The Art of Electronic Timing

By Mark Kuznitz

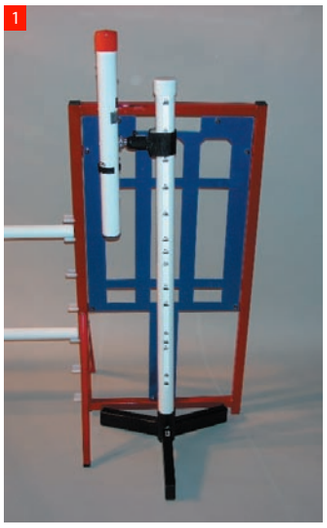
Photos courtesy of Mark Kuznitz except where noted

With the proliferation of electronic timing since its introduction some 4 1/2 years ago, numerous theories have been employed in the way it is used. I would like to review the practical side of using the timing systems here. Instructions for programming the controller specific to each agility venue are available in the operating manual that comes with each system so we won't deal with programming problems. We will start with placement of the electronic eyes on course, follow that with some common misconceptions, and finish with some suggestions for more efficient use of the timing equipment.

For the purposes of our discussion we will assume that the eyes at the start of every course are placed in front of the first obstacle and that the eyes at the finish of every course are behind the finish obstacle since that format is required at most trials. Because contact obstacles and weave poles are not allowed as the first or last obstacles on course, we will ignore those and concentrate on jumps, tires, open and closed tunnels, and broad or long jumps.

Placing the Electronic Eyes

The most important thing to remember at a jump, or any obstacle for that matter, is that the eyes should be as close as possible to the top of the dog's arc as he jumps over the obstacle. There are two primary reasons to place the eyes as close to the obstacle as practical: First, because the height of the eyes for each jump height indicated on the timer standards is based on the apex of the dog's effort. For example, if the eyes are set 12" in front of a first jump, it is possible that one or more dogs could jump under the bottom beam of the light curtain on the way to passing over the jump, resulting in a missed start time. If the eyes at the finish are set 12" behind the last obstacle, a dog could jump over the last obstacle and come down under the bottom beam of the light curtain. This may not happen with a flat-jumping dog but is very likely with a dog that jumps with a round style.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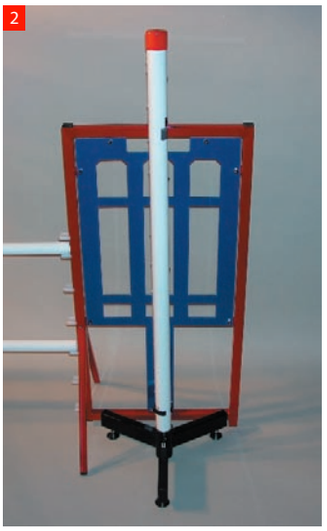
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The standards for both the adjustable light curtains and the full-height light curtains are designed to blend into the environment. As such, they look very much like jump standards and can give the appearance of the front or back element of a spread jump. At the beginning of a course, the result of the look-alike condition of the light curtain can be having a dog jump early, and possibly hit a bar or get hung up on a tyre. At the end of a course, this can lead to having a dog jump late and not reach the apex of his jump as soon as necessary to clear the bar. This is especially true for the adjustable light curtains since they do not present as "clean" an image to the dog as the full-height curtains.

Winged and Wingless Jumps

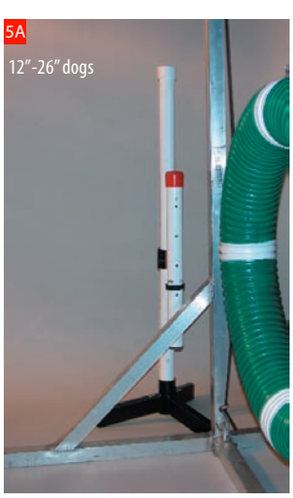
Since the objective is to place the eyes as close as possible to the obstacle, let's review each type of obstacle other than contacts and weave poles, starting with winged and wingless jumps used at both the start and finish of a course. The metal bases of the timing systems are designed to be placed next to a wing with the arrow pointing away from the wing. The eyes will then be approximately 4" from the jump, creating exactly the image we want the dogs to see and giving us the best chance to capture the dog within the beams. The standard is placed in the tripod base with the jump height scale lined up with the arrow so that it faces away from the jump toward the bar setter so that ring crew can easily line up the top of the Velcro with the jump height to be run. The entire base should be within the wing so that it does not extend beyond the wing, which would create an even wider handler restriction. Figures 1 and 2 show the correct placement of both the adjustable and full-height light curtains in front of a wing jump. Be sure that the eyes themselves do not extend inside the jump and restrict the dog's path. You may have to make some adjustments to this setup should the legs of your equipment not permit this exact position. Place the eyes at a wingless jump in exactly the same manner as if a wing was there.

