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Flyball Timing System (FTS)

User Guide

Rev 2 – Feb 2025

Table of Contents

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 displays, these displays will show cross over/run time/total time. There are 2 displays, one facing the dog handlers and the other facing the box loaders

LANE LINK gives you the ability 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. Plus, easy alignment with built-in alignment software.

STARTING LIGHTS, ultra bright LED lights will display ready warning, 3-2-1 countdown and GO green light.

Easy to use INTERFACE, 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 – Measures just 11 x 6 x 2 cm

Features an built-in power switch.
Ensure the battery is disconnected from the FTS and switch to the ON position when charging.

If using two FTS with the ‘Lane Link’ enabled, each FTS should have its own battery connected. The ‘Master’ FTS with trigger an automatic reset when it recognises a ‘Secondary’ FTS connected to the ‘Lane Link’ Port.

A 12v DC, 6000 mAh lithium battery pack should give around 5-6 hours of continued use. With a 3000 mAh lithium battery pack should give around 2-3 hours of continued use.

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

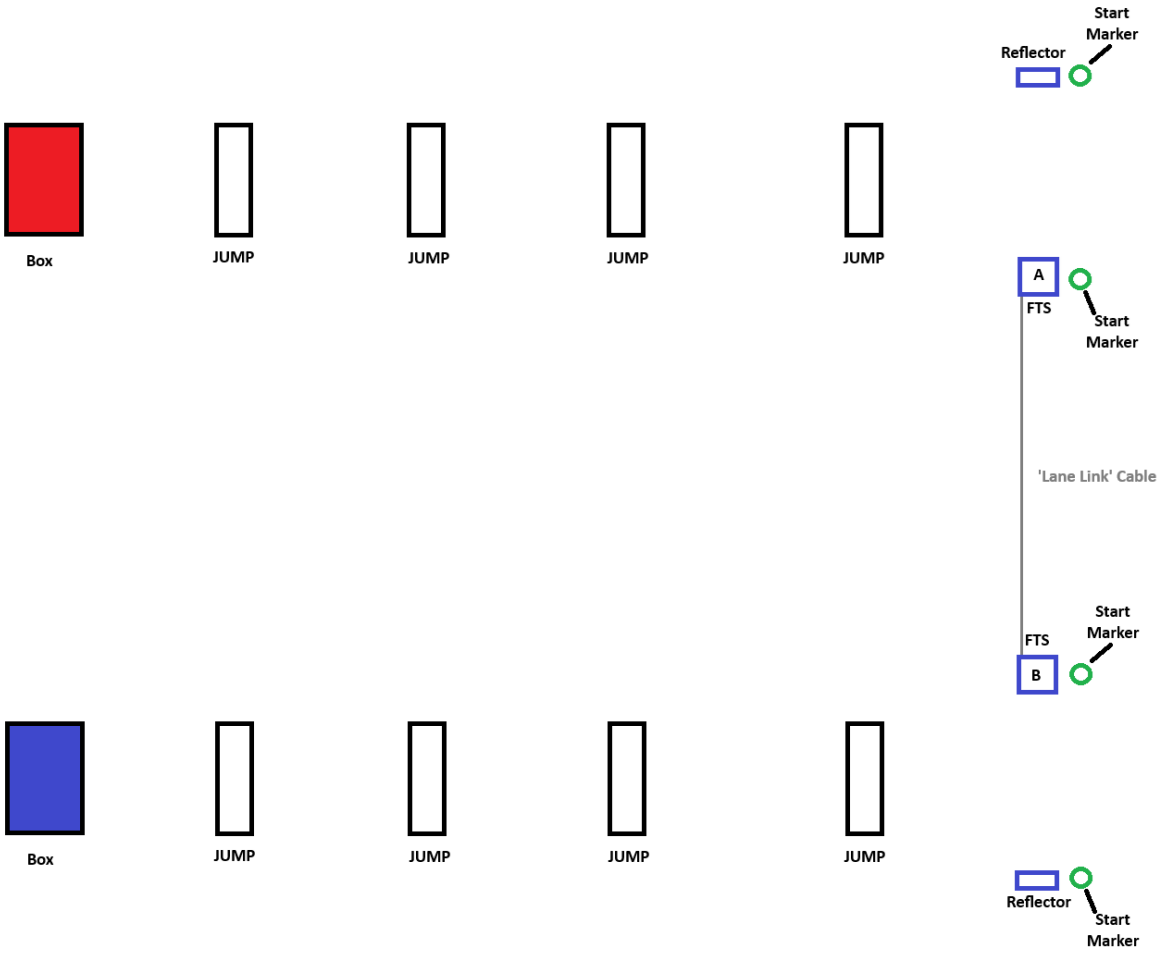
Setting Up FTS

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, ensure that this label direction is followed.

