Architect & Engineer Specifications

Access Control Software

ZKBioSecurity

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Ver: 2.0

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1. General

This document has been developed by ZKTeco, which aims to detail the minimum specifications for the deployment, monitoring, maintenance, and operation of our **ZKBioSecurity** software.

1.1 Summary

The web-based software constitutes an integrated solution for controlling access, characterize access areas, real-time alerts, video management, card personalization, visitor management, and employee attendance all using a common database and enabling the use of different verification technologies. The All-in-One Software offers a highly efficient and automated solution that allows operators to quickly identify and handle an alarming scenario.

1.2 Scope

The platform adopts a micro-service development framework with robust system performance characteristics, high availability, scalable modules, fully secure communication, and strong third-party integration scalability.

1.3 Quality Assurance

ZKTeco is a globally renowned enterprise with biometric verification as to its core technique. ZKTeco shall provide technical assistance and support in all aspects.

1.4 Service

The customer service duration for this product is granted according to the subscription.

2. Product

ZKTeco is responsible for developing the standards, guidelines, including the minimum requirements. The deployment of ZKBioSecurity in an access control system using readers and controllers can enable a variety of entry, exit, and lock systems: Electrical locks, and Parking barriers.

2.1 Software Version

Deployed by: ZKTeco Co., Ltd.

Version: ZKBioSecurity V5000 and above

2.2 Software Specifications

Feature	Specifications
Version	V5000 and above
Door Capacity	2,000
User Capacity	30,000

2.3 System Requirements

PC/Server

1. 2.4GHz Dual-Core CPU or above

2. 4GB RAM or above

3. 30GB free disk space or above. We recommend using the NTFS hard disk partition as the software installation directory.

4. Display resolution of 1024 x 768px or above

Operating System

1. It is compatible with the following Operating Systems: Windows 7 / Windows 8 / Windows 8.1 / Windows 10 having 64 bits.

Database

1. Postgre SQL (Default)

2. SQL Server 2008/2012/2014/2016/2017/2019

3. Oracle 11G/12C/18C (Optional)

Client Web Browser

1. Internet Explorer 11+ / Mozilla Firefox 27+ / Google Chrome 75+

2.4 Minimum PC Requirements Without VMS

Feature	Specifications
CPU	Dual-core processor with speeds of 2.4GHz or faster
Memory	4GB or above
Storage	30GB free space or larger (NFTS recommended)
Monitor Resolution	1024*768 or above

2.5 Minimum PC requirements with VMS

Feature	Specifications
CPU	Intel(R) Core (TM) i5 6500 @ 2.6GHz or faster
Memory	8GB or above
Storage	100GB free space or larger (NFTS recommended)
Monitor Resolution	1024*768 or above

2.6 Key Features

1) All-in-one system with 13 modules and sub-systems, adaptable to all project sizes and industries.

2) Standard Access Control Features and advanced professional access control functions (Global Anti-Passback, Global Linkage, Global Interlock, etc.).

3) Powerful web-based time and attendance management software that can handle most of the complicated circumstances like flexible shifts, multi-level OT, cross day shift, and online leave application with multi-level approval.

4) Provides the most secure, scalable, versatile, and access control solution available for elevators, supporting elevator control in a building with a maximum of 58 stories.

5) Advanced Visitor Management module, improving the professionalism of the enrollment and visitor check-in process. It streamlines the enrollment process with pre-registration or self-registration options and allows users to create watch lists and screen against unwanted guests.

6) Automatic and intelligent vehicle management, effectively and accurately monitoring and managing vehicles at all exits and entrances using different identity assessment criteria.

7) Consumption (both Online & Offline mode) is a desktop-based restaurant management software module designed for restaurants to use all necessary and practical tools to speed up services and increase operational efficiency.

8) Online Guard Patrol module provides a new and cost-effective way to accomplish guard patrol management; guards will start and finish security patrolling at the arranged time.

9) Professional Entrance Control System realizes automatic control of passage control terminals.

10) Professional Video Management features such as real-time preview, video playback, linkage alarm, decoding video, monitoring by face images and alerts as suspicious individuals appear, alarm linkage, etc., providing multiple functionalities for various applications.

