



# PUCK Base

USB HF NFC / RFID Reader

PFL20227-AA / 09 2020





# PUCK Base

## USB HF NFC / RFID READER

### # WHAT IS THE PUCK ?

The PUCK Base is an efficient and versatile desktop contactless coupler.

Thanks to its compatibility with PC / SC standards, the PUCK Base allows the use of a contactless card and NFC tags as easily as a conventional smart card with a simple and straightforward implementation.

- The PUCK is delivered with its USB-C cable.
- A simple design, with its crown of light and its logo customizable, suitable for all environments.
- Its latest generation electronic components and its NFC PN5180 modulation from NXP allow excellent radio performance to be achieved.
- Its architecture is optimized to meet new security needs with the integration of Secure Elements directly into the product.





# PUCK Base

NEW MODES NEW USES



Size (D x H)  
Ø 7.8 x 2.7

## TYPICAL PUCK USE CASES

- # LOYALTY PROGRAMS
- # LOGISTICS
- # LIBRARY
- # STORAGE & INVENTORY
- # ORDER PREPARATIONS
- # PRODUCT TRACEABILITY
- # E-PASSPORT & OTHER E-DOCUMENTS
- # MICRO-PAYMENT, ELECTRONIC WALLET
- # AUTHENTICATION
- # BADGE FORMATTING & PERSONALIZATION



# PUCK Base

## PUCK ADVANTAGES

LAST  
GÉNÉRATION  
READER

SPEED OF  
TRANSACTIONS

### # ALWAYS MORE EFFICIENT

- > Communication with cards at 848 kbit / s and passage extended APDUs (eAPDUs) up to 64 kB which decreases transaction time with cards supporting this mode of communication.
- > Support for the latest versions of standards:
  - EMV-ready
  - CEN / TS 16794-ready (AFIMB / RCTIF 5)

### # ALWAYS MORE COMPLETE

- > Monitoring of NFC Forum specifications.
- > Compatibility with Apple VAS (Wallet) and Google Smart Tap (Google Pay)

### # ALWAYS MORE COMPATIBLE

- > New features include the ISO / IEC 18000-3M3 RFID protocol, without renouncing the old card protocols (Innovatron, ST SR, ASK, CTS, ...).





# PUCK Base

## COMPATIBLE CARDS

### # COMPATIBLE CARDS ISO/IEC 15693 & 18000-3M1 (NFC-V)

**NXP:** the entire ICODE SLI and SLI2 (not ICODE1)

**Infineon:** the entire my-d Vicinity

**ST MicroElectronics:** range ST25TV, M24LR

**Texas Instrument:** range TagIT HF

### # COMPATIBLE CARDS ISO/IEC 18000-3M3 (EPC HF)

**NXP:** range ICODE-EPC

### # STANDARDS COMPLIANT CARDS

PUCK complies with all the standards in force for near field communication at 13.56MHz, it is immediately compatible with all NFC or RFID chips which comply with the same standards.

### # COMPATIBLE CARDS JIS:X6319-4 (NFC-F)

**Sony:** range FeliCa Lite & Lite-S

### # CARDS USING A PROPRIETARY PROTOCOL

Calypso protocol

**Innovatron:** CD97, GTML

**Innovision/Broadcom:** Topaz, Jewel

**ST MicroElectronics:** SR176, SRI512

**ASK/Paragon ID:** CTS256, CTS512

Inside Contactless

**PicoPass / HID iClass**

**Silicon Craft:** SI43NT

**EM Marin:** EM4134

### # COMPATIBLE CARDS ISO/IEC 14443 (NFC-A or NFC-B)

**NXP:** the entire range MIFARE, included MIFARE UltraLight, MIFARE Classic, MIFARE Plus, DESFire, SmartMX, and the entire range NTAG

**Infineon:** range my-d Proximity, my-d Move, range SLE et SLS

**ST MicroElectronics:** range ST25TA, ST25TB, CD21, M24SR

**Atmel/Microchip:** range AT88SC

### # NFC PASS

PUCK is able to read and retrieve NFC pass information from Apple Wallet and GooglePay applications in your smartphones. Try it out by downloading your demo pass from

[springpass.springcard.com](http://springpass.springcard.com)

## COMPATIBILITY BETWEEN A CARD AND A READING SYSTEM COVERS THREE LEVELS

### # ANALOGUE LEVEL COMPATIBILITY

This point covers the correct transmission of energy and good quality of the radio link.

### # PROTOCOL COMPATIBILITY

The electronic chip on the card and the reader must speak the same language.

PUCK implements the latest versions of the standards and respects the EMV and CEN / TS 16794 (AFIMB / RCTIF 5) implementation recommendations for maximum compatibility.

### # APPLICATION LEVEL COMPATIBILITY (TRANSACTION)

This point covers the securing (optional) of the link and the access to the information which the chip contains.

In Smart Reader and RFID Scanner mode, the reading templates allow the PUCK "intelligent reader" to access data from most chips on the market.

In PC / SC mode, PUCK operates in transparent mode (pass-through) and gives applications running on the host computer full access to the functions of the chip.





