# Scoring & Timing Solution for Futsal

1. Introduction

This is a professional solution for LED scoreboard display in Futsal stadiums.
Mainly for large-scale Futsal matches which held in professional sports venues.
The system functions conform to FIFA rules.
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.
It is an ideal choice for most of smart and professional stadiums.

2018, Chinese University Futsal League
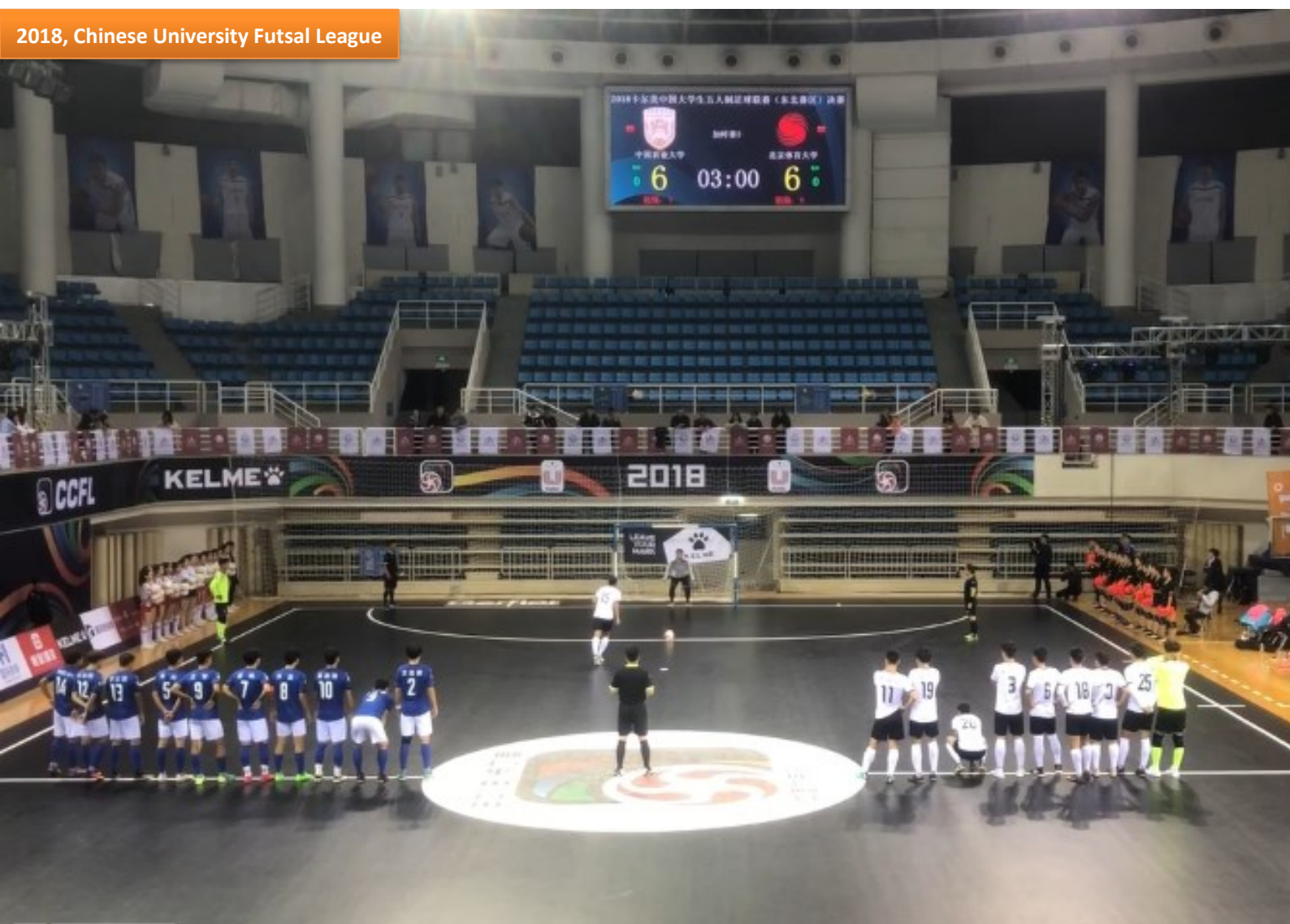
1.1 System Architecture

The whole system is composed of several subsystems, including: Match Scoring System, Meet Management System and Video Arbitration System.

