User Manual

ZKBio CVSecurity A&E Specification

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English

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For further details, please visit our Company's website www.zkteco.com.

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The product will be updated from time to time without prior notice. The latest operation procedures and relevant documents are available on http://www.zkteco.com.

If there is any issue related to the product, please contact us.

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To know more about our global branches, visit www.zkteco.com.

About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader Door Locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual introduces the ZKBio CVSecurity A&E Specification.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

Document Conventions

Conventions used in this manual are listed below:

GUI Conventions

For Software	
Convention	**Description**
Bold font	Used to identify software interface names e.g., **OK**, **Confirm**, **Cancel**.
>	Multi-level menus are separated by these brackets. For example, File > Create > Folder.
For Device	
Convention	**Description**
< >	Button or key names for devices. For example, press <OK>.
[ ]	Window names, menu items, data table, and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forwarding slashes. For example, [File/Create/Folder].

Symbols

Convention	Description
	This represents a note that needs to pay more attention to.
	The general information which helps in performing the operations faster.
	The information which is significant.
	Care taken to avoid danger or mistakes.
	The statement or event that warns of something or that serves as a cautionary example.

Table of Contents

1   General

ZKTec prepares this document to detail the minimum specifications for the deployment, monitoring, maintenance, and operation of our **ZKBio CVSecurity** software.

1.1 Summary

The web-based software constitutes an integrated solution for controlling access, characterizing access areas, real-time alerts, Intelligent video management, card personalization, visitor management, and employee attendance, all using a common database and using different verification technologies. The Access Control Software offers a highly efficient and automated solution that allows operators to identify an alarming scenario quickly.

1.2 Scope

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

1.3 Quality Assurance

ZKTeco is a globally renowned enterprise with biometric verification as 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 and guidelines, including the minimum requirements. The deployment of ZKBio CVSecurity in an access control system using readers and controllers can enable various entry, exit, and lock systems: Electrical locks, and Parking barriers.

2.1   Software Version

Deployed by: ZKTeco Co., Ltd.

Version: ZKBio CVSecurity 5.0.0_R and above

2.2   Software Specifications

Feature	Specification
Version	5.0.0_R 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. 8GB RAM or above

3. 500 GB 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. Windows 7/Windows 8/Windows 8.1/Windows 10/Window 11/Windows Server 2012/Windows Server 2016/Windows Server 2019 64 bits

2. Linux Ubuntu® 20.04 and above

Database

1.   Postgre SQL (Default)

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

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

Client Web Browser

Internet Explorer 11+/Mozilla Firefox 27+/Google Chrome 75+/Edge

2.4 Minimum PC Requirements Without VMS Function

Feature	Specification
CPU	Dual core processor with speeds of 2.4GHz or faster
Memory	8GB or above
Storage	500 GB free space or larger (NFTS recommended)
Monitor Resolution	1024*768 or above

2.5 Maximum PC requirements with VMS Function

Feature	Specification
CPU	Intel(R) Core (TM) i5 6500 @ 2.6GHz or faster
Memory	16GB or above
Storage	1TB free space or larger (NFTS recommended)
Monitor Resolution	1024*768 or above

2.6 Key Features

General

1. Supports 2 UI styles (dark and light mode) switching.

2. Supports user-defined visualization dashboards and shortcut menus.

3. Supports 18 languages, switch language directly through the home page.

4. Provides different report dashboards for personnel, access control, time & attendance, parking, visitor, and entrance control module on the home page.

Personnel Management

1. Provides various types of authentication credentials, including face, fingerprint, multi-tech cards, password, palm, vein and QR code for multiple authentication methods.

2. Supports import and export of personnel information, biometric template, and personnel photo.

3. Supports quickly finding who is not registered with a face, fingerprint, palm, vein and multi-tech cards.

4. Supports card format testing and custom Wiegand format.

5. Supports batch issue cards, report lost card, reactive lost card.

6. User can call different field from the AD Server to map with the database.

7. Integrated with OCR readers and ID readers to improve registration efficiency.

8. Pre-set card layouts and print photo ID cards with a card printer.

Access Control

1. Supports remote door opening & closing, canceling an alarm, remote active lockdown, deactivating lockdown, and remote enabling/disabling the time zone function (passage mode).

2. Supports to set the door parameters include door validity period, verification mode, lock and open duration, Wiegand card format, REX Mode, card number reversal, REX delay, operation interval, REX time zone, door sensor type, anti-passback time, duress password, emergency password, passage mode time zone, disable alarm reminder, extend release time, open the door delay, and multi-person opening operation interval.

