



## Scoring & Timing Solution for Lacrosse

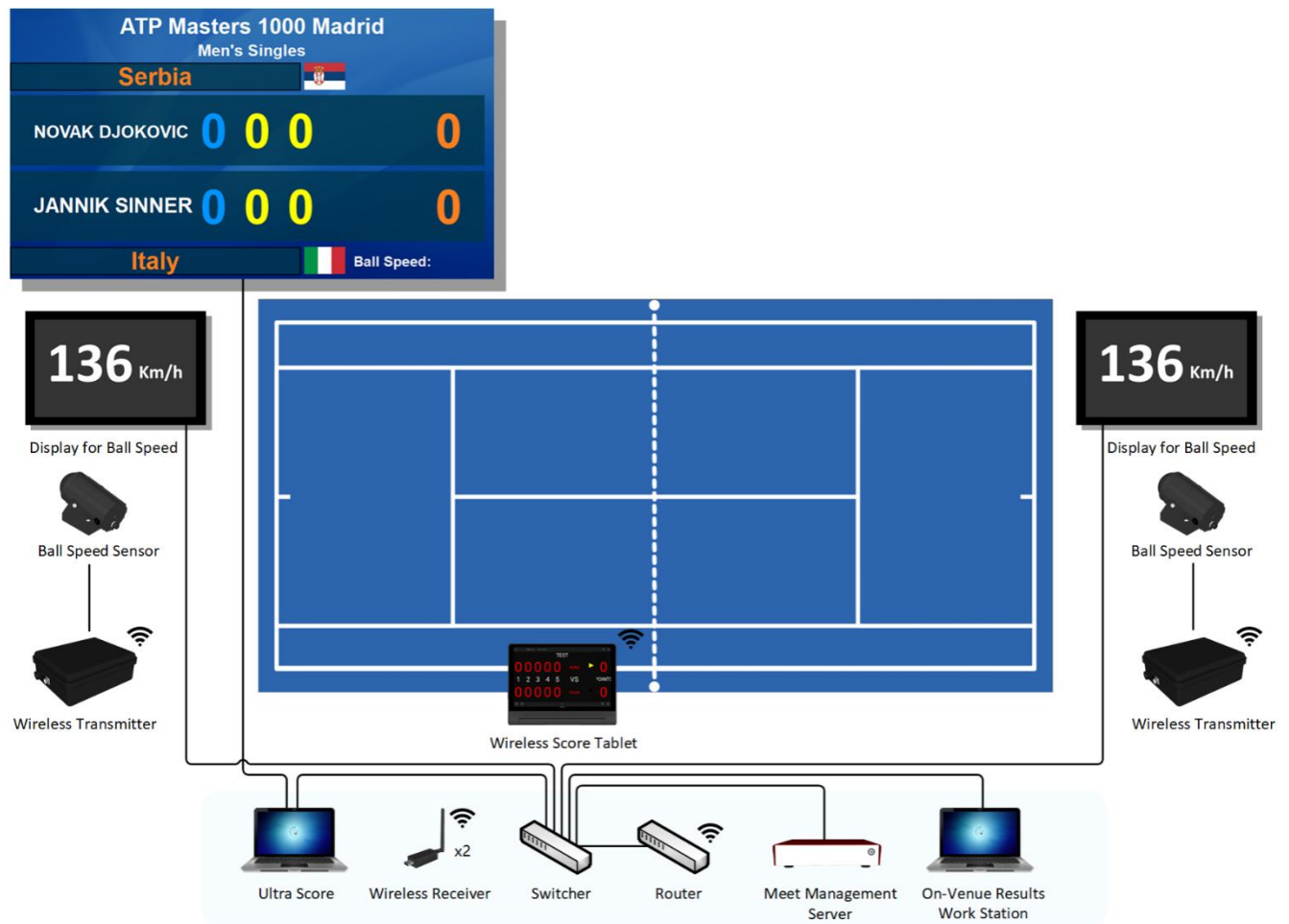


## 1. Introduction

This is a professional solution for LED scoreboard display in Lacrosse stadiums.

