



# EYECOOOL TECHNOLOGY PRODUCT BROCHURE

A multimodal biometric provider  
with over 25 years experiences



[www.eyecooltech.com](http://www.eyecooltech.com)

# CORPORATE PROFILE

Founded in 1997, Eyecool Technology (formerly Techshino) focuses on the R & D, application and service of multi-modal biometric technology and products. It owns in-house developed single modal algorithms ranging from fingerprint, face, iris, finger vein to multi-modal biometric algorithm including face and iris fusion, fingerprint and finger vein fusion. Eyecool Technology is committed to provide enhanced digital identity authentication and management for high-security, high-privacy and big database scenario application.

Eyecool Technology provides a whole set of biometric technology, products and services ranging from algorithm, SDK, unified biometric identification platform, management software, to biometric scanners and terminals. Until now, it has already served more than 3000 customers worldwide, covering finance, public security, government, military, education, civil aviation, enterprises and institutions, etc.



**400+**  
Patents



**108** National  
industrial standards  
formulation



**3000+**  
Global clients



**80%** market share of  
biometric finance in China;  
**20+** provincial and municipal  
public security cooperation



Won the **2nd prize** of  
National Technology Invention  
Awards in China



Iris algorithm ranked in the top  
list of NIST IREX10 competition.

Fingerprint algorithm is  
compliant with NIST MINEXIII.



Biometric devices are  
FBI IAFIS IQS, STQC certified.



**MOSIP**

MOSIP ecosystem partners:  
Devices and ABIS are  
compliant with MOSIP



Fingerprint and iris devices are  
listed in recommended list of  
Ministry of Public Security in China

# PRODUCT ARCHITECTURE

## Business Scenario

Smart Finance

Smart War Industry

Smart Park

Smart Home

Other Industrial Scenarios

## Product Layer

Multimodal Management Cloud Platform

ABIS Smart Finance Management Platform

ABIS Criminal Iris Platform

Smart Home Cloud Platform

Business Monitor Platform

Big Data Cloud Platform

## Platform Layer

ABIS Micro Service Engine

Multimodal Biometric Identification Platform

Standardized API

Standardized UPI

## Basic Capabilities

Algorithm

Face

Iris

Fingerprint

Finger vein

OCR

Multimodal

Service

Internet

Server

Storage

IoT

AI SDK

Big data

Edge Computing

## AIoT





# MULTIMODAL BIOMETRIC ALGORITHM

Eyecool Technology owns four original single-mode biometric recognition algorithms, including fingerprint, face, iris, and finger vein, as well as original multi-modal fusion recognition algorithms, winning multiple international algorithm awards.

Multimodal: Two single modal biometric features are fused into one multimodal feature, and the fused features are output for comparison and recognition

- **Features:** High security, ultra precision, and user-friendly experience
- **Scenario:** High security, strong privacy, big data base, achieving secure, precise, and strong identity authentication

## Fingerprint Recognition

- 2nd Prize of State Technological Invention Award
- Recommended Supplier of Algorithm Provider for China National ID Authentication Application
- FBI IAFIS Certification (PIV, Mobile ID, Appendix F)
- NIST MINEX III compliant

## Iris Recognition

- Ranked in the top list of NIST IREX10
- 2nd Place in NICE:II International Iris Recognition Competition
- Recommended Supplier of Iris Device Provider of Criminal Investigation Application in China
- Related device is India STQC Certified and MOSIP compliant

## Finger Vein Recognition

- Innovative cutting-edge technology
- Realize liveness detection and have been applied on a large scale

## Face Recognition

- Won the 2nd place in international LFW competition
- Large-scale practical applications in 20+ banks

## Multimodal Fusion Recognition

- Fingerprint + Finger vein fusion
- Face + Iris fusion
- 2021 AI Leading Technology Innovation Award
- When ERR is 1/100,000, the pass rate is greater than 99.8%;
- When ERR is one millionth, the pass rate is greater than 99.2%



# SOFTWARE PRODUCTS

- ABIS Multimodal Automated  
Biometric Identification System

- Biometric SDKs

# ABIS Multimodal Automated Biometric Identification System

Taking self-developed underlying fingerprint, face, iris, finger vein and multimodal algorithm as the core, Eyecool creates ABIS multi-modal biometric identification platform to realize safe, convenient, true and accurate verification of user identity. Relying on the Eyecool original underlying algorithm and unified data management, it has core functions such as multi-modal data perception, multi-dimensional data calculation, intelligent feedback decision-making, data security sharing, etc. It's applicable to the security risk prevention, intelligent identification analysis and identity verification services of computer network application systems in various fields.

