

MIFARE® DESFire® EV3 + iCLASS®

Migrate to the most feature-rich implementation of DESFire EV3 available.

HID Global's DESFire EV3 + iCLASS is designed to give security system owners the ability to add DESFire EV3 to their existing iCLASS base while adding a smooth migration path to a more secure credential technology.

HID DESFire EV3 + iCLASS cards leverage security features including AES128 encryption, secure channel-based file transfer and proximity check to protect card data from attack. Furthermore, unlike many other DESFire solutions available on the market, random UID has also been introduced to ensure the card will never openly share any information that could be associated with the user. Finally, EV3 credentials from HID offer layered security with the addition of a Secure Identity Object™ (SIO) data model for added key diversification, authentication signatures and encryption.

HID's DESFire solutions offer choice with the highest standards in security and privacy features available out of the box. Bespoke applications are also supported and can be programmed in the field with the "Custom" profile option.

HID Global's DESFire EV3 + iCLASS credentials maintain interoperability with legacy iCLASS readers, meaning that all readers do not need to be upgraded immediately when starting a migration. This enables you to smooth out the implementation and cost of the upgrade over a time frame that works best for your schedule and budget.



HID'S DESFIRE SOLUTIONS OFFER CHOICE, PICK THE EV3 PROFILE THAT BEST MEETS YOUR NEEDS

822 - High Security — Adopt the latest and greatest security features with HID Signo™ readers

821 - Compatibility — Maintain backwards compatibility with iCLASS SE® / multiCLASS® SE readers

820 - Custom — Decide for yourself which features suit your solution best

ORDERING INFORMATION

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



KEY FEATURES

- **Feature-rich security** — Secure card data with the best implementation of the DESFire EV3 toolbox including AES128 encryption, secure channel-based file transfer and proximity check to protect against man-in-the-middle attacks
- **Added assurance** — Available with the portable Secure Identity Object (SIO) data model for added key diversification, authentication signatures and encryption
- **Ensure user privacy** — By implementing a random UID the card will never openly share any information that could be associated with the user
- **Flexible** — Available in three profiles — high security, compatibility and custom — to ensure the best fit for your access control system

	MIFARE DESFire EV3 + iCLASS 32K		
	High Security Profile	Compatibility Profile¹	Custom Profile
Base Part	822	821	820
Operating Frequency	13.56 MHz		
Communication Protocol Compliance	ISO14443A-4, up to 848kbps (DESFire) / ISO15693 (iCLASS)		
Memory Type & Applications	DESFire: 8K, unlimited applications within memory constraint; iCLASS: 32k (16k/16 + 16k/1) or 32k (16k/2 + 16k/1)		
DESFire Access Conditions	Create Application Allowed²	Create Application Allowed²	User Defined³
DESFire SIO Data Object Support	Yes (enabled by default)	Yes (enabled by default)	Optional³
DESFire HID Format Support	Yes (wrapped in SIO)	Yes (wrapped in SIO)	Optional³ or Unprogrammed
DESFire Data Retention	Minimum of 25 years		
DESFire Extended Privacy Support	Yes	No	Optional³
DESFire SIO Application Security Features	AES-128 crypto / Enhanced Secure Channel / Proximity Check	2TDEA crypto/MAC Communication	Choose from EV1, EV2 or EV3 NXP Specification³
DESFire SIO Application Key Diversification	Based on NIST 800-108 (CMAC/AES in Counter Mode)	Based on NIST SP800-108 (HMAC/SHA-1)	Optional³
DESFire UID	Random 4-byte UID	7-byte Static UID	7-byte Static / 4-byte Random UID
iCLASS Format Support	SIO, SIO + HID Access Application and HID Access Application		
	DESFIRE EV3 COMPATIBILITY & PERFORMANCE⁴⁸		
HID Signo Readers	SIO Read, EV3 Application Up to 5cm (1.97") (FW 10.0.2.2 or higher required)	SIO read, EV1 Application Up to 5cm (1.97")	Custom Data⁵ Up to 5cm (1.97")
iCLASS SE / multiCLASS SE /pivCLASS Readers	Not Compatible	SIO Read, EV1 Application Up to 5cm (1.97")	Custom Data⁶ Up to 5cm (1.97")
CP1000D Desktop Encoder	Not Compatible	EV1 SIO Application R/W	EV1 Application Custom Data Read / Write
HID Signo Biometric Reader 25B/ iCLASS SE RB25F Fingerprint Reader	Not Compatible		
OMNIKEY Readers Embedded SE Devices	Not Compatible	SIO Read, EV1 Application⁷	DESFire Custom Data⁷
	iCLASS COMPATIBILITY & PERFORMANCE⁴⁸		
HID Signo Readers	SIO or iCLASS Application read up to 15cm (5.9")		
iCLASS SE / multiCLASS SE /pivCLASS Readers	SIO or iCLASS Application read up to 10cm (3.94")		
HID Prox / Indala Readers	Not Compatible		
CP1000 Desktop Encoder	SIO or iCLASS Application Programming		
HID Signo Biometric Reader 25B/ iCLASS SE RB25F Fingerprint Reader	Not Compatible		
OMNIKEY and Embedded SE Devices	SIO or iCLASS Application Read		
	MECHANICAL, ENVIRONMENTAL AND COMPLIANCE		
Printing	HID recommends the use of a high-definition printer (HDP) for this card		
Card Construction	Composite construction (40% PVC, 60% PET)		
Weight	~ 0.2 oz (5.5g)		
Operating Temperature	-40° F to 122° F (-40 °C to + 50 °C)		
Min/Max Storage Temperature	-31° F / 122° F (-35 °C / + 50 °C) for 1000hrs		
Thermal Shock	-31° F to 176° F (-35 °C to + 80°C) 100 cycles (soaking time 5 min, transition time 30 s)		
Chemical Resistance	The card can withstand exposure to 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 14890-1:200		
Environmental Compliance	RoHS, China RoHS, REACH, Halogen Free		
Warranty	Lifetime Warranty		

1. Compatibility profile (831) includes the high security application supported by HID Signo firmware 10.0.2.2 or higher. SIO format data mirrors that of the EV1 compatible application.
2. The HID PICC master key is not published, if a custom PICC master key is required, please request a custom part number.
3. As defined within the custom specification. Ensure requested features are compatible with the target reader device, not all EV2/EV3 features are supported by HID custom profile readers.
4. 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.
5. Requires a custom credential profile HID Signo reader.
6. Requires an iCLASS SE/multiCLASS SE with the custom programming option "W", EV1 features only.
7. Refer to Extended Access Technologies How to Order Guide for appropriate part number and compatibility, not all EV3 features are supported.
8. Some OMNIKEY readers may require a service pack update to read EV1 SIO application.
9. HID does not recommend the use of multi-technology cards on multi-technology readers that are configured to read all technologies.



hidglobal.com

North America: +1 512 776 9000 | Toll Free: 1 800 237 7769
Europe, Middle East, Africa: +44 1440 714 850
Asia Pacific: +852 3160 9800 | Latin America: +52 (55) 9171-1108
For more global phone numbers click here

© 2022 HID Global Corporation/ASSA ABLOY AB. All rights reserved.
2022-08-15-pacs-mifare-desfire-ev3-iclass-card-ds-en PLT-06680
Part of ASSA ABLOY