Match arrangement, real-time scoring & timing display, players' & referees' info display, rank, statistics export & print, slow motion video record & playback, and advertising display can be realized through the coordination of Match Scoring System, Meet Management System, Video Arbitration System, etc.

### 1.1 System Structure



## 1.2 System Description

- 1) **LAN:** A LAN is set up on the court, connecting the LED control PC, Ultra Score PC, Score Tablet, Meet Management Server and On-Venue Results Workstation to the LAN.
- 2) **LED Screen:** One or two LED screens are controlled by a PC which runs display software to display real-time scoreboard.
- 3) **Ultra Score PC:** It is set on the referee's table which is a core device used for referee timing and scoring operations.
- 4) **Wireless Score Tablet:** It is set on the referee's table communicating with the Ultra Score PC through WIFI to facilitate referee's scoring operations.
- 5) **Meet Management Server:** It is the core data processing equipment which is set on the Technical Table and connected to the LAN by network cable.
- 6) **Ball Speed Sensor:** Two ball speed sensors are equipped on the courtside, connected with Ultra Score Terminal PC via wireless sender and receiver to track the serve speed in real time automatically.
- 7) **Display for Ball Speed:** It is installed at both ends of the court and connected to the Ultra Score PC through network cables, used to display real time ball speed data.

## 2. Specifications

### 2.1 Ultra Score Software

Products	Details
Standalone edition	<ul style="list-style-type: none"><li>◆ Installed on one PC.</li><li>◆ Supports: Lacrosse</li><li>◆ English version</li><li>◆ Including 1 dongle</li></ul>
Standard network edition	<ul style="list-style-type: none"><li>◆ Terminal + 1 Display</li><li>◆ Supports: Lacrosse</li><li>◆ English version</li><li>◆ Including 1 dongle</li></ul>

#### Difference:

##### Standalone Edition:

Match management, Scoring, and Media display functions, all in one installed on a PC. Referee must do operation on the PC for display directly.

It is suitable for the stadium where has just one screen, which doesn't have strict needs of the scoring and timing accuracy.

##### Network Standard Edition:

Score terminal and media player functions can be installed on 2 PCs respectively. So that one independent PC can be setup on the court side special for referee's operation, the other PC running as media player to manage the LED display.

It is suitable for the stadium where has one screen, needs to do the scoring and timing on the court side.

## Scoring display:

# ATP Masters 1000 Madrid

## Men's Singles

Serbia

NOVAK DJOKOVIC

0 0 0

0

JANNIK SINER

0 0 0

0

Italy

Ball Speed:

## Operation interface:

The screenshot shows the Kazo Vision software interface for the ATP Masters 1000 Madrid Men's Singles match. The interface is divided into several sections:

- Top Bar:** Contains the match title "ATP Masters 1000 Madrid Men's Singles" and a search bar.
- Scoreboard:** Displays the current score for Novak Djokovic (Serbia) and Jannik Sinner (Italy). The score is 0-0-0 for both players.
- Game Log:** A table showing the progress of the match, including sets and games. The table has columns for Match, Event, Round, Start Time, Type, Team A, Team B, Score, and Comments.
- Match Controls:** Includes buttons for "Confirm Result", "Exchange Field", "Rev", "Relay", and "Delete".
- Player Information:** Displays the names and flags of the players, Novak Djokovic (Serbia) and Jannik Sinner (Italy).
- Game Details:** Shows the current game (Game 1) and the set (Set 1). It includes buttons for "Plus Point", "Ace", "Minus Point", and "Fault".
- Ball Speed:** A section for recording ball speed, with a "Ball Speed" input field and a "Time" input field.

