

Crescendo® Series Smart Card Solutions



ACCESS secure.

“Crescendo® smart cards allow me to cost-effectively and easily deploy a wide range of logical access solutions.”

Crescendo offers the lowest total cost of ownership (TCO) for a combined logical and physical access control solution.

- Reduces card management costs and increases user convenience by combining logical and physical access control in a single card.
- Provides out-of-the-box, standards-compliant support for thousands of logical access applications provided by Microsoft® and others.
- Is supplied pre-initialized with the required on-card software and includes all required drivers and middleware.
- Requires no per-seat middleware licenses, reducing overall costs.
- Uses a powerful contact smart chip with cryptographic co-processor coupled with HID's industry standard proximity or iCLASS® technology.
- Is available off-the-shelf, and in small quantities, reducing lead times and cost.

Crescendo is a series of highly secure, off-the-shelf smart cards designed to provide out-of-the-box, standards-compliant support for thousands of logical access applications.

Crescendo is a multi-technology smart card. Crescendo is a credit card-sized card that enables logical and physical access control, also serving as an employee ID badge.

An embedded contact smart chip is used for logical access control. To meet the needs of current physical access control customers, Crescendo can be customized with the “physical access control” technologies you choose (i.e., HID iCLASS, MIFARE®, DESFire® EVI, HID or Indala® proximity, and others)

Crescendo smart cards require no additional per-seat middleware license.

Using a powerful contact smart chip with cryptographic co-processor, Crescendo is supplied pre-initialized with the required on-card software and includes all required drivers and middleware. This equates to a high performance, cost-effective solution.

As part of the HID on the Desktop™ solution, Crescendo contact smart cards represent the highest level of network security, working with highly developed PKI

(Public Key Infrastructure) infrastructures. The features of the standard Crescendo product are extended using naviGO™ Server software to provide a simple management solution for card PIN and PUK as well as emergency access functionality.

Crescendo cards are as simple to install and use as any Windows® peripheral. Crescendo has completed the Microsoft® certification program for smart card minidrivers, ensuring a seamless experience for the user.

Crescendo is Windows® compatible. Crescendo series smart cards are fully compatible with the Microsoft® Windows® Smart Card Framework (WSF) and support Microsoft® applications such as Windows® Domain Log-On, VPN, Outlook®, secure Web access, and wireless LAN authentication.

Crescendo is supported by the Microsoft® Identity Lifecycle Manager 2007, dramatically simplifying the deployment, management, and auditing of smart cards used for logical access control applications.

Crescendo supports security applications from other vendors including:

- Single sign-on
- Pre-boot authentication
- Disk encryption
- Digital signatures



Crescendo® Smart Card Reader

Features and Specifications

- ▶ **Optimized** for use with Crescendo series smart cards.
- ▶ **Sets a market performance standard** by supporting reader-to-card data transmission rates of up to 420 KBits per second.
- ▶ **Supports standard CCID¹ driver** for easy installation (plug and play).
- ▶ **Specially designed robust housing** for horizontal or vertical placement, adhesion to a PC monitor or desk, etc.
- ▶ **Offers a long life** (100,000 insertions) backed by a two-year warranty.
- ▶ **Supports all standards-based card readers** on the market and is designed to work with the wide range of OMNIKEY® reader form factors



HID OMNIKEY 532I Insertion Reader

Host Interface

USB 2.0 (also compliant with USB 1.1)

CCID¹

Power Supply: Bus Powered

Smart Card Interface

Compliant with ISO 7816 & EMV 2000 Level 1

Card Size: ID-1 (Full Size)

High Performance Smart Card Interface
(up to 420 Kbps)

Smart Card Clock Frequency (up to 8 MHz)

Supplies 60 mA Current to Power the Smart Card

Smart Card Movement Detection with Auto Power-Off

Short Circuit and Thermal Protection

Compliance

Microsoft® WHQL

EMV² 2000 Level 1

ISO 7816

HBCI

GSA FIPS 201

API

PC/SC driver (ready for 2.01)

