STid EASYLINE READY-TO-USE READERS & CARDS (PC2)

APPLICATION NOTE

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1. Principe and benefits

The Easyline concept from STid makes it possible to order automatically paired cards / PCG key holders and readers, offering secure data reading and sequential card numbering, without having to worry about configurations or encoding settings.

The Easyline configuration offers:

- Cards or key holders encoded and numbered with a **unique** id number.
- Every credential has a **double unique ID encoding** under **two formats**: Wiegand-37 and 26-bit to accommodate the reader protocol
- **Each card or key holder** has a **unique security key** thanks to our diversification process.
- **Simple management** - no need to worry about the details of configuration, reader settings or numbering.
- **Bluetooth® or NFC mobile credential & STid Mobile ID® benefits** reading of the free green virtual card available at the first download of the STid Mobile ID® application with an AES-256 encrypted database and mutual authentication at each transaction (unique exchanges, AES and SHA-2 encrypted data and signs).
- **Easyline readers are supplied preconfigured** to automatically read private encoded numbers in MIFARE® DESFire® EV2 2K credentials with the required level of security.

2. Readers compliant with Easyline configuration

The communication protocols available are:

- Wiegand 26 bits - 3i (only for RFID only readers)
- Wiegand 32 bits - 3LA
- Wiegand 37 bits - 3V

The models of pre-configured readers are:

- **Architect® & Architect® One 13.56 MHz readers**

ARC-A
Standard reader

ARCR31APC23I1
ARCR31APC23LA1
ARCR31APC23V1

ARC-B
Keypad reader

ARCR31BPC23I1
ARCR31BPC23LA1
ARCR31BPC23V1

ARC-I / IM
Hybrid reader
+ 125 kHz
ARCRX1IPC23I1
ARCRX1IPC23LA1
ARCRX1IPC23V1

ARCRX1IMPC23I1
ARCRX1IMPC23LA1
ARCRX1IMPC23V1

ARC-J / JM
Hybrid keypad reader
+ 125 kHz
ARCRX1JPC23I1
ARCRX1JPC23LA1
ARCRX1JPC23V1

ARCRX1JMPC23I1
ARCRX1JMPC23LA1
ARCRX1JMPC23V1

ARC1
Mullion reader
ARC1R31BPC23I1
ARC1R31BPC23LA1
ARC1R31BPC23V1

- **Architect® Blue & Architect® One Blue readers**

ARCS-A BLUE
Standard reader

ARCSR31APC23LA1
ARCSR31APC23V1

ARCS-B BLUE
Keypad reader

ARCSR31BPC23LA1
ARCSR31BPC23V1

ARCS-I / IM BLUE
Hybrid reader
+ 125 kHz
ARCSRX1IPC23LA1
ARCSRX1IPC23V1

ARCSRX1IMPC23LA1
ARCSRX1IMPC23V1

ARCS-J / JM BLUE
Hybrid keypad reader
+ 125 kHz
ARCSRX1IPC23LA1
ARCSRX1JPC23V1

ARCSRX1IMPC23LA1
ARCSRX1JMPC23V1

ARC1S BLUE
Mullion reader

ARC1SR31BPC23LA1
ARC1SR31BPC23V1

ARCS-H BLUE
WEDGE desktop reader / enroller

ARCSR35HPC25AB1 (AZERTY)
ARCSR35HPC25AQ1 (QWERTY)

Easyline (PC2) readers are configured to only read PC2 encoded credentials.

3. Tags available with PC2 format

CCT
ISO Cards
MIFARE® DESFire® EV2 2K
CCTW670PC2

PCG
Key holders
MIFARE® DESFire® EV2 2K
PCG671PC2

STid Mobile ID®
Free virtual credential

Green virtual card available in the App

4. Numbering mode

Easyline PC2-compatible cards and key holders are all programmed and numbered.

