



# Biometrika

## Fx3000

### Fingerprint Scanner (Match-on-Board)



Fx3000 is a new smart scanner capable of processing and recognizing fingerprints on board (Match-on-Board).

The PC connected to the scanner is not involved in the processing of biometric data: images and templates of the users are not transferred to the PC, thus increasing security and privacy. Thanks to its safe area, the Fx3000 can internally store templates, files and passwords and is able to perform cryptographic operations.

Fx3000 is the ideal solution for digital signature applications (biometrically enabled). The PC sends the documents to be signed to the scanner, along with the specified certificate to be used. Access to the private signature key is granted once the user has been authenticated by his/her fingerprint.

Fx3000 is the ideal solution also for Single sign-on (or "passwords bank") applications, as it can internally store (within its safe area), the passwords that have to be provided to third party applications once the user has been biometrically authenticated.

## Technical specifications

### Fingerprint Sensor

- Optical, high resolution (569 dpi)
- Wide Sensing area (17.8x25 mm<sup>2</sup>)
- Size (WxHxD) : 75x65x125 mm

### Match-on-Board

- Core ARM9 (200 MHz) + 32 MB RAM
- Identity verification in less than 1 sec

### Storage

- Basic – 8 MB Flash

### Encryption

- Internal key generation (RSA 1024 bit)
- Digital signature (RSA)
- 128 bit Symmetric Encryption
- Challenge-Response
- PKCS#11 compliant

### Interface and development

- USB interface (Windows and Linux and Mac OS X)
- Smart Card reader (optional)
- Fx2000 compliant
- FX3 SDK, PKCS#11 SDK, Passwordbank SDK



# Fx3000 Desktop Fingerprint Scanner

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## Fingerprint Sensor

The high resolution of the sensor and the very large sensing area significantly improve fingerprint recognition accuracy. Thanks to these (top of the market) features, false rejections due to incorrect finger placement are drastically reduced.

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## Accuracy and Efficiency

Most of the match-on-board and match-on-card solutions available on the market function on slow CPU and are therefore vulnerable to inaccuracies compared to systems that match fingerprint images on a PC. The Fx3000 is equipped with a powerful microprocessor (RISC 32-bit, 200 MHz, core ARM9) and with 32 MB of RAM; this allows accurate on-board fingerprint matching to be performed in less than 1 second.

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## Storage

Fx3000 is equipped with 8MB of flash memory, where it is possible to store numerical data (called templates) extracted from the users' fingerprints. It is also possible to save digital certificates (x509), passwords (single sign-on) and other user's files. Maximum capacity enables the onboard storage of up to 1500 templates.

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## Encryption and Digital Signature

Fx3000 has several cryptographic capabilities. The communications between the scanner and the PC are encrypted (128 bit), by using a SSL-like protocol which negotiates session keys. The scanner can internally generate pairs of asymmetric keys (RSA) and export (in x509 format) the related certificate. Fx3000 can digitally sign (RSA) a document by using a private key (stored internally or on a smart card) once the key owner has been biometrically authenticated.

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## Security and privacy

Fx3000 capacity for performing onboard biometric and cryptographic operations represents a substantial improvement in security. Such operation performed on a PC are vulnerable to attacks or interception. This feature of Fx3000 boost safety and privacy, as the biometric data never leaves the scanner (unless explicitly required by the user).

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## Integration and development (SDK)

Fx3000 can be integrated in third party applications in two different ways:

**FX3 SDK:** The developer can either exploit the new match-on-board capabilities of Fx3000 or match fingerprint images on a PC (by using Fx3000 in Fx2000 compliant way).

**PKCS#11 SDK (custom solution):** implements the PKCS#11 interface, thus rendering Fx3000 a "standard" encryption token biometrically enabled. Existing applications, where smart cards are used for digital signature, can manage Fx3000 as a PKCS#11 compliant Smart Card.

**PasswordBank SDK:** Password Bank provides a safe way for storing pairs of usernames and passwords inside the Fx3000 scanner or inside a smart card This SDK enables the integration of the Password Bank functionalities in third party applications.

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