SEIKO

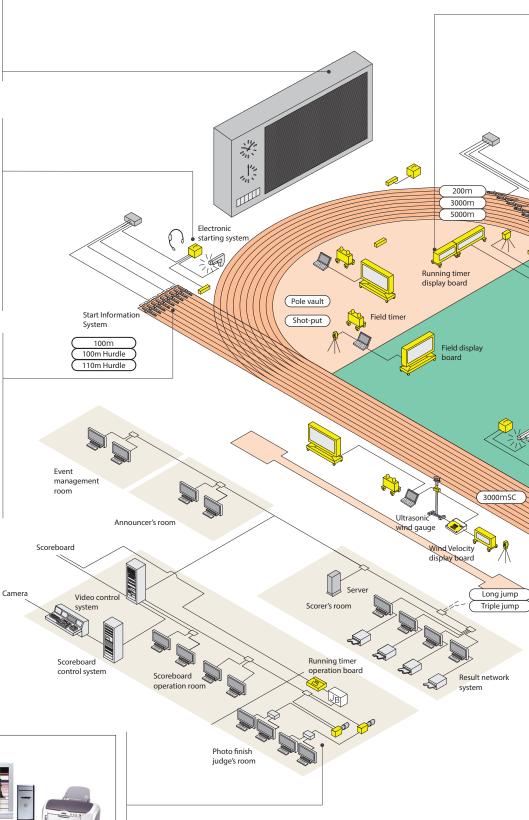# TRACK AND FIELD SYSTEMS

Catalogue

SEIKO TIME CREATION INC.

Scoreboard system

Electronic starting system
PS-1300

Start Information System
RM-200

Slit video system
2200HD Pro./5000HD Pro./10000 HD Pro.

Electronic starting system

Start Information System

100m
100m Hurdle
110m Hurdle

200m
3000m
5000m

Running timer display board

Pole vault
Shot-put
Field timer

Field display board

3000mSC

Ultrasonic wind gauge

Wind Velocity display board

Long jump
Triple jump

Event management room

Announcer's room

Scoreboard

Camera

Video control system

Scoreboard control system

Scoreboard operation room

Server

Scorer's room

Running timer operation board

Result network system

Photo finish judge's room

Running timer display board
RT-100

Wind velocity display board
WD-200

Photo beam unit
PBU-2000

Optical distance measuring equipment
DM-400

Field display board
FD-400

Field timer
FT-400

Photo beam unit

Pole vault

Ultrasonic wind gauge

Discus throw

Hammer throw

Javelin

Optical distance measuring equipment

1500m

Field display board

Running timer display board

High jump

Field timer

Lap counter

400m
800m
400m Hurdle
4×100m Relay
10000m
4×400m Relay

Ultrasonic wind gauge
WG-300

Lap counter
RD-100

SLIT VIDEO SYSTEM [2200HD PRO./5000HD PRO./10000 HD PRO.]

Developed with SEIKO's State-of-the Art Technology

PC Network to Share Picture Data (Option)

A computer network can be formed as an option by hooking up two or more computers to the Slit video system to share the picture data among them.

As a result, it is possible to check the finish order of the previous race and judge that of the current one at the same time.

In another use of the network, using one computer exclusively for capturing races and the other for judging finish order will reduce the burden of the photo finish judge.

Picture of previous race
(for checking the finish order)

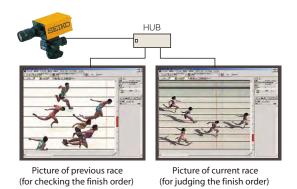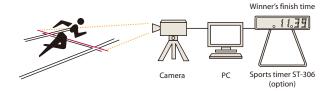Picture of current race
(for judging the finish order)

Photo Beam Function

The Slit Video System can serve the function of a photo beam unit. By using the System with a sports timer ST-306 (available as an option), the winner's finish time can be output and displayed as soon as the runner has crossed the finish line.

Winner's finish time

Camera   PC   Sports timer ST-306
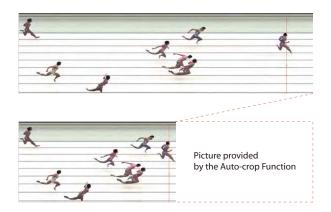(option)

Capturing During Judgement Work

Before the finish order judgment of the current race is completed, a new race can be started and capturing can be made.

