



ElecFix.biz

Flyball Timing System (FTS)



User Guide

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Key Features

The FTS has many features that are built into the system. This manual will cover everything the end user needs to know, but here are a few of the key features.



MATRIX SCREEN - These displays will show cross over times, individual dog run times and total team time. There are 2 displays, one facing the dog handlers, and the other facing the box loaders



LANE LINK - Enables you to run 2 lanes with synchronised start race, end race, reset and practice functions.



SENSORS - Optimally positioned sensors ensure that dogs of any size will be picked up when crossing the FTS infrared beam. Aligning the lights is made easy using the built-in alignment software.



START LIGHTS - Ultra bright LED lights will display a 'READY' warning, a 3-2-1 countdown and 'GO' **GREEN** light.



INTERFACE – Easy to use with a 4x20 LCD screen and ultra robust metal buttons.

Powering The FTS Modules

The FTS is designed to be powered from 12v DC power source using a standard co-axial Cylindrical DC connector with a 5.5 mm outside diameter, 9.5 mm in length and a 2.1mm centre pin, the power connector jack can be found under the main control interface. There is a battery shelf built into the unit for Lithium cell type batteries.



DC type connector



Battery connector jack

It is advisable to use 12v DC rechargeable Lithium cells, however, a car battery or mains powered 12v DC power supply can also be used.

Supplied Battery



(Battery may be subject to change)

Features a built-in power switch.

Ensure the battery is disconnected from the FTS and switched to the ON position when charging.

Supplied batteries will allow for around 3 hours continued use and will take approximately 8-12 hours to fully charge.

We can supply additional batteries if required:

Long life, 5-6 hours of run time

Extra long life, 8-10 hours of run time

Please contact info@elecfix.biz for price detail

If using two FTS with the 'Lane Link' enabled, each FTS should have its own battery connected. The 'Master' FTS (Lane A) will trigger an automatic reset when it recognises a 'Secondary' (Lane B) FTS connected to the LANE LINK Port.

The FTS will consume between 0.5amp – 1.2amp @ 12v.

Warranty

The FTS system comes with a 12 month warranty on all parts and software. After the warranty period has expired **ElecFix.biz** will endeavour to carry out any repairs or software updates at an affordable price.

Setting Up FTS

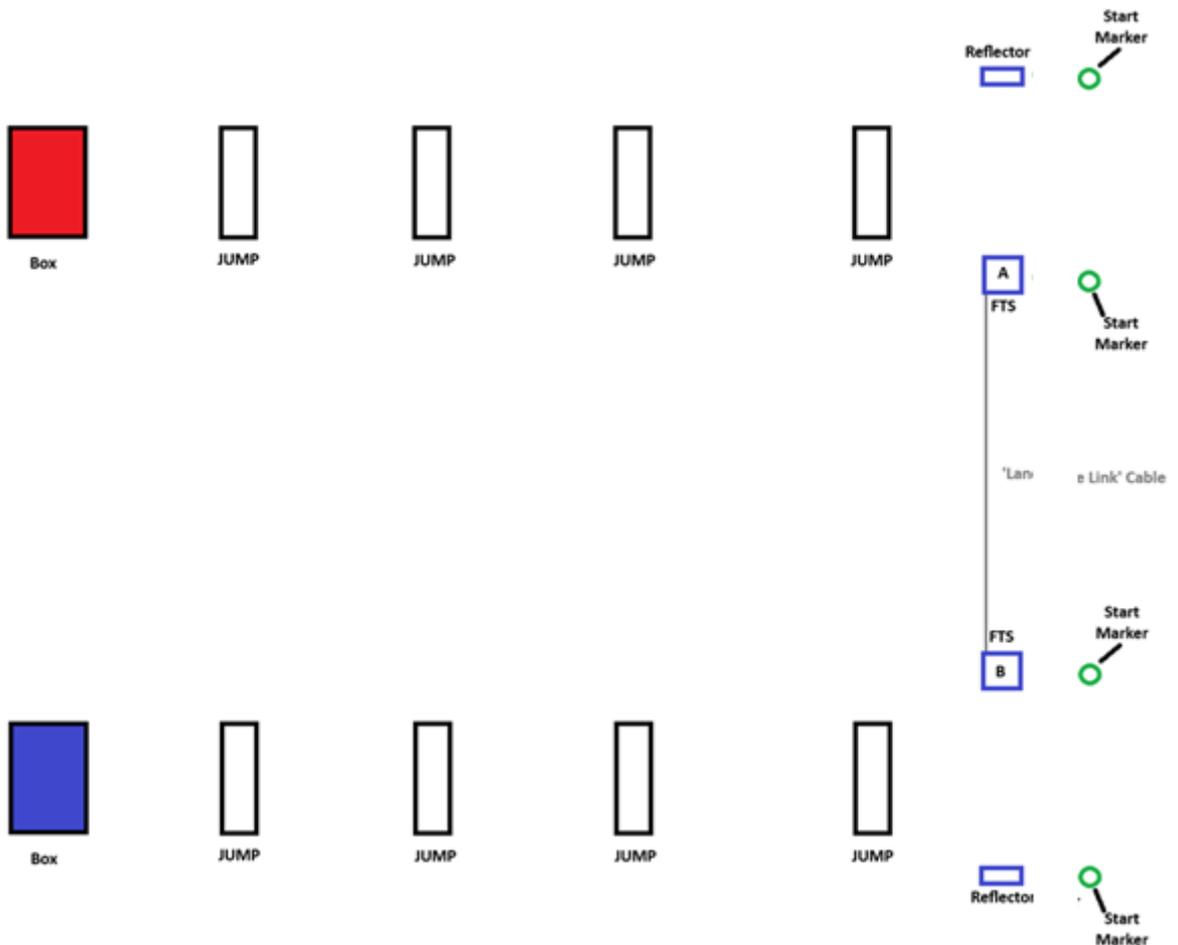
The FTS is supplied in two parts, the control/interface module and the reflector module. Both modules should be placed approximately 1.5m apart with clear line of sight between the two modules.