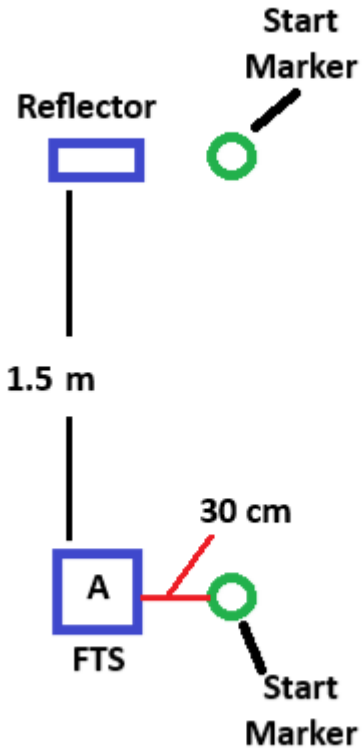
The FTS, when linked via ‘Lane Link’ are designed to be used as pictured, the two control modules should be facing each other (note locations of FTS A and B)

Typical 2 lane setup:



The LANE LINK function is designed to avoid having any trailing cables from impacting on the lanes. The only cable is run between the 2 FTS modules.

The FTS software is designed to compensate timings based on having a start marker / start line around 30 cm from the face of the FTS and is facing towards the Dogs and handlers.



Setup Example, Blue cones shown are marking the start line.

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

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 with start the race, pressing this button will trigger a 3 second 'READY' warning followed by a 3-2-1 GO countdown. (See Race Mode Function 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 'Practice Mode' (See Practice Mode Function for more information).

FAULT (ALIGNMENT) – Pressing this button without a race started will open the 'Alignment Mode' (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)

Race Mode Function

When the ‘Start Race’ button is pressed a 3 second ‘READY’ warning followed by a 3-2-1 GO countdown 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 in 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 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 times

The FTS will log and 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) totals on the MATRIX displays. The full race timings and logged faults will be displayed on the LCD screen on the FTS control interface

If a crossover fault occurs the system will automatically fault the dog that was released to soon. This fault will be logged on the LCD screen

If a ball or lane fault occurs the line judge, box loaders or trainers can log the fault 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 race logs and return the RACE MODE screen.

NOTE: due to the way in which the FTS software logs timings for the runs and crossovers there may be up to a 0.01 second discrepancy between the MATRIX displays on the sides of the FTS and the race log times on the interface LCD screen. In this instance the times logged on the LCD screen (both during the race and at the race summary) are to be considered the most accurate.

End Race Summary Screen

At the end of a race, ether triggered by End Race button being pressed or after 8 races, an end race screen with team total time will be displayed and prompting you to press ‘END RACE’ to see full summary.

The Total shown after the race on both the LCD screens and the MATRIX displays are the team total, this is made up of all of the dog’s crossover and run times.

Pressing the End Race button from this screen will enter the race summary screen.

Page one of the summary screen shows the crossover times (shown as X=) for each dog and their run times (shown as Run=) page one shows dog one to four

Pressing the End Race button from this screen will enter the race summary page 2.

Page one of the summary screen shows the crossover times (shown as X=) for each dog and their run times (shown as Run=) page two shows dog five to eight

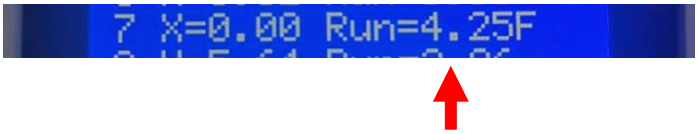
If only 4 dogs are racing then page 2 will either have all 0.00 as the recorded times or it will have records for faulted dogs that had to re-run

Pressing the End Race button from this screen will enter the race summary page 3.

