EPSON

Printing Timer

September 1963

Model I
Accuracy: 2 x 10^{-6}
Reading accuracy: 0.002 sec.
Range of continuous printing: 9 hours 59 minutes 59 seconds 99
Interval in continuous printing: 0.02 sec.
Input terminal: Start, finish
Output terminal: Photo-finish use (1), Large clock for spectator use (1)
Power: AC 100V, DC 12V (10 hours)

Product Features

The Printing Timer was an electronic recording system for sports events that combined a time measurement mechanism (time counter) with a time printing mechanism (printing mechanism). Linked to a pistol, phototube, and photo-finish equipment, the printing timer was able to automatically time events from start to finish. Moreover, it revolutionized time-keeping, as it was able to print the record simultaneously. It captured many great records, mainly in track and field, rowing, horseracing, swimming, cycling, and other events where it was difficult to make judgments using the naked eye or a stopwatch.

A highly accurate quartz clock was used in the time counter of the Model I, which Epson was developing at the time. The time counter received an electronic time signal from the crystal oscillator and would start a mechanical counter when it received a start signal. When a lap or finish signal came, an electromagnetic hammer would go into action and the time printing mechanism would print the time to the nearest one 0.01 second (though the timer was actually measuring down to the nearest 0.001 second). The ranking, course, and number of laps were also printed onto the internal paper roll. The first three columns of the record paper displayed the number of the record. From the next column the hours, minutes, seconds, 1/10 seconds, and 1/100 seconds were displayed. Event staff and referees could also judge times to within 1/1000 of a second by counting the number of dots printed in the right-end column of the paper. Moreover, these devices could also be linked to large clocks for the sake of the spectators. The merits of this were demonstrated at sports events held throughout the world, including at the Tokyo Olympics.

The Seiko group (including Epson*) developed a variety of printing timers whose time counters and printing mechanisms differed according to the event in which they were used. Epson went on to develop similar printing timers for subsequent sporting events.

Background

When Tokyo was selected to host the first Olympic Games to be held in Asia, the Seiko Group was named the official timer. The company began preparing for this role by developing new timing devices. Committed to developing a more advanced timekeeping device, the Seiko Group used all its might to develop new products. The development of a printing timer was jointly managed by Seikosha, Daini Seikosha, and Epson. Engineers were sent to athletic games, not only within Japan but overseas as well, as the company put considerable effort into research and development. While harnessing practical knowledge of the rules and content of each sport, the printing timer was the culmination of the technology developed in the field of sports timing. This printing timer was completed in September 1963.

Impact

Epson successfully fulfilled timekeeping responsibilities at the Tokyo Olympic Games. The printing timer captured and recorded many fantastic records. One timekeeper at the event praised it, saying, "The timer is a blessing. It can measure down to the nearest 0.001 second, so it virtually eliminates the possibility of disputes due to ties." Epson went on to develop printing timers tailored to various events and received accolades at sports events held worldwide, including the Asian Games in Bangkok, the European Track and Field Championships and the Tokyo Universiade. The development of this printing timer was the catalyst for the later development of the EP-101 digital printer that, in turn, became the origin of the Epson name.

*Then known as Suwa Seikosha Co., Ltd.