



HID's MIFARE Products

Products



Access control systems using HID cards and readers just got smarter!

[Click here for Frequently Asked Questions about HID's MIFARE® products](#)

HID's MIFARE Products

HID MIFARE® card (1430): 13.56 MHz contactless smart card that can be embedded with a contact smart chip module and enhanced with a magnetic stripe.

HID Proximity and MIFARE card (1431): 13.56 MHz MIFARE and 125kHz Proximity card that can be embedded with a contact smart chip module

HID MIFARE reader (6055B): MIFARE card reader/writer for access control and other applications. [Click here to read the Application Note for this product.](#)

[Click here to see HID's Smart Card Product Guide](#), presented in PDF format.

To learn more about MIFARE technology and how HID's MIFARE products work in detail, [click here to access the HID MIFARE white paper \(survey information requested\)](#).

How are we doing? Did we answer your questions? Thinking about smart cards but need more information? [Click here to send feedback to HID's Smart Card team](#)

HID's experience in developing card technologies, combined with a massive global installed base of users, positions them to play a critical role in the evolution and adoption of smart card technology. Whether you are looking to implement MIFARE technology for many applications of your enterprise, or just looking for a MIFARE reader to add access control functionality to your existing MIFARE cards, HID can accommodate your needs.

Applications include access control (contactless and biometric) as well as diverse applications such as e-commerce, public transportation, toll road, airline ticketing and medical record acquisition.

HID's MIFARE products are MIFARE compliant and come equipped with a wealth of features, including securely separated files for complex applications, mutual authentication, data encryption and electronic purse functions.

[Frequently Asked Questions about HID's MIFARE products](#)

Our smart card experts work with each customer to navigate through the myriad of options currently available. HID then determines and recommends which products, platforms, systems and applications are suitable for them based on the latest technology available. To contact one of our smart card experts, click [here](#).

[Glossary of Smart Card terminology](#)

Frequently Asked Questions about HID's MIFARE products

Click each question to jump down to it's answer or just scroll down to read the entire document.

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-

1. What is MIFARE?

MIFARE technology is a 13.56 MHz contactless technology that is owned by Philips Electronics. They do not make cards or readers, but they make and sell the card and reader chips on the open market. Card and reader manufacturers such as HID use this technology to create unique products for use by end-users.

MIFARE is often considered to be a "smart card" technology. This is based on the ability to read and write to the card. In reality, MIFARE is simply a memory card (as opposed to a processor card).

The MIFARE contactless smart card and MIFARE card reader/writer were originally developed to handle payment transactions for public transportation systems. With a short read-range, MIFARE was uniquely suited to perform increment/decrement functions. Although contact smart cards could also do the job, contactless readers are faster and easier to use, and there is virtually no maintenance on the readers, or wear and tear on the cards.

To date, the use of MIFARE for contactless access control applications has been limited. This is due to the short read-range when compared to the options available with proximity (125 kHz technology).

2. What is unique about the HID MIFARE offering?

HID is unique in its ability to provide readers and cards specifically configured for access control OEMs requiring formatted Wiegand output. HID will have the capability of programming OEM data into one of the sectors on the MIFARE cards, and will be able to provide cards programmed with any facility code, format, and numbering sequence currently available in 125 kHz proximity cards.

The HID readers can find HID OEM data on the MIFARE card, and will output that data via the Wiegand port.

HID's capabilities can be contrasted with most other MIFARE reader suppliers who satisfy the Wiegand requirement by taking the Philips random chip ID and converting it to a 32 bit Wiegand output, or by cutting it down to a 26 bit Wiegand output. By basing the output on a random number, it is impossible to provide a sequential series of numbers, or a specified number range. Also, cutting off part of a large random number (called truncating) creates a risk of number duplication (called aliasing).

3. What is the typical read-range associated with a MIFARE contactless smart card reader?

The typical read-range on a MIFARE contactless smart card reader is 1.0" to 3.9" (i.e., 2.5 to 10 cm). In North America, due to FCC (power) restrictions, read-range will be on the lower end of the scale.

4. Can you use a MIFARE contactless smart card reader on an existing access control system?

The MIFARE contactless smart card reader may be used on an existing access control system. There are a few technical considerations:

The standard MIFARE card is factory programmed at Philips with a unique 32-bit serial number. This is a random number and does not contain a facility code. If you are currently using another bit format on your access control system and wish to use a MIFARE 32-bit contactless reader/card simultaneously, be sure to verify that the access control system in use will accept multiple bit formats and facility codes simultaneously.

As an alternate, you may order a MIFARE card from HID with one of the available sectors of the card pre-programmed in the same bit format as is currently being used. In this way, the access control system will "read" both HID proximity and HID MIFARE cards in the same way. Please note that you must configure the reader such that it knows "where to look" for the format.

5. How much memory does the HID MIFARE card offering have?

HID uses Philips MIFARE S50 module with one (1) Kbytes of EEPROM memory. HID uses this module to manufacture both HID MIFARE cards and HID Proximity and MIFARE cards.

6. Why is HID offering a card with both HID proximity and MIFARE technology in one card?

Many HID customers are currently using HID proximity for access control. The customer now wishes to use MIFARE technology for cashless vending or transit. Since the customer only wants to carry one card, it makes good sense to have one card with both technologies.

Likewise, many customers are currently carrying a MIFARE card for cashless vending or transmit applications. This is highly likely outside of North America. The customer is now interested in implementing an access control system using proximity. Again, the multi-technology card allows for use of a single card with multiple applications.

7. How many sectors does a MIFARE card have?

The MIFARE card has 16 separate sectors, which can be configured as purses or for general data storage. The first

sector is typically used as a directory for the rest of the card, leaving 15 segments available for data or purses.

8. How many applications can be performed with one MIFARE card?

Up to 15 different applications can be stored on a MIFARE card, and these applications will be separate and secure from one another by using unique keys (passwords) for each sector. The only requirement is that the various application providers must cooperate in the programming of the MIFARE Applications Directory (MAD), and that the keys to this directory must be available to all application providers.

9. If I want to write my own application to a MIFARE card, can HID help?

In the 4th quarter of 2001, HID will be offering a Developer's Resource Kit. If you need assistance with this prior to the kit being offered for sale, please use the feedback form on this website to request assistance.

10. Which ISO standard does the MIFARE card meet?

MIFARE is a 13.56 MHz contactless technology that is described under ISO 14443 Type A. This card is designed to allow you to embed an optional contact smart chip module; if done, this card would be ISO 7816 compliant as well. This card is designed to have a magnetic stripe on the card. In this configuration, this card would be ISO 7811 compliant as well.

11. Is MIFARE data encrypted?

MIFARE data is not encrypted. Typically, to encrypt data, a cryptoprocessor-type card is required. This means that you would be using a contact smart chip module (rather than the MIFARE contactless technology.)

MIFARE technology does allow for mutual authentication between the card and reader. A random number is generated; based upon the keys, a message is sent from the card to the reader. The reader then does the same back to the card. This is done three times to authenticate that the card being presented is valid.

12. Is there a cost difference between proximity and MIFARE technologies?

Based on the read/write capability of MIFARE, it is typically more expensive than proximity.

13. If I would like to order MIFARE products, what information is available?

HID's MIFARE products, including the read/write MIFARE reader and both card types (i.e., HID MIFARE and HID Proximity and MIFARE) are shown in the HID How To Order Guide. This provides the detailed information you need to place your order. [Click here for the full HTOG, presented in PDF format.](#)

14. If I would like more general or technical information on MIFARE, can you help?

HID is providing a [white paper](#) and an [Application Note \(#25\)](#) on this website. Click [here](#) to fill out the Smartcard Feedback form and be sure to select yes to have an HID representative contact you.

MIFARE® is a registered trademark of Philips Electronics, N.V.



https://web.archive.org/web/20011101092240/http://www.hidcorp.com:80/products/smart/mifare_reader.html

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About this capture

WHAT'S NEW

ABOUT HID

MEDIA CENTER

PRODUCTS

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SALES

HID

HID CORPORATION

Contactless Smart Card Reader

Product Data Sheet (PDF) • Ordering Instructions • Installation Instructions



HID's affordable smart card reader/writer utilizes MIFARE® technology to read and write to contactless smart cards. Contactless smart cards are used for stored value and data applications such as Access Control, Vending, Transit, etc.

This reader easily interfaces with existing access control systems to allow for ease of migration to the advanced features of MIFARE technology.

Need more information about HID's MIFARE products? [Click here.](#)

[Click here to read the Application Note \(#25\) for this product.](#)

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EXHIBIT B

https://web.archive.org/web/20030315213547/http://www.hidcorp.com/pdfs/prox_ds/multiprox.pdf

MultiProx™ Multi-Technology Proximity Reader

The MultiProx Reader makes it possible to replace an existing Schlage/Westinghouse card access control system with any Wiegand protocol system – while maintaining your existing card population and installed wiring. The MultiProx reader reads both HID proximity access cards and Schlage/Westinghouse (1030, 1040, or 1050) access cards. Now, future card requirements for the new system can be met with the HID's low-cost family of proximity cards.

The MultiProx reader makes the replacement of an aging Schlage/Westinghouse system easy and cost effective. The HID components are drop-in replacements for the “old gear”. Simply replace the existing sensor, 708/808 controller, and multiple switch monitor (MSM) with the HID MultiProx reader, controller, and HID switch module (HSM). The innovative design of the MultiProx controller allows for the translation of Schlage card numbers to Wiegand formatted data. Standard MultiProx reader features include multicolor LED and beeper, both with internal and external controls for enhanced user feedback.

