

The SCALINE range of 13.56 MHz proximity detectors



The Scaline® range of readers includes readers that read the serial number (SN) of badges to the ISO 14443-3A MIFARE® Classic or MIFARE Plus® or MIFARE DESFire® EV1 and ISO 14443-2B (Calypso, etc.) standards.

This range also includes programmable readers intended to read either the serial number or the contents recorded in the memory of badges to the ISO 14443-3A MIFARE or 14443-4A (MIFARE DESFire) standards.

It offers readers with a binary interface (B) of the D0/D1 type, also known as "Wiegand" and models with an RS485 serial interface (S) using the new Scaline Data Interface or SCDI™ protocol which handles several readers on the same communication channel.

The ASC range's high degree of flexibility allows the way 14443 A programmable badges are used to evolve according to needs, without changing the hardware. Starting out from a simple application using badge serial numbers, it is possible to move on to using data contained in a sector, to change the sector number and the keys to access the data, or data contained in a DESFire EV1 application. It is also possible to modify the data format used, and hence the identification coding format.

What is the SCDI – Scaline® Data Interface?

SCDI is a communication protocol dedicated to the link between badge readers and an access management controller. This protocol uses an RS485 serial interface in multipoint mode, allowing up to 8 readers to be connected on a single twisted pair. It operates with the SC415, SC425, and SC435 controllers in the SCNET4 range. Hence these controllers can control four access-points, however many readers are installed at each access.

SCDI is a high-level protocol using automatic addressing, programmed from the SCNET4 server; thanks to this distributed intelligence, the readers offer high performance (load time, response time, etc.).

ASC0 readers for ISO 14443 badges

The Scaline ASC0 reader is the simplest model in the range. It is not programmable. Depending on the type (see function table), it allows reading of the unique (UID) or non-unique (NUID) serial number on an ISO14443-3A badge (MIFARE Classic or MIFARE Plus 1K or 4K, or MIFARE DESFire 2K, 4K, or 8K badge) or the serial number (PUPI) of an ISO 14443-2B badge (Calypso, etc.).

ASC3-A readers for 14443 A badges

The Scaline ASC3-A reader allows ISO14443-3A or 4A badges to be read. Depending on the type and the mode in which it is programmed (see function table), this reader will read the unique (UID) or non-unique (NUID) serial number on an ISO14443-3A badge (MIFARE Classic or MIFARE Plus 1K or 4K, or MIFARE DESFire 2K, 4K, or 8K badge) or the content of a MIFARE Classic sector (SE) or MIFARE DESFire EV1 memory (DE).

ASC1 readers for ISO 14443 A badges

The Scaline ASC1-A reader allows ISO14443-3A or 4A badges to be read. Depending on the type and the mode in which it is programmed (see function table), this reader will read the unique (UID) or non-unique (NUID) serial number on an ISO14443-3A badge (MIFARE Classic or MIFARE Plus 1K or 4K, or MIFARE DESFire 2K, 4K, or 8K badge) or the content of a MIFARE Classic sector (SE) or MIFARE DESFire EV1 memory (DE).

Readers – ASC3K-A keypad readers for 14443 A badges

The Scaline ASC3K-A reader allows ISO14443-3A or 4A badges to be read. The badge reading must be confirmed by a secret code specific to each individual. Depending on the type and the mode in which it is programmed (see function table), this reader will read the unique (UID) or non-unique (NUID) serial number on an ISO14443-3A badge (MIFARE Classic or MIFARE Plus 1K or 4K, or MIFARE DESFire 2K, 4K, or 8K badge) or the content of a MIFARE Classic sector (SE) or MIFARE DESFire memory (DE).