3. Supports to set usage time of the door; the reader is usable during valid time periods of particular doors and unusable during other time periods. Time Zone can also be used to set

Normal Open time periods or set access levels so that specified users can only access specified doors during specified time periods (including access levels and First-Person Normally Open). The system controls access according to Time Zones (Support maximum 255 time zones).

4. Users who are in case of emergency or duress mode can open the door with a special verification way, and the system can receive the duress alarm information.

5. In the real-time monitoring interface, it can operate the door, auxiliary input and auxiliary output; can monitor the connection status of the device, personnel entering and leaving, and the event logs; and support the platform alarm sound reminder and pop-up the personnel photo.

6. Allow the super user to unlock the doors when it is locked. Also, the super user can remove the "Normal Open-time" status of the doors.

7. Supports advanced access control functions: support first person normally open door, reader definition, who is inside, LED data display, global anti-passback global interlock group, global interlock, global linkage, when the set event is triggered, the linkage alarm output, video recording, opening the door, sending email, SMS, WhatsApp and Line notifications.

8. Supports Person Availability setting, it is mainly used to limit valid date/after the first use of valid days/use number of times of personnel in advanced access control area.

9. Muster Point Function: By setting a Muster point and installing access control devices at this safety. Point: When firefighting or emergency occurs, the linkage activates the safety point and opens the door.

10. After the personnel escape, they go to the muster point for verification, which is conducive to the rapid statistics of the escaped and dangerous personnel and improves the rescue efficiency.

11. Supports ZKTeco's access control device data transfer seamlessly: users only need to enter the serial number of the new access control device for data transfer from the original device. Also, this function supports restoring the setting from the original device.

Time & Attendance

1. Supports enabling the device, disabling the device, restarting the device, and synchronization of software data to the device. It can obtain device parameters, view device parameters, check attendance data, re-upload data, obtain designated personnel data and clear the device data. The clearing of device data includes clear device commands, clear device photos, and clear device records.

2. Multiple Attendance Methods: Supports multiple devices to be the time attendance point, such as Access Control Terminal LPR and Smart Camera. The system can export an original attendance transaction record and report.

3.   Supports for defining holiday types; The system supports sending the original attendance record and the daily check-in details to the specified user by mail or FTP at the configured time point in excel or txt.

4.   Supports setting up personal messages for employees, and display the messages when the employees check in on the device.

5.   Supports self-service login/rest period settings (normal time period and flexible time period). Users can set either a regular shift or a flexible shift. Each shift can be arranged daily, weekly, and monthly.

6.   Supports group, department, personnel, and temporary scheduling. Users can check the current system and find out the personnel who is not being scheduled. The application record directly affects the individual's attendance calculations.

7.   Supports employees' attendance management (i.e., when an employee applies for leave or overtime. Or when an employee makes up the check-in record). Users can check, review and calculate the employees' attendance records for approval.

Elevator Control

1.   Supports video capture and recording linkage. Also, it supports remote elevator door release and floor locking buttons. To enable/disable the operation of the usual opening period of the day.

2.   Supports destination control. Customize personal elevator calls regarding the individual access rights and access time. Supports linkage trigger personnel, trigger events, input points, output points, video linkage, effective time, email, and customize the linkage sound reminder information.

3.   Supports enabling, disabling, restarting, upgrading firmware, synchronizing time, and synchronizing all data operations on the device. Modifying the IP address, modifying the communication password, modifying the RS485 address and modifying the fingerprint comparison threshold. In addition, manually retrieved device parameters, personnel information, and event records.

Visitor

1.   Supports taking photos of visitors' accompanying items for archiving.

2.   Supports visitor account log-out automatically. When a visitor does not check out normally, the system will retain this visitor's information and remark on the visitor's status. When the visitor's visiting session expires, then the system will reset the status of the visitor automatically.

3. Supports access control for visitors individually and sets the elevator access level for visitors. There are various authentication methods for visitors to check in. For example, facial recognition, fingerprint verification, multi-tech cards, passwords, and QR codes.

4. Query the visitor's last visit location, visitor history, and timed pop-ups of unregistered visitors.

5. Supports specifying an access control device as an automatic check-out location, and verifying on a designated access control device indicates that a visitor has signed out.

