

FarmTek

Sport Timing Specialists

A decorative graphic consisting of four vertical lines of varying lengths and thicknesses, positioned to the left of the main title.

Polaris

Dog Agility Timer

Operating
Instructions

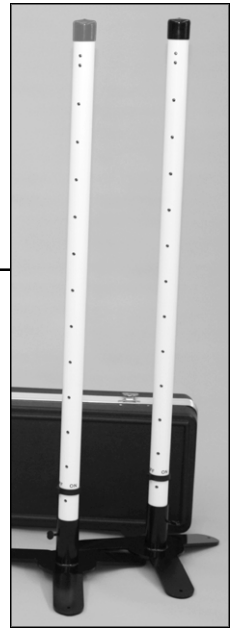
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Introduction

A pair of light curtains (one with a red top, one with a black top) form a 36 inch tall curtain of light between them when placed across an obstacle. Since the curtain of light spans 36 inches, no adjustments need to be made for different dog heights or obstacle types. **Note:** The red-capped light curtains are linked to a specific system and to a specific position (i.e., Eye #1, Eye #2, etc.). The black capped light curtains are interchangeable with any position or system.

Light Curtains (1)



Batteries

Installation

Each light curtain runs from 6AA alkaline batteries installed in a battery cartridge. Carefully note battery orientation within the cartridge when installing the batteries. Do not mix new and old batteries in the same cartridge.

The battery cartridge slides into the bottom of the light curtain. Unscrew the bottom cap and install the battery cartridge by sliding the end with the green dot in first, while aligning the green dot on the cartridge with the green dot on the light curtain. Finally, replace the bottom cap.

Battery Care

The light curtains operate about 50 hours from a set of new alkaline batteries (*use only alkaline batteries*). The power lamp at the top of the light curtain unit glows steadily while the battery is good and flashes when the battery is low.

The light curtains operate about two hours after the *first* indication of low battery. (**Note:** The two hour period is from the *first time* the low battery light begins flashing. If a unit with a low battery is turned off and then later turned back on, the lamp may glow steadily for some time before it starts flashing again. This does not mean there are two more hours of operation remaining at this point.)

Once the lamp begins flashing, it is simplest to just replace the batteries during the next break in your event – don't worry about trying to use the last few hours of the batteries.

It is best to remove the battery cartridges from the light curtains at the end of each day and store them in the spots provided in the carrying case.

Equipment Care

Rain / Water

The light curtains are water resistant, however, when used in the rain, wipe off excess water before laying them in the carrying case or removing the batteries. Once home, remove the light curtains from the carrying case and let them sit out a few days in an air conditioned or heated environment.

All other equipment (the timer console, scoreboards, speaker, etc.) **is not water resistant**. The console can be operated inside a clear plastic bag if required. Always allow damp equipment to dry for several days in an air conditioned or heated environment.

Storage

Remove the battery cartridge from light curtains after each use.

Radio Channel

Ideally, systems operating in adjacent rings should be on different channels (frequencies). The channel number can be found on the back of the red-capped light curtains. The channel number is a single digit: 0, 1, 2 or 3.

Setup Procedures for a Trial

Light Curtains (2)

- 1) Install four AA batteries into the Polaris timer console as labeled. Turn on the timer console using the slide switch located at the upper right corner of the timer.
- 2) Install batteries in the light curtains, rotate the on/off switch to the “on” position, and place the curtains into the stands. Gently tighten the thumbscrew to hold the light curtain in place. If the first obstacle is a tunnel and you have the optional short light curtains, use the short light curtains instead of the full height curtains.
- 3) Place the “Eye #1” curtains at the approach side of the first obstacle (the black-capped curtains are interchangeable). Rotate the pole stand so that the light curtain is as close as possible to the obstacle.
- 4) Make sure the light curtains are *as vertical as possible*. If the base is on an uneven surface, push dirt, folded paper, etc., under base leg(s) as needed to level the base and leave the pipe as vertical as possible.
- 5) Once the curtains are as vertical as possible, loosen the thumbscrew slightly and stand over the top of the light curtain. View down the line of clear lenses with one eye. Rotate the light curtain as needed so that the lenses are pointed directly at the light curtain on the opposite side. Do this for both light curtains. Gently re-tighten the thumbscrew. When the light curtains are aligned, the light on the red-capped light curtain turns green.
It is important to take the time to make sure the light curtains are as vertical as possible and the lenses are pointed directly at each other – even if the green alignment light is already on. This ensures a strong alignment instead of a possibly marginal alignment that may be more easily affected by sun, dust, etc.
(Note: If the sun is low and shining directly into the lenses of the red capped light curtain, swap the two light curtains so that the red capped light curtain is pointed away from the sun.)
- 6) Repeat steps 1-5 for the finish obstacle using the “Eye #2” curtains. For spread jumps, the curtains should be placed on the finish side of the obstacle. Otherwise, place the curtains on the approach side of the obstacle. **(Note:** The finish obstacle cannot be a closed tunnel.)
- 7) Pass your hand through the start and finish beams. The green light on the red-capped curtain should flicker to red and then go back to green as your hand goes through the beam. Verify that the Polaris timer console is receiving a signal from the light curtains as detailed below.

Verifying Beam Alignment on the Console

The **bottom right corner** of the status display on the Polaris timer console shows the alignment status of the light curtains (electric eyes). When a curtain pair is aligned, its number is displayed (1 or 2). If not aligned, or while the beam is broken, “x” is shown.

If the console does not update these indicators when the beams are broken, then radio messages from the light curtains are not being received by the console. In this case, check and see if the indicators update with the console closer to light curtains – about ten feet or so. If the indicators still don’t update, follow the procedure later in this manual for programming the light curtain ID codes into the console.

