OMNIKEY® SECURE ELEMENT:
Chip or SIM Form Factors:
Seamless, Simple Extensions for Your Security

The OMNIKEY® Secure Element is HID's next generation secure element replacing the iCLASS® SE Processor, which has been used in a multitude of different devices in various industries as a key to the HID Ecosystem. Our story of simple to use, high-end security continues with the added bonus of form factor flexibility — the OMNIKEY Secure Element being available as both an embedded chip or a SIM card.

SMART CITY

GIVE USERS SECURE YET EFFORTLESS ACCESS TO EVERY THING THROUGHOUT THE BUILDING AND BEYOND.

The OMNIKEY Secure Element enables OEM partners to become part of the HID Ecosystem. This single chip is the key to leverage all the advantages of Seos® and other technologies from HID, like iCLASS®. It can also be used for other card protocols like MIFARE DESFire®.
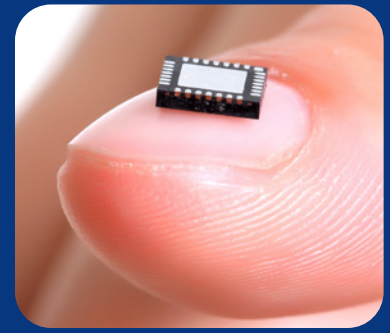
Reader manufacturers, developers and system integrators with signed HID ESAs (Embedded Solution Agreement) can quickly and easily integrate a Secure Identity Object (SIO) to make their devi ces secure endpoints. To help ensure security and compliance integrity, HID maintains control of the supply chain and oversees the qualified use cases.

The chip version is designed to easily integrate into a wide range of applications. The SIM card option allows customers to use the power of RFID authentication for specific use cases (EV charging with EMVco modules, kiosks and vending machines) by leveraging the SIM space. OMNIKEY Secure Element allows developers to easily embed it into a new reader design utilizing the surface mount technology chip or integrate it into an existing reader design /infrastructure using the convenient pre-packaged ID-1 / ID-000 card.

Besides enabling the HID Ecosystem, the feature-rich OMNIKEY Secure Element components can also be used for true random number generation, secure key storage and security enhanced encryption support.
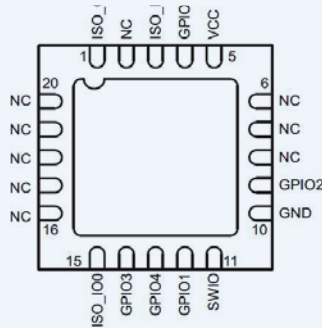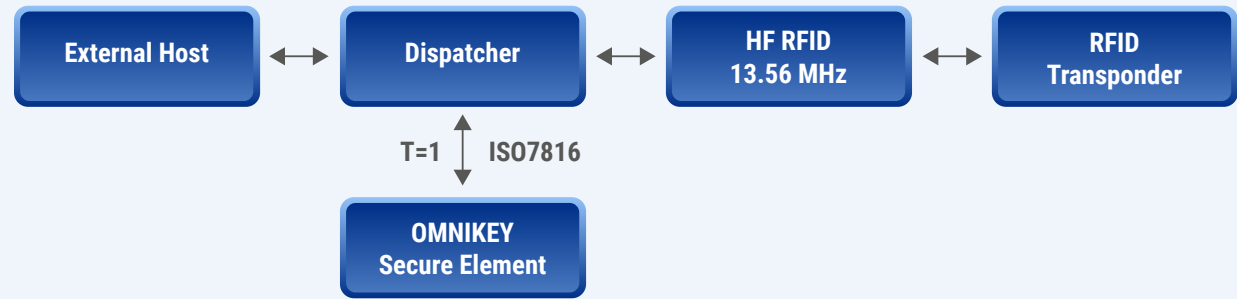
The OMNIKEY Secure Element chip or SIM form factor enhance security with a device and technology-independent layer of additional security — on top of device-specific security — acting as a digital data wrapper for additional key diversification, authentication and encryption.

KEY FEATURES

- **Secure Identity Object (SIO):** Provides a secure, standards-based, technology-independent and flexible identity data structure based on a new open credential standard

- **OMNIKEY Platform:** Provides multi-layer security that extends beyond the card technology for additional protection to identity data. Enables the use of NFC smartphones and other devices for mobile access utilizing iCLASS and Seos.

- **Faster Integration:** Developers Tool Kit (DTK) to provide resources that facilitate fast and easy integration and extends access to HID's broad developers community

- **Field-Updatable Firmware:** Includes support for existing card technologies such as standard iCLASS and Seos. Firmware is field upgradeable to address evolving market requirements.

- **Low Power Consumption:** Power saving standby states

HID

External Host ⟷ Dispatcher ⟷ HF RFID 13.56 MHz ⟷ RFID Transponder

T=1 | ISO7816

OMNIKEY Secure Element

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	ISO_CLK	6	NC	11	DNC	16	NC
2	NC	7	NC	12	DNC	17	NC
3	ISO_RST	8	NC	13	DNC	18	NC
4	DNC	9	DNC	14	DNC	19	NC
5	VCC	10	GND	15	ISO_IO0	20	NC

NC = No connect. DNC = Do not connect.

BASED PART NUMBERS	SEL55100000	SEL55100002
Form Factor	Surface Mount Device Processor, 4mm X 4mm, VFQFN 20 Pin Package	ID-1/000 Card - ID-1 Card with ID-000 break out
Interface Lines	Clock, Data I/O, Controlled Power*, GND, RST	
Interface Standards	ISO 7816-3 (T=1 & T=0)	
Symmetrical Cryptography	3DES, AES (128, 192, 256)	
Asymmetrical Cryptography	RSA up to 3072 bit, ECC up to 521 bit	
Memory	32 bit RISC Processor, 2048 KB Flash, 50 KB RAM	
Timers	Three 16 Bit Timers with interrupt capability	
Clock Rate	1 – 8 MHz External Clock	
Supply Voltage	Voltage classes A, B, & C (5V, 3V & respectively) supported	
Current Consumption Normal Operation	25mA Maximum	
Standby Operation	100uA (2.7V<Vcc<3.3V)	
Operating Temperature	-25˚C to +85˚C	
Card Compatibilities	Seos credentials (includes NFC devices utilising Seos) iCLASS SE credentials authentication and command set. Standard iCLASS SE credentials authentication and command set. Standard iCLASS credentials authentication and command set.	
Security Scheme	Card independent and card agnostic security scheme, allowing the usage of SIOs on industry standard, open technology cards	