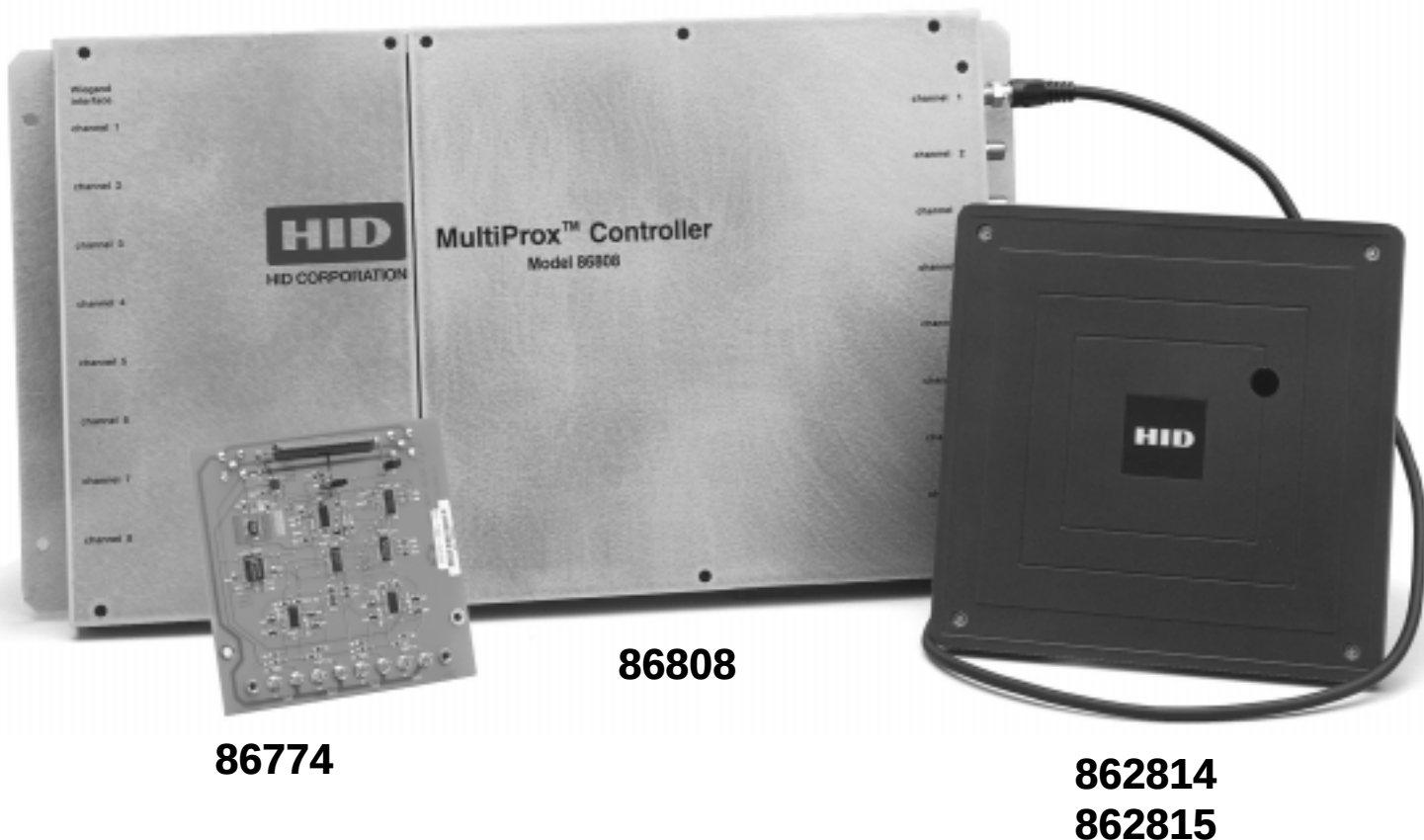
HID is committed to bringing advanced technology to the radio frequency identification market. The MultiProx components are a continuing example of this commitment.



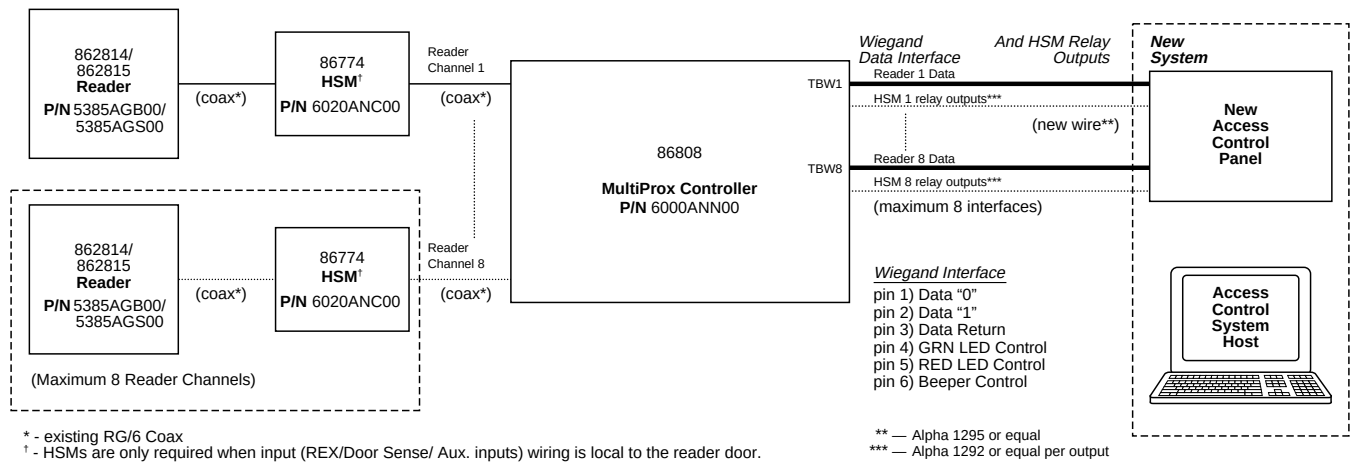
Description

HID MultiProx Multi-Technology Reader operation requires three components – the controller, the reader, and the HID switch module (HSM). The MultiProx controller scans eight channels for the presence of either an HID or Schlage/Westinghouse proximity access card. When a valid card is presented, the facility code and card number are decoded by the controller. The Schlage card information is transmitted as a selectable, 26-bit or 32-bit Wiegand message from the controller to the access control system. The HID card information is transmitted in the card's originally encoded bit format – i.e. a 32-bit card will transmit as 32 bits to the access control system.

The HSM transmits the contact status to the MultiProx controller, which translates the switch status to a Form C relay output for direct transmission to the access control system. The controller scans the LED and beeper inputs and sends control information to the reader to activate these features.



MultiProx Reader Subsystem Layout Diagram



Components

MultiProx Reader

The MultiProx Reader reads the HID or Schlage proximity card when the card is presented. The reader is a direct electrical and mechanical replacement for the Schlage 2700 or 2800 series sensor. The reader features a multicolor LED and beeper for enhanced user feedback. Two reader versions are available – side connection or rear connection.

MultiProx Controller

The MultiProx Controller replaces the Schlage 708 or 808 series sensor controller. The controller scans eight channels, which communicate with the installed readers and HSMs. Each channel has an input for the coax cable from the reader and/or HSM and a Wiegand Interface output port for its respective reader. When a valid card is read, the facility code and card number are decoded by the controller and transmitted via the Wiegand output port to the new access control panel. The controller includes a selectable DIP switch for transmission of either a 26-bit or a 32-bit Wiegand message to the host system. Status changes for inputs monitored by the HSM are transmitted via Form C relays to the new access control panel.

MultiProx HSM

The MultiProx HSM replaces the Schlage MSM which contains four inputs for dry contacts. These inputs are typically used for door sensors, request to exit (REX), or other alarm inputs. The HSM detects and transmits the status of the dry contacts to the controller. The controller has four Form C relays for each channel that mimic the respective dry contacts.

Features

Installation: The MultiProx reader directly replaces existing Schlage/Westinghouse access control equipment without replacing any existing cabling.

Cost effective: The MultiProx reader is quick and easy to install. Meet expanding card requirements with the introduction of low-cost, HID proximity cards to existing Schlage access cards populations.

Mounting: The MultiProx reader directly replaces the existing Schlage sensor. No modifications to existing mounting hardware, mounting holes and cable locations are required.

Audiovisual indication: When a proximity card is presented to the reader, the red LED flashes green and the beeper sounds. The multicolor LED and beeper also can be controlled individually by the host system.

Indoor/outdoor design: The MultiProx reader is sealed in a rugged, weatherized polycarbonate enclosure designed to withstand harsh environments as well as provide a high degree of vandal resistance.

Easily interfaced: The MultiProx reader interfaces with all existing Wiegand protocol access control systems. The facility code and card numbers of the Schlage cards are represented in a 26-bit or 32-bit Wiegand format.

Warranty:

All MultiProx reader components are warranted against defects in materials and workmanship for life from date of shipment. (See complete warranty policy for details.)

Specifications

MultiProx Reader

Typical maximum* read range:

ProxCard® II card up to 3" (7.5 cm)
ISOProx® II card up to 2" (5 cm)
Schlage card up to 2" (5 cm)

Dimensions:

7.5" x 7.5" x 0.8"
(19 x 19 x 2 cm)

Weight:

15 oz. (426 gm)

Temperature:

Operating -40° to 150° F (-40° to 65° C)
Storage -40° to 185° F (-40° to 85° C)

Operating humidity:

5-95% relative humidity noncondensing
over specified temperature

Material:

Polycarbonate UL 94

Power requirements:

50 mA @ 24VDC (Powered by the controller)

*Depending on local installation conditions.

MultiProx Controller

Dimensions:

18.0" x 10.0" x 1.8"
(45.7 x 25.4 x 4.6 cm)

Weight:

3 lb. 4.6 oz. (1,491 gm)

Cable distance:

Wiegand interface: 500 feet (150 m)
Coaxial cable: 1,000 feet max. (300 m)

Temperature:

Operating -0° to 122° F (-20° to 50° C)
Storage -40° to 185° F (-40° to 85° C)

Operating humidity:

5-95% relative humidity noncondensing

Enclosure material:

Aluminum

Power requirements:

2.0 Amp @ 24VDC

MultiProx HSM

Dimensions:

4.3" x 4.4" x 1.4"
(10.9 x 11.2 x 3.6 cm)

Weight:

3 oz. (85 gm)

Power requirements:

Powered by the controller

Temperature:

Operating -40° to 150° F (-40° to 65° C)
Storage -40° to 185° F (-40° to 85° C)

Operating humidity:

5-95% relative humidity noncondensing

Ordering information

Model/Description		Part No. for Ordering	Replaces Schlage/Westinghouse
862815	MultiProx Reader Side Connect	5385AGS00	2715 and 2815 Sensors
862814	MultiProx Reader Back Connect	5385AGB00	2714 and 2814 Sensors
86808	MultiProx Controller	6000BNN00	708 or 808 Series Controllers
86774	MultiProx HSM Interface	6020ANN00	MSM Model 774

(Please see "How to Order" guide for a description of the options and associated part numbers.)



