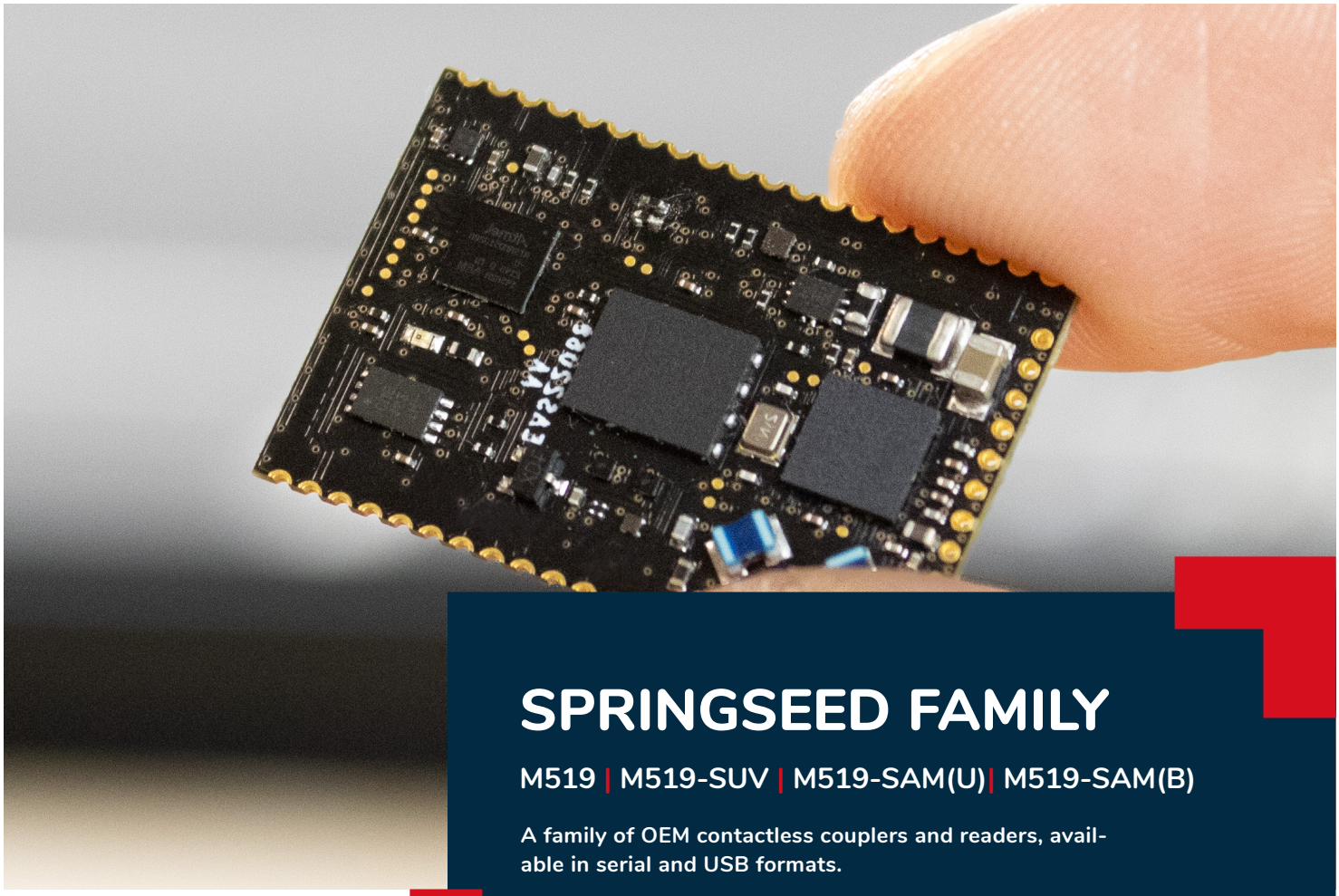


SPRINGSEED FAMILY

M519 | M519-SUV | M519-SAM(U)| M519-SAM(B)

A family of OEM contactless couplers and readers, available in serial and USB formats.