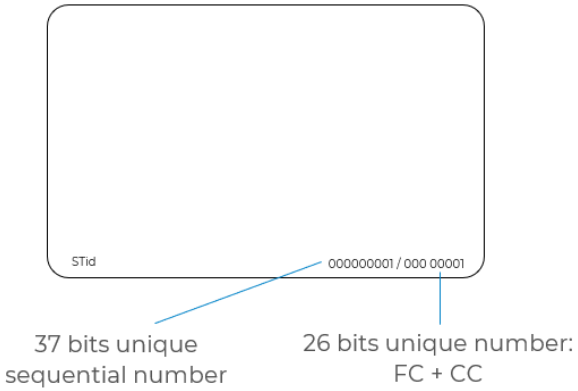
- Programmed with sequential numbers
- Numbered with the programmed ID
- Hexadecimal encoding for all formats (26, 32 and 37 bits)
- Physical numbering in decimal

5. Format of printed numbers

Cards - CCTW670PC2

3V format (Wiegand 37-bits) / 3i format (Wiegand 26-bits):

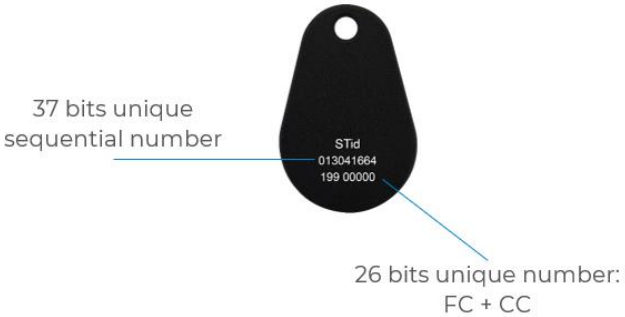
- Wiegand 37 bits ID printed: 10 numeric digits
- Wiegand 26 bits ID printed with site code (3 digits) + card code (5 digits) - ex. 001 00001.
- Site codes reserved series for card credentials: 0 to 198.



Key holders - PCG671PC2

Numbering on 2 lines:

- 1st line: Wiegand 37 bits ID printed: 10 numeric digits
- 2nd line: Wiegand 26 bits ID printed with site code (3 digits) + card code (5 digits)
- Site codes reserved series for keyholders credentials: 199 to 255.



6. How to order?

What steps do you take to place an order?

1 CHOSE THE READER MODEL YOU WANT

2 CHOSE THE TYPE OF CREDENTIALS

3 ORDER REQUIRED QUANTITY

READERS:

- **13.56 MHz DESFire® EV2 version**

Model	Procotol	Part Number
 Mullion	26 bits	ARC1R31BPC23i1
	32 bits	ARC1R31BPC23LA1
	37 bits	ARC1R31BPC23V1
 Standard	26 bits	ARCR31APC23i1
	32 bits	ARCR31APC23LA1
	37 bits	ARCR31APC23V1
 Keypad	26 bits	ARCR31BPC23i1
	32 bits	ARCR31BPC23LA1
	37 bits	ARCR31BPC23V1
 13.56 MHz **+ 125 kHz**	26 bits	ARCRX1iPC23i1
	32 bits	ARCRX1iPC23LA1
	37 bits	ARCRX1iPC23V1
 Keypad - 13.56 MHz **+ 125 kHz**	26 bits	ARCRX1JPC23i1
	32 bits	ARCRX1JPC23LA1
	37 bits	ARCRX1JPC23V1
 13.56 MHz **+ 125 kHz Multi-technology**	26 bits	ARCRX1iMPC23i1
	32 bits	ARCRX1iMPC23LA1
	37 bits	ARCRX1iMPC23V1
 Keypad - 13.56 MHz **+ 125 kHz Multi-technology**	26 bits	ARCRX1JMPC23i1
	32 bits	ARCRX1JMPC23LA1
	37 bits	ARCRX1JMPC23V1

- **Bluetooth® + NFC + 13.56 MHz DESFire® EV2 version**

Model	Procotol	Part Number
 Mullion	32 bits	ARC1SR31BPC23LA1
	37 bits	ARC1SR31BPC23V1
 Standard	32 bits	ARCSR31APC23LA1
	37 bits	ARCSR31APC23V1
 Keypad	32 bits	ARCSR31BPC23LA1
	37 bits	ARCSR31BPC23V1
 13.56 MHz **+ 125 kHz**	32 bits	ARCSRX1iPC23LA1
	37 bits	ARCSRX1iPC23V1
 Keypad - 13.56 MHz **+ 125 kHz**	32 bits	ARCSRX1JPC23LA1
	37 bits	ARCSRX1JPC23V1
 13.56 MHz **+ 125 kHz Multi-technology**	32 bits	ARCSRX1iMPC23LA1
	37 bits	ARCSRX1iMPC23V1
 Keypad - 13.56 MHz **+ 125 kHz Multi-technology**	32 bits	ARCSRX1JMPC23LA1
	37 bits	ARCSRX1JMPC23V1
 Enrollment reader	AZERTY	ARCSR35HPC25AA1
	QWERTY	ARCSR35HPC25AQ1