The FTS module have a label with arrows pointing in the direction of the BOX/BOX LOADER. **Please ensure that this label direction is followed or your lights will not operate correctly**



The FTS's, when linked via LANE LINK, are designed to be used as pictured below with the two control modules facing each other (note locations of FTS A and B)

Typical 2 lane setup:



The LANE LINK function is designed to ensure that there are no trailing cables impacting on the race lanes. The only cable runs between the 2 FTS modules, as shown above.

The FTS software is designed to adjust timings based on having a start marker / start line positioned **3ft from the face of the FTS that is facing towards the Dogs and handlers**

Having a 3ft gap between the start marker and the FTS allows the system to calculate crossover timings, provide negative cross times, reduces incorrect fault recording and prevents an incoming dog being missed by the sensors as it runs behind an outgoing dog.

The sensors will calculate the dogs speed and then compensate for the 3ft gap between the FTS and the start line, this has been fully tested for accuracy and is accurate of 0.01 seconds



Once the equipment is all in the correct location, alignment can commence (refer to the Alignment Mode Function section for more information)

NOTE: If you are only setting up one lane (as shown above) you MUST use FTS A, as this is the MASTER, and ensure it is set up in accordance with the BOX indication sticker



Control Interface

The FTS interface is designed to be as intuitive and user friendly as possible whilst being full of features.

The control interface is not water proof and should not be used in wet conditions.



When the FTS is connected to power (or RESET is pressed) the FTS will automatically enter into Race Mode at this point the screen should display 'RACE MODE!'

Button Actions From Race Mode Home Screen

BUZZER ON/OFF – This switch can be pressed any time and it will turn the in-built buzzer on or off.

START RACE – This button will start the race, pressing this button will trigger a 2 second 'READY' warning (**Red** light) followed by a '3-2-1' (**Amber** lights) and a 'GO' (**Green** light) countdown. (See Race Mode Function on page 12 for more information)

END RACE - During a live race, this button will end the current race and will enter into the race summary screen, pressing the button again within the summary screen will advance the results screen to the next page.

RESET – This button will reset the FTS after a race finished and the trainer/officials are ready for the next race. The FTS will reset and return to the Race Mode home screen.

PRACTICE MODE - Pressing this button will enter the FTC into the 'Practice Mode' function (See Practice Mode Function for more information).

FAULT (ALIGNMENT) – Pressing this button without a race started will open the 'Alignment Mode' function (See Alignment Mode Function for more information). Pressing this button during a live race will fault the current dog that is running and will start the crossover timer for the next dog. If the FAULT button is pressed the faulted dog should be cleared from the lane as soon as possible. (see also Fault A & B Remote section)

Alignment Mode Function and Alignment Monitor

Alignment of the FTS sensors, used for recording the times and faults, using the inbuilt alignment checker, is very straightforward and the system gives an audible and visual signal that the sensors and the reflectors are aligned correctly.

