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

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

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.

MULTIPLE APPLICATIONS SOFTWARE PACKAGES
- Photos: Thinkstock and Morpho

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Registered Office: 11, boulevard Gallieni - 92130 Issy-les-Moulineaux - FRANCE
Société anonyme au capital de 159.876.075 euros - 440 305 282 RCS Nanterre
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.

Why optical technology?

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>MSO 1300 / MSO 1300 E2</th>
<th>MSO 1350 / MSO 1350 E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition surface/material</td>
<td>➢➢➢➢</td>
<td>➢➢➢➢</td>
</tr>
<tr>
<td>Ergonomics</td>
<td>➢➢➢➢</td>
<td>➢➢➢➢</td>
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<tr>
<td>Robustness</td>
<td>➢➢➢➢</td>
<td>➢➢➢➢</td>
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<tr>
<td>Fast processing time</td>
<td>➢➢➢➢</td>
<td>➢➢➢➢</td>
</tr>
<tr>
<td>Performance/capacity</td>
<td>➢➢➢➢</td>
<td>➢➢➢➢</td>
</tr>
</tbody>
</table>

- **Acquisition surface/material**: Optimal for fingerprints of all sizes.
- **Ergonomics**: Comfortable and easy to use.
- **Robustness**: Resistant to scratches, ESD damages, and corrosion.
- **Fast processing time**: Fastest acquisition time in the market.
- **Performance/capacity**: Outstanding capacity and interoperability between multiple solutions.

Optical technology offers superior image quality and is capable of capturing the richest area on fingerprints systematically. The MSO 1300 Series capture surface (14x22mm) ensures that the entire fingerprint is captured with each placement, leading to repeatable results.

**Match-on-Device**

- **1:1** authentication or **1:N** identification (up to N = 5000 users)
- Matcher is MINEX/FIPS 201 compliant
- Feature Extractor is MINEX/FIPS 201 compliant
- Proprietary, ISO 19794-2 or ANSI 378 template formats
- 5 An anti-latency feature

**Match-on-Card**

- Configurable down to 10^-8 (depending on the security requirements) and maintained regardless of number of users in database
- Database capacity (templates or fingers)
- Smartcard reader

**High Quality Fingerprint Acquisition**

- High quality fingerprints are captured even under certain lighting conditions
- The MSO 1300 Series is capable of producing high-quality fingerprints, and the MSO 1350 Series devices are also capable of processing them internally, running powerful fingerprint algorithms directly on their embedded processor.

**Inelligent Modules**

- Two DESIGNS, 4 VARIANTS
- MSO 1300 Series
- MSO 1350 Series
- MSO 1300 E2 & MSO 1350 E2:
  - (1) With MSO IDENTPLUS License loaded in the device
  - (2) With MSO IDENLITE License loaded in the device

**Fingerprint Identifiers**

- WITHOUT fingerprint identifiers
- WITH fingerprint identifiers

**Security**

- The communication channel between device and Host/Distant System can be protected using Secure Tunneling or Offered Security mode
- EMBEDDED SECURITY
  - Advanced encryption standards (e.g., AES, RSA)
  - Random number generator, Hashing algorithm, Key derivation, Symmetric and asymmetric keys

**Additional Features**

- **BEST IN SERIES, BEST IN CLASS**
- Certification:
  - CE, CB, FCC, UL
  - RoHS, REACH, WEEE
  - STQC
  - MINEX & FIPS 201 compliant algorithms

**Applications**

- **Optical**
  - **FAST** processing time, **HIGH QUALITY** fingerprint acquisition
- **Robust**
  - **SENSITIVE** to small, low contrast, dirty fingerprints
  - **RESILIENT** to scratches, ESD damages, corrosion

**Technical Specifications**

- **Weight**: 82 x 71 x 41 mm (3.23 x 2.8 x 1.61 inches)
- **Dimensions (L x W x H)**: 82 x 71 x 41 mm (3.23 x 2.8 x 1.61 inches)
- **Weight**: 140g (4.94 oz)
- **Dimensions (L x W x H)**: 140g (4.94 oz)

**Performance/accuracy**

- **0.6s** in **1:1** mode / **0.8s** in **1:500** mode
- **1:500**, extendable to **1:3000** (1) or **1:5000** (2)
- **1000**, extendable to **6000** (1) or **10000** (2)

- **Yes**
- **—**
High Performance Sensors
- Available output formats include EMV, ISO 19794-4 or WSQ-compressed (under license) images
- Robustness
- Ergonomics
- Acquisition surface/resolution
- Lessons learnt from real world deployments put into practice
  - Mechanical/visual guides ensure intuitive finger placement
  - Interfaces display key information to help ease (live image, messages (positive, negative) and fingerprint quality score)

