

# CEM DESfire Smartcard

## Pre-personalised Contactless Smart Card

### Features that make a difference:

- Utilises highly secure 13.56MHz MiFare DESFire smart card technology
- Pre-personalised card memory allowing for usage in other systems such as cashless vending
- Advanced Encryption Standard (AES) -128-bit or Triple DES (3DES) encryption between the card and the reader
- Compatible with the CEM sPass reader and DCM 350 two-door controller, as well as S610 reader range, and the emerald touch screen reader range
- Meets ISO standards for thickness for use with all direct image and thermal transfer printers
- Add a magnetic stripe, barcode, anti-counterfeiting, or photo ID to the card
- Fully ISO / IEC 14443 A 1-4 compliant
- Available for use on CEM readers: emerald touch screen reader range, S610e, S610s, S610f fingerprint reader & sPass reader

The CEM DESFire 13.56MHz read/write contactless smart card can be used for a range of different applications from access control to other applications such as cashless vending and public transportation. Using a standardised Mifare Application Directory (MAD), the card contains a structured file system offering security for multiple applications and to support future growth.

Utilising Advanced Encryption Standard (AES) -128-bit or Triple DES (3DES) encryption, the CEM DESFire card information is securely stored on the card, ensuring that the card cannot be cloned and that only valid cards are granted access.

The CEM DESFire smart card delivers the perfect balance of speed, performance and cost efficiency when opting for a DESFire smart card solution. Featuring an on-chip backup management system and mutual AES or 3DES authentication, the CEM DESFire smart card is based on MiFare DESFire EV1 and can hold up to 28 different applications and 32 files per application.

The size and access conditions of each file are defined at the moment of its creation, making the CEM DESFire Smart card a truly flexible and convenient product.

### Markets Served

The CEM DESFire Smart card is suited to many different applications such as security management systems, cashless vending in schools, universities, offices and public transport including payment onto buses, trains or trams.

### Convenience and cost effective

CEM DESFire smart card memory is pre-personalised for customer convenience. Encryption keys are pre-encoded onto the smartcards at the factory eliminating any requirements for an onsite encoder that would need to be secured and managed. The CEM solution also involves remotely updating the CEM card readers with the encryption keys without the requirement for a configuration card. With readymade encryption, the CEM DESFire card offers customers a flexible and quick smart card solution, without the cost of card personalisation and key/filing management.

For additional flexibility, the DESFire smart card also comes with blank and unused memory keys that can be used for other applications, for example cashless vending and printing.

### Secure

The CEM DESFire Smart card comes with a flexible filing system based on applications and files contained within the applications. Each card will have one Master Key, and up to 14 keys per application. Keys include control of Read (Debit), Write (Debit/Limited Credit), R&W, and Change Configuration.

### Specifications

- 2-8K bytes EEPROM
- 28 applications
- 16 or 32 files per application

## Meets Industry Standards

The CEM DESFire Smart card adheres to strict industry standards for physical design, communications and encryption. Some of these include; 14443 for contactless communications, ICAO9303Pt-Vol2 Machine Readable Travel Documents, ISO/ IEC 7812 Identification cards - Identification of issuers, ISO/ IEC 7816-4 BER-TLV, ISO/IEC 7816-6:2004 Inter-industry data elements for interchange, TS 1000-1 Interoperable public transport ticketing using contactless smart customer media, PIV Interoperability for Non-Federal Issuers, and RFC 4122 - A Universally Unique Identifier (UUID) URN Namespace.

## Requirements

- AC2000 v6.2 software & upwards
- AC2000 Lite v6.4 software & upwards
- AC2000 Airport v6.6 software & upwards

## Specification

### Typical Maximum Read Range

S610e DESFire reader . . . . .	5cm
S610s DESFire reader . . . . .	5cm
S610f DESFire fingerprint reader . . . . .	5cm
sPass DESFire reader . . . . .	5cm
Dimensions . . . . .	2.127" x 3.375" x 0.033" max (5.40 x 8.57 x 0.084 cm) Can be carried with credit cards in a wallet or purse. Use with a strap and clip as a photo ID badge
Weight . . . . .	0.20oz (5.7 g)
Card Construction . . . . .	Thin, flexible polyvinyl chloride (PVC) laminate.
Operating Temperature . . . . .	-13° to 122° F (-25° to 50° C)
Operating Frequency . . . . .	13.56 MHz
Transaction Time . . . . .	89 ms typical
Baud Rate . . . . .	High data rates according to ISO / IEC 14443-4 106 to 848 Kbit/s
Write Endurance . . . . .	500,000 cycles
Data Retention . . . . .	10 years
Memory Type . . . . .	EEPROM, read/write
Photo ID Compatible . . . . .	Cards are supplied blank. However customers can print directly onto the card with a direct image or thermal transfer printer. For custom pre-printed artwork contact CEM Systems for prices.
Durability . . . . .	Strong, flexible, and resistant to cracking and breaking.
Description . . . . .	13.56 MHz contactless smart card

## Ordering Information

Product Codes	Description
CRD/218/004	CEM DESFire Card 4k byte – 3DES encryption
CRD/218/008	CEM DESFire Card 8k byte – 3DES encryption
CRD/229/004	CEM DESFire Card 4k byte – AES-128-bit encryption
CRD/229/008	CEM DESFire Card 8k byte – AES-128-bit encryption

## Related Products



AC2000  
AC2000 Airport  
AC2000 Lite

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