HID Global Credential Identification Markings

Application Note

AN0109, Rev. A.2

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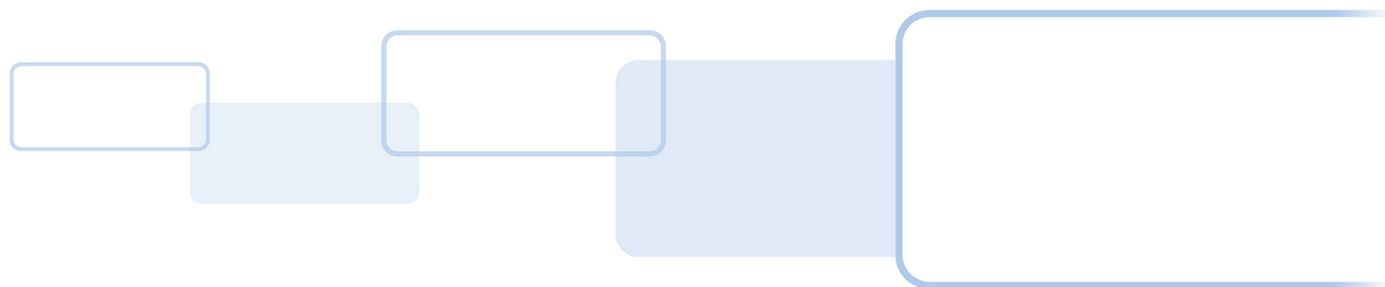
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Revision History

Date	Description	Revision
November 2017	Restructuring and reformatting updates.	A.2
December 2014	Added the following sections: • DuoProx II and ISOProx II Cards • Embeddable Cards • Card Serial Marking	A.1
November 2007	Initial release.	A.0

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Contents

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1   Card Identification Introduction

The majority of HID Global's physical credentials carry important markings that identify unique characteristics about the construction and personalization.

There are three types of marking:

- **Static Artwork**

  Allows the user to identify the core credential technology (or technologies), for example, a Seos, iCLASS or HID Prox card. The static artwork identifier does not apply to key fobs, tags or clamshell cards.

- **Dynamic Marking**

  Allows the user to identify further technology and personalization attributes, for example, Seos or iCLASS memory size, programming and HID Global sales order number. All standard ID-1, clamshell, tag and key fob part numbers are dynamically marked. The dynamic marking content will vary depending on the part number selected and form factor.

- **Slot Punch**

  Slot punch marks (dots), in either vertical or horizontal planes, identify ID-1 cards that support slot punching. Not all cards support a slot punch, cards that do not have slot punch marks must not be slot punched. For slot punching guidance, see *Section 4: Slot Punch*.

Example

1. Static artwork identifier (©HID iCLASS)
2. Dynamic marking (4* 00123 112233445566-1)
3. Slot punch identifier (vertical example)
4. Contact chip UID and model (contact chip cards only)

2   Static Artwork Identifier

The artwork identifier is located on the back of the card in the lower left corner and consists of the HID logo, a card model designation, chip identifiers and internal HID Global references. The HID logo and copyright symbol appear on all standard ID-1 card part numbers.

Use the information below to identify card technology and chip attributes. Dynamic marking attributes will be required to identify iCLASS memory configuration and to differentiate between iCLASS and iCLASS SE (SIO) programming (See *Section 3: Dynamic Marking*).