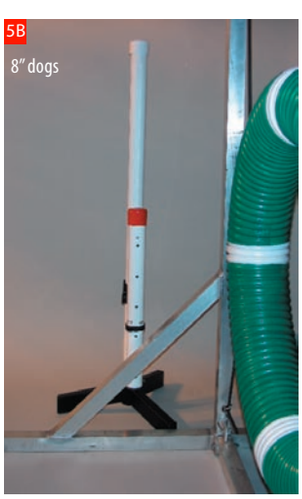
Spread Jumps

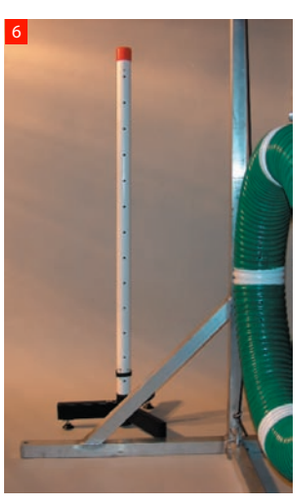
Spread jumps are almost never used at the beginning of a course but are frequently placed at the end of a course. The positioning is exactly the same as that used for winged and wingless jumps as shown in Figures 3 and 4.

Tyre

Tyres are probably handled more inconsistently than any other obstacle due to the wide variety of tyre construction. Tyres also represent the most danger to the dog and the biggest opportunity to miss the start time when the timing equipment is not set properly. The challenges are the supports that go from the legs to the vertical standards. You cannot place the eyes behind the support because it will not allow the eyes to properly align. I place the eyes next to the tyre for as many of the jump heights as possible, and as close as I can for the lower jump heights. Figures 5a and 5b show how I place the adjustable-height eyes on a MAX 200 tyre. The bottom beam of the light curtain must be above the tubing. So I place the eyes next to the tyre for all jump heights 12" and above. I move it out for the 8" dogs and move it again for the 4" dogs. This works great because the big dogs have exactly the image that I want them to have, and the small dogs seem to be much less sensitive to the placement of the eyes anyway. At all costs, I avoid putting the eyes near the end of the legs because this seems to be the placement that is most likely to confuse the big dogs and also most likely to miss a dog that goes under the beams before starting to jump. Figure 6 shows proper position for the full-height light curtains on a MAX 200 tyre. As I mentioned earlier, I have not seen the full-height light curtain cause a problem for the big dogs, probably because it is just a single pole.


5A 12"-26" dogs


5B 8" dogs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Tunnels

Open tunnels and closed tunnels (chutes) at the start of a course require you to break out accessories provided with each system. There are short standards provided with the adjustable light curtain systems to be used when a course begins with a tunnel or a chute. They are to be used so that we don't confuse the dogs with tall standards which may look to a dog like a jump rather than a tunnel. Similarly, a set of short light curtains (eye #3) are provided with the full-height light curtain systems to be used when a course begins with a tunnel or chute. When an open tunnel is used at the end of a course, there is no need to use the short standards or eyes because the dog doesn't see the tall standards because they are obscured by the tunnel walls. The chute is not suitable for use as the last obstacle on a course with electronic timing since it is not safe to place the eyes at the end of the chute for several reasons: 1) Dogs do not tend to come out of a chute straight so there is the possibility that they might run into the eyes when exiting and hurt themselves and/or the eyes; and 2) Handlers might trip over the eyes as they focus on gaining control of their dog at the end of the course.

Broad or Long Jump

The broad or long jump is never used to start a course but has been used on occasion at the end of a course. The adjustable light curtains do not reliably capture the finish time as the heights they are calibrated to anticipate are for the dog either jumping a specific height or coming out of a tunnel. As a result, we don't recommend using a broad jump at the end of a course with the adjustable light curtains. If a club has the full-height light curtains, they can be substituted for the back two corner markers of the broad or long jump and will record the finish time as they will capture a dog at whatever height he passes through the beams.