Alignment	Display Shows
Eyes aligned	Eye #1 \cong
Eye #2 not aligned (or beam broken)	Eye #1 \times

Timer Console Setup

Standard, JWW & FAST Classes (AKC, CKC)

- 1) With the timer stopped, press the SETUP button to enter the setup mode.
- 2) Press ENTER to select the Agility Rules. Press NEXT CHOICE until the desired venue (AKC or CKC) is shown, then press ENTER.
- 3) Press ENTER to set the Standard Course Time. Key in the course time followed by the ENTER key. The *maximum* course time is automatically set to the specified standard course time plus 20 seconds. Set the course time to zero if not using a course time.
- 4) Press ENTER for FAST Class Options. If this is *not* a FAST class, press ENTER for No FAST Horns. Otherwise, press NEXT CHOICE until the appropriate class size is displayed, then press ENTER. Class sizes are displayed as follows:
20-26in (20", 24" or 26" regular division)
12-16, 16-20 P (12" and 16" regular divisions, 16" and 20" preferred divisions)

- 8in, 8-12in P (8" regular division, 8" and 12" preferred divisions)
4in Preferred (4" preferred division)
- 5) Press ENTER to select Finish Eye Options. Choose Stop on Pass 1 if the finish obstacle is crossed only at the finish. Otherwise, press NEXT CHOICE and choose the appropriate Stop on Pass based on how many times the finish obstacle is crossed during a run.

Notes:

- Press SETUP at any time to exit the setup menu.
- An asterisk identifies the currently active option or selection.
- Parameters can be updated individually and in any order.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering a time, press and hold the CLEAR TIME button until the timer beeps and resets the entry to zero, then re-enter the desired time.

Timer Console Operation

When ready, press the RACE/GO button to speak "Go" on the optional speaker and to display "Go" on the optional scoreboard.

When the dog breaks the start line beam, the timer automatically resets to zero and begins timing. When the dog crosses the finish line beam, the timer automatically stops. If the course design does not use a light curtain at the final obstacle, the time keeper must manually stop the timer by pressing the START/STOP button.

If the timer fails to start, press the HORN button to alert the handler before the third obstacle.

If the timer accidentally stops during a run, press the RESTART button any time before the run completes. Accurate timing is restored as if the timer had never been stopped.

If the dog fails to complete the course, press the START/STOP button to manually stop the timer.

Notes:

When the finish eye is set to stop on the 2nd or 3rd pass, the word "Off" flashes in the bottom right corner of the status display until the light curtain is automatically re-armed for the final pass through the finish obstacle.

Use the PREV and NEXT keys to scan back and forth through previous times. The previous time display is removed after about ten seconds, or by pressing any other key. You may view a previous time even while the timer is running.

The timer does not have to be cleared to zero between runs – time automatically starts at zero for each new run.

Timer Console Setup

Standard & JWW (USDAA, ASCA, AAC, NADAC)

- 1) With the timer stopped, press the **SETUP** button to enter the setup mode.
- 2) Press **ENTER** to select the Agility Rules. Press **NEXT CHOICE** until the desired venue is shown, then press **ENTER**.
- 3) Press **ENTER** to set the Standard Course Time. Key in the standard course time followed by the **ENTER** key. If you set the standard course time at zero, be sure to select **No Game Horns** in the **Game Horn** menu (see below).
- 4) Press **ENTER** to set the Maximum Course Time. Key in the maximum course time followed by the **ENTER** key. If not using a maximum course time, enter a time of zero.
- 5) Press **ENTER** to set Game Horns. Press **ENTER** for **No Game Horns** (this forces the **Standard** and **JWW** classes).
- 6) **USDAA** venues only: Press **ENTER** to choose the Table Count option. Then press **NEXT CHOICE** to swap between **Continue Count** or **Restart Count**. Press **ENTER** when the desired option is displayed. Choose **Continue Count** for Ad-

vanced/Masters, choose **Restart Count** for **Starters/Novice**.

- 7) Press **ENTER** to select Finish Eye Options. Choose **Stop on Pass 1** if the finish obstacle is crossed only at the finish. Otherwise, press **NEXT CHOICE** and choose the appropriate **Stop on Pass** based on how many times the finish obstacle is crossed during a run.

Notes:

- Press **SETUP** at any time to exit the setup menu.
- An asterisk identifies the currently active option or selection.
- Parameters can be updated individually and in any order.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering a time, press and hold the **CLEAR TIME** button until the timer beeps and resets the entry to zero, then re-enter the desired time.

Timer Console Operation

When ready, press the **RACE/GO** button to speak “Go” on the optional speaker and to display “Go” on the optional scoreboard.

When the dog breaks the start line beam, the timer automatically resets to zero and begins timing. When the dog crosses the finish line beam, the timer automatically stops. If the course design does not use a light curtain at the final obstacle, the time keeper must manually stop the timer by pressing the **START/STOP** button.

If the timer fails to start, press the **HORN** button to alert the handler before the third obstacle.

If the timer accidentally stops during a run, press the **RESTART** button any time before the run completes. Accurate timing is restored as if the timer had never been stopped.

If the dog fails to complete the course, press the **START/STOP** button to manually stop the timer.

Notes:

When the finish eye is set to stop on the 2nd or 3rd pass, the word “Off” flashes in the bottom right corner of the status display until the light curtain is automatically re-armed for the final pass through the finish obstacle.

Use the **PREV** and **NEXT** keys to scan back and forth through previous times. The previous time display is removed after about ten seconds, or by pressing any other key. You may view a previous time even while the timer is running.

The timer does not have to be cleared to zero between runs – time automatically starts at zero for each new run.