When pressed the FAULT (ALIGNMENT) button on the RACE MODE screen will start the 'Alignment Mode' function and the MATRIX displays will show 'ALIGN'

If the sensors are all aligned correctly a message stating 'SENSORS OK!' Will be displayed on the LCD and the race light should be GREEN.

If **BOTH** pass and fault sensors are aligned incorrectly then then the FTS will display a **constant RED** light on the FTS and the LCD will alternate between 'PASS SENSOR FAULT' and 'FAULT SENSOR FAULT'

If **EITHER** of the pass or fault sensors are misaligned then the FTS will **flash** the RED and GREEN lights and display either 'PASS SENSOR FAULT' and 'FAULT SENSOR FAULT' depending on which is misaligned.

Once aligned, hold the FAULT (ALIGNMENT) button to exit function.

NOTE: If all attempts of alignment are failing either try to move FTS to more even ground or try to clean the sensors with a DRY soft cloth.

Built in Alignment Monitor

When the START RACE or PRACTCE MODE buttons are pressed the FTS will automatically check the sensors for correct alignment.

If the sensors are not aligned correctly the FTS will LOCK and prevent the race from starting.

The RED stop light will be illuminated and the FTS matrix displays will scroll the message "SENSOR ERROR - PRESS RESET AND RUN ALIGNMENT"

The FTS LCD will show this message:



To clear the sensor lock you must reset the FTS and use the alignment mode to check sensor alignment. If errors persist, check the sensors are free from dirt or obstructions.

Race Mode Function

When the 'START RACE' button is pressed on the FTS Interface a 2 second 'READY' warning (Red light) followed by a '3-2-1' (Amber lights) countdown and a 'GO' (Green light) will occur.

The first dog should be released so that it crosses the start line as close to 'GO' (GREEN LIGHT) as possible, the FTS will display the time that the first dog crosses the start line after 'GO' is displayed on the MATRIX screen on the side of the FTS, this should be as close to 0.00 as possible. If the dog crosses the start line before 'GO' is displayed then a negative number is displayed (e.g. -0.57) this number represents how prematurely the dog was released. This action is logged as an automatic fault (F) against dog one in the summary section.

After dog one has run and crossed the start/finish line their run time will be displayed on the MATRIX screens, as soon as dog two enters the start line the MATRIX screen will display the dog 1&2 crossover time

The FTS will display and log run and crossover times for all dogs.

Once all dogs have run the trainer/official will press the END RACE button.

There is provision for up to 8 races this is to allow for faulted re-runs, at the end of the 8th race the FTS will automatically end the race and will display the total team time (runs and crossover combined) on the MATRIX displays. The full race statistics and logged faults will be displayed on the LCD screen on the FTS control interface.

If a crossover fault occurs the system will automatically log a fault against the dog that was released too soon. This fault will be shown on the LCD screen

If a ball or lane fault occurs the line judge, box loaders or trainers can log the fault manually by pressing the fault button on the A or B lane FTS interface or by pressing the A or B lane fault button on the Fault Remote control. This action is logged on the LCD screen of the FTS.

When the race has ended the race details will be displayed on the FTS LCD screen. Pressing the END RACE button will cycle through the results pages on the LCD screen

Press RESET to clear the race logs and return the RACE MODE screen.

Race Details Screens

At the end of a race, either triggered by the END RACE button being pressed or after 8 races, an end race screen with team total time will be displayed and you will be prompted to press END RACE to see the full race details.



The 'TOTAL' shown after the race on both the LCD screen and the MATRIX screen is the total time for the all dogs, calculated by adding all of the dogs crossover and run times together.

Pressing the END RACE button from this screen will load the first page of the race details screen, this screen includes:

- Race total, you team race total calculating run times and cross times
- Best possible, the time you could have obtained if crosses were nose to nose
- Cross Total, the time the teams spend on crosses.



Pressing the END RACE button again will advance to the next page.

This page shows the crossover times (shown as X=) for dogs one to four and their line to line run times (shown as Run=). The next page shows the same information for dogs five to eight (possible re-run dogs).



If an early fault occurs then the X time is shown as a minus value.

