SWISS TIMING

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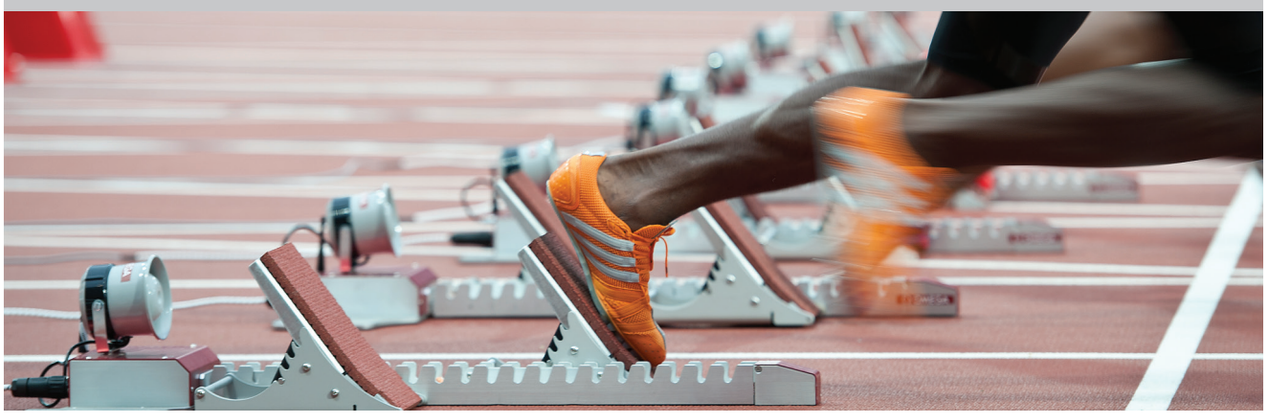

ATHLETICS SALES CONSULTING

Overview

Swiss Timing provides an unsurpassed range of products and services for ATHLETICS, including timing & scoring devices, in full compliance with the International Association of Athletics Federations (IAAF).

This consulting document explains the high standards required for the configuration of the installations of timing equipment ensuring precision a hundredth of a second!

TRUST SWISS TIMING!

Athletics has been on the Olympic programme ever since the first edition of the modern Olympic Games in 1896. Public and media interest is stimulated by timing and measurement. Whenever there is a chance that a record will be broken, excitement reaches its peak. These events thus attract the most spectators and TV viewers. Athletics is among the most popular sports by far.

Athletics consists of track and field events. The first is composed of sprints (with or without hurdles), and medium- and long-distance races including steeple chase, whereas field events include high, long and triple jumps, pole vault, shot put, discus and javelin throw.

MAIN INNOVATIONS IN ATHLETICS SPORTS

1948 At the London Olympic Games, OMEGA introduced its photoelectric cells which stopped the clock at the exact moment a runner crossed the finish line, and a year later the Racend OMEGA Timer - integrating photoelectric technology and a slit photofinish camera - changed timekeeping for good.

1968 "Integrated timing", which provided statistical analysis with results being fed to judges, coaches and the media, was introduced. The same year saw the birth of the photo printer which also contributed to the rapid and wide distribution of results. Modern sports timekeeping had come of age.

1984 At the Los Angeles Olympic Games, OMEGA introduced colour photofinish images whose paper prints signed by the athletes became instant collectors' items. False start detectors were also introduced in the same year.

1995 The Scan'O'Vision images were, for the first time, in colour. ARES – the Automatic Recording Evaluation System or Advanced Results Entry Station – fused chronometry wand information technology.

2000 OMEGA's on-screen graphics made it possible in some sports for TV viewers at home to see a "virtual record line" that indicated how close the competitors were to world records. .

2004 The new Chronos timer brought an unparalleled level of accuracy to sports timekeeping.

2008 In distance running events, athletes had integrated bib transponders, a development that made it easy to keep track of their positions throughout the race. The Scan'O'Vision continued to evolve. The new edition, Star, recorded 2,000 frames per second.

