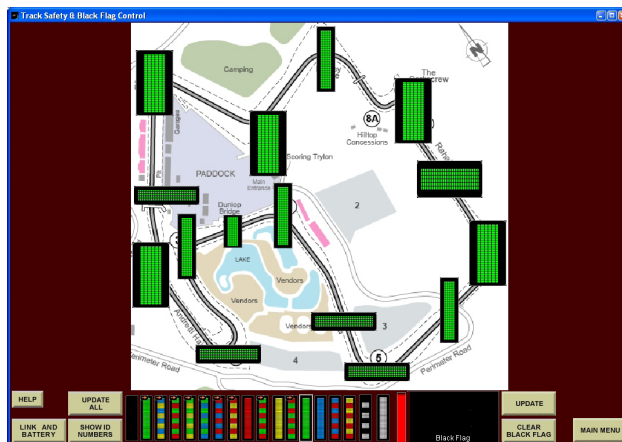


Figure 9 - Run Event Screen

monitors the Data Comm Link Integrity level established with each TSL on track as well as measuring the reserve Battery level connected to each TSL. To display these montiors, click the LINK AND BATTERY button and Figure 11 appears. Click on the LINK or BATT table and drag and drop it on the screen in an open area. Do not cover a safety flag or the flag will not be visible on the Run Event screen. Once placed, click the EXIT LINK BATT button to return to the Run Event screen. Click this bitton again to remove the tables from the Run Event screen.

**SHOW ID NUMBERS** - Click and hold this button to show TSL ID color/numbers and Group Letter (if assigned) on the PC screen. Release the button to hide and return to live control.

**BLACK FLAG UPDATE** - This display is operated by using the numbered keypad on the your PC keyboard. Enter the number to display and click the UPDATE button to transmit to the Black Flag Displays. If the UPDATE button is not pressed within 5 seconds, the displayed number will revert back to the previous entry or go blank if no number was previously entered.

**CLEAR BLACK FLAG** - Click to immedaitely clear all Black Flag Displays.

**HELP** - To view a 'cheat sheet' explanation of the functions on this screen.

**MAIN MENU** - Click to return to the Main Menu. Safety Lights will not be updated after leaving the Run Event screen and the Panic Flags may be displayed by default.

**NOTE:** to expand the software screen to the maximum size, click on the maximize button located in the upper right corner of the window containing the program. The image will be expanded to best fit the new screen size.



Figure 10 - Brightness on Run Event screen



## SYSTEM SETTINGS

This section will select the type of data communications between the PC and the ontrack TSL's as shown in Figure 12. Click on the button to toggle between Hardwired RS485 communications and IP Network communications.

Select the real time errors to be displayed onscreen by clicking a button to enable or disable visual reporting of errors.

## ERROR CONDITIONS

The software polls the TSLs on track on a regular interval and confirms the correct flag is being displayed, data communications link integrity levels, and reserve battery levels for each TSL. Each time a response is received, the displayed flag for that TSL is confirmed to be correct. If a response is not received by every enabled TSL on track (flag not confirmed), the software will poll again attempting to confirm the current flag with each TSL. If an error condition is detected by the software, a visual indicator will appear onscreen framing the TSL where the failure has been detected.

If a response is not received from a safety light, the safety light onscreen is highlighted with a rapidly flashing red frame as shown in Figure 13a.

If a response was received from a TSL but the Data Comm Link level or reserve Battery level is below minimum levels, the detected TSL will display a slowly flashing yellow frame as shown in Figure 13b.

If a remote hand controller (iPad/iPhone) or Third Party software has overridden the last flag sent by the tower, the TSL will display the new flag and frame the TSLs effected with a rapidly flashing white frame as shown in Figure 13c. Until the tower has sent a new flag to the TSL or cleared it, the white frame will continue to flash.

If a TSL on track has been configured with a Default Panic Flag and Timeout, AND, has not received a poll from the tower for more than the Timeout, the Default Panic Flag will be displayed until the TSL receives a poll from the tower. Before this happens, the PC screen will frame the suspect TSL with the red frame as shown in Figure 12a to alert the operator of a communication error and possible Panic Flag to be displayed. This is a safeguard against power loss, an accident with a safety light on track, a breakdown in communications, etc. to insure the TSLs will be displaying a predictable flag controlled by the tower and the TSL configuration selected by the user.

