

FarmTek

Sport Timing Specialists

Polaris

Speed Training Timer

Operating
Instructions

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POLARIS TIMING SYSTEMS

Timer Console Overview

Batteries

The *Polaris* timer console is powered by four AA alkaline batteries. The timer runs 50 to 60 hours on a new set of batteries. Always turn the timer off before changing the batteries and always replace all four batteries at the same time – do not mix old and new batteries.

To check the battery level, follow these steps:

- 1) Press SETUP to access setup functions.
- 2) Press NEXT CHOICE until Check Battery is displayed (just one or two presses).
- 3) Press ENTER to show remaining battery life.
- 4) Press SETUP to return to normal operation.

Keep in mind that when the console is first turned on after being off for a while (e.g., overnight), the reported battery level is artificially high for the first half-hour or so of use.

Low Battery Warning

A low battery icon is flashed in the upper right corner of the Status display when about 2 hours of console battery life are left. Note that the battery icon is

also displayed whenever an electric eye in the arena has a low battery. Check the console's battery level as described to see whether the console or the electric eyes are the reason the icon is flashing.

Power On/Off

Turn the *Polaris* timer on and off using the slide switch located at the upper right corner of the timer console.

Connections

The **Input** jack is for connection of input devices such as an optional bar code reader or numeric keypad. *Do not plug an AC adapter from an older FarmTek timer into the Input jack on this timer – it can cause serious damage!*

The **Output** jack is for connection of output devices such as an optional scoreboard, printer or computer interface cable.

The **Horn** jack provides audio output of the horn sound to a PA system and control of the optional Automatic Horn.

FCC and Industry Canada Information

This equipment has been tested and found to comply with the limits for a Class A 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 non-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 be-

tween 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.

WIRELESS ELECTRIC EYES

Operation

Batteries

The electric eyes operate 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.

To help detect an eye with a low battery, the **Polaris** timer in the announcer's booth **flashes a low battery icon** in the upper right corner of its Status Display when any electric eye in use has a low battery.

The electric eyes operate at least 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 **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 electric eyes for an extended period of time, always remove the batteries.

Helpful Hints

Do Not Remove the Antenna! Even though the antenna can be removed, doing so can cause problems.

Placement of the electric eyes and the timer console in the arena can affect performance of the radio link. Note these guidelines:

- 1) Ensure the line-of-sight between the antenna on the electric eye and the antenna on the timer console is not obstructed by any large metal objects or the ground. Verify clear line-of-sight from down at the antenna's level – not just from your standing eye level.
- 2) Position the timer console at least 2-3 feet from major electronic equipment such as computers, monitors, or a PA system.
- 3) Maximum range is typically 200 to 300 feet from an electric eye to the timer console.

Electric Eye ID Codes

Each electric eye is permanently programmed with a unique electronic identification code. The ID code is transmitted whenever the electric eye beam is broken. For a set of wireless electric eyes to work with a particular timer console, the timer console must "know" the ID code of the electric eye being used.

If you use a different set of electric eyes or a different timer console than usual, you must have the timer console "learn" the ID code of the electric eyes being used as detailed below.

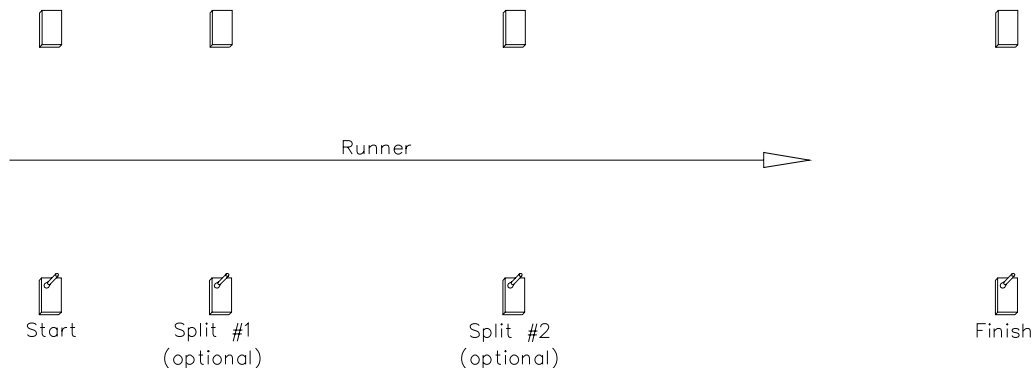
Learning a New ID Code

- 1) Set up the electric eyes with about ten feet between each other and at least ten feet from the timer console. *Make sure no other electric eyes are on or could accidentally transmit while programming in the intended electric eye.*

