Introduction Guide
Introduction Guide

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ZKTeco Introduction

ZKTeco, founded in March 1998, is the globally leading enterprise of hybrid biometric verification technology, and has been for consecutive years selected as Top 10 Security Brands in China, and Top 10 National Brands in China. ZKTeco business covers various security and time management products and solutions, including time & attendance, access control, visitor management, carpark management, elevator control, video surveillance and smart locks etc. For years, ZKTeco has been experienced and innovating in the development and production of hybrid biometric verification technology, and owns the most patents and intellectual property rights registrations. ZKTeco is always promoting the development of hybrid biometric verification technology, and applies the technology to smart office, smart finance, smart traffic, smart security etc., and has been the first enterprise to provide comprehensive entrance management, car entrance management and freight inspection solutions. Today, ZKTeco owns the largest global service network in the industry, our businesses and partners are widely distributed all over the world, and there are more than 22,000,000 users daily in 180 countries and regions daily. ZKTeco is always striving to satisfy the needs of our clients, our branches offices have been located in more than 20 countries and regions, and we are expanding and exploring new markets. To provide the best user experience to clients, this is what ZKTeco always does.
50+ Global Branch Offices  20+ Global Exhibitions  3500+ Global Signed Clients

Almost 1000 R&D engineers
More than 500 sales people
More than 200 foreign employees

More than 500 technical consultants
More than 1000 workers
ZKTeco founding team release its in-house developed fingerprint algorithm ZKFinger2.0, which are widely applied to PC security and identity authentication field, and strives for the development of independent face recognition algorithms, fingerprint verification techniques in applications of identity card, as well as has started its exploration in biometric verification professions.

2002
Applied a 7,000,000 Shanghai Citizen Card Fingerprint Project. Provided fingerprint verification technology for more than 7,000,000 citizens, and has been the most authorized core technology provider in the field
Released ZKFinger 3.0 SDK

2007
Launched iClock series, the TFT time & attendance management products, which lead fingerprint verification industry to a new TFT era
The advancement of fingerprint products with the high performance Wi-Fi and GPRS communication technology has initiated the new generation of wireless security control and time management

2011
Launched BioCam 100, the First-in-the-World embedded face recognition camera
Launched InBio series, the First-in-the-World fingerprint access control panel
Established branch offices in Dubai, Thailand and Mexico

2013
ZKTeco established manufacturing centre for various products of entrance security and parking management

2015
Released ZKTime.Net 3.0, a new generation of time & attendance management software
Announced the opening of ZKAccess, the new independent security division in US

2019
Released the ZKLiveFace5.6 visible light facial recognition algorithm, which supports 1: N 12000 facial templates
Released the ZKLiveFace12.0 large-capacity near-infrared face facial recognition algorithm, which supports 1: N 12000 facial templates

1998
ZKTeco announces it will enter the industrialized civil market of biometric verification technology in a press conference co-held with Identix from USA in Shanghai, and released V20 access control device and computer protection product Biologon

2004
Released a series of fingerprint products and modules, including F4, the first fingerprint access control device
Becomes an international OEM provider for fingerprint products

2009
In 2009, ZKTeco launches the facial recognition algorithm ZKFace3.0, embedded hybrid biometric verification development tool ZEM600 Series, and face and fingerprint hybrid verification time attendance terminal. Dongguan Industry Base and subsidiary in U.S. are established.

2012
ZKTeco launched the first multi-biometric algorithm integrated with fingerprint, face, iris and vein recognitions

2014
ZKTeco launched the first-in-the-world face identification door lock and established Xiamen Software Centr

2016
Released X-Ray series inspection series and officially approved by the Ministry of Public Safety China
Established Security Research and development Center in Italy
Established branch office in the UK

2020
Released Computer Vision Palm Recognition Integrated VMS with ZKBioSecurity

Company History
What is Green Label

Green Label, a premium product line by ZKTeco, focuses on offering high-end Time & Attendance, Access Control and System Integration products with maximum security, nice user experience and ultimate convenience. With technical advancements including Visible Light Facial Recognition, SilkID Fingerprint Verification and improved hardware and software, Green Label enables truly one-Stop and customizable solutions of entire systems including 3rd party system integrations. With ZKTeco as a leading global security and time & attendance solution provider, you enjoy our strong sales and aftersales supports, global sales channels with more than 30 overseas branches, strict price structures, and maximum price and tender protection. ZKTeco Green Label Series, your only optimal choice of top-notch Security and Time & Attendance Solutions.

