

## Digital Chronometer

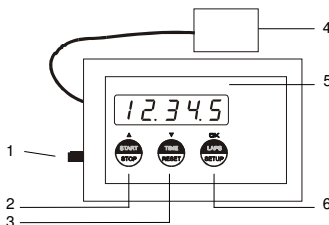
### RACE TIME 3

## USER MANUAL

The RT3 digital chronometer is a highly technological and flexible product, ideal for usage in circuit race. The available functions are :

- Chronometer with 0,01 sec. accuracy and 1 hour max time
- Intermediate time
- Best lap
- High or low intensity for daylight or night vision
- 99 channel infra red receiver (**only with optional multichannel beacon transmitter**)
- 250 lap times memory
- Connection to PC or printer (RS232)

## Features



### 1. ON/OFF switch

### 2. Start/Stop

- Starts or stops the chronometer

### 3. Time/Reset

- If the chronometer is on "RUN", it holds the displayed value; pushing a second time it shows the running time.
- If the chronometer is on "STOP" it resets the chronometer

### 4. INFRA RED receiver

### 5. DISPLAY (5 digit display: Minutes/Seconds/Cents)

- M.SS.CC if time < 10 minutes
- MM.SS.C if time > 10 minutes

### 6. Laps/Setup

- If the chronometer is on "STOP", it switches to MEMORY mode (to view the recorded laps). Holding the button for 3 seconds it switches to SETUP mode (to enter the setup parameters)
- If the chronometer is on "RUN" it displays for 4 seconds the number of the laps recorded

## Configuration

The RT3 chronometer offers some programmable parameters in order to allow optimal adjustment. First STOP the chronometer and then press and hold "Laps/Setup" for 3 seconds. The first parameter will be displayed.

- Λ** = Increase the value of the parameter
- V** = Decrease the value of the parameter
- OK** = Confirm the value and pass to the following parameter

The programmable parameters are :

### 1. Last LAP Duration

Once a lap is completed, the lap time is displayed for this programmed amount of time (seconds), after which it will be replaced by the real time chronometer. If the programmable value is set to zero the display will show only the last lap time.

### 2. Display intensity

0 = LOW display intensity  
1 = HIGH display intensity

### 3. LAP NUMBER enable

0 = Once a lap time is completed only the lap time is displayed  
1 = Once a lap time is completed first the LAP NUMBER is displayed and then the LAP TIME

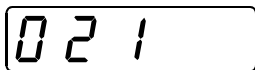
## CHRONOMETER

As already seen you can Start, Stop, Clear or have an intermediate using the "Start/Stop" and "Time/Reset" buttons. The value of the timer increases until 1 hour, then it restarts from zero. Switching OFF the chronometer, the time will be cleared.

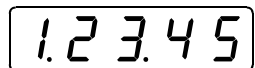
By means of an optical trackside beacon transmitter (FTX) it is possible to measure and store the lap times without pressing any buttons.

When a vehicle mounting the chronometer passes through the transmitter's invisible beam, the elapsed time gets stored and the chronometer restarts from zero to measure the next lap.

When a lap is completed, the total number of the laps will be displayed for 4 seconds



and then the time recorded.



After the "Last Lap duration" time, the real time chronometer will be displayed.

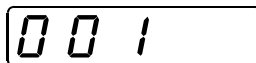
- \* If the last lap time is the best, the display flashes
- \* If the chronometer RUNS, the "Laps/Setup" button will put on display for 4 seconds the total number of the recorded laps.

## MEMORY

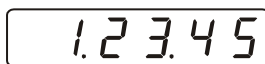
The chronometer stores automatically every measured lap time up to a maximum of 250 laps. When all the 250 values are used the next time will be saved in the first memory location, so the chronometer records always the last 250 times.

In order to view the recorded times, stop the chronometer and then press "LAPS/SETUP".

First the number of the lap will be displayed



and then the time recorded.



When the memory is empty no data are displayed.



### Button "Λ"

- Press this button to view the **next time**
- Press and hold for 2 seconds to view the **first time** recorded

### Button "V"

- Press this button to view the **previous time**
- Press and hold for 2 seconds to **clear the memory**

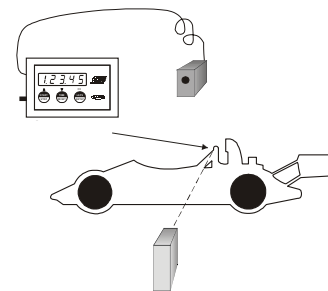
### Button "OK"

- Press this button to return to the main display mode
- Press and hold for 3 seconds to **print all the data recorded**

**Note that the chronometer starts or stop only if you are not in the MEMORY or CONFIGURATION pages**

## Infrared lap timing system

The chronometer in the vehicle works together with a transmitter located on the trackside. When the car passes the transmitter invisible beam, the receiver detects it and inform the chronometer to store the lap time.