- 2) On the timer console, press the SETUP button to access the timer Setup options.
- 3) Press NEXT CHOICE until you see the appropriate "Set ID" message for the eye you are programming (e.g., Set Start ID, Set Split 1 ID, Set Eye ID Code, etc.).
- 4) When you are ready to break the electric eye beam, press ENTER. The timer will tell you to "break the beam now".
- 5) Walk through the selected electric eye beam. As soon as the beam is broken, the timer momentarily displays the ID code for the eye.

That's it! Repeat the procedure for other eyes if needed.

- 1) Attach each electric eye to a tripod. Place transmitter/receiver pairs opposing each other with about 10 feet between them. Arrange the pairs of eyes along the track as shown below. Adjust the split and finish eye tripods to the desired height (e.g., waist or torso high). The exact position of the start eye depends on how it is being used. This is covered in more detail later.
- 2) Turn the electric eyes ON. The power indicator lamp on each unit should glow steadily. If the indicator is blinking, the battery is low and should be replaced.
- 3) Align the electric eyes. The electric eyes should be directly in-line with each other when sighting down either line on top of the eye (left to right alignment), and when sighting down the crack on the side of the eye (up and down alignment).
- 4) Turn on the timer console. The power switch is located at the upper right corner of the timer.
- 5) The current event type (Dash/Sprint, Shuttle Run, Three Cone, etc.) is shown on the Status Display on the timer console. If DASH/SPRINT (or the eye alignment status display – see next page) is not shown, select the Dash/Sprint event as follows:
 - a) Press SETUP to access Setup functions.
 - b) Press ENTER to select a new event.
 - c) Press ENTER to select Dash/Sprint.
- 6) Walk through each electric eye beam to force each eye to report to the timer console. This makes the timer console update its electric eye alignment information and readies the timer for normal operation (see next page).



Typical 40 Yard Dash Layout

The alignment status display automatically “takes over” the timer’s bottom display whenever any eye in use remains out of alignment for several consecutive seconds. This informs the time keeper that there could be a problem with the electric eyes and they should be checked.

The alignment status of each eye is shown below the eye name (Start, Split 1, Split 2, Finish). If aligned, “OK” is displayed, otherwise, “--” is shown.

Strt	Sp1	Sp2	Fin
OK	OK	OK	--

The alignment status display continually updates and shows the alignment status of each eye. Once all

eyes have remained aligned for several seconds, the timer automatically returns to normal operation.

Whenever the alignment status display “takes over” the bottom display, check each eye to make sure it is still powered on and hasn’t been bumped out of position. Then walk through each electric eye (or at least those showing not aligned) to force the alignment status to update. Once all eyes in use show “OK” for a few seconds, the alignment display is automatically removed and normal operation is restored.

Note: If the split eyes are not used, they are not required to show “OK” for normal operation to be restored.

Start Line Options

There are two different ways the start line electric eye can be set to start the timer: 1) Start the timer by breaking the beam at the start line, or 2) with the runner positioned *in the beam* prior to starting, start the timer as the runner leaves the beam.

Start On Beam Break

Starting on a beam break assumes the runner is positioned just behind the beam prior to running. The first portion of the runner’s stride that crosses the start line and breaks the beam also starts the timer.

Though the height of the split and finish line eyes is set to catch the runner’s torso, the start line eye may be set lower depending on the typical starting stance of the runners. If runners start from blocks or from a three-point stance, you may want the tripods (or other type of stands, if necessary) set low enough that the beam is not broken by the runner’s head while in his starting stance.

Start In The Beam

Starting in the beam moves the start line eye off the actual start line and to a point that is blocked by some common part of every runner’s body while the runner in his starting stance. For example, assume a three-point stance for starting the 40 yard dash. The start line beam can be positioned to catch the hip or upper thigh of most runners when the runner is in his three-point stance at the start line. As the runner starts his first motion, his hips move out of the beam and start the timer.