## Features

- (1) Professional scoreboard display: Scoring and timing operation, layout of scoreboard can meet international game rules.
- (2) Score functions: All score information such as points, game points, set points and right to serve indicator will be shown on the screen in real-time. And referee's scoring operation during the match can be recorded and output.
- (3) Auto enter the Tie-Break mode.
- (4) Convenient operation feeling: Referees can do operation on a special score console as well as by using shortcuts on the keyboard.
- (5) Powerful media player: Kinds of media formats are supported. It is easy to switch between the scoreboard and video.
- (6) Notification: Rolling to display short notice on the screen which allows to set the speed, colors, fonts freely.
- (7) Customization: All contents on the scoreboard including fonts, color and layout can be modified to meet clients' needs.
- (8) Self-adaptation: With easy configuration, score information can be displayed on kinds of LED and LCD screen by using this system which can adjust the layout to meet any sizes of screen.
- (9) Security: Auto backup function will help you recover the match immediately from the computer fault.

## 2.2 Wireless Score Controller (tablet)

Products	Details
Wireless Score Tablet	<p>Model: KS-GC14-I11</p> <ul style="list-style-type: none"> <li>◆ Including one license of Ultra score controller App</li> <li>◆ Screen: 11"inch</li> <li>◆ Pixel: 1920*1200IPS</li> <li>◆ Ram: 6GB</li> <li>◆ Storage: 128GB</li> <li>◆ Battery: 8000mAh</li> <li>◆ System: Android</li> <li>◆ Supports: Table-Lacrosse</li> <li>◆ Communication: WIFI</li> <li>◆ Full colored touch screen</li> </ul>



### 2.3 Wireless Transmitter/Receiver

Products	Detail
Wireless Transmitter/Receiver	Wireless Transmitter Model: KS-BSPD-WHT Dimensions: 230×185×85 (mm) Material: PVC Power Input: 220V Waterproof Rating: Outdoor Waterproof
	Wireless Receiver Model: KS-BSPD-WHR Dimensions: 52×24×16 (mm) Interface: USB 2.0
	Modulation: LoRa Frequency Band: 410–525 MHz Transmission Distance: 5 KM
	Functions: Must be used with Ultra score software. Wirelessly receives ball speed sensor data.

**Wireless Transmitter**



**Wireless Receiver**





## 2.4 Ball Speed Sensor

Item	Details
Ball speed sensor	<p>Model: KS-BSPD-SENSOR</p> <ul style="list-style-type: none"><li>◆ Speed Range: 5-890MPH</li><li>◆ Accuracy: +/-0.1 MPH</li><li>◆ Max Distances: 300 feet</li><li>◆ Support: Lacrosse</li><li>◆ Compatible with Ultra score software.</li><li>◆ Track Lacrosse ball speed on serves and returns from courtside.</li></ul>



## 2.5 Display for Ball Speed

Products	Details
Display for Ball Speed	<p>Model: KS-BSPD-SCREEN960800</p> <p>Function: Display ball speed and advertisements</p> <p>Box size: 1060*900*200 (mm)</p> <p>Material: Outdoor waterproof aluminum box</p> <p>Resolution: 192*160</p> <p>Module: Outdoor P5 Full Color</p> <p>Communication interface: RJ45 network cable connection</p> <p>Installation: Floor mounted mobile bracket</p>



## 2.6 Lacrosse Shot Clock

Products	Details
Lacrosse Shot Clock	<p>Model: KS-BSPC</p> <p>Size: 710x610x60 (mm)</p> <p>Single side</p> <p>Weight: 10KG</p> <p>Power: 60W*</p> <p>Material: Aluminium</p> <p>Communication: Wired</p> <p>Function:</p> <p>Be used together with Lacrosse scoring software to display the time.</p>



## 2.7 Meet Management Server

Products	Details
Meet Management Server	<p>Model: KS-MMS-MINI</p> <p>Size: 260x135x35 (mm)</p> <p>Weight: 1.0 KG</p> <p>Input Voltage: 12V DC</p> <p>RAM: 4GB</p> <p>CPU: Intel J3160</p> <p>Hard Disk: 64G</p> <p>Communication: LAN*1</p> <p>Port: VGA*1, DP*1, USB*2</p> <p>Features:</p> <ul style="list-style-type: none"><li>● Multi-court arrangement, auto generate the order form.</li><li>● Multi-project arrangement, make the schedule more smoothly.</li><li>● Monitor the status of each court in real time, including the current field, rotation and player info.</li><li>● Court adjustment, can manually modify the match court and session info.</li><li>● Summary and print integrated report.</li></ul>



## 2.8 Video Arbitration System

Video Arbitration System named PARROT is composed of video arbitration server, control panel and cameras.