Each subsystem can not only work independently, but also work together to share the data.

It is flexible for customers to configure according to the actual application.

- **Match Scoring System**

Match Scoring System named ULTRA SCORE is composed of Ultra Score Software, Match Scoring & Timing Host, Referee Scoring & Timing Terminal, etc.

It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.

The system functions conform to FIFA rules.

- **Meet Management System**

It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc.

Linking with Online Registration System and Match Scoring System, it can realize: participants management, match schedule, result management, technical statistics, court arrangement, rank statistics, etc.

- **Video Arbitration System**

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

It is operated by the referees 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.

1.2 System Chart
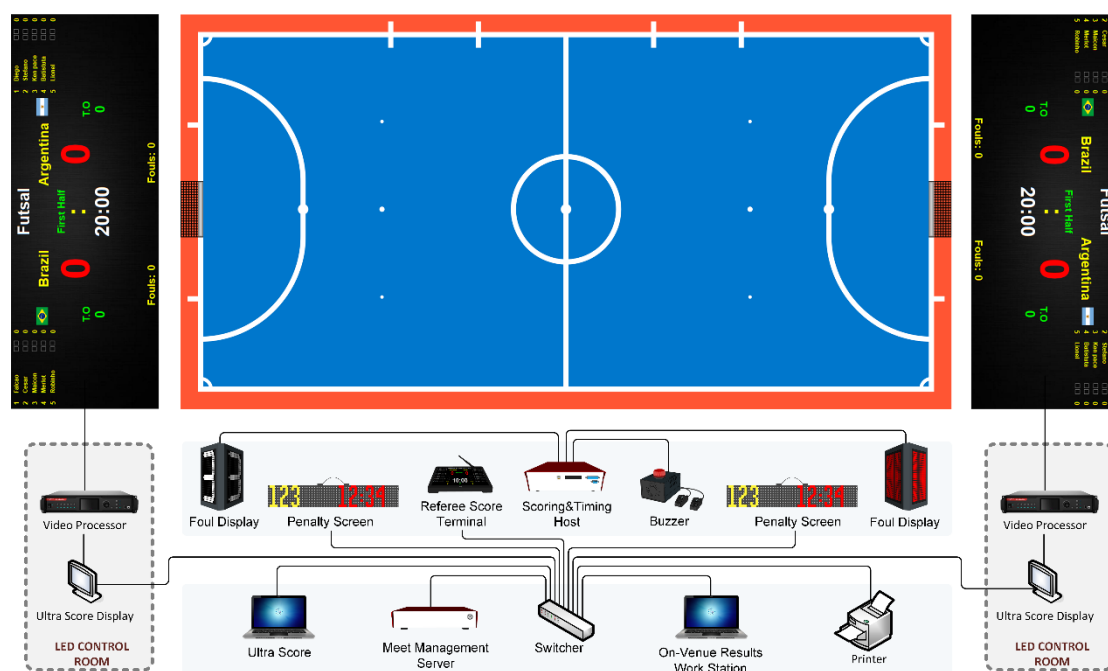
System description

1) **LAN:** A LAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC, Match Scoring & Timing Host, Referee Scoring & Timing Terminal, Football Stats Workstation, Meet Management Server, On-Venue Results Workstation and Printer to the LAN.

2) **LED Screen:** One or two LED screens are controlled by separate computers which connect with LED sending cards. Both of the LED screens can show the same contents or different contents as required.

3) **Match Scoring & Timing Host:** It is the core scoring & timing equipment which is installed in the Officials Table and has the function of hot backup. Use the special cables to connect the Match Timing Display and Thermal Printer to the host.

4) **Referee Scoring & Timing Terminal:** Installed in the Officials Table for referee's operation of score and penalty. It can be connected to the LAN through network cable or WIFI.

