

Principle of Access Control & T&A with Near-Infrared Palm Recognition (ZKPalm12.0)



In today's electronic information society, secure personal recognition is becoming more crucial. Palm recognition, including palm pattern and palm vein authentication, is one of the newest biometric techniques researched today, and it is also one of the permanence and physiological features of humans.

In particular, palm vein recognition uses the network of blood vessels underneath palm skin as a person's identifier. As palm vein is a kind of hidden biological information of the body, a vein pattern is more challenging for intruders to copy than other biological traits. In fact, the vascular patterns on the left and right hands are also different.

Palm vein cannot be seen under visible light but can be imaging under near-infrared ray (NIR). NIR imaging technique has wide applications in the biometric field, in which the NIR vein image has considerably significant benefits. Besides, finger or palm vein recognition, as a highly secure and convenient technique of personal identification, has received increasing attention recently.

Collecting of palm and vein images is simple and non-intrusive. Palm patterns or palm vein images can be captured without physical touch on any biometric data extractor, so there is no contamination from the surface to the user's hand.



What is Palm Recognition

ZKTeco's Access Control with Near-Infrared 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 technology, the whole palm recognition process can be finished in 0.35 second.

Moreover, the near-infrared technology has dramatically enhanced the recognition performance: the angle tolerance is improved to as wide as +/- 60 degrees (roll axis); the recognition distance can be up to 0.5 meters upon the palm-size.

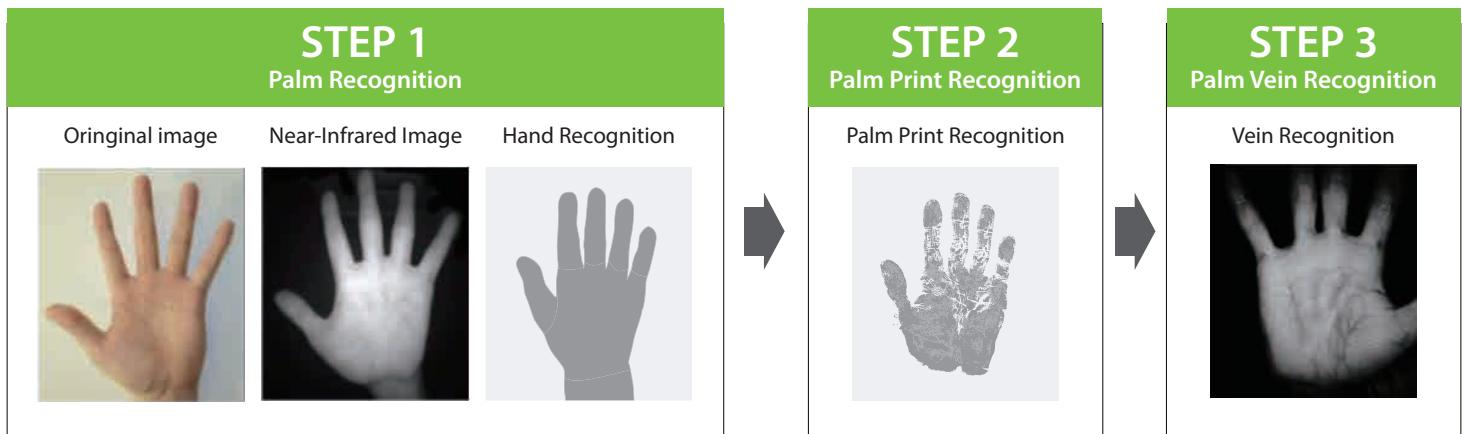
Most importantly, the anti-spoof ability has reached a new height of the industry, as the testing result shows, that all the testing subjects, including fake HD photos, fake HD videos, and fake palm models cannot stand any chance to crack the system.



Near Infrared Facial Detection

No need to touch the A&C terminal
Auto detection and identification of faces

How Near Infrared Palm Recognition Works



STEP 1: Palm Recognition

When a palm is presented close to the camera, the camera will first function the palm recognition process to identify whether the detected area 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 process to the next step.



 Hand Recognition

STEP 2: Palm Print Recognition

After the palm recognition process, the infrared camera will get activated and process 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.



Palm Print Recognition

STEP 3: Palm Vein Recognition

Meanwhile, the infrared camera will use the infrared light to observe the palm vein, which is not naked to the human eye, as same as the palm print. It will then recognize the feature point of the palm vein and then cross-check with the database for its availability.