PFL25125-AA

La FRENCH FAB

springcard®

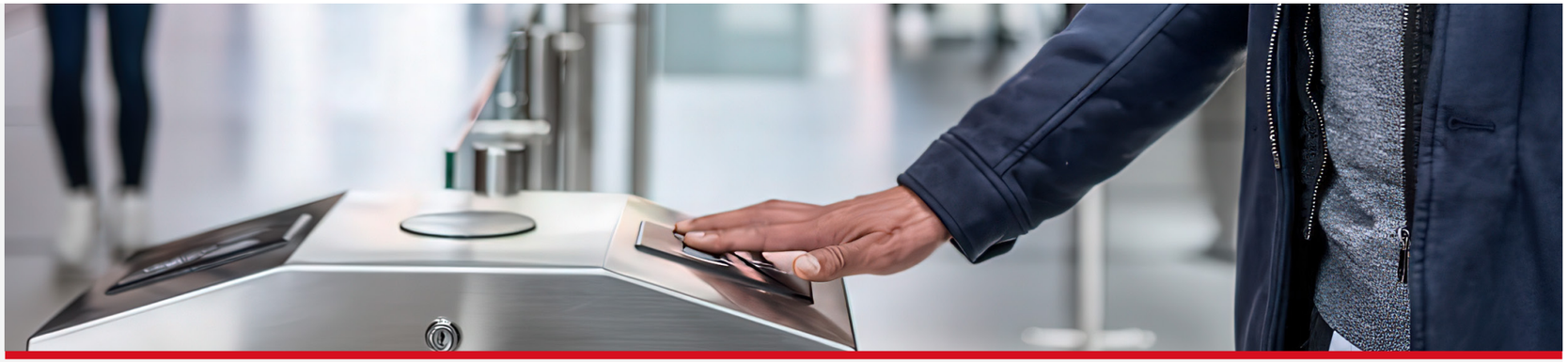
CONTACTLESS AND RFID/NFC SOLUTIONS AND READERS AT 13.56 MHZ

SpringCard is a French company that designs and manufactures contactless readers combining different technologies. With 25 years of experience in the field of 13.56 MHz systems, we offer more than just technical expertise.

*PARIS (FR) - ANGERS (FR)

springcard®

WHY CHOOSE SPRINGCARD ?



Since 1995, SpringCard has been designing high-frequency NFC/RFID solutions (13.56 MHz band), combining reliability with innovation.

The company anticipates market trends and meets the growing demand for contactless communication and secure transactions—whether through smart cards or smartphones..

The SpringSeed OEM modules are engineered for seamless integration into industrial systems, machinery, and consumer-facing equipment. They provide integrators and solution developers with powerful, highly adaptable tools.

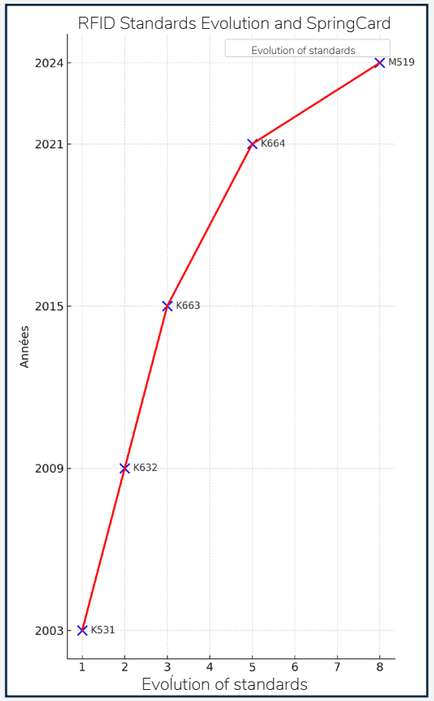
This adaptability ensures a final product that is optimized for user needs, easy to integrate and deploy, and reusable across a wide range of use cases.

To support developers and integrators over the long term, SpringCard focuses on the durability of its products and the creation of a comprehensive, coherent range—while strictly adhering to industry standards.

This strategy ensures smooth integration into existing infrastructures and supports the development of new solutions with long-term ambitions.

SpringCard is also committed to sustainable development, optimizing its production processes and carefully selecting environmentally friendly materials. This commitment reflects the company's drive to combine innovation and performance with social and environmental responsibility.

Thanks to its technical expertise, innovative mindset, and sustainable vision, SpringCard stands as a key player in NFC/RFID technologies—serving the needs of today's applications and anticipating those of tomorrow.



WHAT ARE SPRINGSEED PRODUCTS USED FOR ?

The couplers and readers of the SpringSeed family are used across a wide range of industries, thanks to their reliability and seamless integration capabilities.

→ **Interactive kiosks, ticket machines, vending machines, industrial equipment.**

These devices require fast and secure management of user interactions. Integrating a SpringSeed high-frequency NFC/RFID module streamlines operations while enhancing transaction security—whether it's for simple reading and processing, or for writing to and encoding contactless smart cards or tags.