6. Supports visitors' vehicle access control management by integrating with license plate recognition (LPR) services. The system can identify the visitors' vehicle's license plates quickly and identify whether the visitors' vehicle's license plates are on the allow list. Users can customize a daily visitor list and send an email to the responsible personnel.

7. Supports creating a visitors' monitor list. The visitors can be grouped into an allow list and blocklist. The system can save the visitors' monitor list information and can be retrieved promptly when the visitors revisit.

Parking

1. Supports managing parking lot effectively. Able to display the number of available parking spaces and occupied parking spaces clearly.

2. Supports security guard in reconciling accounts and changing accounts at the time of shift changes.

3. Supports setting up parking fee plan for frequently visit vehicles and temporary visit vehicles. Supports setting up overtime charging and parking fee discount conditions.

4. Supports batch import license plates using Excel.

5. The security guard booth has a real-time view of entry and exit records, duty information, and remaining parking spaces. In addition, the security guard booth can operate manual release, shift change, allow list & block list management, vehicle inquiry in the field, charging details inquiry, and parking restriction management.

Temperature Management

1. Supports real-time monitoring of people's temperature data and whether to wear masks.

2. Support statistics abnormal temperature records and enquiry of persons in close contact with suspected cases.

Entrance Control

1. Entrance Device can be upgraded firmware, restart the device, synchronize time, enable/disable, synchronize all data operations and set as registration device.

2. Supports obtaining device parameters, personnel information, event records, and query devices.

3. Supports remote opening barrier gate, canceling alarm, remote normal opening, enabling the daily normal opening time period and disabling the daily normal opening time period.

4. Supports to set the access level and anti-passback.

5. Supports global linkage, linkage video capture, video recording, email notification.

Video Management

1. Video Management Maximum supports 1024 video channels, support 64 channels prereview and 16 channels real-time playback simultaneously.

2. Basic video management features such as real-time preview, PTZ control, video playback, and decoding video.

3. View and handle intelligent camera alerts such as intrusion and fast movement on the software alarm center.

4. Intelligent Video Applications: the system will trigger the alarm when the camera detects the person or the car whose faces or license plates are on the blocklist. When the alarm is on, it will initiate other linkages such as the door switch and auto email notifications.

5. Supports searching of users and vehicles by picture and face/body/vehicle attributes.

6. Video patrol helps security guards to increase situational awareness and patrol performance. The software can keep the entire patrol records.

7. The watermark function protects and prevents users' photos and data from being copied and reused without permission.

8. Supports video intercom: After the device initiates the ringing, the host interface in the LAN will automatically pop up the intercom window to complete the operations such as answering, hanging up, and opening the door.

Intelligent Analytic

1. Tailing detection: By comparing the facial recognition and access control records, the system can validate whether the person has access rights.

2. Perimeter Protection Function: Smart video analysis can detect people's line crossing using real-time snapshots or video recording. Also, the system offers an intelligent dashboard and detailed summary report.

3. Personnel control function: Facial recognition function cross-check with allow list and blocklist to send notifications, alerts, real-time snapshots and detailed summary reports.

4. Attendance Checking Function: Real-time checking personnel attendance in the designated area. Visual data shows on an intelligent dashboard.

5. People counting: Dynamically count the number of people in the area, and trigger an alarm when the number of people reaches the set value.

6. "Advanced smart target search". The Intelligent Analytic module provides more comprehensive functions and supports the platform event search. The system can generate a detailed individual trajectory report using.

7. Supports multi-credential including such as age, ID card number, person's name, the reverse image, mask, glasses, jacket color, and trousers color.

Consumption

1. When integrates with ZKTeco's consumption machine, offering facial payment and stored value card methods.

2. Upon account registration, the system will record a summary of account's remaining value, transaction, and top-up history.

3. Supports managing the stored value card limit, setting system passwords, and setting single or double wallet modes.

4. Provides card issuance, recharge, refund, subsidy, card refund, card cost, card balance, card refund without card, loss report and cancellation report.

5. Provide personal consumption statistics, department summary, restaurant summary, equipment summary, income and expenditure summary, and meal summary reports.

Locker Management

1. Contactless facial recognition. Your face is the key. Users no longer need to carry a physical key, card or QR code to unlock the door.

2. Remote advertising placement to drive foot traffic.

3. Parcels and smart locker events can be track and trace.

4. Assign cabinets and booking cabinets online.

5. Support a cabinet for fixed use, temporary use, individual use and multiple users sharing.

Intrusion Alarm

1. Integrates with the Alarm Control Panels (BOSCH and RISCO) to monitor and control the partitions and points.

2. Supports defense zone display on the map.

2.7 Software Modules

The system is divided into seven modules, namely: Access Control Module, Personnel, Attendance, Consumption Module, Elevator Module, Visitor Module, Parking Module, Intelligent Video Module, Intelligent Analytic Module, Temperature Management, Entrance Control, Patrol Module.

