



Model: *Time Machine*

Features Of The Basic *Road Race Timer* :

Physical features:

- Independent, high precision crystal controlled timebase circuit.
- Small and lightweight with high impact ABS molded plastic enclosure.
- Portable - operated by rechargeable battery.
- 18-key full size keyboard. Full travel keys with tactile feedback.
- 2 line, 32 character LCD alphanumeric display.
- 28 column thermal printer, 1 line/sec print rate.
- 10 timing lane inputs plus an additional select timing lane input.
- Start input, start output, RS232 data, external clock and battery charge ports.
- Battery charge indicator light.
- Two year full warranty - parts and labor.
- Standard accessories include:
 - Battery charger.
 - 9-pin and 25-pin RS232 adapters with 14 foot cable.
 - Multilane adapter (depending on configuration).
 - Up to 10 gripswitches (depending on configuration).
 - Carrying case.
 - Two rolls of thermal paper (6400 lines per roll).
 - Instruction manual.



User friendly:

- Easy to use menu driven operation.
- Provides warning tone and messages for operator errors and status reports.
- Easy setup procedures. Intelligent system minimizes required inputs from operator.

Memory:

- Stores over 8000 times (and select times in cross-country mode).
- Nonvolatile memory - data can not be lost.
- Setup parameters are permanently stored until changed by the operator.
- Dual redundancy backup circuit to assure data retention.
- Displays memory status (amount used & amount available).
- Asserts warning for memory almost full (< 50 available) and memory full.
- Continues printing and transmitting data even if memory becomes full.
- Fool proof method for clearing memory to avoid doing it accidentally.

Features Of Time Machine (continued):

(Road Race Timer)

Multiple Timing modes:

- Provides **2** different modes of operation:
 - Stores up to **255** separate events.
 - Displays timing mode and event# when time clock is reset.
- 1. Cross Country:**
 - Provides two different methods of performing Select Timing.
 - Allows 5 digit BIB# inputs including three alpha characters (WMX).
 - Provides finish places for up to 99,999 finishers.
 - Can preset the time clock to any value between 0.00 and 31:59:59.00 (this also supports "time of day" timing).
 - Selectable up or down count. Down count can "trigger" a starting horn when clock reaches 0.00 (compatible with display clock horn).
 - Allows multiple starts (wave starting) for up to nine independent starts.
 - 2. Lap Timing:**
 - Used for general purpose "lap timed" events (auto, boat, bicycle, etc).
 - Stores and displays both split times and lap times.
 - Provides lap counter for up to 30 laps (rolls over to "0" upon overflowing).

Recalling data:

- All recalled data is displayed on the LCD and printed if printer is on.
- Any data may be recalled at any time, even while an event is being timed.
- Can recall event list showing events stored in memory, number of times in the event and the timing mode of the event.

Cross Country and Lap Timing Modes

- Can recall times in time order starting at any given time or place#.
- Can recall times in lane# order starting at any given time or place#.
- Can recall select-times independently, including BIB# and place#.
- Can search for a specific time in memory.
- Can search for a specific BIB# (race#) with its associated select-time and place#.
- Can specify event# (or "all" events) and lane# (or "all" lanes) from which data is to be recalled.

Features Of Time Machine (continued):

(Road Race Timer)

Computer interface:

- Is supported by popular race scoring programs.
- Selectable transmission of data to computer by lane# or event#.
- Retransmit data to computer starting at any given time or specified place#.
- RS232 compatible serial interface; baud rate selectable from 1200-9600, parity selectable for odd, even or none, 7 or 8 bit data word.
 - Setups are permanently saved until changed by operator.
 - Outputs in standard ASCII format. Output is compatible with standard communication programs (such as Windows Terminal or Hyperterm) and can be imported to standard spreadsheet programs (such as Excel).
 - Provides both software XON/XOFF and hardware handshake data flow control. Also provides an XOFF "time out" feature.
 - Can display a "status window" during transfers showing data count, XON status, and Handshake status - available for monitoring & troubleshooting.
- Can be remotely controlled by a computer. Host computer can send commands to:
 - Set the time clock, start it counting up or down and stop it.
 - Retransmit data specifying a starting time and which data in memory should be transmitted.
 - Halt retransmission of data.
 - Change the current event number and/or heat number.