Timer Console Setup

Gambler's Class

- 1) With the timer stopped, press the **SETUP** button to enter the setup mode.
- 2) Press **ENTER** to select the Agility Rules. Press **NEXT CHOICE** until the desired venue is shown, then press **ENTER**.
- 3) Press **NEXT CHOICE** to skip Standard Course Time. Press **NEXT CHOICE** again to skip Maximum Course Time.
- 4) Press **ENTER** to set Game Horns. If you have previously entered horn options in the advanced menu, press **NEXT CHOICE** until the option number you desire is displayed, then press **ENTER**. You can then skip to step 7.
Otherwise, press **NEXT CHOICE** once to display the **Key-In Times** option and then press **ENTER**.
- 5) Key in the Horn 1 Time followed by the **ENTER** key. This is the opening sequence time before the gamble.
- 6) Key in the Horn 2 Time followed by the **ENTER** key. This is the total time including the opening

- sequence. That is, add the opening sequence time and the gamble time to compute this value.
- 7) Press **ENTER** to select Finish Eye Options. Choose **Stop on Pass 1** if the finish obstacle is crossed only at the finish. Otherwise, press **NEXT CHOICE** and choose the appropriate **Stop on Pass** based on how many times the finish obstacle is crossed during a run.

Notes:

- Press **SETUP** at any time to exit the setup menu.
- An asterisk identifies the currently active option or selection.
- Parameters can be updated individually and in any order.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering a time, press and hold the **CLEAR TIME** button until the timer beeps and resets the entry to zero, then re-enter the desired time.

Timer Console Operation

When ready, press the **RACE/GO** button to speak “Go” on the optional speaker and to display “Go” on the optional scoreboard.

For a manual start, press the **START/STOP** button when the dog crosses the start line. Otherwise, when the dog breaks the start line beam, the timer automatically resets to zero and begins timing. The horns are sounded in sequence as time progresses. When the dog crosses the finish line beam, the timer automatically stops. If the course design does not use a light curtain at the final obstacle, the time keeper must manually stop the timer by pressing the **START/STOP** button.

If the timer fails to start, press the **HORN** button to alert the handler before the third obstacle.

If the dog fails to complete the course, press the **START/STOP** button to manually stop the timer.

If the timer accidentally stops during a run, press the **RESTART** button any time before the run completes. Accurate timing is restored as if the timer had never been stopped.

Notes:

During the opening sequence, or if the finish eye is set to stop on the 2nd or 3rd pass, the word “Off” flashes in the bottom right corner of the status display until the light curtain is automatically re-armed for the final pass through the finish obstacle.

Use the **PREV** and **NEXT** keys to scan back and forth through previous times. The previous time display is removed after about ten seconds, or by pressing any other key. You may view a previous time even while the timer is running.

The timer does not have to be cleared to zero between runs – time automatically starts at zero for each new run.

Timer Console Setup

Snooker Class

- 1) With the timer stopped, press the SETUP button to enter the setup mode.
- 2) Press ENTER to select the Agility Rules. Press NEXT CHOICE until the desired venue is shown, then press ENTER.
- 3) Press NEXT CHOICE to skip Standard Course Time. Press NEXT CHOICE again to skip Maximum Course Time.
- 4) Press ENTER to set Game Horns. If you have previously entered horn options in the advanced menu, press NEXT CHOICE until the desired option number is displayed, then press ENTER. You can then skip to step 7.
Otherwise, press NEXT CHOICE once to display the Key-In Times option and then press ENTER.
- 5) Key in the Horn 1 Time followed by the ENTER key. This is the allowed course time.
- 6) Key in zero for the Horn 2 Time followed by the ENTER key.
- 7) Press SETUP to exit the setup menu.

Notes:

- Press SETUP at any time to exit the setup menu.
- An asterisk identifies the currently active option or selection.
- Parameters can be updated individually and in any order.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering a time, press and hold the CLEAR TIME button until the timer beeps and resets the entry to zero, then re-enter the desired time.

Timer Console Operation

When ready, press the RACE/GO button to speak “Go” on the optional speaker and to display “Go” on the optional scoreboard.

For a manual start, press the START/STOP button when the dog crosses the start line. Otherwise, when the dog breaks the start line beam, the timer automatically resets to zero and begins timing. The horn will sound at the time specified. The time keeper must manually stop the timer when appropriate by pressing the START/STOP button.

If the timer fails to start, press the HORN button to alert the handler before the third obstacle.

If the timer accidentally stops during a run, press the RESTART button any time before the run completes. Accurate timing is restored as if the timer had never been stopped.

Notes:

Use the PREV and NEXT keys to scan back and forth through previous times. The previous time display is removed after about ten seconds, or by pressing any other key. You may view a previous time even while the timer is running.

The timer does not have to be cleared to zero between runs – time automatically starts at zero for each new run whether started manually or with the light curtains.

Timer Console Setup

Practice Mode

- 1) With the timer stopped, press the **SETUP** button to enter the setup mode.
- 2) Press **ENTER** to select the Agility Rules. Press **NEXT CHOICE** until **Practice Mode** is displayed, then press **ENTER**.
- 3) Press **ENTER** for Course Length. Key in the course length followed by **ENTER**. Input the course length in your desired unit (yards or meters) even if the displayed unit is incorrect – you can correct the unit in step 4.
- 4) Press **ENTER** to choose **Yards/Second**, or press **NEXT CHOICE** and then **ENTER** to choose **Meters/Second**.
- 5) Press **ENTER** to select Finish Eye Options. Choose **Stop on Pass 1** if the finish obstacle is crossed only at the finish. Otherwise, press **NEXT**

CHOICE and choose the appropriate **Stop on Pass** based on how many times the finish obstacle is crossed during a run.

Notes:

- Press **SETUP** at any time to exit the setup menu.
- An asterisk identifies the currently active option or selection.
- Parameters can be updated individually and in any order.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering the course length, press and hold the **CLEAR TIME** button until the timer beeps and resets the entry to zero, then re-enter the desired course length.

Timer Console Operation

Make sure the timer is stopped. Whenever ready, run the course with the dog. When the dog breaks the start line beam, the timer automatically resets to zero and begins timing. When the dog crosses the finish line beam, the timer automatically stops.

The total time shows on the upper Time Display and the average speed, in yards or meters per second is shown on the bottom display.

If the timer accidentally stops during a run, a helper can press the **RESTART** button any time before the run completes. Accurate timing is restored as if the timer had never been stopped.