Why Green Label?

Cutting Edge Biometric Technologies

Visible Light Facial Recognition Technology
- Proactive Facial Recognition
- New Height of Anti Spoofing
- Speedy Recognition (in 0.5 second)
- Wide Pose Angle Acceptance (+/-30degree)
- Touchless for better hygiene

SILKID Fingerprint Technology
- Operability under strong sunlight
- Anti-spoof detection capability and superior image quality
- FBI/ISO standard fingerprint templates
- Eco-friendly and power saving

Hybrid Biometric
- High Standard of Security Level, cross check between different biometric recognitions
- Providing various biometric options & RFID in single device

End-to-end Solution
- Providing entire security systems from hardware to software
- Own factory for manufacturing ZKTeco’s products from PCB to biometric modules to final product.
- Over 500 software engineers for security system development including software, firmware and UI etc.
Open for Customization

For most enterprise-grade end users with special requirements and needs, in order to provide better solutions, ZKTeco opens up our solution products for customizations:

- Hardware and firmware
- User interface
- Special software / hardware add-on functions
- 3rd Party system integration & Database Mapping

Extra long Warranty period and product life cycle

- 36 months hardware warranty
- 12 months software warranty
- 12 months free software upgrade service
- At least 5 years hardware life expectancy (guaranteeing that hardware will not be discontinued in 5 years from purchase)
- All Green Label faulty devices have the priority right to be repaired

Global Sales Channel

- Over 30 overseas branches to help our partners to provide global aftersales services to their international-enterprise clients
- Global Connection to share with our partners helping them to deploy our system easily

ZKTeco Brand Awareness

- World's biggest biometric solution provider
- Deployed our solution to more than 35% of the Fortune 500 enterprises
- Industry Leader, as a Founding member of CBA (Chinese Biometric Association) and SEABA (South East Asia Biometric Association), Thailand Biometric Association, India Biometric Association & member of FIDO
One-stop Solution Provider

• Providing one stop solution from hardware to software and accessories
• Providing solutions including access control, time and attendance, entrance control, Security inspection, car park management, hotel management, video surveillance and computer vision analysis.
• Supports almost all types of RFID card formats

Hardware Advancement

• Higher storage capacity up to 50,000 Facial templates, 40,000 fingerprint templates and 100,000 records in a single standalone device
• Innovative Visible Light facial technology, which offers an outstanding performance of facial recognition of all kind of facial conditions, with make-up, glasses, hat, etc
• The latest high speed CPU boost up the biometric recognition speed to less than 0.5 seconds
• Providing varies biometrics (Facial, Fingerprint, Palm, Vein & Iris) and other recognition such as, RFID, UHF, QR code, barcode, Pin and smartphone
• Visible Light Facial recognition terminal provide adjustable biometric parameter for end user to adjust security level among different deployed areas
• Supports mobile snap shot facial registration with anti-spoof function

Software Advancement:

• Provides all web-based software, which greatly enhanced multi-person management experience
• Supports add-on High-Availability function, greatly enhancing system stability and security level
• Supports HTTPS protocol for a stable and secure communication
• United and neat UI design, easy for new comers to pick up operation

Customer Oriented Marketing Strategy

• Globally standardized policies with strict price structure and approval system to eradicate online sales
• The project-registration policy offers the maximum price and tender protection to the Green Label Client
• All software are controlled by paid-license
ZKBioSecurity is the ultimate “All-in-One” web-based security platform developed by ZKTeco. It contains multiple integrated modules: access control, time & attendance, consumption management, elevator control, visitor management, parking, guard patrol, FaceKiosk and intelligent facial recognition camera management, video (VMS) and other sub-systems. All sub-systems support both single-unit deployment and flexible deployment combination of multiple modules with effective linkage; and provide powerful integration capabilities and user visual data presentation analysis for various industries, truly achieving large-scale system-wide security intelligent management.
Features:

- ZKBioSecurity Introduction
- Time & Attendance
- LPR Camera for Parking
- Extra Large Management Capacity of Doors
- Smooth and Advanced Visitor Management
- Global Anti-Passback and Linkage
- Mobile APP
- OCR
- Professional Video Management System
- Visible Light Facial Recognition
- Web-Based Platform
- Email Notifications
- Face Intellect-Unconscious Access Solution
- FaceKiosk Management
- Flexible Elevator Control
- LPR Camera for Parking
- All-In-One Biometric Security Solution
- Micro-Service Architecture
- Consumption Management
- High Security Data Transmission
- Micro-Service Architecture

