SWISS TIMING

LISTO 920

User's Manual

3406.504.02

Version 2.0

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Caution and safety precautions

- Never use any other charger than the supplied or a type approved by Swiss Timing. This could destroy the battery, cause damage to unit, and possible cause personal injury due to fire or/and electrical shock.
- Never bypass a power cord ground lead by breaking off the ground pin, or by using inappropriate extension cords or adapters.
- Never plug a power cord into the AC power source until you have made sure that all installation, cabling and power levels, are proper, and that the applicable procedures in this manual have been followed.
- Protect the equipment against splashing, rain and excessive sun rays.
- Never use the device if it is damaged or insecure.
- Verify the selection of the power distribution.
- Verify that the voltage quoted on the rating plate is the same as your voltage. Connect the appliance only to power sockets with protective earth. The use of incorrect connection voids warranty.
- This program may be modified at any time without prior notification.
- Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.
- During the transport of all Swiss Timing equipment delivered with a reusable carry case, the said case should be used at all times. This is imperative to limit the damage, such as shocks or vibration that can be caused to the units during transport.
- The same cases should also be used when returning equipment to Swiss Timing for repair. Swiss Timing reserves the right to refuse all guarantees if this condition is not fulfilled.
- If the installation includes a horn, be sure to maintain a sufficient security distance from the public.

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Environment

This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources.

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1 INTRODUCTION

1.1 Concept

The LISTO 920 is a concentration clock, indicating the amount of time available to athletes before they must perform their discipline.

1.2 General view

1.2.1 Display

The LISTO has a pixel-based display of 3 numbers and a yellow flag. All the dots are yellow.

The duration of the countdown can be set for any time up to a maximum of 9 minutes and 59 seconds (see chapter 3.3). By default, this value is configured to **1 minute**.

The yellow flag (remaining time) can be set to a minimum of 5 seconds up to a maximum 35 seconds (see chapter 3.4). By default, this value is configured to **15 seconds**.

The display brightness is done **automatically** with a sensor but can set manually (see chapter 3.6).

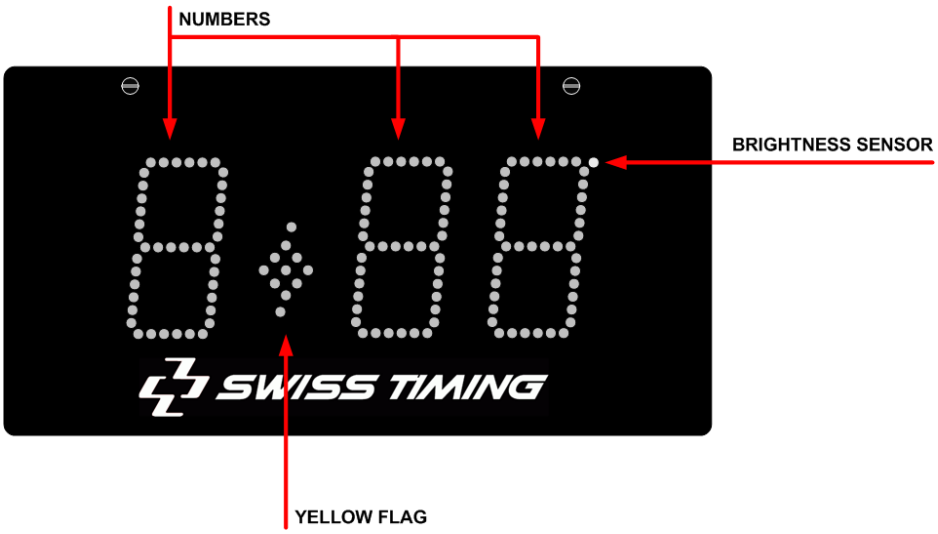


Figure 1 – Listo front view

		Description
NUMBERS		Indication of the concentration time (minutes – seconds)
YELLOW FLAG		Indication of the yellow flag
		Indication of the minutes / seconds separation
BRIG. SENSOR		Location of the brightness sensor