## RUN EVENT OPTIONS

Additional features can be enabled and disabled to further customize the automatic operation of the software and safety lights during the race event (see Figure 12).

**PAGE FLASH ALERT** - If any of the onscreen status indicators are enabled and an error condition occurs, a visual flashing alert can be

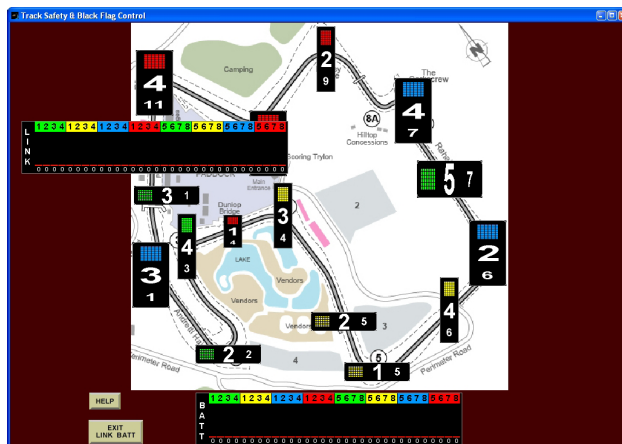


Figure 11 - Link/Battery Monitoring

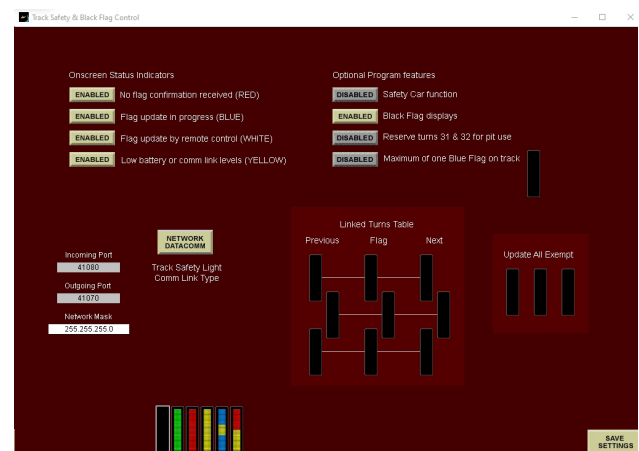


Figure 12 - System Settings Screen

enabled as an attention getter. The background behind the track image on the RUN EVENT screen will flash red if an error condition is triggered,

**BLACK FLAG DISPLAYS** - Click to enable or disable the Black Flag displays on track and remove the onscreen references. When enabled, the Black Flags positioned around the track are included in the DSF/TSL polling.

**RESERVE TURNS** - Safety lights can be used to control Pit In and Pit Out for the drivers controlled from a hand control or tower. Normally when a full track yellow or green occurs, all safety lights display the same flag. To reserve safety lights for pit use, enable this function and configure the Pit In safety lights on turn 15 (wireless) or turn 31 (IP network) and Pit Out safety lights on turn 16 (wireless) on turn 32 (IP network). When enabled, turns IDs assigned to Pit In and Pit Out will not display full track flags and can be controlled separately by the tower or a hand control.

**LINKED TURN TABLE** - When a flag is assigned to a turn, another flag can automatically be assigned to the previous turn and the next turn using this table. To link previous turn and next turn flags, click on a flag at the bottom of the screen and then click the box under the PREVIOUS column for the previous turn, FLAG column for the offending turn, or the NEXT column for the next turn on the track. Up to three relationships between flags and turns can be configured. Figure 12 illustrates a yellow flag send to a turn will cause the previous turn to be a double yellow and the next turn to be a green.

**UPDATE ALL EXEMPT** - When a flag is assigned to a single turn, then a full track flag is selected, there are times when it is desired to keep the single turn assignment during the full track flag. Selecting the desired flag and placing it in this table makes that flag exempt from UPDATE ALL full track assignments.

