

EASYFINGER

A SPRINGCARD 2008 DEVICE



AGENDA



- The Product [p3](#)
- Software
 - USB Data Connection [p5](#)
 - Compatibility [p6](#)
 - About Fingerprints [p7](#)
 - Image acquisition [p8](#)
 - Matching [p9](#)
 - Sagem Morphosmart CBM Fingerprint [p10](#)
 - Contactless smartcard interface [p11](#)
 - Contact smartcard interface [p12](#)
 - USB interface and PS/SC mode [p13](#)
 - Legacy mode [p14](#)
 - SIM/SAM [p15](#)
- Hardware
 - Hardware specifications [p18](#)
 - Environment and Safety [p19](#)
- Security [p20](#)
- Applications and solutions comparison [p23](#)
- Contact [p27](#)

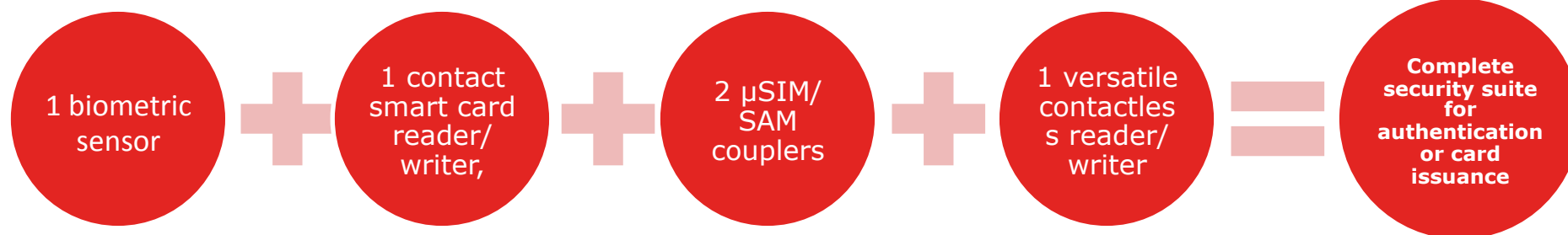
www.springcard.com

EasyFinger Springcard Presentation

EASYFINGER



- Next-generation all-in-one reader



- Attractive design



SOFTWARE



USB DATA CONNECTION



- EasyFinger integrates a USB hub.
- Seen by the computer as if there were 2 separate devices :
 - Sagem MorphoSmart™ CBM
 - Springcard CSB6 CCID* or Legacy

*Chip/Smart Card Interface Devices



COMPATIBILITY



- Two modes available:

PC/SC mode

- compliant with CCID (standard USB profil for smartcards readers) specifications
- PC/SC driver for Windows (2000, XP, Vista)
- Linux : works with open-source PC/SC Lite driver

Legacy mode

- 100% compatible with earlier products from Springcard
- allows a smooth migration without changing anything in existing software.



ABOUT FINGERPRINTS



Fingerprints are permanent and unique.

Unique characteristics known as ***Minutiae*** identify those points of a fingerprint where the ridges become bifurcation or endings, as illustrated in **Figure 1**.

Ridge Ending

Ridge Bifurcation

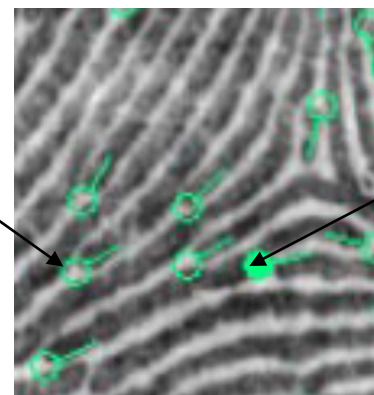


Figure 1: Minutiae are classified in two categories: Ridge ending and bifurcation

IMAGE ACQUISITION



- Secondly, the software uses the binarized image to determine the 'skeleton' of the fingerprint image, thus creating skeletons from ridge and valley.
- The biometric template is a mathematical representation of the original fingerprint based on the analysis of the ridge patterns.
- The template size is 256 bytes and is used during the matching process to compare it against a previously stored template

MATCHING



Verification process:

The system compares minutiae (not the fingerprint image), which were detected while coding the fingerprint image.

