Installation and Maintenance Guide

1. Installation Tips

- **Indoor installation.** The iGuard terminal is designed for indoor installation. If one wishes to install it outdoors, one must beware of not exposing it to water or harsh conditions.
- **Earth connection of back metal plate.** During installation, one must be sure of connecting the iGuard back metal plate to Earth to prevent electrical impulses and shocks from affecting users or the iGuard terminals.
- **Separate power supply.** To prevent electrical shortage or short-circuits, it is recommended not to share the power supply of the iGuard with other devices such as electrical door lock.
- **Use of external relay.** To heighten the security level of the premises, do install the external relay together with the iGuard. This will increase security since the external relay is placed within office premises and not outdoors, as is the iGuard.
- **Environment.** Do not install the product next to heat emitting sources or in a place subject to direct sunlight or excessive dust.

2. Fingerprint Enrollment

Fingerprint Enrollment is to register the fingerprint template for later recognition. A good enrollment is crucial for all reliable fingerprint recognition systems, including iGuard. Here are some general factors that may influence the enrollment:

- **Finger Position**. Place the center of finger in the sensor center. The fingerprint may be positioned far left, far right, far up or far down. For instance, if a user enrolled a far left fingerprint. During verification, the user may press far right. Since there is no overlap between enrollment and verification templates, the user may be rejected. If the user enrolls the finger in the middle, there is a better chance of being accepted.

- **Finger area**. The best advice is to cover the sensor area completely with finger to ensure the maximum fingerprint surface contact area. A common mistake is to touch the sensor with the tip of the finger, which contains too few information (i.e., minutiae). It is also preferred to use the thumbs rather than other fingers.

- **Finger rotation**. It will be good for the user to keep the fingerprint rotation minimal during the enrollment. The rotation should be within ±10 degrees during enrollment.

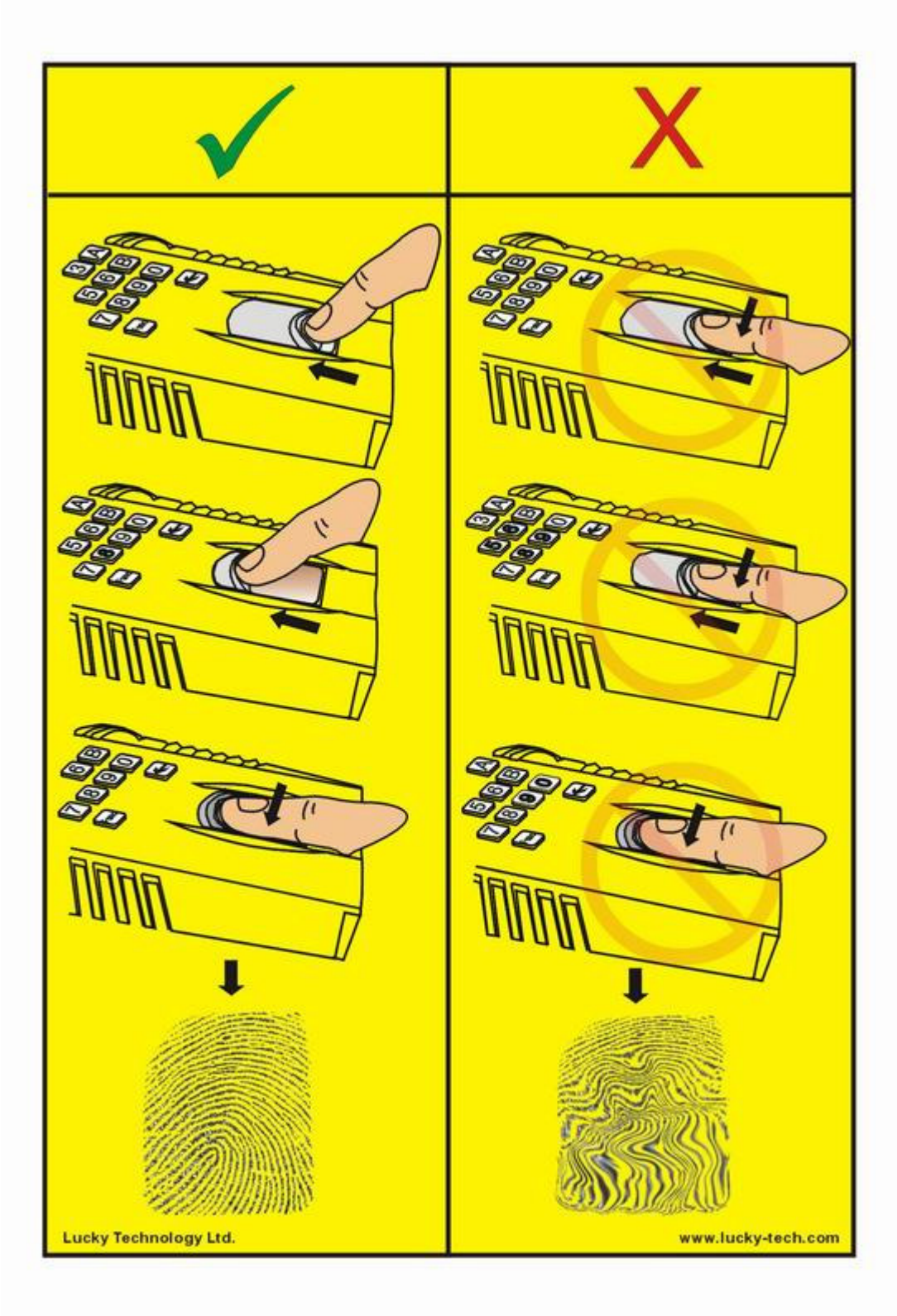
- **Finger condition, very dry or wet finger**. Although the iGuard's fingerprint sensor is designed to handle dry or wet conditions, it is wise to handle specially for very dry or wet fingers. The user can wipe wet fingers with cloth or paper towel. For dry finger, the user can moisturize the finger by breathing on it, by touching the forehead to pick up surface oil, or by applying small amount of skin-moisturizing lotion. The image quality could be improved tremendously by taking care of the dry/wet condition during enrollment.