Choosing the Start Method

To choose the starting method, follow these steps:

- 1) Press SETUP to access Setup functions.
- 2) Press NEXT CHOICE until Start on Break or Start in Beam is displayed (your choice).
- 3) Press ENTER to select the displayed option.

Be sure to read below about the *Manual* versus *Automatic Clear* and the *Runner Set Time* options as these also affect starting of the timer.

The timer can be set to automatically ready itself for the next runner (*Automatic Clear*), or require the timer keeper to manually clear the timer in between each contestant (*Manual Clear*).

Automatic Clear

Automatic clear allows virtually hands-free operation of the timer. If the timer is not running (i.e., no one is on course), then when a runner breaks the start line beam, the timer automatically clears itself to zero and begins timing. If *Start In Beam* is the chosen start method, the automatic clear feature still works: Once the runner has stayed in the start line beam at least three consecutive seconds, the timer beeps, displays “GO” on the bottom display, and when the runner leaves the beam, the timer automatically clears itself to zero and begins timing. The three second period is called the *Runner Set Time* and can be changed through the setup menu.

Manual Clear

In the manual clear mode, breaking the start line beam will not start the timer unless the timekeeper has cleared the timer to zero by pressing the CLEAR TIME button. This allows more control over the start line if required. When the timer is set to *Start In Beam*, there is no *Runner Set Time* delay. This implies that the timekeeper should not clear the timer until the runner is breaking the start line beam and is stable in his starting stance.

Choosing the Timer Clear Method

To choose the starting method, follow these steps:

- a) Press SETUP to access Setup functions.
- b) Press NEXT CHOICE until Manual Clear or Automatic Clear is displayed (your choice)
- c) Press ENTER to select the displayed option.

Timing Runners

Time automatically starts when the runner breaks or leaves the start line beam as determined by the start line option you chose (see previous page). The time display shows the contestant’s running time. When the finish line is crossed, the timer automatically stops and shows the runner’s final time.

If split time beams are used, the split times appear on the bottom display as each beam is broken. Split eye #1 appears on the left and is followed by a sub-

scripted “1”, Split eye #2 appears on the right and is followed by a subscripted “2”.

DASH/SPRINT
1.66 ₁ 3.47 ₂

The timer is now ready for the next runner. If *Manual Clear* is selected (see above), the timekeeper should not clear the timer until the next contestant is settled in his starting stance and ready to run.

Useful Features

Accidental Beam Break

If the timer is accidentally stopped during the middle of a run, *the runner can still be accurately timed*. Pressing the RESTART button resumes timing as if the timer had never been stopped. As long as RESTART is pressed before the run is finished, the time is not lost.

Previous Time Recall

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.

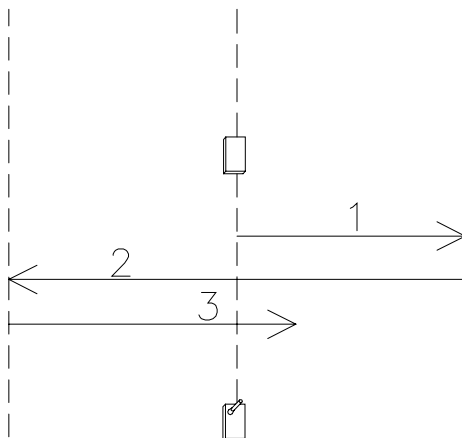
Introduction

SHUTTLE RUN (1)

In the shuttle run, the athlete runs to his right 5 yards, touches a line, then runs to his left 10 yards, touches a line, then runs right, back through the starting point (5 yards), to complete the run. The timer facilitates this event as follows:

The runner is already breaking the electric eye beam when in his starting stance.

- 1) As soon as the runner moves out of the beam, the timer starts.
- 2) The runner passes through the beam during the 10 yard run – the timer notes the pass has occurred, but does not stop.
- 3) When the runner passes through the beam to finish the run (his second time through the beam), the timer stops.