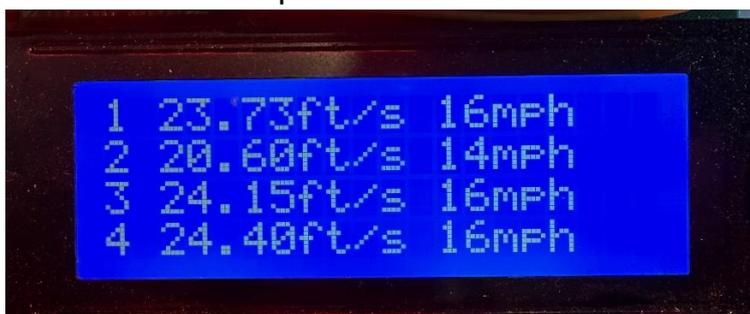
If only 4 dogs are racing then page 2 will either have all 0.00 as the recorded times or it will have records for faulted dogs that had to re-run

Pressing the END RACE button again will advance to the next page. This page shows the crossover times converted to inches and feet for dogs one to four. This will inform the handler the distance that they need to adjust their starting position to achieve a 0.00 start or cross over. The next page will show the same information for dogs five to eight



If the cross was an early then the distance will start with a minus (-) indicating the dog should be moved backwards.

Pressing the END RACE button will display the speed screen. This screen, and the following screen, show the speeds the dogs were running at in feet per second and miles per hour



Pressing the END RACE button from this screen will indicate the end of the statistics.



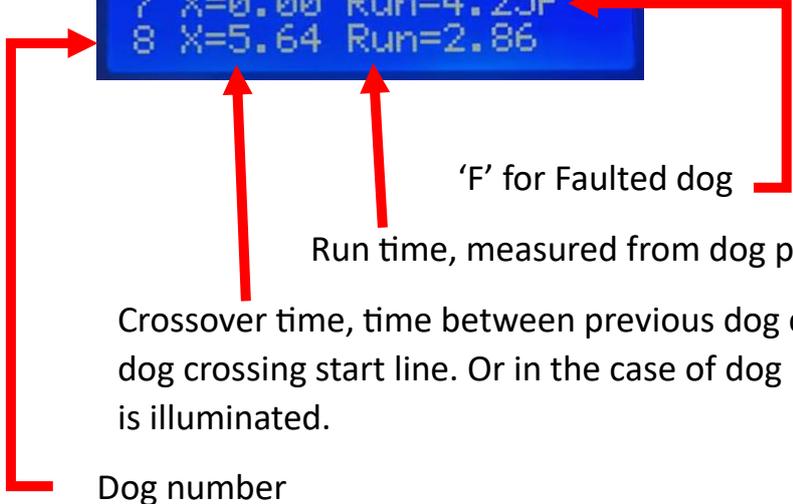
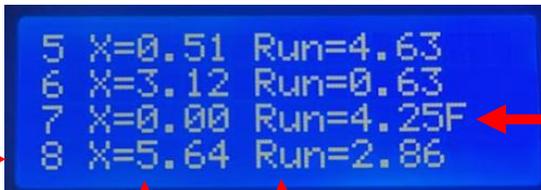
From this screen you can either press RESET or you can press END RACE again to scroll back through the race details pages.

IF LANE LINK IS ENABLED THE END RACE BUTTON ON EITHER FTS MODULE WILL ADVANCE THE PAGES ON BOTH LINKED FTS MODULES



If a dog faults then the system will log a 'F' at the end of the line to indicate that the dog faulted, if the fault happens at crossover (Early pass) then the cross time is recorded as minus figure, if the fault happens on a run the fault is recorded at the point that the fault button was pressed.

To summarise the display:



Practice Mode Function

Pressing the PRACTICE MODE button on the FTS interface panel will start the practice mode function.

The FTS will display 'Practice Mode Ready' on the LCD screen and the MATRIX display will show 'READY' with the GREEN start light illuminated.

When a dog passes through the start line the FTS will display the dogs cross time on the MATRIX and LCD screen and this will remain on the screens throughout the run (the GREEN light will go out and an AMBER light will be displayed during the run). When the single run is complete the dogs run time will be displayed on the MATRIX screen for 5 seconds, after which the practice mode will reset and the GREEN light will illuminate with 'READY' being displayed on the MATRIX.

During Practice Mode the MATRIX displays will show the run time of the current dog with a 'P' at the start to indicate a practice run.