Specifications subject to change without notice.
LIT6000DS 3/98, supersedes 1/96
Printed in the U.S.A.
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<https://web.archive.org/web/20040206054334/http://csrc.nist.gov/card-technology/presentations/integration/Davis-OmniTek-Migration-Strategies.pdf>

Migration Strategies

(With an Emphasis On Moving from 125 kHz
Prox to 13.56 MHz Contactless Smart Card
Technology)

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Agenda

- Introduction & Caveats
- Definitions
 - Prox, Contactless Smart Cards, Multi-technology Cards
- Why migrate to Contactless Smart Cards?
 - Comparisons, Features, Multi-application capabilities, ISO, etc.
- Migration Strategies
 - ♦ Multi-technology cards
 - ♦ Use existing cards and add contactless smart card sticker
 - ♦ Use multi-technology readers
- Optimum Migration Strategy
- Migration choice comparisons
- Moving data from legacy applications
- Integrated card issuing
- Wedge Readers
- Summary
- Questions & Answers

Introduction & Caveats

- This presentation discusses migration strategies, not new project implementations
- Of course the best solution is to rip out the old legacy systems and start from scratch but
 - Cost impact is major factor
 - Re-badging thousands of employees may be an obstacle
 - What to do during interim period?
- Some of the solutions presented here may be the long-term solution or used as a stepping-stone for migration to a single contactless smart card solution

What is Prox?

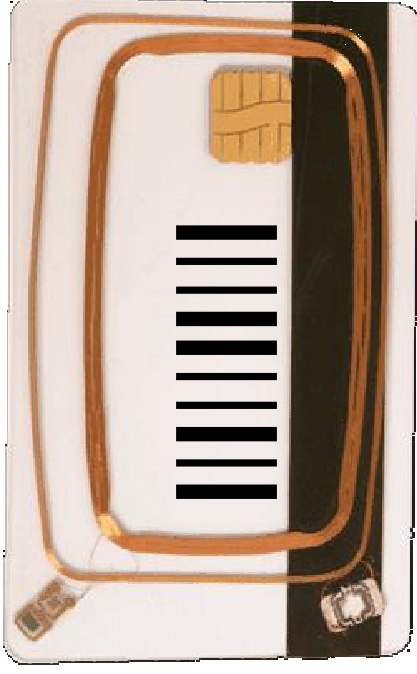
- “Prox” is a term used predominately in the United States to describe an RFID technology used in the Access Control Market
 - Requires no physical contact between a card and reader
 - Operates at 125 kHz
 - Typical operating distance from 4 to 6”
 - Packaged in cards or key fobs
 - Read-only
 - Data content typically from 26 to 40 bits
 - Generally very low security of data
 - No ISO standards exist
 - More than 250 million Prox cards have been sold

What is Contactless Smart Card Technology?

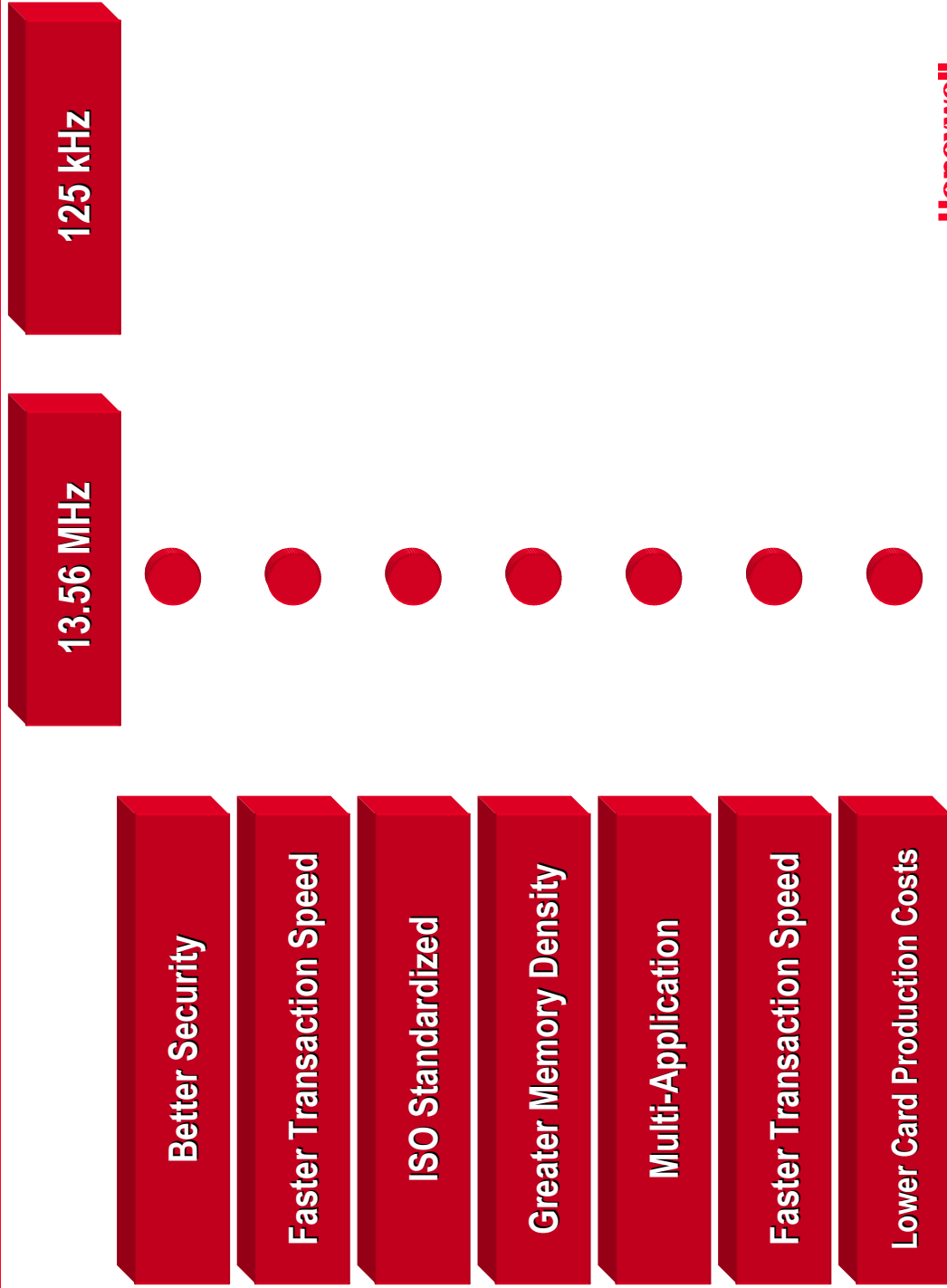
- **Contactless Smart Cards**
 - Requires no physical contact between a card and reader
 - Operates at 13.56 MHz
 - Typical operating distance from 2” to 6”
 - Maximum operating distance of 39”
 - Packaged in cards, key fobs, stickers, labels, and more
 - Data content from 256 bits to 4k bytes and more
 - Memory can be segmented for *multi-application* use
 - Very high security
 - Supports true read/write on the fly
 - ISO Standardized (ISO 14443A/B & 15693)

What is a Multi-Technology Card?

- Card that contains more than one machine readable ID technology
- Choices include:
 - Contact Smart Card
 - 13.56 MHz Contactless Smart Card
 - ◆ PicoPass™, Mifare™, iClass™, MyD™, etc.
 - 125 kHz Prox
 - ◆ HID, Indala, AWID, EM, etc.
 - Magnetic Stripe
 - Debit Stripe
 - Bar Code
 - Optical Stripe
 - Barium Ferrite (Magnetic Technology)
 - Etc.



Why Migrate to Contactless Smart Cards?



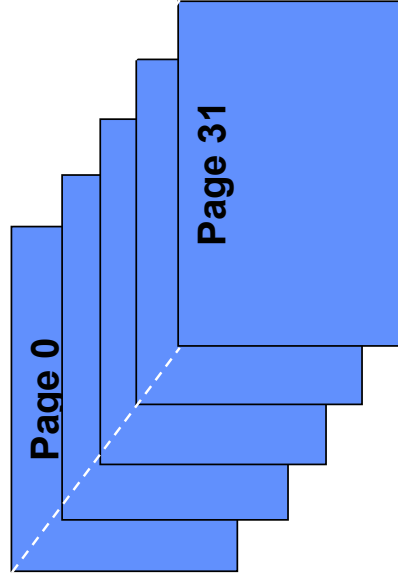
Honeywell

Why Migrate? (cont.)

- **Added Benefits With No Increase in Price**
- **Increased Security**
- **Ability to use same card for additional applications:**
 - **Biometrics:** Carry multiple templates on card
 - **Logical Access**
 - **ID:** Carry Tamperproof Digital Photographs
 - **Portable Database:** Encrypted Information for authentication or emergencies
- **Interoperability**
- **Future Growth**

Why Migrate? (cont.)

- **Multi-Application Support**
 - 64 bit serial number
 - 32 applications each with individual secret keys
 - Each application “slot” has up to 232 usable bytes
 - Can combine multiple apps to increase memory



Multi Application example
using PicoPass 32KS

Application	Data Blocks
0	Access Control
1 - 4	Logical Access
5	Time & Attendance
6	Vending
7 - 14	Finger Print (2 fingers)
15 - 16	IRIS Scan
17 - 27	Digitally Signed Photograph
28 - 30	Environmental & Building Mgmt
31	Burglar Alarm Arm/Disarm

Why Migrate (cont.)

- **Multi-Application Support**
 - Smart cards allow multiple applications - each protected with its own keys
 - Vendor should disclose keys for unused applications, i.e., open key strategy
 - **Open Key Strategy advantages:**
 - ◆ Other application slots free for use
 - ◆ Increases value of access control card
 - ◆ Allows one card to be used for many applications at the same time
 - ◆ Eliminates obsolesce
 - ◆ You're in control, switch access control vendors without reissuing cards

Why Migrate (cont.)

