

# SFM™ EMBEDDED FINGERPRINT MODULE

Adding Cutting-edge Biometrics to Your Devices

Suprema Fingerprint Module is specifically designed to deliver high performance biometrics from various form-factor modules, providing huge design flexibility to manufacturers of devices of all sizes. Powered by renowned Suprema Fingerprint Algorithm and sensor technology, Suprema Fingerprint Module empowers your devices with ability to perform fingerprint recognition with unrivaled precision and efficiency.

- World's Best-selling Fingerprint Module
- Sensor Options to Meet Various Applications
- Unrivalled Precision and Robustness over Time
- Versatile Interfaces for Easy Integration

# Product Overview

Suprema Fingerprint Module is designed to provide developers and manufacturers with refined biometric security solutions to integrate with various applications such as access control systems, time & attendance terminals, locks, kiosks, safes, door locks and mobile devices. Powered by the world's best multi-award winning Suprema fingerprint algorithm, Suprema Fingerprint Module offers both power and reliability synonymous to Suprema.



**World's Best-selling  
Fingerprint Module**



**Unrivaled Precision  
and Robustness over time**



**Sensor options to meet  
various applications**



**Live Finger Detection**



**PIV Certified**



## **SFM6000 Series**

**High-end fingerprint module with  
powerful 1.0GHz CPU**

SFM6000 Series is the latest and most powerful addition to Suprema's SFM family of products. It boasts a powerful 1.0GHz CPU that empowers the world's fastest authentication and support multiple interfaces including RS232 and USB2.0 that enhances high-speed data transfer.



## **SFM5500 Series**

**High performance fingerprint  
module with versatile interfaces**

SFM5500 Series is a high-end standalone fingerprint module equipped with versatile external interfaces including RS232, RS422/485, Wiegand and LED control, featuring a powerful 533MHz DSP for fast authentication.



## **SFM5000 Series**

**High performance fingerprint  
module with live finger detection**

SFM5000 Series features a powerful 533MHz DSP for fast authentication and offers an FBI/FIPS201 certified sensor with built-in LFD technology making it the ideal platform for applications that require live finger detection.



## **SFM4000 Series**

**Compact fingerprint module with  
power saving technology**

SFM4000 Series hosts Suprema's fingerprint technology in compact form factor. With its advanced power saving feature, it is ideal for applications limited by size and requiring low power consumption.



## **SFM3000 Series**

**Entry-level fingerprint module**

SFM3000 Series provides a cost-effective fingerprint identification solution for developers seeking the bare essentials for fingerprint authentication and template storage.

# SFM6000 Series

## Ultra High-end performance powered by 1.0GHz CPU

SFM6000 Series is the latest and most powerful addition to Suprema's SFM family of products. It boasts a powerful 1.0GHz CPU that empowers the worlds' fastest authentication, supporting multiple interfaces including RS232 and USB2.0 that allows high-speed data transfer. With enlarged template capacity up to 25,000 templates, SFM6000 Series is the perfect solution for a large-scaled yet fast authentication.

- Powerful 1.0Ghz CPU
- Storing Max 25,000 Templates (16MB version)
- USB 2.0 Support
- Fast Power-on Time
- 8 Configurable Digital I/O Ports
- 1:1,000 Identification in 400ms and / 1:1 Verification in 330ms
- Android OS Support
- Suprema, ISO19794-2, ANSI378
- WSQ Image Compression Algorithm certified by FBI
- 256-bit AES Fingerprint Data Encryption



### SFM6020-OP | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image

### SFM6030-OC | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image

### SFM6050-T | Capacitive Sensor

- Capacitive type sensor
- IP65 rated sensor surface with high durability
- Anti-latent fingerprint technology
- Reliable high quality fingerprint image

# SFM5500 Series

## Engineered to perfection, unrivaled performance

SFM5500 Series is a high-end standalone fingerprint module equipped with versatile external interface including RS232, RS422/485, Wiegand, Digital I/O and LED Control, readily applicable to access control applications. SFM5500 Series offers comprehensive functionalities and interfaces to be used as a complete standalone fingerprint access reader by itself.