1.2.2 Connections

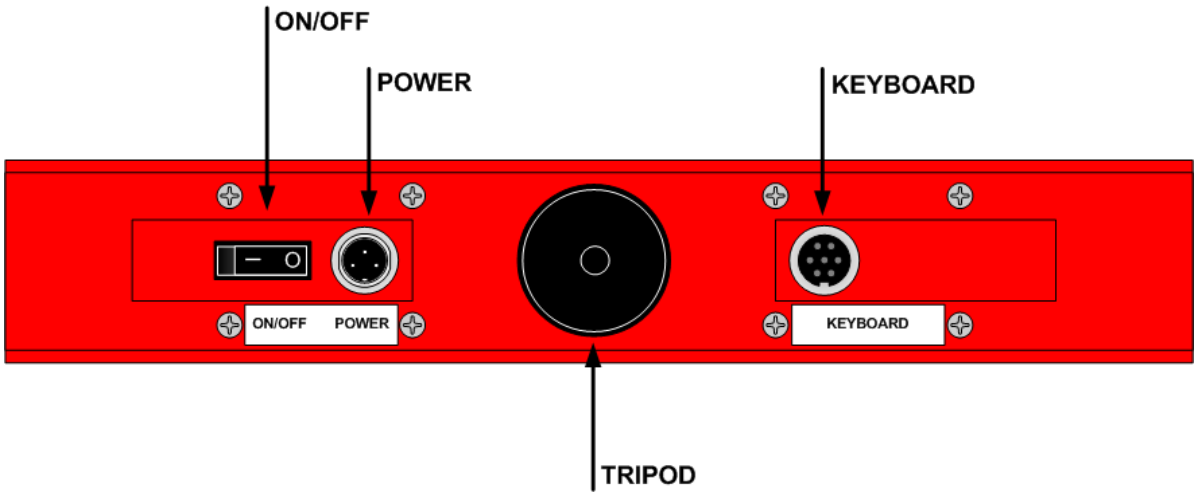


Figure 2 – Listo bottom view

	Description
ON/OFF	On / Off switch
POWER	Battery charger connection
KEYBOARD	Keyboard connection
TRIPOD	Tripod fixing

3406.722	LISTO 920 concentration clock

1.2.3 Installation Instruction

The LISTO can be installed on a tripod (3/8" UNC thread) or placed on a table. For installation on a tripod, a ‘hot-shoe’ fixing (option) can be used.

1.2.4 Keyboard

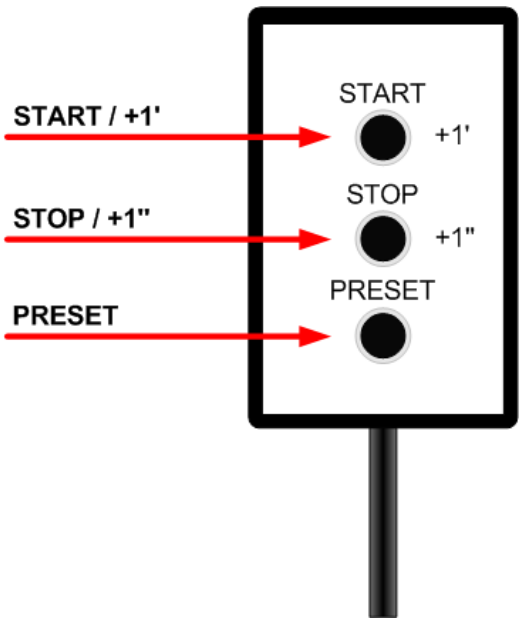


Figure 3 - Keyboard

	Description
START / +1'	Start the countdown / Set up the minutes in the *Programming mode*
STOP / +1"	Stop the countdown / Set up the seconds in the *Programming mode*
PRESET	Reset the countdown clock / Selection of the *Programming mode*

3406.721 LISTO 920 Keyboard

2 GETTING STARTED

2.1 Charging the battery

A battery charger can be plugged to **POWER** connector. The LISTO doesn't need to be switched on for charging to take place, but it is possible to charge the LISTO during its use. The charger also acts as external power when the LISTO is in use. If the LISTO is switched off and the battery is completely discharged, a complete charge lasts about 7 hours.

