Optical Fingerprint Scanner
SM-93s

Product Specification

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Contents

1. Product Overview

1.1 Brief Introduction

MIAXIS® SM-93s (OEM Module SM-93M) Fingerprint Scanner, which holds FBI-PIV and FAP30 certifications, is designed with advanced optical technology and a generously sized sensing area (21.4mm× 27mm) to provide reliable, high-quality fingerprint recognition for secure ID verification and IT applications. By integrating a multi-angle light approach, the SM-93s captures detailed biometric data from both the outer fingerprint surface and underlying layers, ensuring precise matches and robust anti-spoofing capabilities. This sophisticated technology makes the SM-93s adept at reading difficult fingerprints—such as those that are dry, worn, or moist—and allows it to perform consistently in varied conditions, including intense sunlight, low light, and extreme temperatures or weather.

This device combines advanced endpoint security with precise biometric capabilities for high-performance identity verification. In the event of tampering, it triggers an automatic security response to erase encryption keys, ensuring sensitive data remains protected. This device supports high-quality finger image capture with encryption, Live Finger Detection (LFD), and meets NIST-certified standards for interoperable image and template formats as well as image compression. With SDKs available for Windows, Android, and Linux, it integrates seamlessly into biometric authentication and identity verification systems, offering a secure, adaptable solution across diverse environments.

Key Features:

Optimized User Experience — Advanced technology ensures quick and reliable fingerprint enrollment and matching, regardless of finger condition.

Enhanced Identity Protection — With fraud detection, the SM-93s effectively prevents unauthorized access by blocking spoofing attempts.

Network Security — FBI-certified encryption algorithms protect data, reducing risks to corporate assets and reputation.

1.2 Application

Widely used for banking and finance, law enforcement, IT security, border control, election, national ID programs, etc.

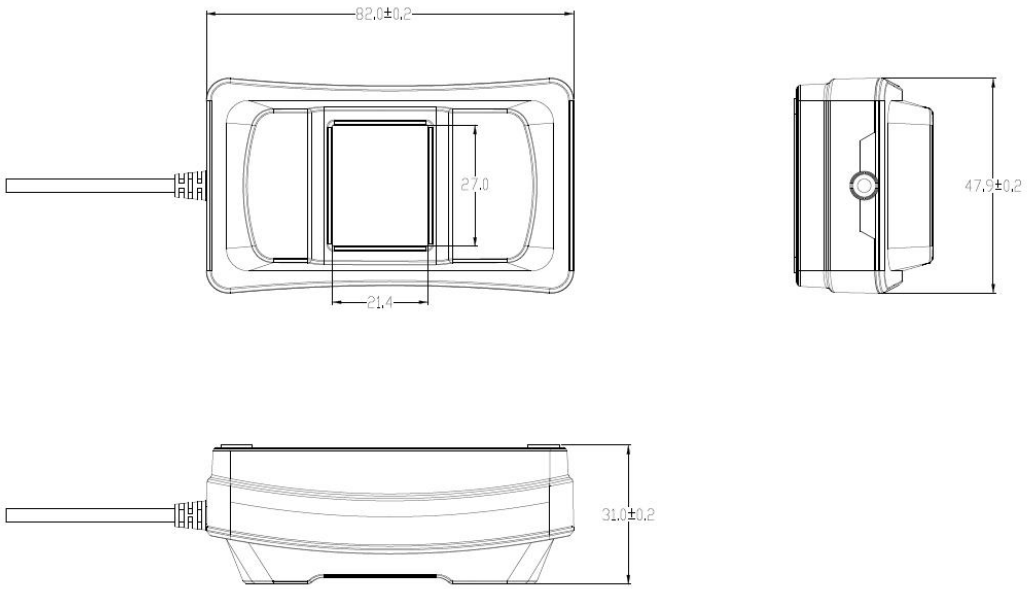
2. Product Specification

2.1 Technical Parameters

Category	Details
Physical Dimensions	
Product size(L x W x H mm)	82.0×47.9×31.0mm
Sensor Area(L x W mm)	21.4×27mm
Weight	115g
Sensor Window	Glass surface with resistance to scratches, impact, corrosion, and electrostatic shock
Sensor Specifications	
Sensor Type	Optical
Image Resolution	500 dpi
Image Size(W x H pixel)	400 x 500 pixel
Grey Scale	8bit, 256 level
Image & Template Format	
Image Format	WSQ(Certified, 10:1 & 15:1 compression), JPEG2000, RAW, BMP
Template Format	ISO 19794-4, ISO 19794-2, ANSI INCITS 381, ANSI INCITS 378
Quality Score	NFIQ 1.0
Template Storage (Module)	1000 fingerprint templates
Security Features	
Live Finger Detection	Yes
Latent detection	Yes
Presentation Attack Detection (PAD)	ISO/IEC 30107-3, Level 1 Presentation Attack Detection (PAD) certified
Tamper Protection	Active erase memory zeroization, resistant to tampering and physical intrusion (e.g., drilling, lamination)
Endpoint Security	Secure battery-backed memory with active tamper response; NIST-certified standards for image and template interoperability
Data Retention	All data remains secure on reader through power cycles
Cryptography & Encryption	AES 128/192/256, RSA 1024/2048/4096, TDES 2/3 Key, SHA-1/256/384/512, HMAC (variable key length), Random Number Generator, ANSI X9.24 Part 1, DUKPT encryption possible
Tamper Response	Secure battery-backed memory with active erase memory zeroization
Performance	
Enrollment Time	≤0.5s (collect one image and upload by USB)
Max. Encryption Capture	≤4 seconds (includes capture, WSQ compression, encryption, signing, and transfer via USB)
Matching on Module Speed	≤2 seconds for enrollment；≤1 second for authentication

Identification	1:N Identification
Matching	1:1 Matching On-Fingerprint Reader and On-Host
Durability	
Shock and Wear Resistance	Withstands over 1 million touches, resistant to surface wear and electromagnetic discharges (IEC 61000-6-3 & IEC 61000-6-1)
Ingress Protection	IP65 (Sensor Surface)
Power & Connectivity	
Power Supply	USB-powered (DC 5V±5%), ≤200mA
USB & Connectivity	USB 2.0 high-speed (480 Mbps), includes 1.5-meter cable
Environmental Conditions	
Operating Temperature	-10°C to +60°C
Storage Temperature	-20℃ to +60℃
Operating Humidity	20％RH～95％RH
ESD Immunity	IEC 61000-4-2 level 4 (+/-15kV air discharge, +/-8kV contact discharge)
Software & API	
Operating System Environment	Linux Kernel 4.15 or higher Windows（Visual Studio 2008 (9.0) or higher (.NET Framework 3.5) - Visual C++, Visual C# (Visual Studio 2015), Java SDK 1.8 or higher） Android 4.1 or higher
API & Compatibility	Supports ISO 19794-2, ANSI INCITS 378-2, and RSA digital signature verificatio;
Certification & Compliance	
certifications	FBI-certified encryption algorithms, NIST MINEX III (Template Extractor and Matcher), IEC 61000-4-2 level 4 ESD immunity (+/-15kV air discharge, +/-8kV contact discharge)

2.2 Mechanical Dimension



Mechanical Dimension（Unit: mm）

2.3 Output interface

The device SM-93s supports standard USB communication interface, with 1.5m length USB cable (cable length optional)