Access Control Module

This module is a web-based management system which 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 time and levels for registered users.

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 person information, assign departments, maintain, and manage personnel.

Attendance Module

It can achieve cross-regional attendance centralized control through the shift and shift management. You can apply for Appended Receipt, Leave, Overtime, etc. in Exception Management. In this module, you can also attendance point for access/parking and other functions.

Consumption Module

Based on controlled devices by software, it realizes the online consumption mode combining the functions of the Promerc-300H/Promerc-300D facial payment station. 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.

Elevator 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 the destinated floors. Only authorized users can reach certain floors within a period after being authenticated.

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 for visitor management.

Parking Module

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

Video Management

A video management system (VMS) helps users automatically monitor events from any number of surveillance (CCTV) cameras, alarms, or sensors. VMS software monitors all NVR resource and provides an at a glance view alerting security to any potential risks, threats, events, or scheduled tasks.

Intelligent Analytic

Video surveillance systems produce massive amounts of video data. Most of the video never gets watched or reviewed, and the human eye can't monitor such a high volume of cameras effectively. As a result, security incidents get missed and suspicious behavior is not detected in time to prevent incidents. These challenges and innovative technology have played a large part in the development of intelligent analytics.

Temperature Management

Under the epidemic situation, the device measures the body temperature of real-time monitoring personnel, alarms and monitors the abnormal body temperature records, and summarizes and warns these records, so that managers can take timely measures and play an active role in epidemic prevention.

Entrance Control

Connect the gate control board (such as PGIC Controller) through the passage device, and directly control the related parameters of the gate through the software, then control the entry and exit of the gate to realize the automatic management of the gate.

Patrol Module

The online patrol system in the access control devices can help enterprise management personnel to effectively supervise and manage the patrol personnel, plans, and routes. In addition, periodic statistics and analysis can be performed on the patrol routes and results.

3   Access

The system needs to connect 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 Device, there are various access control functions:

1. Device

2. Device Operation

3. Doors

4. Readers

5. Auxiliary Input

6. Auxiliary Output

7. Event Type

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 Levels

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 (Max.255 verification modes)

14. Parameters

3.3 Advanced Functions

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

In Advanced Functions, a user can find these:

1. Zone

2. Reader Define

3. Who is Inside

4. Global Anti-Passback

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

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

7. Global Interlock

8. Person Availability

3.4 Access Reports

It includes "All transactions", "Events from Today", "All Exception Events" and so on. You can export 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 event please refer to Real-Time Monitoring for details.

Verification mode: Only Card, Only Fingerprint, Only Password, 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 these functions:

1.   Personnel (Max.300,000 users)

2.   Department (Max.3,000 departments)

3.   Position

4.   Dismission Personnel

5.   Temporary Personnel

6.   Custom Attributes

7.   Parameters

4.2 Card Management

There are three modules in card management:

1.   Card

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

3.   Issue Card Record

5   Time & Attendance Management

ZKBio CV Security helps companies to perform information-based attendance management and implements automatic collection, statistics, and query of employee attendance data. This software improves the management of human resource and facilitates the check-in of employees. In addition, this software enables the management personnel to collect statistics and check the employee attendance and empowers the management department to query and appraise the attendance of all departments, thus allowing enterprises to acquire the employee attendance data accurately.

5.1   Device

This function includes adding device, adding area, and assigning it 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 Setting

5. Attendance Point

6. Device Operation Log

5.2   Basic Information

In Basic Information module, a user will find these functions:

1. Rule (Unlimited)

2. Custom Rule (Unlimited)

3. Holiday (Unlimited)

4. Leave Type (Unlimited)

5. Automatic Report (Unlimited)

6. Parameter Setting (Configurable generation date or period)

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, you can schedule it. 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 in 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.

Schedule is further divided into these functions:

1. Group

2. Group Schedule

3. Department Schedule

4. Personnel Scheduling

5. Temporary Schedule

6. Unscheduled Personnel

5.5 Exception

In 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 Calculate Report

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 Module

This module allows the user to set up a consumption system with the device and realize their 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

Basic Information module is divided into these modules:

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 also used for setting 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. Issue Card Table

Notes:

1) The same consumption record cannot be corrected repeatedly.