5) **Meet Management Server:** It is the core data processing equipment which is installed in the Technical Table and connected to the LAN by network cable.

2. Products List

2.1 Ultra Score Software

Products	Details
Ultra score software	◆ Standalone edition ◆ Supports: Futsal ◆ Including 1 dongle
Ultra score software	◆ Standard network edition (Terminal + 1 Display) ◆ Supports: Futsal ◆ Including 1 dongle
Ultra score software	◆ Professional network edition (Terminal + Referee + 2 Display) ◆ Supports: Futsal ◆ Including 1 dongle

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 courtside 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 courtside.

Network Professional Edition:

Except the function of score terminal, 1-3 media players can be equipped on PCs separately, in order to display different contents on several LED screens.

It is suitable for the stadium where has more than 2 screens where referee need to do scoring on the courtside and LED screens need to display different contents separately. (For example, one LED screen is for scoreboard and another is for advertising or player info).

Scoring interface for futsal

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Features

(1) Professional scoreboard display: Scoring and timing operation, layout of scoreboard can meet international game rules.

(2) Match management: Information of match, team, team members and coaches can be saved in advance. And referee's scoring operation during the match can be recorded and output.

(3) Scoring functions: Include operation and display of teams and players' point, foul and penalty.

(4) Timing functions: Include operation and display of game time, pause, break time, count down time and system time.

(5) Convenient operation feeling: Referees can do operation on a special score console as well as by using shortcuts on the keyboard.

(6) Powerful media player: Kinds of media formats are supported. It is easy to switch between the scoreboard and video.

(7) Notification: Rolling to display short notice on the screen which allows to set the speed, colors, fonts freely.

(8) Customization: All contents on the scoreboard including fonts, color and layout can be modified to meet clients' needs.

(9) 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.

(10) Security: Auto backup function will help you recover the match immediately from the computer fault.

2.2 Match Scoring & Timing Host
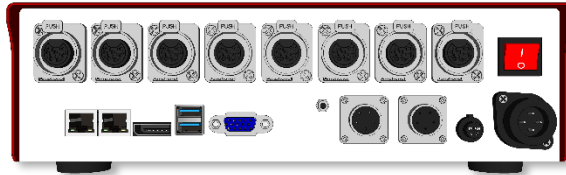
Match Scoring & Timing Host

Type	KS-MONSTER
Size	260 x 280 x 80 (mm)
Support	Basketball, Volleyball, Soccer, Futsal, Handball, Water-polo, Ice-hockey
Other	Supports hot switching between the main and backup system.

Match Timer Handheld

Type	KS-G-MT
Size	120x80x25(mm)
Communication	Wired
Function	Match timer start, pause, adjustment and buzzer control.

 Kazo Vision

Item	Details	Item	Details
Product	Match Scoring & Timing Host	Type	KS-MONSTER
Size	260 x 280 x 80 (mm)	Net weight	3 KG
Material	Iron	Power	60W
CPU	Intel J3160	RAM	8GB
Communication	RJ45×2	Hard disk	64GB
Video output	VGA×1, DP×1	Input voltage	AC 100~240V
Working Temp	0-60℃	Relative humidity	5%-95%, non-condensing
Language	English	Timing accuracy	<=10ms
Port	G-Port×8, Shot Clock port×2, Audio×1, USB×2, Serial port×1		
Accessories	Match Timer Handheld *1, Shot Clock Handheld *1		
Supporting games	Basketball, Volleyball, Soccer, Futsal, Handball, Water-polo, Ice-hockey, etc.		
Supporting rules	FIBA, FIBA 3X3		
Functions			