Notes:

When the finish eye is set to stop on the 2nd or 3rd pass, the word “Off” flashes in the bottom right corner of the status display until the light curtain is automatically re-armed for the final pass through the finish obstacle.

The timer does not have to be cleared to zero between runs – time automatically starts at zero for each new run whether started manually or with the light curtains.

Overview

Advanced Menu

The Advanced Menu provides access to some of the less frequently used timer settings:

- Walk-through time
- Time format selection
- Game horn times
- Light curtain start/stop options
- Handswitch options
- Table timer options
- Time fault options
- Programming of light curtains, handswitches and the wireless speaker
- Speaker options
- Split time options
- Output options (scoreboard, printer and computer)
- Advanced AKC options

Each of these items is discussed in detail in a following section.

To access the Advanced Menu, follow these steps:

- 1) With the timer stopped, press the SETUP button to enter the setup mode.
- 2) Press NEXT CHOICE a few times until Advanced Menu is displayed, then press ENTER.
- 3) Scan forward or backward through the menu choices using the NEXT CHOICE and PREV CHOICE keys. When the desired menu item is displayed, press ENTER as instructed.

Notes:

- Press SETUP at any time to exit the menu.
- An asterisk identifies the currently active option or selection.
- Changes are automatically saved, even after turning off the timer.
- To correct a mistake when entering a time or value, press and hold the CLEAR TIME button until the timer beeps and resets the entry to zero, then re-enter the desired time or value.

Walk-Through Timers

The Polaris timer can be used to count down the walk-through period and display the count down on the optional scoreboard. At expiration of the walk-through time, a horn tone is sounded over the optional amplified speaker and a *post* walk through count *up* timer is started. The post walk through period is typically set to five minutes to allow time to prepare the ring before the first contestant runs.

Start the walk-through timer by pressing the COUNT DOWN button on the timer. The count down can be paused and resumed with successive presses of the

COUNT DOWN button. To abort the count down, press the CLEAR TIME button.

To change walk through times, choose the Walk-thru Time or Post-Walk thru option in the Advanced Menu. When prompted, key-in the walk-through time in minutes and seconds, followed by the ENTER key. A post walk through time of zero disables the post walk through feature. Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Time Format

The Polaris timer can display times in several different formats. To change the time format, choose the Set Time Format option in the Advanced Menu. Press NEXT CHOICE until the desired time format

is displayed, then press ENTER. Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Game Horn Times

Advanced Menu (cont'd)

Common game horn times can be pre-entered into the timer to simplify entry of horn times during the event. There are eight “spots” to pre-enter horn times. These spots are identified as “Horn Option 1” through “Horn Option 8.”

To pre-enter game horn times:

- 1) Choose the **Set Game Horns** option in the Advanced Menu.
- 2) Press ENTER to set Horn Option 1.
- 3) Key in Horn 1 Time followed by ENTER. This is the opening sequence time before the gamble.

- 4) Key in Horn 2 Time followed by the ENTER key. This is the total time including the opening sequence. That is, add the opening sequence time and the gamble time to compute this value. For Snooker classes, enter zero for the horn 2 time.

Repeat this sequence as needed to load Horn Options 2 through 8. You skip forward and back through the eight horn options with the NEXT CHOICE and PREV CHOICE keys. When finished, press SETUP to exit the Advanced Menu.

Light Curtain Start/Stop Options

To simplify timer setup, the timer automatically adjusts to different light curtain configurations without you having to specify which light curtain starts the timer, which stops the timer, which curtains are used for split times, etc. This operation is referred to as “automatic mode.” The table below summarizes light curtain usage in the automatic mode. The numbers shown in the table refer to the “Eye #” label that is present on each light curtain.

Start #	Finish #	Split #
1	2	3, 4
2	1	3, 4
3	2	1, 4

Note that if light curtain #3 is used at the start line, then light curtain #2 must be used at the finish line.

Automatic mode does not support a course design which starts and stops with the same light curtain. In this case, the timer must be set to start and stop with light curtain #1. Curtains 3 and 4 can be used for split times.

To change between automatic and single light curtain modes, choose the **Eye Usage** option in the Advanced Menu. Press NEXT CHOICE as needed to display your choice of **Start#1**, **Stop#1** or **Automatic**, then press ENTER. Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Note: This setting returns to “automatic mode” whenever the timer is turned off.

Handswitch Settings

Advanced Menu (cont'd)

Optional handswitches can be used with the timer to provide an automated table count for the judge's use, and/or to provide remote manual start/stop for a timekeeper. By default, handswitch #1 functions as a table timer and handswitch #2 functions as a remote start/stop button. These functions can be changed as follows:

1) Choose the HandSw 1 Usage option (or HandSw 2 Usage for handswitch #2) in the Advanced Menu.

2) Press NEXT CHOICE to scan through the options of Not Used, Table Timer, or Start/Stop. Press ENTER when the desired use for the selected handswitch is displayed.

Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Table Count

The table count can be set to resume from where the count left off (Continue Count), or to restart from five (Restart Count). This setting defaults to Restart Count any time the timer is powered on or a new venue is chosen. (Prior to version 3.0, AKC, CKC and International defaulted to "Continue.")

Choose the Table Count option in the Advanced Menu to change this setting. Press NEXT CHOICE as needed to display your choice of Restart Count

or Continue Count, then press ENTER. Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Note: If the USDAA venue is selected, then the Table Count menu option is also present in the main menu.

Note: This setting is not saved and returns to the default value (Restart Count) whenever the timer is turned off.

Time Fault Options

Choose the Faults/Second option in the Advanced Menu to change the number of faults that are added per second while the contestant is exceeding the course time. If desired, you can use this feature to set 2 faults/second for AKC Open or 3 faults/second for AKC Excellent.

Note: The faults/second setting is saved even when power is turned off, however, the value is automatically set back to 1 fault/second whenever any venue is selected in the main menu.