2) 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.

3) 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 of 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

3. One-click review

4. Re-issue the command

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 consumption system module. It comprises of six functions:

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   Elevator

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 verification.

7.1 Elevator Device

Elevator Device is further categorized into these 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 standard 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. In addition, 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   <u>Visitor System</u>

8.1 Registration

The Registration module is divided into two functions.

1. Entry Registration

2. Visitor

8.2 Reservation

1. Host/Visited:

The personnel can reserve visitor 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.

2. Reservation Audit

Allow 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   Parking Module

Modern parking management involves the management of various aspects, in which vehicle management is an important part. In particular areas, such as unique parking lots, military regions, government agencies, and residential areas, where deploying strict management 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 six functional modules:

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

2. Parking Lot Management: Sets the vehicle type, parking lot, parking area, channel entrance/exit, and device, manages the blocklist and allow list, and sets parking lot parameters.

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

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

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

6. 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 allow list, charge details, and vehicles in the parking lot.

9.1 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

9.2 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 Setting.

9.3 Booth Setting

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

9.4 Charge

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

9.5 Report

Report comprises five modules: 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 a macro control on the parking lot.

9.6 Real-Time Monitoring

Real-Time Monitoring provides real-time monitoring data and comprises two modules.

Guard Booth: Real-time monitoring of the current lane access, the remaining spaces in the current car park area, as well as quick processing of the current lane exceptions.

Monitoring Room: Real-time view of vehicle access, traffic flow statistics, parking charges statistics and parking space availability data for all car park areas.

10 <u>Video Management Module</u>

At present, we use video surveillance in almost all aspects of life. Although the monitoring system has been widely present in banks, shopping malls, train stations, traffic intersections and other public places, the actual monitoring tasks needs to be completed manually and the existing video surveillance system main function is recording, with no extensive functions.

With intelligent video module, we can analyze, track, and identify monitoring objects in real time, report abnormal events promptly and support timely decision-making.

Functional Modules of the System.

This system comprises 9 functional modules.

10.1 Video View

1. Ability to view up to 64 cameras simultaneously.

2. Support for custom layouts.

3. Ability to display related map after the camera is added on the map.

4. Ability to display the configured resource groups on the map and view the details, such as number of alarms, triggered alarm details and remark, etc.

5. Support people search and displays tracks on the map.

6. Ability to auto switch to sub stream of network camera according to the configuration of stream threshold.

    1) Enable auto-switching between mainstream and sub stream.

    2) Enable to set the mainstream threshold as 1/2, 1/4, 1/9, 1/16, 1/25,1/36, 1/64

7. The following functions are available on the tile toolbar for easy access to operator:

    1) Audio control.

    2) Capture: ability to save snapshots.

    3) Enable manual recording of displayed Network Camera.

    4) Ability to zoom in on video locally.

    5) Enable and utilize two-way audio.

6) Enable view instant playback.

7) Enable PTZ controls.

8) Intelligent overlays show the content of target recognition and perimeter behavior scribbling.

9) Enable OSD config.

10) Collection Camera.

11) Video on wall.

10.2 Playback

1. Ability to play back 1 to 16 cameras simultaneously.

2. Ability to display related map.

3. Ability to hover on the timeline to show the time.

4. Ability to fast-forward by 1x, 2x, 4x, 8x, 16x,32x, and slow-forward by 1/32x,1/16x, 1/8x, 1/4x, 1/2x.

5. The following functions are available on the camera playback tile toolbar for easy access to operator:

    1) Capture: ability to save JPG snapshots and search video by the captured picture.

    2) Digital zoom.

6. Search video files by time.

7. Search video files by Plan or Alarm.

8. Support video downloading.

10.3 Device Management

Search or manually add devices, configure functions, view status, and subscribe to alerts.

Device:

1. **AS1700:(Search or add IPC manually via HWSDK or ONVIF)**

View information: Device name, Firmware Version, Domain Coding, Device Number, IP address, etc.

Face Fortify: This function is usually applied to the entrances and exits of monitored buildings, Different fortification tasks are assigned to different personnel, and when the personnel in the prohibited list   database are identified, an alarm is triggered to remind the security.

Face list library: Set up and sync the face library and view the status.

Vehicle Fortify: This function is usually applied to the entrances and exits of monitored buildings, Different fortification tasks are assigned to different vehicle, and when the car in the prohibited list database are identified, an alarm is triggered to remind the security.

