Electronic Timing Certification Process

General Overview

1. Register with USA Swimming ($58 fee) – Training Record will be mailed to you.
2. Pass a background check with USA swimming ($39 fee)
3. Attend USA Swimming online Athlete Protection Training
4. Begin volunteering at a meet.
5. Some time in the first 20 hours of training, attend an ET clinic.
6. After a minimum of 5 sessions of ET training (at least 10 hours on timing console and 10 hours times verification) – get 2 positive recommendations from certified ET's. (Recommendations do not need to be from trainers, but from an ET who has been certified for at least one year, and must be from different meet sessions after the time and session minimums, above, are met.)
7. Forward training record and last two positive evaluation criteria to Electronic Timing Chair. Await confirmation to take the on-line test.
8. Take and pass the on-line open book test.

Minimum Training Requirements

1. At least 2 of the first 6 hours must be with a designated ET trainer.
2. 10 observed hours on timing console.
3. 10 observed hours on times verification.
4. Introductory session (deck tour with referee).
5. Attend Electronic Timing Clinic.
6. Two sessions at sanctioned 12 & under meet.
7. Work a non-home meet.
8. Successfully complete a heat or lane malfunction calculation.
9. Work one session with the Hy-Tek operator (does not count as one of the 5 ET sessions).
10. Two consecutive positive recommendations from 2 different certified ET's (after first completing requirements 1-7).

Electronic Timing Official's Clinic Outline
Oregon Swimming, Inc.

Introductions:

Training Objectives:
Familiarize trainees with the requirements and expectations for ET officials.

Why Certified ET officials?
Other than winning the race or scoring points for their team, the most important part of a swimmer's race is knowing with confidence how long he or she took to swim that event, i.e. his or her Official Time. Although there is usually only one first place winner in a race, each swimmer who participates legally achieves an Official Time. The swimmer's time could meet the qualification standards for future competition, set a local or national record, or it could simply be that swimmer's Personal Best. OSI certifies ET officials to be responsible for providing each swimmer with an accurate and valid Official Time.

"No swimmer shall be required to re-swim a race due to equipment failure which results in unrecorded or inaccurate time or place." (USA Swimming rule 102.16.4D)

Three Functions of ET officials:

A. Participate as an active member of the swim meet officiating crew.
B. Correctly operate the timing system equipment (Timing equipment operator – USA swimming rule 102.16.3D)
C. Correctly determine and document the Official Times (Timing Judge – USA swimming rule 102.16.3E)

Becoming an ET official:

1. Register as a non-athlete member of OSI/USA Swimming**.** You will be sent an official rulebook from USA Swimming. Section 102.16 pertains to Electronic Timing. **Read this section**.
2. Pass a background check with USA Swimming
3. Attend USA Swimming online Athlete Protection Training
4. Complete the ET clinic any time before completion of required deck hours.
5. Work the necessary 12 & Under meets.
6. Work the required non-home meet.
7. Successfully complete a lane or heat malfunction calculation.
8. Put in a session with Hy-Tek.
9. Submit training log to ET Official's Chair.
10. Take and pass the open-book certification test when training is completed.

A. Member of the Officiating Crew

OSI Officiating Philosophy:

1. As officials, we help conduct swim meets to maintain fair and equitable conditions of competition and promote uniformity in the sport so that no swimmer has an unfair advantage over another (Preamble to Technical Rules).

2. One set of rules applies to all swimmers, no matter what their age or ability level.
3. The swimmer always gets the benefit of the doubt.
4. Officials demonstrate impartiality and professionalism on deck through uniform, posture, facial expressions, interaction with others on deck, and language. Officials should never draw attention to themselves through their actions or appearance; the swimmers should be the focus of everyone's attention.

ET's are one of many:

1. A swim meet requires many types of officials: Referees, Starters, Stroke and Turn Judges, Electronic Timing Judges. Make a point of meeting as many of the other officials as possible.
2. Wear the standard official's uniform: white collared polo style shirt/blue shorts (mid thigh or longer), pants (or skirt for women), white shoes, and socks. Pants or skirts are usually expected when working finals at a championship meet. Please do not wear blue jeans, tank tops, t-shirts, tight fitting (bicycle) or too short shorts, or clothes advertising any product including club logos. Don't wear clothing that draws attention to yourself.
3. Certification badges are always worn when working at meets. The engraved nametags may be worn in conjunction with, but not in place of, OSI certification badges.
4. Sign in on the officials' roster in the hospitality room and attend the official's meeting – please be on time to these meetings.
5. Work as part of a team: be in position, monitor breaks, and communicate.
6. Document the hours worked on your certification log. Expenses (travel, lodging, food) incurred as part of volunteering at sanctioned meets are tax deductible.