# PUCK Base

## OPERATING MODES



### # PC / SC MODE

#### 100% COMPATIBLE

The PUCK Base brings its approach 100% compatible with all desktop operating systems (Windows, Mac OS, Linux). Full interoperability with their predecessors in the Prox'n'Roll family and with all smart card readers on the market thanks to the PC / SC standard.

### # SMART READER MODE

#### INTELLIGENT READER

The transaction between the reader and the card is executed directly by the reader without the need for any code that runs on an application. The integrated secure elements ensure the protection of the keys.

### # RFID SCANNER MODE

#### KEYBOARD EMULATION

This mode is identical to the smart reader in keyboard emulation. This feature allows, once the pass is presented on the reader, to have its data automatically sent to the PC as if they were typed on the keyboard.



# PUCK Base

## SPRINGCARD COMPANION

SpringCard Companion - Version bêta

Appareils connectés

Liste d'actualisation

Mes produits

- > Connecté
- > Associés

Mes configurations

- > Liste
- > Créer de nouveaux
- > Importation

Springcard.com

- > Aller sur le site
- > Politique de confidentialité
- > Conditions d'utilisation
- > Soutien technique

Plus

- > Événements en temps réel
- > Informations système
- > Sur

**SpringCard Puck Base**

Connexion: **USB 1C34 6133** Mode: **LECTEUR** Numéro de série: **8FFA831E**

Version du firmware : **1.15**

Configuration: [Configurer](#)

Clin d'œil Flash

Serveur: http://127.0.0.1:3998/ - Compte: alexandra

SPRINGCARD  
COMPANION  
HOME  
INTERFACE

### # SPRINGCARD COMPANION

Our SpringCard Companion software is also a local web server accessible from [companion.springcard.com](http://companion.springcard.com).

SpringCard Companion allows you to configure your PUCK in one click and store your configuration data. Once the PUCK is connected on the PC, the software communicates through the web with the connected reader in USB.



# PUCK Base

## TEMPLATES AVAILABLE

### # SMART MODE READER AND RFID SCANNER

The PUCK independently reads the card, RFID tag or NFC object, before transmitting the desired data obtained to the PC or tablet directly in the format suitable for downstream applications.

The PUCK has 4 independent templates which allow optimal use of badges issued by different organizations.

When the card implements protection against cloning or offers a secure read transaction, the read keys remain safe in the Secure Integrated element of the PUCK.

### # READING NDEF STRUCTURED DATA

Reading URLs (SmartPoster) or any specific business data, as long as it is stored in a structure compliant with the NFC Forum RTDs from all compliant tags (Type 1, 2, 3, 4A and 4B, 5).

Receiving peer-to-peer push messages (SNEP).

### # READING OF SMARTPHONES AND OF NFC OBJECTS

Secure reading of Apple VAS (PassKit / Wallet NFC) and Google VAS (Smart Tap / Google Pay) passes with storage of ECC keys in the secure element,



Secure reading of Orange NFC Retail and Orange NFC Office passes, or NFC passes SpringCard SpringBlue.

### READING THE PROTOCOL SERIAL NUMBER (ID)

Carrier frequency: 13.56MHz  
ISO/IEC 14443 (NFC-A and NFC-B, including the entire NXP range MIFARE), ISO/IEC 15693 and 18000-3M1 (NFC-V), ISO/IEC 18000-3M3 (EPC HF), JIS:X6319-4 (NFC-F).

All tags consistent with NFC Forum: Type 1 (Innovision/Broadcom Topaz and compatible), Type 2 (including NXP NTAG, Infineon my-d, ...), Type 3 (Sony FeliCa Lite and Lite-S), Type 4 (including NXP DESFire, STMicroelectronics ST25TA and M24SR, ...) and Type 5 (including NXP ICODE, Texas Instrument TagIT, STMicroelectronics ST25TV and M24LR, ...).

Transportation Cards "B" (Calypso Innovatron historical protocol) and STMicroelectronics transport tickets (SR176, SRI512, ...) and ASK/Paragon ID (CTS256 and CTS512).

### # READING DATA STORED IN MEMORY

APDUs 7816-4 exchange for querying ISO/IEC 14443-4 cards (T=CL / ISO-DEP) or Innovatron (SELECT APPLICATION, SELECT FILE, READ BINARY or READ RECORD).

NXP DESFire, NXP MIFARE Classic and compatible, NXP MIFARE Plus and compatible.

Direct access to memory areas of wired logic chips: all NFC Forum Type 2 compatible chips (including NXP MIFARE

UltraLight, NXP NTAG, Infineon my-d, ...) and ISO/IEC 15693-3/ NFC Forum Type 5 (including NXP ICODE, Texas Instrument TagIT, STMicroelectronics ST25TV and M24LR)

### # ADDITIONAL FEATURES

Formatting the output in decimal with Lühn key (ski passes), and

Verification of the authenticity (anti-clone function) of most of the chips in the NXP (NTAG DNA, MIFARE, etc) and ST ranges,

DESFire authentication before reading the ID for cards in Random-ID (random protocol identifier).