Why optical technology?
- Visual indicator (LED light)
- Limited due to silicon chip cost
- Sensitive to scratches, ESD damages, corrosion
- Requires image reconstruction
- Usually requires several trials

Performance/accuracy
- Fast processing time
- Robustness
- Ergonomics
- Acquisition surface/resolution

More than sensors, intelligent modules
1. Image Compression using WSQ algorithms from FBI/NIST
2. Biometric Feature Extraction to generate templates:
   - Proprietary ISO 19794-2 or ANSI 378 template formats
   - Templates can be stored in the internal database (up to 50 templates)
3. Biometric Matching
   - Fingerprint: MINEX/FIPS 201 compliant
   - 1:1 authentication or 1:N identification (up to 500 users)
   - High accuracy, allowing acceptance rate of 90%
   - Configurable for N levels of security requirements and scalability regardless of number of users in database
   - Fast matching (tables 6-7 on the next page)
4. Capabilities of addressing juvenile fingers
5. An anti-fraud feature detects fingerprint scans made in under certain lighting situations

Embedded security features
When sensitive data (image or template) needs to be shared with other devices, only MSO devices are capable of ensuring them before dispatching.

- Multiple security principles available:
  - Symmetric and asymmetric keys
  - Key derivation
  - Hashing algorithms
  - Function with standard signature

- Improved template encryption for the sake of confidentiality

- Template signature (FIPS-84 standard) to guarantee the origin and the integrity of fingerprint input information

- Communication channel between device and host/Distant system can be protected using robust secured transmission or offered security module

Large acquisition surface for optimized capture and repeatable placement
MSO 1360 Series capture surface in 1:1:3000 ensures the richest area of fingerprints is systematically captured over time. Acquisition surface area contributes significantly to the overall biometric performance.
- It determines the amount of minimal data that can be captured.
- Other, smaller sensors, allow different areas of the same fingerprint to be processed with each placement resulting in poor data acquisition, narrow area of overlap and matching errors.

Ricoh Arena
MSO 1360 Series
Capture
Placement variations on smaller sensors

Ricoh Arena
MSO 1360 Series
Capture
Placement variations on smaller sensors
MorphoSmart™ 1300 Series (or MSO 1300 Series) is a range of compact biometric USB devices. They use Morpho fingerprint technology and are ranked #1 by NIST for accuracy. Morpho's patented optical technology and fingerprint algorithms, both acknowledged worldwide for their high performance/accuracy.

MSO 1300 E2 & MSO 1350 E2: 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**

These top of the range products detect a large panel of counterfeit fingerprints, including but not limited to those made with latex, gelatin, plastics, Agilent, transparent films, silicon, rubber, Play-Doh, graphite or paper.

**2 DESIGNS, 4 VARIANTS**

<table>
<thead>
<tr>
<th>MSO 1300</th>
<th>MSO 1300 E2</th>
<th>MSO 1350</th>
<th>MSO 1350 E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (L x W x H)</td>
<td>68.7 x 39.7 x 15.3 mm (2.7 x 1.56 x 0.6 inches)</td>
<td>82 x 71 x 41 mm (3.23 x 2.8 x 1.61 inches)</td>
<td>68.7 x 39.7 x 15.3 mm (2.7 x 1.56 x 0.6 inches)</td>
</tr>
<tr>
<td>Weight</td>
<td>40g (1.41 oz)</td>
<td>40g (1.41 oz)</td>
<td>140g (4.94 oz)</td>
</tr>
<tr>
<td>Match-on-Device (1:N)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Match-on-Card</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Matching speed</td>
<td>0.6s in 1:1 mode / 0.8s in 1:500 mode</td>
<td>0.9s in 1:1 mode / 1s in 1:500 mode</td>
<td>0.9s in 1:1 mode / 1s in 1:500 mode</td>
</tr>
<tr>
<td>Database capacity (fingers)</td>
<td>500, extendable to 3000 (1) or 5000 (2)</td>
<td>0.9s in 1:1 mode / 1s in 1:500 mode</td>
<td>0.9s in 1:1 mode / 1s in 1:500 mode</td>
</tr>
<tr>
<td>Database capacity (users)</td>
<td>500, extendable to 3000 (1) or 5000 (2)</td>
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<tr>
<td>Smartcard reader</td>
<td>Optional</td>
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<td>Yes</td>
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<tr>
<td>Certifications</td>
<td>NIST PIV (April 2005), ISO 19794-4:2011 (Fahion 1B), OECD DAC without encryption,</td>
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<td>EN 50180</td>
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<td>STQC</td>
<td>Yes</td>
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</tr>
<tr>
<td>WEEE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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1) Mandatory, unless otherwise specified
2) Optional, unless otherwise specified
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- 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
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  - E-commerce: secure payment
- Check cashing services, pension/benefit payments after ID verification on demand

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KEY MISSIONS, KEY TECHNOLOGIES, KEY TALENTS

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