Choose the Fault Math option in the Advanced Menu to change the way faults are computed. Press

NEXT CHOICE as needed to display your choice of Round Time Up, Round Time Down or No Rounding, then press ENTER. Press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

For AKC and CKC venues, the fault math setting defaults to round down. For all other venues, the fault math setting defaults to no rounding.

Note: The fault math setting is saved even when power is turned off, however, the default values described above are restored whenever any venue is selected in the main menu.

Programming ID Codes

Advanced Menu (cont'd)

Each light curtain and handswitch has a unique electronic ID code. This ID code is transmitted along with other information whenever the beam is broken or the handswitch is pressed. For a set of light curtains or a handswitch to work with a particular timer console, the console must “know” the ID code of the light curtain being used. Similarly, if a wireless speaker is used, the wireless speaker must “know” the ID code of the console from which it receives commands.

Menu options allow you to program ID codes into the timer console (or into the wireless speaker) if needed. For example, if the timer is not responding to the light curtains, you can use the program option in the advanced menu to ID the light curtains back into the console. This often fixes most problems related to unresponsive light curtain or handswitches. The programming process is also required anytime you switch to a new or replacement red-capped light curtain or handswitch.

Programming Light Curtains and Handswitches

Important: When programming light curtains or handswitches into the console, it is important that no unintended beam breaks or button presses occur from other equipment in the area. Otherwise, a light curtain in use in an arena 100 feet away might be accidentally programmed into the timer instead of the light curtain with which you are working.

It is best to have the light curtains or handswitch five to ten feet from the timer console when programming. To program in a light curtain or handswitch, choose *Prog Eyes/HndSw* from the

advanced menu. Press *NEXT CHOICE* as required to choose the proper light curtain (eye) or handswitch from the list, then press *ENTER*. The timer prompts you to break the beam or press the handswitch button. After breaking the beam or pressing the handswitch button, the timer displays ID code information for a few seconds and then prompts you for programming of the next light curtain or handswitch in sequence. Press *SETUP* to exit the Advanced Menu, or continue programming other light curtains or handswitches.

Programming the Wireless Speaker

Important: When programming the console into a wireless speaker, it is important that no unintended speaker commands are transmitted by other consoles in the area. Otherwise, a console in use in an arena 100 feet away might be accidentally programmed into the speaker instead of the console with which you are working.

If light curtains need to be programmed into the console, they must be programmed into the timer before programming the speaker. It is best to have the speaker five to ten feet from the timer console

when programming. *Always start with the amplified speaker OFF.*

To program the console into the speaker, choose *Program Speaker* from the advanced menu. Then, turn on the speaker as instructed on the timer display. You should hear a sequence of beeps followed by the spoken word “Ready.” At this point, the speaker is programmed. Press *SETUP* to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu.

Speaker Options

Advanced Menu (cont'd)

Choosing Speaker Options in the Advanced Menu allows configuration of several options related to how the speaker is used. Use the NEXT CHOICE and PREV CHOICE buttons to scan through the available options, then press ENTER when the desired option is displayed:

To enable or disable use of the wireless speaker, choose between `Wireless ON` and `Wireless OFF`.

To choose between a buzzer (horn) sound or a high pitch tone, choose between `Buzzer Tone` and `High Pitch Tone`. Use different tones for adjacent rings.

To choose the voice gender and what word is spoken when the GO button is pressed, choose between `Male GO`, `Female GO`, `Male Ready`, `Female`

`Ready`, or `No GO` or `READY`. If a wired speaker is used, the only choices are to `Speak GO` or `Don't Speak GO` (female voice only).

Depending on where the speaker is placed relative to the start line, you may want the table count louder or quieter than the "GO" volume. Control this by choosing between `Table Full Vol`, `Table Half Vol`, `Buzzer/Go Full`, and `Buzzer/Go Half`.

Note: The volume settings return to full volume whenever the timer console is turned off.

After all changes have been made, press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu by choosing the `Exit This Menu` option at the end of the list of speaker options.

Split Time Options

Choosing the `Split Times` option in the Advanced Menu allows configuration of how light curtains #3 and #4 are used for measuring split times. Use the NEXT CHOICE and PREV CHOICE buttons to scan through the available options, then press ENTER when the desired option is displayed:

To not print each split time (or to not send each split time to a computer) choose `Print Times OFF`. To print each split time (or send each split time to a computer) choose `Print Times ON`.

To choose between saving or not saving each split time in memory, choose between `Save Times ON` and `Save Times Off`.

Choose how long a split time remains on the optional scoreboard display by choosing between the available hold times of 1, 3, 5, 10 or 15 seconds.

After all changes have been made, press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu by choosing the `Exit This Menu` option at the end of the list of split time options.

Output Options

Advanced Menu (cont'd)

Choosing Output Options in the Advanced Menu allows configuration of several settings that control scoreboard, printer and computer output. Use the NEXT CHOICE and PREV CHOICE buttons to scan through the available options, then press ENTER when the desired option is displayed:

To enable or disable use of the wireless scoreboard feature, choose between Wireless SB ON and Wireless SB OFF.

To force a final time to remain on the scoreboard for some minimum amount of time, choose the SB Hold Time option. Scroll through the options of No Hold Time, Hold for 1s (or 3, 5, 10 or 15 seconds) and press ENTER when the desired option is displayed. The default setting is No Hold Time.

The scoreboard can display numbers in the scoreboard's default font or an alternate font by choosing between Default SB Font and Alternate Font.

The timer can output result data in either the default "printer" format – used by the optional printer and some computer programs, or in a computer-specific format used by other computer programs. Choose between Printer Output or Computer Output.

After all changes have been made, press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu by choosing the Exit This Menu option at the end of the list of output options.

AKC Parameters

Choosing the AKC Parameters option in the Advanced Menu allows configuration of settings related to computation of maximum course time and several FAST class parameters. In general, *these items should not be changed* unless AKC rules change. However, if a change needs to be made, use the NEXT CHOICE and PREV CHOICE buttons to scan through the available options, then press ENTER when the desired option is displayed:

To exit the AKC Parameter menu without making a change, choose the No Change option that is shown immediately upon entry.