11) FaceKiosk management module allows users to manage advertisements and other things to display as a Visitor Self-Registration machine.

12) Standard third-party interface, with strong platform expansion capability.

2.7 Software Modules

The system is having 13 modules. Some of them are Access Control, Personnel, Time & Attendance, Consumption, Elevator Control, Visitor and Parking Management.

1. Access Control Module

This module is a web-based management system that enables normal access control functions, management of networked access control panel via computer, and unified personnel access management. The access control system sets door opening times and levels for registered users.

2. Personnel Module

This module is used to set Person details and their department. It primarily consists of two parts: Department Management settings, which is used to set the Company's organizational chart; Personnel Management settings, which is used to input personal information, assign departments, maintain, and manage personnel.

3. Time & Attendance Module

Through the shift management, it can achieve cross-regional attendance centralized control. You can apply for Appended Receipt, Leave, Overtime, etc. in Exception Management. You can also use this module to track attendance for access/parking and other functions.

4. Consumption Module

Based on controlled devices by software, it realizes the online consumption mode combining the functions of the Promerc-100 face consumer machine. The software mainly configures background data, including consumption time zone, commodity information, restaurant information and other data. Centralize various data on the device, generate consumption reports, and operate online account creating, refund, recharge, subsidy, etc. on the software.

5. **Elevator Control Module**

This module is mainly used to set device parameters (such as the swiping interval for taking elevators and elevator key drive duration), manage personnel's access rights to different floors and elevator control time, and supervise elevator control events. You may set registered users' rights to floors. Only authorized users can reach certain floors within a period after being authenticated.

6. **Visitor Module**

It is a web-based management system that implements entry registration, exit registration, snapshot capturing, visitor quantity statistics, booking management, and shares information among registration sites. It is highly integrated with the access control system and elevator control system. It is generally used at reception desks and gates of enterprises, to manage visitors.

7. **Parking Module**

It is an automatic and intelligent vehicle management module that effectively and accurately monitors and manages vehicles at all exits and entrances.

Let us dive deep into each module!

3. Access Control

The system needs to be connected to an access controller to provide access control functions. To use these functions, the users must install devices and connect them to the network first, then set corresponding parameters, so that they can manage devices, upload access control data, download configuration information, output reports, and achieve digital management of the enterprise.

3.1 Device

Add an access device, then set the communication parameters of the connected devices, including system settings and device settings. When communication is successful, the user can view the information of the connected devices, and perform remote monitoring, uploading, and downloading etc. In the Device, there are various access control functions:

1. Devices

2. Device Operations

3. Doors

4. Readers

5. Auxiliary Input

6. Auxiliary Output

7. Event Types

8. Daylight Saving Time (DST)

9. Device Monitoring

10. Real-Time Monitoring

11. Map

3.2 Access Control Management

In Access Control Management, a user can find these options: -

1. Time Zones (Max. 255 time zones per device)

2. Holidays (Max. 255 holidays per device)

3. Access Levels (Max. 255 access levels per device; unlimited per user)

4. Set Access by Level

5. Set Access by Person

6. Set Access by Department

7. Interlock

8. Linkage (Linkage of devices using the same panel)

9. Anti-Passback

10. First-Person Normally Open

11. Multi-Person Group

12. Multi-Person Opening Door

13. Verification Mode (Unlimited combinations - 25+ verification methods for each user and group at different time zones and doors)

14. Parameters

3.3 Advanced Functions

Advanced Access Control is an optional function. If it is needed, please contact a business representative or pre-sales engineer where you can use these functions after obtaining and activating a license.

In Advanced Functions, a user can find these: -

1. Zone

2. Reader Definition

3. Who is Inside?

4. Global Anti-Passback

5. Global Linkage (Linkage of cross-panel devices within the system)

6. Global Interlock (Cross-panel devices interlock within the system)

7. Global Interlock Group

8. Person Availability

3.4 Access Reports

It includes "All transactions", "Events from Today", "All Exception Events" and so on. Users can export the report after query. The user can generate statistics of relevant device data from reports, including card verification information, door operation information, and normal punching information, etc.