CREDENTIALS:

- **MIFARE® DESFire® EV2 2K credentials**

Model	MOQ	Part Number
ISO card	200 pcs	CCTW670PC2
PCG keyfob	100 pcs	PCG671PC2

- **Download the STid Mobile ID® App, including one free virtual card:**

GET IT ON Google Play

Available on the App Store

7. Readers parameters

Common Architect® PC2 reader parameters:

- Reader physical protections: save user keys in non-volatile secured memory.
- LED default state: pulse blue.
- LED1 color: green.
- LED2 color: red.
- LED1 + LED2 color: off.
- Buzzer activated 400ms to the detection.

Parameters for keypad readers:

Card OR Key (4-bit only format)

When presenting a card, the identifier will be sent immediately according to 26-bits Wiegand protocol, 32-bits or 37-bits Wiegand protocol, followed by an audible acknowledgement.

In case of key is pressed, the value of the key is immediately sent into the "4-bit only" format according to the 26-bits Wiegand protocol, 32-bits Wiegand protocol or 37-bits Wiegand protocol, following by an audible acknowledgement.

4-bit only format: 4 bits corresponding to the value of the key pressed.

Format WIEGAND MSB ... LSB		
'0'	0000	0x00
'1'	0001	0x01
'2'	0010	0x02
'3'	0011	0x03
'4'	0100	0x04
'5'	0101	0x05
'6'	0110	0x06
'7'	0111	0x07
'8'	1000	0x08
'9'	1001	0x09
'#'	1011	0x0B

In this case, 4 bits are sent MSB First with the timings of the current protocol.
Example: sending the single key '4' in 4-bit format according to the Wiegand 3i.

0100
'4'

8. How to manage the multi-application?

Only a part of the chip memory used by Easyline credential, everything else is free for other applications. Following the detailed programming modes of MIFARE® DESFire® EV2:

- The Card Master Key is **strictly confidential** and will be communicated in no case.
- AID is on 3 bytes and has STid value “F51BC0”.
- All keys are diversified, the Card Master Key too, according the NXP recommendation.
- The setting of the chip allows the creation of applications and the key value changing, without authentication with card Master Key. This setting allows using the MIFARE® DESFire® EV2 in multi-application.
- Data is encoded with AtE security (Authenticated encryption).
- Random ID is not used.
- Encoding of the private ID with two AES keys.
- Proximity check EV2 enabled - Activates protection against relay attack.
- Authentication method: AES.

9. FAQ

Do you get the same data with all Easyline readers for the same credential?	YES, if they are configured with the same protocol.
Does the number printed on the card correspond to the reader number?	YES, ever.
Can Easyline readers read MIFARE® Classic EV1, Plus and DESFire® EV2 cards at the same time?	NO, Easyline readers can only read the MIFARE® DESFire® technology.
Can the Easyline reader be reconfigured using SECard?	**NO, configuration is set up by STid. The readers are Plug & Play and ready to use.**
I own a 13.56 MHz configuration kit. Can I use it for Easyline readers?	
Can PC2 readers read a UID?	**NO, Easyline readers can only read identifiers that are encoded in Easyline – PC2 format.**
Can non-Easyline credentials be used with PC2 readers?	
I have already installed STid ARC-R31-A/103-2B/1 or ARC-R31-A/PH5-2B/1 reader on site. Is an Easyline reader extension possible?	NO. If the installation uses 103 or PH5, the credentials are not PC2, and Easyline readers can only read PC2 credentials.
How can I change my Easyline reader output protocol?	If you want to change your reader output protocol, the reader has to be sent back to STid for reconfiguration.
How is my numbering managed if I order new cards on an existing Easyline installation?	It is a unique sequential number. The numbers do not follow each other between each order
How does 26-bits Wiegand work?	It is a sequential encoding on 3 bytes (site code + card code) so a unique number. The access control system manages the site code which can be different between each order.

10. REVISION

Date	Version	Description
29/05/2020	1.0	First edition
05/10/2020	1.1	Update of the 32 and 37 bits encoding format

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