Vehicle List Library: Set up and sync the face library and view the status.

Alarm management: Set linkage alarm types and actions for cameras.

Task Management: Set up the back-end intelligence of the AS1700, such as behavior analysis, target video, and video structuring.

Storage Management: Set the storage strategy and server recording plan.

Subscription: Subscribe to alert messages.

2. **ZKNVR (Search and manual add IPC by ONVIF)**

Maintenance Management: Quickly jump to the ZKNVR web maintenance page.

Email Configuration: Configure the sending and receiving mailboxes.

Subscription: Subscribe to alert messages.

10.4 Decoding On The Wall

1. Decoder: Add or edit decoder; currently support PEMXP70/DEC6109.

2. TV Wall: Set the layout of the TV wall, the maximum support is 8*8.

3. Large Screen Control: Customize the display layout.

10.5 Search

1. Face search:

   1) Face search: Ability to find people by time, age, gender, masks, glasses, hats and see the details (pre-view, snapshot, playback), and add the snap picture to the face list.

   2) Target overall search: Ability to find people by time, face type, upper color, backpack, shape, helmet, Non-motor Vehicle Color, Non-motor Vehicle License Plate, and see the details (preview, snapshot, playback), and add the snap picture to the face list.

2. Vehicle Retrieval: Search for vehicles by device, time, license plate number, vehicle brand, vehicle type, body color, license plate color, license plate type, etc.

3. Target Comparison: Users can use the face 1:1 comparison feature:

   1) Compare two uploaded target images.

   2) Compare uploaded target images with the people's list library.

   According to the result of the similarity obtained, the system assists the manual to determine whether it is the same person.

4. Search Picture with picture: Image is imported into the ZKBio CVSecurity platform, the system automatically extracts the face feature value in the picture, and searches based on the feature value.

10.6 Intelligence

1. Target Intelligence: Configure target intelligence, including target parameters, mask recognition, and target recognition.

2. Behavior Analysis: Configure behavioral analytics, include intrusion detection, perimeter line, region entrance, region exiting, object left, object remove, wandering, fast move and electric bike.

3. Crowd Situation: Configure crowd situation, include Line crossing, queue length, population density and heat map.

4. General Intelligence: Include privacy protection, motion detect, lens blocking and sound detect.

5. Vehicle Intelligence: include vehicle detection, motor vehicle detection and identify illegal vehicle.

6. Intelligent Application:

   1) Mixed Detection: The mixed detection screen is mainly used to display the push record of each camera video live and target recognition, target overall, non-motor vehicle detection, vehicle inspection three types of event types, and the detail interface corresponding to the three events to view the live and video recording.

   2) Live Alarm: The system can display the latest reported alarms, and the alarm information of the interface is refreshed in real time (up to 100 alarms are displayed).

10.7 Statistics

1. Face report: Daily, weekly, monthly, and annual statistics allow data on lists, strangers, and prohibited lists to generate charts.

2. Face analysis: Count and graph people of different ages on a daily, monthly, quarterly, and annual basis.

3. Line-crossing statistics: Daily, weekly, monthly, and annual statistics on the movement of people across the line and generate charts.

4. Heat map: Daily, weekly, monthly statistics on the heat map of the area.

5. Historical alarm: Query the historical alarm data of NVR.

10.8 Video Patrol

By configuring the patrol plan, patrol time, patrol personnel to carry out video patrols.

10.9 Maintenance Configuration

One-click download logs for maintenance management.

11 Intelligent Analytic

The "Intelligent Analytic" module focuses on Intelligent Analytic business, and realizes design concepts such as enabling application, data analysis, process management and access control linkage based on scene application and data display through the perception and analysis ability of intelligent NVR or Intelligent cameras, providing intelligent and convenient Intelligent Analytic solutions for customers.

The whole module includes three menus: scenario application, business configuration and report. Scene application includes target finding, key personnel monitoring, tailing detection monitoring, perimeter protection, leaving the post and leaving the post, and number control functions.

11.1 Scenario application

1. Target Search: Provide more compensative functions and supports the full-platform event search of multi-credential such as person's name, ID number, reverse image search, gender, age, mask, glasses, jacket colour, and trousers colour and generating detailed person trajectory reports.

2. Personnel Control: Facial recognition function cross-check with allow list, blocklist and strangers list to prompt notifications, alerts, real-time snapshot and summary reports and detailed summary reports.

3. Tailing Detection: Facial recognition record can cross-check with access control record to validate any personnel enter without access control record.