- Powerful 533MHz DSP
- 1:1 Verification in 550ms
- Fast Power-on Time
- Configurable Digital I/O and LED Control Ports

- Wiegand Input & Output Ports
- Auxiliary Communication Ports
- 1:1,000 Identification in 700ms
- Suprema, ISO19794-2 and ANSI 378 Template Options

- WSQ Image Compression Algorithm certified by FBI
- 256-bit AES Fingerprint Data Encryption
- 8MB Flash Memory Option
- RS232, RS422/RS485 Host Communication



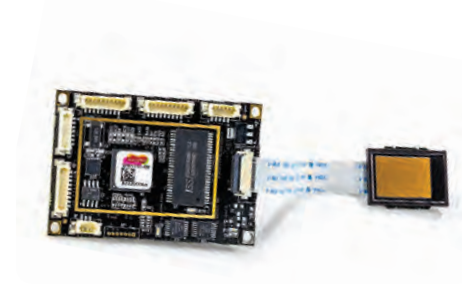
### SFM5520-OP | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image



### SFM5530-OC | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image



### SFM5550-TC | Capacitive Sensor

- TouchChip Capacitive sensor
- PerfectPrint Technology
- Reliable high quality fingerprint image

# SFM5000 Series

Optimized for performance, minimizing power consumption

SFM5000 Series is the latest Suprema module equipped with world's leading fingerprint authentication algorithm, which ranked No. 1 in FVC2004, 2006 and on Going. SFM5000 series features powerful 533MHz DSP which optimized for performance with minimizing power consumption.

- Powerful 533MHz DSP
- 1:1,000 Identification in 760ms
- 1:1 Verification in 600ms
- Suprema, ISO19794-2 and ANSI 378 Template Options
- Fast Power-on Time
- 256-bit AES Fingerprint Data Encryption
- 8 Configurable Digital I/O Ports
- 4MB Flash Memory Option



## SFM5020-OP | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image



## SFM5030-OC | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image

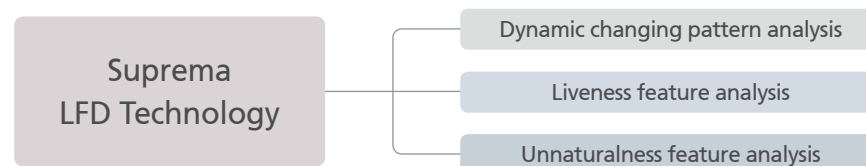


## SFM5060-OH | Optical Sensor with LFD

- 500 dpi resolution
- Hybrid live finger detection technology
- PIV/FIPS 201 certification
- Waterproof front side

## Hybrid Live Finger Detection Technology

Suprema's LFD technology is based on the fact that dynamic and static image characteristics of the fake fingers can be distinguished from those of live fingers. By the advanced analysis algorithm to catch the abnormalities in dynamic changing pattern of fingerprints images, and several static features showing liveness or unnaturalness of fingers, fake fingers are clearly distinguished from those of live fingers. This new LFD technology provides cheap and effective solution to protect the fingerprint system from attack via fake fingerprints.





# SFM4000 Series

## Compact size with power saving features

SFM4000 Series is a compact, power efficient module that is simple to integrate with various system applications. The module offers flexible supply voltage, integrated power management, small footprint, and voltage detector functions. SFM4000 Series is specially designed for lock and safe manufacturers who look for an inexpensive, reliable biometric solution with extra low power-consumption and compact size.