2011 New starting blocks for athletic events included force sensors that continually measure an athlete's thrust force, improving false start detection.

2016 Rio 2016 Olympic Games' outstanding innovations included athletic photocells composed of four cells instead of two. The Athletic False Start Detection System was enhanced with built-in sensors that measure force against the footrest. The upgraded edition of the Scan'O'Vision, the MYRIA, can now take up to 10,000 images per second.

VALUABLE PARTNERSHIP WITH IAAF

Swiss Timing is very proud of its relationships with the main International Sports Federations and especially with the IAAF. Swiss Timing's and OMEGA's commitment to athletics timing reflects their dedication to innovation. Both have indeed been key partners to the IAAF for many years already, thus enhancing the development of new timing systems.

It is essential to mention that, in addition to athletics systems, Swiss Timing also provides services such as timing and scoring, on-venue results and broadcast solutions for major sporting events throughout the world. Today, Swiss Timing is composed of more than 400 employees spread over three companies located in Europe.

More information at **www.swisstiming.com**

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REFERENCES

		EVENTS SERVICED BY SWISS TIMING	T&S*	OVR**	TV GRAPHICS	VIRTUAL GRAPHICS	CIS***	WEB APP
ATHLETICS	IOC	SUMMER OLYMPIC GAMES	●	●	●	●		
		SUMMER YOUTH OLYMPIC GAMES	●	●	●	●	●	
	IPC	SUMMER PARALYMPIC GAMES	●	●	●	●		
	FISU	SUMMER UNIVERSIADE	●	●	●	●	●	
	OCA	ASIAN GAMES	●	●	●	●	●	
		PARA ASIAN GAMES	●	●	●	●	●	
	CGF	COMMONWEALTH GAMES	●	●	●	●	●	
	IAAF	GOLDEN LEAGUE	●	●	●	●	●	●
		DIAMOND LEAGUE	●	●	●	●	●	●
		GRAND PRIX	●	●	●	●	●	
	EAA	EUROPEAN CHAMPIONSHIPS	●	●	●	●	●	●
		EUROPEAN INDOOR CHAMPIONSHIPS	●	●	●	●	●	●
	PASO	PANAMERICAN GAMES	●	●	●	●		
	EOC	EUROPEAN GAMES	●	●	●	●	●	
MARATHON	IOC	SUMMER OLYMPIC GAMES	●	●	●			
	IPC	SUMMER PARALYMPIC GAMES	●	●	●			
	FISU	SUMMER UNIVERSIADE	●	●	●			
	OCA	ASIAN GAMES	●	●	●		●	
	CGF	COMMONWEALTH GAMES	●	●	●			
	EAA	EUROPEAN CHAMPIONSHIPS	●	●	●		●	
WALK	IOC	SUMMER OLYMPIC GAMES	●	●	●			
	IPC	SUMMER PARALYMPIC GAMES	●	●	●			
	FISU	SUMMER UNIVERSIADE	●	●	●			
	OCA	ASIAN GAMES	●	●	●			
	CGF	COMMONWEALTH GAMES	●	●	●			
	EAA	EUROPEAN CHAMPIONSHIPS	●	●	●		●	
	PASO	PANAMERICAN GAMES	●	●	●			

* T&S: Timing & Scoring
** OVR: On-Venue Results
*** CIS: Commentator Information System