Auto-Crop Function

The blank space among the runners, which is irrelevant to the finish order judgment, is cut off automatically.
 This function will facilitate the judgment process as well as slim down the size of the data to be stored in the hard disk.

Picture provided
by the Auto-crop Function

Manual Deletion Function

A part of the picture taken can be deleted selectively.   In long distance track races, for example, deleting runners one or more laps behind those finishing the race can prevent confusion in judging the finish order.
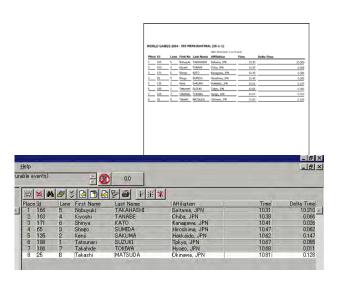
Failsafe against Accidental Timer Reset

Even if the timer is reset accidentally during an event, normal timekeeping can be resumed using the measurements preserved in memory.

Name Display Only by Inputting Bib No.

During the finish order judgment work, the name of the runner is displayed on the monitor screen only by inputting the pre-registered bib No. Resulted finish order on the screen can also be printed out.
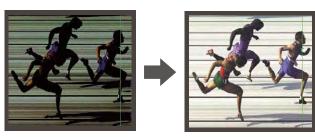

Easy Event Registration

Once the lists of event names are prepared, the registration of those names for a particular meet can be made easily by clicking them on the display. Addition of new event names can be made easily through the keyboard.

Automatic Capturing

The camera monitors the finish line all the time, automatically recognizing and capturing the runners who crossed it.
This function can eliminate mistakes in operation.
Manual capturing using a grip switch is also possible.

Remote Control of Camera's Iris

When the camera's iris needs to be adjusted urgently, in case of sudden change in the weather, for example, it can be remote controlled by the capturing PC.

Gamma Compensation Function

Gamma compensation can be carried out easily after photographing. Pictures taken in bad weather, against the sun or in an ill-lit stadium can be reproduced into distinct ones on the monitor display to facilitate the judgment process.

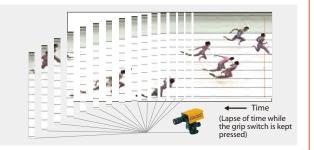Befor compensation   After compensation

The mechanism of the slit video system

Pictures taken by the Slit video system

The Slit Video system takes a digital video through a slit installed in line with the finish line at a rate of 2,000 pictures per second (when the scanning speed is set at 0.5 msec/line).
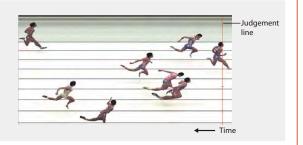
Each picture obtained covers an ultrathin vertical line which is approximately 1cm in width and 15m in length.

← Time
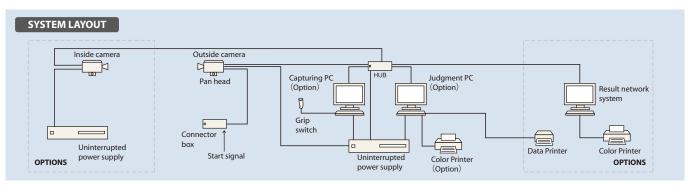(Lapse of time while the grip switch is kept pressed)

Picture shown on the monitor screen of PC

The pictures are patched together in order of the time when they were taken, and then the picture at right will be shown on the PC screen.

In the finish order judgment procedure, the finish time and order will be displayed only by aligning the judgment line with the runner's torso and pressing the enter key.