CT-API (on top of PC/SC)

Synchronous-API (on top of PC/SC)

OCF (on top of PC/SC)

PC/SC Driver Support

Windows 98/ME

Windows 2000

Windows XP

Windows Server 2003

Windows XP64bit (IA64, AMD64, EM64T)

Windows Vista 32bit

Windows Vista 64bit

Windows CE (depending on hardware)

Mac OSX

Linux

Hardware Specifications

Color: Two-Tone Gray (Standard)

Dimensions: 3.15" x 2.64" x 1.1"
(80 mm x 67 mm x 28 mm)

Weight (Includes Standard Base): 5.0 ounces
(141 grams)

Operating Temperature: 32° – 131° F (0° – 55° C)

Operating Humidity: 10%-90% rH

Composition: ABS

Connector Cable: 70.9" (180 cm)

Durability: 100,000 Insertions

Meantime Between Failure (MTBF): 500,000 Hours

Other Features

Status Indicator: Dual Color LED

Light Vertical Base and Attachment Pad for Mounting
the Reader (i.e., on a Monitor)

Safety and Environmental Standards

CE

WEEE

FCC

UL

VCCI

MIC

RoHS

Options:

Heavy Base (10,581 ounces / 300 grams) or
Jumbo Base (15,131 ounces / 429 grams)
Supporting Both Horizontal and Vertical
Card Insertion

Customer-Specific Logos and/or Label on Request



Note: Should you require a PCMCIA or ExpressCard smart card reader, please inquire. HID can assist.

Reader with Standard Light Base: Part Number R31210126-01

Reader with Heavy Base: Part Number R31210126-02.

¹ Chip Card Interface Device ² Windows® Hardware Quality Labs

Choosing a smart card for logical access has never been easier or more economical!

Crescendo highly secure, off-the-shelf smart cards provide out-of-the-box, standards-compliant support for thousands of logical access applications. By incorporating HID's industry standard proximity and iCLASS®, DESFire® or MIFARE® technologies, Crescendo is a single card that can be easily deployed for both logical and physical access control use.



Choose which Crescendo series smart card best meets your needs.

	C200 ⁵	C700
OS Support		
Windows Vista™ / Windows 7	Yes (32 & 64 bit)	Yes (32 & 64 bit)
Windows® 2000 / Windows®XP	Yes	Yes
Windows® Server 2003 & 2008	Yes	Yes
Windows® CE / Mobile	No	Yes ¹
Mac® OS X, Linux®, Solaris, Unix	No	Yes ¹
Standards Support		
ISO 7816 1-4	Yes	Yes
PCSC / CCID	Yes	Yes
CryptoAPI / MSCAPI	Yes	Yes
PKCS11	No	Yes
Base CSP	Yes	No
X.509, PFX, DER, PKCS 8 / 12 / 15	Yes	Yes
Contact Smart Chip		
Java Card OS v2.2.2	Yes	Yes
Global Platform Specification 2.1.1	Yes	Yes
Crypto Co-Processor	Yes	Yes
AES (256 bit), ECC GF(p) (320 bit), SHA-1/2	Yes	Yes
Number of 1024 Bit Digital Certificates ²	16	21
Number of 2048 Bit Digital Certificates ²	12	15
EEPROM Storage	80K	80K
EEPROM Data Retention	20 Years	20 Years