The FTS will store the last 9 dogs practice run times as shown:



After 9 dogs have run, the 10th dog will trigger the system to automatically clear the previous stored practice times and start logging the next 9 runs

If a dog takes longer than 20 seconds to enter and exit the start line then the practice system will time-out and the words MAX TM will be displayed on the MATRIX screen and after a further 3 seconds the practice function will reset to 'READY' (this MAX TIME will be logged on the LCD as 20 seconds)

To exit Practice Mode either press the Practice Mode button or press the RESET button

Fault A & B Remote and FAULT Button



The FTS is supplied with an A & B Fault remote control which is used to manually record dog faults, such as spat balls, that will not have been picked up automatically by the FTS.

The A and B buttons correspond to the lane that the faulted dog is running in.

This remote control can be used to fault the dog that is currently running. It should not be pressed **after** the dog have crossed the finish line, as this will record a fault against the next dog.

Pressing the A or B button will display a **RED** fault LED on the corresponding lane FTS, this fault will also be logged on the race timing log LCD screen.

When the fault occurs, and the button is pressed, the FTS will automatically start the crossover timer for the next dog.

Using the FAULT button on the FTS interface module will have the same outcome as pressing the button on the remote control (as above).

ABC Remote Control Function (Controlling the Race)



The FTS is supplied with an ABC remote control which can be used to automatically control the racing lights.

This remote can be used for the following functions:

A: Start Race, the same as pressing START RACE on the FTS interface module

B: End Race, the same as pressing END RACE on the FTS interface module

C: Reset, the same as pressing RESET on the FTS interface module

See 'Button actions from Race Mode Home Screen' section on page 10 for more information

NOTE: The remote control either operates lane A on its own, or both lanes simultaneously, if the two lanes are linked together using the LANE LINK ports. The remote control will **not** operate lane B independently of lane A.

If you wish to start lane B independently of lane A this will need to be done manually using the START RACE button on the FTS interface.

Lane Link Function

The lane link functionality can be used to connect two FTS modules together for a linked race with two lanes.

Connect the two FTS modules together using the LANE LINK port on the front face of each FTS Module and the network cable supplied with your system.



Each FTS is designed to be lane specific. As shown in the picture below lane A should be set up on the right and lane B on the left.

(There is a label on each FTS showing which direction the 'BOX' should be)



When connecting the Lane Link function, both FTS modules should have a battery connected. If only one FTS module has its battery connected that modules LCD screen will light up but no display will be outputted, once the other FTS modules battery is connected the master FTS (Lane A) will then trigger an automatic system reset.

If one of the FTS modules batteries is disconnected whilst linked the other FTS will freeze, this is normal behaviour. Remove the link cable and press the RESET button on that FTS to restart the system and use as a single lane.

TO ENSURE CORRECT SYNCHRONISATION, PRESS RESET ON THE FTS WHENEVER THE LINK CABLE IS CONNECTED BETWEEN THE FTS SYSTEMS.

When the Lane Link function is connected the two FTS modules will be linked and will share functions, the shared functions are as follows:

1. START RACE- Pressing the START RACE button on either FTS or 'A' on the ABC remote will start a synchronised start race count down.
2. END RACE -Pressing the END RACE button on either FTS or 'B' on the ABC remote will end the current race on both lanes.
3. RESET - Pressing the RESET button on either FTS or 'C' on the ABC remote will reset both FTS modules.
4. PRACTICE MODE - Pressing the PRACTICE MODE button on either FTS will enter or exit practice mode on both FTS's.

During Lane Link function, each FTS will record Cross over, Run times and faults for its own lane. **Race information is not shared between FTS modules.**

The link cable is a CAT 6 RJ45 network cable and is tested to a distance of 15m

The Lane Link ports should **only** be connected to another FTS or ELECFIX.BIZ approved device **DO NOT CONNECT THE LANE LINK PORT TO A PC OR NETWORK DEVICE, THIS WILL DAMAGE EITHER OR BOTH THE FTS OR THE CONNECTED DEVICE**

The Wiring output for the lane link CAT6 cable are as follows:

Brown and White/Brown - both are combined as a shared GROUND -12v

Orange and White/Orange – NOT USED

Green – START RACE button, negative 12v signal

White Green – END RACE button, negative 12v signal

Blue – PRACTICE MODE button, negative 12v signal

White Blue – RESET button, negative 12v signal

Training New Key Fob

Underneath the FTS control deck there will be a series of small holes (4 for Lane A and 1 for Lane B) these holes allow access to the remote LEARN buttons for your FTS.