About the Normal and Abnormal events, please refer to Real-Time Monitoring for details.

Verification modes:

Card Only, Fingerprint Only, Password Only, Card plus Password, Card plus Fingerprint, Card or Fingerprint, etc.

In Access Reports, these functions are available: -

1. All Transactions

2. Events from Today

3. Last Known Position

4. All Exception Events

5. Access Rights by Door

6. Access Rights by Personnel

4. Personnel Management

Before using the other functions, please configure the personnel system: Personnel and Card Management.

4.1 Personnel

The Personnel Management module is an intuitive interface to add and manage employees in an organization. It helps in creating departments, specific designations and assigning access cards to employees. In Personnel, a user will find information as follows: -

1. Personnel Name (Max. 250,000 users)

2. Department (Max. 3,000 departments)

3. Position (Unlimited)

4. Personnel Dismission

5. Temporary Personnel

6. Custom Attributes

7. Parameters

4.2 Card Management

There are three items in card management:

1.   Card

2.   Wiegand Format (Configurable to integrate 3rd party card readers)

3.   Issue Card Record

5. Time & Attendance Management

To help companies perform information-based attendance management, this software implements automatic collection, statistics, and query of employee attendance data. This improves the management of human resources and facilitates the check-in of employees. This software enables the management personnel to collect statistics and check the employee attendance and enables the management department to query and appraise the attendance of all departments, thus allowing enterprises to accurately acquire the employee attendance data.

5.1 Device

This function includes adding a device, adding an area, and the access rights to the personnel.

Set the communication parameters of the device. The system can communicate with the device properly only when communication parameters are configured correctly, including the parameter settings in the system and the device. After successful communication, you can view the information on the connected device and can perform remote monitoring of the device/upload and download. The Attendance device can be configured to display the attendance by Area and by Person.

The Device module is further divided into these functions: -

1.   Set Attendance by Area

2.   Set Attendance by Person

3.   Device

4.   Personnel Area Settings

5.   Attendance Point

6.   Device Operation Log

5.2 Basic Information

In the Basic Information interface, a user will find these functions: -

1. Rules (Unlimited)

2. Customized Rules (Unlimited)

3. Holidays (Unlimited)

4. Leave Types (Unlimited)

5. Automatic Reporting (Configurable generation date or period)

6. Parameter Settings

5.3 Shift

Shift module is further divided into these functions: -

1. Breaktime

2. Timetable

3. Shift

5.4 Schedule

After setting the time & attendance and shift cycle, users can schedule on their own. Schedule management includes Group, Group Schedule, Department Schedule, Personnel Schedule, and Temporary Schedule.

✐**Note:**

Schedule management is divided into 4 groups, departments, personnel, and temporary scheduling. So, when the shift is scheduled to repeat, then at this time there will be a priority judging. This priority setting you can find under the "Basic Information" → "Rule" page. The default is "Department-Group", which is the highest priority shift.

In the same type of scheduling for a person, the software processing logic is as follows: Follow-up of the new shift will overwrite the previous shift. Suppose you have been added to shift A from June 1 to June 10. Now you have been added to a new shift B from June 5 to June 10, so from June 5 to June 10, so you need to work as per Shift B's schedule.

The Schedule function is further divided into these items: -

1. Group

2. Group Schedule

3. Department Schedule

4. Personnel Scheduling

5. Temporary Schedule

6. Unscheduled Personnel

5.5 Exception

In the Exception module, these functions are included: -

1. Appended Receipt
2. Leave
3. Business Trip
4. Go Out
5. Overtime
6. Adjust and Append
7. Adjust Shift

5.6 Calculation and Reporting

It is further divided into these functions: -

1. Manual Calculate
2. Transaction
3. Daily Attendance
4. Leave Summary
5. Daily Report
6. Monthly Detail Report
7. Monthly Statistical Report
8. Departmental Report
9. Annual Report

6. Consumption

This module allows the user to set up a consumption system with the device and realize its functions. The device can be set as either a "Consumer Machine", a "Cashier Machine" or a "Subsidy Machine". The "Consumer machine" type combines various consumption modes to meet the diversified consumption requirements such as fixed value mode or amount mode. The "Cashier Machine" type realizes the device recharge and refund function. The "Subsidy machine" type is used to receive allowances/subsidies. This module will collect the data from the device and summarize it on the various consumption reports. It can also perform various operations like issue card, card return, card suspend and resume, and other operations through the card reader connected to the software.