- **International Standardization**
 - Current 125 KHz Prox Technology
 - ◆ No ISO existing or planned standardization
 - ◆ Proprietary
 - HID, Motorola, AWID, Casi-Rusco, etc.
 - New 13.56 MHz Contactless Smart Cards
 - ◆ Standards DO exist
 - ISO 14443A, 14443B, 15693
 - ◆ Open standards with interoperability encourages broad supplier support and customer acceptance
 - ◆ Open standards can increase market size driving prices down
 - ◆ Facilitates interoperability between vendors and applications
 - ◆ Helps to drive costs down
 - ◆ Helps to eliminate obsolescence

Migration Strategies

Migration Strategies

Move data from multiple applications onto single card

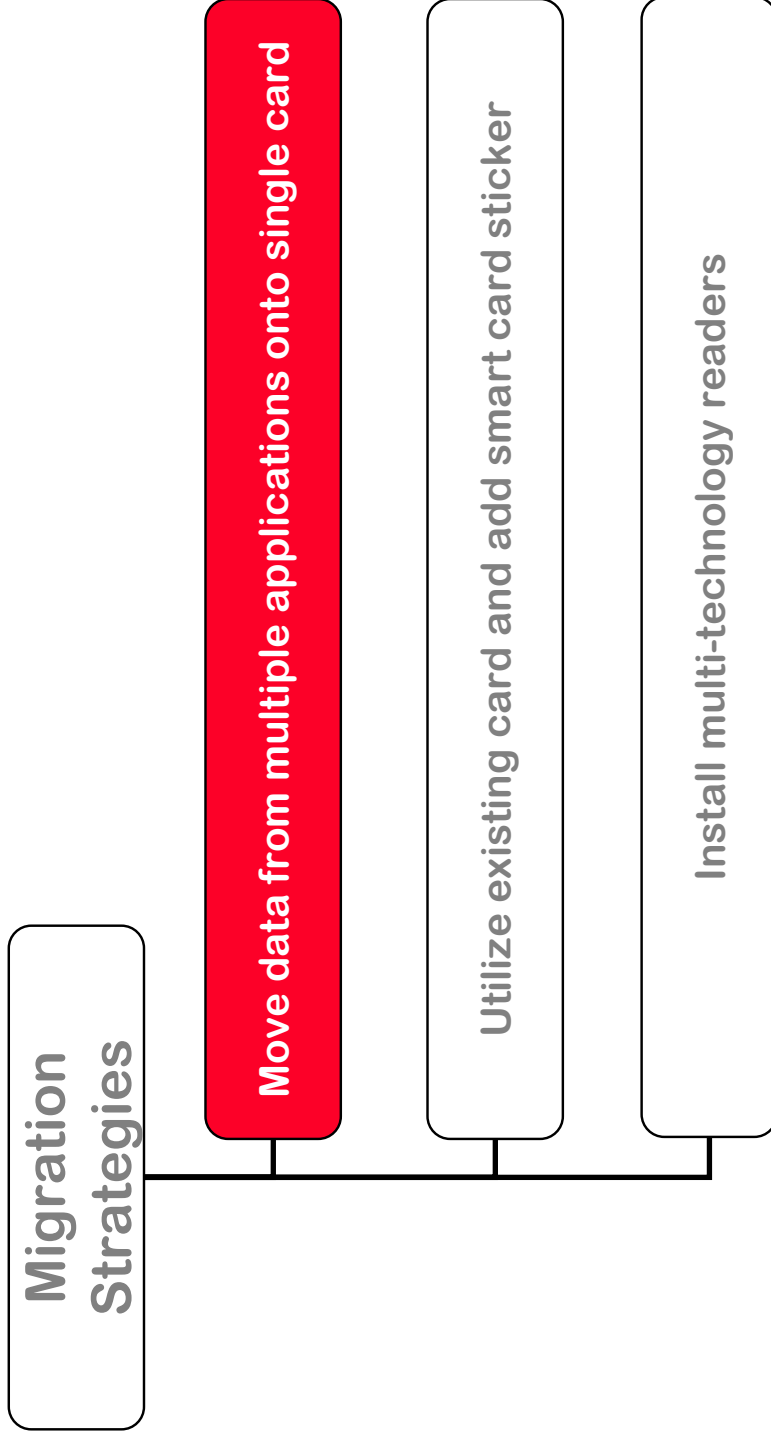
Utilize existing card and add smart card sticker

Install multi-technology readers

Migration Strategies (cont.)

- The following slides illustrates the three major migration strategies
 - Note that hybrid solutions combining elements from the different migration strategies are possible

Migration Strategies



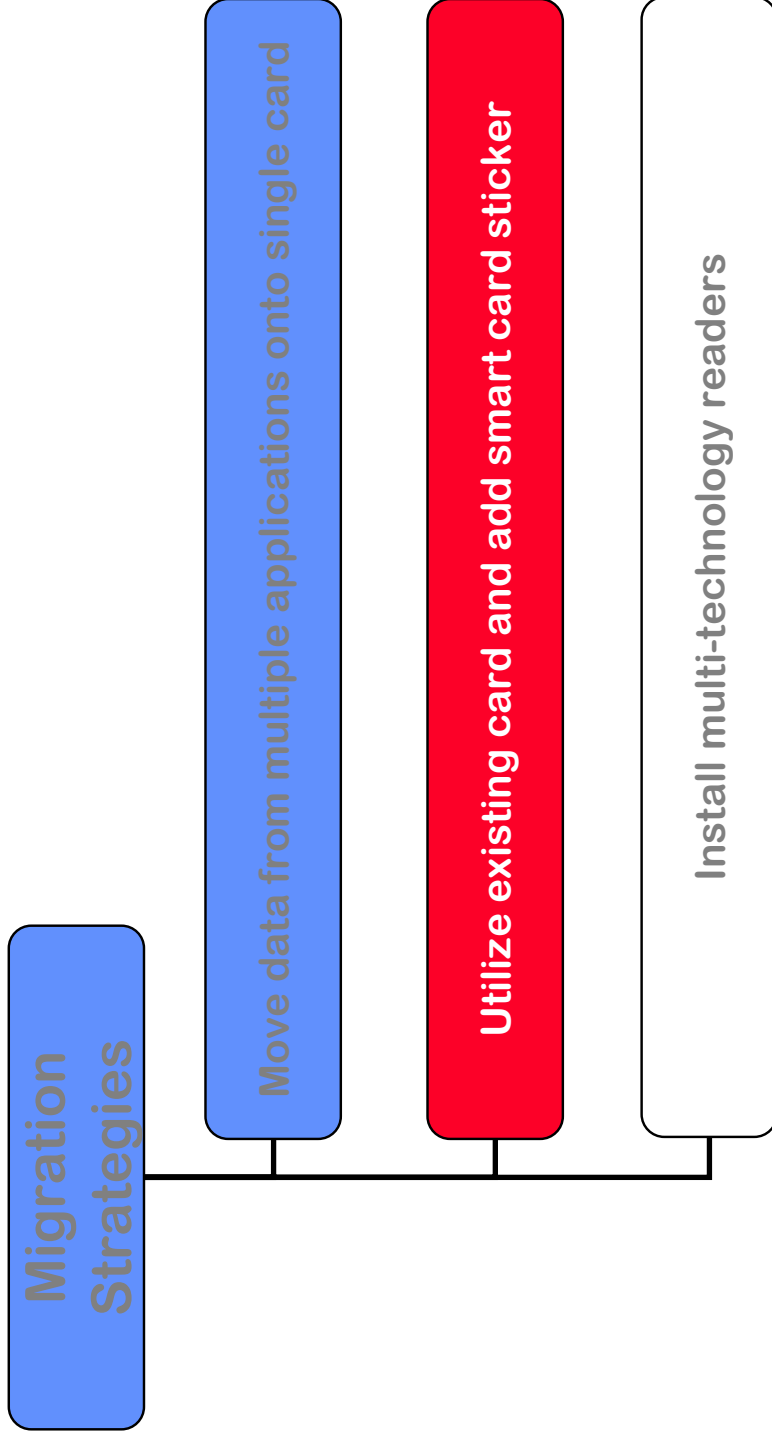
Migration Strategies: Use a Multi-Technology Card

- Method is to utilize the existing technologies for existing applications and put them on a single card
- Each legacy application utilizes the same technology that was used before

Migration Strategies: Use a Multi-Technology Card

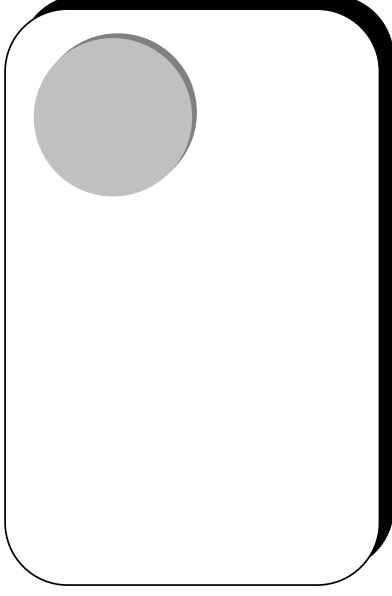
- **Advantages**
 - Most aesthetic looking card
 - Most secure card
- **Disadvantages**
 - Most expensive card
 - ◆ Each technology contributes to manufacturing and cosmetic fallout
 - Reduced field-reliability due to multiple technologies
 - ◆ Some combination of technologies weaken card structure
 - ◆ Additional cost to re-badge due to failure

Migration: Use existing card w/smart sticker



Migration: Use existing card w/smart card sticker

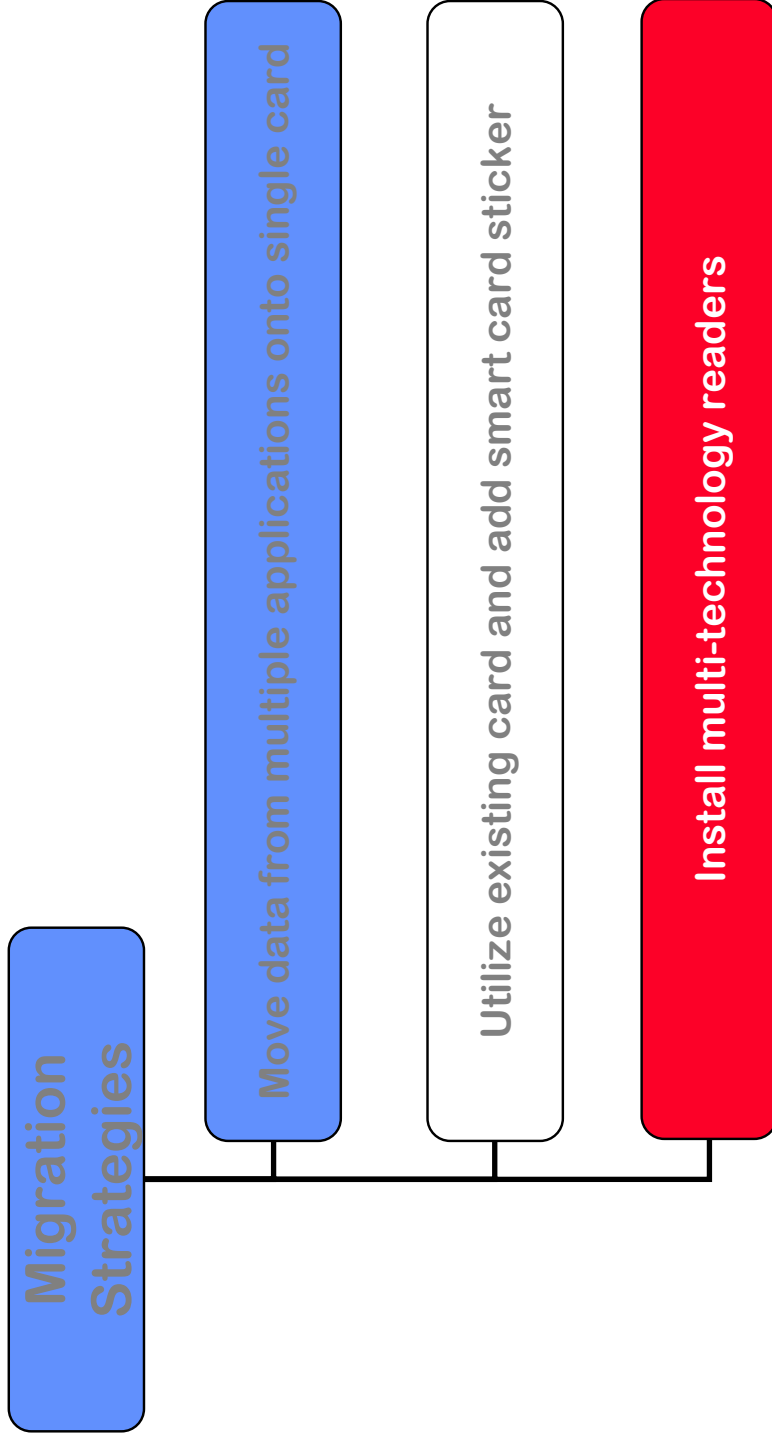
- Several companies make a smart card “Sticker”
- Sticker contains antenna and chip just like a card
- Sticker utilizes a permanent adhesive for easy affixing to existing card