Image processed by the biometric service provider (BSP) has a corresponding cloud of minutiae (see **Figure 2**).

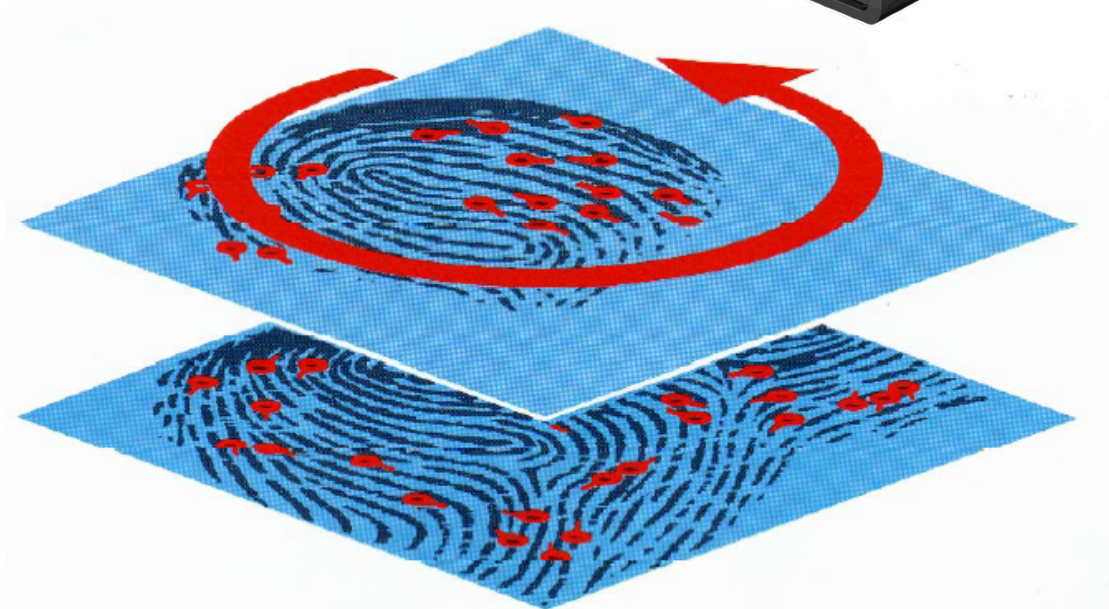


Figure 2 : Matching process

SAGEM MORPHOSMART CBM FINGERPRINT



Main characteristics

Sensor

- Thin optical sensor CMOS High Definition
- 500 dpi, 8 bits per pixel
- Active area : 14 x 22mm

Biometric features

- 1:1 and 1:N search
- Up to 1000 templates in internal database
- Verification time < 0,8s
- Identification time < 1s
- Tunable false acceptance rate

USB interface and drivers

USB 2.0 full speed (12Mbps)
Drivers for Windows ;
Supported as a virtual com. port under most other OS.
-> USB slot but not USB protocol

Software

- Compatible with Morpho™ Host Interface protocol
- Compatible with MorphoSmart™ SDK BIOAPI* software suite

- The Morphosmart CBM allows:
 - Enrollment
 - Authentication
 - Identification
 - Storage of minutiae on card and more



*SDK: Software Development Kit API:Application Programming Interface

CONTACTLESS SMARTCARD INTERFACE



Main characteristics	
Standards	ISO/IEC 14443 A and B, T=CL
RFID carrier	13.56 MHz
Operating distance	1 to 8 cm depending on card and environment
Card baud rate	106, 212, 424 or 848 kbit/s
Supported cards :	
<ul style="list-style-type: none"> ▪NXP (Philips) MIFARE Classic & UltraLight ▪NXP (Philips) DESFIRE, SmartMX, ProX ▪Infineon SLE66 family ▪ST MicroElectronics SR, SRI, SRIX families ▪ASK CTS256/CTS512 ▪Innovision Jewel tags ▪Calypso (CD97, CD21, GTML, etc) 	
And virtually any ISO/IEC 14443 A or B compliant card	

The contactless interface included operated at up to 8 cm.
It can exchange data up to 848kbit/s (**Maximum speed of the norm ISO 14443-AB**).