6.1 Basic Information

The Basic Information module is divided into these sections: -

1. Piecewise Fixed Value
2. Consumption Time Zone
3. Restaurant Information
4. Meal Information
5. Commodity Information
6. Key-Value Information
7. Card Information

6.2 Device Management

This module is used to manage consumer devices and as well as to set the basic parameters of the consumer system. The Device Management module is further divided into these functions: -

1. Device Management
2. Consumption Parameter

6.3 Card Management

Card Management is further divided into these options: -

1. Card Service

2. Card Management

3. Income and Expenses

6.4 Consumer Details

Consumer Details is further divided into these items: -

1. Refresh

2. Export

3. Error Correction

✍**Notes:**

- The same consumption record cannot be corrected repeatedly.

- Software error correction automatically produces two new records: One is the record for the system error correction of the return of the original error consumption amount, the other is the correct consumption record of the manual supplement.

4. Import Records from a USB

6.5 Manual Supplement

It is used to enter some consumptions record details manually in the system.

✍**Note:** Before performing this operation, you need to have the relevant operation card.

1. **New:** You can manually enter some consumptions entries. Click [New] to open the addition interface. You need to cross-check the relevant information on the card. When the user puts the relevant card into the card reader, click on read card to read the detailed data such as the Card Account, Card Number, Name, Person Number, Balance, Card Flow Number. Meals, Available Device, Consumption time and Consumption Amount.

2. **Refresh:** This feature is mainly used to update the interface content with new data.

6.6 Subsidy

Users can perform different functions by entering the subsidy page.

1. Add
2. Review the Audit
3. One-click Review
4. Reissue the Subsidy
5. Import Subsidies in Batches (sample template available)
6. Export
7. Delete
8. Edit

6.7 Consumption Report

The statistical report consists of 9 modules: -

1. Issue Card Table
2. Top Up Table
3. Refund Table
4. Subsidy Table
5. Table of Return Card
6. Card Cost Table
7. Card Balance Table
8. Non-Card Return Card Table
9. Table of Resume the Card

6.8 Statistical Report

The statistical report contains the statistical information of the consumption system module. It comprises six functions, i.e., -

1. Personal Consumption Table

2. Department Summary Table

3. Restaurant Summary

4. Device Summary Table

5. Income and Expenses Table

6. Meal Summary Table

7. <u>Elevator Control</u>

The following is the manual of online elevator control. If you are using offline elevator control, please refer to Offline Elevator Control Manual.

The Elevator Control System is mainly used to set device parameters (such as the swiping interval for taking elevators and elevator key drive duration), manage personnel's rights to floors and elevator control time, and supervise elevator control events. You can set registered users' rights to floors. Only authorized users can reach certain floors within a period after being authenticated.

7.1 Elevator Device

Elevator Device is further categorized into two functions –

1. Device

2. Reader

3. Floor

4. Auxiliary Input

5. Event Type

6. Device Monitoring

7. Real-Time Monitoring

7.2 Elevator Rules

It can control buttons of a common elevator and implement unified management on people going in or on access and exits of each floor through the elevator controller on the computer management network. You can set the rights of registered personnel for operating floor buttons on the elevator.

It is further classified into these functions –

1. Time Zones

2. Holidays

3. Elevator Levels

4. Set Access by Levels

5. Set Access by Person

6. Set Access by Department

7. Global Linkage

8. Parameters

7.3 Elevator Reports

It includes "All transactions", "All Exception Events", "Access Rights by Floor" and "Access Rights by Personnel". The user can export after querying.

8. Visitor System

After clicking [Visitor], the following window will pop up. Click **[OK]** to register the clients accessing the server to the Entry Place lists. For more details of registration of an entry place, please refer to Entry Registration.