- Integrated Power Control Circuit
- Suprema, ISO19794-2 and ANSI 378 Template Options
- Serial Interface with Simple Protocol
- 4 Configurable Digital I/O Ports
- Single 3.3 VDC Regulated Power Source
- 256-bit AES Fingerprint Data Encryption



## SFM4020-OP | Optical Sensor

- IP65 rated optical fingerprint sensor
- Waterproof and scratch-free sensor surface
- Reliable High quality fingerprint image for wet & dry fingers
- Sensor surface optimized to capture the ideal fingerprint image

# SFM3000 Series

## Core features, world class technology

SFM3000 Series is a cost effective fingerprint identification module equipped with essential part for fingerprint identification and template storage. SFM3000 Series is suitable for most of the applications where it processes fingerprint recognition and host controller is used to handle other operations. The communication between SFM3000 Series and host controller is done by packet protocol through serial interface.

- High Performance 400MHz DSP
- Fast Power-on Time
- Suprema, ISO19794-2 and ANSI 378 Template Options
- 8 Configurable Digital I/O Ports
- Low Power Consumption
- 256-bit AES Fingerprint Data Encryption
- Serial Interface w / Simple Protocol



## SFM3050-TC | Capacitive Sensor

- TouchChip Capacitive sensor
- PerfectPrint Technology
- Reliable high quality fingerprint image

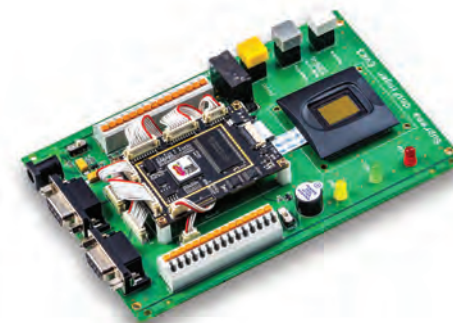


## SFM3050-TC2S | StealCoated Capacitive Sensor




- IP67 rated dust and water protection
- TouchChip Capacitive sensor
- Perfect Print Technology
- Reliable high quality fingerprint image

# Evaluation Kit(EVK)

Evaluation Kit is a demonstration system to enable users to evaluate the core functionality of standalone modules quickly and easily. Moreover, the Evaluation Kit provides software tools and technical documents to help users in developing application systems. The evaluation kits are available for all SFM models.








## SPECIFICATIONS

	SFM6000/5000/3000 EVK	SFM5500 EVK	SFM4000 EVK
Product			
Communication Ports	RS232 and USB2.0 (SFM6000 only)	RS232 or RS422/485 for PC interface Auxiliary Communication Port Multiple external I/O test terminals	RS232 for PC interface Multiple external I/O test terminals
Sensor Options	Optical, Capacitive	Optical, Capacitive	Optical

## FEATURES

On-board Operation	1 x Enroll button, 1 x Identify button, 1 x Delete button
On-board UI	3 x LED's, Multi-tone buzzer
Cable	RS232/USB2.0 (SFM6000 only) interface
Power Adaptor	5 VDC
SDK and Utilities	Unifinger SFM SDK, PC user interface program, UniFinger application UI source code
Documents	Firmware revision notes, Datasheets for modules/EVK, Protocol reference manual SFM SDK reference manual, EVK user guide