1. Timer functions: Timing in minute, second, tenth of a second, 14S & 24S and timing in count up and count down, start, pause, reset, correct are available.
2. Scoring functions: Modify the score of the team and player.
3. Penalty functions: Team foul control, Player foul control, Player penalty time control, Substitution control, yellow/red card control, etc.
4. Supports match rule setup.
5. Synchronous control of 24s Shot Clock, Possession Display, Foul Display and Electronic Buzzer.
6. Adjust the brightness of 24s Shot Clock, Possession Display and Foul Display.
7. Provides buzzer sound output, which can be connected to the venue's public address system or speakers.
8. Supports hot switching of the main and backup servers. In case of the main server fails, just manually switch to the backup server to ensure the data intact. And in case of power failure, the previous screen will be restored after restarting.
9. Supports the post-match celebration mode.
10. Supports real-time data output, which can be used for live broadcast.
11. Monitoring the status of scoring devices, providing convenient fault diagnosis (with a separate monitor).
12. Anti-loose port ensures the safety of match data.

2.3 Referee Timing & Scoring Terminal

Item	Details	Item	Details
Product	Referee Timing & Scoring Terminal	Type	KS-GC18
Size	281 x 173 x 39 (mm)	Material	PVC+Metal
Touch LCD	11.6 inch	Resolution	1920*1080
OS	WIN 10	Battery	No Built-in Battery
Communication	LAN / WLAN	Hard disk	SSD 180GB
Video output	HDMI*1	RAM	8GB
Functions			

1. Timer: Includes minute, second, deci-second, 14S and 24S timing function. And also have count up, count down, start/pause/reset/correct timing functions.
2. Scoring function: Modify the score of the team and player.
3. Penalty function: Team foul control, Player individual foul control, Player Penalty control, Substitution control, Player yellow/red card control, etc.

2.4 Foul Display

Item	Details
Foul Display	Type: KS-BAFL-C ◆ Trihedral displaying ◆ Fouls display of the match

Parameters

Foul Display	KS-BAFL-C Three sides display
Basic parameters	
Controller Size	195x145x60 (mm)
Display Size	320x205 (mm)
Input Voltage	12V DC
Communication Port	G-Port*2
Frame material	PVC
Weight	5KG
Implementation of standards	International Sports Competition Rules
Screen Performance	
Best sight	Best Visual Distance: 3M---100M Best viewing angle: 0°---90°
Refresh frequency	80HZ--90HZ
Main Functions	

- Display functions conform to international match rules.
- Team fouls 0-9 times can be set freely.

- The last set of data can be preserved.
- Not only can be used independently, but also can be connected to the Match Scoring &timing Host for linkage use.
- Brightness adjustment is available in linkage mode.
- Controlled by Match Scoring &Timing Host without separate power supply in linkage mode.
- Anti-loose port ensures the safety of match data.
- Supports post-match celebration mode.

2.5 Electronic Buzzer

Item	Details
Electronic Buzzer	Type：KS-BUZR Buzzer for tips as the competition required.
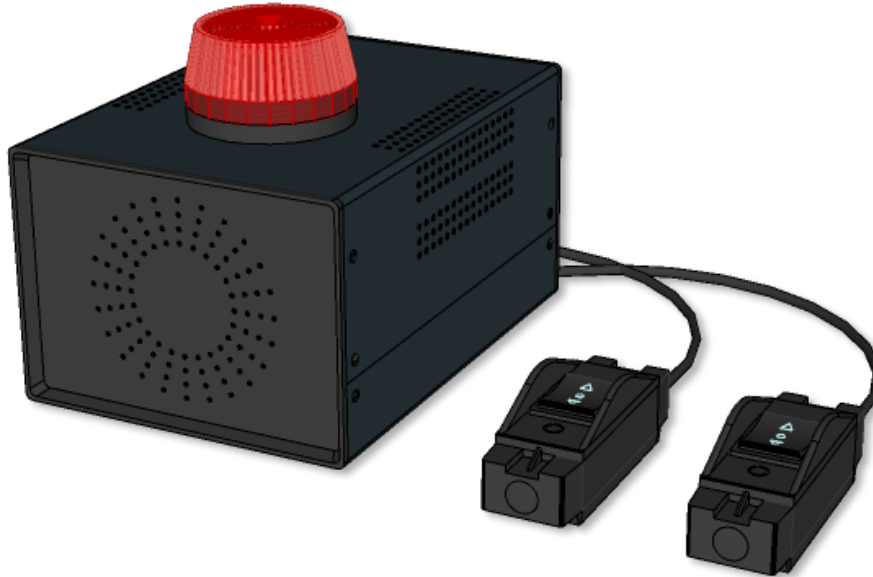
Parameters