2.1   Card Technology Artwork Identification

Artwork	Description
© **HID**	HID Logo (all ID-1 Cards)
CRESCENDO™	Crescendo Logo (all ID-1 Crescendo Cards)
(chip icon)	Embeddable Card Body
XT	Composite Material
Seos	13.56MHz Seos
iCLASS	13.56MHz iCLASS / iCLASS SE
OOO	125kHz HID, Indala or EM Prox (single tech)
Px	125kHz HID, Indala or EM Prox (multi tech)
DESFIRE (or DF)	13.56MHz DESFire
MIFARE (or MF)	13.56MHz MIFARE Classic
UHF	UHF (add frequency)
Hitag	Hitag (125kHz)
Legic	Legic (13.56Mhz)
Wg	Wiegand

Example 1

© **HID**	=	UHF MF 1M4P
UHF	=	UHF
MF	=	MIFARE CLASSIC
1	=	Internal use only
M4	=	MIFARE CLASSIC 4K
P	=	Internal use only

Example 2

© **HID**	=	*iCLASS* DESFire *Px* GD88H
iCLASS	=	iCLASS
DESFire	=	DESFire
Px	=	HID, Indala or EM
G	=	Internal use only
D8	=	DESFire 8K EV1
H	=	Internal use only

2.2 Chip Type Artwork Identification

The following tables provide technology chip specific information, for example, where a technology is defined as iCLASS, additional artwork digits can be found on the card to identify the specific chip type and memory.

MIFARE 1K	
1	S50 Philips MIFARE 1K (4 bytes UID)
M1	S50 NXP MIFARE Classic EV1 1K (4 bytes UID)
M17	MIFARE 1K (7 bytes UID)

MIFARE 4K	
4	S70 Philips MIFARE 4K (4 bytes UID)
M4	S70 NXP MIFARE Classic EV1 4K (4 bytes UID)
M47	MIFARE 4K (7 bytes UID)

MIFARE DESFIRE	
1	D40 DESFire 4K v0.6
D8	D81 DESFire 8K EV1

LEGIC	
L1	LEGIC Prime 1024
L2	LEGIC Advant 1024
L3	LEGIC Advant 2048

Hitag	
H1	Hitag 1
H2	Hitag 2

UHF	
1	UHF

Crescendo	
20	iCLASS 32k
40	MIFARE Classic 4K
60	MIFARE DESFire EV1 8K
80	Seos 8K
21	iCLASS 32K + Prox
41	MIFARE Classic 4K + Prox
61	MIFARE DESFire EV1 8K
81	Seos 8K + Prox
821	Seos 8K + iCLASS 32k + Prox

3   Dynamic Marking

Dynamic marking is applied to all credentials during factory encoding. The dynamic marking applied to a credential will depend on the part number options selected and programming details.

Dynamic marking includes the HID Global Sales Order (SO) number; it is printed on the majority of cards in the format YYYYYYYYYYY-Y. This number provides a reference to the original order details such as full part number and personalization attributes.

HID Global has traditionally offered both inkjet and laser marking options selectable by part number. However, in accordance with our commitment to environmental sustainability, we are phasing out inkjet marking technology. As a result, during this transitional period, inkjet marked part numbers will be delivered with laser marking in some regions and on certain product categories.

3.1   Dynamic Marking Structure

Dynamic marking is broken down into six groups. Since the part number defines the dynamic marking groups that apply, it is recommend to lookup the marking values against the tables below to build the full specification for any given card.

Dynamic Marking Groups (printed on card from left to right)

Personalization Identifier	Memory Size	Programming Type	Prefix	External ID Number	Suffix	SO Number	SR Marker

In the case of a multi-technology card, we repeat all marking attributes per technology other than Personalization Identifier and SO number. An SR marker "SR" is located to the right of the SO Number to identify a combined iCLASS Legacy and SIO payload.