→ **Solutions for public transport, loyalty programmes, micro-payments.**

SpringSeed modules are ideal for electronic ticketing systems, turnstiles, and fare validation, ensuring an intuitive and frictionless user experience. With built-in support for Secure Access Modules, they enable secure transactions without the need for an additional reader.

→ **Sensitive sites, physical access control, shared vehicles.**

Environments where strict access control is essential, SpringSeed couplers provide secure authentication for staff, visitors, subscribers, and occasional users. They seamlessly support all types of credentials—including NFC-enabled smartphones—while maintaining a high level of security.

USE CASE EXAMPLE

The SpringSeed M519 is integrated into the latest generation of JCDecaux's bike-sharing system.

It has contributed to optimizing fleet management and enhancing the overall user experience. Integrated into turnstiles and card printers, the module ensures fast and reliable communication, meeting the performance and reliability standards required by modern infrastructure.

SUV, SAM(U), SAM(B)

M519-SUV

→ **Longevity**: The M519-SUV retains the same form factor (69x45 mm) and connector layout as the K663 module it replaces. This strategic choice ensures seamless integration into existing infrastructures, significantly reducing the need for hardware redesign or adaptation.

→ **Rugged design**: Built with the same commitment to durability that defines all SpringCard products, the M519-SUV is designed to withstand demanding environments. It is qualified to operate across a wide temperature range of -40°C to +85°C.

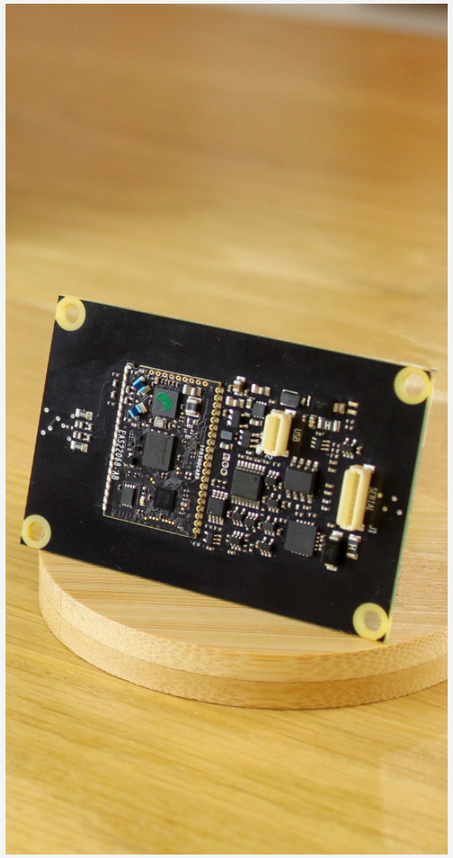
→ **USB or serial communication**: The M519-SUV offers both USB and serial connectivity. In serial mode, it supports multiple interface types, easily selectable via an onboard switch:

TTL-level RX/TX serial communication (0–5V), CMOS-compatible (0–3V)

RS-232 level RX/TX communication (EIA 232: -5/+5V)

Half-duplex RS-485 communication (EIA 485)

In USB mode, installation is simple and fully compatible with Windows, Linux, and macOS. A single cable handles both power supply and data transfer, further simplifying integration and reducing the need for complex wiring.



M519-SAM(B) & M519-SAM(U)

→ **Maximum flexibility:** In equipment where space is limited, where specific NFC/RFID HF read ranges are required, or where adaptation to tags of a particular format is necessary, these modules offer high flexibility by supporting the use of external antennas.

→ **The M519-SAM(B)** is designed for symmetric antennas, with a connection to the main board via a 3-wire cable (2 signals + ground) of up to 25 cm.

→ **The M519-SAM(U)** is designed for asymmetric antennas, using a 5-wire micro-coaxial cable to link the antenna to the main board.

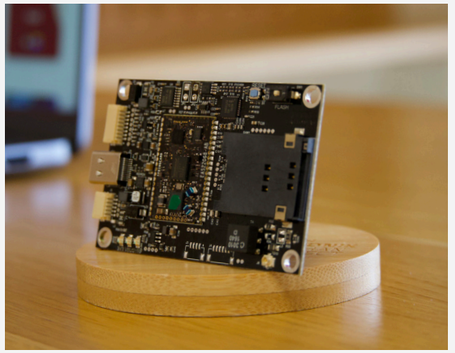
→ **Security at the access point:** Each module includes an ISO 7816 smart card slot (ID-000 format) on the main board to host a SAM (Secure Access Module), bringing cryptographic capabilities directly to the point of access. This setup enhances the security of both transactions and data exchanges.

