

Ease Employees' Privacy Concerns about Kronos' Biometric Technology

Biometric technology is quickly becoming the new standard for verifying employees in the data collection process, which in turn contributes to more secure work environments. While the benefits of biometrics are well documented, employees are raising concerns about the way this technology could affect their privacy rights. At Kronos, we understand and empathize with their apprehension. To address the issue, we developed our biometric terminal — the Kronos 4500 Touch ID™ terminal — with the specific intent of making sure employees' privacy is safeguarded.

Proven technology from industry leaders

The first step in designing the Kronos 4500 Touch ID terminal was to choose our business partners based on their ability to provide privacy safeguards. We selected Bioscrypt, the industry-leading provider of biometric fingerprint technology. Their technology helps alleviate employees' privacy concerns. Bioscrypt is committed to providing secure biometric solutions. They continually search for the latest advances in sensor technologies and software approaches to incorporate into the company's offerings.

Fingerprint versus finger-scan technology

With Bioscrypt biometric technology at its core, an unaltered Kronos 4500 Touch ID terminal does not actually collect and store fingerprints. Instead it saves an encrypted mathematical representation of an employee's biometric data.

This distinction is important because fingerprinting and finger-scanning are actually two very different technologies. Fingerprinting is the collection and hard-copy storage of the fingertip image. Kronos does not take a hard-copy of the fingertip image. Today these fingertip images are used by Automated Fingerprint Identification Systems (AFIS) for law enforcement or forensic purposes.

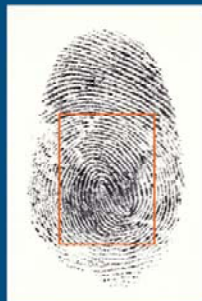
Finger-scanning technology — used in data collection terminals such as the Kronos 4500 Touch ID terminal — also acquires the fingertip image, but it doesn't retain the image. Instead it stores particular data about the fingertip in a much smaller template. When the Kronos 4500 Touch ID terminal scans a finger during a supervised enrollment process, only an encrypted mathematical representation of the fingertip is stored. As a result, it's virtually impossible to restore the original image.

Important AFIS differences

The Kronos 4500 Touch ID terminal uses a different algorithm than AFIS devices. The Kronos 4500 Touch ID terminal preserves and enhances the ridge pattern from an employee's finger. Features such as scars, cuts, or creases are removed since they can appear or disappear from measurement to measurement and degrade the accuracy of the comparison.

Alleviate Employees' Concerns with Finger-Scanning Technology

Step 1: Employees' fingerprints are scanned — not stored — before biometric data is converted.



Step 2: The image is converted to an encrypted mathematical representation, which can't be used to recreate the actual fingerprint.

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1011010
0110101
1101000
0010110
1001011
0100011
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AFIS devices are different because they employ minutia-based comparison techniques — such as scars — as part of the comparison. Since these components are removed during our enhancement and compression process, the mathematical representation that serves as a Kronos 4500 Touch ID template is unsuitable for AFIS identification systems.

There are even more key differences that can help ease users' concerns:

- **Ridge versus minutia** — The Kronos 4500 Touch ID terminal relies on the ridge patterns in the core of the scanned finger, which does not contain minutia data in the scanned template. AFIS devices rely on the entire rolled fingertip image to capture the minutia points in and around the core of the fingertip.
- **Lower resolution** — The resolution required to define the fingertip image ridge pattern for the Kronos 4500 Touch ID terminal is 160 dots per inch (dpi); this is much lower than the 500 dpi resolution required by AFIS devices.
- **Smaller capture size** — Our terminal uses solid-state sensors with active areas of less than $\frac{3}{4}$ of an inch by $\frac{3}{4}$ of an inch. AFIS devices require a full measure of the fingertip, which is typically a rolled fingertip image.

Biometric system accuracy and integrity

Employers and employees alike can rest assured that the Kronos 4500 Touch ID terminal is highly accurate and difficult to circumvent. Several security components are integrated into all fingertip sensors used within the Kronos 4500 Touch ID terminal. These include a dynamic optimization process that provides high fingertip image resolution and quality for very low false acceptance rates and active anti-spoofing technology, which helps reject fake fingers. The combination of these technologies contributes to the most powerful biometric solution in the industry. For example, the

biometric technology used in the Kronos 4500 Touch ID terminal uses a sub-surface technology that images below the surface layer of the skin. Unlike other technologies such as DC capacitive, skin surface conditions do not limit the ability of the sensor to capture fingertip data. Calluses, dryness, dirt, moisture, the effects of aging, or even contaminants have little or no effect because this technology captures the employee's live fingertip image from beneath the surface.

And with the active anti-spoofing technology, the Kronos 4500 Touch ID immediately rejects fake fingers. Any attempt to place a surface based fake finger — rubber stamps, finger molds, latex fingers, etc. — is rejected instantly because no image is acquired from the sensor.

The Kronos 4500 Touch ID terminal is your solution for alleviating employees' privacy concerns about biometric technology.

- **Mathematical representations** — The Kronos 4500 Touch ID terminal technology doesn't store actual fingertip images, just an encrypted mathematical representation.
- **Incompatible with AFIS devices** — The terminal uses unique resolution, capture size, and algorithms which make all data virtually incompatible with AFIS.
- **Highly accurate** — The Kronos 4500 Touch ID terminal ensures fast, accurate verification and minimizes false reads.

For more information on biometric technology or the Kronos 4500 Touch ID terminal, please contact your local Kronos sales office.



Improving the Performance of People and Business™

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