

The Technology of Choice for Access Control



iCLASS® Solutions





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iCLASS SE SOLUTIONS (New)

Next generation access control solutions for increased portability, advanced security and enhanced performance. Supports multiple card technologies including iCLASS, MIFARE Classic and MIFARE DESFire EV1.



iCLASS SOLUTIONS (Standard)

An ideal solution for those seeking a comprehensive line of economical, reliable and secure access control products that support iCLASS technology.



MULTI TECHNOLOGY SOLUTIONS

Readers for specific card populations, including US FIPS-201, Dutch Rijkspas, Sony FeliCa, Singapore CEPAS and migration to 13.56 MHz technology. Credentials feature interoperability with custom data models on MIFARE Classic and MIFARE DESFire EV1 cards.

For years, iCLASS® has been the contactless, smart-card technology standard for access control applications. Organizations around the globe – from government to Fortune 500 to small businesses – trust iCLASS for both security and functionality.

HID Global iCLASS solutions offer the broadest portfolio of smart card and reader platforms in the market. From iCLASS Standard and iCLASS SE® (iCLASS SIO-Enabled), to specific offerings for Government, Transit, and Migration projects, iCLASS solutions make access control more powerful, more versatile and more secure. At the same time, iCLASS is user-friendly, delivering the convenience, affordability and reliability for which HID Global is known worldwide.

iCLASS solutions offer enhanced security and versatile interoperability while supporting multiple applications such as physical access, biometric authentication, cashless vending and PC log on. iCLASS SE represents a generational leap in security, performance and portability by extending the value of iCLASS technology to enable the use of digital credentials on mobile devices. iCLASS SE technology provides the

highest level of security through the multi-layer security features of HID's Secure Identity Object™ (SIO) technology and HID's Trusted Identity Platform® (TIP™).

Whether you're introducing an access control system in your organization, migrating to a higher level of security, or incorporating the use of Near Field Communications (NFC) enabled smartphones for mobile access, iCLASS is the right choice. With iCLASS, you're choosing technology that will support your organization today and in the future.

SECURE TECHNOLOGY EVOLUTION

2011

- PORTABLE SECURE IDENTITY OBJECTS**
- Chip independence
 - Application driven
 - Any ISO and Security Standard
 - Identity objects

2000

- CONTACTLESS SMART CARD TECHNOLOGIES**
- Chip dependency
 - 13.56 MHz ISO standards
 - Pages/Sectors

1990

- PROX TECHNOLOGY**
- Proprietary
 - Defacto standards
 - Formats

Higher Security

Access control has come a long way since the first proximity cards were introduced several decades ago. In those days, few imagined the world of smartphones and other portable technology that today are a vehicle for providing secure access control using iCLASS SE® solutions.

Even today's iCLASS® contactless smart cards have much more sophisticated technology that not only provides a higher level of security but also protects from cloning and counterfeiting.

Mobile Access

Since the world is mobile, security must be also. iCLASS SE enables the use NFC smartphones, USB tokens, microprocessor-based cards and other devices for access control and other applications while providing an additional layer of security.

Mutual Authentication

All iCLASS solutions feature this fundamental security feature. Before any information is sent over the card-to-reader connection, mutual authentication requires the card to prove its identity to the reader, and the reader to prove its identity to the card.

Custom Authentication

When using iCLASS Standard or iCLASS SE contactless smart-card technology, the iCLASS Elite Program offers security professionals a custom authentication key that enhances the existing security.

Encrypted Communication

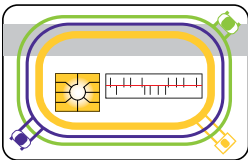
The communication between an iCLASS reader and card or iCLASS SE devices is encrypted using a secure algorithm, so the transaction between the card and reader cannot be "sniffed" and replayed to a reader. The encryption protocol uses a combination of:

- Diversified keys
- Unique 64-bit card serial numbers and
- Mutual card and reader authentication

Visual Security

The photo ID has come a long way. Visual security is now enhanced with optically variable inks (OVI) and holograms that reduce card forgery.