Judgement line

← Time

SYSTEM LAYOUT

Inside camera
Outside camera
Pan head
HUB
Capturing PC（Option）
Judgment PC（Option）
Result network system
Grip switch
Connector box
Start signal
OPTIONS
Uninterrupted power supply
Uninterrupted power supply
Color Printer（Option）
Data Printer
Color Printer
OPTIONS

■SPECIFICATIONS

Model No.		2200HD Pro.	5000HD Pro.	10000HD Pro.
Camera	Scannig Speed	1/2,000 sec.	1/5,000 sec.	1/10,000 sec.
	Image pickup system	Vertical scanning by CCD line sensor		
	Lens	Nikon F-mount lens		
	Power supply	AC100V～240V ±10％ 50/60Hz		
	Power consumption	300W(Max.)		
Judgment/ Capturing PC (Option)	CPU	1.60GHz or more	3.0GHz or more	
	HDD	80GB 5,400rpm or more	160GB 5,400rpm or more	
	Removable disk device	CD-RW	DVD-RW	
	Monitor output	1,024×768 pixels, 64,000 colors or more		
	Image memory	1GB or more	2GB or more	
	Continuous capturing	20,000 screens	8,000 screens	4,000 screens
	Continuous scanning	666 minites.（at scanning speed 1/1,000 sec.）in case of HDD 80GB or more		
	I/O port	Serial port, USB2.0-compliant four-terminal, RJ45 Ethernet port		
	Event registration	Choice from word bank or free keyboard input		
	Timer accuracy	1ppm(at normal temperatures)		
	Scale of image enlargement/reduction	【zoom in】2、4、8、16、32 times or more 【zoom out】1/2、1/4、1/8、1/16、1/32 times or less *arbitrarily-setting is available.		
	Monitor	LCD		
	Monitor size	15 inches or more		
	Power supply	AC100V～240V ±10％ 50/60Hz		
	Power consumption	200～400W	550W（max.）	550W（max.）
Color printer (Option)	Printing system	MACH jet		
	Full resolution	2,880×1,440dpi or more		
	Paper size	A4（max.）		
	Power supply	AC100V～240V ±10％ 50/60Hz		
	Power consumption	40W(max.)		

SYSTEM CONFIGURATIONS

Camera	1unit
Lens	1unit
Pan head	1unit
Connector box	1unit
Grip switch for capturing	1unit
Network cable	3pieces
Camera control cable	1piece
AC cable for camera	1piece
Uniterrupted power supply(for capturing PC)	1unit
HUB	1unit

OPTIONS

Capturing PC
Judgment PC
Color printer
Indoor camera stand
Outdoor camera stand(including pole)
Rain hood for camera
Data printer
Intercom
Carrying case(for camara and cables)
VDSL converter(for inside camera)

START INFORMATION SYSTEM RM-200

Measuring the Reaction Time by Sensing the Change in Pressure Applied to the Starting Block

Start Information system

When the runner takes a starting action, waveform of pressure applied on the starting block shows frequencies completely different from those at the set position. RM-200 uses an electric filter circuit to detect such frequency change and judge whether the runner has taken a starting action.

Waveform of pressure applied to the starting block at the time of start

Start pistol sound

Intensity of pressure signal

Runners starting action

Frequencies characteristic of runners start action

Time

Frequency(Hz)

Analysis of frequencies of the pressure waveform at the time of start

Electric phase detection system

RM-200 picks up the pressure change that occur only after 0.5 seconds before the start, thus eliminating the judgement error caused by the runner's warming up action.

False start signal

If a false start is detected, LED on the operation board lights up, and an audible alarm signal is given simultaneously to the starter through the headset.

Printout of the results

The reaction time of each runner and waveform indicating pressure changes can be printed out every time a start is made.

Automatic recall function

Signal output for automatic recall is also available.

Use in world's leading sporting events

Continuously improved since developed first in 1984, Start Information system has been used regularly in IAAF World Championships in Athletics starting from Rome 1987, as well as numerous other international meetings.
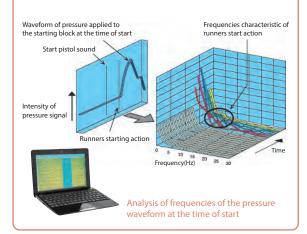
* In athletic meetings that fall under the classifications of (a) through (c) of Section 1 in Rule 12 of IAAF Constitution, use of a Start Information device is obligatory.
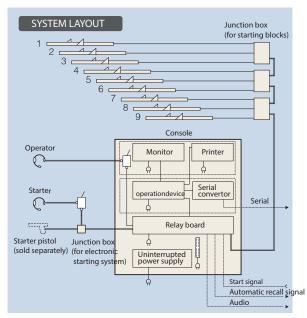
■SPECIFICATIONS

