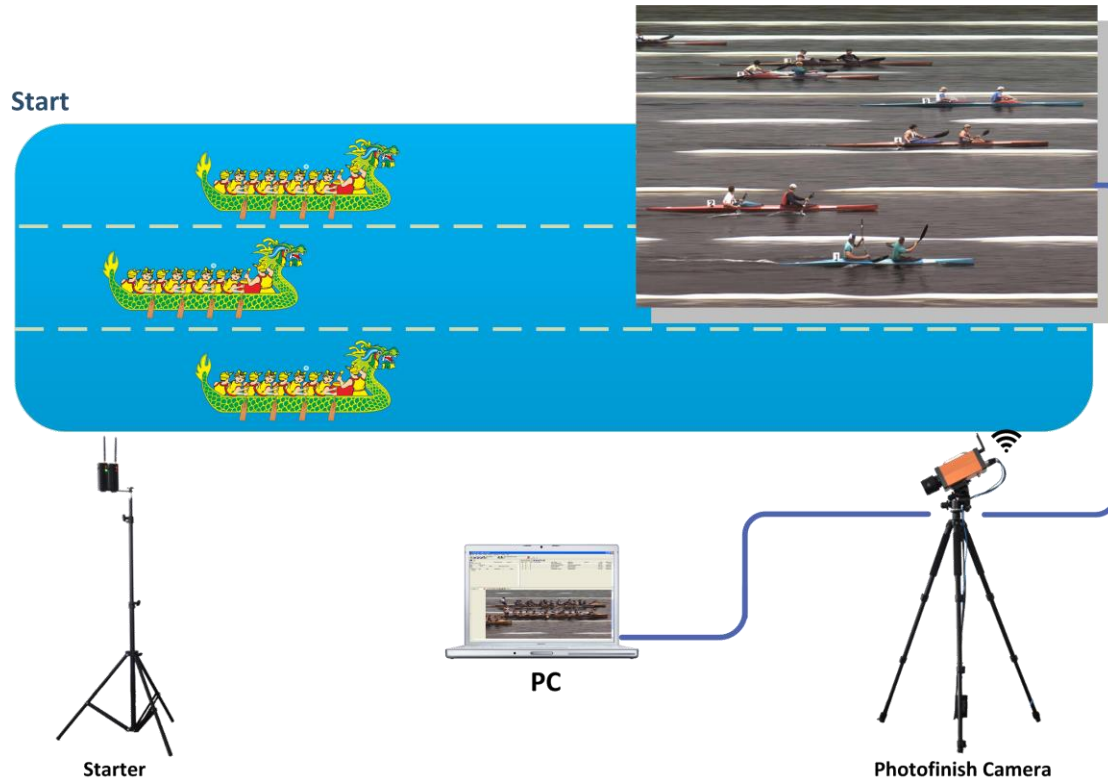


Timing & Scoring System for Rowing

Rowing Timing System is an automatic timing system, which combines the software and hardware and uses high-speed color CCD digital camera. It can realize the automation of the measurement process, so as to ensure the fairness of the process and outcome of the match.

1. System Chart



1.1 System Structure Description

Rowing timing and scoring system consists of auto starting system, photofinish camera and rowing timing software.

- 1) Starting system: the starter installed in the starting position and communicate with photofinish camera through wireless signals.
- 2) Photofinish camera: set up on the extension line of the finish line. It will collect the moment images when the athletes sprint to the end.
- 3) Rowing timing software: installed in the PC for match scheduling, acquisition of result data, storage of the image, auto ranking and result printing.

1.2 Products Features

Safe and reliable

- Starting system provides synchronous flash start signal and clear shots without special starting gun.
- Equipped with Internal battery, it can work without external power.

Easy installation

- Starting system is compatible with wireless trigger. And no wiring in the field is available.
- Attractive appearance and easy to carry.

Precise timing

- Photofinish camera using CCD wide-angle viewfinder and fully extending the lens angle.
- With independent time system, unaffected by temporary power.
- Disk image interpretation and data processing can be any time in working state.
- Results output accuracy: 0.0001s ~ 1s.

1.3 Main Functions

Starting system

- 1) High precision startup device and auto start photofinish camera when via the wireless startup device.
- 2) Provide synchronous starting signal, clear shots simulation and analog voice.
- 3) Wireless communication distance up to 2000m.
- 4) Support multiple starting and storing trigger records.

Photofinish camera

- 1) Timing accuracy: 0.25ms; results release unit: 0.01s/0.001s
- 2) Shooting speed: 2000 frame/s
- 3) Using CCD wide-angle viewfinder and the resolution can up to 2048P.
- 4) 100m high speed Ethernet connection.
- 5) Comes with full color LCD display which can directly see the working state and equipment information.
- 6) Wide angle shooting adapts to various width of venue without changing the lens.
- 7) Pitch angle, brightness and contrast of images on terminal timer are adjustable via programs.
- 8) Quickly and accurately judge the results and ranks.

Rowing timing software

- 1) Support parallel operation on shooting, memory interpretation and file interpretation.
- 2) Preview images and quickly locate the target image for results interpretation.
- 3) Restart the software can recovery timing from the computer crashes
- 4) Results output accuracy: 0.0001s ~ 1s
- 5) With simple choreography function for adjusting the match grouping table.
- 6) Open communication protocol interface for easy integration with the third-party management system.
- 7) Print transcripts on-site and generate result documents in multiple formats.
- 8) Support cloud service and wide area network performance.

1.4 Product Configuration

No.	Products	Type	Qt.	Notes
1	Rowing timing software	Standalone Edition	1	
2	Starter	KS-ST200	1	
3	Starting handle	KS-ST200/A	1	
4	Siren horn	KS-ST200/B	1	
5	Photofinish Camera	KS-PT100	1	
6	Shooting button	KS-PT100/B	1	
7	Lens	Nikon	1	
8	3D head	KS-PT100/P	1	
Auxiliary equipment				
9	PC	/	1	500G hard disk, 2G memory
10	Laser printer	/	1	

2. Specification for products

2.1 Rowing Timing Software

Products	Details
Rowing Timing Software	<p>Type: Standalone Edition</p> <ul style="list-style-type: none">◆ Referee operations on the control computer.◆ Support: Rowing◆ Support simultaneous operation of shooting and score interpretation.◆ Restart the software can recovery timing from the computer crashes.◆ Results output accuracy: 0.0001s ~ 1s◆ Print transcripts on-site and generate result documents in multiple formats.

Software interface:



2.2 Starter

Products	Details
Starter	<p>Type: KS-ST200</p> <p>Communication: Wireless</p> <ul style="list-style-type: none">◆ High precision startup device and auto start photofinish camera when via the wireless startup device.◆ Provide synchronous starting signal, clear shots simulation and analog voice.◆ Wireless communication distance up to 2000m.◆ Support multiple starting and storing trigger records.



2.3 Photofinish Camera

Products	Details
Photofinish camera	<p>Type: KS-PT100 Size: 230x125x110(mm) Weight: 2.25KG Power: 12V (±10%) DC Display: 320x240 LCD Communication Interface: 100M Ethernet</p> <ul style="list-style-type: none">● Connected to the software and camera independently.● Shooting speed: 2000 frame/s● Timing accuracy: 0.25ms● Resolution: 2048P● Sensor: CCD● Color: 8 bit full color picture

