



ESD - Electronic Starting Device

Considerations:

Although there is no rule being implemented at this time requiring electronic starting devices to begin running events at track and field meets in Michigan at any level, there are increasingly more questions that are raised. This document is for timers, starters, meet managers, schools, and administrators who are considering this route of starting track events and the benefits of these devices.

Electronic starting devices, over time, decrease the cost of starting track and field meets with .22 or .32 caliber blanks. It also alleviates the difficulty in finding available blanks for purchasing at different times of the year, and, in today's climate, safeguards against handheld devices which are easily misidentified as potential weapons.

ESDs also reduce delays from reloading traditional pistol blanks while improving the reliability of FAT systems. The time spared from reloading issues is better served to provide instructions for the next race, lining up another heat, or observing runners during the race just started. Time is also saved by reducing the number of bad starts. Such false starts often occur when the starting transducer interprets the noise of the sensor hitting an object, or a whistle being blown as the starting signal. If an FAT timing operator isn't watching closely, they could miss this erroneous start and when the official pistol starting sound is created seconds later, the times will be incorrect. Avoiding the need for runners to re-race must be the No. 1 priority. ESDs reduce such situations and make starts much more reliable.

All manufacturers of electronic starting devices are compatible with at least one major FAT system, such as Finish Lynx, Flash Timing or Eagle Eye. Some companies, like VS Athletics' LITE, connect with all three current models of transducer with which the starter can move around the track. These transducers send the signal either by hard-wire or radio-wave to the timing system and sync the starting signal with the video image at the finish line; this is what makes the timing accurate to within one, one-thousandth of a second (.001).

Another advantage is the decreased damage caused by excessive exposure to the 150+ decibels of sound generated by a traditional pistol with 22 caliber blanks and the 160+ decibels of sound generated by a traditional pistol with 32 caliber blanks. No speakers used with ESDs produce more than 120 dB;

medical studies show that ear damage occurs when decibel exposure is greater than 120 dB. That said, administrators are reminded of the recommended 90+ decibels of sound for track meet speakers, and must avoid speakers which cannot deliver at that level.

Challenges: _____

The first major challenge is speakers. With the unidirectional design of most speakers, starting events like the 4 x 200m and 4 x 400m necessitate a second speaker positioned near lanes 8, 7, 6 and 5 to ensure all athletes can hear the start. The need for multiple high-quality speakers that operate off battery, and that have Bluetooth capability to be able to project an inputted starting sound from one speaker to another as well as additional Bluetooth capability so that the starter can make announcements to the athletes, can be somewhat expensive. But with the cost of starter's blanks, the cost of an electronic starting device and speakers can pay for themselves within two years.

The next major challenge is setup and portability. Depending on the budget of the starter, school or timing company, they might only have the capital for a single speaker or two, which would require moving those speakers from starting position to starting position throughout the meet. Every track meet and every facility is different. So, too, have been the solutions. Some facilities strap large-capacity speakers to the back of a golf cart and drive the starter from starting position to starting position. Other facilities have not provided speakers and the starters have had to bring whatever they could move around themselves. This is typically some type of rolling speaker, but with limited volume coming from just one speaker, the consensus of runners, coaches, and spectators has been less than satisfactory.

When using ESDs to start meets that are timed by hand timers, it can be difficult to see the LED light or strobe when the button is pressed by the starter when standing at the 100m, 200m, and 300m starting positions. Clear blue-sky days and setting suns in the background are particularly difficult to see in. This can be dramatically helped by placing a black background behind the starting device. A piece of black cardboard or a black clipboard held by the other hand improves visibility a lot. Normally that other hand comes up anyway with the 'set' command so adding something to hold for now will hopefully be a workable solution for now. At least one manufacturer is working on a permanent solution and will commercially mass produce something once the demand comes to fruition.

Lastly, there is debate over which starting sound should be used. Almost all the devices on the market today can produce, to varying degrees of replication, a pistol-like sound as well as a tone sound. The tone sound has been universal in swimming for the last 30 years but has received varied responses from track & field coaches nationwide. While the transition for coaches has been slower, athletes have not expressed nearly as much concern; once given a practice signal or two, there has not been any difference in reaction time, according to any published study. Because the tone sound is recognized as being more crisp and sharp athletes have stated that they felt like they reacted faster.