Buzzer	KS-BUZR
Basic parameters	
Input Voltage	AC~110-240V
Total Power	35W
Color	Black
Weight	1KG
Buzzer	110dB
Product Configuration	
Packing List	Host1 Handheld*2 Power Cable*1 Power Adapter*1 User Manual*1
Refresh frequency	80HZ--90HZ

2.6 Futsal Penalty Screen (Single Line)

Item	Details
Futsal Penalty Screen (Single Line)	Type: KS-SCRN-LED960160 Size: 960*160*100(mm) Material: Aluminum Input: 48V DC Function: ◆　Must be used together with Futsal Scoring Software. ◆　Display athlete's number and penalty time.
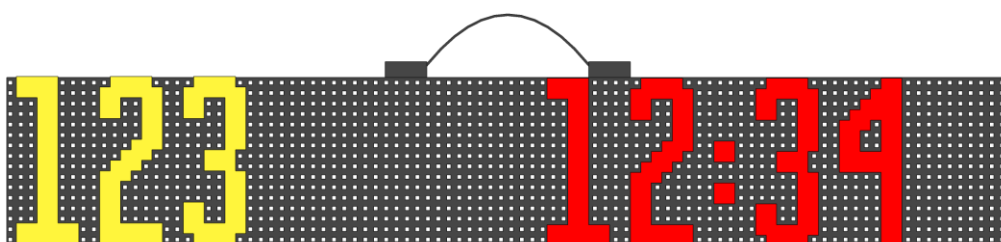
2.7 Futsal Penalty Screen (Triple Line)

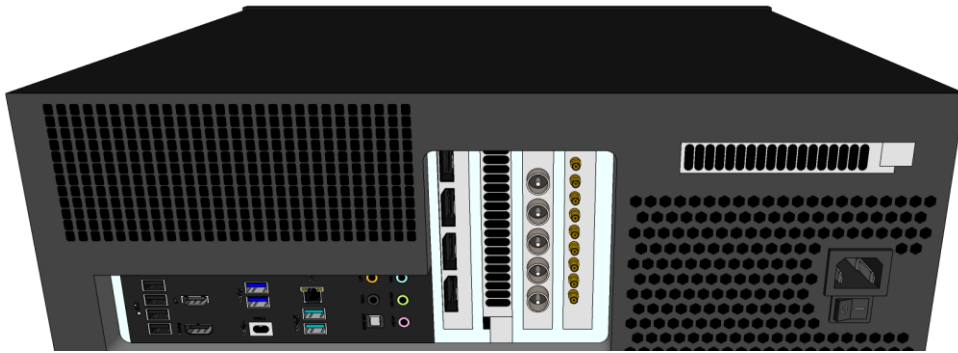| Item	Details
Futsal Penalty Screen (Triple Line)	Type: KS-SCRN-LED960480 Size: 1080*600*145(mm) Material: Aluminum Function: ◆ Must be used together with Futsal Scoring Software. ◆ Display athlete's number and penalty time.