8.1 Registration

The Registration module is divided into two functions i.e., -

1. Entry Registration

2. Visitor

8.2 Reservation

Host/Visited:

The personnel can reserve visitors for themselves by "Personal Self-Login". The method is the same as the above descriptions. For details about logging in to the personal-self system, please refer to Personal Self-Login.

Reservation Audit

Allows the administrator to review the employee self-reservation visitors, support rejection, and agreement.

8.3 Basic Management

Basic Management is divided into various functions: -

1. Parameters

2. Device Debugging

3. Print Settings

4. Visitor Levels

5. Host Levels

6. Visited Department Levels

7. Entry Place

8. Visit Reason

9. Custom Attributes

10. Advanced

8.4 Visitor Reports

Visitor Reports is categorized into two main functions: -

1. Last Visited Location

2. Visitor History Record

9. <u>Parking</u>

Modern parking management involves the management of various aspects, in which vehicle management is an important part. In special areas, such as special parking lots, military regions, government agencies, and residential areas, strict management must be performed on vehicles in real-time, that is, strictly monitoring the incoming/outgoing time, and registering and identifying vehicles (including internal and external vehicles). In large-scale areas, there are many incoming/outgoing vehicles. If each vehicle needs to be manually identified, it is time-consuming and difficult to implement management, query, and safeguarding, resulting in low efficiencies. To improve this management mode that is not suitable for modern parking lots, military regions, government agencies, and residential areas, it is urgent to implement automatic and intelligent vehicle management using computer networks to monitor and manage vehicles at all exits and entrances effectively and accurately. This requires corresponding application software for highly efficient and intelligent management of parking lots.

Functional Modules of the System:

This system comprises seven functional modules:

1. Operation Wizard: Guides users through the basic system configuration.

2. Authorization Management: License Plate registration, manages license plate authorization of fixed vehicles and temporary vehicles and extends the valid time of fixed vehicles.

3. Parking Lot Management: Sets the vehicle type, parking lot, parking area, channel entrance/exit,

and device, manages the blocklist and allowlist and sets parking lot parameters.

4. Guard Booth Settings: Configures the guard booth and channel, manual processing method and manual release reason.

5. Charge: Sets the fixed vehicle fee standard, temporary vehicle fee standard, and overtime charge standard, vendor discount strategy, guard booth on duty, and reconciliation.

6. Report: Performs macro analysis and monitoring on the charge details, handover records, vehicles in the parking lot, daily reports, and monthly reports.

7. Real-Time Monitoring: Implements most terminal functions, including video surveillance, entrance and exit snapping, duty information display, central payment station, manual release, remaining available parking spaces, blocklist and allowlist, charge details, and vehicles in the parking lot.

9.1 Operation Wizard

The Operation Wizard page guides users through the basic system configuration based on the operation procedure. The online monitoring function can be used after all basic configurations are completed.

9.2 Authorization Management

The Authorization Management module is used to license plate registration, authorize fixed and temporary vehicles, and extend the valid time of fixed vehicles.

It is classified into three main functions: -

1. License Plate Registration

2. Vehicle Management

3. Vehicle Valid Time Extension

9.3 Parking Lot Management

Parking Lot Management comprises seven modules: Vehicle Type, Parking Lot, Parking Area, Channel Entrance and Exit Area, Device Management, Allow-Block list, and Parameter Settings.

9.4 Booth Settings

Guard Booth Settings includes four modules: Guard Booth, Channel, Manual Processing Method, and Manual Release Reason.

9.5 Charge

It is mainly used to set charging rules for each vehicle type and vendor discount policies in the parking lot. Charge Settings includes seven items: Temporary Vehicle Charge, Overtime Charge Standard, Fixed Vehicle Charge Standard, Guard Booth on Duty, Discount Strategy, Business, and Financial Reconciliation.

9.6 Report

There are five types of reports: Charge Details, Handover Record, Vehicles in the Parking Lot, Daily Report and Monthly Report. You can analyze and collect statistics on the parking lot data to gain macro-control on the parking lot.

9.7 Real-Time Monitoring

Real-Time Monitoring provides real-time monitoring data and comprises two modules: Guard Booth, Guard Booth (When access controller is used for parking) and Monitoring Room.