

## **MD-300 Electronic Timer User's Manual**

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Congratulations on your timer purchase! Your new timer should provide years of trouble-free service. To maximize the performance and life of your timer, please read this user's manual carefully before using your timer. It is important to familiarize yourself with the timer before attempting to use it at your first event.

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## INTRODUCTION

Your new timer comes in a protective carrying case. Inside the case you'll find the following items:

- Timer Console ("MD-300 Electronic Timer")
- Infrared light source ("Transmitter")
- Infrared light detector ("Receiver")
- Camera tripods (2)
- 125 foot cable
- A/C power adapters (2)

The MD-300 Timer supports a wide variety of events. The basic timer with the equipment listed above can support speed events such as barrel racing and pole bending. It can also be used to time show jumping events which use a single entry and exit point. With optional equipment, the MD-300 Timer can support additional events including team penning, cutting, calf and team roping, dash / sprint events and more!

This manual provides instruction for operation of the MD-300 Electronic Timer. Topics include operation of the Timer Console, use of the electric eyes and using the setup capability of the timer to select the type of event to be timed. For events which require the use of optional equipment, additional information is provided in the user's manual supplied with the optional equipment.

## THE TIMER CONSOLE

The Timer Console is the heart of your new timer system. The front of the Timer Console has four push-buttons for controlling the timer and a time display. The back of the Timer Console has five jacks for connecting power, the light detector, an optional horn, an optional scoreboard display and other accessories. These connections are discussed in detail in later sections.

The best way to learn about your new timer is to use it. Try each of the operations outlined in the following sections as you read through the manual.

## Turning on the Timer Console

The Timer Console must be plugged into a standard wall outlet to operate. Using either of the A/C power adapters provided (they're identical), insert the small plug into the **POWER** jack on the rear of the Timer Console and plug the adapter into a wall outlet. As soon as the Timer Console is plugged in, the Console is "on" and the time shown on the display is zero. Now we're ready to push some buttons!

## Manually Starting and Stopping the Timer

The **START/STOP** button is used to manually start and stop the timer. When the timer is started, the time is first reset to zero, and then the running time is shown on the display. When the timer is stopped, the final time is shown on the display.

When the Timer Console *is not* running, pressing the **START/STOP** button starts the timer. If the timer *is* running, pressing the button stops the timer. Even if the timer was started by breaking the light beam, it can be stopped with the **START/STOP** button, and vice-versa.

## Resuming an Interrupted Timing

Whenever the timer is stopped via the **START/STOP** button or by breaking the light beam, the final time is shown on the display. However, the timer *continues to count* "inside."

Pressing the **RESTART** button, when the timer is stopped, resumes timing on the display. Since time was kept internally while the display was "frozen," the time on the display now reads as if the timer was never stopped. (Note: When using the timer for jumping events, operation of the **RESTART** button is slightly different than described here. See the jumping event entries in the "Event Summary" table later in this manual).

Imagine the following: A rider speeds through the light beam to start the timer. Unfortunately, her hat blows off and falls through the light beam and stops the timer! Normally, the rest of her ride is wasted, but by pressing the **RESTART** button, her timing can be resumed as if the timer were never stopped! Since you can resume timing via the **RESTART** button, you no longer have to worry about false triggers – you can even purposely stop the timer to measure split times part way through a run.

## Recalling the Previous Rider's Time

Have you ever missed recording a time because something broke the beam and started the timer before you wrote down the original time? Well, that's not a problem with the MD-300 Timer. The **PREVIOUS TIME** button allows you to recall the previous rider's time.

To view the previous rider's time, press the **PREVIOUS TIME** button and *hold the button down*. The previous time is displayed as long as the button is held down. Release the button and the most recent time is restored. The previous time can be checked even while the timer is running.

## Locking Out the Electric Eyes

Some events, such as relays and jumping events, require that riders pass through the beam multiple times before passing through it one final time to stop the timer. For these events, it is desirable to force the timer to ignore the electric eyes until the rider passes through the final time.

To disable the electric eyes, press the **RESTART** button while holding down the **PREVIOUS TIME** button (the **PREVIOUS TIME** button is used like the SHIFT key on a typewriter). To remind the timer operator that the electric eyes have been disabled, the message "Eye Off" is flashed occasionally over the time. The electric eyes are re-enabled in the same manner – press the **RESTART** button while holding down the **PREVIOUS TIME** button. The message "Eye On" is displayed briefly while the buttons are pressed and then the flashing "Eye Off" message is removed.