Maximum course time can be computed as 1.5 times the standard course time (old AKC rules), or as a time value added to the standard course time (current rules). Choose the Max Time Adder option to update

this setting. Key in a value of zero to force the old rules (1.5 times standard course time), or key in the time to add to standard course time to compute maximum course time (e.g., 20 seconds). Press ENTER after keying in the time.

To change the additional time added for the FAST class, choose the FAST Add'l Time option. Key in the desired additional time (e.g., 20 seconds) followed by the ENTER key.

The remaining options are used to set FAST class standard course times for different dog heights. Do not modify these settings unless instructed to do so.

After all changes have been made, press SETUP to exit the Advanced Menu, or continue with selection of other items in the Advanced Menu by choosing the No Change menu option.

Overview

Handswitch, Table Timer, Speaker

One or two wireless handswitches can be used with the timer to provide an automated table count for the judge's use, and/or to provide remote manual start/stop for a timekeeper. By default, handswitch #1 functions as a table timer and handswitch #2 functions as a remote start/stop button. These functions can be changed in the Advanced Menu as detailed previously.

The wireless handswitch is designed for operation within about 100 feet of the timer console. In order to operate, the handswitch must be turned on by pressing the red power button on the front panel. Once powered on, the handswitch is activated by pressing the green button on top of the handswitch with your thumb. For the most reliable operation, hold the thumbswitch away from your body as you push the button – similar to the way one tends to operate a TV remote control.

The handswitch operates over 70 hours from a 9 volt alkaline battery (*use only alkaline batteries*). The **Power** lamp on the unit glows steadily while the battery is good and flashes when the battery is low. The handswitch will operate at least two hours after the *first* indication of low battery. However, the two hour period is from the *first time* the low battery light begins flashing. If a unit with a low battery is turned off and then later turned back on, the lamp may glow steadily for some time before it starts flashing again. This does not mean there are two more hours of operation remaining at this point.

Once the **Power** lamp begins flashing, it is simplest to just replace the battery during the next break in your event – don't worry about trying to use the last few hours of the battery.

When storing the handswitch for an extended period of time, always remove the battery.

Table Count Operation

When used in conjunction with the amplified speaker, the system will audibly count the table count for the judge while the button on the handswitch is held down. This ensures a fair and consistent table count for all contestants.

During the run, the judge should press and hold the button as soon as the dog is in position on the table,

then release the button when the count down completes or the dog leaves the designated position. In the latter case, when the dog returns to the proper position, press and hold the button once again, repeating this process as required. Settings in the Advanced Menu determine whether the count restarts from the beginning or continues from where it left off on each successive press.

Speaker Operation

If you do not have the wireless speaker option, use the "PA Horn Cable" to connect from the jack labeled **Horn** or **Audio** on the timer console to either the red or white "Line In" jacks on the amplified speaker. Do not connect the cable if you have the wireless speaker option unless there is a problem with wireless operation.

Volume and tone controls are on the front of the speaker. The on/off button is on the back. Always have the volume at the minimum setting when turning the speaker on and off.

You can test the speaker by pressing and holding the HORN button on the timer. The GO button will speak "GO" every other time the button is pressed.

FCC and Industry Canada Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- 1) Reorient or relocate the receiving antenna.
- 2) Increase the separation between the equipment and the receiver.
- 3) Consult the dealer or radio/TV technician for help.

CAUTION: Changes made or modifications not expressly approved by the party responsible for FCC compliance of this equipment could void the user's authority to operate the equipment.

This device has been designed to operate with an antenna having a maximum gain of 3.0 dB. Use of an antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than required for successful communication.

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Electronic Sports Timing

Frequently Asked Questions

How reliable is the wireless technology? Has it been proven?

What is the maximum distance between the electric eye and the announcer's booth (the "radio range")?

What is the maximum distance between the electric eyes (the "optical range")?

Does sun affect the electric eyes?

How long do the batteries last?

How many times does the timer save in its memory?

Can multiple electric eyes be set up to measure split times around and between barrels for training?

What exactly is the "PA Horn"?

What if I don't know what kind of PA system is used where I must use my timer?

What do I need to connect my timer to a computer?

Are the timers and electric eyes weatherproof?

What are the timers' accuracy specifications?

What size scoreboard do I need?

Can I display a score or the time to beat on a scoreboard?

What is the warranty on your timing equipment?

Answers to Questions

How reliable is the wireless technology? Has it been proven?

Thousands of sets of the wireless electric eyes are already in use. The units perform well even with nearby cell phones and walkie-talkies. To ensure reliable operation, the timer console in the announcer's booth should have a clear line-of-sight view of the electric eye in the arena (the one with the antenna). Since the announcer's booth generally has a view of the electric eyes in the arena, this is rarely a problem. Animals and people in the arena blocking the line of sight are generally not a problem. Secondly, keep major electronic equipment (e.g. computers, computer monitors, the PA system, etc.) a few feet away from the timer console in the announcer's booth.

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What is the maximum distance between the electric eye and the announcer's booth (the "radio range")?

The radio link will work reliably to about 300 feet. This assumes a clear line-of-sight from the antenna on the electric eye in the arena to the antenna on the timer console in the announcer's booth. For maximum distance, make sure the timer console in the announcer's booth is not hidden behind a ledge that blocks the antenna's view of the electric eye in the arena. It is also

recommended that other electronic appliances (computers, monitors, PA system, etc.) be at least three feet from the timer console.

If using the timer for drag racing or similar events, placing the timing console half way down the track gives a total start to finish range of about 600 feet (300 feet from the starting eye to the timing console and 300 feet from the finish line eye to the timer console). If greater range is needed, please [contact us](#). ([Top](#))

What is the maximum distance between the electric eyes (the "optical range")?