It is operated by the referee during the match. When working with Match Scoring System, referee's score operation will be marked on the frame of video automatically, whilst playback them in slow motion with changes in speed.

It can be used to provide the technical support when dispute happens during the match so as to reduce the misjudging, to ensure fairness and justice of the match.

### Application:

Basketball, Volleyball, Football, Lacrosse, Handball, Boxing, Wrestling, Wushu, Judo, Jujitsu, Karate, Taekwondo, Gymnastics, Swimming, Diving, Ice-hockey, Weightlifting, etc.



### 2.8.1 System Description

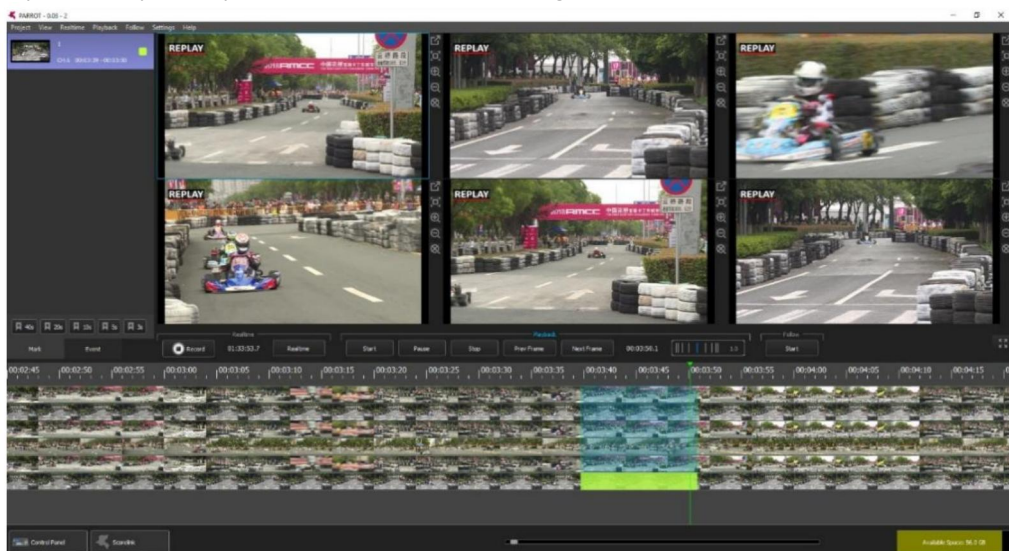
- 1) Ultra Score software is installed on the control computer. Connect the control computer and the video arbitration server to the local network.
- 2) 1-8 sets of HD cameras are installed around the count which connects to video arbitration server via SDI cable.
- 3) Control panel is connected to video arbitration server via a USB cable which makes referee easy to check the playback process and control the speed of slow motion.
- 4) Video arbitration server provides an output video signal which can be connected to LED/LCD display for live slow motion replay.

### 2.8.2 Functions

- 1) **Nonstop video recording in the background:** 1-8 channels of HD video are recorded simultaneously in the background, nonstop for 10 hours. Video retrieval and playback is unaffected.
- 2) **Synch-playback of multi-channel video:** Supports playback mode of single channel video in full screen and multi-angle video in 6 windows.
- 3) **Speed change in slow motion:** supports 20 frame/s video playback and capturing motion in a grid of 0.05s. The function of frame freeze, fast playback, 1/2 slow playback, 1/4 slow playback and dragging progress bar is available.
- 4) **Video event query:** video stream can be divided into several video events, storing in the event list, which can be renamed for retrieve easily.
- 5) **Video segment marker:** Important or controversial moments can be marked in video stream which will be replayed quickly when clicking the marked records.
- 6) **Professional playback control panel:** configuring T-bar, slow moving wheel, speed preset function keys to make the process more convenient.
- 7) **Video signal output:** provides 2 video output signals, one of which is for preview, the other of which can be connected to LED/LCD display for live slow motion replay.