Multi-Technology marking order:

1. Proximity
2. iCLASS
3. Seos
4. MIFARE
5. DESFire
6. UHF

3.2 Dynamic Marking Examples

Example 1

Dynamic Marking: **1*   0012177 11223344556-1   SR**

Personalization Identifier	Memory Size	Programming Type	Prefix	External ID Number	Suffix	SO Number	SR Marker
	1	*		00121	77	11223344556-1	SR

        Memory Size (4)   =   iCLASS 16k/2

        Programming Type (*)   =   iCLASS Programmed

        Ext Number (0012177)   =   12177 (where 77 is the suffix) - determined with order information

        SO Number (11223344556-1) =   Sales Order Reference (line 1)

Example 2

Dynamic Marking: **4* 00999 00567 11223344556-1   SR**

Personalization Identifier	Memory Size	Programming Type	Prefix	External ID Number (Prox)	External ID Number (iCLASS)	Suffix	SO Number	SR Marker
	4	*****		**00999**	**00567**		**11223344556-1**	**SR**

Memory Size (4)   =   iCLASS 32k (16k/16 + 16k/1)

Programming Type (*)   =   iCLASS Programmed (SR)

Prox* Ext Number (00999)   =   999

iCLASS Ext Number (00567)   =   567

SR Marker   =   SR (dual iCLASS and iCLASS SIO payload)

*Px bug denotes dual technology iCLASS + 125kHz HID, Indala or EM Prox

Example 3

Dynamic Marking: **3* 00999 11223344556-1**

Personalization Identifier	Memory Size	Programming Type	Prefix	External ID Number	Suffix	SO Number	SR Marker
	3	*****		**00999**		**11223344556-1**	

Memory Size (4)   =   iCLASS 32k (16k/2 + 16k/1)