**NOTE:** *The linked turn table requires turns assigned to IDs are contiguous without numeric gaps. This may require IDs be assigned to incremental turns even though the number may not be the actual track turn number.*

## REMOTE CONTROL



Figure 13a - No response from iTSL



Figure 13b - Low Comm Link or Battery



Figure 13c - Remote Override

Control of the TSL's can be direct from the screen or from two remote sources, thirdparty software packages like Mylaps Orbits software using the Rmonitor Feed, and RaceAmerica's Hand Control using our Track Safety App and an iPad or iPhone or iTouch.

**HAND CONTROL** - To enable the Hand Control Server, enter a SERVER PORT number under the Hand Control Server, then click the ENABLE SERVER box to enable. When the server is enabled, a confirming message will be displayed. Up to eight Hand Controls can be enabled and assigned to control all turns or a specific turn. Up to five flags can be assigned to each Hand Control.

To 'pair' a Hand Control with the Track Safety software, start by clicking REMOVE in one of the rows to reset the current entry, then enter a DEVICE NAME to be assigned to the Hand Control. The software will edit out unusable characters as you type.

Next, click on the TURNS CONTROLLED column and select a specific turn number or ALL. ALL provides full control of all turns as well as individual control of each turn. Up to five flags can be assigned to each Hand Control by clicking on a flag at the bottom of the screen, then clicking in one of the 5 slots under HAND CONTROL FLAG ASSIGNMENTS.

Next, click the box in the SELECT TO PAIR column.

On the iPad/iPhone/iTouch, insure a 3G or

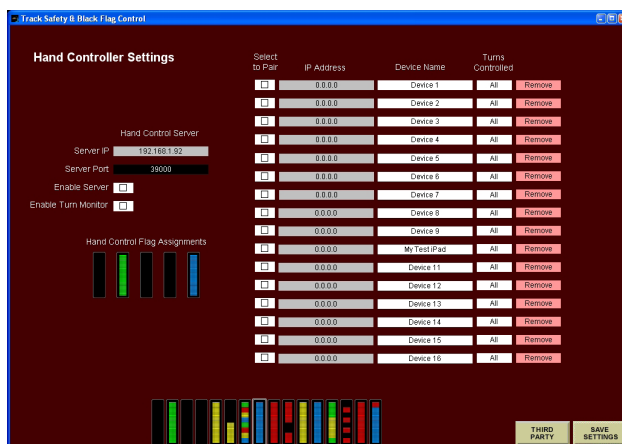


Figure 14 - Hand Control Screen

WIFI connection is available and start the Track Safety App. Enter the server IP address and server port number into the Hand Control setup screen as shown in Figure 15. Click ATTEMPT PAIRING on the Hand Control to begin the pairing process. Once paired, the IP address of the Hand Control will appear in the IP ADDRESS column of the Track Safety software and the Hand Control will confirm with HAND CONTROL IS PAIRED, then press SAVE on the Hand Control to finalize the pairing and flag assignments. The iPad/iPhone/iTouch will display the turns enabled and the five flags assigned on the iPad/iPhone/iTouch. At any time, the Track Safety App can be terminated and the turns and flags are stored. When the App is restarted, and the server is enabled in the Track Safety software, the pairing will be reconfirmed automatically. If any of the assigned flags have changed, a message will be displayed on the Hand Control and the new flags assigned and displayed on the iPad/iPhone/iTouch.

To enable Turn Status (flag at each turn) to be displayed on the iPad app, click the ENABLE TURN STATUS. On the iPad app, each turn assigned to a safety light will be updated with the current flag and indicate if the safety lights has confirmed if the flag is being displayed on track.

### TSL HARDWIRED HAND CONTROL

- Use this screen to configure the buttons on a hardwired hand controller connected to a TSL. Start by clicking on a flag at the bottom of the