For team penning and cutting events, the electric eyes are *automatically disabled* whenever the timer stops. This allows

animals and personnel to cross through the electric eyes while preparing for the next team without starting the timer. While the eyes are disabled, the message "Eye Off" is flashed on the display to remind you that the eyes are disabled. To re-enable the eyes for the next team, press the **RESTART** button while holding down the **PREVIOUS TIME** button as described previously.

*Note: This automatic disabling of the electric eyes can be turned on or off for each event type. Further, the eyes can be set to automatically disable when the timer stops or when it starts. This can be useful for show jumping events, for example. Call FarmTek for assistance.*

## Timer Setup

The MD-300 Timer has a powerful setup capability used to configure the timer for the particular event to be timed. Setup features are accessed by pressing the **SETUP** button any time the timer is stopped. Pressing **SETUP** places the timer into the setup "mode." Once in the setup mode, the buttons on the timer perform the functions listed in blue to the right of each key. The **NEXT** and **PREV** buttons move forward and backward through the list of available setup options. The **SELECT OPTION** button chooses the currently displayed setup option as the one you wish to perform. The **EXIT SETUP** button exits the setup mode and returns to normal timing operation.

The list of setup options available is shown in the "MD-300 Setup Options" table following. The options are listed in the order they appear on the Timer Console. The first column shows the Timer Console display for each setup option. The second column gives a brief description of the setup option.

When the last setup option is displayed, pressing the **NEXT** button wraps around to the first setup option in the list. Similarly, when the first setup option is displayed, pressing the **PREV** button wraps back to the last setup option in the list. As you scroll through the list of setup options, the timer beeps any time the current event type, time format or counting direction is displayed. This allows you to identify the event type, time format and counting direction currently in use.

**MD-300 SETUP OPTIONS**

Display	Description
<b><i>Electric Eye Alignment Status</i></b>	
Good / Bad	Alignment status of the electric eye plugged into the <b>RECEIVER</b> jack.
Good A / Bad A	Alignment status of electric eye plugged into the <b>AUX</b> jack. Displayed only for events which use the second electric eye.
Good H / Bad H	Alignment status of electric eye plugged into the <b>HORN</b> jack. Displayed only for events which use the third electric eye.
<b>Event Types</b>	
Barrel	Press <b>SELECT OPTION</b> to select the Barrel Racing event.
Rope 1	Press <b>SELECT OPTION</b> to select Roping using one electric eye (eye for calf or steer, RP-210 Automatic Rope Barrier used on rider's box).
Rope 2	Press <b>SELECT OPTION</b> to select Roping using two electric eyes (eye for calf or steer and RP-250 Electric Eye Barrier across rider's box).
Rope 3	Press <b>SELECT OPTION</b> to select Roping using three electric eyes (eye for calf or steer and RP-250 Electric Eye Barrier across header's box and heeler's box).
Pen	Press <b>SELECT OPTION</b> to select the Team Penning event.
Cut	Press <b>SELECT OPTION</b> to select the Cutting event.
Bull	Press <b>SELECT OPTION</b> to select Bull or Bronco riding events.
Eqst 1	Press <b>SELECT OPTION</b> to select the Show Jumping (equestrian) event using one pair of electric eyes (entry and exit through the same pair of eyes).
Eqst 2	Press <b>SELECT OPTION</b> to select the Show Jumping (equestrian) event using two pairs of electric eyes (entry and exit through separate pairs of electric eyes).

**MD-300 SETUP OPTIONS (cont'd)**

Display	Description
Dash	Press <b>SELECT OPTION</b> to select dash or sprint events which measure time between a start line pair of eyes and a finish line pair of eyes.
<b><i>Time Formats, Counting Direction</i></b>	
999.999	Press <b>SELECT OPTION</b> to count in seconds to .001
9999.99	Press <b>SELECT OPTION</b> to count in seconds to .01
9.59.999	Press <b>SELECT OPTION</b> to count in minutes and seconds to .001
99:59.99	Press <b>SELECT OPTION</b> to count in minutes and seconds to .01
99:59:59	Press <b>SELECT OPTION</b> to count in hours, minutes and seconds.
Cnt Up	Press <b>SELECT OPTION</b> to force the timer to count up.
Cnt Dn	Press <b>SELECT OPTION</b> to force the timer to count down.
<b><i>Miscellaneous Setup Options</i></b>	
Horn	Press <b>SELECT OPTION</b> to change the time the horn should sound.
Horn 2	Press <b>SELECT OPTION</b> to change the time that a warning horn (prior to the final horn) should sound.
SB Brt	Press <b>SELECT OPTION</b> to select the next scoreboard brightness level. Not supported by all scoreboards.
Set.Def	Press <b>SELECT OPTION</b> to set default values. The horn time, warning horn time (Horn 2), time format and counting direction are saved as the new values to use whenever the current event type is selected in the future
Factory	Factory use only.