## miniSearch

- 1:1 matching for verification
- 1:N search for recognition

## CheckLive

- Liveness detection based on image
- Liveness detection based on video

## DataManager

- File based biometric data storage
- Data storage management based on third-party database

## Match

- Image quality check
- Feature extraction
- 1:1 matching based on image or feature

## Detect

- Face attribute detect
- Body recognition & human behavior
- OCR

## Console Service Management

- Visual service management configuration center
- Visual service deployment
- Service operation monitoring center

## Match-Multi

- Feature fusion
- 1:1 comparison of biometric features: Single feature and fusion feature comparison, fusion feature and fusion feature comparison

## ABIS Advantages

### Advanced Performance

Relying on the multi-modal algorithms of Eyecool, it provides rapid and accurate identification based on hundred million-level database scenarios.

### Algorithm Fusion

Compatible with third-party algorithms and has the deep fusion ability of multi-modal algorithms integrating data, features and decisions, greatly improving the recognition accuracy and experience friendliness.

### Open Design

Adopts standard open architecture design, provides multiple standard interfaces, and realizes flexible customization and business system docking; Support rapid standardization integration with third-party algorithm services.

### Encryption for Security

Not save original data. For key data, use encryption algorithm for the verification and access to ensure the confidentiality, integrity and controllable access for information.

### Scalability

Adopts the cloud edge collaborative AI computing architecture based on cloud native, efficient and scalable. Being oriented to various large-scale application scenarios, completes the flexible combination of layering capabilities and service modules, supports the continuous delivery capability of DevOps, and ensures that operations and maintenance are visible, easy to manage, and controllable.

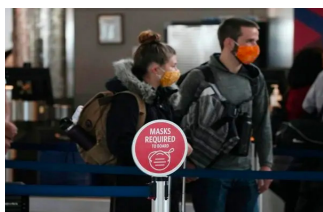
## Application Scenarios



National Biometric ID Database



Voter Enrollment and Identification



Border Control



Criminal Identification



Biometric SIM Card



E-KYC



Smart Building



Smart Campus



# Biometric SDK

Eyecool develops software development kits of fingerprint, face and iris based on autonomous biometric algorithms. They are designed for biometric system developers and integrators. Users can build their own stand-alone biometric application via Eyecool SDKs.

## Fingerprint SDK

SDK achieves image capture using specialized devices, fingerprint images 1:1 comparison and 1:N recognition, analyzing and determining whether fingerprints come from the same person through similarity based on fingerprint recognition algorithm independently developed by Eyecool Technology. Fingerprint recognition is the earliest and most mature biometric technology applied.

### Main Functions:

- Fingerprint 1:1 verification
- Fingerprint 1: N recognition
- Fingerprint feature extraction from image

### Application Scenarios



Financial internal risk control  
(authorized through  
fingerprint verification)



Education & examination  
(verify the identity  
of candidates)



Fingerprint access control



Attendance check

## Face SDK

SDK achieves image attribute detection, face images 1:1 comparison 1: N recognition, analyzing and determining whether they are the same person through similarity, and face retrieval based on the fifth generation facial recognition algorithm independently developed by Eyecool Technology; Filter out data with poor image quality through face image quality detection, such as blurring, excessive brightness/darkness, uneven lighting, low pixels, etc., ensuring the reliability of subsequent biometric recognition and analysis results, while also reducing unnecessary downstream business processing and saving computational power consumption.



## Main Functions:

- Face 1:1 verification
- Face 1: N recognition
- Face quantity counting
- Face image quality detection
- Face key points detection
- Face attributes recognition
- Face sentiment recognition

## Application Scenarios



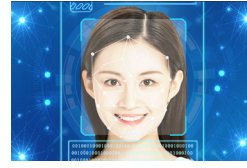
Bank counter business  
(collecting customer facial  
information for verification)



Identity verification on  
mobile app



Bank smart internal  
management  
(business system login)



Face recognition  
access control



Face recognition  
self-service machine

## Iris SDK

SDK achieves image capture using specialized device, iris images 1:1 comparison and 1: N recognition, analyzing and determining whether they are the same person through similarity. Iris recognition technology has extremely high anti-counterfeiting and reliability. Related iris devices of Eyecool Technology have been selected in the recommended list of iris data collector by the Ministry of Public Security in China.

