



THE ESSENTIAL CREDENTIAL FOR TRADITIONAL PHYSICAL ACCESS CONTROL

- **Highly secure** – Seos is Secure Identity Object® (SIO)-enabled, allowing for multi-layered security beyond the card technology and protecting identity data from unauthorized access.
- **Single-application** – A cost effective and simplified approach designed for traditional access control solutions where more complex multi-application implementations are not needed.
- **Convenient** – Fully supported by HID Signo, iCLASS SE and multiCLASS SE reader platforms.
- **Heightened privacy protection** – Seos offers best-in-class data and privacy protection by incorporating mutual authentication and secure messaging mechanisms into stringent best practices for data protection.

HID Global's Seos Essential card is a simple single application card designed to be an economical solution for everyday implementations of secure physical access control.

Seos Essential cards provide trusted management of secure identities within the SIO enabled HID Signo and iCLASS SE reader platforms. This powerful credential technology is built to deliver superior data integrity and privacy protection by leveraging the latest cryptographic algorithms and security techniques. Additionally, a secure messaging protocol is also used to protect data transmission between card and reader.

Seos offers peace of mind that modern day privacy requirements are met. The default configuration of each Seos Essential credential leverages a random unique identifier, meaning information isn't associated with the user without a secure authentication.

For migration purposes, the Seos Essential credentials are also available as multi-technology cards that combines 125 KHz Proximity and a high frequency Seos contactless microprocessor.

Seos Programming Options

Available programmed with Secure Identity Object (SIO) with standard keys or take security to the next level with HID Elite. Benefit from superior protection of personalized keys in HID's world class infrastructure with traceability and accountability at the core.

The Seos Essential card features a single physical access control application with no support for additional applications.

Ordering Information

For full details, refer to the [Readers and Credentials How to Order Guide](#)



TECHNOLOGY FEATURES

- Programmed with a single SIO-based physical access control application for simplicity.
- AES-128 cryptographic algorithms for data protection during communication with the reader to defend against attacks attempting to intercept data.
- Prioritisation of user privacy, always defaults to using a random contactless unique identifier (4 bytes random value).
- Ultra-fast read speeds with a high performance hardware chip integrating co-processor for cryptographic calculations with symmetric keys.
- Supports ISO/IEC standards: 7810, 7816 and contactless cards (14443 A).

SECURITY FEATURES

- Data within the SIO is secured with a wrapper that provides key diversification, authentication signatures, and AES-128 based encryption.
- Mutual authentication protocol with generation of diversified session key to protect each card session with secure messaging.
- High resistance to common attacks (man in the middle, replay attacks and others).

INTEROPERABILITY

- Fully supported by HID Signo readers
- Fully supported by iCLASS SE[®] and multiCLASS SE[®] readers that can process SIO-enabled data formats. Only supported by iCLASS SE readers with firmware Revision E or later.

SPECIFICATIONS

Seos Essential Card

Base Part Number	550
Operating Frequency	13.56 MHz
Communication Protocol Compliance	ISO14443A-4
Communication Speed	Up to 848kbps
Memory Type	EEPROM
Number of Applications	1 x Secure Identity Object Application
SIO Data Object Support	Yes (enabled by default)
HID Format Support	Yes (Wrapped in Secure Identity Object)
Data Retention	10 years
Extended Privacy Support	Yes
Security Features	Mutual authentication (compliant to ISO/IEC 24727-3), key diversification (based on NIST SP800-108 using AES 128), secure messaging (compliant to EN14890-1:2009). Session key derivation based on NIST SP 800-56A.
Unique Identifier (UID)	Random UID
Compatibility & Performance¹	
HID Signo Readers	Up to 2.3" (6 cm)
iCLASS SE Readers	Up to 2" (5 cm)
multiCLASS SE Readers	Up to 1.6" (4 cm)
CP1000D Desktop Encoder	Read Only (Secure Identity Object)
iCLASS SE RB25F Fingerprint Reader ²	Read Only (Secure Identity Object) in Template on Device Mode
OMNIKEY Readers ³	Read Only (Secure Identity Object)
Embedded SE devices ⁴	Read Only (Secure Identity Object)
Printing	HID recommends the use of a high definition printer (HDP) for this card
Mechanical, Environmental and Compliance	
Card Construction	Composite construction (40% Polyester / 60% PVC)
Weight	0.2 oz (5.5g)
Operating Temperature	-40° to 158° F (-40° to 70° C)
Storage Temperature	-40° to 158° F (-40° to 70° C) for 1000h
Thermal Shock	-31° F to 176° F (-35 °C to + 80 °C) 50 cycles (soaking time 5 min, transition time 30 s)
Chemical Resistance	The card can withstand exposure salt water (5%) salt mist, acetic acid water (5%), carbonated sodium water (5%), sugared water (10%), ethylene glycol (50%) for at least 24 hours
Standards Compliance	ISO14443A-4, ISO/IEC 24727-3:2008, EN 14890-1:2009
Environmental Compliance	RoHS, China RoHS, REACH, Halogen Free
Warranty	Lifetime Warranty

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¹ HID Global testing occurs in open air. Some environmental conditions, including metallic mounting surface, can significantly degrade read range and performance; plastic or ferrite spacers are recommended to improve performance on metallic mounting surfaces. Spacers for iCLASS SE readers are available at hidglobal.com.

² The Seos Essential card does not support template on card.

³ See Logical Access HTOG for Seos compatible OMNIKEY products

⁴ Read performance is dependent on antenna design and environment

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