This page will again show the team total time and prompt you to press RESET.

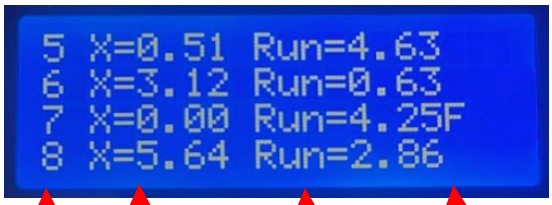
From this screen you can either press RESET or you can press END RACE again to return to the race summary pages.

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 then the cross time is recorded as 0.00, if the fault happens on a run the time is recorded as when the fault button was pressed.

To summarise the display:



'F' for Faulted dog

Run time, measured from dog passing start to passing finish

Crossover time, time between previous dog crossing finish line and current dog crossing start line. Or in the case of dog 1 measured from when start light is illuminated.

Dog number

Practice Mode Function

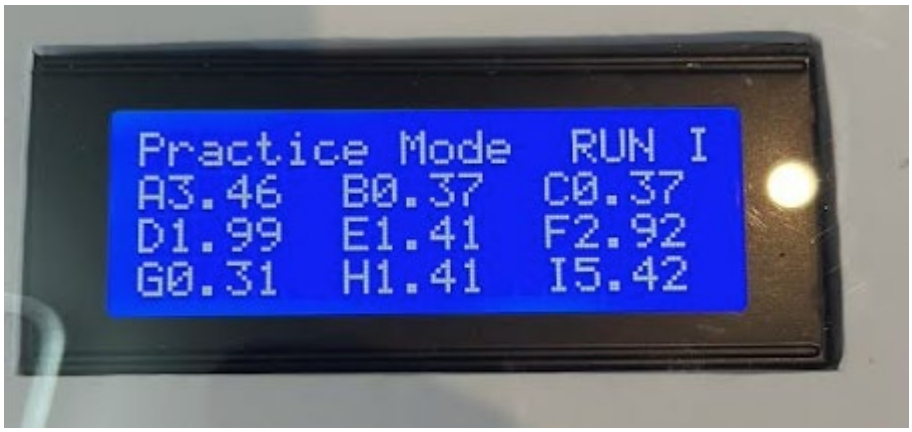
Pressing the PRACTICE MODE button on the RACE MODE screen will start the practice mode function.

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 run time on the MATRIX and LCD screen of the dog whilst it completes 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 will reset and the GREEN light will illuminate with ‘READY 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 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

Alignment Mode Function and Alignment Monitor

Alignment of the FTS sensors is very straightforward using the inbuilt alignment checker; the system gives an audible and visual signal that the system is aligned correctly.

Pressing the FAULT (ALIGNMENT) button on the RACE MODE screen will start the Alignment Mode function, the MATRIX displays will show ‘ALIGN’

This function can be used to check the alignment of the FTS sensors that are used to records timings and faults.

If the sensors are all aligned correctly a message stating SENSORS OK! Should 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 Practice 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

Fault A & B Remote and FAULT Button

The FTS is supplied with a A & B Fault remote control.

This remote can be used to FAULT the dog that is currently running.

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

The buttons should only be pressed while the faulted dog is running and not pressed after they have crossed the finish line.

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.

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

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

ABC Remote Control Function

The FTS is supplied with an ABC remote control.

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 the Race Mode’ section for more information

Lane Link Function

This function 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.

Each FTS is designed the be lane specific. Shown in the picture below lane A on the left and lane B on the right.
(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.

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, by 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, by pressing the END RACE button on either FTS or ‘B’ on the ABC remote will end the current race on both lanes.

3. RESET, by pressing the RESET button on either FTS or ‘C’ on the ABC remote will RESET both FTS modules.

4. PRACTICE MODE, by pressing the PRACTICE MODE button on either will enter or exit practice more on both FTS

During Lane Link function, each FTS will record Cross over, Run times and fault 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 20m

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 button, negative 12v signal

White Blue – Reset button, negative 12v signal

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 END RACE button. Keep the END RACE button held down whilst checking the system, when finished release the button and the FTS will continue to load the home screen.