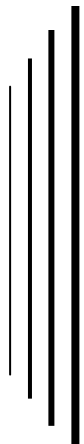


**FarmTek**

Sport Timing Specialists



# ***Polaris***

Motor Sports Timer

Operating  
Instructions

FarmTek, Inc.  
1000 North Hwy 78, Suite D  
Wylie, TX 75098

(972) 429-0947  
(800) 755-6529



## **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.

### ***Industry Canada***

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communications.

This radio transmitter (IC: 3845A-MI043) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

¼ wave whip, max gain 2 dBi, 50 ohm

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

### ***d'Industrie Canada***

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio (IC: 3845A-MI043) de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

¼ whip d'onde, le gain max 2 dBi, 50 ohm

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

# POLARIS 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.

When storing the timer for an extended period of time, always remove the batteries.

### **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 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 model 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 external horn.

# WIRELESS ELECTRIC EYES

## Overview

### 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 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.

### 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 taut over the face of the eye where the beam shoots through.

When you arrive home, remove 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.

## 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 eyes being used.

If your timer ever loses its settings, or 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:

### 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 Eye #1 ID, Set Eye #2 ID, 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.

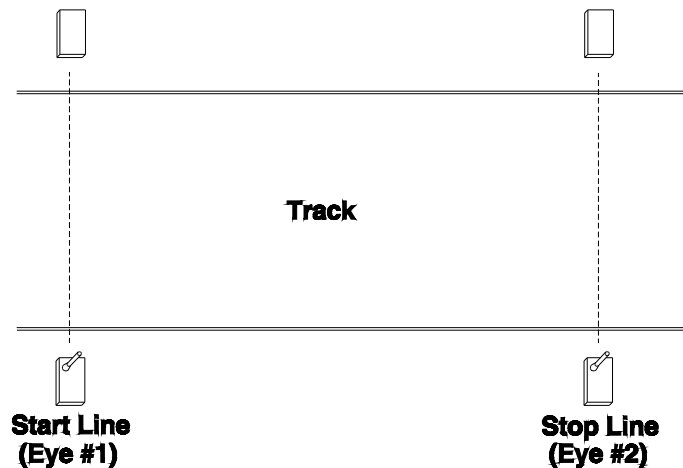
That's it! Repeat the procedure for other eyes as needed.

## Preparation for Use

## SPRINT/GENERAL (1)

The Sprint/General event can be used to time a wide variety of events. The most common is to time from Point “A” to Point “B”. These instructions follow. The timer can also be configured to operate in a number of different ways depending on your requirements. See Sprint/General (2) and (3) for more information.

- 1) Attach each electric eye to a tripod. Place Transmitter/Receiver pairs facing each other to form start/stop lines between the eyes. Adjust the tripod height to ensure the beam is broken by the body of the horse or vehicle.
- 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 opposing electric eye should be directly in-line when sighting down either line on top of the electric 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 in the announcer's booth. The power switch is located at the upper right corner of the timer.
- 5) Walk through each electric eye beam to force the eyes to send a message to the timer console. This makes the timer console update its electric eye alignment indicators (see below).



## Checking Eye Alignment

The **bottom right corner** of the Status display shows the alignment status of the electric eyes. When the eyes are aligned, its number is displayed (1 or 2). If not aligned, or if the beam is broken, “x” is shown.

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

**Important!** When setting up the electric eyes, always take time to align the eyes as outlined above – *even if the timer indicates the eyes are aligned*. This ensures a strong alignment instead of a possibly marginal alignment.

- |  |  |
|--|--|
| <p>1) When the electric eye beam across the start line is broken, the timer automatically begins timing from zero – there is no need to reset the timer.</p> | <p>2) When the electric eye beam across the finish line is broken, the timer stops timing and shows the final time. The timer is ready for the next run!</p> |
|--|--|

**Useful Features**

**Manual Start/Stop**

The START/STOP button starts and stops the timer just as if the electric eye beam had been broken.

**Accidental Beam Break**

If the timer stops accidentally stops during the middle of a run, *the driver 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 completed, the time is not lost. (Note: The Polaris timer console beeps whenever the beam is broken to alert you if the timer happens to stop during the middle of a run.)