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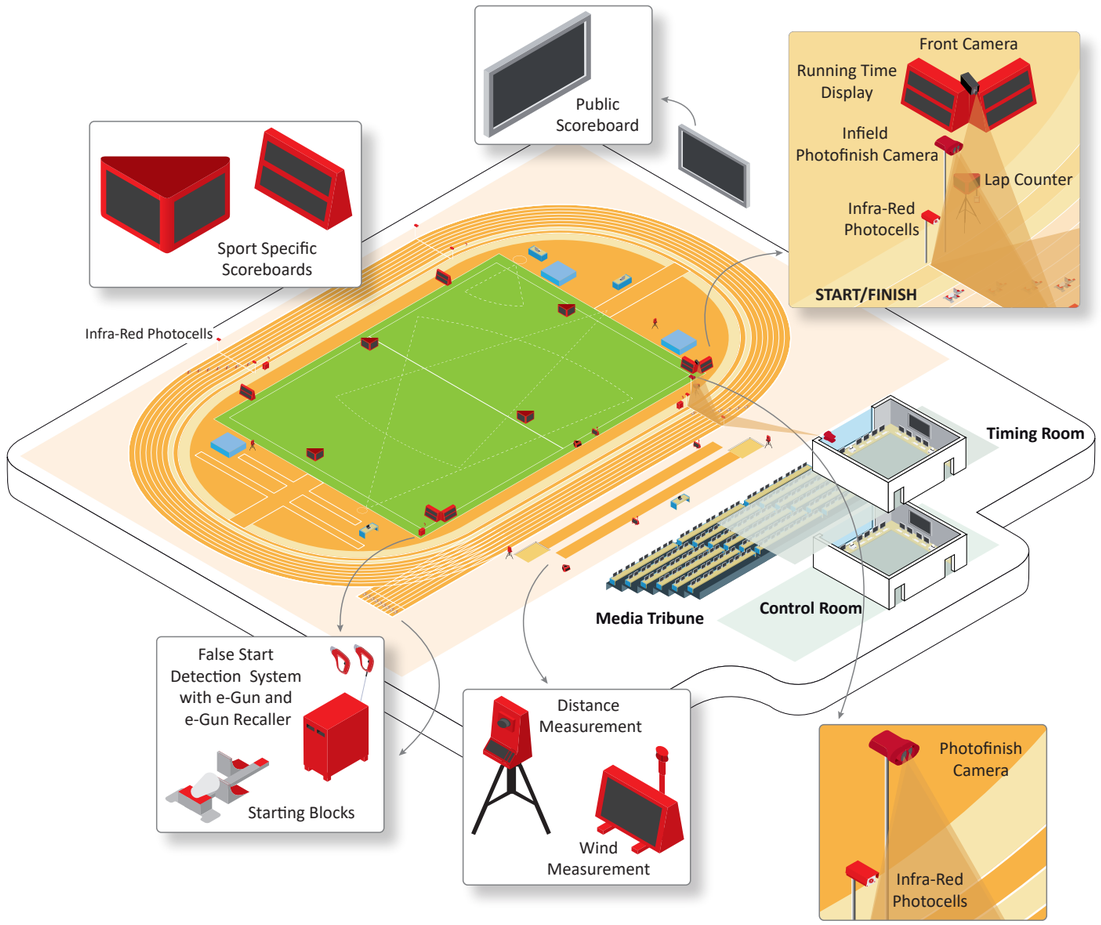
CHOOSE THE BEST EQUIPMENT

CONTROL ROOM SPECIFICATIONS

- Lockable room
- (indoor) temperature: 20-23°
- Power supply: 110/240V 50-60Hz



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SCAN'O'VISION MYRIA CAMERA

KEY PRODUCT

TOP FEATURES

- High resolution with all acquisition speeds
- Exclusive patented Spatial Alignment System
- 2D image for easier camera alignment
- One Ethernet cable for camera control, image transmission and power
- Photofinish template generator
- Automatic control of the HD Front Camera
- Integrated zoom lens, fully remote controlled

The **Scan'O'Vision Myria camera** measures the times at the finish line in thousandths of seconds. It takes up to 10,000 shots per second at a high resolution of 2,048 pixel vertical lines, and the corresponding time is displayed on each picture.

The exclusive patented Spatial Alignment System allows the camera to be easily aligned on any finish line. The Myria camera is self-contained. The computer connection is made through a standard Ethernet (1Gb/s) cable; the camera has connections to the track (start, ready and finish).