## Timer Setup - Checking Electric Eye Alignment

To work properly, the infrared light source (Transmitter) and infrared light detector (Receiver) must be properly aligned. The procedure for aligning the electric eyes is discussed in detail in the "Aligning the Electric Eyes" section.

Checking alignment of the electric eyes is a setup option provided by the MD-300 Timer. To check alignment of the electric eyes, press the **SETUP** button. The first item displayed is the alignment status of the electric eyes connected to the **RECEIVER** jack. If the eyes are properly aligned, "Good" is displayed. If not properly aligned, "Bad" is displayed. An alignment status of "Good" not only indicates that the electric eyes are aligned, but also verifies that all connections between the electric eyes and the Timer Console are good.

Once the alignment of the electric eyes has been checked, press the **EXIT SETUP** button to return to normal timing operation.

Note that if you break the beam while checking the alignment status, the display shows "Bad" while the beam is broken. After the beam is restored, the display returns to "Good."

If the currently selected event type uses more than one electric eye, the alignment status of each additional electric eye can be displayed by using the **NEXT** and **PREV** keys to move forward and backward through the list of electric eyes (see the "MD-300 Setup Options Table"). More information regarding alignment of additional electric eyes is provided in the user's manuals which come with the OE-205 Electric Eye Package and the RP-250 Electric Eye Barrier.

## Timer Setup - Selecting Event Type

One of the most important features of the MD-300 Timer is its ability to support a wide variety of events. The event types present in the MD-300 Timer are listed in the "MD-300 Setup Options" table and summarized in the "Event Summary" table. Even though a particular event may not be listed in these tables, it is most likely supported by one of the event types that is present. For example, though pole bending is not specifically listed as an MD-300 event type, pole bending has the same basic timing requirements as

barrel racing. Likewise, bull dogging and goat tying have similar timing requirements as roping events.

When the MD-300 Timer is first turned on, the "Barrel" event type is automatically selected. (Note: You can change the event type selected at power-on to be any of the other event types as well. Contact FarmTek for assistance.) If you requested factory setup of a power-on event type other than "Barrel," it is shown here:

To change the current event type, press the **SETUP** key to enter the setup mode. As shown in the "MD-300 Setup Options Table," ten of the setup options available are event types that may be selected. Use the **NEXT** and **PREV** keys to scroll forward and backward through the list of events until the desired event type is displayed. Then press the **SELECT OPTION** button to select the displayed event type. "Done" is displayed for a moment to indicate that your request has been performed. The timer then returns to the timing mode with the time reset to zero.

Note that the new event type is selected only when **SELECT OPTION** is pressed. You may exit setup without changing the event type by pressing **EXIT SETUP**. Also note that whenever the currently active event type is displayed, the timer beeps. This allows you to determine the event type currently in use.

Whenever a new event type is selected, the MD-300 Timer automatically sets the time format, counting direction, warning horn time and final horn time for that event. These values can be different for each event type. Further, you may change these defaults to any value you desire. Whenever the event type you modified is selected, your values for time format, counting directions, etc., are automatically set. See the "Timer Setup - Setting Default Parameters" section for more information.

The following "Event Summary" table provides information about each event supported by the MD-300. If optional equipment is required to support an event, additional information is provided in the manual supplied with the optional equipment.

**"Barrel" - Barrel Racing, Pole Bending, etc.**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: None  
 Final Horn: None  
 Operation: A single pair of electric eyes both starts and stops the timer.

**"Rope 1" - Roping, Bull Dogging, Goat Tying, etc.**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: None  
 Final Horn: None  
 Operation: The MD-300 Electric Eyes form a start line broken by the cattle to start the timer. When the timer is started, a conventional rope barrier across the rider's box is released via the RP-210 Automatic Rope Barrier. The electric eyes do not stop the timer.

**"Rope 2" - Roping, Bull Dogging, Goat Tying, etc.**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: None  
 Final Horn: None  
 Operation: The MD-300 Electric Eyes form a start line broken by the cattle to start the timer. A second electric eye (RP-250 Electric Eye Barrier) is used across the rider's box. If the rider breaks out before the cattle start the timer, the OE-200 Automatic Horn is sounded to flag the "broken barrier." The electric eyes do not stop the timer.

**"Rope 3" - Team Roping with Header and Heeler Barriers**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: None  
 Final Horn: None  
 Operation: The MD-300 Electric Eyes form a start line broken by the cattle to start the timer. A second and third electric eye (RP-250 Electric Eye Barriers) are used across the header's and heeler's boxes. If either rider breaks out before the cattle start the timer, the OE-200 Automatic Horn is sounded to flag the "broken barrier." The electric eyes do not stop the timer.