	C200 ⁵	C700
Contactless Technologies		
HID iCLASS	Yes	Yes
MIFARE	Yes	Yes
DESFire	Yes	Yes
HID & Indala Prox and Magnetic ³ Stripe Optional	Yes	Yes
Other Contactless and Multi-Technology Card	Yes	Yes
Options Available on Request		
Microsoft® Applications		
Windows® Domain Log-On	Yes	Yes
Remote Desktop / RDP	Yes ⁴	Yes ⁴
Microsoft® Identity Lifecycle Manager 2007	Yes	Yes
Outlook	Yes	Yes
Encrypted File System	Yes	Yes
Internet Explorer	Yes	Yes
Windows® Certificate Authority	Yes	Yes
Other Applications⁶		
Single Sign-On	Yes	Yes
Pre-Boot Authentication	No	Yes
Firefox®, Netscape®	No	Yes
VPN (SSL / IPSEC)	Yes	Yes
Match-on-Card Fingerprint	No	Yes
Citrix™	Yes	Yes
Smart Card Management Utility	No	Yes

Microsoft®
**Identity Lifecycle
Manager 2007**

¹ May require an additional software license.

² Maximum number of certificates

³ The Magnetic stripe is ABA standard 3 track, high coercivity (4000 Oe), ISO 7811-6 compliant.

⁴ Requires Windows 7, Windows Vista, or Windows XP

⁵ The Crescendo C200 credential solution has completed the Microsoft certification program for smart card minidrivers

⁶ Please review the "Crescendo Third Party Product Compatibility" document for a complete listing of applications and uses



Crescendo® Secure Custom Card Solutions

Issue Crescendo Smart Cards Conveniently and Securely!

For convenient card issuance, have HID's Identity on Demand™ Services personalize each card with your corporate image and required ID badge information. For greater security, economically add custom anti-counterfeiting features. Only HID can provide one-stop shopping for your complete card customization needs!

Use Crescendo Cards to Enhance Corporate Identity and Brand Recognition

No one wants to wear or present a plain, boring, unattractive badge. This card represents the user's personal image as well as the corporate image. Incorporate visual features such as a photo ID, name, or department color code to visibly identify individuals. High resolution printing and special inks are all available for your card design. A well-designed card demonstrates your company's commitment to security.

Use Anti-Counterfeiting Features on the Outside of Your Crescendo Smart Cards

Enhance the security on the outside of your card. Holograms have been required by MasterCard® and Visa® for years. Passports, immigration cards, and currency also use holograms and other anti-counterfeiting features. Anti-counterfeiting options include:

- Surface Holograms
- Embedded Holograms
- Micro-Fine Text
- Guilloche Images
- Holographic Overlaminates
- Anti-Scan and Anti-Copy Technologies
- Ultra-Violet and Infrared Fluorescing Inks

Use HID's Identity on Demand™ Services to Create Your New Badges

Economically create new badges that incorporate the technologies you need with the graphics and anti-counterfeiting features you choose.

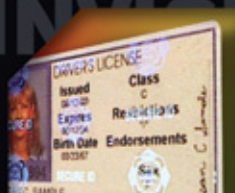


HID's Identity on Demand Services:

- Can create your ID badge layout; no in-house graphics capabilities or equipment is required.
- Can use an existing photo ID database to create new, personalized ID badges.
- Eliminates costs associated with cards destroyed or disfigured during the badging process.
- Reduces overall costs associated with ID badge production. Wear and tear on in-house badge production equipment is minimized.
- Enables the security department to manage security, not ID badge production.

HOLOGRAMS DURABLE CARD FORMULATIONS

INVISIBLE INK



LITHOGRAPHIC PRINTING MICROLINE PRINTING

UV FLUORESCING INKS

Logical Access Implementation Made Simple

Crescendo®

is a single card that can be easily deployed for logical and physical access control and other secure identity-related applications.



1 Start with a base card.



2 Add graphics, a photo ID, and an anti-counterfeiting element.



3 Issue highly secure custom cards for logical and physical access control.

Request a Crescendo Evaluation Kit.



To learn more, visit
hidglobal.com/crescendo.



4 Use your Crescendo card for other applications:

- ▶ Biometrics
- ▶ Time and Attendance
- ▶ Cashless Payment / eCash
- ▶ Handheld / Mobile Verification
- ▶ Manufacturing Control
- ▶ Many Others



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