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Technical data

Function table

Type	B or S interface	Programmable	Read serial no.	Read Content	Compatible with (Modes)							
					14443-A							14443-B
					MIFARE Classic			MIFARE Plus X		MIFARE DESFire	MIFARE DESFire EV1	
					4UID	4NUID	7UID	4UID	7UID	7UID	7UID	4 PUPI
ASCO	Binary	No	D		X		X	X	X	X		
ASC1, ASC3(K)	Binary	Yes	P		X	X	X	X	X	X	X	
				P	C1	C1	C1			C3	C4	
ASCO	Serial	No	D		X	X	X	X	X	X	X	X
ASC1, ASC3(K)	Serial	Yes	P		X	X	X	X	X	X	X	
				P	C5	C5	C5			C7	C8	

B = Binary – D0/D1 interface sometimes called “Wiegand”

S = Serial – SCDI Interface in 2-wire RS485

D = Default Function (not programmable)

P = Depending on programming (either SN, SE, or DE)

SN = when a reader reads the serial number, by default (D) or by programming (P), it reads all the formats marked “X” in the row.

SE or DE = A reader programmed to read the content reads only the one

format and one content in a single mode (Ci) for which it has been configured

4UID = unique serial number referred to as UID (Unique Identification Number) having a length of 32 bits (or 4 bytes)

4NUID = serial number where the uniqueness cannot be guaranteed (Non Unique Identification Number) having a length of 32 bits (or 4 bytes).

7UID = this unique serial number referred to as UID (Unique Identification Number) has a length of 56 bits (or 7 bytes)

4PUPI = this unique serial number referred to as PUPI (Pseudo Unique Identification Number) has a length of 32 bits (or 4 bytes)

The product designation defines the capacity of each model. For example, ASC-ASE-S-1B is an ASC1 reader meeting the 14443-A (A) standard, capable of reading the sector for which it has been programmed (SE) (with the appropriate keys) from a MIFARE Classic badge, with an SCDI™ serial interface (S) and colour black (B).

Characteristics

		ASCO	ASC1	ASC3	ASC3K
Dimensions	H x W x D [mm]	78 x 43 x 15	78 x 43 x 15	112 x 95 x 91	112 x 95 x 21
HPM ¹ range ±15%	MIFARE Classic QA1 ²	4	4.5	9	8
	MIFARE DESFire 4K	2.5	2.5	5.5	5
Colour	Base	Anthracite grey	Anthracite grey	Anthracite grey	Anthracite grey
	Option (min. 100 off)	White (W)	White (W)	-	-
LEDs	Green/Red	2	2	Bar	Bar
Buzzer		Yes	Yes	Yes	Yes
Presence indicator ³	Type B (D0/D1)	Yes	Yes	Yes	Yes
Powering	12 VDC	40 mA	55 mA	115 mA	115 mA
Protection		IP 67	IP 67	IP 67	IP 67
Operating temp.		-15°C to 50°C	-15°C to 50°C	-15°C to 50°C	-15°C to 50°C
Weight		160 g	160 g	320 g	320 g
Material		ABS	ABS	ABS	ABS
Technical standards		CE	CE	CE	CE
	ETSI	EN300330-2	EN300330-2	EN300330-2	EN300330-2
Connection	Base	80 cm cable	80 cm cable	80 cm cable	80 cm cable
	Option (min. 100 off)	2.50 m cable	2.50 m cable	2.50 m cable	2.50 m cable

(1) The typical HPM reading range for a badge by the reader is defined using superior quality badges supplied by NCS®, away from any electromagnetic interference and any presence of metal in the vicinity of the reader, under the nominal electrical powering conditions, with the badge positioned parallel to the front face of the reader, and with a single badge in the field. The typical HPM range may vary by plus or minus 15% depending on the composition of the badge/reader combinations.

(2) The technical characteristics of QA1 badges from the CARD-MFSO range may vary in terms of the resonant frequency and the Q factor. The badges in the CARD-MFSO range are of the same format and thickness as a credit card: th. = 0.76 mm ±10%.

(3) The presence signal enables the controller to verify at all times not only that the reader is connected (“anti-ripping out” function) but also that the reader is working correctly.

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