Starting block	Overall dimensions	W1,069.5 x H59 x D345 mm (excluding appendicular projections)
	Weight	Approx. 16.5 kg
Console	Overall dimensions	W730 x H1,152 x D650mm
	Weight	Approx. 65kg

SYSTEM LAYOUT

Junction box (for starting blocks)

Console

Operator

Monitor

Printer

Starter

operationdevice

Serial convertor

Serial

Relay board

Starter pistol (sold separately)

Junction box (for electronic starting system)

Uninterrupted power supply

Start signal
Automatic recall signal
Audio

SYSTEM CONFIGURATIONS

Console(included relay board, monitor, etc)	1unit
Intercom(for operator, starter)	2sets
Switch box for operator	1unit
Switch box for starter	1unit
Junction box for starter	1unit
Junction box for starting blocks	3〜7units
Starting blocks	9units
Cable for starting blocks	1set
Signal cable	1set
AC cable	1set
Roll paper	1set

OPTIONS

Rack for starting blocks	1unit

RUNNING TIMER DISPLAY BOARD   RT-100

Clear and Easy-to-Read Electromagnetic 7-Segment Type

Two measurement display modes

Minutes display mode : Measures up to 59 min. 59 sec. 99 to an accuracy of 1/100 sec. (if the measuring unit is set at 1/100)
Hours display mode : Measures up to 23 h. 59 min. 59 sec.

Double-sided display

Automatic changeover between minutes and hours display modes is possible. The current time can also be displayed.
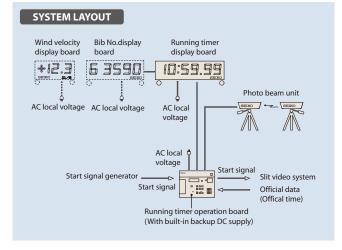
Display of a wide range of data

Running time, lap time, preset start time, countdown of a preset period of time, and current time can be displayed.

Automatic lap time display function

Upon reception of a lap signal, the lap time remains displayed for 5 sec., and then, the display returns to the running time.

SYSTEM LAYOUT

Wind velocity display board
Bib No.display board
Running timer display board

+12.3   6 3590   10:59.99

AC local voltage   AC local voltage   AC local voltage

Photo beam unit

AC local voltage

Start signal generator
Start signal

Running timer operation board
(With built-in backup DC supply)

Start signal
Slit video system
Official data (Offical time)

SYSTEM CONFIGURATIONS

Running timer display board	1unit
Running timer operation board	1unit
Photo beam unit	1set
Cable	1set
R6(size AA)dry battey	8pieces

OPTIONS

Bib No.display board	1unit

■SPECIFICATIONS

Display	Electro magnetic 7-segment type / 6 digits (yellow) Character height ... 305 mm
Power supply	AC 100〜240V
Weight	Approx. 75 kg
Enclosure	Outdoor-use drip-proof type
Operational temperature range	0℃ ~ + 50℃

RUNNING TIMER OPERATION BOARD RT-120

■ SPECIFICATIONS

Input	Start signal input ... 2 channels / Photo beam signal input ... 4 channels
External data	I/O interface ... RS232C
Output	Start signal output ... 2 channels Running time display output ... RS485 Printer output ... Centronics
Internal clock	Accuracy ... 1/1,000 sec.
Power supply	DC 12 V (Terminals are available for connection of optional external battery) R6 (size AA) dry battery, 8 pieces (for data backup)
Weight	Approx. 10 kg
Enclosure	Indoor-use type
Operational temperature range	0℃ ~ + 40℃

Data transfer
RT-120 logs measurement data sent from the photo beam units, and transfers it to respective display boards.

Control of equipments
It sets the functions of each equipment, selects and monitors the photo beam units, and controls respective display boards.

Increased operability
Combined use of the multiple ten-key pads and the function keys has made it easy to change the timer time, input bib No., adjust the current time, etc.

Two-channel LCD
The LCD alternately displays two channels of data that corresponds to the running time and bib No. displays.

DC power pack for data backup
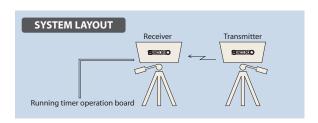RT-120 is equipped with DC power pack against power failure.