Multitechnology Card

HID technology cards enable users to seamlessly manage multiple applications and migration projects through a single credential containing diverse technologies.



High Frequency

13.56 MHz read/write iCLASS®, iCLASS SE® and MIFARE® DESFire® contactless card technology is available in various combinations with low frequency, magnetic stripe and contact smart chip modules.



Low Frequency

Genuine HID™ cards are designed to work with the large installed base of HID Prox and Indala proximity readers.



Magstripe/Wiegand

A magnetic or Wiegand stripe can be added to maintain functionality with legacy access control, time and attendance and vending systems. Wiegand is not available on all combinations.



Contact Chip

HID Smart Cards include a wide variety of contactless technologies, paired with an industry standard contact chip. HID can also embed a wide range of commercially available contact chips.

Migration & Interoperability

Why Migrate?

As technology has moved forward, legacy systems have been shown to be vulnerable to a whole range of security threats. HID's high frequency, contactless smart cards with multiple layers of security embedded in the chip overcome these threats and are now the accepted industry standard.

The HID smart card is a key to a myriad of technologies and applications which can help to streamline processes, improve workflow, provide centralized management for organizations and ease of use for employees.

When is the best time to Migrate?

- Merger or acquisition
- Standardization to a single card
- New Locations
- Reissuing credentials
- One card for multiple functions
- Improved risk management
- Change in security requirements
- Security breach

How to Migrate

The new migration solutions from HID Global provides a flexible, seamless migration path to future proof HID iCLASS SE® secure technology or other high frequency technologies.

Multi technology cards and readers

Our multi-technology cards bridge the gap between legacy systems and today's secure contactless technology. A single smart card can securely house up to four different access control technologies, including Weigand, magstripe, low frequency, high frequency, or a contact chip.

multiCLASS SE™ readers are the ideal solution for customers looking to upgrade their legacy systems, supporting the move from low frequency to high frequency technology and into the digital world of Smartphone NFC and future technologies.

Easy Upgrades

To leverage the investment in new technology into the future, all iCLASS cards and readers support interoperability of emerging credential technologies.

Equipment and application developers rely on ISO standards to develop new solutions. iCLASS readers can read data from cards compliant with the following standards:

- ISO 15693 - read/write; 2k bits (256 Bytes), 16k bits (2k Bytes), and 32k bits (4k Bytes)
- ISO 14443, Type A - read only; MIFARE® (serial number)*
- ISO 14443, Type B2 - read/write; 2k bits (256 Bytes), 16k bits (2k Bytes), and 32k bits (4k Bytes)

*The R90 is an ISO 15693 reader and will not read MIFARE® cards



Multiple Applications

Both iCLASS Standard and iCLASS SE support the use of multiple applications that can easily integrate with existing physical access control and photo ID systems. This enables an end-user to issue a single card or use an NFC smartphone for a wide variety of applications, including:

- **Combined Logical and Physical Access Control** – easily integrate with existing physical access control and photo ID systems, enabling an end-user to issue a single multi-application card that serves as both photo ID and an electronic key to access doors and Windows®..
- **Biometrics** – biometric templates, such as fingerprints, iris or hand geometry, or vein patterns, are securely stored on the card.
- **Building automation** – lights and climate-control systems are turned off and on as needed, only when employees are present.
- **Cashless payment** – provide a range of benefits from a simple cash replacement at point-of-sale to full management of employee benefits such as discounts, free entitlements, and hospitality or loyalty accounts.
- **Time and attendance** – enables quick throughput of employees during shift changes by eliminating time-consuming manual interactions.
- **Secure print authentication** – eliminates waste and manages printer use by printing documents only when an employee has presented their access control card to the print device.
- **Medical records management** – a multi-function credential including this function can be issued to students at a university or employees in high-risk jobs to provide immediate access to their medical records. Or a hospital issues a card to serve as a record during a patient's stay.



iCLASS SE Single Technology



iCLASS SE Readers

Next generation access control solutions for increased portability, advanced security and enhanced performance. Supports multiple card technologies including iCLASS, MIFARE Classic and MIFARE DESFire.



iCLASS SE Multi-Technology



multiCLASS SE Readers

multiCLASS, smart card readers, secure access control, secure identity object, HID Global, HID Prox, Indala, AWID, EM4102, 125 kHz.EV1.