The interface supports many cards types including Desfire and Calypso.



EasyFinger Springcard Presentation



CONTACT SMARTCARD INTERFACE



The contact smartcard interface can work with both A (3V) and AB (5V) classes

Main data	
Card format	ID-1 (full size) 54mm x 85,6mm
Standards	ISO/IEC 7816, T=0 & T=1
Smartcard class	A and AB (3V or 5V cards)
Clock frequency	3,6864 or 7,3728 MHz
Card baud rate	Up to 115200 bps
Other features	Card presence detection Short circuit and thermal protection



USB INTERFACE AND PS/SC MODE



- **EasyFinger** provides USB 2.0 full speed interface, and works in PC/SC mode with windows and linux drivers.

USB interface	
Standard	USB 2.0 full speed (12Mbps)
User-selectable PC/SC or Legacy operating mode	

PC/SC mode	
Standard USB CCID profile	
Windows driver	Available on our website
Linux driver	Supported by pcsc-lite CCID driver
API and SDK	Full PC/SC – Free SDK available



LEGACY MODE



- Mostly fitting for regular customers
(who already know our specifications to communicate with the device and the computer.)

Legacy mode	
USB virtual serial comm. port API compliant with existing products (CSB4, CSB5, K531, etc)	
Drivers	Windows, Windows CE, Linux
API and SDK	SpringProx API SDK sold separately



SIM/SAM



- SAM: Secure Authentication Module
- SIM: Subscriber Identifier Module
- Used in banking (every ATM has a SAM for crypto operations)

SAMs handle all
crypto using
Hardware crypto
machines

Store & manage Keys securely

Encrypt/Decrypt and sign Data

Secure Back-office communication



SIM/SAM



- 2 SIM/SAM slots accepting A and AB smartcards is suitable to secure or authenticate contact or contactless transactions.

SIM/SAM interfaces	
Card format	ID-000 (μSIM)
Number of slots	2 (accessible after opening the device)
Standards	ISO/IEC 7816, T=0 & T=1
Smartcard class	A and AB (3V or 5V cards)
Clock frequency	3,6864 or 7,3728 MHz
Card baud rate	Up to 115200 bps



HARDWARE



HARDWARE SPECIFICATIONS



- The device includes a dual color led and weights 300g.

Main data	
Status indicator	1 dual-color LED (red, green)
USB connector	Mini type B
Power supply	9 to 12V DC – 500mA min.
Color	Black, with black label on top
Dimensions (LxWxH)	146 x 93 x (closed)
Housing material	Polycarbonate
Weight	≈ 300g



ENVIRONMENT AND SAFETY



- Like every other Springcard product, the **EasyFinger** provides environmental care and high safety levels.

Main Data	
Operating temperature	0 → + 50°C
Storage temperature	-40 → + 85°C
Durability	10 000 movements of cover 500 000 card insertions 10 000 SIM/SAM insertions
MTBF <i>(mean time between failures)</i>	500 000 hours
CE mark	EN50082 / EN55022 class B
Other standards	RoHS, FCC pending