PHOTO BEAM UNIT   PBU-2000

The Photo Beam Unit consists of transmitter and receiver. When a runner passes between them, the receiver detects the interception of the beam and instantaneously outputs an electric signal for measurement and display of the time.

SYSTEM LAYOUT

Receiver   Transmitter

Running timer operation board

SYSTEM CONFIGURATIONS

Transmitter (PBU-2000TX)	1unit
Receiver (PBU-2000RX)	1unit
Signal cable	1unit
Battery*	8pieces
*Battery should be prepared by user	

OPTIONS

Tripod	2units
Storage trunk (PBU-2000TR)	1unit

■ SPECIFICATIONS

Power supply	LR6 alkaline battery or KR-AA Ni-Cd battery, 4 pieces or External battery (DC12V)
Continuous running time	Transmitter: 72 hours / Receiver: 24 hours (+25℃)
Light-emitting system	670mm (visible light・IR)
Effective distance	Max. 100m
Output signal (for receiver only)	Make contact (rated value 30V, 500mA)
Monitor	LED lighting up upon incidence of light (on the rear of the receiver)
Operational temperature range	-20℃~+50℃ (without dew condensation)
Overall dimensions	W97 x H130 x D152 mm (excluding tripod)
Weight	Approx. 1.5kg (excluding battery)
Enclosure and finish	Steel, yellow paint

ELECTRONIC STARTING SYSTEM   PS-1300

Generating Electronic Start Sound / Start Signal

Electronic gunshot sound

Electronic start sound imitating the gunshot sound eliminates the problems of a gunpowder pistol such as misfire and powder smoke.

Built-in battery

The system is powered by a built-in battery.

Pistol with a strobo light

The pistol is equipped with a strobo light, which can signal the timekeeper to start measurement.

Loudspeaker function

Being used with a headset microphone, the system can function as a loudspeaker to amplify the starter's voice.

System extension available

The system can be extended by additionally using optional loudspeakers as required.

Main unit

Starter box

Pistol

■SPECIFICATIONS

Main unit	Power supply	DC12V,17Ah Small-sized valve regulated acid batteries
	Overall dimentions	W264 x H203 x D390mm
	Weight	Approx.14.5kg
Starter box	Overall dimensions	W183 x H62 x D150mm
	Weight	Approx. 1.3kg
Pistol	Power supply	DC3V(LR06"AA" alkaline dry battery, 2pieces)
	Material	Aluminum
	Dimentions	W210 x H40 x D145mm
	Weight	Approx. 0.4 kg (excluding dry cells,cord)

LAP COUNTER RD-100

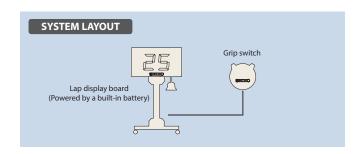## For middle and long distance track races-visible from all angles

Up to 99 laps can be set for countdown

The number of laps you have set is decremented by one with each press of the grip switch.

Operates on a built-in DC 12 V battery

Relocation of the display board can be made easily and safely.

SYSTEM LAYOUT

25

Grip switch

Lap display board
(Powered by a built-in battery)

SYSTEM CONFIGURATIONS	
Lap counter	1unit
Grip switch	1unit
Portable battery	1piece

■SPECIFICATIONS

Display	Electromagnetic 7-segment type (yellow) Character height：Approx.305mm
Power supply	AC100〜240V
Enclosure	Outdoor-use drip-proof type
Operational temperature range	−10℃〜＋50℃
Overall dimensions	W1,000×H1,800×D1,000mm W740×H550mm（Three faces display）
Weight	Approx.60kg

ULTRASONIC WIND GAUGE WG-300

Measures Both Tail and Head Winds Instantly

Selectable measurement duration
Measurement duration can be selected from 5, 10 and 13 seconds according to the type of events.
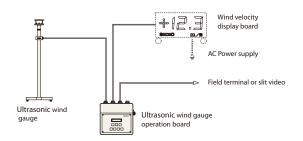
Real-time display of measurements
The result of measurement can be displayed instantly on the wind velocity display board (option).

Powered by battery
Relocation of the display board can be made easily.

