

# MIFARE® DESFire® EV3 Card

## The most feature-rich implementation of DESFire EV3 available

DESFire EV3 is the latest addition to the MIFARE DESFire family of smart card chipsets from NXP. This latest evolution introduces the option of even more features for implementation, and HID has taken full advantage.

HID DESFire EV3 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 prohibit the card from openly sharing 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.



### PICK THE EV3 PROFILE THAT BEST MEETS YOUR NEEDS

**Security** – Adopt HID's most advanced security features with its Signo readers.

**Compatibility** – Maintain backwards compatibility with iCLASS SE® / multiCLASS® SE readers

**Custom** – Decide for yourself which features suit your solution best

### ORDERING INFORMATION

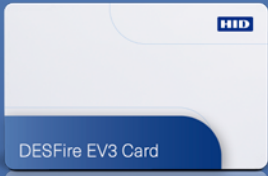
For full details, refer to the [Readers and Credentials How to Order Guide](#).



### KEY BENEFITS:

- **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
- **Protect user privacy** - By implementing a random UID, the card is designed so that it will not share information that could be associated with the user.
- **Flexible** – Available in three profiles to ensure the best fit for your access control system, high security, compatibility and custom
- **Fully backwards compatible** – Ensure your investment in legacy DESFire credentials and readers is protected, DESFire EV3 credentials offer full backwards compatibility with EV1 and EV2 based solutions

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## PICK THE EV3 PROFILE THAT BEST MEETS YOUR NEEDS

- **High Security** – Adopt the latest and greatest security features with HID Signo™ readers
- **Compatibility** – Maintain backwards compatibility with iCLASS SE® / multiCLASS® SE readers
- **Custom** – Decide for yourself which features suit your solution best

	High Security Profile	Compatibility Profile <sup>1</sup>	Custom Profile
<b>Base Part</b>	802	801	800
<b>Operating Frequency</b>	13.56 MHz		
<b>Communication Protocol Compliance</b>	ISO14443A-4		
<b>Communication Speed</b>	Up to 848kbps		
<b>Memory Type</b>	8K EEPROM		
<b>Number of Applications</b>	Unlimited (within memory constraints)		
<b>Access Conditions</b>	Create Application Allowed <sup>2</sup>	Create Application Allowed <sup>2</sup>	User Defined <sup>3</sup>
<b>SIO Data Object Support</b>	Yes (enabled by default)	Yes (enabled by default)	Optional <sup>3</sup>
<b>HID Format Support</b>	Yes (wrapped in SIO)	Yes (wrapped in SIO)	Optional <sup>2</sup> or Unprogrammed
<b>Data Retention</b>	Minimum of 25 years		
<b>Extended Privacy Support</b>	Yes	No	Optional <sup>2</sup>
<b>SIO Application Security Features</b>	AES-128 crypto / Enhanced Secure Channel / Proximity Check	2DEA crypto / MAC Communication	N/A
<b>SIO Application Key Diversification</b>	Based on NIST SP800-108 (CMAC / AES in Counter Mode)	Based on NIST SP800-108 (HMAC/SHA-1)	N/A
<b>UID</b>	Random 4-byte UID	7-byte Static UID	7-byte Static or 4 Byte Random UID
<b>COMPATIBILITY &amp; PERFORMANCE<sup>4</sup></b>			
<b>HID Signo Readers</b>	SIO Read, EV3 Application Up to 9 cm (3.54") (FW 10.0.2.2 or higher required)	SIO read, EV1 Application Up to 9 cm (3.54")	Custom Data <sup>5</sup> Up to 9 cm (3.54")
<b>iCLASS SE / multiCLASS SE / pivCLASS Readers</b>	Not Compatible	SIO read, EV1 Application Up to 8 cm (3.15")	Custom Data <sup>6</sup> Up to 8 cm (3.15")
<b>CP1000D Desktop Encoder</b>	Not Compatible	EV1 SIO Application SIO Read / Write	EV1 Application Custom Data Read / Write
<b>HID Signo Biometric Reader 25B / iCLASS SE RB25F Fingerprint Reader</b>	Not Compatible	Not compatible	Not compatible
<b>OMNIKEY Readers Embedded SE Devices</b>	Not Compatible	EV1 SIO Application SIO Read	Custom Data <sup>7</sup>
<b>Printing</b>	HID recommends the use of a high-definition printer (HDP) for this card		
<b>MECHANICAL, ENVIRONMENTAL AND COMPLIANCE</b>			
<b>Card Construction</b>	Composite construction (40% PVC, 60% PET)		
<b>Weight</b>	~ 0.2 oz (5.5g)		
<b>Operating Temperature</b>	-31° F to 122° F (-35 °C to + 50 °C)		
<b>Min/Max Storage Temperature</b>	-31° F / 122° F (-35 °C / + 50 °C) for 1000hrs		
<b>Thermal Shock</b>	-31° F to +176° F (-35 °C to + 80°C) 100 cycles (soaking time 5 min, transition time 30 s)		
<b>Chemical Resistance</b>	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		
<b>Standards Compliance</b>	ISO14443A-4, ISO/IEC 24727-3:2008, EN 14890-1:200		
<b>Environmental Compliance</b>	RoHS, China RoHS, REACH, Halogen Free		
<b>Warranty</b>	Lifetime Warranty		

- 1 Compatibility profile (801) 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.



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