- All-in-One solution with 10 modules and other sub-systems, flexible for projects in all sizes and various industries
- Standard access control features and new professional A&C functions (Global Anti-Passback, Global Linkage, Global Interlock) available, satisfying different customers' needs
- Professional Video Management features such as real-time preview, video playback, alarm linkage, video decoding, monitoring with face images of individuals, alert for white/ black list personnel and so on, providing multiple functionalities for various applications
- Camera linkage and multiple linkage actions
- Smooth and advanced Visitor Management module; streamline enrollment with pre-registration or self-registration options, allowing users to create their own watch lists against unwanted visitors
- Security enhancement, such as improving the security of user passwords by avoiding the risk of password cracking by chance
- Multiple languages supported: English, Spanish, Chinese (Simplified), Chinese (Traditional), Russian, Indonesian, Thai, Vietnamese, Korean
- Standard third-party interface with strong platform expansion capability
All-In-One Diagram

"All-in-One" Web-Based Biometric Security Management Platform

ZKBioSecurity

Multi-Biometric Time Attendance & Access Control Terminal
- G2
  - Multiple Verification Modes:
    - Palm/ Fingerprint/ Card / Password
    - Dry, Wet and Rough Fingers
    - SilkID Fingerprint Sensor
    - Built-in Camera: Event Snapshot and User Photo

Revolutionary 3-in-1 Contactless Palm Recognition Terminal
- G3 Pro
  - Multiple Verification Modes:
    - Palm/ Face / Fingerprint / Card / Password
    - Dry, Wet and Rough Fingers
    - SilkID Fingerprint Sensor

Outdoor & Vandal Resistant Facial Recognition Terminal
- Proface X
  - Proactive Facial Recognition
  - Speedy Recognition and wide Pose Angle Acceptance
  - Enhanced Visible Light Facial Recognition
  - New Height of Anti-Spoofing and Touchless for Better Hygiene
  - Multiple Verifications: Face/ Card/ Password
  - IP68 waterproof and IK04 impact protection rating design

Professional Security Software
- All-In-One solution
- Simple Structure and Smooth Workflow
- Multi-door Management Capacity (Up to 2,000 doors in Single Server and unlimited doors in Multi-Server)

ZKBioSecurity Server

Elevator Control Panel
- EC10
  - Secure, scalable and versatile
  - Elevator Controls and Expansion Boards

Visible Light Facial Recognition
- BS-5541K
  - 4.0MP, 1/2.7" Sony CMOS, WDR
  - IR: 20M
  - ONVIF2.4
  - IP67
  - P2P, Mobile View

Video Surveillance
- Entrance Control
- SBTL8000
  - 10 pairs of infrared sensors for stronger tailgate detection
  - Easy switch, easy installation - RFID, fingerprint, face, etc.
  - Bi-directional operation control
  - LED passage indicator in both directions
  - Emergency mode allows free access when power failures or emergency

Parking Barrier
- PB4000
  - Parking barrier can be raised and lowered smoothly and steadily
  - Outer and interior casing can be separated easily allowing for maintenance and customization
  - Barrier gate can be fixed to the floor and connected electronically allowing for simple installations

Professional Security Software
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Professional Security Software
- All-In-One solution
- Simple Structure and Smooth Workflow
- Multi-door Management Capacity (Up to 2,000 doors in Single Server and unlimited doors in Multi-Server)
ZKBioSecurity is the ultimate “All-in-One” solution which offers a complete security management platform, it comes with 10 integrated modules.

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<td>10) Video Linkage</td>
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<td>11) System Management</td>
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**Personnel**
Personnel primarily consists of two parts: Department Management settings, which is used to set the Company’s organizational chart; and Personnel Management settings, which is used to input personnel information, assign departments and sub-departments (more than 10 levels), maintain and manage personnel information and setting.

**Access Control**
Access Control is a web-based management system which enables advanced access control functions, management of networked access control panel and standalone devices via computer, and unified personnel access management. The access control system sets door opening time and levels for registered users.

**Time & Attendance**
As an "All in One" security platform, the ZKBioSecurity contains a web-based time attendance module. Administrators can manage the Time Attendance anywhere once they can access to the Internet. Moreover, this is an powerful Time Attendance system, which can handle most of the complicated time attendance circumstance, such as, flexible shifts, multi-level OT, cross day shift and online leave application with multi-level approval.
**Consumption Management**

ZKBioSecurity consumption is a desktop-based restaurant management software module designed to offer restaurants all necessary and useful tools to speed up service and increase efficiency of operation. The customizable options offered in the system is ideal for any restaurant type including fine dining restaurants, bistros, fast food chains, cafes, bars, etc. ZKBioSecurity consumption module helps staffs to complete their tasks efficiently in line with their operational style and business.

