# MORPHOSMART™ 1300 SERIES

## USB FINGERPRINT DEVICES FOR
## HIGHLY SECURE DESKTOP APPLICATIONS

- All-in-one solution: superior performance Enrollment, Verification and Identification
- FIPS 201 and MINEX compliant Feature Extractor & Matcher onboard
- FBI PIV IQS certification and fake finger detection available
- Extensive security features, including encryption and digital signature
- Smartcard reader variant for Match-on-Card applications

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## USB FINGERPRINT DEVICES FOR HIGHLY SECURE DESKTOP APPLICATIONS

The MorphoSmart™ 1300 Series (or MSO 1300 Series) is a range of compact biometric USB devices. They use Morpho's patented optical technology and fingerprint algorithms, both acknowledged worldwide for their high levels of performance and their exceptional robustness. Morpho fingerprint technology is ranked #1 by NIST for accuracy.

**The MorphoSmart™ 1300 Series offers a reliable, ergonomic and cost-effective solution for enrollment, identity verification and user identification. Their match-on-device or match-on-card functions guarantee the faultless protection of information and the security of desktop applications.**

MSO 1300 V3 / MSO 1300 E3

MSO 1350 V3 / MSO 1350 E3

### Why optical technology?

We selected optical technology for our sensors as it has significantly more operational and accuracy advantages compared with other technologies.

| | OPTICAL | CAPACITIVE | SWIPE |
|---|---|---|---|
| Acquisition surface/resolution | ●●●● | ●●○○ Limited due to silicon chip cost | ●○○○ |
| Ergonomics | ●●●● Visual indicator (LED light) | ●●○○ | ●○○○ Usually requires several trials |
| Robustness | ●●●● | ●○○○ Sensitive to scratches, ESD damages, corrosion | |
| Fast processing time | ●●●● | ●●●● | ●○○○ Requires image reconstruction |
| Performance/accuracy | ●●●○ | ●●○○ | ●○○○ |

# HIGH QUALITY FINGERPRINT ACQUISITION

## Optical technology offers superior image quality

- High performance sensor: 500 dpi, 256 grey levels
- Available output formats include RAW, ISO 19794-4 or WSQ-compressed (under license) images

## Lessons learnt from real world deployments put into practice

- Mechanical/visual guides ensure intuitive finger placement
- Interfaces display key information to help users: live image, messages (position, pressure etc.) and fingerprint quality score

## Large acquisition surface for optimized capture and repeatable placement



Richest Area

MSO 1300 Series Capture

Placement variations on smaller sensors

MSO 1300 Series capture surface (14x22mm) ensures that the richest area on fingerprints is systematically captured time after time. Acquisition surface area contributes significantly to the overall biometric performance:

- It determines the amount of minutiae data that can be captured
- Other, smaller sensors, allow different areas of the same finger to be presented with each placement, leading to poor data acquisition, narrow areas of overlap and matching errors

# MORE THAN SENSORS, INTELLIGENT DEVICES

While most sensors on the market are only capable of producing fingerprint images, the MSO 1300 Series devices are also capable of processing them internally, running powerful algorithms directly on their embedded processor.

1. **Image Compression** using WSQ algorithm from FBI/NIST

2. **Biometric Feature Extraction** to generate templates
   - Feature Extractor is MINEX/FIPS 201 compliant
   - Proprietary, ISO 19794-2 or ANSI 378 template formats available
   - Templates can be stored in the internal database

3. **Biometric Matching**
   - Matcher is MINEX/FIPS 201 compliant
   - 1:1 authentication or 1:N identification (up to N = 5000 users)
   - High accuracy: the false acceptance rate (FAR) is configurable down to $10^{-8}$ (depending on the security requirements) and **maintained regardless of number of users in database**
   - Fast matching (refer to the table on right page)
   - Match-on-Card is available on MSO 1350 V3 / MSO 1350 E3

4. **Capability of addressing juvenile fingers**

5. **An anti-latency feature** detects fingerprint traces reactivated under certain lighting conditions

# EMBEDDED SECURITY FEATURES

When sensitive data (image or template) needs to be shared with a Host System, the MSO 1300 Series devices are capable of securing them before dispatching.

1. **Multiple security principles available:**
   - Symmetric and asymmetric keys,
   - Key derivation,
   - Hashing algorithm,
   - Random number generator,
   - etc.