→ **Secure Authentication & Protection of Sensitive Data** : The integrated SAM slot allows secure storage of cryptographic keys, ensuring strong authentication and robust protection of sensitive data.

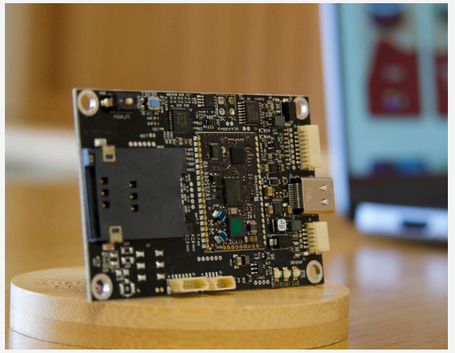
→ **Compatible with Open-Loop Secure Systems**: The SAM slot makes these couplers an ideal choice for public transportation systems and for secure reading and/or encoding of transport cards or electronic ID cards (including Calypso, Desfire®, MIFARE® Plus, etc.).

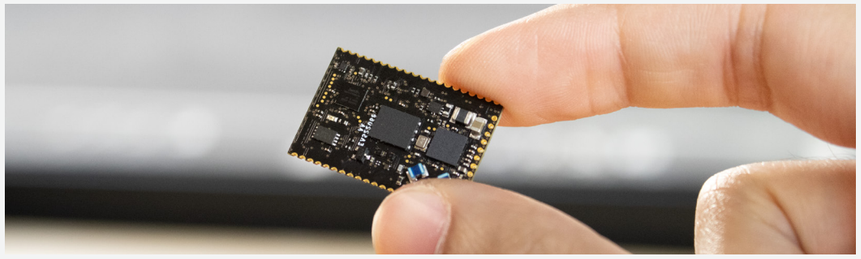
Administrative flexibility: Adapt key management to your specific needs or regulatory requirements by simply replacing the SAM.

SPRINGSEED M519 SAM (U)



SPRINGSEED M519 SAM (B)





M519 - STANDALONE MODULE

Without an antenna, the M519 module is intended for industrial integrators who wish to design and implement their own antenna.

→ Its ultra-compact format allows easy integration into a wide variety of equipment, such as access control readers, vending machines, or kiosks.

→ As a System-in-Package (SiP) with castellated holes, the M519 can be soldered directly onto a PCB using reflow soldering, or assembled manually using traditional soldering methods.

→ It can be paired with various antennas, allowing full customization to meet specific application or performance requirements.

	Electronic integration	Software integration
	A single module for both USB and serial port applications, with unified power management: 3.3V for serial communication and 5V from USB VBUS. 5 software-controlled GPIOs provide flexible input/output options. Ready for future use cases, the module includes expansion ports for I²C, SPI, or additional serial communication.	Standard protocols supported: CCID, HID, CDC-ACM, and more. The module's behavior is fully configurable, whether during manufacturing or in the field, without disassembly or factory return. Updates and configurations are performed directly via the main communication channel.
Flexibility and scalability	The M519 features an interface for contact smart cards (ISO/IEC 7816), enabling direct control of a SAM (Secure Access Module) or up to 5 ID-1 or ID-000 smart cards through interface components such as the NXP TDA8035.	

Flexibility of operating modes

PC/SC MODE

Standard, universal, scalable

- Designed to support any use case

- The contactless interface and the SAM contact interface (if present) can be addressed as two fully independent readers.

- Supported by all major operating systems over USB

- Optional serial support available via CCID library

USB and serial connectivity available.

RFID SCANNER MODE

USB keyboard emulation

- The device automatically reads cards or passes.

- Four templates to read four different types of cards or passes, making it easier to switch technologies or merge entities.

- Zero development required — works with any application (even Excel), including on tablets.

USB connectivity only.

SMART READER MODE

Easy reader mode via serial interface

- The device reads cards or passes automatically, without any user intervention.

- Four templates to read four different types of cards or passes, simplifying technology transitions and entity mergers.

- Multiple easy-to-integrate protocols to suit all development practices.

USB and serial connectivity available.

+ BUILT TO ADDRESS MODERN SECURITY EXPECTATIONS

Enhanced Security, Trusted Performance

With new regulatory requirements such as NIS2 and ISO/IEC 27001, organizations are now required to rethink and strengthen their security strategies.