SCAIDER FRONT CAMERA

KEY PRODUCT

TOP FEATURES

- Easier photofinish judging
- Quick identification of the athletes' bibs
- Background recording. Images available before the end of the race
- Perfect integration with the OSV STAR photofinish camera
- Full HD pictures
- Power Over Ethernet (POE): only 1 cable needed

The **Scaider** Camera HD brings valuable help for judging photofinish images. It makes it possible to write the finish protocol and to get live confirmation of the athlete's identity by showing the athlete's front bib by clicking on his/her chest in the Scan'O'Vision software.

It is synchronised with the Photofinish clock and shoots front Full HD pictures of the athletes at 25 images/s.

Its powerful integrated 12x zoom lens allows it to be placed 10m behind the finish line for the best angle and the sharpest pictures when reading the bibs. The power is transmitted through the Ethernet cable from the control room.

ASC3 - FALSE START DETECTION SYSTEM

KEY PRODUCT

TOP FEATURES

- Suitable for all competition levels
- Monitor up to 10 lanes simultaneously
- Acoustic signal in case of false start
- Force curve display for each lane
- Electronic starting system - E-gun – included

Start monitoring systems are used for athletics events, especially during major competitions. The **ASC3** is suitable for all levels of athletics. It enables up to 10 lanes to be monitored simultaneously.

The starting block sensors take into account the physiological response time, i.e. the time elapsed between the starting signal and the thrust of the athlete's foot against the starting block. The system memorizes and prints the reaction times occurring in the interval of 0.3 second before and 0.7 second after the starting gunshot. Each athlete's force curve is displayed on the computer screen and can be zoomed for deeper analysis.

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In the event of a false start, an acoustic signal is transmitted by the central station to the starter's headphones and to the starting block loudspeakers. Online data transfer is made possible via a RS422 serial line to a data handling unit and a Scan'O'Vision camera.

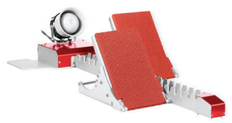
The instructions given by the starter are amplified and easily understood by the athletes through their individual loudspeakers. With its handle and wheels, ASC3 is easily movable between the different start positions.

STARTING BLOCK

TOP FEATURES

- Integrated loudspeaker
- Adjustable footrest for optimal stability
- IAAF Certified Product

These sturdy **starting blocks**, made of aluminium and stainless steel, feature an extra-large non-slip adjustable footrest for optimal stability, fully assisting the athlete's performance. The loudspeaker transmits the starter's instructions, the gunshot, and the possible false start signal. The distance between a runner's feet, as well as the foot's starting angle can be freely adjusted.
The footrest angle can be adjusted to four positions between 55° and 73°. The footrest can be moved horizontally within 16 positions spaced of 35.5 mm giving a maximum distance of 502.5 mm between the front and back feet.



STARTTIME V WITH E-GUN

KEY PRODUCT

TOP FEATURES

- Integrated and extra luminous flash
- Menu-driven setup through LCD and keypad
- Built-in high fidelity loudspeaker and amplifier
- User friendly

The **StartTime V** is the ideal solution to manage the starting process of athletics events. This starting device combines Swiss Timing's most innovative technologies and the latest safety standards.

The setup of the StartTime V can be modified by a multifunction LCD display. It also features an enhanced internal amplifier, a keypad to select the various setup possibilities, a high fidelity loudspeaker and an integrated optical flash.

A line out allows optional loudspeakers to be connected, which deliver the start signal simultaneously – and as close as possible – to each athlete. A microphone unit enables the starter to give the start signal while amplifying all the verbal commands. The main function of the StartTime V is to generate a signal to start the race.

WIRELESS EGUN RECALLER

The **Wireless eGun-Recaller** is the new generation flash gun to signal the recall of the false start. The race start is activated by the eGun starting system and the eGun-Recaller can be triggered in case of a false start. A sound and a flash are then emitted from the gun. Three devices can be used simultaneously.

ARGES PHOTOCELLS

The **Arges Photocell** consists of a transmitter and a reflector unit. The transmitter produces an infrared beam that is reflected on the photocell reflector, which serves as a mirror when correctly aligned opposite.