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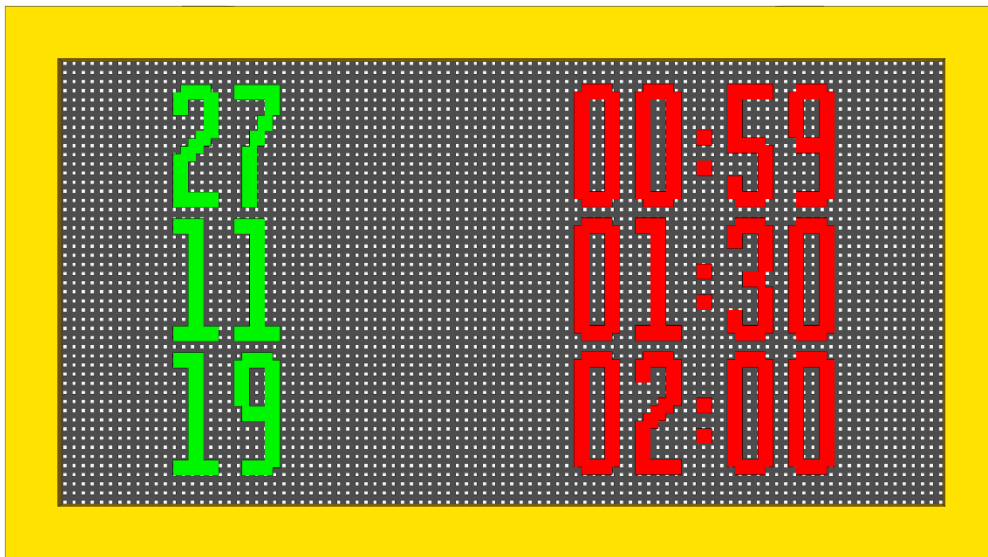
2.8 Meet Management Server

Products	Details
Meet Management Server	Type：KS-MMS-MINI Size: 170x150x35 (mm) Weight: 1.0 KG Features: ◆ Multi-court arrangement, auto generate the order form. ◆ Multi-project arrangement, make the schedule more smoothly. ◆ Monitor the status of each court in real time, including the current field, rotation and player info. ◆ Court adjustment, can manually modify the match court and session info. ◆ Summary and print integrated report.

2.9 Video Arbitration Server

Products	Details
Video Arbitration Server	Type: KS-PARROT-2C/4C/6C/8C Video Input: 2/4/6/8 channels input synchronously; Input port: SDI; Output port: DP*2; Video Format: 1080P; Recording capacity: ≥ 10 hours; Multi-screen monitoring: supported; Weight: 8kg.

Software interface

Device Specification

Type	KS-PARROT-2C/4C/6C/8C
Size	485x480×90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	DP*2
Environmental	
Operating Temp	-5℃～45℃
Storage Temp	-40℃～80℃
Relative Humidity	5%～95%, non-condensing
Input Voltage	AC 100V~240V
Functions	

◆ **Nonstop video recording in the background:** 2/4/6/8 channels of HD video are recorded simultaneously in the background, nonstop for 10 hours. Video retrieval and playback is unaffected.

◆ **Synch-playback of multi-channel video:** Supports playback mode of single channel video in full screen and multi-angle video in 2/4/6/8 windows.

◆ **Speed change in slow motion:** support 50 frame/s video playback and capture motion in a grid of 0.02s.

◆ **Video event query:** video stream can be divided into several video events, storing in the event list, which can be renamed for retrieve easily.

◆ **Video segment marker:** Important or controversial moments can be marked in video stream which will be replayed quickly when clicking the marked records.

◆ **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.

2.10 Control Panel

Products	Details
Control Panel	Type: KS-PARROT-CP Function: ◆ Support one touch replay, deferred replay, in/out replay. ◆ Preset speed button. ◆ T-Bar for dynamic slow motion. ◆ Professional dynamic jog wheel. ◆ Key to mark the last 10s/20s of the video content. ◆ Flexible select the marked video and playback.

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Device Specification

Type	KS-PARROT-CP
Size	365 x 200 x 98 (mm)
Net Weight	1 KG
Cabinet	Iron
Display	Color LCD(4.3Inch)
Sound	None
Communication	
USB	≤5m
RS232	≤10m
Environmental	
Operating Temp	-5~45℃
Relative Humidity	5~95 %, non-condensing
Storage Temp	-40~80°C
Input Voltage	AC 100V-240V
Total Power	15W

2.11 HD Camera

Products	Details
HD Camera	Type: KS-PARROT-CAMERA

Device Specification

Product Type	KS-PARROT-CAMERA
Video output	3G-SDI
Effective pixels	3.0 million
Max Resolution	1920*1080
Max Frame rate	60FPS
Sensor	CMOS
Focal length	4.2MM
Size	62.5*50*50MM