SYSTEM LAYOUT

Wind velocity display board
AC Power supply
Field terminal or slit video
Ultrasonic wind gauge
Ultrasonic wind gauge operation board

SYSTEM CONFIGURATIONS	
Sensor	1 unit
Stand	1 unit
Ultrasonic wind gauge operation board	1 unit
Connection cable	1 piece
Carrying case	1 set

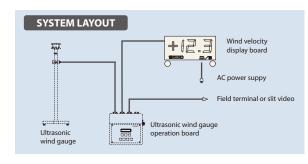### ■ SPECIFICATIONS

Measuring range	-19.99 ~ +19.99 m/s
Accuracy	Within ±10% (at a wind velocity of 2 m/s)
Measurement unit	0.01 m/s
Measurement duration	Selectable from 5, 10 and 13 sec
Measurement direction	Both head and tail winds
External output	In accordance with RS-422
Power supply	DC 12 V LR06 "AA" alkaline dry cell x 8 pcs
Operational temperature range	-10℃ ~ +50℃
Weight	Approx. 1.6 kg (Sensor) / Approx. 6.0 kg (stand) Approx. 1.2 kg (Operation board)

WIND VELOCITY DISPLAY BOARD WD-200/WD-100

Displays the Measured Wind Velocity Quickly and Clearly

Displays the wind velocity measured by the ultrasonic wind gauge. The display range is +0.1 to +19.9 m/s for the tail winds and -0.1 to -19.9 m/s for the head winds in 0.1 m/s increments.

SYSTEM LAYOUT

Wind velocity display board
AC power suppy
Field terminal or slit video
Ultrasonic wind gauge
Ultrasonic wind gauge operation board

■ SPECIFICATIONS
WD-200 (Double-Faced Type) / WD-100 (Single-Faced Type)

Display	Electromagnetic 7-segment type (yellow) 3 digits (only "1" is displayed for tens digit) Character height ... 305 mm
Power supply	AC100～240V
Enclosure	Outdoor-use drip-proof type
Operational temperature range	0℃～+50℃
Overall dimensions	W1,200×H770×D500mm
Weight	Approx.60kg

OPTICAL DISTANCE MEASURING EQUIPMENT DM-400

Measures the Distance in Field Events Accurately and Quickly Using Infrared Beam

Applicable to 8 events

Applicable to javelin throw, hammer throw, discus throw, shot put, long jump, triple jump, high jump and pole vault.

Online data transmission

Measured data can be fed online to the display board and computer, except in high jump and pole vault.

Easy interactive operation

Measurement can be made easily in an interactive way using an LCD monitor and button switches.
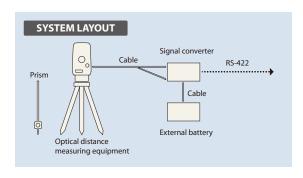
Memory of measured distance

Once measured, the baseline distance is retained in memory unless it is deleted or the power is turned off.

Out-of-the-level alarm

The alarm sounds if the distance finder is out of the level beyond the specified limit. The voltage level of the backup battery can be checked on the monitor.

SYSTEM LAYOUT

Prism | Cable | Signal converter | RS-422
Optical distance measuring equipment | Cable | External battery

SYSTEM CONFIGURATIONS

Optical distance measuring equipment	1unit
Tripod	1unit
Signal converter	1unit
Cable	1set
Internal battery	1unit
External battery	1unit
Prism	1piece
Accessories	1set
Carrying case	1unit

■SPECIFICATIONS

Measuring range	2 ~ 300 m
Maximum measurement accuracy	±5 mm
Effective distance	In accordance with RS-232C or RS-422 (when external battery and signal converter are used)
Output data SEIKO format	Event name (in abbreviated code) and measured value (in 1 cm increments)
Operational temperature range	−10℃～＋50℃
Enclosure	Outdoor-use drip-proof type
Battery backup	Approx. 10 hours when internal and external batteries are used in combination; at 25℃ Approx. 1 hour when only internal battery is used.
Overall dimensions	Main body :W190×H380×D215mm / Tripod :H900～1,600mm
Weight	Main body :Approx.8.0kg / Tripod :Approx.6.3kg