OSDP Readers

Next generation access control solutions for increased portability, advanced security and enhanced performance. Supports multiple card technologies including iCLASS, MIFARE Classic and MIFARE DESFire

iCLASS Single Technology



iCLASS Readers

multiCLASS, smart card readers, secure access control, secure identity object, HID Global, HID Prox, Indala, AWID, EM4102, 125 kHz.EV1.

iCLASS Multi-Technology



multiCLASS Readers

Designed for customers upgrading their current card system from HID Prox, Indala Prox or AWID to HID iCLASS credentials or cards. Also supports transition from magnetic stripe technology.



iCLASS High Frequency Migration Readers

Supports migration from MIFARE Classic to MIFARE/DESFire EV1 or iCLASS.

Multi-Authentication



bioCLASS® Biometric Reader & LCD Keypad Readers

Combine a contactless card presentation with fingerprint biometric or use a personal identification number (PIN) along with a contactless card presentation.

Specialized Form Factors



iCLASS Transit Readers

Multi-technology contactless smart card readers compatible with Sony® FeliCa™ & CEPAS Transit Cards.



iCLASS Readers Dutch Rijkspas-Compliant

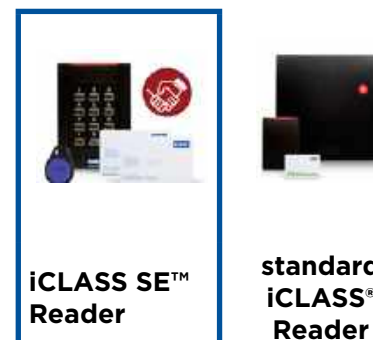
Dutch Rijkspas-compliant 13.56 MHz Smart Card Readers with 125 kHz Transition Support.



iCLASS FIPS-201 Readers

Multi-technology contactless smart card readers for use with US Gov't credentials.

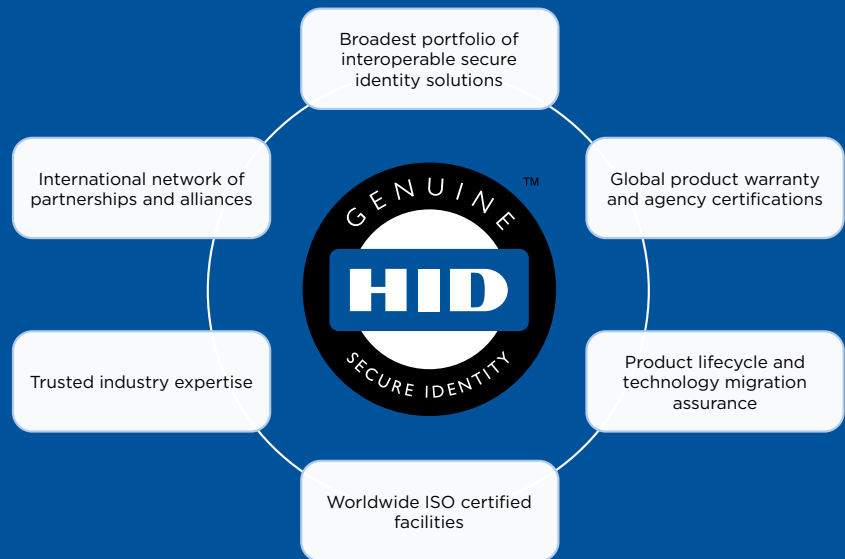
iCLASS SE™ vs. standard iCLASS® Feature Comparison Chart