#### Working with Ultra Score System to realize:

- 1) **Auto generate video event:** Video events will be generated automatically for quick query according to the match data that has been preset in Ultra Score.
- 2) Real-time match timer will be superimposed on the video.
- 3) **Referee's operation record:** Referee's every scoring and timing operation can be recorded into the video, showed below the frame when that moment happened.
- 4) **Player's point record:** Player's point can be recorded into the video, showed below the frame when that moment happened.
- 5) **Open developer API:** Just connect your own scoring system onto this Video Arbitration System, so you may record all kinds of events together with the videos.



### 2.8.3 Video Arbitration Server (up to 8 channels record and replay)



#### Detailed parameter

Item	Details	Item	Details
Product	Video Arbitration Server	Model	KS-PARROT-2C/4C/6C/8C
Input Voltage	AC 100~240V	Power	35W
Size	483x430x90mm (2U)	CPU	Intel I7
RAM	2 channels: 8GB 4/6/8 channels: 16GB	Hard Disk	2/4 channels: 800GB 6/8 channels: 2T
Input	SDI×2/4/6/8	Communication Port	LAN×2
Output	DP×2	Other Port	USB×4
Packing List	Host*1, Power cable*1, User manual*1		
Functions	<ol style="list-style-type: none"> <li>1. Nonstop video recording in the background for 10 hours. Video retrieval and playback is unaffected.</li> <li>2. Support 50 frame/s video playback and capturing motion in a grid of 0.02s.</li> <li>3. Support playback the video of the specified channel frame by frame, or at a set speed continuously.</li> <li>4. Important or controversial moments can be marked manually or auto create video marks by linkage with Ultra Score System.</li> <li>5. Zoom the playback screen of any channel to accurately observe the details.</li> <li>6. Provide 2 video output signals, one of which is for preview, the other of which can be connected to LED/LCD display for live slow motion replay.</li> <li>7. Working with Ultra Score System can realize real-time match data displaying on the video.</li> <li>8. Automatically synchronize with the match and tag the video, so as to provide convenience to find the match sessions or sets.</li> <li>9. Each single operation of the referees will be recorded together with the videos.</li> <li>10. Unique "Follow" mode, automatically replay the most recent screen with a 5-second delay to help the referee make decisions quickly.</li> <li>11. Open external control interface which can be controlled by 3rd-part system.</li> </ol>		

## 2.9 Control Panel



### Detailed parameters

Item	Details	Item	Details
Product	Control Panel	Model	KS-PARROT-CP
Input Voltage	AC 100~240V	Net weight	1KG
Size	365 x 200 x 98 (mm)	Power	15W
Communication Port	USB×1, RS232×1	Display	Color LCD (4.3Inch)
Packing List	Host* 1, Power Cable*1, USB Cable*1, User Manual*1		
Functions	<ol style="list-style-type: none"> <li>1. Support one touch replay, deferred replay, in/out replay.</li> <li>2. Preset speed button.</li> <li>3. T-Bar for dynamic slow motion.</li> <li>4. Professional dynamic jog wheel.</li> <li>5. Key to mark the last 10s/20s of the video content.</li> <li>6. Flexible select the marked video and playback.</li> </ol>		



## 2.10 Camera



### Detailed parameters

Model	4K-G2
Video Input	12G-SDI Micro BNC*1
Video Output	12G-SDI Micro BNC*1 HDMI*1
Max Pixel	3840*2160
Frame Rates	Ultra HD/60fps
Effective Sensor Size	17.78mm x 10mm (Four Thirds)
Lens Mount	Active MFT Mount
Lens	Panasonic Lumix G X Vario PZ 45-175mm f/4.0-5.6
Audio	Integrated Stereo Microphone
Power Inputs	12V DC
Installation	1 x 1/4 " (Top) 3 x 1/4 " (Bottom)