Recommendations:

If a starter, school, booster club, or administration decides to pursue an electronic starting device, the following should factor into purchasing considerations:

1. Seek recommendations as to which device projects the clearest sound. The quality of sound is determined both by the electronic starting device and the quality of the speaker projecting the sound.
2. With heightened sensitivity to gun-like, and taser-like devices, it is incumbent upon management and administration to utilize technology which renders such shapes obsolete.
3. With heightened sensitivity to gun-like sounds on campuses, and in public in general, the decision to use the tone sound is worth the extra consideration and provides sound rationale in response to coaches who might question the change.
4. Determine who will purchase and store all parts of the system. It may be best for starters to have their own devices, while the schools -- which know how large their meets will be, and how noise travels in their stadiums -- can best plan that part of the purchase. Additionally, knowing that schools can also use these speakers at school-wide events, it may be the most efficient use of purchasing power for schools to do so.
5. a.) Ideally, a starter would have one large speaker positioned near them to be able to make announcements as they moved around the stadium to different starting locations. This primary starting speaker would have the capability of Bluetooth connection with the other speakers around the stadium when in range for those events.
b.) Having a second speaker, either permanently placed or brought there by meet workers, to the following locations would be ideal: (****see stadium drawing at the end of this document**)

Each of the speakers would ideally be on a tripod to better resonate the sound of the starting device. Again, these speakers could be placed and left at the start of the meet or could be moved as needed by designated helpers.

- 6 One final consideration is for the spectators and coaches in the bleachers. Having an additional speaker at midfield sending the start sound towards them, could be an option, but it may be impractical and unnecessary. Most timing companies or schools that are timing are synced to various online results-reporting websites. When parents and coaches want to know the results of athletes, they are finding it easier and more accurate just to get the fully automatic time from the designated website rather than the often inaccurate hand time in front of them.

Having a digital display clock at the finish line, also alleviates the need for numerous unofficial stopwatches in the bleachers.

For any additional information regarding these devices or recommendations for ideal systems for facilities, feel free to contact:

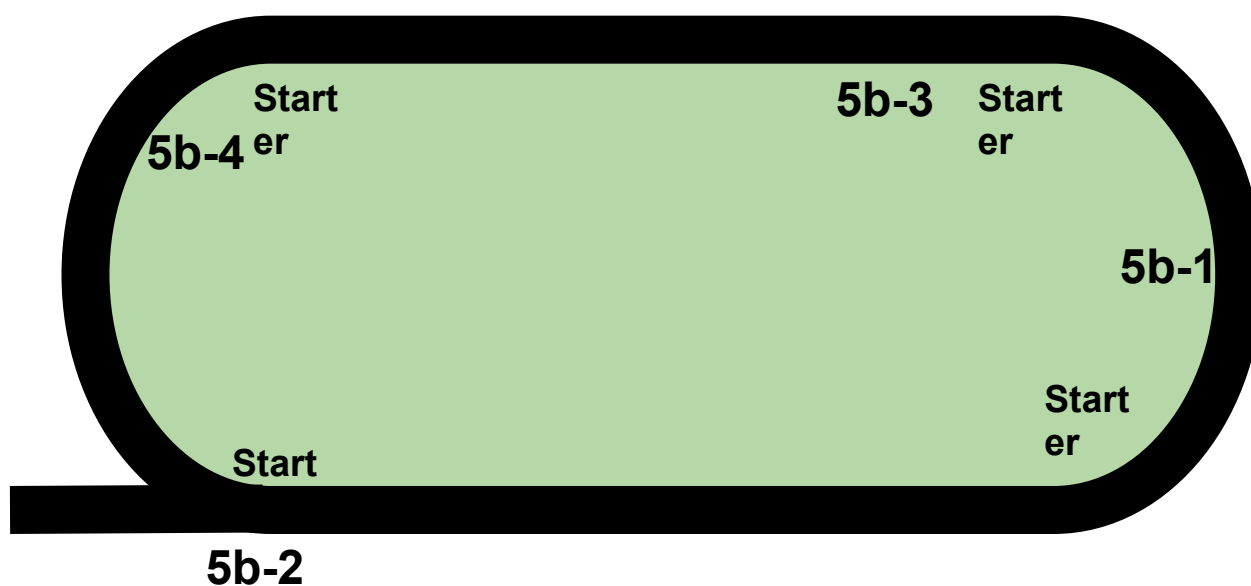
Cody Inglis, MHSAA Track & Field Director, Senior Assistant Director, Michigan High School Athletic Association

517-332-5046 or 517-899-2656 cody@mhsaa.com

David Kuderka, Cooperating Consultant for Track & Field

248-804-2660 - coachk@vsathletics.com

**** Possible second speaker placements:**



***It's recommended that the "Starter" have the 'primary' speaker near the location noted on the map above. The secondary locations could be speakers set up before the meet that the starter plugs into or 'syncs' (Bluetooth) with once they go to that event.**

5b-1.) Infield starting apron, parallel to lane six approximately 30 feet inside, the track.

5b-2.) Outside of the track by just a few feet next to lane eight or nine, approximately 30 feet down from the start of the 100 m dash.

5b-3.) Infield starting apron, parallel to lane six approximately 30 feet inside, the track for the start of the 300m hurdles.

5b-4.) Infield starting apron, parallel to lane six approximately 30 feet inside, the track for the start of the 200m dash.