FEATURE	BENEFIT	iCLASS SE™ Reader	standard iCLASS® Reader
SECURITY			
Secure Identity Object™ (SIO) multi-layered security	Ensures data authenticity and privacy	Yes	No
Trusted Identity Platform™ (TIP) Node	Provides trusted identity within a secure ecosystem of interoperable products	Yes	No
EAL+ certified secure element hardware	Tamper proof protection of keys and cryptographic operations	Yes	No
SIO data binding	Inhibits data cloning by binding an object to a specific credential	Yes	No
Expanded iCLASS Elite™ program	Extends private security by protecting uniquely keyed credentials, SIOs, config and firmware update keys *Elite Program is available for Standard iCLASS	Yes	No*
Velocity Checking	Provides breach resistance against electronic attacks	Yes	No
Active Tamper	Protects against physical tampering of reader	Yes	No
USABILITY/PERFORMANCE			
Near Field Communication (NFC) card emulation	Enables migration to HID access control on mobile devices	Yes	No

Genuine HID

With Genuine HID™, customers benefit from the broadest product line of trusted, fully interoperable secure identity solutions in the market. Genuine HID solutions are designed and built in ISO 9001 certified facilities; include worldwide agency certifications; and are backed by global product warranties. Supported by industry-leading expertise and the strongest delivery and response platform available, Genuine HID solutions reinforce the long-standing trust that when customers purchase from HID Global, they are investing with absolute confidence.



CREDENTIAL PROGRAMS

iCLASS Elite and SE Elite



HID Global offers the iCLASS Elite Program™ and SE Elite Program™ to end-users who require the most advanced level of card-to-reader security available today.

When using iCLASS contactless smart card technology, the iCLASS Elite Program offers security professionals a custom authentication key that provide increase to their existing security. HID assigns the key to guarantee its uniqueness and programs the site-specific readers and credentials for organizations to use across the enterprise worldwide.

In addition to the increased security provided by HID's SIO-enabled (SE) technology, the SE Elite program is also available for the complete line of iCLASS SE credentials. Elite provides an additional layer of protection on top of SE security as it protects the authentication keys between the physical access reader and the end user device, whereas SE security protects the data stored in the end user device and is not tied to the authentication between the reader and device.

How it works:

iCLASS Elite and SE Elite are available for qualified end users via formal enrollment and acceptance by HID Global. To use the program, end users receive their own proprietary key that protects the card number within the access control application of the card. HID assigns the key to guarantee uniqueness, and programs the site-specific readers and credentials. This private key is then shared only between the iCLASS or SE credential and the Elite enabled physical access reader. The reader will only be able to authenticate credentials that are loaded with the same private key following mutual authentication. This further prohibits cards and readers from foreign populations to enter and function within the company's Elite secured population.

Additionally, end users can use any format, including HID's Corporate 1000 format and have the flexibility to choose any access control hardware/software platform or any HID Global system provider. In combination with the HID's Corporate 1000 Program, the iCLASS Elite and SE Elite programs offers customers multiple layers of card to reader security.

iCLASS SE Single Technology



iCLASS SE Card

Provides versatile interoperability and supports multiple applications.



SIO Enabled Cards for MIFARE

Broadest range of open standard products. Provides the memory structure and capacity to store multiple applications on a single card.



SIO Enabled Cards for MIFARE DESFire EV1

Based on open global standards for security. Interoperable with existing MIFARE infrastructures.



iCLASS SE Clamshell Card

Ideal for iCLASS SE installations in harsh environments and can be used for a range of diverse applications

iCLASS SE Multi-Technology



iCLASS SE & HID Prox Card

Dual technology solution for customers migrating from 125 KHz Proximity to iCLASS SE (13.56 MHz) high security to support multiple applications.