**Locking Out The Electric Eyes**

Some events require the driver to pass through the beams several times during a run. For these events, the eyes can be disabled during the run, then re-enabled before the driver completes the run. To disable the electric eyes, press the EYES OFF button. "Off" is flashed over the electric eye alignment display while the eyes are off. To re-enable the electric eyes, press the EYES ON button.

**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. You may view a previous time even while the timer is running.

**Additional Eye Usage Options**

In addition to starting the timer with Eye #1 and stopping the timer with Eye #2, the timer provides several other electric eye combinations as shown to the right.

**To select a different electric eye combination:**

- 1) Press SETUP to access Setup options.
- 2) Press NEXT CHOICE once so Set Eye Usage is displayed, then press ENTER.
- 3) Press NEXT CHOICE to scan through the available eye combinations as shown to the right. Press ENTER when the desired eye combination is displayed.

Note: An asterisk (\*) is displayed next to the currently active eye combination.

Timer Display	Timer Action
Start #1, Stop #2	Start with Eye #1, Stop with Eye #2
Start #2, Stop #1	Start with Eye #2, Stop with Eye #1
Strt1/2 Stop2/1	Start with either eye, stop with the opposite eye
Any Start/Stop	Start with either eye, stop with either eye
Breakout Timer	Time difference between steer and rider for roping.
Speed Gate	Speed between Eye #1 and Eye #2
Winning Lane	Start with either eye, stop with the opposite eye, indicate which eye started the timer (winning lane)

## Split Times

## SPRINT/GENERAL (3)

In addition to the various combinations of Eye #1 and Eye #2 for starting and stopping the timer detailed on the previous page, the timer can also work with up to two more eyes for providing split times. As split times occur, they are displayed on the bottom display while the main time display continues to run. If a scoreboard is connected, the split time is displayed for an interval you can specify before the display returns to showing the running time.

The split-time eyes are designated Eye #3 and Eye #4. Options for controlling split time functions are in the Split Times menu. To access the Split Times menu, follow these steps:

- 1) Press SETUP to access Setup options.
- 2) Press PREV CHOICE until Split Times is displayed, then press ENTER.

You can then scroll through the Split Times options by pressing the NEXT CHOICE key:

Timer Display	Function
Set Eye #3 ID	Program Eye #3 into timer
Set Eye #4 ID	Program Eye #4 into timer
Print Times ON/OFF	Controls whether split times are printed on the printer
Save Times ON/OFF	Controls whether split times are saved in memory
1 or 1+ Splits/Eye	Allow just one or allow multiple splits per eye per run
Hold for 1/3/5/10s	Choose the amount of time a split time is displayed on the scoreboard

## Advanced Features

### Speed Gate (Speed Trap)

The "Speed Gate" option in the Eye Usage menu (see previous page) can be used to display speed through a speed trap. For best accuracy, the length of the trap should be chosen based on the top speed expected through the gate. Contact us for help in configuring the timer for speed gate operation.

### Multiple Eyes at Start and Finish

An optional 3<sup>rd</sup> or 4<sup>th</sup> set of electric eyes can be used to provide two eyes at the start and/or finish lines. This allows the timer to start with eye #1 or #3, and to stop with eye #2 or #4 (for example).