Specifications					
<b>Model</b>	SFM6000 Series	SFM5500 Series	SFM5000 Series	SFM4000 Series	SFM3000 Series
<b>Sensor Option</b>	Optical, Capacitive	Optical, Capacitive	Optical	Optical	Capacitive
<b>CPU Performance</b>	1.0GHz	533MHz	533MHz	400MHz	400MHz
<b>Flash Memory</b>	8MB/16MB	4MB (8MB Option)	1 MB (4MB Option)	1 MB	1 MB (4MB Option)
<b>EER</b>	< 0.08%	< 0.1%	< 0.1%	< 0.1%	< 0.1%
<b>Enrollment Time</b>	<330 ms (Optical) <360 ms(Capacitive T1) <250 ms(Capacitive T2)	< 550 ms (Optical) < 600 ms (Capacitive TC1) < 410 ms (Capacitive TC2)	< 600 ms (Optical)	< 800 ms (Optical)	< 800 ms (Capacitive TC1)
<b>1:1 Verification Time</b>	<330 ms (Optical) <360 ms(Capacitive T1) <250 ms(Capacitive T2)	< 550 ms (Optical) < 600 ms (Capacitive TC1) < 410 ms (Capacitive TC2)	< 600 ms (Optical)	< 800 ms (Optical)	< 500 ms (Capacitive TC2 & TC2S)
<b>1:1000 Identification Time*</b>	<400 ms (Optical) <430 ms(Capacitive T1) <320 ms(Capacitive T2)	< 700 ms (Optical) < 740 ms (Capacitive TC1) < 550 ms (Capacitive TC2)	< 760 ms (Optical)	< 970 ms (Optical)	< 970 ms (Capacitive TC1) < 640 ms (Capacitive TC2 & TC2S)
<b>Template Type</b>	Suprema, ISO19794-2, ANSI 378	Suprema, ISO19794-2, ANSI 378	Suprema, ISO19794-2, ANSI 378	Suprema, ISO19794-2, ANSI 378	Suprema, ISO19794-2, ANSI 378
<b>Template Size</b>	Default: 384 Bytes 256- 384 (Configurable)	Default: 384 Bytes 256 - 384 Bytes (Configurable)	Default: 384 Bytes 256 - 384 Bytes(Configurable)	Default: 384 Bytes 256 - 384 Bytes (Configurable)	Default: 384 Bytes 256 - 384 Bytes (Configurable)
<b>Template Capacity</b>	5,000 @ 8MB Flash 25,000 @ 16MB Flash	9,000 @ 4 MB Flash 19,000 @ 8MB Flash	1,900 @ 1MB Flash 9,500 @ 4MB Flash	1,900 @ 1MB Flash	1,900 @ 1MB Flash 9,500 @ 4MB Flash
<b>Log Capacity</b>	N/A	12,800	N/A	N/A	N/A
<b>Host Communication</b>	Asynchronous serial: CMOS level(3.3V) up to 921600 bps USB2.0 (up to 2M bps)	RS232 or RS422/485 up to 460800 bps	Asynchronous serial: CMOS level (3.3V) up to 460800 bps	Asynchronous serial: CMOS level (3.3V) up to 460800 bps	Asynchronous serial: CMOS level (3.3V) up to 460800 bps
<b>Aux Communication</b>	N/A	Async. Serial: RS232 or CMOS level up to 460800 bps	N/A	N/A	N/A
<b>Wiegand Interface</b>	N/A	1x Wiegand Input, 1x Wiegand Output	N/A	N/A	N/A
<b>External I/O</b>	8x Digital I/O	3x Digital Inputs, 3x Digital Outputs, 3x LED Outputs	8x Digital I/O	4x Digital I/O	8x Digital I/O
<b>Encryption (Fingerprint Data)</b>	256-bit AES	256-bit AES	256-bit AES	256-bit AES	256-bit AES
<b>Supply Voltage</b>	3.3/5.0VDC Regulated	5 VDC Regulated	3.3 VDC Regulated	3.3 VDC Regulated	3.3 VDC Regulated
<b>Board Size (L x W x H) (mm)</b>	55x40x8	63 x 43 x 10	55 x 40 x 8	26 x 26 x 6.4	55 x 40 x 8

\* Average 1:1000 genuine identification time including feature extraction





# suprema

AFRICA

108 Eleventh Street, Parkmore, 2196

SOUTH AFRICA

TEL: +27 11 784 3952

Product Enquiry

[enquiry@suprema.co.za](mailto:enquiry@suprema.co.za)

[www.suprema.co.za](http://www.suprema.co.za)

©2017 Suprema, Inc. Suprema and identifying product names and numbers herein are registered trademarks of Suprema, Inc. All non-Suprema brands and product names are trademarks or registered trademarks of their respective companies. Product appearance, build status and/or specifications are subject to change without notice. [SMB-170125-01-EN]