Programming Type (*)   =   iCLASS Programmed

Ext ID Number (00999)   =   999

3.3 Dynamic Marking Reference Tables

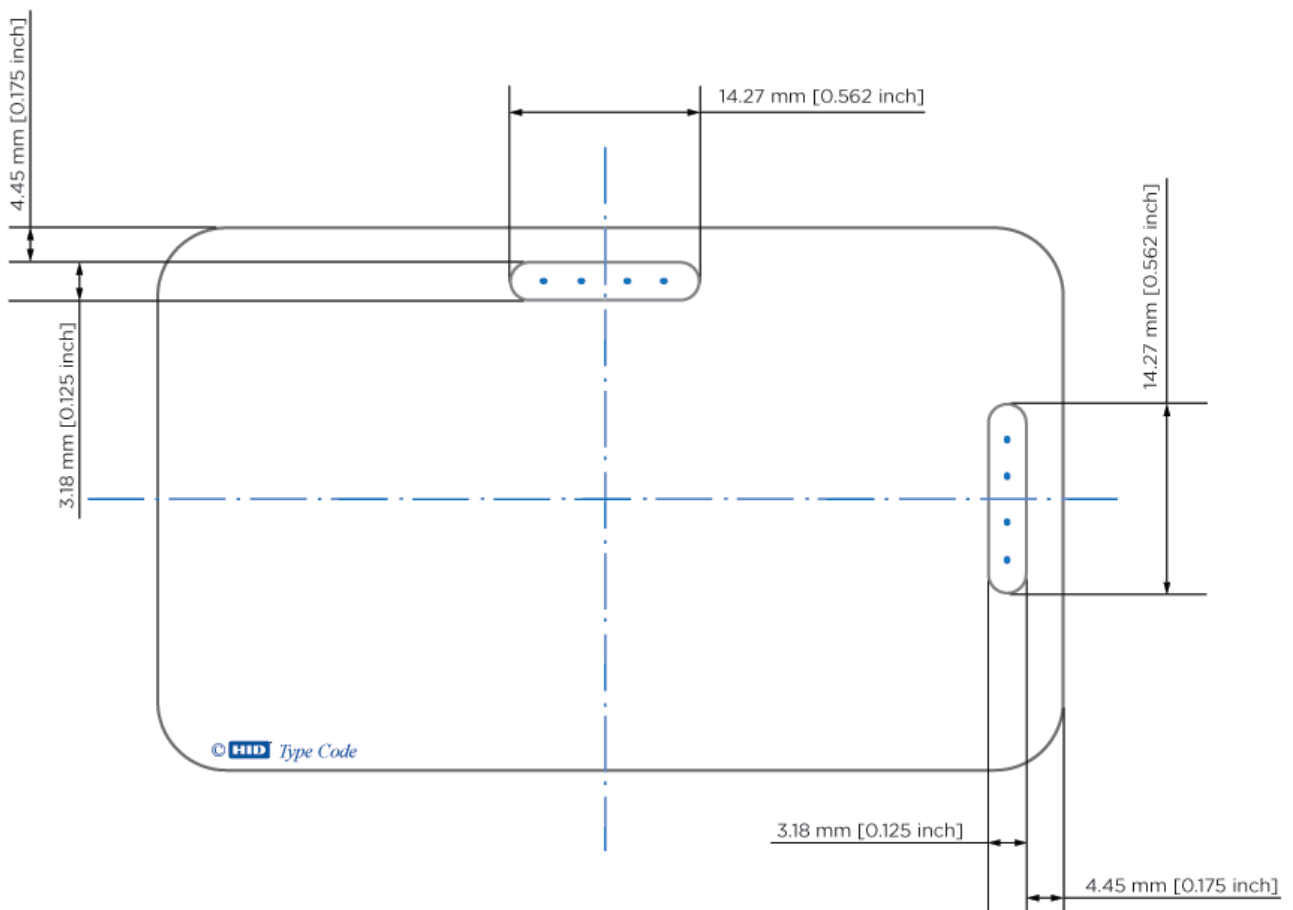| Personalization Identifier	
Value	**Description**
M	Internal HID use only
ER	SE Encoder Ready (SO number not printed)
Memory Size (valid for iCLASS & Seos only)	
Value	**Description**
1	iCLASS 16k/2
2	iCLASS 16k/16
3	iCLASS (16K/2 + 16K)
4	iCLASS 32K (16K/16 + 16K)
5	Seos 8K
6	Seos 16K
Note: A value is not printed on iCLASS 2K cards.	
External ID Number	
Value	**Description**
Minimum 5 digits	Printed ID number relates to the incremental ID number within the programming format selected. This field is repeated for each technology within the card. **Note:** Where two technologies use the same programming format attributes it is common place to omit the marking for one of the technologies (otherwise there will be a duplicate ID number on the card). Given the options below and the suffix/prefix options, the external ID number may not represent the encoded ID number to increase security. The maximum length of the ID number will depend on the field length of the programming format selected. Options available are: • NONE • MATCHING • SEQUENTIAL NON-MATCHING • RANDOM • UID (Hex) MSB First • UID (Decimal) MSB First • Reverse UID (Decimal) LSB First

Programming Type (valid for iCLASS & Seos only)	
Value	**Description**
-	Configured, iCLASS/Genuine HID Seos
=	Configured, iCLASS (non-ISO14443B)
*	Programmed, iCLASS/Seos
+	Programmed, iCLASS (non-ISO14443B)
/	Custom Programmed, Seos
A	Seos multi ADF ES profile (1)
Prefix	
Value	**Description**
XXXX	Customer defined prefix
Suffix	
Value	**Description**
XXXX	Customer defined suffix
Sales Order Reference	
Value	**Description**
YYYYYYYYYY-Y	Sales order number (YYYYYYYYYY = SO Number, -Y = Line Number)

4 Slot Punch

The ability to slot punch a card depends on the technology and design of the card. Not all cards support a slot punch. Some cards may only support a slot punch in one plane (either vertical or horizontal). Check the HID Global How-To-Order-Guide to confirm what options are available for a given base part number.

Cards that do support a slot punch are available to order pre-slotted from the factory, or with artwork to identify the correct slot punch location and orientation.

Follow the guidance below to ensure the card is slot punched in the correct location and to the correct size. Failure to comply to the guidance below may render the card inoperable and will not be covered by warranty. If in doubt, do not slot punch the card and contact your local HID Global technical support representative for guidance.

HID

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