TOP FEATURES

- Distance between cell and reflector up to 30 m
- 2 non-polarized output contacts
- Normally open/Normally closed contact selector

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Anything or anyone that crosses the field of the beam creates an interruption which is instantly reported to a timing device that meets the International Sport Federations standards. The Arges Reflex Photocell allows a simple and constant monitoring of the cell alignment. The Arges also features a completely accessible DIL switch panel on the side of the photocell allowing users to choose from the many operating modes and options. It is a highly precise and reliable timing device even in extreme meteorological conditions and temperatures.

LAP COUNTER

TOP FEATURES

- 360° visibility
- Automatic adjustment to ambient luminosity
- High stability

This Lap Counter features a modern design with three faces, each showing three digits, and offers the ability to display 0 to 199 or 999 depending on the model.

This makes the display visible from almost 360 degrees, and at distances of up to 130 meters. Each digit is composed of 150 amber LEDs, the luminosity of which automatically adjusts to ambient light conditions thanks to an integrated sensor. The "Last Lap" bell is specially cast with Swiss Timing branding.

This interface provides access, thanks to its keypad and LCD, to various integrated programs, and to the lap countdown commands in a very simple and intuitive way.

The Lap Counter is provided with a 5-legged tubular support, adjustable in height and ensuring great stability. It is equipped with three hooks, allowing the hanging of the optional "Last Lap" bell with Swiss Timing branding.

BOREAS CONCENTRATION CLOCK AND WIND GAUGE

TOP FEATURES

- Ultrasonic wind gauge function (option)
- Temperature and lap counter display
- Internal battery (up to 8 hours)
- Automatic or manual brightness adjustment

The **Boreas** displays a concentration clock, the ambient temperature and, when connected to a Sirocco wind gauge, the wind speed.

When it is connected to a Scan'O'Vision photofinish camera, the wind speed can be measured and displayed (without a field operator). The Boreas can also be used as a lap counter, which makes it a real all-in-one compact field display.

The Boreas 150DS has 16 cm digits with extra bright LEDs (viewing distance up to 80 m), while the Boreas 250 has extra-large 26 cm digits (viewing distance up to 130 m). A light sensor automatically adapts the display brightness to the ambient light conditions to provide optimum readability.

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MISTRAL INTEGRATED WIND GAUGE

TOP FEATURES

- Ultrasonic wind gauge
- Compact & self-contained, internal battery
- 360° sensitivity
- Adjustable height

The **Mistral** consists of an ultrasonic wind sensor and an LED display with 25 cm-high digits for an outstanding viewing range of up to 125 meters. The LED brightness automatically adapts to the ambient light thanks to a sensor.

This device provides wind speed data through a RS422 serial line, or through an optional Bluetooth link, for use by external devices such as a Scan'O'Vision STAR camera. Mistral offers full compliance with the requirements of the relevant sport regulations at the highest levels of competition. Compact and self-contained, Mistral offers consistent performance throughout its life with no loss of accuracy, thanks to the absence of moving parts in its ultrasonic, omnidirectional sensor head. In compliance with the IAAF regulations for athletics competitions, it can be precisely positioned at a height of 1.22 meters above the ground. Thanks to these advanced features, Mistral provides accurate results in all weather conditions.

EDM - ELECTRONIC DISTANCE MEASUREMENT SYSTEM

TOP FEATURES

- Usable in all weather conditions
- Automatic adjustment to ambient luminosity

The **EDM** allows various distance measurements including javelin, discus, hammer throw, shot put, pole vault, long jump and triple jump.

Electronic distance measurement equipment presents many advantages: it eliminates subjective influences on the result; it offers a high level of accuracy; it is insensitive to environmental conditions like rain, wind and lighting; and the measured results are directly transferred to the competition's computer.

MARATHON CLOCK

TOP FEATURES

- High-quality system from a well-known manufacturer
- Reliable, high-accuracy measurements
- Easy to operate, intuitive interface

The **Marathon clock** has a numeric display using seven segment amber LED digits. This device is controlled by PowerTime.