2. **Image and Template Encryption** for the sake of confidentiality

3. **Template Signature (X9.84 standard)** to guarantee the origin and the integrity of the data sent to the Host System

4. **The communication channel between device and Host/Distant System can be protected** using either Secure Tunneling or Offered Security mode

# MSO 1300 E3 & MSO 1350 E3:
# BEST IN SERIES, BEST IN CLASS

### Enhanced image quality

These precision designed, top of the range devices produce a fingerprint image that is certified PIV IQS by the FBI.
The reference standard in terms of single fingerprint image quality (equivalent to ISO 19794-4:2011 Annexure B) was defined to ensure interoperability between multiple solutions.
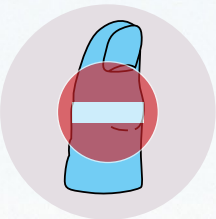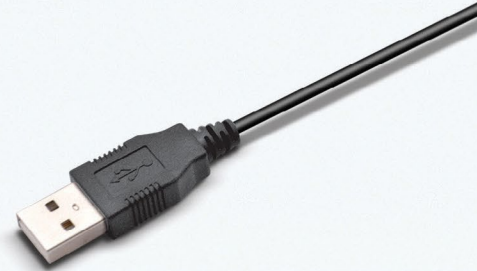
### Fake Finger Detection

MSO 1300 E3 and MSO 1350 E3 detect a large panel of counterfeit fingerprint, including but not limited to those made with latex, Plasticine, Kapton, transparent film, rubber, Play-Doh, graphite or paper.

# 2 DESIGNS, 4 VARIANTS

| | | MSO 1300 V3 | MSO 1300 E3 | MSO 1350 V3 | MSO 1350 E3 |
|---|---|---|---|---|---|
| Dimensions (L x W x H) | | 68.7 x 39.7 x 15.3 mm (2.7 x 1.56 x 0.6 inches) | | 82 x 71 x 41 mm (3.23 x 2.8 x 1.61 inches) | |
| Weight | | 40g (1.41 oz) | | 140g (4.94 oz) | |
| Smartcard reader | | — | — | Yes | Yes |
| Database capacity (users) | | 500, 3000[1], 5000[2] or 10 000[3] | 500, 3000[1] or 5000[2] | 500, 3000[1], 5000[2] or 10 000[3] | 500, 3000[1] or 5000[2] |
| Database capacity (templates or fingers) | | 1000, 6000[1], 10 000[2] or 20 000[3] | 1000, 6000[1] or 10 000[2] | 1000, 6000[1], 10 000[2] or 20 000[3] | 1000, 6000[1] or 10 000[2] |
| Match-on-Device capability (1:N) | | 1:500, 1:3000[1], 1:5000[2] or 1:10 000[3] | 1:500, 1:3000[1] or 1:5000[2] | 1:500, 1:3000[1], 1:5000[2] or 1:10 000[3] | 1:500, 1:3000[1] or 1:5000[2] |
| Matching speed | | 0.6s in 1:1 mode / 0.7s in 1:500 mode | | | |
| Match-on-Card capability | | — | — | Yes | Yes |
| Fake Finger Detection | | — | Yes | — | Yes |
| Security Layer | | Optional | | | |
| Certifications | FBI PIV IQS / ISO 19794-4: 2011 (Annex. B) | — | Yes | — | Yes |
| | MINEX & FIPS 201 compliant algorithms | Yes | | | |
| | STQC | — | Yes | — | Yes |
| | CE, CB, FCC, UL | Yes | | | |
| | RoHS, REACH, WEEE | Yes | | | |
| | WHQL drivers | Yes | | | |

[1] With MSO IDENTLITE License loaded in the device
[2] With MSO IDENTPLUS License loaded in the device
[3] With MSO IDENT10K License loaded in the device

# MULTIPLE APPLICATIONS

- Deployment of light and reliable solutions for **population registration** or **customer acquisition**

- **Logical access control**
- Banking and finance: secure and swift access to core banking applications or trading stations in dealing rooms
- Enterprise: biometric PC login and Single-Sign-On solutions (no more passwords)
- Healthcare: access to medical records restricted to authorized staff

- **Easy and secure payment**
- Fast, convenient, cashless payment at checkouts in stores, supermarkets or cafeterias
- E-commerce secure payment
- Check cashing services, pension/benefit payments after ID verification or identification

# SOFTWARE PACKAGES

- The **MorphoSmart™ SDK** enables a rapid integration and the use of device-embedded capabilities.
- Available for Windows, Linux and Android platforms
- Includes a BioAPI interface

- **Low level protocol** (ILV) is also available

- The MSO 1300 Series can be used with **MorphoKit™**, advanced SDK for the capture and processing of fingerprint images, authentication and identification

KEY MISSIONS, KEY TECHNOLOGIES, KEY TALENTS

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