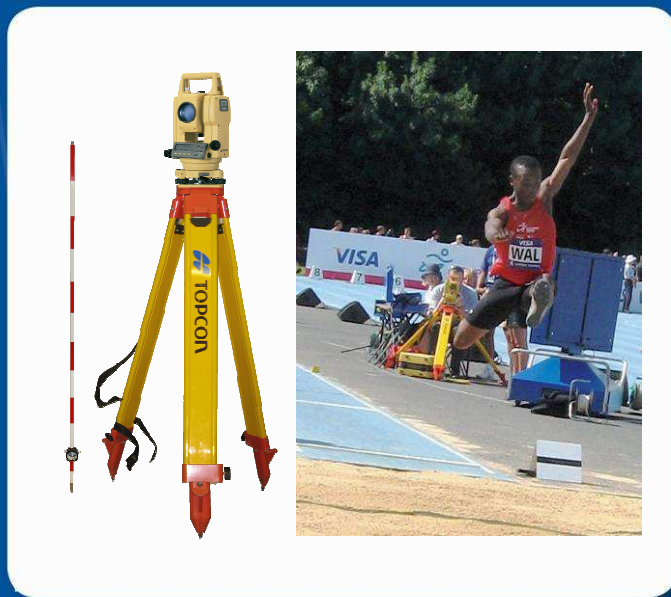


Laser Distance and Height Measurement



SPORT TIMING SYSTEMS



TimeTronics NV
Lammerdries-Oost 23B
B-2250 Olen, Belgium

www.timetronics.be - info@timetronics.be

Electronic 'Laser' Distance Measurement for athletic events such as javelin, shot put, hammer-throwing, discus, triple jump and long jump.

Versions:

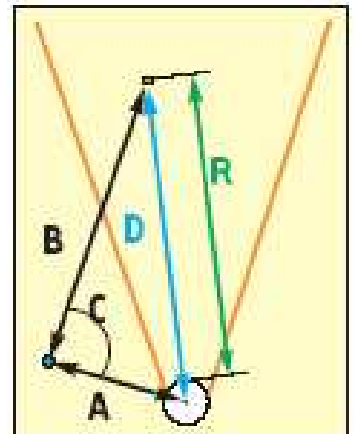


Configuration

The device is fixed on a stable tripod and is equipped with a laser beam based distance measurer and a viewfinder to focus on the reflector in the field. The latter is attached on a small pole provided with a spirit level. The distance measuring tool is linked to a mobile caddy containing an internal battery and a portable computer with Laser calculation software, or a Field Terminal. This system can directly be linked to an optional field scoreboard quickly displaying the results to the public.

Essence of Trigonometry

As portrayed on the schematic representation, first (before the start of the event), the distance between the centre of the throwing platform and the position of the measuring equipment is calculated (A). After the Athlete's attempt, both the distance between the point of impact and the equipment (B) and the angle towards the centre of the throwing platform (C) are measured by means of the laser system. By combining these parameters, the distance between the centre of the platform and the point of impact is determined (D). Finally, the resulting distance (R) is calculated.



Before the start of any event, one or two reference points are measured to "calibrate" the laser equipment. One point can be the centre of the discus circle, two points are used to locate the zero-line of the long jump take-off board.



Economical positioning solution in a rugged, durable and waterproof package.



Laser system and accessories



Telescope	
Length	150 Millimeters
Objective Lens Diameter	45mm (EDM:50mm)
Magnification	30x
Image	Erect
Field of View	1°30
Resolve Power	3 "
Min. Focus Distance	1.3 meters
Measurement Range	
1 Prism	6500 ft, 2000 meters
3 Prism	8800 ft, 2700 meters
Measuring Accuracy	
Prism Mode	±(2mm + 2ppm x D)m.s.e. fine, N/A
measurement time	1mm: 1.2sec. (Initial 4sec.) fine, 0.2sec. (Initial 3sec.) coarse, N/A
Angle Measurement	
Method	Absolute Reading
Detection	2 horizontal, 1 vertical
Minimum reading	N/A, 1/5 mgon
Tilt Correction	
Type	Single Axis
Method	Liquid surface reflective profile sensor reading type
Compensating Range	±3'
Correction Unit	1 arc sec, N/A
Computer Unit	
Display	2 screen, dot matrix graphic LCD display
Power	
approximate battery life	9 including distance measurement, 40 Angle measurement only