The wireless electric eyes have an optical range (the distance between the two eyes) of about 200 feet. The range may be reduced somewhat if the photo-receiver is facing into a rising or setting sun. Maximum range can be maintained by making sure the photo-receiver (the unit with the antenna) has its back to an early morning or late afternoon sun. ([Top](#))

Does sun affect the electric eyes?

A late afternoon or early morning sun shining directly into the face of the receiving electric eye can affect the maximum range between the eyes. Imagine driving West into a setting sun without a visor – it is difficult to see. The receiving electric eye (the one with the antenna) is much like your own eye and has to fight the same problem. The easiest solution is to simply swap the electric eyes so that the receiving electric eye has its back to the sun. If this is not possible, then just as shading your eyes with a visor helps you see the road, any sort of [sun-shield](#) on the electric eye helps the electric eye "see." Keep in mind that even when facing into the setting sun, you may not experience any problems unless you have a large distance between the electric eyes (e.g., over 125 feet). ([Top](#))

How long do the batteries last?

The timer console runs about 50 to 60 hours on a fresh set of four AA alkaline batteries. Typically, this is enough for a couple months of use before the batteries need to be replaced. The timer gives a 1 to 2 hour warning that the battery is getting low. You can also check the percent of battery remaining at any time from the keypad on the console.

The electric eyes operate from a 9 volt alkaline battery (the little rectangular battery). The eyes will run 70 to 80 hours from a new battery. Typically, this is enough for several months of use before the batteries need to be replaced. The electric eyes give a 2 to 3 hour warning that the battery is getting low. This gives you plenty of advance notice so that during the next arena drag, class change, etc., you can change the battery. To make the system even more fool-proof, low battery warnings from the electric eyes in the arena are displayed on the timer console in the announcer's booth. ([Top](#))

How many times does the timer save in its memory?

The timer console saves the most recent 100 results (including penalty information) in memory. The memory is cleared whenever the timer is powered off or a new event is chosen. ([Top](#))

Can multiple electric eyes be set up to measure split times around and between barrels for training?

Yes, the Polaris timer can be used with up to four sets of wireless electric eyes to measure split times throughout the barrel pattern. In order to display and print results, the Polaris timer must be connected to a computer. Click [here](#) to see a typical arena setup for measuring barrel split times. ([Top](#))

What exactly is the "PA Horn"?

The Polaris timer can play a recording of our external horn directly through your PA system (sound system). This way, you'll hear the horn sound come out over the speakers in your arena without actually having a physical horn. The timer connects to the back of your PA system with an audio cable just like you'd connect a CD or tape player to your PA system for background music. ([Top](#))

What if I don't know what kind of PA system is used where I must use my timer?

If you are not sure if the PA system will have any available inputs, or where it will be located, then you may want to purchase the external horn. The external horn is a stand-alone buzzer that does not have to connect to a PA system. ([Top](#))

What do I need to connect my timer to a computer?

The computer interface cable connects your timer console to a serial or USB port on your computer. Once the physical connection is made, software is required on your computer in order to process the time information from the timer. ([Top](#))

Are the timers and electric eyes weatherproof?

No. The timer and electric eyes should not be left out in the weather. It is best to store them in a temperature and humidity controlled environment such as your house when not in use. If it is raining during an event and you wish to continue running, you can slip a thin plastic sandwich bag over each electric eye. You may want to snap a rubber band around the eye to keep the sandwich bag taught and smooth over the face of the electric eye where the beam exits and enters the eyes. The announcer's booth is generally dry for the timekeeper, but if not, slip the console into a plastic bag and continue operation.

The light curtains sold with our dog agility system are water resistant, however, when used in the rain, wipe off excess water before laying them in the carrying case or removing the batteries. Once home, remove the light curtains from the carrying case and let them sit out a few days in an air conditioned or heated environment. ([Top](#))

What are the timers' accuracy specifications?

Timer Console Timebase

Timebase Reference:	10 Mhz temperature stable quartz crystal
Initial Tolerance:	±2 ppm at 25° C
Aging:	±1 ppm / year (can be nulled with re-calibration)
Temperature Drift:	±3 ppm typical 0° - 50°C (32° - 122°F) ±3 ppm maximum 0° - 50°C (32° - 122°F) available

Electric Eyes

Beam Modulation:	Infrared carrier AM modulated at 2.22 Khz
Repeatability of Beam Break Position (effective beam width):	Better than 0.1 inches (measured in sunlight conditions with target moving at 10 feet/second).

Wireless Link

In order to maximize radio performance in a congested radio environment, the photo-sensor repeats the beam break transmission a total of 70 times and splits that transmission across two different frequencies. To maintain timing accuracy,

each repeat of the message includes timing information that specifies the instant of the original beam break accurate to +/-0.062ms. Each message also includes a 16 bit station identifier (unique for every photo-receiver ever shipped), a sequence number and a CRC to ensure data integrity.

A full discussion of timing system accuracy is far more in depth than an evaluation of the specifications presented here. In fact, much larger sources of timing error — all external to the timing system itself — occur at timed sporting events every day. With 30 years of experience in the development of electronic timing systems, we are well versed in all aspects of timing accuracy and appreciate the opportunity to answer any questions you may have. Please [contact us](#) at any time. ([Top](#))

What size scoreboard do I need?

As a general rule of thumb, the 7 inch digit looks good to about 150-200 feet away and is good for informal events. For example, friends and family sitting in the bleachers directly across from the scoreboard which is on the opposite side of the arena. For greater distances, or if your arena has seating in more than one location, the 10 inch digit is preferable. For very large arenas with seating on three or four sides, paid admissions, etc., you may want to consider multiple scoreboards to provide better viewing from multiple locations. To help visualize the size of the scoreboards, click [here](#) to see the scoreboards next to each other and next to a standard 7 foot door frame. ([Top](#))

Can I display a score or the time to beat on a scoreboard?

A second Polaris timer console can be used in the "Keypad" mode to enter a time or score for display on a scoreboard. This timer and scoreboard are independent of any timer and scoreboard being used for timing. With our computer to scoreboard adapter, you can connect a computer directly to any of our scoreboards and display the time to beat, scores, contestant numbers, etc. [Contact us](#) for details. ([Top](#))

What is the warranty on your timing equipment?