Migration: Use existing card w/smart card sticker

- **Advantages**
 - Much lower cost because existing card is not thrown out
 - No migration of existing information from legacy applications
- **Disadvantages**
 - Not as aesthetic as a single card
 - Slightly reduced range due to smaller antenna
 - Location of patch important so card still works in existing readers (like magstripe)
 - Some organizations (Gov't, etc.) do not allow anything to be affixed to a card
 - Possible security issue if sticker is removed from card
 - ◆ Patch is designed to self destruct when removed
 - ◆ Electronic anti-tamper mechanisms available

Migration Strategies



Migration Strategies: Use Multi-Technology Readers

- Multi-technology readers are capable of reading two different technologies
 - Prox and Contactless Smart Card
 - Contact and Contactless Smart Card
 - Prox and Magnetic Stripe
- Multi-technology readers may have multiple output protocols and interfaces
 - Wiegand
 - Clock & Data
 - RS232
 - Etc.

Migration Strategies: Use Multi-Technology Readers

- **Advantages**
 - No changes to cards
 - No card re-badging
- **Disadvantages**
 - Typically most expensive migration strategy
 - ◆ Cost of readers are higher
 - ◆ Readers available from only a few vendors
 - ◆ Not all technology choices available
 - Reader obsolescence occurs faster

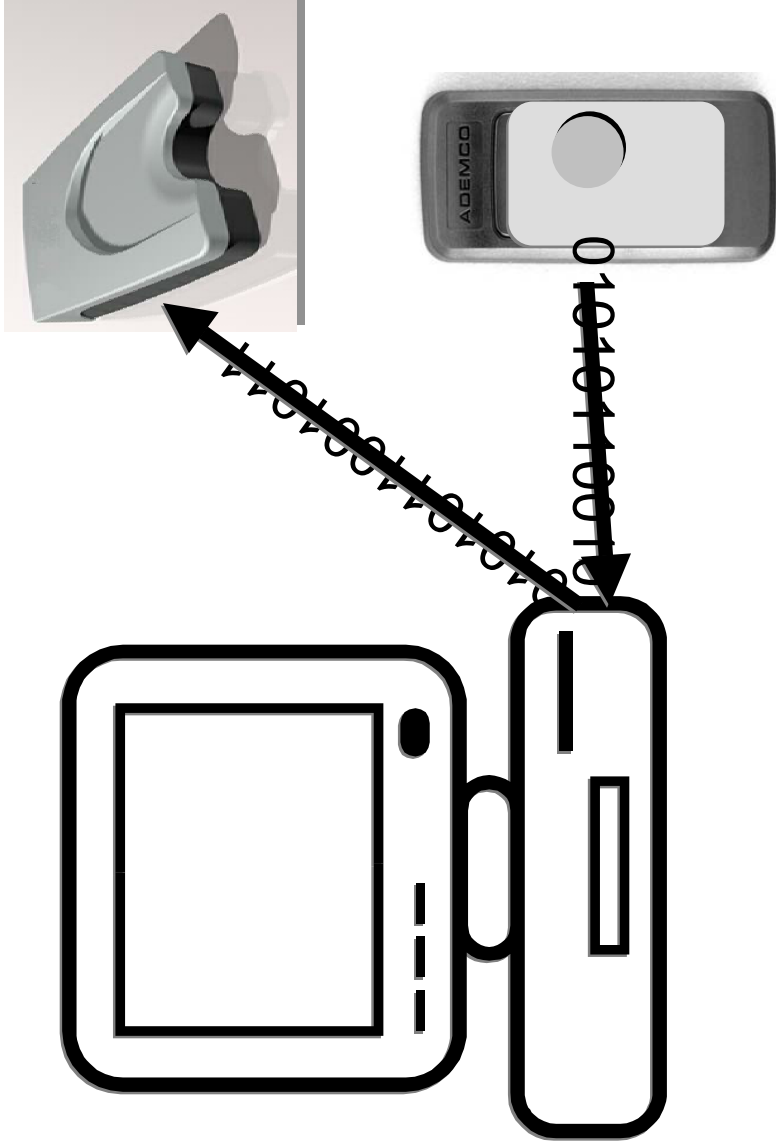
Optimum Migration Strategy

- Optimum strategy is to migrate all legacy applications to just contactless smart card solution utilizing separate application areas
 - Single technology card is most cost effective and reliable
- Biggest stumbling block is
 - Retrieving data from legacy application and moving it to contactless smart card
 - Emulating legacy protocol and physical interface
- Can use all of the previous migration methods discussed for interim

Moving Data From Legacy Applications

- **Best method is to electronically move data under computer control**
 - No human typing errors
 - Can automate process
 - Very convenient, complete process can take less than 30 seconds
- **Can almost always retrieve legacy data using its legacy reader interfaced to a PC**
 - Security and internal formats need not be known since legacy reader already knows how to read card
 - Even if reader is proprietary, output data can usually still be captured at a PC
 - Ideal method to move legacy applications where vendor has gone out of business or is uncooperative

Moving Data From Legacy Applications (cont.)



Step 4: Affix sticker to existing 125 kHz Prox card

Honeywell

Integrated Card Issuing

- If legacy data is already stored in a database:
 - Can use a Dye-Sub Printer w/Smart Card Encoding to automate process
 - ◆ Unattended batch processing possible
 - ◆ Issue and personalize cards on demand



“Wedge” Readers

- **Many times a keyboard “wedge” reader can be used with a contactless smart card reader instead of original legacy reader**
 - **Advantage is original PC application does not have to be changed at all!**
- **If legacy application already uses a wedge reader then it is a no-brainer to retrieve legacy data into a PC and rewrite into a contactless smart card**

Questions and Answers



https://web.archive.org/web/20030315203006/http://www.hidcorp.com/pdfs/prox_rg/CRG-EN-US.pdf

What's INSIDE your CARD?

HID CARD TECHNOLOGIES

proximity
iCLASS™
(read/write contactless smart chip)
magnetic stripe
contact smart chip
multi-technology cards
Wiegand Swipe

HID CARD SERVICES

custom configuration
complete cards
personalization
anti-counterfeiting
card management
custom artwork
photo ID badging
programming
encoding

CARD APPLICATIONS

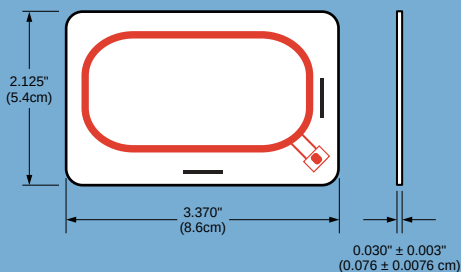
access control
IT secure authentication
digital cash & vending
biometric template storage
time & attendance
photo ID badging
parking control
medical records
fare collection
data storage



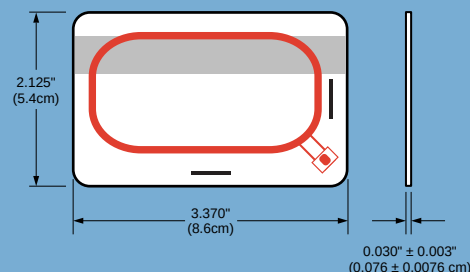


Need more than just access control? Leverage your A FULL LINE OF MULTI-TECHNOLOGY

ISOPROX® II Base part number: 1386 125 kHz proximity card

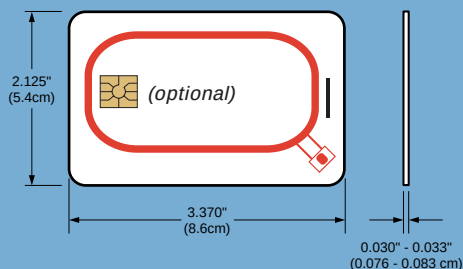


DUOPROX® II Base part number: 1336 125 kHz proximity card with magnetic stripe



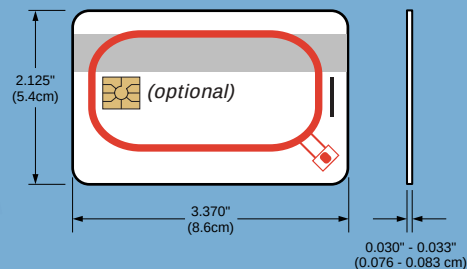
SMART ISOPROX® II

Base part number: 1397
125 kHz proximity card, contact smart chip embeddable* (optional magnetic stripe)



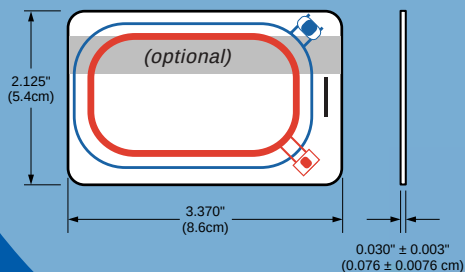
SMART DUOPROX® II

Base part number: 1398
125 kHz proximity card with magnetic stripe, contact smart chip embeddable* (optional magnetic stripe)



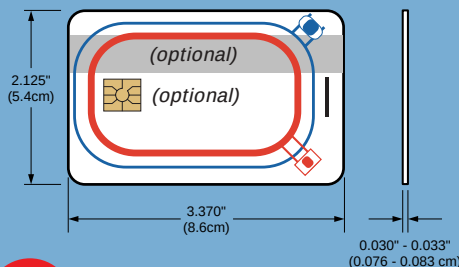
HID PROXIMITY AND MIFARE®

Base part number: 1431[†]
125 kHz proximity card and 13.56 MHz MIFARE® card (optional magnetic stripe)



SMART PROXIMITY AND MIFARE®

Base part number: 1431[†]
125 kHz proximity and 13.56 MHz MIFARE® card, contact smart chip embeddable* (optional magnetic stripe)



ALL THIN CARDS ARE ISO 7810 COMPLIANT.