SIO Enabled Cards for MIFARE & HID Prox

Dual technology solution to address card deployments with SIO-Enabled MIFARE Classic (13.56 MHz) credentials & 125 KHz Proximity



SIO Enabled Cards for MIFARE DESFire EV1 & HID Prox

Dual technology solution for multi-application card deployments with SIO-Enabled MIFARE DESFire EV1 (13.56 MHz) credentials + 125 KHz Proximity

iCLASS Single Technology



iCLASS Card

13.56 MHz read/write contactless smart card.



iCLASS Key II

Convenient 13.56 MHz Contactless Smart Key.



iCLASS Tag with Adhesive Back

Upgrade Tag for Magstripe & Barium Ferrite Cards.



iCLASS Clamshell Card

High durability 13.56 MHz Contactless Smart Card

iCLASS Multi-Technology



iCLASS & Prox Card

13.56 MHz iCLASS Card with 125 kHz HID Proximity.



iCLASS & Wiegand Card

13.56 MHz Contactless Card with Wiegand.



iCLASS Embeddable & iCLASS Prox Embeddable Card

iCLASS Card with or without 125 kHz HID Proximity and an Optional Contact Smart Chip Module.



iCLASS & MIFARE Classic or MIFARE DESFire EV1

Available with magnetic stripe, contact smart chip, PVC or composite card body.



iCLASS & MIFARE Classic or MIFARE DESFire EV1 & Prox

Available with HID Prox, magnetic stripe, contact smart chip, PVC or composite card body.



iCLASS SE Beyond the Card



HID's Secure Identity Object™ delivers three key benefits: portability, security and extensibility.

- **Chip Independence** – SIOs can reside on any card technology, microprocessor-based cards, NFC smartphones, USB tokens, computer drives, and other formats.
- **Device Independence** – Providing an additional layer of security with additional key diversification, authentication and encryption.
- **Open** – SIOs are defined using open standards that can support any piece of data, including data for access control, biometrics, vending, time-and-attendance, and many other applications.

iCLASS SE goes beyond the traditional smart card model to enable the use of NFC smartphones for access control based on the company's secure, technology-independent SIO technology. HID Global's iCLASS SE reader and credential family is designed to raise the bar for overall system security while supporting key emerging technologies and delivering superior performance, enhanced usability and increased environmental sustainability.

iCLASS SE solutions are the first access control products to operate under HID's Trusted Identity Platform® (TIP™) framework, which creates a secure and trusted boundary within which all cryptographic keys governing system security can be delivered with end-to-end privacy and integrity.

How it Works

iCLASS SE includes a combination SIO technology on the credentials side, and readers based on an SIO Processor™ to perform similar functions to traditional cards and readers, except they use a standards-based and flexible identity data structure. In the most simplistic model, HID's SIOs are carried inside smartphones and "presented" to a reader using the smartphone's NFC technology. The phone communicates SIO data to a reader, which passes it to the access control system, which opens the door.

Supports Green Initiatives

Eco-friendly iCLASS SE readers are built with recycled materials and intelligent power management that promotes sustainability by reducing power consumption by up to 75% compared to standard operating mode. iCLASS SE's use of digital credentials also eliminates the need to print plastic cards, and its credential compatibility with iCLASS Standard readers increases perimeter security while reducing reader rip-and-replace. iCLASS SE also features Wiegand-compatible interface provides connection to existing panels without the need to swap out back-end systems.

HID Global iCLASS Technology

Offers embedded encryption and mutual authentication; applications such as biometric authentication, time and attendance, PC log on and cashless vending; and simple migration from old to new technology.

Ushering in new era of advanced applications, trusted transactions and heightened security on NFC smartphones and other devices, iCLASS SE offers unprecedented interoperability and user empowerment.

North America: +1 949 732 2000 • Toll Free: 1 800 237 7769
Europe, Middle East, Africa: +44 1440 714 850
Asia Pacific: +852 3160 9800 • Latin America: +52 55 5081 1650



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2012-08-08-pacs-iclass-se-cards-readers-solutions-br-en