

Hitachi Finger Vein Authentication: General FAQs

1. What are the advantages of finger vein authentication as compared with other biometric technologies?

Ans: Hitachi VeinID delivers a host of advantages over other forms of biometric security solutions such as:

Unmatched Accuracy - Rates for acceptance of false users or rejection of true users are among the lowest for biometric technologies. It can authenticate users of all skin types resulting in a near Zero Failure to Enroll Rate (FTER).

Speed - With Hitachi's patented light transmission technology, only a small amount of biometric data is needed for finger vein pattern-matching, Matching Finger Vein pattern is completed in less than 0.5 seconds, providing users a speedy and efficient authentication experience.

Highly Secure - Biometrics which use other external physical characteristics are susceptible to forgery and duplication. As finger vein patterns are hidden beneath the skin, forgery is extremely difficult and manipulation is made impossible. The security of data is not compromised as it is non-traceable and non-vestigial.

Compact in Size - Finger vein authentication devices are space-saving, compact and therefore applicable as embedded devices in a variety of applications.

User Friendly - Finger vein authentication is user-friendly - as the vein patterns of each finger are unique, each individual can choose to register multiple fingers for authentication purposes. It requires no physical contact with the sensors, only a minimal area of a finger guide comes into contact with the finger. Registration is possible even for dry, wet or dirty skin.

2. Are vein patterns different among identical twins?

Ans: Yes. From small-scale experiments, it has been shown that identical twins have different vein patterns.

3. In the event of tampering, if one's finger were severed and placed on the authentication device, would authentication take place?

Ans: No. As the blood would flow out of the finger, the vein patterns would not be recognised, thereby making authentication impossible.

4. Can finger vein patterns be falsified?

Ans: Unlike fingerprints and other biometrics which rely on external characteristics of the body, vein patterns are invisible to the eye and not accessible. This makes forgery or other falsification methods extremely difficult.

5. How many persons can be enrolled by the system?

Ans: Theoretically our system can handle up to a maximum of 6000 users. However, in a typical installation we recommend two finger enrollments per person. Therefore in a practical sense, we can enroll up to 3000 users. For the F-1 model, there is an additional flexibility to use iClass Smart Card which can accommodate up to 50,000 cards/users.

6. What type of communication interface is used between the Finger Vein Readers, Server PCs and Registration PCs?


Ans: TCP/IP Communications protocol is being used.

7. What is the Finger Vein template size?

Ans: About 512 bytes.

8. What type of cable can be used between the Finger Vein Readers, Server PCs and Registration PCs?

Ans: UTP Category 5e cable is being used to connect the Finger Vein Readers, Server PCs and Registration PCs together in a network configuration. Maximum distance between terminals and network switch shall not be more than 100m. For example, PC to Network Switch to Finger Vein Reader, distance between each item should not be more than 100 meters.



9. Can a person with dry or rough, fingers use the Finger Vein Reader and still be authenticated?

Ans: Yes. The use of light transmission to gather biometric data means that the condition of the skin surface does not affect accurate processing.

10. What type of technology is Hitachi using to capture the Finger Vein image?

Ans: Optical (CMOS or CCD Camera).

11. What are the power requirements for the system?

Ans: 12VDC. Typically in an installation, current requirements are about 3 Amps. This is dependent on how many peripherals are connected to the system.

12. What kind of maintenance is needed for the Finger Vein System?

Ans: Monthly cleaning of the camera lens is recommended.

13. What effects does the near infrared LED pose to user?

Ans: The system does not have effect on human health even though it uses a near infrared LED to detect the finger vein pattern. The strength of the LED is specified within JIS (Japan Industrial Standard). The LED strength is 100 watts per sq m, which is only 0.019% of the maximum acceptable exposure of 5,100 watts per sq m. Therefore, the LED strength is within a safe level.

14. What is a false acceptance rate (FAR)?

Ans: It is the rate of occurrence whereby another individual is mistakenly identified and authenticated as the true user.

15. What is a false rejection rate (FRR)?

Ans: It is the rate of occurrence whereby the true user is mistakenly identified as another individual and thus fails to achieve authentication.

