



iCLASS SE® Platform

### HIGH FREQUENCY SOLUTION FOR INCREASED SECURITY, PRIVACY AND PORTABILITY

- **Data confidentiality and strong authentication** – State-of-the-art cryptography providing mutual authentication and data encryption for additional protection of contactless communications between card and reader.
- **Strong privacy** – No traceable identifier exchanged during card sessions, preventing data associated to a given card from being divulged or cloned.
- **Increased interoperability** – Open, standards-based solution that supports future technologies; is portable to smartphones and other media; and can store data for multiple applications on a single card or device.
- **Technology-independent security** – Provides multi-layered security beyond the device technology with support for multiple SIOs in a single credential for individual protection of each application's identity data.
- **Trusted management and distribution of secure identities** – Provides trusted identity within iCLASS SE® platform of interoperable products.

HID Global's iCLASS® Seos™ smart card is based on a secure, standards-based technology to manage and authenticate identities. As part of the iCLASS SE platform, the card delivers enhanced security and stronger authentication for user data.

iCLASS Seos cards are ideal for organizations with stringent security requirements for their credential solution, as well as enterprise and government organizations whose identity management policies are driven by regulatory compliance. The cards deliver superior data integrity and privacy protection by leveraging the latest cryptographic algorithms. iCLASS Seos cards also utilize a secure messaging protocol to protect data transmission with the off-card applications.

Delivering maximum interoperability, iCLASS Seos cards include a standards-based application that offers a generic, universal card edge (card command interface) that is portable to multiple platforms. The solution also supports an ISO/IEC 7816-4 command set and data model that defines the supported interfaces between an iCLASS Seos card and the physical access reader.

For optimum mobility, iCLASS Seos credentials are based on an open software architecture and they are also portable to a range of micro processors and mobile devices including Near

Field Communication (NFC) smartphones. The credential is based on industry-accepted standards for contactless communication (ISO/IEC 14443). Additionally, the product can be delivered as multi-technology card that combines 125 KHz Proximity and high frequency technologies.

iCLASS Seos cards continue to raise the bar for security by leveraging HID's iCLASS SE platform (based on HID's Secure Identity Object™ [SIO] data model and Trusted Identity Platform® [TIP™]) allowing multiple SIOs to be embedded into a single credential/device. This enables applications to provide individual protected data sets for each application's identity data, in addition to high security already provided in HID's iCLASS SE platform. The credential works with HID's iCLASS SE and multiCLASS SE reader lines that can process SIO enabled data formats.

As with existing iCLASS and iCLASS SE credentials, iCLASS Seos cards are based on 13.56 MHz read/write contactless technology and can be used for multiple applications on a single credential, including physical access control, PC logon, biometric verification, time and attendance, cashless vending, public transportation, airline ticketing, customer loyalty and NFC smartphone applications.

SEOS

### TECHNOLOGY FEATURES

- Secure data storage with flexible data model (file system based) using a firewalled architecture for data separation between applications.
- Supports ISO/IEC standards: 7810, 7816 and contactless cards (14443 A).
- Contactless unique identifier: 7 bytes.
- Contactless communication of speed up to 848 Kbps in the fastest ISO 14443 transmission mode.
- Generic command set based on ISO/IEC 7816-4.
- Hardware chip integrating co-processor with high performance for cryptographic calculations with symmetric keys.
- Mutual authentication protocol with either AES128/DES3 with generation of diversified session key to protect each card session.
- Card customization available (magnetic stripe, custom artwork text or graphics: Requires minimum volume quantity).

### SECURITY

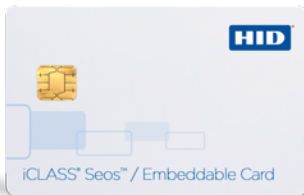
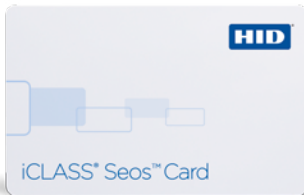
- Programmable with one or several Secure Identity Objects (SIOs) for each application.
- High resistance to common attacks (man in the middle, replay attacks and others).
- Available with anti-counterfeiting features such as holograms, holographic foil, OVI (Optical Variable Ink).

### SINGLE TECHNOLOGY CONTACTLESS

- iCLASS® Seos™ with extended memory for multi-application support.
- Optionally available with other technologies such as HID Prox for simple migration.
- Leverages SIO data model and security.

### INTEROPERABILITY

- Fully supported by iCLASS SE Readers (after revision E) that can process SIO-enabled data formats.



## SPECIFICATIONS

iCLASS Seos	
<b>Base Part Number</b>	500 for standard card 501 for embeddable card
<b>Operating frequency</b>	13.56 MHz with ISO/IEC 14443 Type A
<b>Typical Maximum Read Range</b>	3-4" (depending the reader used)
<b>Dimensions</b>	2.127" x 3.375" x 0.033" max (5.40 x 8.57 x 0.084 cm)
<b>Construction</b>	Composite with 60% PET/40% PVC
<b>Operating Temperature</b>	-40° to 158° F (-40° to 70° C)
<b>Weight</b>	0.20 oz (5.5g)
<b>Memory Size/ Application Areas</b>	Flexible memory allocation: 16 KB available space
<b>Privacy Mode</b>	Privacy-preserving mode (with encryption of device identifiers)
<b>Secure Messaging</b>	EN 14890-1 using AES or DES3
<b>Mutual Authentication Mechanism</b>	Based on ISO/IEC 24727-3 2008 with NIST SP800-56A (for session key derivation)
<b>Write Endurance</b>	Min 500,000 cycles
<b>Data Retention</b>	Min 20 years
<b>HID Proximity</b>	No
<b>Contact Smart Chip Embeddable</b>	Yes
<b>Printable</b>	Yes (white/white card) Usable with direct imaging and thermal transfer printers (from HID but also from other suppliers) Exclusion areas for printing may apply in some areas of the card plastic
<b>Slot Punch</b>	Not available
<b>Secure Identity Services</b>	Customized cards are available through HID Identity on demand
<b>Visual Security Options</b>	Optional including hologram, anti-counterfeiting, holographic foil...
<b>Additional Security Options</b>	Corporate 1000, Secure Identity Object (SIO) programming with SE-Elite
<b>Warranty</b>	Lifetime, see complete warranty policy for details