ET's instruct/coach other timing and starting personnel:

1. Prior to start of first event, instruct timers in proper timing procedures.
   - Use the first finger rather than the thumb to start and stop watches and to press buttons.
   - Start watch at the strobe flash.
   - Stop watch and button when touch is actually seen; don't anticipate the touch.
   - No timer may operate both watches or both buttons.
   - Record watch times on timer's event sheet.
   - Never copy a pad time for a missed touch.
2. Request head timer to collect and deliver the timer's event sheets as soon as possible after an event is finished.
3. Remind Deck Referee/Starter how to tell when system is ready for next heat.
4. Discuss with Deck Referee how and when you will receive DQ slips.

B. Correctly Operate Timing System Equipment

Timing System:

Here in Oregon, Colorado Timing Systems and Daktronics Timing Systems are the standard timing equipment. ET's are expected to know how to set up and operate this equipment. Allow plenty of time before the meet to set up all the equipment and ensure it is in working order. The home meet crew usually does this, but you should always look it over.

Detailed manuals for the Colorado Timing Systems equipment can be found on their website:
http://www.colotime.com/customersupport/manuals.asp

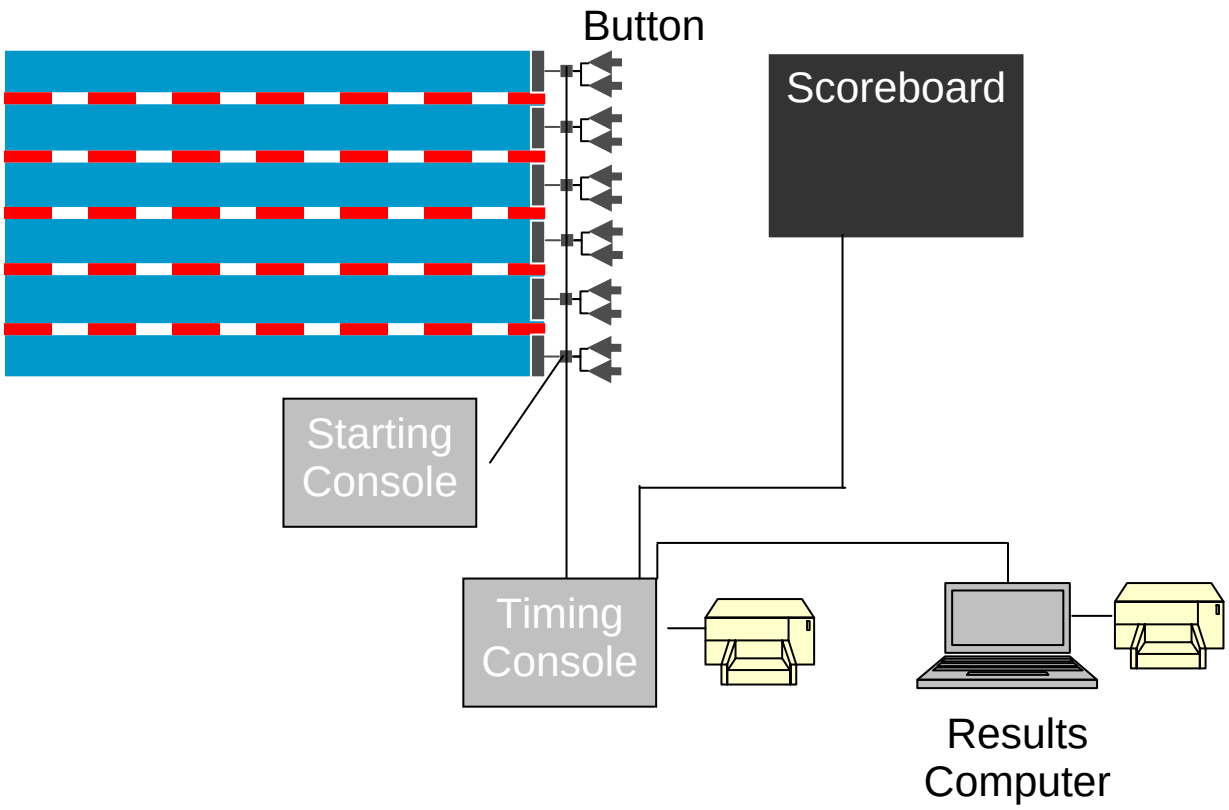
Detailed manuals for the Daktronics Timing Systems equipment can be found in their website:

OmniSport 2000 and Hy-Tek Meet Manager Quick Guide (ED13876) (566kb)
OmniSport 2000 Swimming Quick Reference Guide (ED13584) (203.4kb)
OmniSport 2000 Timing Console and Pro Software Operation Manual (ED13312) (10.7mb)

Electronic Timing Equipment Overview

The electronic timing equipment consists of the following major components:

- Starting Console + Microphone
- Timing Console + Printer
- Results Computer ("Hy-Tek") + Printer
- Pads
- Buttons
- Timing Cable/Harness or deck plates
- Scoreboard



Starting Equipment:

1. The starting console is typically located on deck near the start end of the pool. The most common systems found in Oregon are the Colorado Infinity Start System and the Colorado Championship Start System.
2. The starting equipment is driven by the "starter" using the microphone. The starting console is connected to the rest of the timing system via a cable which is connected to the main timing cable/harness or into an appropriate deck plate. Optional extra external speakers may be added at the far side of the pool or under each staring block.
3. The starting console provides an audible horn, strobe light, and sends a start signal to the timing console.

Touch Pads and Buttons:

1. The touch pads are placed in the water at the start end of the pool, and optionally at the turn end of the pool. The touch pads send a signal to the timing console when the pad is touched at any time. Hence, when operating correctly, the pads will record intermediate splits as well as the final touch. The pads are connected to the timing console via the timing cable/harness or appropriate deck plate. The touch pad MUST be plugged into the socket marked PRIMARY.
2. The buttons are placed at the start end of the pool. Typically there are 2 buttons; however some setups use one or three buttons. The buttons are pressed by the timer when the FINAL touch is observed. They are connected to the timing console via the timing cable/harness or appropriate deck plate. The buttons should be plugged into the sockets A, B or C.

Scoreboard:
The scoreboard is connected to the timing console by the appropriate cable. Scoreboards have 3 main types:

- Single Lane. Displays current time, lead split and final touches.
- Multi-Lane. Separate display for each lane.
- Multi-Lane + Name. Separate display for each lane, plus space to display swimmer or team name.

Timing Console:
The timing console is the core of the timing system, receiving signals from the starter, pads and buttons and sending times to the scoreboard, printer and results computer. The timing console should be located in a position where the operator can see the final (and intermediate) touches.
The timing console should be connected to the timing cable/harness or appropriate deck/wall plate. It also needs to have connections to the printer, scoreboard and results computer.

Results Computer "Hy-Tek":

The results computer is connected to the timing console. Meet information is downloaded from the Hy-Tek computer to the timing console. Where the scoreboard does not display swimmer names, only event, stroke and distance details are downloaded. When scoreboards support display of swimmer names, the complete seeded heat information is downloaded. After each race, the timing information is stored on the console and is available to be downloaded back to the results computer.

Operating the Equipment:
1. Setup or verify the setup of the system console – events entered, meters vs. yards, number of buttons, swimmer names if appropriate, etc.)
2. Perform a test start to ensure all equipment is working properly.
3. Re-set for start.
4. Start and run race. In the case of a recall (unusual nowadays) leave timer running until the last swimmer has stopped. If necessary, manually start the system and blank the scoreboard
5. Ensure race parameters are correct: lanes on/off, event, heat and distance (do not make the console beep during the start).
6. Record race number, "no shows" and lane changes on ET heat sheet. Observe touches, adding, subtracting, or finish arming as necessary. Watch carefully during relay exchanges.
7. Store, print, reset and advance the heat or event.

With practice, running the console becomes fairly automatic; however it is very important that the console operator focus on the console and keeping the heat sheet up to date as far as no shows, additions and combined heats are concerned. Many problems can arise at a meet. Some of these problems could be (but are not limited to be) equipment or power failure, miscalculations because of missed touches in distance events, too many or not enough touches in relays or bad touches made by younger swimmers. Things can happen quickly. It is important to remain calm, stay focused, think fast, and document anything out of the ordinary.