## Preparation for Use

## LAP TIMING (1)

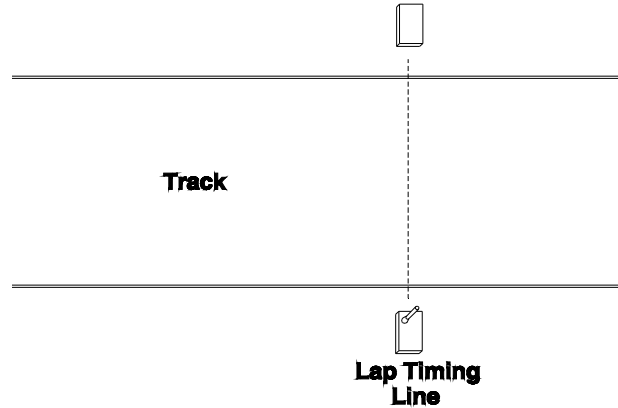
- 1) Attach each electric eye to a quick-mount. Place the eyes on opposite sides of the track to form a start/stop line between them.
- 2) Turn the electric eyes ON. The power indicator lamp on each unit should glow steadily. If the lamp blinks, the low battery should be replaced.
- 3) Align the electric eyes. The electric eye on the opposite side of the arena should be directly in-line when sighting down either line on top of the electric 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 in the announcer's booth. The power switch is located at the upper right corner of the timer.
- 5) The current event is shown on the Status display on the timer console. *If LAP TIMING is not displayed, select the Lap Timing event as follows:*
  - a) Press SETUP to access setup functions.
  - b) Press ENTER to select a new event.
  - c) Press NEXT CHOICE until Lap Timing is displayed.
  - d) Press ENTER to select Lap Timing
- 6) Walk through the electric eye beam to force the eyes to send a message to the timer console. This makes the timer console update its electric eye alignment indicator (see the next page).

## Entering a Track Length

The timer can compute lap speed as well as lap time. To compute speed, a track length must be entered. Once the track length is entered, it is permanently saved in the timer. You do not need to re-enter the track length each time you use the timer, unless a different track length is desired.

To set the track length follow these steps:

- 1) With the timer stopped, press the SETUP button to access the timer's setup features.
- 2) Press NEXT CHOICE until the display shows Press ENTER for Track Length.
- 3) Press ENTER to display the current track length.
- 4) If the displayed track length is OK, press the ENTER button to keep the same value. Otherwise, key in a new track length followed by the ENTER key. (To correct a mistake, press and hold down the CLEAR TIME button until the track length value is cleared to zero).



Typical Track Setup

## Checking Eye Alignment

## LAP TIMING (2)

The **bottom right corner** of the Status display shows the alignment status of the electric eyes. When the eyes are aligned, the eye number is displayed (“#1”). If not aligned, or if the beam is broken, “x” is shown.

Alignment	Display Shows
Eyes aligned	Eye #1
Not aligned (or beam broken)	Eye #x

**Important!** When setting up the electric eyes, always take time to align the eyes as outlined above – *even if the timer indicates the eyes are aligned*. This ensures a strong alignment instead of a possibly marginal alignment.

### Timer Operation

- 1) Make sure the timer is stopped before the driver starts his laps (press the START/STOP button to stop the timer, if needed).
- 2) When the car breaks the beam at the start of the first lap, the timer automatically begins timing from zero.
- 3) As the car breaks the beam after each lap, the bottom display shows the lap number, lap time, and lap speed (if a track length has been entered). Meanwhile, the main time display shows the running time of the new lap.
- 4) After the driver has completed all laps, press the START/STOP button to stop timing of the current driver. The timer is now ready for the next car.

### By the way..

If the optional printer is connected, the lap time, lap number and lap speed are printed after each lap.

If an optional scoreboard is connected, it shows the running time as the lap is timed. When a lap is completed, the lap time remains on the display for about five seconds, after which, it returns to showing the running time of the new lap. (The amount of time the previous lap remains displayed can be changed. Contact FarmTek for assistance).

To avoid false triggers, the beam is ignored for about two seconds after it is broken to allow dust and debris to settle.

### Useful Features

#### Accidental Manual Stop

If the timer is inadvertently stopped by pressing the START/STOP button, *the lap can still be accurately timed* by pressing the RESTART button. This resumes timing as if the timer had never been stopped. As long as RESTART is pressed before the lap is completed, the time is not lost.

#### Locking Out The Electric Eyes

If the beam will be broken during a lap by other vehicles, the timer can be forced to temporarily ignore the electric eyes. To disable the electric eyes, press the EYES OFF button.  $\square f f$  is flashed on the bottom display while the eyes are off. To re-enable the electric eyes, press the EYES ON button.

**Note:** If other cars or personnel on the track during lap timing is typical, then the timer can be set to *automatically* turn the eyes off after any beam break. This way, the eyes remain disabled the majority of the time – the timer operator re-enables the eyes by pressing the EYES ON button only when the desired car comes near the beam. Contact FarmTek for more information.

#### 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. You may view a previous time even while the timer is running.



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