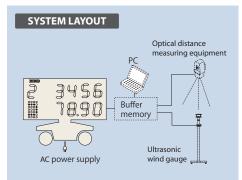# FIELD DISPLAY BOARD FD-500

■SPECIFICATIONS

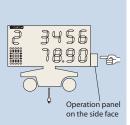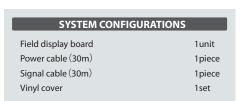|	
Display	Electromagnetic 7-segment type (yellow) Character height ... Approx. 305 mm 5 characters x 2 rows (yellow/black, red/ black)
Display data	Number of trials ... 1 digit (Red) Bib No. ... 4 digits (Yellow) Distance / height ... 4 digits (Yellow) Fair / foul judgment ... ○ or × (Red)
Rotation angle	90° both ways
Rotation speed	Approx. 15 seconds for a both-way rotation
External input	In accordance with RS-422
Power supply	AC 100 ~ 240 V
Operational temperature range	−10℃～＋50℃
Overall dimensions	W1,73 0 x H1,650 x D900mm
Weight	Approx. 500 kg

Result display

The number of trials, bib No., fair/foul judgment, distance and other results can be displayed by using the operation panel on the side face of the display board or by linking it to a computer system. It can rotate 90° both ways.

Test pattern display

To check the function of the display, test pattern can be displayed.

SYSTEM LAYOUT

SYSTEM CONFIGURATIONS

Field display board	1 unit
Power cable（30m）	1 piece
Signal cable（30m）	1 piece
Vinyl cover	1 set

Operation panel on the side face

DIGITAL TYPE WITH DOUBLE-FACED DISPLAY FT-400

■SPECIFICATIONS

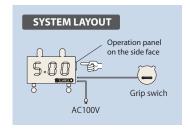|	
Display	Electromagnetic 7-segment type (yellow), double-faced Character height ... Approx. 200 mm (yellow/black)
Maximum time on display	9 minutes and 59 seconds
Power supply	AC 100V
Structural design	Castered, drip-proof construction
Overall dimensions	W740 x H650 x D350mm

Three counting modes

Counting mode can be selected from UP (normal counting), DOWN (countdown) and REPEAT (DOWN) (repeated countdown).

Timer time

Up to 9 minutes and 59 seconds can be set for the timer in one second increments.

Rotating beacon

The rotating beacon can be set in either auto or manual mode. In the auto mode, it blinks automatically for 5 seconds at 15 seconds before the set time is up, and blinks again for 5 seconds after the time is up.

SYSTEM LAYOUT

SYSTEM CONFIGURATIONS

Display board	1 unit
Grip switch	1 unit
Power cable	1 piece

SCOREBOARD SYSTEM

More Vivid and Appealing to the Eye

■SPECIFICATIONS

Scoreboard

Overall dimensions	W23,000 x H7,400mm
Display Area Dimension	W19,200 x H6,800mm (130.6㎡)
Display Elements	Full color LED（R1G2B1）
Pixel Pitch	25mm
Aspect ratio	8.5：3（W：H）
Brightness	5,000cd/㎡
Viewing Distance	Horizontally：±70° / Vertically：+15、―30°

Gray scale	4, 096 levels
Brightness control	64 steps
Input Power	AC200V、92 k VA（Maximum）

Digital Play Timer

Overall dimensions	W3,180 x H720mm
Character height	480mm
Display Elements	□50cluster
Function	0～59：59. 99 count of the displayed
Brightness	4,800cd/㎡
Viewing angle	Horizontally：±50°/Vertically：+20°
Power supply	AC100V

■SPECIFICATIONS

Scoreboard

Overall dimensions	W14,000 x H9,687mm
Display Area Dimension	W10,752 x H8,064mm (86㎡)
Display Elements	3 in 1 fullcolor LED
Pixel Pitch	16mm
Aspect ratio	4：3（W：H）

Brightness	5,000cd/㎡
Viewing angle	Horizontally：±75°/Vertically：+15°、―40°
Gray scale	65,536 levels
Brightness control	100 steps
Power supply	AC220V, 122 k VA（Maximum）

MULTI TIMING SYSTEM

Up to professional standard

SPORTS PRINTER   CT-2000

Multi-timer suitable for a wide variety of sports events

System components

Sports Printer : 1 unit / Grip switch with 2.5m cable : 2 units
AC adapter with 5m cable: 1 unit / Roll Paper : 1 roll / Ribbon Cassette : 1 unit