*ISO 7816 compliant for embedding optional contact smart chip module. Dimensions shown are nominal dimensions. Some custom graphics can increase overall card thickness.

HID credentials feature a *Lifetime Warranty*. See HID's Sales Policy for complete warranty details.

Specifications subject to change without notice. Please consult our website, www.HIDCorp.com, for up-to-date specifications. See our "How To Order Guide" for details regarding options and part numbers.



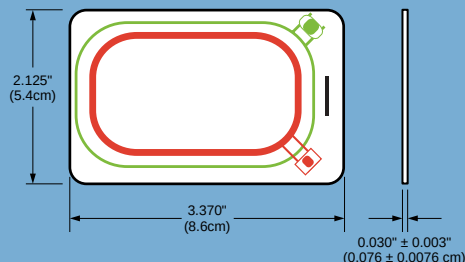
HID offers a dual technology Proximity & MIFARE card. A sector of the MIFARE portion of the card can be programmed with the same HID proximity format you use today! The HID Proximity & MIFARE card offers an excellent solution for customers who are transitioning from one technology to another, or who are using smart card and proximity applications simultaneously.

investment in existing systems by adding new technologies.

CREDENTIALS

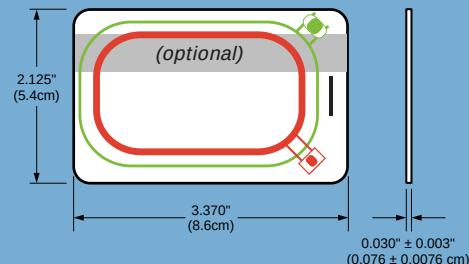
iCLASS™ PROX Base part number: 202X

13.56 MHz iCLASS contactless smart card and 125 kHz proximity card



iCLASS™ PROX Base part number: 202X

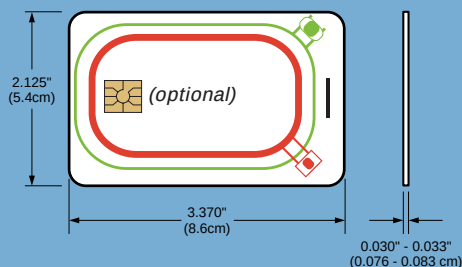
13.56 MHz iCLASS contactless smart card and 125 kHz proximity card with optional magnetic stripe



iCLASS™ PROX EMBEDDABLE

Base part number: 203X

13.56 MHz iCLASS contactless smart card and 125 kHz proximity card, contact smart chip embeddable*



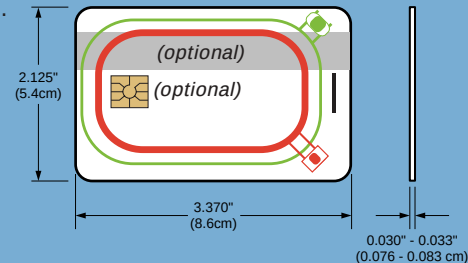
DID YOU KNOW?

HID now offers iCLASS™ contactless smart card technology, a complete line of credentials and readers optimized for physical access control, IT secure authentication, and other applications. iCLASS cards and readers offer enhanced security through encryption and mutual authentication, as well as the ability to read and write data quickly and securely to the card for many applications. To learn more, visit the iCLASS website at <http://www.HIDCorp.com/iclass>

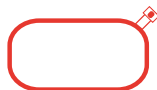
iCLASS™ PROX EMBEDDABLE

Base part number: 203X

13.56 MHz iCLASS contactless smart card and 125 kHz proximity card, contact smart chip embeddable* (optional magnetic stripe).



CARD TECHNOLOGIES & APPLICATIONS



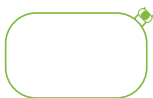
Proximity Contactless Chip and Coil Specifications

Operating Frequency: 125 kHz • **Format Size:** Up to 84 bits
Read Range: Up to 24" (60cm) depending on local installation conditions and card reader selection.
(See next page for Contactless Technologies Read Range Chart.)



MIFARE® Contactless Memory Chip and Coil

MIFARE: Contactless memory module • **Operating Frequency:** 13.56 MHz read/write technology • **Memory Size:** 8kbits (1k Byte)
Read Range: Up to 1.5" (3.8 cm) depending on local installation conditions and card reader selection.
RF Interface: As suggested by ISO/IEC 14443, Type A • **Fixed Serial Number:** Unique 32 bit



iCLASS™ Read/Write Contactless Smart Chip and Coil

iCLASS: Contactless smart chip module • **Operating Frequency:** 13.56 MHz read/write technology
Memory Size: 2kbits (256 Bytes) with 2 application areas or 16kbits (2kBytes) with 2 or 16 application areas
Read Range: Up to 4.5" (11.4 cm) depending on local installation conditions and card reader selection
RF Interface: As suggested by ISO/IEC 15693 • **Format:** Any proximity bit format up to 84 bits
For more information, use HID's iCLASS Reference Guide or visit our website at www.HIDCorp.com/iclass.



Contact Smart Chip Module Guidelines

For customers who require a contact smart chip module, HID has developed partnerships with the leading providers of application software and contact smart chip modules.

Depending on your specifications, HID can embed contact smart chip modules from a number of industry leaders. When application software is needed, turn to HID's partners. To learn more about HID's smart card offerings and partners, visit our website at <http://www.HIDCorp.com/smart>.

Magnetic Stripe Specifications

Standard: ABA Standard, 3 track, high coercivity (4000 Oersted).
Custom magnetic stripes available upon request.

IT SECURE
AUTHENTICATION

ACCESS
CONTROL



DIGITAL CASH,
VENDING &
SECURE
TRANSACTIONS



Need tools to help choose the right credential for your application?

CREDENTIAL FEATURE COMPARISON

Notes

Base Part Number

Consult "How To Order Guide" for more detailed part numbers.

Smart Chip Embeddable

These cards are ISO 7816 compliant and held to 0.030" to 0.033" (0.0762 to 0.0838 cm) thickness.

***Available. Consult factory for correct base part number.

Magnetic Stripe

ABA standard, 3 track, high coercivity (4000 Oersted). Custom magnetic stripes available upon request.

Slot Punch

V=Vertical Slot punch option
H/V=Horizontal or Vertical slot punch option
Keyring=Standard Hole

**Vertical slot punch is standard on the ProxCard II.

†These Wiegand credentials can be slot punched in many different locations. Consult factory for more information.

Direct Image Print

†Direct image printing (using a dye sublimation or direct image transfer printer) can be done at the factory, by the customer or by third parties. Some printing methods can affect the thickness of the credentials, taking them out of ISO 7816 compliance.

Warranty

HID credentials feature a Lifetime Warranty. See HID's Sales Policy for complete warranty details.

Base Part Number(s)	Contact Smart Chip Embeddable		Wiegand Strip		Magnetic Stripe		Direct Image Print†		Slot Punch		Warranty	
	13-56 MHz Read/Write	Proximity (125 kHz)										
ProxCard® II Card	1326	YES	NO	NO	NO	NO	NO	With PVC overlay	V**	Lifetime		
ISOProx® II Card	1386	YES	NO	NO	NO	NO	NO	YES	H/V	Lifetime		
DuoProx® II Card	1336	YES	NO	NO	NO	NO	YES	YES	H/V	Lifetime		
Smart ISOProx® II Card	1397	YES	NO	YES	NO	NO	NO	YES	V	Lifetime		
Smart DuoProx® II Card	1398	YES	NO	YES	NO	NO	YES	YES	V	Lifetime		
iCLASS™ Prox Card	202X 203X	YES	YES iCLASS	YES†††	NO	OPTIONAL	NO	YES	V	Lifetime		
HID Proximity & MIFARE® Card	1431	YES	YES MIFARE	YES†††	NO	OPTIONAL	NO	YES	V	Lifetime		
ProxCard® Plus Card	16-9	YES	NO	NO	YES	OPTIONAL	NO	YES	H/V	Lifetime		
ProxKey® II Keyfob	1346	YES	NO	NO	NO	NO	NO	NO	Keyring	Lifetime		
MicroProx® Tag	1391	YES	NO	NO	NO	NO	NO	NO	NO	Lifetime		
eProx™ Tag	1390	YES	NO	NO	NO	NO	NO	NO	NO	Lifetime		
ProxPass® Active Vehicle Tag	1351	YES	NO	NO	NO	NO	NO	NO	NO	Lifetime		
SensorCard™	10, 11, 14	NO	NO	NO	YES	NO	NO	YES	H/V††	Lifetime		
SensorCard™ II	10, 11	NO	NO	NO	YES	YES	NO	YES	H/V††	Lifetime		
SensorKey™	25	NO	NO	NO	YES	NO	NO	NO	Keyring	Lifetime		
Pocket Tag	145	NO	NO	NO	YES	NO	NO	NO	Keyring	Lifetime		
Photo ID	17	NO	NO	NO	YES	NO	NO	NO	H/V††	Lifetime		

CONTACTLESS TECHNOLOGIES READ RANGE CHART

(Read range is dependant on local installation conditions.)