**"Bull" - Bull and Bronc Riding**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: None  
 Final Horn: Eight (8) seconds  
 Operation: The MD-300 Electric Eyes are fully disabled. The timer is manually started when the bull or bronc is released. When the time reaches eight seconds, the horn sounds and the timer automatically stops.

**"Pen" - Team penning**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: 60 seconds  
 Final Horn: 90 seconds  
 Operation: The MD-300 Electric Eyes form an invisible line broken by the lead rider to start the timer. The timer continues to run when the warning horn is sounded. The timer stops when the final horn is sounded. The timer may be manually stopped at any time. The electric eyes do not stop the timer.

**"Cut" - Cutting**

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Time Format: Counting down in minutes and seconds  
 Warn. Horn: none  
 Final Horn: Two minutes, 30 seconds (2:30)  
 Operation: The MD-300 Electric Eyes form an invisible line broken by the lead rider to start the timer. The timer stops when a time of zero is reached and the final horn is sounded. The timer may be manually stopped at any time. The electric eyes do not stop the timer.

**"Eqst 1" - Show Jumping (Equestrian)**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: none  
 Final Horn: none  
 Operation: A single pair of electric eyes both starts and stops the timer. Pressing **RESTART** after the timer has been *manually* stopped resumes timing from the time shown on the display, rather than from the time kept internally while the timer was stopped. If timer accidentally stopped by breaking the light beam, **RESTART** operates normally.

**"Eqst 2" - Show Jumping (Equestrian)**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: none  
 Final Horn: none  
 Operation: The timer is started with one pair of electric eyes and stopped by a second pair of electric eyes (OE-205 Electric Eye Package). Pressing **RESTART** after the timer has been *manually* stopped resumes timing from the time shown on the display, rather than from the time kept internally while the timer was stopped. If timer accidentally stopped by breaking the light beam, **RESTART** operates normally.

**"Dash" - Dash and Sprint Events**

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Time Format: Counting up in seconds to .001  
 Warn. Horn: none  
 Final Horn: none  
 Operation: The timer is started with one pair of electric eyes and stopped by a second pair of electric eyes (OE-205 Electric Eye Package).

**Timer Setup - Time Format and Counting Direction**

The MD-300 Timer can count in several different time formats: Seconds to .001, seconds to .01, minutes and seconds to .001, minutes and seconds to .01, and hours minutes and seconds in whole seconds. In addition, the timer can count up or count down.

When the timer is set to count down, the timer starts counting from the final horn time specified for the event, down towards zero. When zero is reached, the horn sounds and the timer automatically stops. The time never decrements below zero. If **RESTART** is pressed to resume timing after the displayed or internal time has reached zero, the display will show zero time and the timer beeps twice to alert you that time cannot be restarted. Similarly, if the final horn time is set to zero, then the timer cannot start since the start time is the same as the stop time (0).

Whenever a new event type is selected, the MD-300 Timer automatically sets the time format and counting direction, along with other parameters, for that event. Because of this, it is unlikely that you will need to manually set the time format or counting direction very often. However, if required,

you can temporarily override the default settings for the current event type as outlined in this section. You can permanently record changes in time format and counting direction for the current event using the "Set.Def" setup option. See the "Timer Setup - Setting Event Defaults" section for more information.

You should select a new time format or counting direction *after* you have selected a new event type – if you are changing the event type at all. To change the time format or counting direction, press the **SETUP** key to enter the setup mode. As shown in the "MD-300 Setup Options Table," five of the setup options available are time formats and two of the options are used to specify "Count Up" or "Count Down." Use the **NEXT** and **PREV** keys to scroll forward or backward through the list of time formats until the desired time format is displayed. Then press the **SELECT OPTION** button to select the new time format. "Done" is displayed for a moment to indicate that your request has been performed. The display is then restored to show the time format you just selected and the timer remains in setup mode. If desired, you may continue to use the **NEXT** and **PREV** keys to select other setup options. For example, you may scroll forward to select a new counting direction. Selection of a new counting direction is done in the same manner as selecting the time format: When the desired counting direction is displayed, press **SELECT OPTION** to select the new counting direction. When you are finished making changes, press the **EXIT SETUP** button to return to normal timing operation.

Note that a new time format or counting direction is selected only when the **SELECT OPTION** button is pressed. You may exit setup without changing the time format or counting direction by pressing **EXIT SETUP** before pressing the **SELECT OPTION** button. Also note that whenever the currently active time format or counting direction is displayed, the timer beeps. This allows you to determine the time format and counting direction currently in use.