**Elevator**

Elevator Control is designed to control the elevator access authentication, to manage access rights (using RFID card, Fingerprint, and other biometric technology) to different floors and supervise elevator events. Administration can set floor level for the registered user and interact with the access control module to achieve the one stop management purpose. Only the authorized users can access to certain floors and doors within a period of time after being authenticated.

**Hotel Management**

Provides hotel service management functions covering check-in, overstay, check-out, rate settlement, and lock setup and management.

**Visitor**

Visitor Module is a web-based management system that implements entry registration, exit registration, snapshot capturing, visitor quantity statistics, reservation management and shares information among registration sites. Integrated with the access control and elevator control module, it is used at the reception desks and gates to manage visitors.

**Parking Management**

Automatic and intelligent vehicle management effectively and accurately monitors and manages vehicles at all exits and entrances.

**Guard Patrol**

The Online Guard Patrol module is the new cost-effective way to accomplish guard patrol management. ZKBioSecurity can utilize the access control readers already in place as guard patrol check point readers. ZKBioSecurity terminals and readers boast biometric technology for added security. No additional equipment is required for the guard to carry.

**Video**

For high-level security demand, a video surveillance management platform is essential to most of the premises. ZKBioSecurity provides a video surveillance module which supports real time video and query video records, real time video pop-up alert when linkage event occurs. Moreover, this module can integrate with 3rd party cameras through private protocol and ONVIF. This module can also interact with other ZKBioSecurity modules such as access control, visitor, patrol, parking and hotel management.

**System Management**

System Management is designed to assign system users, configure the corresponding modules, manage the database, set system parameters and manage the system operation logs.
BioTime 8.0 Introduction

**Web-Based Multi-Location Centralized Time Management Solution**

- Easily manage hundreds of T&A devices under complex network (LAN/WAN/GPRS/3G/VPN)
- Multiple administrators who can access the web-based system
- Easy to set Timetable and Shift
- Easy to assign Schedule
- Easy to generate Report
- Automatically transferring transactions to the server

**Features**

- Web-Based Time Attendance Software
- Flexible and Smart Shift Scheduling
- Employee Self-Service
- E-mail Alert for Approval Request
- Auto-Synchronization of Biometric Templates by Area
- Multiple Admin Privilege
- Multiple Approval
- Real-Time Monitoring
- Attendance Calculation and Reports
- Supports Multiple Languages
- Easy Integration with API
- Mobile Application
BioTime 8.0 is a powerful web-based time and attendance management software that provides a stable connection to ZKTeco standalone push communication devices by Ethernet/Wi-Fi/GPRS/3G and working as a private cloud to other employee self-service by means of mobile application.

Multiple administrators can access BioTime 8.0 anywhere using a web browser. It can easily handle hundreds of devices and thousands of employees and their transactions. BioTime 8.0 comes with a friendly user interface that is able to manage timetable, shift and schedule and can easily generate attendance report.
BioTime 8.0 Introduction

Web-Based Multi-Location Centralized Time Management Solution

Retail shop in France
- G3 Pro: Multi-Biometric Contactless Palm Recognition Terminal

Retail shop in Indonesia
- G2: Fingerprint Time Attendance & Access Control Terminal

Retail shop in USA
- G3 Plus: Anti-Glare Face & Fingerprint Time Attendance & Access Control Terminal

Retail shop in Australia
- G4: Multi-Biometric Attendance & Access Control Terminal with Visible Light Facial Recognition

BioTime

USA Office

Australia Office

France Office

Indonesia Office
In 2016, ZKTeco first introduced the touchless palm recognition technology which was a breakthrough of touchless biometrics recognition, it was the first and the only recognition available. However, the previous technology was constrained by the angle tolerance and short recognition distance resulted in an imperfect user experience solution. After 5 years of R&D and the technological bloom of computer vision, in 2019 ZKTeco is going to launch the next generation 3-in-1 Palm Recognition Technology.
The newest generation of palm recognition technology is fully upgraded in all aspects in terms of recognition method, which combines palm, palm print and palm vein recognition as one, with the help of the delegated computer vision biometrics CPU, the whole recognition process can be finished in 0.35 second. Moreover, the computer vision technology has greatly enhanced the recognition performance, the angle tolerance is improved to as wide as +/- 60 degrees (roll axis), and the recognition distance can be up to 0.5 meters upon the palm-size. Most importantly, the anti-spoof ability has reached a new height of the industry, as the testing result has shown, all the testing subjects including, fake HD photos, fake HD video, and fake palm model cannot stand any chance to crack the system.