Preparation for Use

- 1) Attach the Start/Finish pair of electric eyes to tripods. Place the eyes along the starting line with 10 to 15 feet between them as shown. Adjust the tripod height so that the beam is broken when any athlete is in his starting stance. Avoid catching just the runner's legs.
- 2) Turn the electric eyes ON. The power indicator lamp on each unit should glow steadily. If the indicator is blinking, the battery is low and should be replaced.
- 3) Align the electric eyes. The electric eyes should be directly in-line with each other when sighting down either line on top of the eye (left to right alignment), and when sighting down the crack on the side of the eye (up and down alignment).
- 4) Turn on the timer console. The power switch is located at the upper right corner of the timer.
- 5) The current event type (Dash/Sprint, Shuttle Run, Three Cone, etc.) is shown on the Status Display on the timer console. If SHUTTLE RUN is not shown, select the Shuttle Run event as follows:
 - a) Press SETUP to access Setup functions.
 - b) Press ENTER to select a new event.
 - c) Press NEXT CHOICE until Shuttle Run is displayed.
 - d) Press ENTER to select the Shuttle Run.
- 6) Walk through the electric eye beam to force the eye to report to the timer console.

Checking Eye Alignment

The bottom right corner of the Status display shows the alignment status of the electric eye. When the eyes are aligned, "OK" is shown. If not aligned, or when the beam is broken, dashes are shown. When a runner is steady in the beam for 3 seconds prior to the start of a run, the dashes change to "GO" and the timer beeps to indicate the runner can start.

Alignment	Display Shows
Eyes aligned	Beam: OK
Not aligned (or beam broken)	Beam: --
Runner ready in beam for 3 sec.	Beam: GO

The timer can be set to automatically ready itself for the next runner (*Automatic Clear*), or require the timer keeper to manually clear the timer in between each contestant (*Manual Clear*).

Automatic Clear

Automatic clear allows virtually hands-free operation of the timer. Once the runner has stayed in the start line beam at least three consecutive seconds, the timer beeps and displays “GO” on the bottom display. When the runner then leaves the beam, the timer automatically clears itself to zero and begins timing. The three second period is called the *Runner Set Time* and can be changed through the setup menu as detailed below.

Manual Clear

In the manual clear mode, leaving the start line beam will not start the timer unless the timekeeper has cleared the timer to zero by pressing the CLEAR TIME button. The timekeeper should not clear the timer until the runner is breaking the start line beam and is stable in his starting stance. The *Runner Set Time* has no effect in the manual clear mode.

Choosing the Timer Clear Method

To choose the starting method, follow these steps:

- a) Press SETUP to access Setup functions.
- b) Press NEXT CHOICE until Manual Clear or Automatic Clear is displayed (your choice)
- c) Press ENTER to select the displayed option.

Runner Set Time

As mentioned above, the *Runner Set Time* is the amount of time the runner must be in his starting stance, steadily breaking the beam, before the timer shows “GO” and beeps to indicate the runner can start. The default *Runner Set Time* is three seconds.

To change the *Runner Set Time*, follow these steps:

- a) Press SETUP to access Setup functions.
- b) Press NEXT CHOICE until Runner Set Time is displayed, then press ENTER
- c) Press NEXT CHOICE until the desired runner set time is displayed, then press ENTER.

Timing Runners

Time automatically starts when the runner leaves the start line beam. The time display shows the contestant’s running time. When the runner crosses the start line beam the second time, the timer automatically stops and shows the runner’s final time.

The timer is now ready for the next runner. If *Manual Clear* is selected (see above), the timekeeper should not clear the timer until the next contestant is settled in his starting stance and ready to run.

Useful Features

Accidental Beam Break

If the timer is accidentally stopped during the middle of a run, *the runner can still be accurately timed*. Pressing the RESTART button resumes timing as if the timer had never been stopped. As long as RESTART is pressed before the run is finished, the time is not lost.

Previous Time Recall

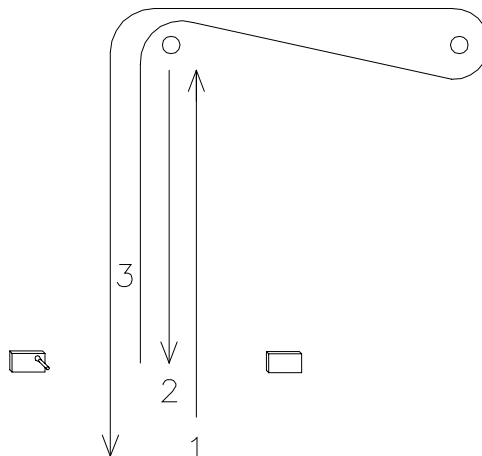
Use the PREV and NEXT keys to scan back and forth through previous times. The previous time display is removed after about ten seconds, or by pressing any other key.