CREDENTIAL \ READER	ProxPoint® Plus Card Reader	MiniProx® Card Reader	ThinLine® II Card Reader	ProxPro® Card Reader	ProxPro® II Card Reader	Prox80® Card Reader	ProxPro® Plus Card Reader	MaxiProx® Card Reader	EntryProx® Card Reader	pcProx® Desktop Card Reader
ProxCard® II Card	2.0" - 3.0" 5.1 - 7.6 cm	4.0" - 5.5" 10.2 - 14.0 cm	4.0" - 5.5" 10.2 - 14.0 cm	5.5" - 8.0" 14.0 - 20.3 cm	6" - 9" 15.2 - 22.9 cm	4.0" - 5.5" 10.2 - 14.0 cm	8.0" - 11.0" 20.3 - 27.9 cm	16" - 29" 40.6 - 73.7 cm	2.0" - 3.0" 5.1 - 7.6 cm	1.0" - 3.0" 2.5 - 7.6 cm
ISOProx® II Card	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
DuoProx® II Card	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
Smart ISOProx® II	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
Smart DuoProx® II Card	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
iCLASS™ Prox Card	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
HID Proximity & MIFARE® Card	1.5" - 2.5" 3.8 - 6.35 cm	3.0" - 5.0" 7.6 - 12.7 cm	3.0" - 5.0" 7.6 - 12.7 cm	4.0" - 7.0" 10.2 - 17.8 cm	5" - 8" 12.5 - 20 cm	3.0" - 5.0" 7.6 - 12.7 cm	6" - 9" 15.2 - 22.9 cm	15" - 20" 38.1 - 50.8 cm	1.5" - 2.5" 3.8 - 6.35 cm	1.0" - 2.5" 2.5 - 6.35 cm
ProxCard® Plus Card	0.5" - 1.0" 1.2 - 2.5 cm	1.0" - 2.0" 2.5 - 5.1 cm	1.0" - 1.5" 2.5 - 3.8 cm	2.0" - 3.0" 5.1 - 7.6 cm	2.0" - 4.0" 5.1 - 10.2 cm	1.0" - 1.5" 2.5 - 3.8 cm	3.0" - 4.0" 7.6 - 10.2 cm	8.0" - 13.0" 20.3 - 33 cm	0.5" - 1.0" 1.2 - 2.5 cm	0.5" - 1.0" 1.2 - 2.5 cm
ProxKey® II Keyfob	1.0" - 1.5" 2.5 - 3.8 cm	1.0" - 2.0" 2.5 - 5.1 cm	1.0" - 2.0" 2.5 - 5.1 cm	1.0" - 3.0" 2.5 - 7.6 cm	2.0" - 4.0" 5.1 - 10.2 cm	1.0" - 2.0" 2.5 - 5.1 cm	4.0" - 6.0" 10.2 - 15.2 cm	6.0" - 17.0" 15.2 - 43.2 cm	1.0" - 1.5" 2.5 - 3.8 cm	1.0" - 1.5" 2.5 - 3.8 cm
MicroProx® Tag	0.5" - 2.0" 1.2 - 5.1 cm	0.5" - 2.5" 1.2 - 6.4 cm	1.0" - 3.0" 2.5 - 7.6 cm	1.0" - 4.0" 2.5 - 10.2 cm	1.0" - 4.5" 2.5 - 11.4 cm	0.5" - 2.5" 1.2 - 6.4 cm	2.0" - 6.0" 5.1 - 15.2 cm	4.0" - 15.0" 10.2 - 38 cm	0.5" - 2.0" 1.2 - 5.1 cm	0.5" - 2.0" 1.2 - 5.1 cm
ProxPass® Active Vehicle Tag	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4" - 8" 1.2 - 2.5 m	N/A	N/A

For information on iCLASS, please visit HID's website at www.HIDCorp.com/iclass, or request the HID iCLASS Reference Guide.

Need card personalization services to turn your card into a credential?

HID CORPORATE 1000 PROGRAM

Using Multiple Technologies?

Have Multiple Facilities?

Located in Multiple Countries?

Need a Secure Format?

Have Too Many Cards?

Use the HID
Corporate 1000 Format.



- The Corporate 1000 Format is a 35-bit card format that is owned and controlled by the end-user.
- To enhance facility security, HID provides end-users with their own proprietary protocol.
- Once the Corporate 1000 Format is established, end-users have the flexibility to choose almost any access control hardware/software platform or system integrator.
- Whatever system or vendor is chosen, end-users maintain the ability to use a single access card at any site across the nation or around the world.
- Cards can be customized with a photo ID, custom artwork, magnetic stripe, bar code, or contact smart chip module.
- HID tracks the card numbers to ensure that no duplication occurs.
- Any HID access control card can be programmed with the assigned format.

HID can meet every customer's goal of handling multiple applications with just one card!



CARD PERSONALIZATION

Personalize and Secure Your Credential - Inside and Out

Use HID's Card Personalization Service to create custom credentials. Turn your HID card into a credential by having HID personalize each card with the required ID badge information. For greater security, economically add a custom anti-counterfeiting feature. Only HID can provide one-stop shopping for your complete credential needs!

HID's ID Badge Services:

- Enables the security department to manage security, not ID badge production.
- Reduces overall costs associated with ID badge production.¹ Wear and tear on in-house badge production equipment is minimized.
- Eliminates costs associated with cards destroyed or disfigured during the badging process.
- Use HID Connect, a web-based service usable by any size company. Take advantage of technological advances with little or no capital investment!
- Create your ID badge layout to meet all your requirements. No in-house graphics capabilities required!
- Use an existing photo ID database for the creation of new, personalized ID badges.

¹ For cost comparison data, visit our website at www.HIDCorp.com/cps.

HID's Standard Anti-Counterfeiting Offering Includes:

- **Ultra-violet (UV) Fluorescent Inks:** Invisible to the naked eye, these inks can verify the authenticity of a card when placed under a black ultra-violet light.
- **Holograms:** The accepted security measure in the financial and banking world, holograms are easily recognizable by security personnel, allowing for quick identification of counterfeit cards.
- **Corporate Logo:** Enhance corporate identity and brand recognition by creating a unique hologram or UV fluorescent ink design using your company's logo. Easily identified by security personnel, the exclusive logo will visibly demonstrate your company's commitment to security.

To learn more about HID's Card Personalization Service, call your local systems' integrator or visit HID's website at www.HIDCorp.com/cps.



Have a special or unique application? HID can help!

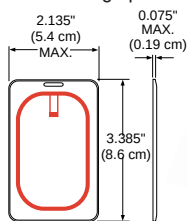
PROXIMITY TECHNOLOGY

PROXCARD® II

Value priced
125 kHz proximity card
Base part number: 1326

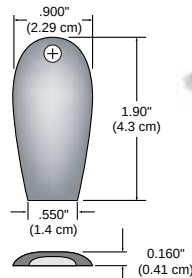


A PVC overlay is available for ProxCard II and allows for on-site photo ID using most direct image printers.



PROXKEY® II

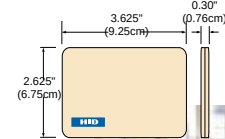
Convenient
125 kHz proximity key fob
Base part number: 1346



A great choice for maintenance personnel or where photo ID's are not needed.

PROXPASS®

Long range
125 kHz proximity active vehicle tag
Base part number: 1351



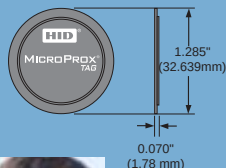
Your best choice for convenient and economical hands-free parking control.

MICROPROX® TAG

125 kHz proximity **adhesive** tag
Base part number: 1391

Seamlessly upgrade from other technologies such as magstripe, Wiegand or barium ferrite by simply adding a MicroProx Tag to the card.

Sample placement shown; actual placement will depend on application. Consult HID for specific guidelines. Not for use with cards used with tractor feed (full insertion) readers.

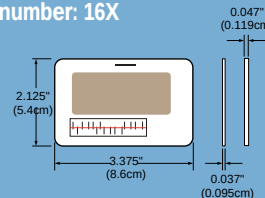


Add a MicroProx Tag to a cellphone or PDA to create a secondary credential.



PROXCARD® PLUS

Wiegand and 125 kHz proximity card
Base part number: 16X



You can easily transition from Wiegand to proximity with ProxCard Plus or MicroProx Tag.



ePROX™ TAG

125 kHz proximity **embeddable** transponder
Base part number: 1390

Add value to specialized third-party products by embedding Prox by HID.



Consult factory for product specifications.

PROXPROGRAMMER®

Base part number: 1050††

Program proximity cards and tags ON DEMAND!

HID's easy-to-use ProxProgrammer allows for custom programmed proximity cards and tags on demand. By using the ProxProgrammer and stocking non-programmed cards and tags, you can eliminate lead times and minimum order quantities.

Software requires minimum 80486 processor, 32MB RAM, 4MB HD space available, Windows 95, 98, NT, or 2000.

Certifications: Canada/UL 294 Listed, FCC Certification (US), Canada Certification, CE Mark (Fifteen EU Countries under the R&TTE Directive), Australia C-Tick Mark, New Zealand EMC

Dimensions: 5" x 5" x 4.3" (12.7 x 12.7 x 10.9 cm) • Weight: 28 oz (789 g)
Construction: Polycarbonate UL 94 & Delrin
Operating Temperature: -22° to 150° F (-30° to 65° C)
Operating Humidity: 5% to 95% relative humidity

Power Requirements: 12 VDC plug-in type supply provided (input: 100-240 VAC, 47-63 Hz). Unit requires 10-28.5 VDC reverse voltage protected. Linear supply recommended. Current requirements: average at 12/24 VDC is 100/120 mA and peak at 12/24 VDC is 124/280 mA.



ProxProgrammer works with all HID proximity credentials, except ProxPass.

HID credentials feature a **Lifetime Warranty**. See HID's Sales Policy for complete warranty details.

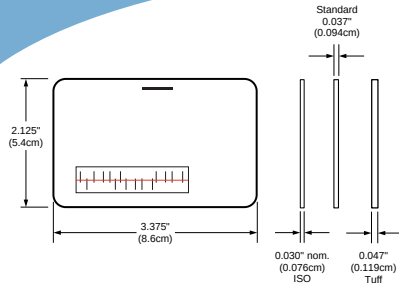
†† ProxProgrammer hardware has a lifetime warranty; software has a 90-day warranty.

See Sales Policy for complete warranty details.

Specifications subject to change without notice. Please consult our website, www.HIDCorp.com, for up-to-date specifications. See our "How To Order Guide" for details regarding options and part numbers.

WIEGAND TECHNOLOGY

Used in applications throughout the world, Wiegand swipe technology provides dependable and reliable access control. Using embedded wires with unique magnetic properties, Wiegand credentials are manufactured with a proprietary process that makes them very difficult to duplicate. All Wiegand credentials have a lifetime warranty; see HID's Sales Policy for details.

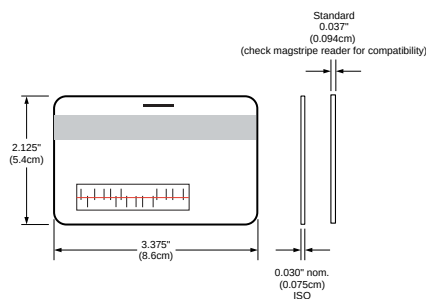


SENSORCARD™

Wiegand swipe card for access control

Base part number: 10X/11X/14X

Combines Wiegand technology and photo identification capability on a single card. Graphics-quality surface for use with direct image printers.



SENSORCARD™ II

Wiegand card with magnetic stripe

Base part number: 10X/11X

Provides the same features as the SensorCard, plus magnetic stripe technology.