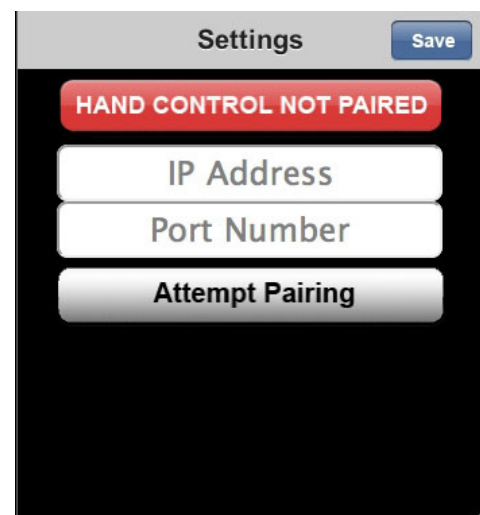


Figure 15 - Hand Control App Setup Screen

screen, then click on one of the S1 through S9 buttons on the hand controller. Once all buttons are assigned, click ASSIGN FLAGS to send this configuration to all TSLs. The flags will be sent to the TSL and confirmed by updating the assigned flags for each button S1 through S9 by ID on the right side.

Use the READ HAND CONTROLS if a TSL was powered on after the hand control flags were sent. To display additional DSF hand control assignments, click the NEXT ID SET to advance to the next eight IDs. The TSL Hand control table stored in each TSL is sent and displayed onscreen. Figure 17 displays the hand control at IDs 1Green through 4Yellow and the nine flags assigned to each button on the hand controller image. In this figure, none of the TSLs have assigned flags for their hardwired hand controller.

**ORBITS SOFTWARE** - Click on the THIRD PARTY button to enable control of the TSL's direct from the MyLaps Orbits software. Go to the Scoreboard Settings screen in Orbits and copy the IP ADDRESS and PORT numbers displayed and enable the Scoreboard Feed. In the Track Safety software, enter the SERVER IP and SERVER PORT under the Orbits Rmonitor Feed. Click the ENABLE MONITOR in the Track Safety software to link with the Orbits software. When the monitor is enabled and linked, a confirming message will be displayed. Orbits offers five different flag conditions all displayed on the Remote Control screen in the Track Safety

software. Click a flag at the bottom of the screen to highlight, then click the TSL flag below the appropriate Orbits flag to assign. When a flag is selected in Orbits, the Track Safety software will assign the selected flag to all TSL's ontrack and frame the onscreen TSL's in white, if enabled.

When the checked flag is selected in Orbits to end a race, all safety lights will display the checkered flag. Entering a the turn number assigned to the start/finish line will restrict the checked flag sent from Orbits to only the start/finish line. To return to all safety lights displaying the checkered flag from Orbits, enter 0. Regardless of what turn number is selected, the UPDATE ALL button with the checkered flag selected will override the Orbits setting.

## END PROGRAM

To exit the program, click on the QUIT button on the Main Menu screen. The software prompts to determine what to do with all the setup and configuration contained in the program as shown in Figure 18.

To restart the program and continue with all setting as they are, click YES to save settings to a file and have that file loaded automatically when the program is run again. The user is prompted for a filename to be used to save all settings and accessible in the future using the LOAD button on the Main Menu screen.

Clicking NO will end the program and not save any settings or configurations of lights or