# PUCK Base

## FCC COMPLIANCE STATEMENTS

This device complies with part 15 of the FCC Rules.  
Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this product not authorized by SpringCard could void the electromagnetic compatibility (EMC) and wireless compliance and negate your authority to operate the product.

This product has demonstrated EMC compliance under conditions that included the use of compliant peripheral devices and shielded USB cables between system components. It is important that you use compliant peripheral devices and shielded cables between system components to reduce the possibility of causing interference to radios, televisions, and other electronic devices.



# PUCK Base

FOR FURTHER

# QUICK UPDATE AND  
WITHOUT HANDLING  
WITH COMPANION:  
ONCE THE PUCK CONNECTED  
TO THE SOFTWARE,  
THE UPDATE IS MADE IN  
A FEW SECONDS

# TECHNICAL  
DOCUMENTATIONS  
[DOCS.SPRINGCARD.COM](https://docs.springcard.com)

# THE PUCK  
DOES ALSO  
EMULATIONS  
CARDS

# EXCHANGES  
NFC IN PEER  
TO PEER

# HE IS ABLE  
TO STORE  
DATA USERS OR  
LICENSE KEYS

# CUSTOMIZATION  
THE LEDS COLORS: 100%  
CONFIGURABLE WHICH  
ALLOWS THE PUCK TO  
BE ADAPTED TO THE  
COLOR OF YOUR  
COMPANY

# POSSIBILITY OF  
PERSONALIZE  
LOGO ON THE FACE  
OF THE READER



# PUCK Base

## TECHNICAL DATA

|                                | PUCK BASE                                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO / IEC NFC / RFID standards | 14443 A6B PCD (NFC-A, NFC-B), 15693 (NFC-V), 18000-3M1 & 3M3, 18092 (NFCIP-1), 14443 A PICC (card emulation)                                                                                                                                                                                                             |
| Carrier frequency              | 13.56MHz (RFID HF, NFC)                                                                                                                                                                                                                                                                                                  |
| RF field level                 | Typ: 3A / m at 0cm, 1.5A / m at 5cm                                                                                                                                                                                                                                                                                      |
| Antenna                        | Integrated, balanced, diameter 7cm Typ: 0-5cm, up to 10cm                                                                                                                                                                                                                                                                |
| Baudrate operating distance    | 26kbps (15693), 106/212/424 / 848kbps (14443), 106/212 / 424kbps (18092)                                                                                                                                                                                                                                                 |
| Technologies Non-ISO RF        | NFC Forum Tag, types 1, 2, 3, 4 and 5 (R / W), type 4 (emulation) NXP (Philips) MIFARE, BroadComm (Innovision) Jewel & Topaz, ThinField (Kovio) RF Barcode, ST SR & LR, ASK CTS, Atmel CryptoRF,...<br>Calypso FeliCa Innovatron radio protocol (NFC-F): simple mode only HID iClass, Inside PicoTag: serial number only |
| Host Interface                 | USB 2.0 full speed                                                                                                                                                                                                                                                                                                       |
| Host Interface, USB            | CCID (PC / SC)<br>SpringCard Direct<br>HID keyboard                                                                                                                                                                                                                                                                      |
| Other Features                 | Secure host communication (AES-128)                                                                                                                                                                                                                                                                                      |
| Light                          | True R, G, B LED with advanced brightness control                                                                                                                                                                                                                                                                        |
| Sound                          | (Battery status, Bluetooth status, mode)<br>1 tone buzzer                                                                                                                                                                                                                                                                |
| Size                           | Diameter 8.1cm / Size: 3cm / Weight: 140g                                                                                                                                                                                                                                                                                |
| Cable / connector              | 1.8m cord - USB type C connector                                                                                                                                                                                                                                                                                         |
| Temperature                    | Operation -20 / + 70 ° C, storage -40 / + 85 ° C                                                                                                                                                                                                                                                                         |
| Humidity                       | 0-90% non-condensing 0-90%                                                                                                                                                                                                                                                                                               |
| Approvals                      | Radio: EN 300330, EMC: EN 301489, Safety: EN 60950-1, CE marked FCC class B part 15 (pending) RoHS, WEEE                                                                                                                                                                                                                 |
| Size                           | Ø 7.8 cm x 2.7 cm                                                                                                                                                                                                                                                                                                        |
| FCC ID: TYQ-PUCKBASE01         | PENDING                                                                                                                                                                                                                                                                                                                  |
| Weight                         | 75 g                                                                                                                                                                                                                                                                                                                     |
| Warranty                       | 2 years                                                                                                                                                                                                                                                                                                                  |

# ABOUT SPRINGCARD

springcard®

## CONTACTLESS & 13.56MHZ RFID & NFC SOLUTIONS AND READERS

SpringCard is a French company that designs and manufactures contactless readers by combining different technologies.

With 20 years of field experience in systems with 13.56 MHz, we offer more than just technical skills.

**PARIS (FR) - ANGERS (FR) - SAN DIEGO (USA)**



[www.springcard.com](http://www.springcard.com)