Product Introduction:
What is Palm recognition technology

Recognition Process

1. When the palm close to the camera, the camera will first function the palm recognition process to identify whether this is a palm, if the nearing object is not a palm, it will stop the further recognition process. If the nearing object is a palm, it will pass it to the next step.

2. After the palm recognition process, the infrared camera will be activated, and then processing the palm print recognition and palm vein recognition simultaneously, the camera will recognize the feature point of the palm print and cross-check with the database.

3. Meanwhile, the infrared camera will use the infrared light to observe the palm vein, which is normally unobservable by the human eye, same as the palm print, it will recognize the feature point of the palm vein and then cross-check with the database for its availability.
**Introduction of Palm Recognition**

**3rd Layer - Palm Vein Recognition**
In this stage, the infrared camera will be activated. Under normal sunlight, palm vein cannot be imaged, but under infrared light (wavelength 700 – 900nm), the palm vein will become visible as the deoxygenated hemoglobin in the blood exhibits stronger absorption characteristics than moisture in other tissues and tissues under infrared light. Using a near-infrared light source to illuminate the palm, the venous blood in the shallow layer of the palm absorbs most of the light, while the body tissue such as the skin absorbs light less and reflects the light back. Through the imaging of the image sensor, the venous blood vessels and other tissues are imaged with a strong difference in brightness, so that the structural distribution of the vein can be clearly distinguished. Hence the complication process to get a clear image of the palm vein, and the vein image is extremely complex which is involved with millions of vessels and some of the vessels are as tiny as a hair, it is almost impossible to replicate a qualified fake palm vein model to pass the recognition process.

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**Technological Features**

**Anti-spoofing Technology**
With the help of Computer Vision technology, the anti-spoof ability has been greatly enhanced. The 3-in-1 combination of palm, palm print and palm vein sets an extremely high bar for spoofing attacks to pass through. All attacks are guarded throughout three layers as follows:

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**1st Layer - Palm Recognition**
The latest algorithm contains the palm recognition function, it can identify whether the object is in proper "palm" shape, all the objects that are not in a proper "palm" shape will be identified as non-palm object and will be refused to process to the further recognition process.

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**2nd Layer - Palm Print Recognition**
After the 1st layer recognition, the palm shape object will go for the second recognition process, the infrared camera will recognize the palm print, as palm print is one of the unique features points of human being, and is formed by hundreds of thousands of lines, accurate replication of palm print is extremely hard to be done, and 90% of the fake palm will be identified and rejected in this stage.

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**3rd Layer - Palm Vein Recognition**
In this stage, the infrared camera will be activated. Under normal sunlight, palm vein cannot be imaged, but under infrared light (wavelength 700 – 900nm), the palm vein will become visible as the deoxygenated hemoglobin in the blood exhibits stronger absorption characteristics than moisture in other tissues and tissues under infrared light. Using a near-infrared light source to illuminate the palm, the venous blood in the shallow layer of the palm absorbs most of the light, while the body tissue such as the skin absorbs light less and reflects the light back. Through the imaging of the image sensor, the venous blood vessels and other tissues are imaged with a strong difference in brightness, so that the structural distribution of the vein can be clearly distinguished. Hence the complication process to get a clear image of the palm vein, and the vein image is extremely complex which is involved with millions of vessels and some of the vessels are as tiny as a hair, it is almost impossible to replicate a qualified fake palm vein model to pass the recognition process.
Introduction of Palm Recognition

Wide Angle Tolerance
The latest palm recognition algorithm was developed by Deep Learning and Computer Vision technology, and applied CNN algorithm and was trained up with hundreds of thousands of palm images, and completely understands how palm looks like in different angles. Therefore, in this generation terminal, the angle tolerance of palm image can be extended to as wide as +/-60 degrees in roll axis and slight angle twist in both pitch and yaw axes, which is almost reached the critical point of the widest angle acceptance of palm posture.

Ultra-long Recognition Distance
With the help of the HD image sensor and HD and infrared camera technology bloom in recent years, getting a clear palm, palm print and palm vein image in the range of 20 – 50 cm is absolutely simple. With ZKTeco's biometrics processing unit, the whole recognition process can be finished in less than 0.35s, which is absolutely one of the finest in the industry.