2.2 Power up

The LISTO switch on when the **ON/OFF** button is in the 'I' position.
The LISTO indicates the defined countdown and is set to **1 minute** by default.
This value can be changed in the *Programming mode* (see chapter 2.3)

Figure 4 – Indication at power up

2.3 Countdown configuration (Programming mode)

The configuration of the countdown can be done connecting the keyboard to the **KEYBOARD** connector.

The *Programming mode* is on while holding the **PRESET** button until appears then releasing it.

After the *Programming mode* appears, you will able to change the countdown time.

Example : Changing from 1 minute to 2 minute 50 seconds

The minutes of the countdown can be increased by pressing the **START** button.
This value can be set from 0 to 9 minutes.

Figure 5 – Increasing the minutes

The seconds of the countdown can be increased by pressing the **STOP** button.
This value can be set from 0 to 59 seconds.

Figure 6 – Increasing the seconds

The storage of the value is done while holding the **PRESET** button until appears then releasing it.

2.4 Yellow flag configuration

The configuration of the yellow flag can be changed unscrewing the LISTO front panel.

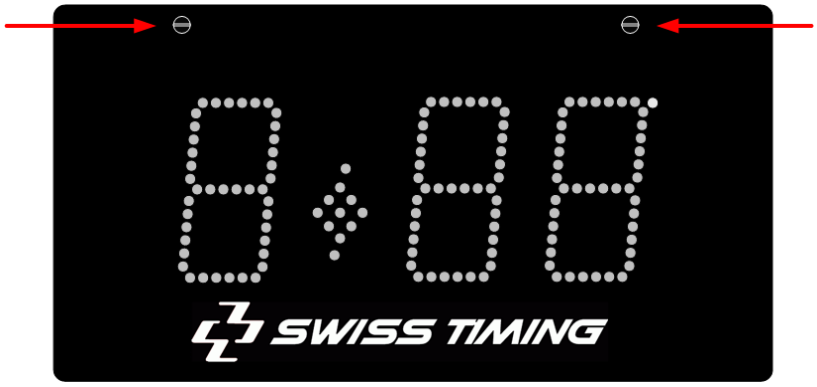
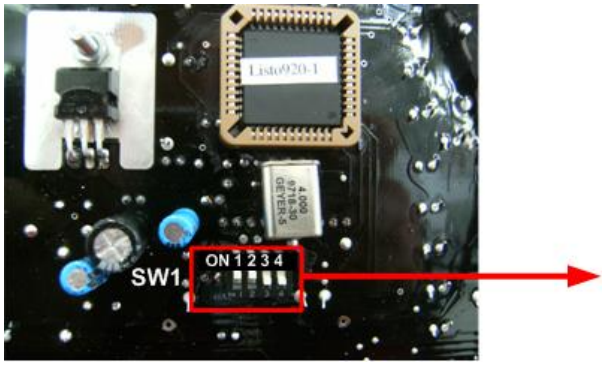


Figure 7 – Opening the front panel

The value can be set using the **SW1** pins 1,2,3 located on the PCB (see picture below)

By default, the yellow flag is set to **15 seconds**.