## Timer Setup - Setting the Warning and Final Horn Times

The MD-300 Timer can be configured to automatically sound a warning horn (after which the timer continues to run), and a final horn, at which time the timer stops. The timer forces the warning horn time to occur before the final horn time. When either of the jumping event types is selected, ("Eqst 1" or "Eqst 2"), the timer continues to run even after the final horn is sounded. Horns available for the MD-300 Timer include the OE-200 Automatic Horn and scoreboards with built-in horns. More information is provided in the manuals supplied with the OE-200 Automatic Horn and the scoreboards.

Whenever a new event type is selected, the MD-300 Timer automatically sets the warning horn time and final horn time, along with other parameters, for that event. Because of this, it is unlikely that you will need to manually set the horn times very often. However, you can temporarily override the default settings for the current event type as outlined in this section. You can permanently record changes in horn times for the current event using the "Set.Def" setup option. See the "Timer Setup - Setting Event Defaults" section for more information.

You should set a horn time *after* you have selected a new event type – if you are changing the event type at all. To change either horn time, press the **SETUP** key to enter the setup mode. As shown in the "MD-300 Setup Options Table," two of the setup options available are used to set the horn times. "Horn" is used to set the final horn time and "Horn 2" is used to set the warning horn time. Since the warning horn time is forced to be less than the final horn time, you should set the final horn time before setting the warning horn time. The horn time options are near the end of the setup options list – you may find it quicker to use the **PREV** key to go backwards from the end of the list to reach the "Horn" or "Horn 2" option rather than scrolling forward through all the event types and time format options. To change a horn time, press the **SELECT OPTION** button when the desired "Horn" or "Horn 2" option is displayed. As soon as the button is pressed, the current horn time setting is displayed.

A horn time setting of zero means the horn will not sound. Otherwise, the time displayed is the *elapsed* time after which the horn will sound. When counting up, the horn

time shown is simply the time at which the horn will sound. However, when counting down, it is a little more complicated. For example, assume the final horn time is set to 90 seconds. When the timer is started, timing starts at 90 seconds and counts down towards zero. When zero time is reached, the horn sounds and the timer stops. The horn sounds after 90 seconds have *elapsed* – not when the display reads 90 seconds. Similarly, a warning horn time of 60 seconds – when counting down – implies that the warning horn will sound after 60 seconds have elapsed. In this example, 60 seconds have elapsed when the displayed time has counted down to 30 seconds.

When a horn time is displayed, press the **NEXT** key to increment the horn time value. Press the **PREV** key to decrement the horn time value. For horn times less than 30 seconds, the time increments and decrements one second at a time. Above 30 seconds, the time increments and decrements in 15 second intervals. When changing the warning horn time, the warning horn time is forced to be less than the final horn time. The timer beeps twice if you attempt to set the warning horn time above the final horn time. Further, if the final horn time is set lower than the warning horn time, the warning horn time is forced to zero (off).

After the desired horn time value has been set, press the **SELECT OPTION** button to "select" the new horn time. "Done" is displayed for a moment to indicate that your request has been performed. The display then restores the horn option you selected and the timer remains in setup mode. If desired, you may continue to use the **NEXT** and **PREV** keys to select other setup options (setting the warning horn time, for example). When you are finished making changes, press the **EXIT SETUP** button to return to normal timing operation.

Note that a new horn time is set only when the **SELECT OPTION** button is pressed after changing a horn time. You may exit setup without changing the horn time by pressing **EXIT SETUP** before pressing **SELECT OPTION** to set the new horn time.

## Timer Setup - Setting Event Defaults

As covered previously, whenever a new event type is selected, the MD-300 Timer automatically sets the time format, counting direction, warning horn time and final horn



time for that event. The factory default values for these parameters for each event are shown in the "Event Summary" table. If desired, you may alter these automatically selected parameters so that your own values are set whenever a new mode is selected.

First, configure the timer as you require by selecting the event type, time format, counting direction, warning horn time and final horn time as outlined in the preceding sections. Then, use the **NEXT** or **PREV** key to move through the list of setup options until "Set.Def" (set defaults) is displayed. Press the **SELECT OPTION** button to record the current settings as the new default values for the current event type. "Done" is displayed for a moment to indicate that your request has been performed. The display is then returned to the "Set.Def" option and the timer remains in setup mode. If desired, you may continue to use the **NEXT** and **PREV** keys to select other setup options. When you are finished, press the **EXIT SETUP** button to return to normal timing operation. Now, whenever the event type you just modified is selected, your new parameters for time format, counting direction, etc., will be used.

Note that the new parameters are permanently recorded only if the **SELECT OPTION** button is pressed while the "Set.Def" option is displayed. You may exit setup without permanently recording your changes by pressing **EXIT SETUP** before selecting the "Set.Def" option. If required, it is possible to restore the original factory settings. Call FarmTek for assistance.