ATHLETICS SCOREBOARDS

OIN5 ATHLETICS FIELD DISPLAY

KEY PRODUCT

TOP FEATURES

- Fully integrated with OMEGA SCAN'O'VISION STAR transmission protocol
- Outdoor use
- Excellent visibility over long distances
- Triangular displays ensuring 360° view
- Optional new Track & Field Package (TFP) for field event display management

The **OIN5** is a full-colour matrix scoreboard dedicated to outdoor use. This scoreboard permanently displays the names of the athletes before each attempt, and shows the results once they have been measured. Depending on the software used to control the display, a variety of information can be displayed, such as: attempt number, wind speed, athletes bib number, the concentration clock, as well as free text or advertising information.

Three units can be combined to form a triangular display ensuring a 360° view. The scoreboard automatically adapts the brightness to the ambient light conditions.

TFP Athletics Field Software Package

The Track & Field Package (TFP) option is the display management software that drives the OIN5. This user-friendly software has been developed to control the display of information during track & field competitions. After entering the starting list, the software automatically calls the athletes by displaying their names, bib number, country flag, and starting position. After each attempt, it displays the updated rank and result. A starting list and a result list can be printed out any time official results are required. In compliance with IAAF rules, the TFP is able to handle a range of field contests such as high jump, pole vault, long jump, triple jump, shot put, discus, hammer or javelin. The TFP software can also be linked to EDM and to MISTRAL or BOREAS devices.

GEMINI

TOP FEATURES

- Viewing distance up to 120 m
- 6 or 9 digits - 12 alphanumeric characters
- Optimized contrast and brightness
- Indoor and outdoor use
- Full compliance with Swiss Timing devices

The **Gemini** scoreboards are available in modules of 6 digits, 9 digit or 12 alphanumeric characters. It incorporates extra-large LED arrays and is designed for indoor as well as outdoor use. It can be wall-mounted, installed on optional legs or mounted between two posts.

A wireless Bluetooth interface (Bluelink) for secure transmission is available as an option as well. Full compliance is guaranteed with other Swiss Timing devices for sports such as athletics, cycling, speed skating and equestrian events.

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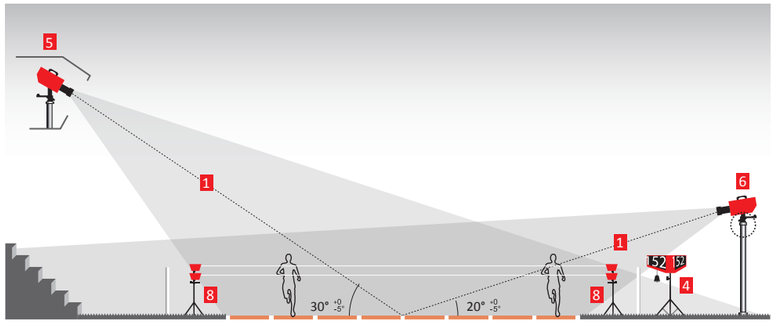
THE FINISH LINE - FRONT AND TOP SCHEMATICS



1. The visual field of the photofinish camera. The best contrast is obtained with a white background. As the camera only perceives the finish line as a vertical line, a non-reflective white strip is applied along the finish line and further to fully cover the visual field of the camera. It is completed by a 50 mm wide white post placed behind the photocells.

2. The running time display.

3. The finish line. It is 50 mm wide as per IAAF specifications. The photofinish camera lines up on the first 25 mm. The lane's positions are easily identified on the photofinish picture thanks to the black tape markers set between each lane division. Lanes 4 & 5 are specially identified with 2 black tape markers indicating the centre of the picture.