Myths about Electronic Timing

There are a few myths about the use of electronic timing that may be applicable to your club.

- If the bottom display on the controller is blinking Eyes Off, the batteries need to be changed. Not true. The display blinks Eyes Off during walk-throughs and during the opening sequence of Gamblers. Blinking simply means that beam breaks are appropriately ignored at these times.
- When using the system outdoors, the position and intensity of the sun can cause the eyes to either miss a beam break or record a false beam break. Changing batteries will not fix this problem. It is imperative that the sun be behind the receiver eye. Be sure that the sun is not shining directly into the eye with the antenna on the older systems or the red capped eye on the new systems to avoid these problems.
- You can expect the batteries to last for six or more full days of use at a trial. Shutting them off during course changes and walk-throughs does very little to extend battery life; it often causes the first dog on course afterward to be missed because the eyes were not turned back on. The best way to conserve battery life is to be sure they are turned off at the end of each day and be sure that the batteries are removed before the systems are put in storage. Most importantly, be sure that the batteries are inserted with the correct polarity because incorrect polarity will cause the batteries to overheat and expire quickly, not to mention possibly leaking acid, which can do serious damage.
- Generally it is not necessary to change batteries during a trial unless the LED at the top of the eyes is blinking on and off signifying that the batteries will most likely expire in about two hours. The controller has a low-light indicator for the battery in the upper right corner of the lower display that will blink when the batteries are down to 5% of full capacity.
- Second or third passes on the start eye do not require programming of the controller as subsequent passes on the start eye are not recorded by the controller. Second or third passes on the finish eye can be programmed into the controller. The controller is programmed to ignore beam breaks for 2 seconds after the finish beam is triggered to avoid false indications caused by falling bars or dog's tails. When testing the finish eye to confirm it will stop on pass 2 or 3, be sure to be patient and break the beam only after 2 seconds have elapsed.
- The most common fallacy at AKC trials is that you need to put the maximum course time into the controller. The controller actually needs the standard course time (SCT) entered because it automatically calculates the maximum course time using the SCT that is given.

Getting the Most from Your System

To get the most efficiency from your system, be sure that the eyes are properly aligned. The most common problems that we see are drooping eyes and poor alignment. First, with the adjustable light curtains, be sure that the Velcro is tight around the standard to keep the eyes from drooping. Next, be sure that the eyes are

vertical - always loosen the ball mount to adjust the eyes. Last, stand behind the eyes to be sure they are aligned so that they point directly at each other. If they are not, pick up the eye complete with the base and rotate it until it is accurately aligned—do not twist the standard in the base without loosening the thumb screw that holds it in place. When aligning the full-height light curtains, adjust them to be vertical with the adjustable glides on the bases and stand behind them to be sure they point directly at each other with the lenses dead center. Again, be sure to pick up the eyes with the bases and rotate them—do not rotate the eyes in the base without loosening the thumb screw that holds the eyes in place. Be sure to read the operating instructions that come with your system if you encounter a problem programming your controller. The next software update to Signature Gear Timing Systems will be available by the time this article is published. All of the games played, Gamblers, Snooker, FAST, and so on require the display scoreboard to be turned off to prevent any unfair advantage for handlers. Until now, it has been necessary to turn the scoreboard off or turn it around. With this software update, the signal to the scoreboard will be automatically suppressed until the finish eye is tripped, at which time the scoreboard will return to normal functions until the next run begins. In other words, the course time will be displayed so that the judge and handler can see the course time. Among other advantages, you will know if a gamble was completed within the prescribed time since it is possible that a gamble was completed in time, even if the horn sounded, if the course was completed within .02 seconds of the time allowed. Over the course of the last several years we've made many improvements in the software that operates your system. All software updates are available for every system that was ever produced by Signature Gear. The cost for updates is minimal. Contact Signature Gear either by email to Mark@SignatureGear.com or by phone at (636) 584-0113 for information about updating your software. Remember to reprogram the eyes into your system after a software update.

Mark Kuznitz is the founder and owner of Signature Gear. Signature Gear manufactures and sells agility and flyball electronic timing systems, including wireless microphone systems. Signatue Gear systems are used exclusively at virtually every major competition in the world including AKC Nationals, USDAA Nationals, AAC Nationals, CKC Nationals, CPE Nationals, NADAC Nationals, Australian Nationals, New Zealand Nationals, and FCI World Championships. Mark competes in agility with Australian Shepherds Maverick and Viper.