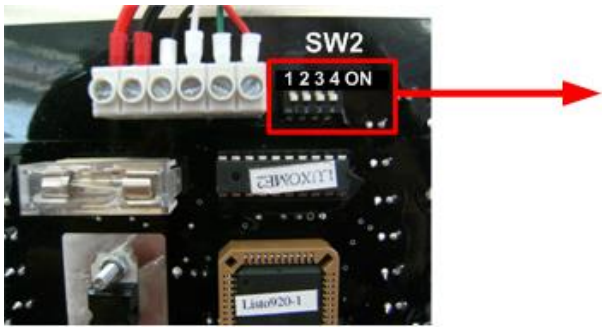
	SW1			
Seconds	1	2	3	4
5	ON	OFF	OFF	OFF
10	OFF	ON	OFF	OFF
15	**ON**	**ON**	**OFF**	**OFF**
20	OFF	OFF	ON	OFF
25	ON	OFF	ON	OFF
30	OFF	ON	ON	OFF
35	ON	ON	ON	OFF

Figure 8 – Yellow flag configuration

2.5 Brightness level

The brightness of the display can be set manually using the **SW2.**

By default, the brightness is set to **AUTO**.



Brightness Level	SW2			
	1	2	3	4
AUTO	**OFF**	**OFF**	**OFF**	**OFF**
LOW	ON	OFF	OFF	OFF
….	ON	ON	OFF	OFF
….	ON	ON	ON	OFF
….	ON	OFF	ON	OFF
….	ON	OFF	OFF	ON
HIGH	ON	ON	ON	ON

Figure 9 – Brightness

3 OPERATION

3.1 Connecting the installation

Connections have to be made at the bottom of the LISTO.

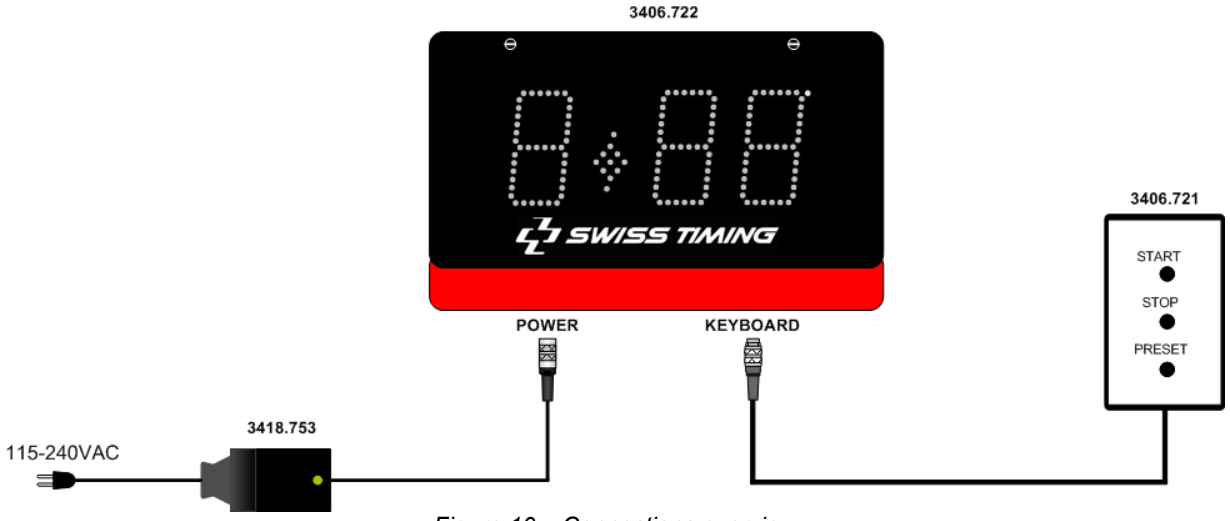


Figure 10 – Connections overview

3.2 Start to countdown

1. Connecting the installation according *Figure 10.*
2. Press the **START** button on the keyboard, the countdown starts.
3. To stop the countdown, press the **STOP** button on the keyboard.
4. When the countdown is below or equal the configured yellow flag (see chapter 2.4), the yellow flag appears on the display.