SpringSeed couplers integrate a secure ATECC element that protects cryptographic keys and handles critical operations such as strong authentication, encryption, and digital signing.

Associé à des cartes PKI ou FiDo, il permet une identification fiable des utilisateurs et un encodage sécurisé des badges. Compatible avec les standards les plus récents : Apple VAS, Google Smart Tap, Mifare DuoX, etc.

SUPPORTED CARDS & SPECIFICATIONS

Standards	Description	Cards	Détails
NFC-A/B	Cards compliant with ISO/IEC 14443	- NXP : MIFARE® UltraLight, Classic, Plus, DESFire®, SmartMX, NTAG - Infineon : my-d Proximity, my-d Move, SLE, SLS - ST MicroElectronics : ST25TA, ST25TB, M24SR - Atmel/Microchip : gamme AT88SC - NXP: ICODE-EPC	Used for access control, transport and payment systems.
NFC-F	CARDS COMPLIANT WITH JIS:X6319-4	- Sony: FeliCa Lite, Lite-S	Popular in Japan, particularly in transport systems
NFC-V TABLETTE	Cards compliant with ISO/IEC 15693 and 18000-3M1	- Infineon: my-d range (Vicinity) - STMicroelectronics: ST25TV, M24LR ranges - Texas Instruments: Tag-it HF range - NXP: full ICODE range, including SLI and SLI2	Specific technologies used for hands-free applications (amusement parks, swimming pools, ski resorts...) or for identifying books and other objects.
Cards using proprietary protocols	The PUCK also supports certain proprietary cards.	- PicoPass/HID iClass - Silicon Craft: SI43NT - EM Marin: EM4134 - Calypso: CD97, GTML - Innovision/Broadcom: Topaz, Jewel - ST MicroElectronics: SR176, SRI512 - ASK/Paragon ID: CTS256, CTS512	Special-purpose cards for customized solutions.

springcard®

Features	M519-SAM SUV	M519-SAM(B)	M519-SAM(U)	M519
RFID interface	Chip: NXP PN5190 13.56MHz (HF RFID, NFC)			
Chip & Carrier Frequency				
Supported standards in reader/coupler mode	ISO/IEC 14443 A & B PCD (NFC-A, NFC-B), ISO/IEC 15693 (NFC-V), ISO/IEC 18000-3M1 & 3M3, ISO/IEC 18092 (NFCIP-1)			
Read/write mode data rates Coupler	26kbps (ISO/IEC 15693), 106, 212, 424 or 848kbps (ISO/IEC 14443)			
Antenna Operating distance	Integrated, symmetrical, diameter 7 cm Type: 0–5 cm, up to 10 cm			
Transmission speed	26kbps (15693), 106/212/424/848kpbs (14443), V106/212/424kbps (18092)			0–10 cm depending on the card and antenna
Card emulation mode Peer-to-peer mode	ISO/IEC 14443 A PICC ISO/IEC 18092			
Smart card interface	NXP TDA8035 ID-000(2FFF) 10752 à 250000			
Chip - Slot - Data rates				
Supported standards	ISO/IEC 7816-2 & -3 T=0 & T=1			ISO/IEC 7816 UART T=0 & T=1
Other features	Microchip ATECC			
Secure components				
Secondary interface	1 status LED 2 serial LED	TBD		1 status LED
USB	USB 2.0 « Full speed » @ 12Mbps, USB 3 compliant			
USB host interface				
Profil	CCID, HID Keyboard (Human Interface Device) or CDC-ACM (virtual serial port) depending on configuration			
SDK	Free PC/SC SDK and other samples available on GitHub			
Mechanical environement	Main box : 94 x 57 x 32mm Antenna : 109 x 109 x 11mm	Main board: 69 x 45 x 6mm		26.67 x 17.78 x 2.6mm
Dimensions				
Temperature Humidity CE Marking	storage and operation : -40 / +85 °C storage and operation : -40 / +85 °C RED, RoHS, WEEE			
FCC ID				
MTBF	> 1.0 M hours			> 3.5 M hours
Warranty	2 years			

They trust us

SPRINGCARD - FRANCE
Headquarters

2, voie la Cardon
Parc Gutenberg
91 120 Palaiseau
+33 (0) 164 53 20 10

SPRINGCARD - FRANCE
Research & Development

Building 1
Centre d'Activités La Garde
Allée du 9 novembre 1989
49 240 Avrillé
+33 (0) 241 32 38 61
+33 (0) 164 53 20 10