## Main Functions:

- Iris 1:1 verification
- Iris 1: N recognition
- Iris feature extraction from image

## Application Scenarios



Access control recognition  
(iris image comparison  
precision recognition)



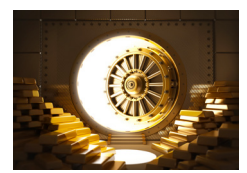
Coal mine  
attendance




Hospital operating  
rooms



Operation rooms access  
control (contactless  
recognition under mask cover)



Bank vault  
access control



# HARDWARE PRODUCTS

- Iris Scanner
- Face Recognition Devices
- Iris Drug Tester
- Multimodal Devices
- Fingerprint Scanner

# IRIS SCANNER

Researched and developed iris algorithm successfully in 2007, Eyecool possesses strong capability in iris recognition technology with 15+ years experiences. Based on powerful iris recognition technology, Eyecool developed various iris capture devices to be applied in different scenarios ranging from national scale voting project to identity verification on mobile end.

## Binocular Iris Scanner

TCI322

### Binocular Iris Scanner

#### Features

- STQC and MOSIP compliant binocular
- Meets ISO29794-6 standard.

#### Application Scenarios

- Criminal investigation
- Election
- Biometric database build



ECI351

### Binocular Iris Recognition Device

#### Features

- Mirror design iris recognition device

#### Application Scenarios

- Bank teller login
- Passwordless login
- Prison management
- Border control
- Examinee verification



## Binocular Iris Scanner Module

TCI301MS

### Binocular Iris Scanner Module

#### Features

- Compact iris scanner module
- Easy to integrate

#### Application Scenarios

- Mobile criminal investigation
- Online examine
- Voter verification





# MULTIMODAL DEVICES

Eyecool multimodal fusion biometric devices can realize simultaneous face and iris features capture and identity verification. The device can auto-adjust angle in line with user's height to realize auto capture of face and iris image. Combined with Eyecool proprietary multi-modal fusion algorithm, the device can realize much more accurate and fast identity verification than single modal devices.

## Multimodal Access Control

ECX333

### Multimodal Face & Iris Recognition Access Control

#### Features

- Face & iris multi-modal integrated access control
- Tri-color indicator lights and voice prompts
- Realizes recognition with covering, height adaptation, contactless temperature measurement
- Can be integrated into Eyecool cloud platform and other third-party platform

#### Application Scenarios

- Operating room access control
- General access control
- Bank vault access control



## Multimodal Scanner

ECX101

### Multimodal Face & Iris Integrated Recognition Device

#### Features

- Multi-modal face & iris scanner
- Tri-color indicator lights
- Automatic height adaptation

#### Application Scenarios

- Biometric database build
- Identity verification in coal mine
- Election





# FACE RECOGNITION DEVICES

Dual mode face camera and module are devices with both near-infrared and visible light lens. Liveness detection and face capture can be realized simultaneously using dual mode cameras. Paired with Eyecool proprietary face liveness detection algorithm, Eyecool dual mode camera series have been widely used in various industries especially finance in China. It realizes the functions of accurate face image capture, recognition and liveness detection.

## Dual Mode Face Recognition Access Control

ECF201

### Dual Mode Face Recognition Access Control

#### Features

- Adopt dual-mode face recognition algorithm with proprietary intellectual property rights
- Non-contact authentication and passage.

#### Application Scenarios

- Smart building
- Smart park
- Smart campus
- Enterprise access control



## Dual Mode Face Recognition Camera

ECF111

### Dual Camera Intelligent Face Tracking and Recognition Device

#### Features

- Rotatable dual mode camera with automatic height adaptation function
- Realize liveness detection and face capture simultaneously.

#### Application Scenarios

- National biometric database build
- Examinee verification
- Self-service machine login



TCF232G

## Dual Mode Face Recognition Device

### Features

- Patented design dual mode face camera
- Smart indicator lights
- Realize face image capture, liveness detection and detection under different light conditions.

### Application Scenarios

- Hotel check-in
- Identity verification for government businesses,
- Bank counter business



## Dual Mode Face Recognition Camera Module

TCF261

## Dual Mode Face Recognition Camera Module

### Features

- Compact and easy to be embedded into self-service machine
- Realize face image capture and liveness detection.