### Timer Setup - Setting Scoreboard Brightness

Some scoreboards support different brightness levels which can be controlled from the MD-300 Timer Console. By default, the brightness level is set to maximum brightness whenever the timer is turned on. You can change this default condition. Contact FarmTek for assistance.

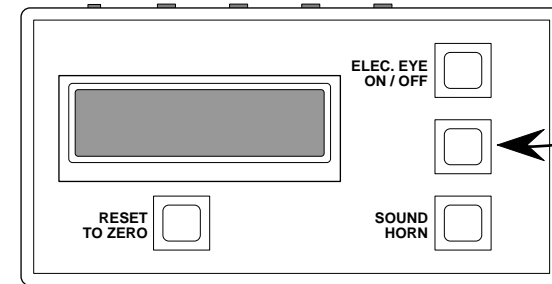
To change the scoreboard brightness level, press the **SETUP** key to enter the setup mode. As shown in the "MD-300 Setup Options Table," the "SB Brt" setup option is used to change scoreboard brightness. Since the brightness option is near the end of the setup options list, you may find it quicker to use the **PREV** key to go backwards from the end of the list to reach the brightness option rather than scrolling forward through all the other setup options. Once the "SB

Brt" option is displayed, pressing the **SELECT OPTION** button causes the scoreboard to alternate between the dim and bright brightness settings. Note that not all scoreboards support brightness control. When you are finished making changes, press the **EXIT SETUP** button to return to normal timing operation.

### Alternate Button Functions

In addition to the normal functions of timer start/stop, re-start, etc., the buttons on the MD-300 Timer Console perform an alternate function when pressed while holding down the **PREVIOUS TIME** button. Here's how:

- 1) Press and hold down the **PREVIOUS TIME** button (like the shift key on a typewriter), then...
- 2) Press any other key to perform the desired function.



**RESET TO ZERO** is not normally required – the timer automatically resets to zero whenever it is started. However, if needed, this button allows you to force the display to read zero (e.g., to force a scoreboard to show zero or blank).

**ELEC. EYE ON/OFF** enables and disables the electric eyes. See the "Locking Out the Electric Eyes" section.

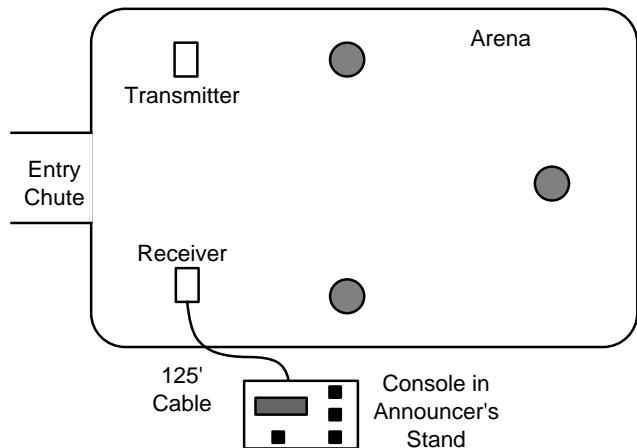
**SOUND HORN** provides the timer operator with manual control of the horn. More information is provided in the User's Manual provided with the OE-200 Automatic Horn.

## THE ELECTRIC EYES

The infrared light source (Transmitter) outputs an invisible light beam that is detected by the infrared light detector (Receiver). When the light beam between them is broken, the timer is either started, stopped or both based on the type of event currently selected on the MD-300 Timer Console. When the timer is started by breaking the light beam, the time automatically resets to zero before starting in the same manner as when the **START/STOP** button is pressed.

Whenever the beam is broken to start or stop the timer, the Timer Console "beeps" to alert you about the event. This is useful for detecting accidental interruptions of the beam. When the same pair of electric eyes is used to both start and stop the timer (e.g., barrel racing), the beam is ignored for about two seconds after it is broken. This provides time for dust to settle after the rider passes through the electric eyes. Note: If you have need for a longer or shorter period that the eyes are ignored, you can change this delay. Contact FarmTek for more information.

The Receiver is connected to the Timer Console via a 125 foot cable. This cable is used to signal the Timer Console when the light beam is broken. The Transmitter needs no connection to the Timer Console. A typical arena set-up for barrel racing is shown below:



## Infrared Light Source - Transmitter

The Transmitter is labeled "Transmitter" on its rear panel. The Transmitter outputs the infrared light beam that is detected by the Receiver. The infrared light is emitted through the solid black front panel. The Transmitter has built in rechargeable batteries to allow operation in the arena without A/C power. However, if by mistake the batteries were not charged, the Transmitter can be operated by plugging it in.