Insert a small blunt object, like a cotton swab, into the hole and press the button. You should hear the button click.

On Lane A

1st button closest to the front is Lane Fault A button, normally A on the AB remote fob

2nd button is RESET normally C on the ABC fob

3rd button is END RACE, normally B on the ABC fob

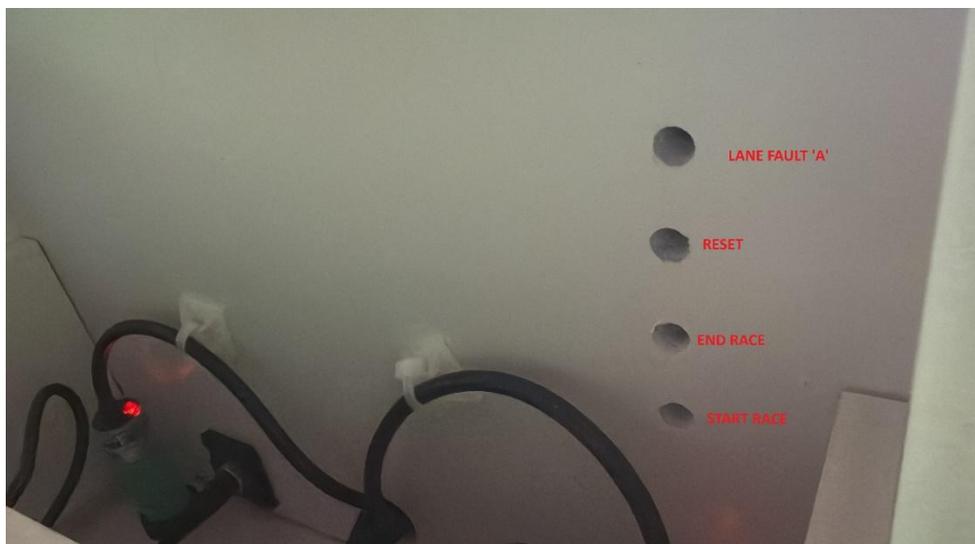
4th button (closest to rear of FTS) is START RACE, normally A on the ABC fob

On Lane B

There is only one learn button on lane B and it is to train the Lane Fault B button, normally B on the AB remote fob

To program a fob to the selected function, hold the fob within 2 feet of the FTS and press the learn button once, wait 2 second then press the fob button that you want to use twice. You simply repeat this step for any other fob buttons you want to add to the desired function.

To clear all learnt fobs from the desired function, press the relevant button 9 times within 10 seconds, then wait 5 seconds before any additional programming.



Settings Menu

The FTS has **customisable fine-tuning settings** that the user can change.

IN MOST CASES NORM (NORMAL) SHOULD BE USED

To enter Settings Menu, Press the RESET button and then within 0.5 seconds press and hold the END RACE button. **Keep the END RACE button held down** whilst changing settings

This screen will appear:



Keeping the END RACE button held down, from this screen press the corresponding button (start, practice or fault) to toggle the setting between LOW, NORM and HIGH

When finished release the END RACE button and the FTS will continue to load the home screen.

All settings will be **permanently saved** until the user changes them again.

The customisable settings are:

XCOMP - Crossover compensator, adjusts the sensitivity of the crossover compensation software

SENS - Sensor ignore, when a dog runs through the sensors the system will then ignore additional inputs for a split second to prevent the dog triggering the sensor multiple times. If the user wants to increase the sensitivity of the sensor triggers, they should set this option to "HIGH" to reduce sensitivity set to "LOW"

RCOMP - Run compensator, adjusts the sensitivity of the run timer compensation software

Diagnostic Mode

Diagnostic mode will display the FTS software build date and time on the FTS LCD screen, it will also cycle through the systems LEDs and MATRIX display to allow users to discover any failed components.

To enter Diagnostics Mode, Press the RESET button and then within 0.5 seconds press and hold the PRACTICE button. Keep the PRACTICE button held down whilst checking the system, when finished release the button and the FTS will continue to load the home screen.

Software update

Should it be necessary to update the FTS software at any time in the future, this can be done by **ElecFix.biz** using a remote computer session. You will need to use the blue cable provided to attach the FTS to your computer. As an alternative **ElecFix.biz** can send you a flash drive to be used to update the software. The update will be provided free of charge during the warranty period

The port in the FTS which you need to connect the cable to is located as shown below. The small square end of the blue cable should be connected to the FTS.