### Application Scenarios

- Self-service machine login.
- National biometric database build,
- Election
- Smart finance



# FINGERPRINT SCANNER

Started fingerprint algorithm and device R&D from 1998, Eyecool owns 25+ years experiences in fingerprint identification. Devices have been applied in banks from 2003, and reached 50 billion man-time used up to now. Fingerprint devices have passed India STQC test and FBI IAFIS IQS test, and are listed in recommended devices by Ministry of Police in China.

## Optical Single Fingerprint Scanner

TCO310

### Optical Fingerprint Reader

#### Features

- FBI Mobile ID & PIV, STQC certified
- Compact size, east to be integrated.



ECO320

### Optical Fingerprint Reader Module

#### Features

- Certified by FBI PIV and Mobile ID FAP 20



## Application Scenarios



Election



Mobile payment



Bank teller login



Examinee identity verification



# Semiconductor Single Fingerprint Scanner

## TCS316N

### Semiconductor Fingerprint Scanner

#### Features

- FBI PIV certified fingerprint scanner,
- Listed in recommended devices by Ministry of Police in China.

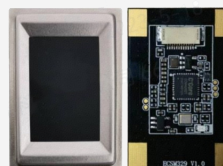


## ECSM329

### Semiconductor Fingerprint Scanner Module

#### Features

- FBI PIV certified fingerprint scanner module
- Easy to be integrated into 3rd-party equipment.



#### Application Scenarios



Identity verification on self-service machine



Biometric ID card



Examinee identity verification



Mobile payment

# Tenprint Livescan

## ECO500

### Tenprint Livescan

#### Features

- FBI Appendix F certified 4-4-2 fingerprint device
- Designed specifically for the toughest and largest scale work.



#### Application Scenarios



National biometric databases build



Biometric passports



Elections



National defense



Border control



# ECX108 IRIS DRUG TESTER

Eyecool Technology uses AI training algorithm to learn the iris and pupil changes of drug users and non-drug users, and improves the recognition accuracy through repeated training and correction on a large amount of data. It takes the lead in obtaining innovative results of iris drug testing algorithm, which can effectively and accurately screen and identify drug users, drug types and whether addicted.



## Features

### One-Click Rapid Screening

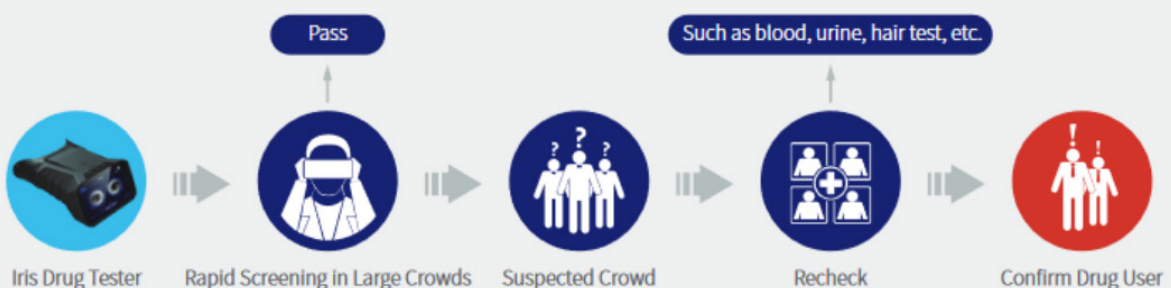
- With 4G and WiFi, it can handle cases online in real time.
- Complete the capture for drug testing in 5 seconds to reduce the risk of rejection and infection.
- The screening result verification can be completed in 10 seconds, which can identify drug users within 48 hours, differentiate drug type, whether long-term drug use, and the recognition effect is not affected by drug

### Network Verification

- With its own binocular ultra-clear iris and face capture module, and embedded ID card reader, it can realize local and online verification of identity information.
- With the high quality, information of the drug screening iris can be checked with the existing iris database to confirm the identity of the personnel.

### Real-Time Network and Online Law Enforcement

- The device can run the iris drug testing and screening function completely independently, and can also conduct online law enforcement connecting to network in real time. Data processing on cloud + local storage of verification logs ensure data security.
- It can work with data of other public security system joint case handling, AI algorithm in-depth learning, training and analysis continuously improve the accuracy of algorithm.



## Application Scenarios



Entertainment Site



Drug Driving



Hotel Check-In



Border Control



New Recruits Join  
The Army



Attendance Check of  
Civil Servants



## **Contact Us**

### **Get your customized solution rapidly**

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