Application Note: Training with FreeETarget

CAUTION

When using freeTarget:

- Wear eye protection
- Maintain a safe distance
- Do not shoot into any areas except the open target areas.

The freeETarget project or contributors will not be responsible for any injuries when using this target of it's components.

Target shooting can be dangerous so apply caution in everything you do.

SUMMARY

While FreeETarget was designed as a low-cost Electronic Scoring System it includes features for training athletes to shoot better. Knowing the score is one thing, but following the process is the difference between shooting for fun and shooting as a sport. To this end, FreeETarget has a number of features that work to reinforce process during training. These features include:

- Tabata timing to get the rhythm of the match and prevent overholding
- Follow through
- Shooting for process, not score
- Sharing the session

TABATA TRAINING

Have you ever brought the gun to bear and kept adjusting the sights until:

- Things line up perfectly and you shoot a 10.9
- You get increasingly frustrated until you say "That's it – Bang!" and get a stray shot
- Put the gun down and start over

Tabata timers forces you to complete the shot within a set time, or the shot is cancelled.

A Tabata session consists of the following phases:

TABATA_WARN_ON	The target lights go on for a short period of time alerting the shooter that a shot cycle is about to begin
TABATA_WARN_OFF	A period of darkness where the shooter prepares to shoot
TABATA_ON	The target is illuminated, and a shot is allowed
TABATA_REST	The period of time until the next shot cycle begins

To use the Tabata training, send the following message to the target using the debug tab

{"TABATA_WARN_ON": a, "TABATA_WARN_OFF":b, "TABATA_ON":c, "TABATA_REST":d, "TABATA_ENABLE":1}

Where: a – Time to alert the shooter that the cycle is about to start
                   Typically one (1) second
               b – Time that the shooter is preparing for the shot
                   Typically five (5) seconds
               c – Time to take the shot
                   Typically seven (7) seconds, less for experienced shooters
               d – Rest time till the next shot
                   In the range of thirty to sixty (30-60) seconds
               e – Enable the training to start, 1 start, 0 end

With these settings a standard sixty round match will be completed in the allotted seventy-five seconds.

FOLLOW THROUGH

Electronic targets reveal the score a fraction of a second after the shot has been made. While shooting, there is a temptation to immediately look at the screen to see how well we did, completely defeating any thoughts of follow through we may have had.

To train shooters to follow through before looking at the score, the setting

        {"FOLLOW_THROUGH":x}

Inserts a delay of x seconds from the time the shot is scored until it is displayed.

The factory default is to set this to 0 seconds, or instantaneously. Setting {"FOLLOW_THROUGH":5} delays the score by five (5) seconds.

PROCESS NOT SCORE

For most of us, the score-is-the-thing. We shoot for the score and are disappointed when we don't get the number we want. The important thing in training is sticking to the process and the score will follow.

FreeETarget supports this training by providing a mode where the scoring rings are removed and the score is not displayed.

From the menu bar, top-right, pressing the gear-wheel will bring up the Application Configuration menu as shown below. Unchecking the Show scoring selection will remove the scoring rings from the target and hide the scoring. The scores are saved in the log and can be viewed later on.
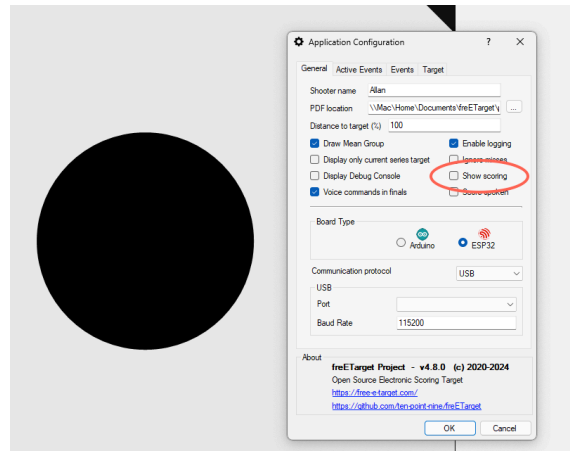

Figure: Application Configuration

SHARING THE SESSION

During a shooting session, it's nice to be able to share the session with a coach or observer.

WiFi supports up to four people to look into the target during the session. Simply connect via WiFi to the target. All shots since the session began will be transmitted to the new connection and the next shot will be added to the existing ones.

The session starts either:

- When connecting for the first time via USB, or;
- By issuing the {"START":1} command from the debug console, or;
- On the first WiFi connection when {"WIFI_RESET":1} is enabled.

SAVING WITNESS PAPER

FreeETarget uses witness paper to consistently create the sound that the sensors pick up to record a shot. This could mean that in training, the shooter could consume a lot of paper in a short period of time. To reduce paper consumption, FreeETarget has two controls that control when the paper moves.

{"PAPER_ECO":x} Advance the paper only if the shot lies inside of a circle of diameter X

{"PAPER_SHOT":Y} Only if Y shots have been recorded inside of PAPER_ECO will the paper be advanced.

An expert shooter would disable these settings by {"PAPER_ECO":0, "PAPER_SHOT":0} meaning that any shot will advance the paper.

A starting pistol shooter might use {"PAPER_ECO":30, "PAPER_SHOT":5}so that they need five shots inside of a 30mm circle before the paper moves.

An intermediate air rifle shooter might use {"PAPER_ECO":15, "PAPER_SHOT":3} so that three shots are needed inside of 15 mm to advance the paper

A third control {"PAPER_TIME":t} controls how long the motor is turned on for to advance the paper. The default is 500ms which works out to be about 50mm. Setting {"PAPER_TIME":250} would advance the paper by half.