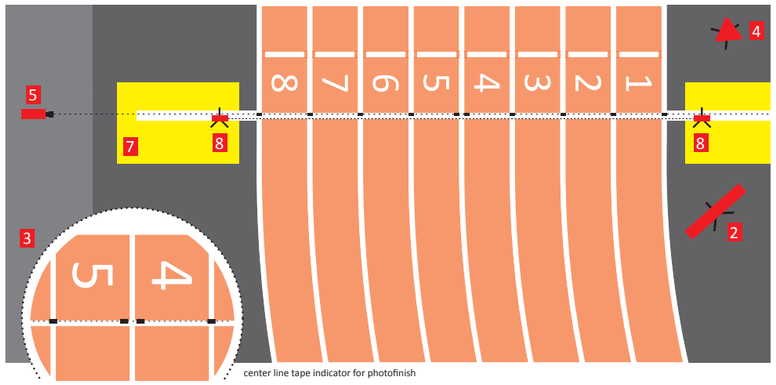
4. The three-sided lap counter displaying the laps countdown. Also used to hang the bell signalling an event's final lap.

5. The main photofinish camera. It is located "outfield", i.e. the stands with a perfect angle of 30° (+0° -5°).

6. The "infield" photofinish camera. It is installed on the track on a post raised between 2 and 4 meters away from the track side with an ideal angle of 20° (+0° -5°). The photofinish picture from this camera is used to judge the competitors who might be hidden in the picture from the main camera.

7. The yellow zones are restricted areas; access is not permitted to anyone – including photographers and judges – to prevent disturbance of the timing equipment.

8. The photocell pairs. In a sprint or a run, the winner is the first competitor whose torso crosses the finish line. The photoelectric cells determine precisely when some part of an athlete's body crosses the line but the photofinish image will be the conclusive proof of the result.



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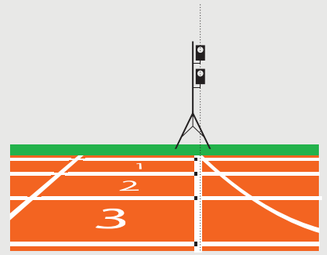
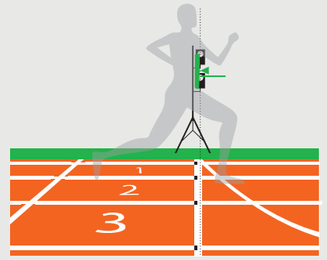
INSTALLATION OF THE PHOTOCELLS ON THE FINISH LINE

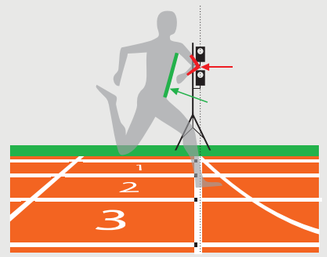
Two pairs of photocells are used in order to prevent false triggering (e.g. athlete's hands or insects). Both must be triggered to validate the signal. The cells line has to be shifted slightly "after" the visual field of the cameras; otherwise, a continuous line would appear on the picture. The preferred timing reference is the camera picture, not the photocells, meaning that the camera must be positioned first. This is also why the timing provided by the photocells must be corrected according to the timing provided by the cameras.



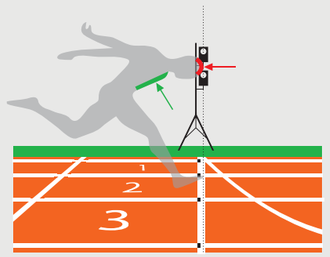
In this picture, the athlete crosses the line in an upright position while the torso triggers the photocells. In this case, the photocell time will be the same as the photofinish reading, however, with the addition of the time represented by the difference between the cameras' and photocells' lines of sight.



The athlete crosses the line with his elbow first. The photocell time will be smaller than the one provided by the photofinish picture. The difference will be even more important in the picture below where the athlete crosses the line with his head first.



In every case, whenever a photofinish picture is available, the photocell timing must not be considered as the primary reference. Only the photofinish shows with precision the moment the athlete's torso crosses the finish line, as this factor always confirms the winner.



Swiss Timing LTD
P.O. Box 138, Rue de l'Envers 1
CH-2606 Corgémont - Switzerland

Phone +41 32 488 36 11
info@swisstiming. com
www.swisstiming.com

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