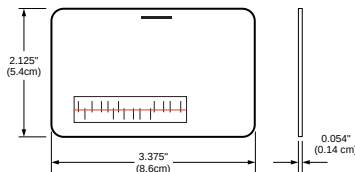
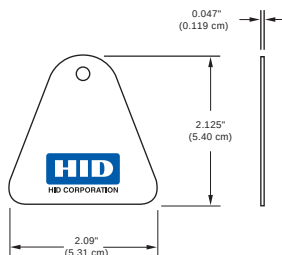


PHOTO ID

Wiegand photo ID badge

Base part number: 17X

Combines Wiegand technology and photo identification capability on a single card. Accepts either Polaroid film prints or video image prints.

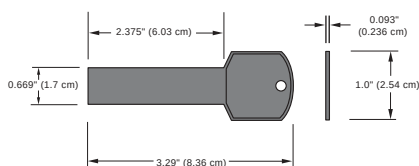


POCKET TAG

Wiegand access control tag

Base part number: 145

Small enough to carry in a pocket or on a key ring. For use with the Classic, Epic, Turnstile and PINPad readers.



SENSORKEY™

Wiegand access control key

Base part number: 25

Convenient key-style Wiegand tag for use with low profile, in-the-wall SensorKey reader.



DID YOU KNOW?

Interested in biometrics? Adhere an **iCLASS** Tag to your existing Wiegand or proximity card. Conveniently store the biometric template on the tag with no need to re-badge! Learn more about **iCLASS** at www.HIDCorp.com/iclass, or request HID's **iCLASS** Reference Guide.



NEED PRODUCT SPECIFICATIONS?

For additional submittal/specification information, please visit the HID website at www.HIDCorp.com. You will find application notes, bid specifications, and individual data sheets for each product. Download and print the documents needed for bid packages.

Notes

*Some types of printing processes can take these credentials out of ISO compliance for thickness. Consult factory for more information.

**Consult factory for more details about the hotstamp process.

	Specification Compliance	Proximity Format Range	Credential Construction	Inkjet Numbering Finishes	Laser Engraving	Operating Temperature	Operating Humidity	Weight
ProxCard® II Card	N/A	up to 84 bits	molded plastic	N/A	YES	NO	-50° - 160° F -45° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
ISOProx® II Card	ISO 7810	up to 84 bits	PVC laminate	Gloss	YES	Optional	-50° - 160° F -45° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
DuoProx® II Card	ISO 7810	up to 84 bits	PVC laminate	Gloss	YES	Optional	-50° - 160° F -45° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
Smart ISOProx® II Card	ISO 7810 ISO 7816*	up to 84 bits	PVC laminate	Gloss	YES	Optional	-50° - 160° F -45° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
Smart DuoProx® II Card	ISO 7810 ISO 7816*	up to 84 bits	PVC laminate	Gloss	YES	Optional	-50° - 160° F -45° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
iCLASS™ Prox Card	ISO 7810 ISO 7816* ISO 15693	up to 84 bits	PVC laminate	Gloss	YES	Optional	-13° - 158° F -25° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
HID Proximity & MIFARE® Card	ISO 7810 ISO 7816* ISO 14443A	up to 84 bits	PVC laminate	Gloss	YES	Optional	-13° - 158° F -25° - 70° C	5-95% non condensing 0.24 oz. 6.8 g
ProxCard® Plus Card	N/A	up to 40 bits	PVC laminate	Gloss Matte	YES	NO	-50° - 158° F -45° - 70° C	10-95% non condensing 0.24 oz. 4.8 g
ProxKey® II Keyfob	N/A	up to 84 bits	molded plastic	N/A	YES	Optional	-50° - 160° F -45° - 70° C	5-95% non condensing 0.26 oz. 7.4 g
MicroProx® Tag	N/A	up to 84 bits	Lexan	N/A	YES	NO	-50° - 160° F -45° - 70° C	5-95% non condensing 0.04 oz. 1.18 g
eProx™ Tag	N/A	up to 84 bits	N/A	N/A	N/A	N/A	-50° - 160° F -45° - 70° C	5-95% non condensing 0.019 oz. 0.54 g
ProxPass® Active Vehicle Tag	N/A	up to 37 bits	molded plastic	N/A	YES	NO	-22° - 185° F -30° - 85° C	5-95% non condensing not for marine use 1.72 oz. 48.7 g
SensorCard™	ISO 7810 (in some configurations)	N/A	PVC laminate	Gloss Matte	YES & hotstamp**	NO	-40° - 158° F -40° - 70° C	10-95% non condensing ISO: .17 oz/4.9 g Std: .20 oz/5.7 g Tuff: .27 oz/7.6 g
SensorCard™ II	ISO 7810 (in some configurations)	N/A	PVC laminate	Gloss Matte	YES & hotstamp**	NO	-40° - 158° F -40° - 70° C	10-95% non condensing 0.17 oz. 4.9 g
SensorKey™	N/A	N/A	molded plastic	N/A	hotstamp**	NO	-40° - 158° F -40° - 70° C	10-95% non condensing 0.09 oz. 2.6 g
Pocket Tag	N/A	N/A	PVC laminate	Matte	YES	NO	-40° - 158° F -40° - 70° C	10-95% non condensing 0.20 oz. 5.7 g
Photo ID	N/A	N/A	PVC laminate, vinyl photo flap	N/A	hotstamp**	NO	-40° - 158° F -40° - 70° C	10-95% non condensing 0.17 oz. 4.9 g

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https://web.archive.org/web/20030315171935/http://www.hidcorp.com/pdfs/prox_ds/thinline2.pdf

**5395 (Wiegand)
5398 (Clock-and-Data)**



CLASSIC

ThinLine II® Reader

Low Profile Proximity Card Reader

Application

Providing performance and reliability, HID's attractive, unobtrusive ThinLine II proximity card reader is housed in a two-piece, weatherproof secure potted enclosure.

Features

- Easily installed and maintained with the use of replaceable covers.
- Available with a Wiegand or Clock-and-Data interface.
- Provides high reliability, consistent read range and low power consumption.
- Features include multicolor LED and internal control or host control of the LED and beeper.
- Mounts directly on metal with minimal impact on the read range performance.
- Aesthetic design available in two cover designs and four colors to match any décor.
- Includes multilingual installation manual.



Designer

An ASSA ABLOY Group company



ThinLine II® Reader

Features

Mounting: mounts on a single-gang electrical box for easy installation. Mounts directly on metal with minimal impact on read range performance.

Audiovisual indication: a red LED flashes green and the beeper sounds when reader is presented with a proximity card. The multicolor LED and beeper can also be controlled individually by the host system.

Diagnostics: on reader power-up, an internal self-test routine checks and verifies the setup configuration, determines the internal or external control of the LED and beeper and initializes reader operation. An additional external loop-back test allows for the reader outputs and inputs to be verified without the use of additional test equipment.

Indoor/outdoor design: sealed in a rugged, weatherized polycarbonate enclosure designed to withstand harsh environments, providing reliable performance and a high degree of vandal resistance.

Easily interfaced: Wiegand output model interfaces with all existing Wiegand protocol access control systems. Clock-and-Data (magnetic stripe) model interfaces with most systems that accept magnetic stripe readers.

Security: recognizes card formats up to 85 bits, with over 137 billion unique codes.

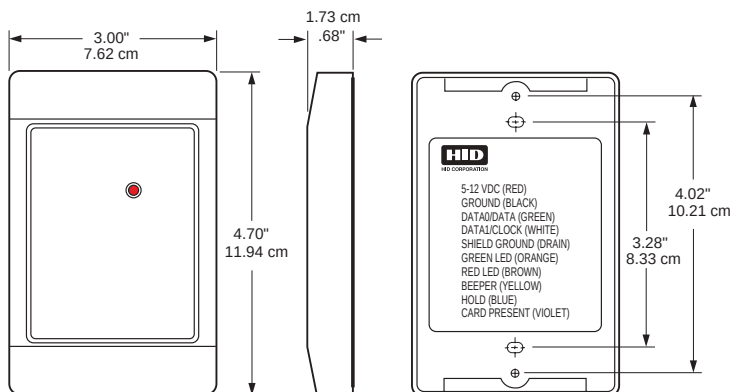
Warranty: Lifetime warranty against defects in materials and workmanship (see complete sales policy for details).

Part numbers:

Base Part No.: 5395 Wiegand interface
Base Part No.: 5398 Clock-and-Data interface
Description: Tri-State LED, internal beeper on

Options:

- CLASSIC series cover in white, beige, charcoal gray or black (or)
- Designer series cover in white, wave blue, charcoal gray or black
- LED and beeper operation
(Please see "How to Order Guide" for a description of the options and associated part numbers.)



Specifications

Typical maximum* read range:

ProxCard® II card - up to 5.5" (14 cm)
ISOProx® II card - up to 5" (12.7 cm)
DuoProx® II card - up to 5" (12.7 cm)
Smart ISO/DuoProx™ cards - up to 5" (12.7 cm)
Proximity & MIFARE™ card - up to 5" (12.7 cm)
ProxCard® Plus card - up to 1.5" (3.8 cm)
ProxKey® II keyfob - up to 2" (5.1 cm)
Microprox® Tag - up to 3" (7.6 cm)

*Depending on local installation conditions.

Dimensions:

4.70" x 3.00" x 0.68"
(11.9 x 7.6 x 1.7 cm)

Material: Polycarbonate UL 94

Power supply:

5-16 VDC
Linear power supplies are recommended.

Current requirements:

Average: 30 mA (5 VDC); 20 mA (12 VDC)
Peak: 110 mA (5 VDC); 115 mA (12 VDC)

Operating temperature:

-22° to 150° F (-30° to 65° C)

Operating humidity:

0-95% relative humidity non-condensing

Weight:

3.3 oz. (94 gm)

Transmit frequency: 125 kHz

Excite frequency: 125 kHz

Cable distance:

Wiegand interface: 500 feet (150 m)
Clock-and-data interface: 50 feet (15 m)
Recommended cable is ALPHA 1295 (22 AWG) 5 conductor minimum stranded with overall shield or equivalent. Additional conductors may be required for LED or beeper control.

Certifications:

Canada/UL 294 Listed
FCC Certification, United States
Canada Certification
EU and CB Scheme Electrical Safety (EN60950 and IEC60950 ITE Electrical Safety)
Fifteen EU Countries under the R&TTE Directive (EN 300 330 - SRD, and ETS 300 683 - EMC)
CE Mark
Australia C-Tick, New Zealand
Taiwan, China

LIT5395DS 1/03, supersedes 8/02

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