The Transmitter must be switched on to operate. If an A/C power adapter is plugged into the Transmitter, the unit runs from A/C power. If an A/C adapter is not plugged in, the unit runs from its internal batteries. When not in use, the Transmitter *must be* switched off to prevent discharge of the batteries.

## Charging the Transmitter Batteries

***The Transmitter is not charged when shipped. It should be given a full charge, as outlined below, as soon as possible.*** After a full battery charge, the Transmitter will operate about twelve hours. Typically, this is enough time to use the Transmitter on several occasions before recharging is necessary. In fact, it is actually better for the batteries to be used for ten to twelve total hours before recharging, rather than just a few hours - as if recharged after each use.

To recharge the Transmitter, plug it into a wall outlet using either of the A/C power adapters for about 14 hours. Make sure the unit is off when recharging. Do not leave the Transmitter charging for a single period of more than about 14 hours.

If the condition of the battery is not known, or the Transmitter has not been used for over a month, you can maximize performance of the battery by fully discharging and then fully charging the battery. This should be done a day or two before your event. To discharge the battery, leave the Transmitter on until the red battery light stops flashing. Then turn the Transmitter off and give the unit a full 14 hour charge. Do not store the Transmitter while it is fully discharged - it should be charged within a day or so after begin discharged.

If the batteries in the Transmitter are not used for long periods of time, they should be given a full charge every three months or so. Note that *even if you always run the Transmitter from electricity*, but never charge it, the batteries should still be given a full charge every three months and when you first receive your timer.

## Checking Rechargeable Battery Condition

A lamp on the rear panel of the Transmitter provides an indication of battery condition. The lamp is brightest when viewed from straight-on (not above, below, or to the side). This is important when trying to view the lamp in bright sunlight. The following notes apply to use of the battery condition lamp:

- The Transmitter must be on to check battery condition.
- The most accurate indication of battery condition is provided after the Transmitter has been on for at least 30 to 60 seconds.
- If the lamp is blinking steadily, the batteries are still operational. Irregular blinking indicates the battery is on its last breath – assume the battery is dead.
- If the lamp is off, the batteries are dead and need recharging. The Transmitter will not operate unless plugged in or recharged.

As with any battery, when the Transmitter is first turned on after being off for a period, even discharged batteries may temporarily exhibit a high enough voltage to indicate "good." However, a discharged battery will quickly drain and indicate "dead." For this reason, leave the Transmitter on for at least 30 to 60 seconds before checking battery condition.

## Infrared Light Detector - Receiver

The Receiver is labeled "Receiver" on its rear panel. The Receiver detects the infrared light beam emitted by the Transmitter. The infrared light passes through the solid black front panel.

The Receiver is connected to the Timer Console by the 125 foot cable provided. This cable provides a signal to the Timer Console when the light beam is broken. In addition, this ca-

ble provides power to the Receiver. The Receiver requires neither A/C or batteries to operate. To connect the cable, insert either end of the cable into the jack labeled **CONSOLE** on the rear of the Receiver. Insert the other end of the cable into the jack labeled **RECEIVER** on the rear of the Timer Console. When using a second pair of electric eyes (OE-205 Electric Eye Package) for jumping events, dashes, etc., the electric eyes which stop the timer plug into the **AUX** jack. More information about using two pairs of electric eyes is provided in the user's manual supplied with the OE-205 Electric Eye Package.

## Tripods

For use in the arena, the electric eyes should be mounted on the tripods provided. As you read this section, try the adjustments mentioned to familiarize yourself with the tripods.

The tripod has latches on its legs to adjust them to the desired length. Open the latch to extend or shorten a leg, then close the latch to lock the leg in place.

Near the top of the tripod where the three legs come together, a center tube (neck) can be raised or lowered to further adjust the height of the tripod. Loosen the collar latch by turning it counter-clockwise, and then raise or lower the neck as desired. After adjustment, tighten the collar latch by turning it clockwise.

The very top of the tripod is called the "head". Two adjustments allow the head to turn left to right, and to tilt forward and backward. The long handle is used to adjust the forward and backward tilt. Turn the handle counter-clockwise to loosen, and then use the handle to adjust the tilt. Turn the handle clockwise to tighten the head in the new position. The knob at the very top of the neck can be loosened to allow you to move the head left and right. Turn the knob counter-clockwise to loosen, clockwise to tighten.

A 1/4 inch screw protrudes through the top of the head. To mount the Receiver or Transmitter on the tripod, position the hole on the bottom of either unit over this screw. Turn the knob under the head counter-clockwise (when viewed from the top) to tighten the screw into the Receiver or Transmitter. Tighten the screw firmly, but do not over-tighten. Turn the knob clockwise to loosen the screw and

remove the Receiver or Transmitter. Align the unit on the tripod such that the long tripod handle extends towards you and the rear of the unit faces you.