50cm of recognition distance and extra wide angle palm recognition
Enhanced Visible Light Facial Recognition is the latest technology of ZKTeco, aimed to overcome shortcomings of previous facial recognition and achieve an all-rounded upgrade on whatever performance and reliability. Facial Recognition has been considered as one of the rising biometric technologies and many are optimistic about its development in the future. However, the technological incapability of facial recognition has also been exposed along with the increasing usage in our daily life, mainly in the ability of anti-spoofing, threshold of processing power, environmental restriction on light source and pose of angle.

Therefore, this is precisely what the Enhanced Visible Light Facial Recognition developed for and the key to this breakthrough would be incorporating advanced technology. Visible light recognition is adapted to fill up those three technological incapabilities as aforesaid and has been passing through a continuous training to keep enhancing its performance.
Product Introduction: What is Visible Light Facial Recognition

Enhanced Visible Light Facial Recognition is the latest technology of ZKTeco, aimed to overcome shortcomings of previous facial recognition and achieve an all-rounded upgrade on whatever performance and reliability by using advanced technology. Facial Recognition has been considered as one of the rising biometric technologies and many are optimistic about its development in the future. However, the technological incapability of facial recognition has also been exposed along with the increasing usage in our daily life, mainly in the ability of anti-spoofing, threshold of processing power, environmental restriction on light source and pose of angle.

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Performance on practical applications

The Enhanced Visible Light Facial Recognition is rather an all-rounded upgraded version on previous facial recognition technology, not only qualified for general applications, it is also competent for advanced recognition task under a dynamic environment. Especially for its cutting edge anti-spoofing function, any business with high level of security needs will only find it a more reliable technology over the rest.

Product Specifications

- **G4**
  - Proactive Facial Recognition
  - New Height of Anti-Spoofing
  - Speedy Recognition
  - Wide Pose Angle Acceptance
  - Touchless for Better Hygiene

- **ZKBioSecurity Software**
  - All-In-One solution
  - Multi-door Management Capacity
  - Simple Structure and Smooth Workflow
Step through the enhanced Visible Light Facial Recognition

Input image

Face alignment

Augmentation

Face detection

Normalization

Data pre-processing

Anti-Spoofing

Deep feature extraction

Deep feature recognition

Loss function

Pattern classification

NN Classifier

Anchor

Pos

Neg

Euclidean Distance

Angular Distance

Training

Testing
Strength and Key feature of Visible Light Recognition

**Strength 1**
**Proactive Facial Recognition**
With the applied advanced technology and algorithm, Anti-spoof function has been greatly enhanced and is able to prevent fake faces, photos and video attacks, which is benefited from the power of visible light recognition which is trained up to conduct liveness detection by learning differences as lighting, texture and resolution.

**Opening doors without standing in front of the camera**
With the newest visible light recognition technology, if users would like to get access to the authorized area, they are no longer required to get close to the terminal and stop by for recognition, as the system is able to automatically recognize and track faces in video.

**Auto-recognizes Everyone**
This cutting-edge technology can recognize multiple persons in one single frame, and greatly enhanced the recognition distance to 3 meters (no need to que up)

**Strength 2**
**New Height of Anti-Spoofing**
Visible Light Recognition is a proactive facial recognition device, users no longer need to stand steadily in front of camera. When users pass through the specific area, they are possibly recognized automatically.

**Anti Fake Video Attack**
Visible Light Recognition is introduced to against intruders using fake videos to access the specific area, it is trained to identify differences between living human face and human face played in a video in terms of texture and resolution, consequently video attack can also be defensed.

**Enhancing Anti-spoofing Standard with Multiple Biometrics**
Visible Facial recognition System supports two-factor authentication of users to enhance security level. E.g. Users are only allowed to perform fingerprint / palm print verification progress to open doors upon successful authentication by the System, thus in full aspects improving safety level and satisfying complete security standard.

**Anti-Fake Photo Attack**
Anti-spoofing disallows intruders to cheat the system into granting entrance to a building to an unauthorized visitor by using the fake photo, this recognition can separate real persons and photos, thus disabling intruders to access the locked area of building.
**Strength 3  
Speedy Recognition**

The visible light facial recognition is way faster than the previous near Infrared facial recognition, and the recognition distance has been greatly extended up to 3 meters long, which significantly improves maximum traffic rate.

- **Ultra-fast real time Less than 0.6 Second**
  - The most advanced face recognition algorithm enabling industry-leading quick face recognition with less than a second.

