

REGNLY TIMER RT 3/ET4 SKI-TESTER

Users manual - August 1999

Both the Nordic and the Biathlon version of the Timer RT 3 and the new ET4 can be used for ski-testing. The additional equipment comprises two photocells with stands, two reflectors with stands, batterypack and the necessary cables.

1 GENERAL

It is possible to use the ski-testing equipment at temperatures as low as - 20 °C. Numbers and letters on the RT 3/ET4 display will change slower when the temperature decreases. However, the measured speeds and times will always be correct independent of the temperature. At low temperatures it is advisable to carry the Timer inside the clothes as long as possible.

It is necessary to protect the Timer and the battery pack against moisture. In particular this is the case for the RT 3 keyboard. Most easily this can be done by means of a small plastic bag. It is not necessary to cover the display. Make sure to let the equipment dry up after use in rainy weather. The equipment should be stored at room temperatures.

2 BATTERIES

Both the Timer RT 3/ET4 and the battery pack (RPP - Regnly Power Pack) have built in rechargeable batteries of nickel-cadmium. They should both be charged with the charger for the Timer RT 3. The battery charger should be connected to 220 V, 50 Hz. The DC volt output from the battery charger is 11.2 V.

2.1 Charging

Flat batteries need to be charged for 15 hours. Charge the batteries at room temperatures. The Timer should be in Off position. Do not charge the batteries for many days. It is only possible to use the Timer when it is charged. To charge new batteries, please refer to the RT 3 manual.

Fully charged the Timer RT 3 can last for at least 10 hours. The photocell battery pack can be used for at least 8 hours.

2.2 Maintenance of batteries

The batteries need full charging / recharging at least 4 times a year. Let the batteries be charged when they are stored for a long time period.

3 COUPLING OF EQUIPMENT

The complete equipment for testing skis consist of :

- 1 pc Regnly Timer RT 3 with leather case or the new ET4
- 2 pcs fotocells with cables
- 2 pcs pins for fotocells
- 2 pcs reflectors mounted on pins
- 1 pc power pack, RPP
- 1 pc cable between power pack and Timer RT 3
- 1 pc extension cable, 10 m, between one photocell and the power pack.
- 1 pc battery charger, both for Timer RT 3 and the power pack.

3.1 Positioning the photocells

Choose two places between which you want to measure the time (or speed). Usually a distance between 7 and 12 m is chosen. The extension cable which follows the equipment is 10 m. Mount the photocells to the pins by sliding them into the track in the pins. Put the photocells on one side of the test-track and the reflectors on the other side. Position the cells and the reflectors straight ahead of each other in the same height. This can be checked by sighting along the photocell tube.

3.2 Coupling

Place the power pack at the "stop" photo cell. Couple the cable from the start photocell to the extension cable. The other end of the extension cable should enter the power pack, input 1. The cable from the stop photocell is coupled to the power pack, input 2. Both photocells are supplied with power from the power pack.

The correct positioning of photocells and reflectors can now be checked. The checking depends on the type of photocell. There are two kinds, one with green and one with orange colour on the threads.

Orange threads

The small bulb inside the back of the photocell shall not light when it is contact between the photocell and the reflector. The bulb should light when the (invisible) light beam from the sender to the reflector is blocked. Adjust the photocell or the reflector until the bulb lights / don't light according to the description above.

Green threads

The small bulb inside the back of the photocell shall light when contact is established between photocell and reflector. The bulb should not light when the light beam is blocked. Adjust the position of the photocell or reflector as described above.

The Timer can now be coupled to the power pack. The ski-tester equipment is ready for use.

4 PROGRAMMING THE TIMER

4.1 Power on / Language

Put the Timer in ON-position by means of the ON (green) / OFF (red)- switch. The Timer present an opening welcome and then display the language choice :

0 - Norsk
 1 - English
 2 - Italiano
 3 - Deutsch : _

English is chosen by keying 1+D. "D" is the Enter key and is always used as the receipt key. The cursor (blinking _) indicates where the answer will be displayed. Sometimes the Timer suggests a choice. If the choice is correct the D-key can be used directly.

4.2 Matching / Skitesting

The Timer asks if it should be used as Timer (matching) or as ski-tester. It is possible to do both in the same event. This is so even when the Timer has been programmed for matching the day before. First choose Ski-testing. When this is finished, turn the Timer off, then on again. Now choose Timer (matching). The Timer always suggests Timing.

To be used as :

0: Timer
 1: Ski-tester
 : 0

We want Ski-testing and therefore key 1 + D.

The Timer asks if the last 3 or the last 6 test results should be displayed. The only difference is that "3 results" is more easily read than "6 results".

0: Show 3 results
 1: Show 6 results
 Choose : _

The Timer then asks if the results should be presented in seconds, meters/seconds or km/hour.

0: Show seconds
 1: Show meter / sec.
 2: Show km/h
 Choose : _

If seconds are chosen, the best pair of ski will give the smallest number on the display. If meter / sec. or km / h is chosen, the best pair of ski will give the largest number on the display.

If meter / sec. or km / h is chosen, the distance between the photocells must be keyed in. The display text will be :

Enter distance
between photocells
in cm : _

Measure the distance, for example 8 meters. Key : 800.

The Timer is now ready to register the first runner. This is signalized with **R e a d y** on the display.

5 Example

In the example below we have chosen "6 results" and "km/h".

When the first photocell is blocked, the display shows **START** in line 4. When the next photocell is blocked, the display presents the first result to the left on line 3 :

1 20.51

A new runner passes the photocells. The display shows **START**, and then :

1 20.51
2 20.78

When runner no. 6 has passed, the result may be :

1	20.51	4	20.68
2	20.78	5	20.25
3	20.11	6	20.47

The result for runner no. 2 is best, 20.78 km/h. Runner no 7 will push away the result for runner no. 1. At any time, the display shows the result from the 6 last runners. If a runner passes the start photocell before the preceding runner has passed the stop photocell, the RT 3 displays **RESTART**. The start time for the preceding runner is then replaced with the new one.

When Ski-testing is finished, the Timer is turned off and the photocells are removed from the power pack. The Timer can now be used for matching.