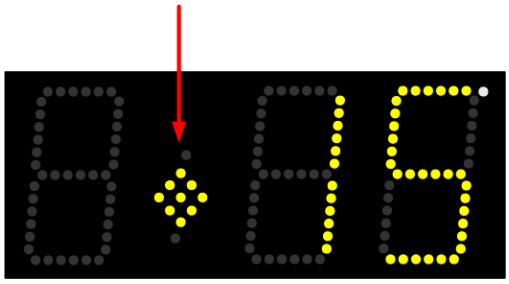


Figure 11 – Yellow flag

5. To reset the countdown, press the **PRESET** button on the keyboard.

4 ELECTRICAL PROPERTIES

4.1 Power supply

The LISTO contains two 6V PB batteries. For the recharge, only use the charger provided (universal entry 100 to 240VAC, 50-60Hz).

4.2 LISTO Connectors pinning

Connector	*Pinning*
POWER 3PMT DIN	1 : +12 VDC 2 : NC 3 : GND
KEYBOARD 7PFT DIN	1 : Common 2 : Start 3 : Stop 4 : Preset 5 : NC 6 : NC 7 : NC

5 PROPERTIES

5.1 LISTO Technical Features

Dimensions (without tripod): 460 x 270 x 95 mm
Weight of LISTO 920: 5.8 kg
Operating temperature: -15ºC to +45ºC

Autonomy of the internal battery at 25°C:

Brightness Level	AUTO	LOW	HIGH
LISTO 920	15 Hours	15 Hours	10 hours

5.2 LISTO keyboard Technical Features

Dimensions (without cable): 55 x 90 x 23 mm
Weight: 320 g
Cable length: 5 m

6 STORAGE & MAINTENANCE

6.1.1 Test mode

The *Test mode* is switch on when the **SW1** pin 4 is in the 'ON' position.

On the display, all the dots blink simultaneously.

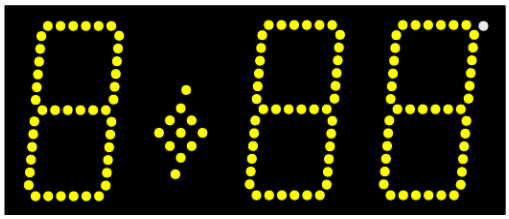


Figure 12 – Test mode

7 SUMMARY OF IAAF RULES

This is a summary of IAAF rules for concentration time in athletics. It refers to the "IAAF Competition Rules 2004 – 2005" handbook. Please check on the http://www.iaaf.org web-site for rules change.

Rule 180.17:

An athlete in a field event who unreasonably delays making a trial, renders himself liable to have that trial disallowed and recorded as a failure. It is a matter for the Referee to decide, having regard to all the circumstances, what is an unreasonable delay.
The official responsible shall indicate to an athlete that all is ready for the trial to begin, and the period allowed for this trial shall commence from that moment. If an athlete subsequently decides not to attempt a trial, it shall be considered a failure once that period allowed for the trial has elapsed.
For the Pole Vault, the time shall begin when the uprights have been adjusted according to the previous wishes of the athlete. No additional time will be allowed for further adjustment.
If the time allowed elapses once an athlete has started his trial, that trial should not be disallowed.
The following times should not normally be exceeded:

Individual Event

Number of athletes left in the competition	High Jump	Pole Vault	Other
More than 3	1min	1min	1min
2 or 3	1.5min	2min	1min
1	3min	5min	-
Consecutive trials	2min	3min	2min

Combined Events

Number of athletes left in the competition	High Jump	Pole Vault	Other
More than 3	1min	1min	1min
2 or 3	1.5min	2min	1min
1	2min*	3min*	-
Consecutive trials	2min	3min	2min

* When there is only one athlete left, the mentioned times will be followed in the first trial only if the previous trial was made by the same athlete.

Note: a clock which shows the remaining time allowed should be visible to an athlete. In addition, an official shall raise and keep raised a yellow flag, or otherwise indicate, for the final 15 seconds remaining of the time allowed.

8 APPENDIX

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8.3 Version history

Version	Date	Modifications since last version
1.0	18/04/12	Initial version (3406.720)
2.0	04/06/12	LISTO new model (3406.722)

NOTES

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