- **High speed processing time**
  - Due to the low processing size of the image, visible light facial recognition provides a 3 times faster processing time than the traditional IR facial recognition.

**Strength 4  
Wide Pose Angle Acceptance**

As the visible light recognition is applied, the terminals now have true cognition of faces, which enables larger pose angle acceptance by applying 3D rendering.

- **Wide pose angle acceptance**
  - Visible light recognition technology enriched the pose angle of the recognition up to 30 degrees in all angles such as pitch, row and yaw.

- **Extra wide angle recognition (+/- 30 degrees)**
  - While most of algorithms only support 15-degree angle facial recognition, ZKBioFace supports 30-degree angle facial recognition.

- **Make-up, glasses and different styling acceptance**
  - Delighted by the advanced technology, the recognition technology now able to recognize human from the fundamental pixel level, which greatly enlarged the tolerance of make-up, glasses and styling.

**Strength 5  
Touchless for Better Hygiene**

Visible light facial recognition is a touchless biometric solution, which prevents diseases spread out through dirt.

- **Touchless & Hygiene**
  - In certain scenarios such as clinic, hospital, construction site, factory, etc, where have a relatively high hygiene level, a stable and reliable facial recognition technology will be needed for opening door, time attendance, opening gate. With the great convenience of this technology, staffs only need to walk straight thought and after the system matched the face and data, the door will be opened automatically.
Product Introduction
Green Label Series
Product Introduction
Green Label Series

G4
Multi-Biometric Attendance & Access Control Terminal with Enhanced Visible Light Facial Recognition

- Revolutionary SilkID Fingerprint Sensor
- Proactive Facial Recognition
- Wide Pose Angle Acceptance
- Enhanced Visible Light Facial Recognition
- New Height of Anti-Spoofing
- Touchless for Better Hygiene
- Multiple Verifications: Face/ Fingerprint/ Card/ Password
- Speedy Recognition

G3 Pro
Revolutionary 3-in-1 Contactless Palm Recognition Terminal

- Modern Design & Interactive UI
- Revolutionary SilkID Fingerprint Sensor
- Simple Management & Scalability
- Multiple Verification Modes: Palm/ Face / Fingerprint / Card / Password
- Outstanding Performance With Dry, Wet and Rough Fingers

G3 Plus
Anti-Glare Face & Fingerprint Time Attendance & Access Control Terminal

- Face Identification Operating under Strong Sunlight and Dark environment
- Revolutionary SilkID Fingerprint Sensor
- Simple Management & Scalability
- Multiple Verification Modes: Face / Fingerprint / Card / Password
- Outstanding Performance With Dry, Wet and Rough Fingers

G2
Fingerprint Time Attendance & Access Control Terminal

- Modern Design & Interactive UI
- Revolutionary SilkID Fingerprint Sensor
- Simple Management & Scalability
- Multiple Verification Modes: Fingerprint / Card / Password
- Outstanding Performance With Dry, Wet and Rough Fingers
Elite Pass
Robust Facial Recognition Terminal
Delegated for Entrance Barrier with
Ultra-large Capacity and Anti-corrosive Coatings

- Proactive Facial Recognition
- Speedy Recognition and wide Pose Angle Acceptance
- Enhanced Visible Light Facial Recognition
- New Height of Anti-Spoofing and Touchless for Better Hygiene
- Multiple Verifications: Face/ Card/ Password
- IP68 waterproof and IK04 impact protection rating design

Elite Access
Robust Facial Recognition Terminal with
Ultra-large Capacity and Anti-corrosive Coatings

- Proactive Facial Recognition
- Speedy Recognition and wide Pose Angle Acceptance
- Enhanced Visible Light Facial Recognition
- New Height of Anti-Spoofing and Touchless for Better Hygiene
- Multiple Verifications: Face/ Card/ Password
- IP68 waterproof and IK04 impact protection rating design

ProFace X
Outdoor & Vandal Resistant Facial Recognition Terminal

- Proactive Facial Recognition
- Speedy Recognition and wide Pose Angle Acceptance
- Enhanced Visible Light Facial Recognition
- New Height of Anti-Spoofing and Touchless for Better Hygiene
- Multiple Verifications: Face/ Card/ Password
- IP68 waterproof and IK04 impact protection rating design
Product Introduction
Green Label Series

EC10
Elevator Control Panel
• Secure, Scalable And Versatile
• Elevator Controls And Expansion Boards

InBio Pro Series
IP-Based Biometric Access Control Panel
• Truly Internal Biometric Identification
• Advanced Access Control Built-In
• More than Door Control, Can Be Functioned As Lights, Alarms And Intrusion Detection Panels

ProID Series
Physical Access Readers
• LED light and touch keypad.
• On-site adjustable Wiegand output (26 or 34 bits).
• Waterproof design suitable for indoor or outdoor applications.
• Black or white color available.