  It is important that the user store a high quality image when enrolling a fingerprint, because this is the fingerprint that the user will be compared with in all the verifications afterwards. If the users enrolled fingerprint image is of low quality, the user may get unexpected results during the verification stage.

  Please note that during the less critical verification stage, the fingerprint image does not have to be perfect. The only requirement is to obtain enough unique "information" (i.e., minutiae) to match the fingerprint. Therefore, the above steps are usually applied for the enrollment stage only.

- **Finger pressure**. Use medium pressure. Excessive pressure may distort the image and adhere ridges together. Too little pressure would lead to a small fingerprint area or dry fingerprint.

Below are the diagrams showing the correct and incorrect ways of applying the finger during fingerprint enrollment or authentication.



3. Cleaning the Fingerprint Sensor

The fingerprint sensor is a rugged solid-state device designed to provide years of trouble-free service. Although maintenance and handling requirements for the sensor are few in number, observance of a few basics in caring for it will help to ensure a high level of performance over the life of the sensor.

- Oily deposits from your finger accumulate on the surface of the fingerprint sensor after repeated use. These deposits can inhibit the functionality of the sensor. The sensor should be cleaned regularly, depending on use, and it should also be cleaned anytime oily residue is visible on the sensor surface. Use rubbing alcohol and a clean cotton cloth/tissue or moist towelette to remove oily deposits.

- Do not use any soiled material to clean the sensor. A clean cotton cloth or tissue paper will absorb the deposits, but a soiled cloth will act as an abrasive. Rubbing alcohol is the preferred cleaning solution because it dissolves the oily residue and evaporates quickly.

- The use of nylon brushes or scouring pads, abrasive cleaning fluids or powders, or steel wool is not recommended.

Caring for the Fingerprint Sensor

The sensor is designed to perform well even under harsh conditions; nevertheless, some precautions should be taken to avoid damaging the sensor:

- The sensor can withstand a large amount of surface impact energy. However, we recommend that users avoid striking the array surface with sharp metallic objects.

- We also recommend users to clean their hands before authentication such that the finger would not carry debris and damage the sensor surface during authentication.