4. Perimeter Protection: Smart video analysis with line crossing detection to detect anyone crossing the perimeter with real-time snapshots or short videos for crossed line objects, an intelligent dashboard and detailed summary report.

5. Attendance Checking Function: Real-time checking personnel attendance in the delegated area, intelligent dashboard.

6. People Counting: Dynamically count the number of people in the area, and alarm when the number of people reaches the set value.

7. Custom Dashboard: Custom configuration conditions generate dashboards, such as late arrivals on the same day.

11.2 Device Management

The feature includes adding cameras, smart boxes.

The camera's recording storage plan, the modification of the SDK connection password, and the viewing settings of the target list library. Can view camera model, IP address, status, video preview, web settings.

11.3 Service Configuration

Under this function, configure the time period and application module parameters.

1. Time Zones: Configure the time period.

2. Application Configuration: Personnel control, perimeter protection, trail detection, attendance checking and function configuration.

3. Regional Occupancy Control Configuration: People counting function configuration.

4. Custom Icon: Custom icons are used for the display of the people counting board.

5. Dashboard Configuration: Configure the conditions for the custom dashboard.

11.4 Report

The records of the events that have occurred include: all records of events in the smart scene module, line-crossing records, and trend reports, mainly for report management and trend analysis.

1. All Records

2. Entry & Exit Records

3. Trend Report

12 Patrol

The patrol management business can realize the effective supervision and management of the patrol personnel. The enterprise manager can formulate the patrol inspection plan and patrol route and can also formulate the regular patrol route and the statistical analysis of the results.

12.1 Route Monitoring

This function displays all the scheduled routes of the current day in the patrol plan. When the patrol personnel patrols based on the plan, the corresponding checkpoints in the patrol route will turn green. If the personnel do not patrol based on the plan, the checkpoints will turn red.

12.2 Patrol Basic Management

Before patrol operation, you need to add patrol equipment in the access control module and patrol personnel in the personnel module. In the patrol module, select Basic Management - Patrol Point Management, click Add, and in the pop-up Add window, configure the patrol point information. In the Patrol Module, select Patrol Management - Patrol Plan, and click Add. In the pop-up add window, configure patrol plan information - add patrol personnel - set patrol route.

1. Device

2. Checkpoint

3. Parameters

12.3 Patrol Management

Patrol - Patrol Equipment Management - Patrol Point Management - Set Patrol Plan - Set Patrol Group - Set Patrol Route - Personnel Patrol - Patrol Result Statistics.

1. Plan

2. Patrol Group

3. Route

12.4 Patrol Reports

In the patrol report, you can query all records, today's patrol records, patrol route statistics and patrol personnel statistics reports. You can choose to export all or export records after querying. For the configuration steps of report query and export, in the patrol module, select Report - All Records,

fill in the corresponding query information for all record reports, and click the query symbol to complete the query of all record tables.

1. All Transactions

2. Patrol Records Today

3. Patrol Route Statistics

4. Patrol Personnel Statistics

13 <u>Entrance Control</u>

This system is connected to the control board of the gate through the passage device (such as PGIC control panel), and directly controls the relevant parameters of the gate through the software, and then controls the entry and exit of the gate to realize the automatic management of the entrance control device.

13.1 Device Management

Add entrance control device, the device communicates with the gate control board through RS485, and then controls the gate. Set the communication parameters of the connected device, including the settings in the system and the settings in the channel standalone device and the gate. After successful communication, you can view the information of connected devices and perform operations such as remote monitoring and data synchronization of the device.

It is classified into 9 main functions:

1. Passage

2. Device

3. Gate

4. Reader

5. Auxiliary Input

6. Event Type

7. Daylight Saving Time

8. Device Monitoring

9. Real-time Monitoring

13.2 Entrance Control

By setting the gate authority group and assigning it to the corresponding personnel, the personnel's gate authority can be controlled. At the same time, it is possible to set up response rules to the gates through anti-submarine and linkage to adapt to different entry and exit scenarios.

It is classified into 5 main functions:

1. Barrier Gate Permission Group

2. Set Access by Levels

3. Anti-Passback

4. Linkage

5. Parameters

13.3 Passage Setting

By maintaining the gate's passage rules (control time period and passage mode), set the corresponding gate parameters, so that the gate can be directly controlled by software.