Vein Recognition

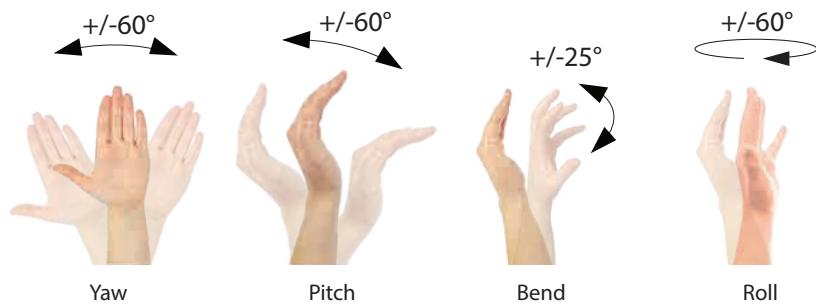


ZKTeco Access Control with Near-Infrared Facial Recognition Advantages



Unique Palm Detection Algorithm

ZKTeco's palm detection algorithm can detect the user's palm from the left/right, and front/back. At the same time, the algorithm allows ZKTeco's palm recognition to have a high detection accuracy for the palm tension and slack. Its high tolerance for palm gesture will bring an excellent user experience.



The palm recognition algorithm 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 +/-25 degrees which is almost reaches the critical point of the widest-angle acceptance of palm posture.

Anti-spoofing Technology

With the help of near-infrared palm recognition technology, the anti-spoof ability has been greatly enhanced. The 3-in-1 combination of palm, palm print, and palm vein set an extremely high bar for spoofing attacks to pass through. All breaches are guarded throughout three layers as specified.





ZKTeco Access Control with Near Infrared Facial Recognition Advantages

Ultra-Speed Comparison Algorithm

The algorithm uses a multi-level comparison mode, allowing the palm recognition device to achieve a breakneck comparison speed based on ensuring a stable comparison effect. At present, the single-core comparison speed of the common access control can reach one million times per second.

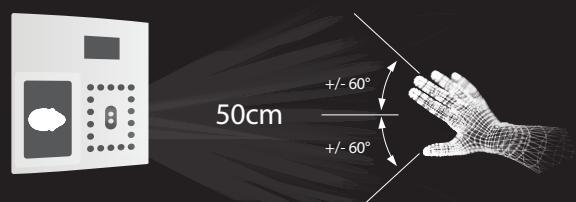
Strong environmental adaptability

In this algorithm, the area image processing technology is adopted to enhance the detected palm area, which not only effectively prevents the interference of ambient light, but also improves the ability to recognize blurred images. Besides, the ZKTeco's unique technology can even recognize a wider range of palm placement height.



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 30 – 50cm is simple.



50cm of recognition distance and extra wide angle palm recognition

uFace Plus Series

Revolutionary 3-in-1 Contactless
Palm Recognition Multi-Biometrics Terminal



Diverse product offerings

ZKTeco offers a wide range of high-quality products that meet the needs of global customers, from facial recognition terminals, network cameras to metal detectors that all integrate with the infrared temperature detection. With an emphasis on quality, technology, and cost-effectiveness, ZKTeco seeks to offer the best solution in a wide range of dimensions.



uFace202 Plus
Multi-Biometric T&A
and A&C Terminal



uFace302 Plus
Multi-Biometric T&A
and A&C Terminal



uFace401 Plus
Multi-Biometric T&A
and A&C Terminal



uFace402 Plus
Multi-Biometric T&A
and A&C Terminal



uFace602 Plus
Multi-Biometric T&A
and A&C Terminal



uFace800 Plus
Multi-Biometric T&A
and A&C Terminal



G3Pro
Multi-Biometric T&A
and A&C Terminal



Multibio 700 Plus
Multi-Biometric T&A
and A&C Terminal



PA10 Plus
Multi-Biometric T&A
and A&C Terminal

ZKTeco Products Applications

ZKTeco's touchless biometric solution is a good fit for this situation that is preventing people or patients from touching the door handle. The solution has been widely used in many practical scenarios, including hospitals, educational institutes, factories, construction sites, shopping malls, IT parks, public transportation, banks, business organizations, small to medium enterprises, government organizations and so on.



Hospitals



Educational Institutes



Factories



Construction Sites



Shopping Malls



IT Parks



Public Transportation



Business Organizations



Small to Medium Enterprises



Banks



Government Organizations



The Leader Of Security And Time Management Solution



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