## Aligning the Electric Eyes

The infrared light from the Transmitter is emitted in a narrow beam. This beam must be aimed at the Receiver to ensure that the Receiver "sees" the light beam. The infrared light is emitted and received through the solid black panel on each unit – this is the front of the unit. Read the tripod section to familiarize yourself with the tripods before attempting to set up and align the Transmitter and Receiver.

To set up the electric eyes in the arena, first attach the Transmitter and Receiver to the tripods as detailed in the tripod section. Then adjust the tripods to the desired height. The eyes should be high enough so that *the light beam is broken by the horse's body* (not the legs).

Next, place the eyes on opposite sides of the arena. The eyes can be separated by up to 200 feet. Aim the Transmitter in the general direction of the Receiver and vice-versa. Plug the cord into the rear of the Receiver now so that you do not have to touch the Receiver after final alignment is complete.

Carefully align the Transmitter. Left to right alignment can be checked by looking down either line on the top of the Transmitter. The line should point straight at the Receiver. Up and down alignment of the Transmitter is checked by looking down the crack on the side of the unit. Adjust the tilt such that the Receiver is directly in line when looking straight down the crack on the side of the Transmitter. When tightening the tripod adjustments after the alignments are made, make sure the alignment is still good – tightening the tripod knobs may move your previous adjustment.

With the MD-300, alignment of the Receiver is also important. Repeat the procedure described for the Transmitter using the Receiver.

To check the alignment, follow the procedures outlined previously to turn on the Transmitter and to connect the cord from Receiver to the Timer Console. Then turn on the Timer Console and press the **SETUP** key. The first setup option dis-

played is the alignment status of the electric eyes. If the eyes are properly aligned, "Good" is displayed. If not properly aligned, "bAd" is displayed. See the "Timer Setup - Checking Electric Eye Alignment" section for more information.

*Even though the Timer Console may show "Good", if you have not carefully aligned the eyes as outlined above, you may have a weak alignment that is sensitive to battery condition, dust, or sunlight. Always carefully align the electric eyes before use as outlined above.*

## Alignment Hints

With a little practice, you'll be able to set-up and align the electric eyes in minutes. Below are some suggestions in the event you cannot obtain alignment or the alignment is sensitive to dust or sunlight.

- Make sure the cable plugs are fully inserted into the Receiver and the Timer Console – push them in completely, a fraction of an inch can make a difference.
- Move the eyes closer together and re-align.
- Distance is reduced when the sun shines on the face of the Receiver. If possible, switch sides with the Transmitter to keep the sun from entering the Receiver. If not possible to switch sides, construct a simple shade for the Receiver.
- Check the condition of the Transmitter batteries as outlined in the "Checking Rechargeable Battery Condition" section. If the batteries are dead, use an A/C adapter to plug the Transmitter into an A/C outlet to operate. As mentioned previously, if the batteries are severely discharged, it may take several minutes before the Transmitter operates properly even after the A/C adapter is plugged in. The quickest way to restore operation to a severely discharged Transmitter is to plug it in with the switch turned off for one or two minutes and then turn the switch on (leaving the A/C adapter plugged in) to operate the Transmitter.

## Simultaneous Operation of Two MD-300 Timers

If your event requires simultaneous operation of two complete timers (both timers start and stop at the same time and provide backup for each other), the MD-300 Electronic Timer can provide this capability. However, if two light sources (Transmitters) are on at the same time, and pointing in the same direction, they may interfere with each other at the light detector unit (Receiver) and prevent proper operation. The following options are available to ensure proper operation:

- 1) Set up both timers, but turn on *just one* of the two Transmitters. Both Receivers will "see" the beam, but since the beam is coming from only one Transmitter, there is no interference. This provides fully redundant timing. This also allows you to switch to the second Transmitter after 10-12 hours of battery operation have expired on the first Transmitter, and run for another 10-12 hours on battery.
- 2) Set up both timers, but have the pairs of eyes pointed in opposite directions. I.e., each side of the arena will have a Transmitter and a Receiver. With this configuration, both Transmitters can be on at the same time.

## CARE OF YOUR TIMER

Your new timer has been designed to withstand a rough environment and treatment. However, a little extra effort to take care of your timer and keep it clean will greatly extend its life and reduce the chance of failure. The carrying case is the "heart" of your timer care routine. Always store and carry your timer in this case.

The Transmitter and Receiver units have been designed to withstand a little rain. However, they are not waterproof. Do not leave them uncovered during a heavy thunderstorm. If they get very wet, allow them to dry out before using them again.