C. Determining the Official Time

Official times:
1. Must be achieved in a USA Swimming sanctioned or approved meet.
2. May be recorded in:
   - A preliminary or final heat.
   - A Swim off.
   - A Lead off relay split.
   - Initial distance within longer event.
   - Time trials.

Types of Timing Systems (in order of accuracy):
1. Automatic. Provides common start to all lanes and to timing console. Finish on touch pads.
2. Semi- Automatic. Common start, button finish.
3. Manual. Manual digital watches.

Timing System Designation:
1. Primary. The most accurate timing system available. Could be automatic, semi-automatic or manual. This is the official time for the race unless comparison with secondary system indicates a malfunction.
2. Secondary. This is a back-up to the primary system, i.e. semi-automatic (buttons) if primary is automatic (pads), etc.
3. Tertiary. At least one watch must be used as a back-up for the automatic or semi-automatic system.

Determination of official times:
1. Timing Resolution is hundredths, not thousandths of a second. In any computation, thousandths are dropped, no rounding.
2. The time from a <u>properly operating</u> primary timing system is the official time:
   - Automatic timing system. Use the pad time.
   - Semi-automatic or manual timing system. If three watches or buttons are used, the official time is the middle time (if two are identical, that is the middle time). If two buttons or watches are used, the official time is the average of those two. If a single watch is all you have, then that is the official time (not a good idea!).
3. The primary timing system is operating properly if a secondary or tertiary time confirms by .30 seconds or less.

Automatic timing system malfunction:
This is indicated by a difference of 0.31 seconds or more between the pad and button times. If two buttons are available, and they confirm each other i.e. are within 0.30 seconds of each other, then they are used to compute the official time. Please note that if the two confirmed buttons are slower than the pad, further research is necessary – this could mean that the timers were not paying attention. If only one button is available, then the watch times must be checked used to determine whether the pad or button time is correct. When comparing pad and button differences, be sure to check each button individually against the pad time (if two buttons are available) – do not use the average computed by the timing system.

Adjustment for the timing system difference (rule 102.16.5D):
This calculation is not necessary when using the *Colorado* systems, as they automatically subtract 0.15 seconds "human reaction" time from the button times.
With *Omega* and *Daktronics*, if there is a primary system malfunction (i.e. more than 0.30 sec. difference between pad and button) it is necessary to calculate the average difference between the valid primary and

valid back-up times of the other lanes in the heat and add that average difference to the valid back-up time of the lane in question. If watch times are used, it is necessary to calculate the pad / watch difference in that heat (or a heat before or after) and use that difference to adjust the watch time that is being used.

Heat Malfunction:

1. If the console is manually started, then all automatic times will be inaccurate.
2. For each lane compute the valid times using only pads and buttons (if no buttons support the pad or each other, skip that lane).
3. Calculate the average difference between the watch times and "valid" times in all those lanes.
4. Add this average difference to the valid primary or back-up times on all lanes to obtain the official time. In the other lanes, add this difference to all pad and button times, and then use the watch times to decide the official time.
5. Be sure to check that the order of finish remains the same.
6. The Referee should always be informed of a system timing error and sign off on the mathematical calculation.

Lane Malfunction:

If one lane in the heat has an error, i.e. nothing electronic either because the lane was not finished before the timer was reset, or not turned on for the race, then the average difference (as above) must be calculated on all the other lanes and that difference added to the lane with only watch times.

Problem solving:

Many problems can occur as you determine the official time. No buttons pressed, or pressed seconds after or before a race ends. No watches, or all watches and buttons wildly disagreeing with each other. Order of finish can help, as well as coach's watches – here you have to use your best judgment. Always consult with the referee whenever there is an unusual timing situation.

Documenting the Official Time:

On the timing system console printout, indicate the official time. Indicate any no-shows and lane changes. Indicate any DQ's and staple the DQ slip to the back of the printout (facing backwards for easy review). Document any unusual timing situations (have the referee initial those) and initial the paperwork. Forward the paperwork to the Hy-Tek operator to merge results and compute the order of finish for each event.

Personnel requirements

Generally, for Electronic Timing, there should be at least two and ideally three officials working at a time. One official should operate the console, another do the paperwork and the third designated as the runner. If there is a runner, that person can help with the paperwork and get watch times when needed or help with other things that come up. If there are more than three people available to work at the meet, a rotation schedule offers all officials breaks throughout the meet.