Other interfaces:

- Provides an external clock interface to send time clock data out serially.
 - Can preset the time, start or stop the external display clock.
- Time clock can be started by an independent external starting system.
- Provides start pulse output to drive a starting horn or any other peripheral.

Special features:

- **Programmable lane numbers** - All grip switch inputs can easily be programmed to any lane number between 1 and 99.
- **Function key lockout** - To help prevent keystroke errors, the function keys are "locked out" when time clock is running. Keys can be "unlocked" by pressing CLEAR key within 2 seconds prior to pressing one of the function keys.
- **Synchronizing multiple timers** - Can start and synchronize the clock on another Time Machine by making a 5 second connection between them.
- **Performs self diagnosis** - Identifies and reports potential problems and failures.
- **Standard cabling** - Can use standard readily available telephone cables and extensions. Gripswitch cables may be extended several hundred feet.
- **Allows several printout choices** - User has several options available in selecting which data is to be printed and how it will be formatted. Can also start and stop printer at any time, it will always continue where it left off when started.
- **Jammed printer detection** - Detects a "jammed" printer condition and provides warning message. When jammed, the printing is temporarily put on hold until fixed and then continues where it left off. Any data may be reprinted at any time.

Features Of Time Machine (continued):

(Road Race Timer)

Power system:

- Uses rechargeable sealed lead-acid battery for more predictable performance.
- Battery will last 20+ hours with printer off and 4-5 hours with continuous printing.
- Printer will automatically be disabled when battery is too low, allowing timer to continue functioning for at least 2 hours more.
- Warning is asserted when battery becomes low.
- Battery level can be viewed at any time from a "panel meter" display.
- Battery charge light indicates when battery is fully charged and if there is a problem with the battery or charger.
- May be used while charger is plugged in to allow unlimited operation of timing and printing functions.

Specifications

Model: *Time Machine*
(Basic Road Race Timer)

Dimensions & Weight:

10" wide x 6.5" deep x 2.5" high; 2.5 lbs.

Construction:

Enclosed in high impact ABS molded plastic.

Time Base:

Accuracy: +/- 0.0002% (0.17 sec/24hrs at 70 deg F).

Stability: +/- 0.003% (2.6 sec/24hrs from -4 deg F to +158 deg F).

Resolution: 1/100th of a second.

Input Sampling Rate: 1200 samples per second.

Parameter Ranges:

Time clock: 31hours, 59 minutes, 59.99 seconds - cross country mode.

7 hours, 59 minutes, 59.99 seconds - lap timing mode.

Lap Times: 31 minutes, 59.99 seconds.

Events: 1 to 255.

Programmable Lane#: 1 to 99.

Race# (BIB#): 1 to 99,999 as well as "W", "M" or "X" alpha characters.

Lap#: 1 to 30 (rolls over upon overflowing).

Memory Capacity: 8051 Primary Times or Select Times - cross country mode.

8051 Split Times or Finishes + 8051 Lap Times - track & lap training modes.

Display:

32 character, 2 line alphanumeric Liquid Crystal Display, tilted at a 20 deg angle for easy viewing. Contrast adjustment is provided.

Keyboard:

18-button full-size keyboard utilizing full travel "computer style" keys with tactile feedback.

Printer:

28 column thermal printer with 1 line/second print rate; thermal paper required, 6400 lines/roll.

Separate printer on/off switch is provided along with a paper advance button.

Input/Output Ports:

Battery charger input, dual colored charge indicator light, start input, start output, full duplex RS232 input/output, display clock output and 10-lane multilane input.