In order to achieve the maximum reliability and to allow the use of many systems the user can choose between 99 different transmission channels (only with a multichannel optional beacon transmitter).

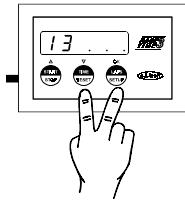
**The chronometer is configured for run together with the SINGLE CHANNEL transmitter included. If a MULTI CHANNEL transmitter is used, the system must be configured doing the following procedures :**

### Channel selection

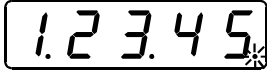
Turn on the transmitter; if it is a multichannel transmitter, select the desired frequency (please refer to the transmitter's user manual).

### Receiver set-up

To tune the receiver on the same channel of the transmitter, follow these instructions: place the receiver in front of the transmitter then press and hold "TIME/RESET" and "LAPS/SETUP" until the number of the channel will be displayed.

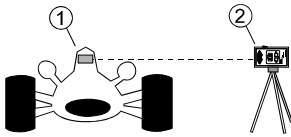


Whenever needed, it is possible to check the channel alignment between transmitter and receiver placing them in front of each other and checking for the right LED to turn on.



#### Placing the system

To get the system working correctly, the receiver and the transmitter must be aligned. We suggest to place the transmitter on the track side (2) at the same height of the receiver placed in the car (1).



#### Usage notes

a) The minimum interval between two successive time acquisitions 10 seconds. Therefore, the system cannot measure interval times shorter than 10 seconds.

b) Any channel can be used for timing acquisition, but if the car is very fast or close to the transmitter, it can be useful to use the channel 0. Channel 0 is a high sensitivity channel that is also not sensitive to channel numbers: i.e. a receiver set to channel 0 can detect

any channel number. **Use channel 0 if you need a high detection speed.**

c) The infrared light beam generated by the transmitter, although not visible, is a highly concentrated light source. Please make sure not to direct this light source directly to the eyes.

d) It is important to place the transmitter away from other similar instruments because other infrared sources can cause signal alterations.

e) Please avoid to put anything (even glass) between the transmitter and the receiver because the signal could be attenuated or even suppressed.

#### How to PRINT the recorded data

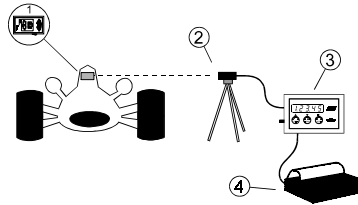
Connect the chronometer to the printer and then switch ON. Enter the MEMORY mode and then press and hold "OK" for 3 seconds, until 5 dots will be displayed.

```
TIME
001 01:10.73
002 01:13.64
```

#### How to print the last lap automatically

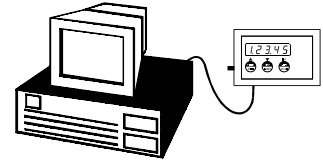
You can place the beacon transmitter (1) in the car and keep the chronometer (3) with the printer (4) on the trackside.

When the car passes, the chronometer stores and prints automatically the lap time.



#### How to connect the Personal Computer

By connecting the Personal Computer to the chronometer through the serial RS232 port you can acquire and visualize all the data recorded.



\* Remember that the connection runs only if you are not in MEMORY or CONFIGURATION MODE

#### Replacing the Battery

The chronometer can be supplied by an external 12 Volt battery or by an internal 9 Volt (with less autonomy). To remove the battery from the instrument open the the rear shell and remove the battery. Do not dispose of batteries into household waste, fire or water. Batteries should be collected, recycled or disposed of in an environment-friendly manner.

#### Technical specifications

<b>Weight :</b>	100 g.
<b>Dimensions :</b>	Display 100 x 65 x 24 mm. Receiver 20 x 30 x 15 mm.
<b>Power source :</b>	9 - 14 Vdc from external battery 9 Volt from internal battery
<b>Current Drawn :</b>	80 mA with 14V supply
<b>Connection :</b>	Serial RS-232 (9600bps-8Data-1Stop-0Par)
<b>Memory :</b>	250 times
<b>Accuracy :</b>	0,01 sec.
<b>Max time :</b>	1 Hour