ProBio
Multi-Biometric Access Control Terminal
• Revolutionary SilkID Fingerprint Sensor
• Multiple Verification Modes:
  Face / Fingerprint / Card / Password
• Outstanding Performance With Dry, Wet And Rough Fingers

Inpulse+
Finger Vein Standalone Access Control Terminal
• Modern Design And Interactive UI
• High Security Finger Vein Recognition
• Multiple Verification Modes: Finger Vein / Card / Password
• TFT-LCD Color Touch Screen
• Simple Management And Scalability
ZKTeco has an extensive Time Attendance & Access Control hardware and software products range. This selection table assists you to compare all Green Label products against different requirements. Once you have any further questions, please email us at GL@zkteco.com for detailed discussions.

- Available
- = Not available
- = Optional
- A = Available Upon Customization

### Time Attendance

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<tr>
<th>MODEL</th>
<th>Feature</th>
<th>Fingerprint</th>
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### Access Control

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<th>ProCapture-WP</th>
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### Access Control Panel

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| ACCESS CONTROL | | | | |
| InPulse+ | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| InPulse   | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProBio    | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProFAC    | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProCapture-T | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProCapture-X | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProCapture-WP | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProRF-T   | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProRF     | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProFace X | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| Elite Access | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| Elite Pass | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |

| ACCESS CONTROL PANEL | | | | |
| InBio160/260/460 Pro | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |

| READER | | | | |
| ProID10 | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProID20 | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProID30 | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
| ProID40 | ✓     | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ZKBioSecurity |
ZKTeco offers a variety of softwares to suit the different business needs, and different requirements. We believe a clear function comparison guide would be a good helper of all of our customers. So, here is the software selection guide to help you sorting out the similarities and differences among all ZKTeco Softwares.

- ✓ = Available
- ✗ = Not available
- ● = Optional
- = Available Upon Customization

<table>
<thead>
<tr>
<th>Version</th>
<th>FEATURE</th>
<th>FUNCTIONALITY</th>
<th>Export Format</th>
<th>Web-based Application</th>
<th>Database Engine</th>
<th>Hardware</th>
<th>Browser</th>
<th>OS</th>
<th>Language</th>
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<tr>
<td>BioTime 8.0</td>
<td>Time Attendance</td>
<td>Schedule log, Daily attendance, Total time card, Attendance summary, Leave summary, First in last out, Exception, Department summary, Time card, Late, Early leave, Overtime, Absent, Multiple transaction, Break time</td>
<td>XLXS, PDF, CSV, TXT</td>
<td>PostgreSQL, MySQL, MS SQL Server, Oracle</td>
<td>G1, G2, G3, G3 Plus, G3 Pro, G4, G4L</td>
<td>Internet Explorer 11+, Firefox 27+, Chrome 33+</td>
<td>Windows 7/8/8.1/10, Windows Server 2003/2008/2012/2014/2016 (64 bits)</td>
<td>English, Spanish (Columbian), Chinese (Simplified), Chinese (Traditional), Russian, Ukrainian, Indonesian, Thai, Vietnamese, Korean, Arabic, French, Persian, Hebrew</td>
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<tr>
<td>ZKBioSecurity</td>
<td>Door Access</td>
<td>Advanced, Simple</td>
<td>Access: Transactions, Events from Today, Last Known Position, All Exception Events, By Door, By Personnel</td>
<td>PostgreSQL, Oracle11g, SQL Server 2005/2008/2012</td>
<td>InPulse+, ProBio, ProfAC, ProfCapture-T, ProfCaptureX, ProfCapture-W, ProRF-T, Elite Pass, Elite Access, ProFace X</td>
<td>Internet Explorer 11+, Firefox 27+, Chrome 33+</td>
<td>Windows 7/8/10, Windows Server 2008/2012 (both 32 bits, 64 bits)</td>
<td>English, Spanish, Chinese (Simplified), Chinese (Traditional), Russian, Indonesian, Thai, Vietnamese, Korean</td>
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</tr>
</tbody>
</table>

**TIME ATTENDANCE APPLICATION**

**ACCESS CONTROL APPLICATION**