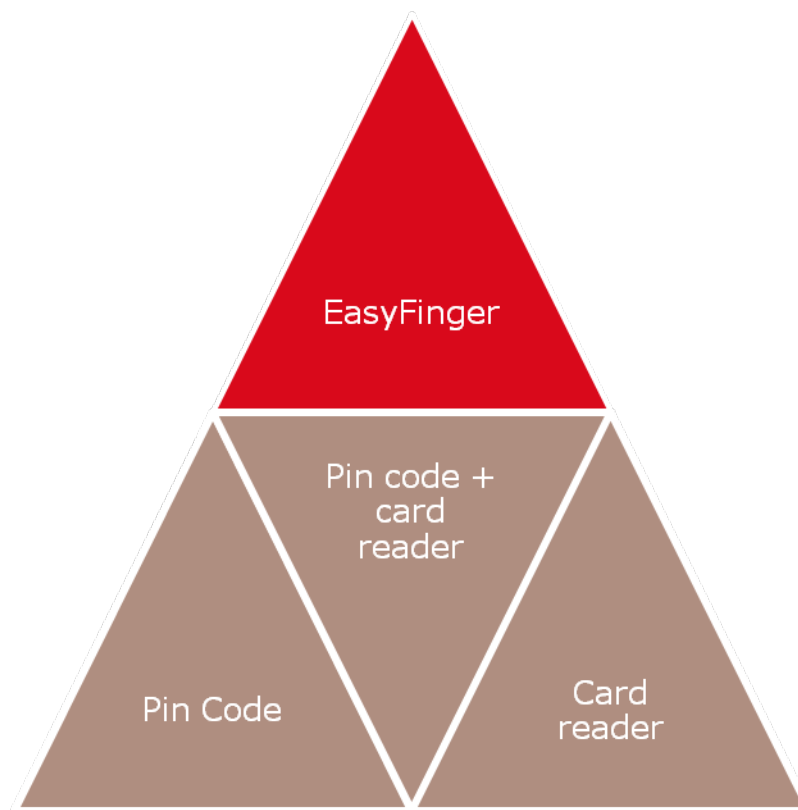
SECURITY



SECURITY



-  Strong authentication
-  Simple authentication



High
security



Low
security



SECURITY



- **EasyFinger Key features:**
 - Mutual authentication
 - Protection against replay attacks on the card
 - Integrity insurance (RSA* or DSA* signature)
 - X.509 (cryptography standard)
 - Confidentiality (3DES* encryption)



APPLICATIONS



APPLICATIONS



- Used in few applications like:
 - Electronical documents (Driver licence, ID card, etc)
 - Electronic Voting
 - E-commerce
 - E-banking
 - Enrollment for access control
 - And more



ACCESS CONTROL SOLUTIONS COMPARISON



Solutions Parameters	Pin code	Card reader	Pin code + card reader	EasyFinger
Identifiant/ Authentifiant transmissibility (voluntary or not)	★★★★★ Oral transmission	★★★★★ Card transmission	★★★★★ Oral transmission+ card transmission	★★★★★ Card transmission+ enrollment
Authentication access control reliability	★★★★★ Simple identification	★★★★★ Simple identification Individualized card	★★★★★ Strong identification Individualized card but most reliable thanks to the pin code	★★★★★ Strong authentication Individualized card Impossible to usurp or transmit a live fingerprint
Security reliability	★★★★★ Unindividualized code easy to transmit	★★★★★ Pre-enrolled card easy to transmit	★★★★★ Card and code easy to transmit/to share	★★★★★ Best identity checkout during the enrollment than others solutions



ACCESS CONTROL SOLUTIONS COMPARISON



Solutions Parameters	Pin code	Card reader	Pin code + card reader	EasyFinger
Comfort	★★★★★ Very smooth integration Requires to hit the code with caution	★★★★★ No code	★★★★★ Requires to hit the code with caution	★★★★★ Fastness High versatility Secured data
In case of identifiant loss/theft	No identifiant	Have to cancell your card with no delay	Pin code=additional constraint for an uninvited person	No risks in case of card loss because of the fingerprint control
Remarks	No cost	Too constrainant compared to the security provided	NONE	Very reliable and secured authentication system Requires fingerprint enrollment



CONTACT US

SpringCard

HEADQUARTERS, EUROPE

13 Voie la Cardon
Parc Gutenberg
91120 Palaiseau
France

Phone : +33 (0) 164 532 010
Fax : +33 (0) 164 532 018

SpringCard

AMERICAS

964 Fifth Avenue
Suite 235
San Diego, CA 92101
USA

Phone : +1 (619) 544 1450
Fax : +1 (619) 573 6867



EASYFINGER

A SPRINGCARD 2008 DEVICE