All of our timing products come with a one year warranty on parts and labor. All repairs are performed at our facility in Wylie, Texas. ([Top](#))

Helpful Hints (for Barrel Racing, Pole Bending and other Speed Events)

Tripod Height

Extend all leg sections fully and raise the center tube a bit as well. The electric eye needs to be well up into the body of every horse.

Alignment

When setting up the electric eyes in the arena, *ignore the person in the announcer's booth* who is telling you "it's working" until *after* you have completed the following steps. Similarly, don't carry the console with you and use it to help you align the eyes until *after* the following steps are performed:

- 1) Place the eyes in the arena at the desired locations.
- 2) Close one of your eyes and sight down the line on the top of the electric eye and down the crack on the side. Try to point the electric eye at that little blur (the other eye) in the distance. Just ten or fifteen seconds of trying per side is plenty. Repeat this for both eyes.
- 3) Now you can break the beam and have the person in the announcer's booth tell you whether the eyes are working or not.

Sunlight Issues

When the electric eyes are setup with a very long distance between them, a low, late afternoon sun shining directly into the face of the photo-receiver (the electric eye with the antenna) can cause problems. A simple remedy is to swap the electric eyes with each other so that the eye with the antenna has its back to the sun.

Care

The electric eyes are not waterproof. If you plan to run in the rain, slip a thin sandwich bag over each electric eye. Snap a rubber band over the bag to hold the bag in place and to keep it taught over the face of the eye where the beam shoots through.

When you arrive home, remove the wet equipment from the carrying case, remove batteries and leave the battery compartment cover off each unit. Allow the equipment to dry out thoroughly *in a heated or air conditioned* environment for several days.

Do not remove the antennas. Even though the antenna can be removed, doing so can cause problems.

Using Two Timers at Once (live backup)

Two complete timers can be used at the same time to provide back-up for each other. It is very important to set them up exactly as described below, otherwise, you will have problems. Also note that the two photo-receivers (the electric eyes with the antenna) must operate on different channels. The channel number is a single digit, between 0 and 3, shown inside the battery compartment of the electric eye.

- 1) Set up one system like you normally would when using just one timer.
- 2) Take the eyes from the second system and stack them directly on top of the same type of eye (i.e., the two without antennas stack on top of each other, the two with antennas stack on top of each other). Snap a rubber band around the eyes to hold them square on top of each other. The eye with the antenna will have to stair-step back an inch or so because of the antenna.
- 3) Turn on both eyes with antennas, but *turn on only one of the eyes without antennas*. This is very important!
- 4) Turn on both consoles in the announcer's booth. Separate the two consoles by a foot or so.

Times from the two systems will generally be very close to each other, but not necessarily identical. A thousandth of a second is typically less than ¼ inch of movement and the electric eyes are measuring two different spots on the horse since they are separated by about an inch when stacked.

Troubleshooting (for Barrel Racing, Pole Bending and other Speed Events)

False/Unexpected Beam Triggers

If the timer occasionally starts or stops on its own without something breaking the beam, this is typically an optical issue (i.e., a problem affecting the light beam itself). This problem is most often remedied by carefully following the steps under "Alignment" on the previous page. Though less likely, the sun could also cause these symptoms – see "Sunlight Issues" on the previous page. If the problem persists, move the eyes closer to each other and repeat the alignment steps.

Timer Starts Reliably, but Doesn't Always Stop

This symptom is caused by one of two issues: First, make sure the tripods are fully extended as detailed in the "Tripod Height" section on the previous page. If that does not solve the problem, then this symptom can be caused by a wireless microphone used in announcer's booth. Switch to a wired mic in the announcer's booth or make sure the announcer does not key the microphone until *after* the rider passes through the finish beam.

Timer Randomly Misses Starts and Stops

This symptom indicates the radio signal is not reliably getting from the electric eye in the arena to the timer console in the announcer's booth. Here are some common items to consider:

- Ensure the line-of-sight (the straight line) between the electric eye with the antenna and the timer console is not obstructed by any large metal objects. Typical problem sources include metal siding on the announcer's booth, chain link fence, a protective metal cover over the electric eye, etc.
- Verify line-of-sight from down at the antenna's level – not just from your standing eye level. Often the console will be down below a window ledge and even though you can clearly see the electric eye, the timer console cannot.
- Position the timer console at least 2-3 feet from major electronic equipment such as computers, monitors, and the PA system.

Timer Never Starts or Stops from the Electric Eyes

This can occur when the timer console loses its settings and no longer knows which electric eyes to listen for. Follow these steps to program the eyes back into the timer console:

- 1) Set up the electric eyes and the timer console as normal.
- 2) On the timer console, press the SETUP button to access the timer Setup options.
- 3) Press NEXT CHOICE until "Set Eye#1 ID" is displayed.
- 4) When you are ready to break the beam, press ENTER. The timer will display "Break Eye Beam Now."
- 5) Walk through the electric eye beam. As soon as the beam is broken, the timer displays the ID code for the eye, then restores the normal barrel racing display after a few seconds.

If the "Break Eye Beam Now" message remains on the display, the timer did not receive a transmission from the electric eye. Make sure the eyes are on and aligned, then walk through the beam again. If the timer still fails to receive an ID code, move the eyes closer to each other and closer to the timer console (try less than 100 feet).

IMPORTANT!



1. Orient and insert the batteries as shown on the holder.
2. Push each battery away from the coil spring toward the flat contact as illustrated above. If possible, rotate the battery under your thumb as you push.

Storing Agility Pole Bases

The pole bases are stored on a retainer pipe with four spacers and a knob.

Beginning with a **pole base**, slide the base onto the retainer pipe, followed by a spacer. Alternate between pole base and spacer until all bases are on the retainer pipe and the last spacer is positioned on top. Screw on the knob after the last spacer to keep the bases in place.