It is classified into 3 main functions:

1. Barrier Gate Passing Rules

2. Flap Barrier

3. Swing Barrier

13.4 Channel Reports

Including [**All Records**], [**Today's Visit Records**], [**Personnel Last Visit Location**], and [**All Abnormal Records**] reports. You can choose to export all or export records after query. According to the report statistics related equipment data, including gate operation information, verification information, etc. For normal events and abnormal events (including alarm events), please refer to "Event Monitoring" in Real-time Monitoring.

Authentication method: card only, fingerprint only, password only, palm print, card plus password, card plus fingerprint, card or fingerprint, etc.

1. All Transactions

2. Today's Access Records

3. Personnel Last Access Location

4. All Exception Events

14 Temperature Detection

Under the epidemic situation, the device measures the body temperature of real-time monitoring personnel, alarms and monitors the abnormal body temperature records, and summarizes and warns these records, so that managers can take timely measures and play an active role in epidemic prevention.

It is further classified into these functions:

1. **Real-Time Monitoring**

The Real-Time Monitoring interface allows the user to monitor the body temperature of the users with their image captured during verification. The mask and temperature data are collected at every entry and exit point of the premises if the personnel are registered in the device, with accuracy to ± 0.3 ℃ (±0.54 ℉). There are 3 different categories of records that are displayed on the monitoring page. They are:

- Personnel with abnormal temperature (masked or unmasked)

- Personnel without a mask

- Personnel with normal body temperature and mask

2. **Statistics Panel**

The statistics panel provides statistical data for the Administrators to analyze the number of users with normal body temperature, abnormal temperature, and unmeasured body temperature in a specific time period. The statistics can be filtered by time i.e., Today, This Week, and This Month.

3. **Temperature Raw Record**

The Temperature Raw Record displays the reports in event-time order i.e., sequentially as it happens regardless of Normal Temperature/Abnormal Temperature/Department/Masked/Unmasked. It also shows the Department Name, Body Temperature, Status, and Photo, which users can check instantly after verification.

4. **Individual Temperature Record**

This report displays all the body temperature details of a User or Personnel daily.

5. **Abnormal Temperature Record**

It displays the record of exceptional body temperatures i.e., above the body temperature threshold and the temperature of personnel which is not detected.

6. Department Daily Statistic

It displays the department-wise temperature detection records. A user can select a department from the list of departments in the left panel which displays the number of persons with normal temperature, abnormal temperature, and unmeasured in the specific department daily. It also displays the proportion of abnormal body temperature.

7. Monthly Statistics

It's to view the infographics of monthly.

8. Parameters

It allows the user to set the recorded body temperature threshold, which determines the category in which the recorded temperature falls into. For example, the threshold temperature is set to 37.3℃; if the recorded temperature is at 37℃, then it will be saved as "Normal Temperature." On the other hand, when the recorded temperature is 38℃, then it will be saved as "Abnormal Temperature." The temperature unit can also be chosen between ℃ or ℉.

15 Locker Management

The system provides online management of Locker-Pad 7B, including online assignment and booking of cabinets to personnel, remote placement of advertisements, viewing of device records, etc.

15.1 Locker Device Management

It is classified into 6 main functions:

1. **Device**

Add Lockepad-7B, view the status and information of the device, and control the device online (such as sending advertisements, assign administrator (s), cabinet user ID, utilization time, cabinet unlocking verification methods.

2. **Parameters**

Support mode switch: fixed storage mode or temporary storage mode, support multiple people sharing a cabinet mode.

3. **Visual Panel**

Cabinet utilization, absent or cancellation real-time data and online assign/booking of cabinets.

4. **Parcel and Cabinet Tracing and Track Records**

Parcels and smart locker events can be track and trace. Support cabinet number, cabinet size, cabinet personnel usage records, cabinet users' facial recognition photos record and data (date & time) history.

5. **Advertising Placement**

Support digital advertising placement on LockerPad-7B 7-inch display, including mp4 file types.

6. **Cabinet Check-In/ Check-Out Methods**

Cabinet check-in/check-out record through facial recognition and RFID verification.

16 Intrusion Alarm

Fully integrated with third-party (BOSCH/RISCO) alarm control panel, arming of partitions and zones, and real-time alarm viewing in ZKBio CVSecurity (supports GIS map-based alarm viewing).

16.1 Intrusion Device

It is classified into 4 main functions:

1. Device

2. Partition

3. Zone

4. Device User

16.2 Real-Time Monitoring

Real-time monitoring of which partition and which defense zone has an alarm.

16.3 Intrusion Record

All Event Records Search.