Introduction

THREE CONE DRILL (1)

The three cone drill is setup and run as shown in the figure on the right. The timer facilitates this event as follows:

- 1) The athlete breaks the start line beam to start the timer, then runs out to the first cone and touches the line.
- 2) The athlete returns to and touches the start line. The timer ignores any beam break that may occur at this point in the run.
- 3) The athlete runs around the two outer cones as shown, then back through the beam at the start line to complete the run and stop the timer.



Preparation for Use

- 1) Attach the Start/Finish pair of electric eyes to tripods. Place the eyes along the starting line with about 10 feet between them. Adjust the tripod height so the beam is not broken by the runner when in his starting stance.
- 2) Turn the electric eyes ON. The power indicator lamp on each unit should glow steadily. If the indicator is blinking, the battery is low and should be replaced.
- 3) Align the electric eyes. The electric eyes should be directly in-line with each other when sighting down either line on top of the eye (left to right alignment), and when sighting down the crack on the side of the eye (up and down alignment).
- 4) Turn on the timer console. The power switch is located at the upper right corner of the timer.
- 5) The current event type (Dash/Sprint, Shuttle Run, Three Cone, etc.) is shown on the Status Display on the timer console. If THREE CONE is not shown, select the three cone drill as follows:
 - a) Press SETUP to access Setup functions.
 - b) Press ENTER to select a new event.
 - c) Press NEXT CHOICE until Three Cone is displayed.
 - d) Press ENTER to select the three cone drill.
- 6) Walk through the electric eye beam to force the eye to report to the timer console.

Checking Eye Alignment

The bottom right corner of the Status display shows the alignment status of the electric eye. When the eyes are aligned, "OK" is shown. If not aligned, or when the beam is broken, dashes are shown. When a runner is steady in the beam for 3 seconds prior to the start of a run, the dashes change to "GO" (only when using the *Start In Beam* option).

Alignment	Display Shows
Eyes aligned	Beam: OK
Not aligned (or beam broken)	Beam: ---
Runner ready in beam for 3 sec.	Beam: GO

Automatic or Manual Timer Clear

THREE CONE DRILL (2)

The timer can be set to automatically ready itself for the next runner (*Automatic Clear*), or require the timer keeper to manually clear the timer in between each contestant (*Manual Clear*).

Automatic Clear

Automatic clear allows virtually hands-free operation of the timer. If the timer is not running (i.e., no one is on course), then when a runner breaks the start line beam, the timer automatically clears itself to zero and begins timing.

Manual Clear

In the manual clear mode, breaking the start line beam does not start the timer unless the timekeeper has cleared the timer by pressing the CLEAR TIME button. This allows more control over the start line.

Choosing the Timer Clear Method

To choose the starting method, follow these steps:

- a) Press SETUP to access Setup functions.
- b) Press NEXT CHOICE until Manual Clear or Automatic Clear is displayed (your choice)
- c) Press ENTER to select the displayed option.

Timing Runners

Time automatically starts when the runner breaks the start line beam. The time display shows the contestant's running time. The timer ignores beam breaks during the first five seconds of the run in case the runner accidentally breaks the beam as he returns to touch the start line (step 2 shown on previous page). This ignore period can be changed – see below. When the runner crosses the start line beam

after completing the run, the timer automatically stops and shows the runner's final time.

The timer is now ready for the next runner. If *Manual Clear* is selected (see above), the timekeeper should not clear the timer until the next contestant is settled in his starting stance and ready to run.

Ignore Eye Time

By default, the timer ignores beam breaks during the first five seconds of the three cone drill. This ensures the timer does not accidentally stop when the runner returns the first time to touch the start line. This *Ignore Eye Time* can be changed if needed.

To change the *Ignore Eye Time*, follow these steps:

- a) Press SETUP to access Setup functions.
- b) Press NEXT CHOICE until Ignore Eye Time is displayed, then press ENTER
- c) Press NEXT CHOICE until the desired ignore period is displayed, then press ENTER.

Useful Features

Accidental Beam Break

If the timer is accidentally stopped during the middle of a run, *the runner can still be accurately timed*. Pressing the RESTART button resumes timing as if the timer had never been stopped. As long as RESTART is pressed before the run is finished, the time is not lost.

Previous Time Recall

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.