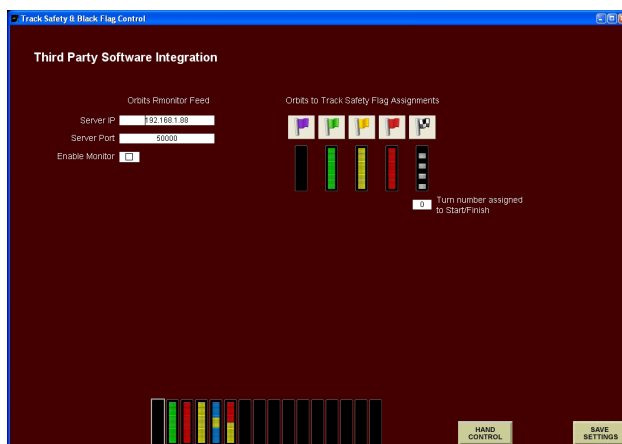


Figure 16 - Third Party Entry Screen

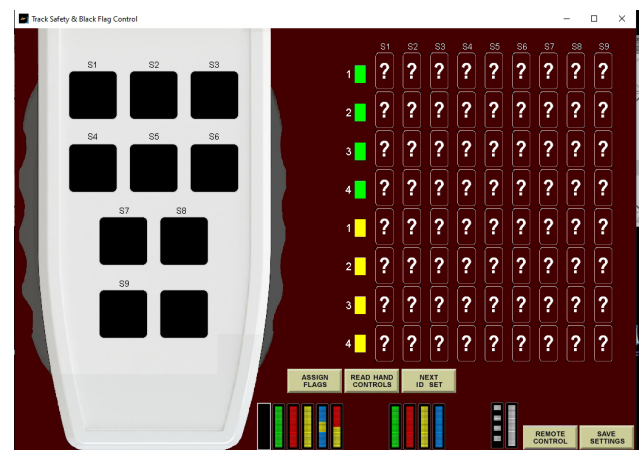
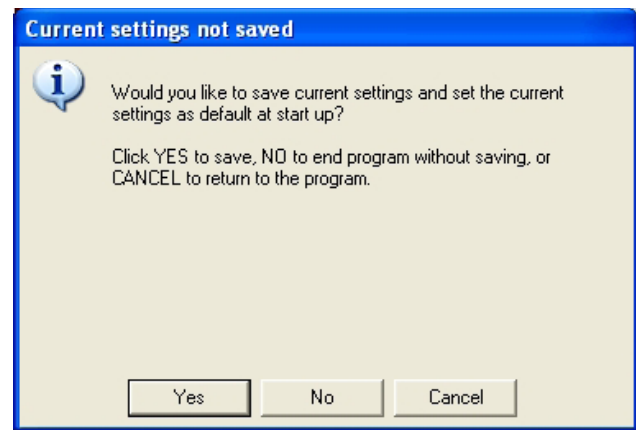


Figure 17 - Hardwired Hand Controllers



flags that may have changed since the program was started.

Clicking CANCEL will return to the Main Menu screen with nothing changed.



*Figure 18 - End program prompt*



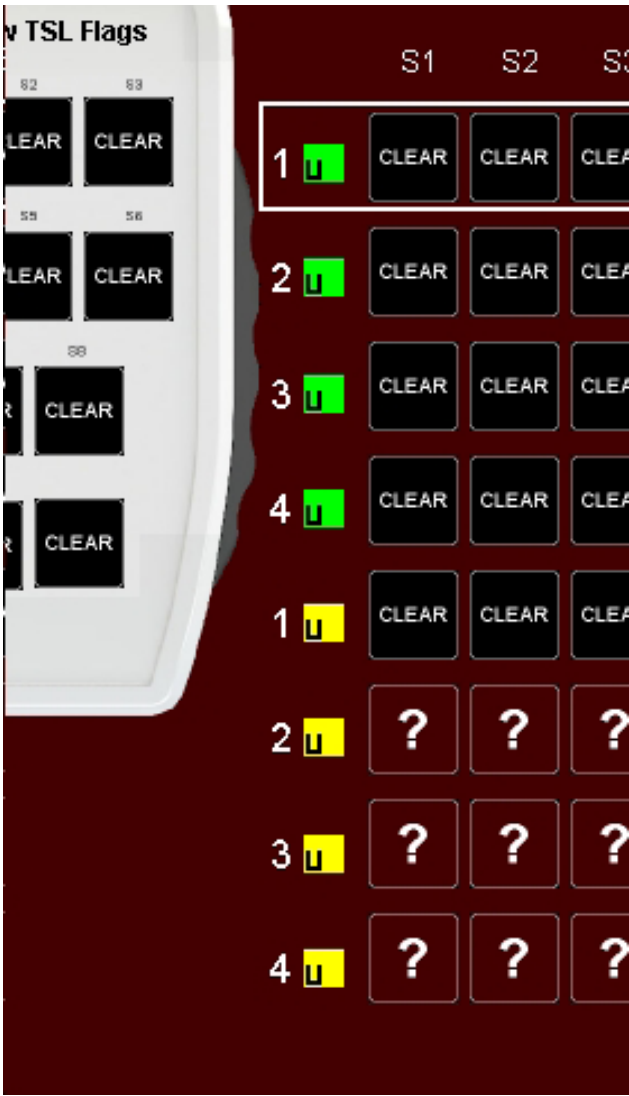


Figure 23 - Flag button assignment