■SPECIFICATIONS

Time accuracy	Accuracy of crystal oscillator: ± 1 ppm (at+ 25°C)
Maximum measurement duration	23 hours, 59 minutes, 59 seconds 999; Start time can also be set in hour, minutes and seconds up to the maximum duration.
Measurement unit	1/10 sec. 1/100 sec. 1/1000 sec. rounded off ,rounded up rounded down and 1/1000 sec.
Number of input channels	From panel：3 channels / From connectors：2 channels (up to 10 channels when extension unit is used)
Number of data storable	Up to 3,000 data contained in up to 100 blocks
Speed measurement	Distance of section: 1〜100m in 0.1m increments Measurement unit: km/h, mph and m/s Measurement range: 1〜1000km/h, 1〜250mph, 1〜600m/s Number of input channels: Up to 10 channels when extension unit is used
Power supply	AC 100 〜AC 240 V (used with AC adapter) Built-in battery (2 sets of 6 AA size dry cells) * Rechargeable type batteries can also be used. External battery (DC12V) *Do not use AC power supply at the same time.
Battery life	Alkaline dry battery: Approx. 8 hours (at+25°C) Nickel-metal hydride rechargeable battery: Approx. 14 hours (at+25°C) *The above battery lives may be shorter if measurement/printing is performed more than once in 10 seconds.
Outer dimensions	W440 x H467 x D120mm
Material	Resin
Weight	Approx. 5.5kg (excluding batteries)

ELECTRONIC STARTING SYSTEM   PS-110

Electronic start signal generator eliminating the use of gunpowder

System components

Start Pistol : 1 unit / Speaker Box : 1 unit
Headset Microphone : 1 unit / Cable with a termination box : 1 unit

■SPECIFICATIONS

Start Pistol

Strobe	Xenon lamp
Power supply	LR06 "AA" alkaline dry cell x 2 pcs. (DC 3V)
Battery life (alkaline dry cells)	Approx. 1,200 times (Number of times light can be emitted continuously in 1-minute intervals.)
Dimensions	W210 x H40 x D145mm
Material	Aluminum, black gray
Weight	Approx. 410g (excluding dry cells, cord)

Speaker Box

Audio input	-20dB (100kΩ)
Rated output	6W (max. 10W)
Power supply	LR06 "AA" alkaline dry cell x 8 pcs. [DC 12V]
Battery life (alkaline dry cells)	Pistol sound: approx. 8,000 operations until sound pressure falls below 91dB (at a distance of 10m)
Operating sound pressure level	93dB (at a distance of 10m)
Dimensions	W102 x H258 x D216mm
Material	ABS resin, ivory
Weight	Approx. 1.6kg (excluding dry cells)

SPORTS TIMER   ST-306

Battery-powered multi-timer for both indoor and outdoor use

System components

Sports Timer : 1 unit / Battery Box : 1 unit / Grip Switch : 1 unit

■SPECIFICATIONS

Display			Magnetic rotary bar, yellow, character height 200mm, 6 digits
Time accuracy			±0.04 sec/h. (+5°C〜+35°C)
Measuring function	Counting-up	Maximum measuring time	99h 59m 59s (59m 59s 9, 59m 59s 99)
		Memory and memory call	Lap or split time.Up to 25 measurements can be stored.
	Counting-down	Preset time	99h 59m 59s 〜 1s
	Auto repeat (REPEAT)		A preset time is counted up/down repeatedly, with a buzzer sounding for approx. 5 sec. each time a count-up/-down of the preset time is completed.
Power supply			"AA" dry cell x 8 pcs.
Battery life under continuous duty *			LR06"AA" alkaline dry cell: approx. 50 hrs. (at +25°C)
Dimensions			W1,230 x H330 x D150mm
Material			Aluminum, yellow
Weight			12.5kg (including dry cells)
Grip switch			Cord length, 5m, φ60; w/ START / STOP and LAP / SPLIT / RESET buttons

* A guideline when the timer is used to count up the time continuously. It should be noted that the battery service life varies depending on such factors as operating conditions, function settings, ambient temperature and other environmental conditions, and place of use.