Cardax Prox (Mifare Series)

Cardax Prox (Mifare Series) provides a range of Smart Card readers for Cardax FT systems.

Cardax uses Philips® Semiconductors contactless Mifare Standard technology to provide the platform for its Smart Card range. The benefits of Smart Card technology include the ability to have multiple applications residing and operating independently on a single card with high-level encryption between card and reader.

The Cardax Prox (Mifare series) includes the Cardax Prox and the Cardax Prox Plus readers.

Cardax Prox (Mifare Series)

The Cardax Prox readers are card only readers, providing fast, secure access by simply passing a card transponder across the face of the unit. Two LEDs and a speaker provide enhanced visual and audible feedback to the user.

The readers, in a standard or teardrop shape, are designed for use in both interior and exterior environments. The teardrop Cardax Prox reader is designed for standard door mullions.

An optional wide mounting base is available for the standard Cardax Prox reader only. The base is designed to be mounted over many standard international electrical flush boxes.

Cardax Prox (Mifare Series) - standard with wide mounting base

Cardax Prox Plus (Mifare Series)

The Cardax Prox Plus reader is a card plus PIN unit, used where more security than card only is required. The illuminated PIN pad allows a cardholder to enter a personal identification number in conjunction with a card. An LCD panel provides user feedback icons making the system easy to use internationally.
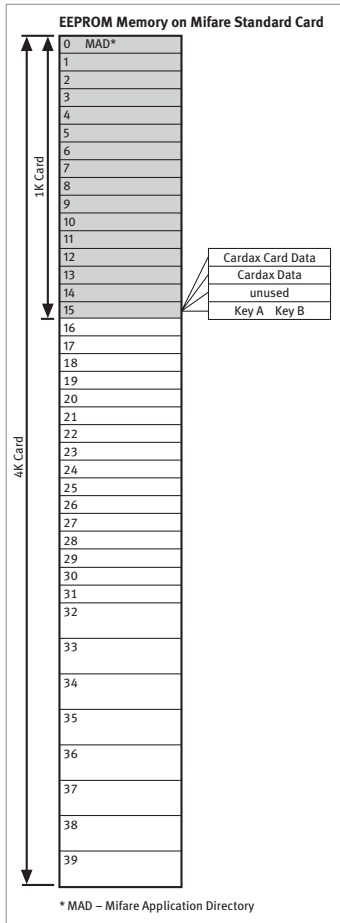
How does the Cardax Smart Card system work?

Application data on a Mifare Standard card is stored in an EEPROM memory chip. The EEPROM memory for a Mifare Standard card (1k) is made up of 16 sectors. The EEPROM memory for a Mifare 4k card is made up of 39 sectors.

Each sector can be used to store data for a different application. Sector 0 is normally used for the Mifare Application Directory (MAD). Typically Cardax access control information resides on sector 15 but it can be located on any sector from 1-15.

cardax

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EEPROM Memory on Mifare Standard Card

0	MAD*
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1K Card (0–15), 4K Card (0–39)

Blocks 12–15: Cardax Card Data / Cardax Data / unused / Key A   Key B

* MAD – Mifare Application Directory

Data and Tamper Protection

Security of the reader is enhanced by encryption and monitoring of the communications data between the reader and the Cardax FT Controller. An alarm will be raised at the Command Centre workstation if the reader stops communicating with the field device. Unlike many other proximity systems, the Cardax Prox (Mifare Series) uses a full 16 bit error detection protocol ensuring that the card reader correctly identifies the card being presented by the cardholder.

High Performance Housing with Colour Choice

To suit a wide range of installation environments the reader housing is available in Cardax Cool Grey or Cardax Charcoal. The reader housing is injection moulded in a high-strength, high-impact resistant engineering plastic alloy, proven over many years in the Cardax product range.

The Cardax Prox Mifare readers are rated to IP54. Cardax Protective Reader Covers are available for the Cardax Prox Plus and teardrop Cardax Prox readers, and increase the rating to IP66.

The Cardax Prox (Mifare Series) reader is a self contained unit which does not require external suppression components to comply with international EMC regulations.

Ancillary Products

Smart Cards

The Cardax Smart Card system uses Mifare Standard Smart Cards (S50) or Mifare Standard 4k Smart Cards (S70).

Card Encoding

Used in conjunction with the Cardax Encoder (Mifare Series), Cardax Encoder III is a user-friendly software package that enables the on-site encoding and re-encoding of Cardax Smart Cards.

For more information about these ancillary products, please refer to their respective Cardax data sheets:

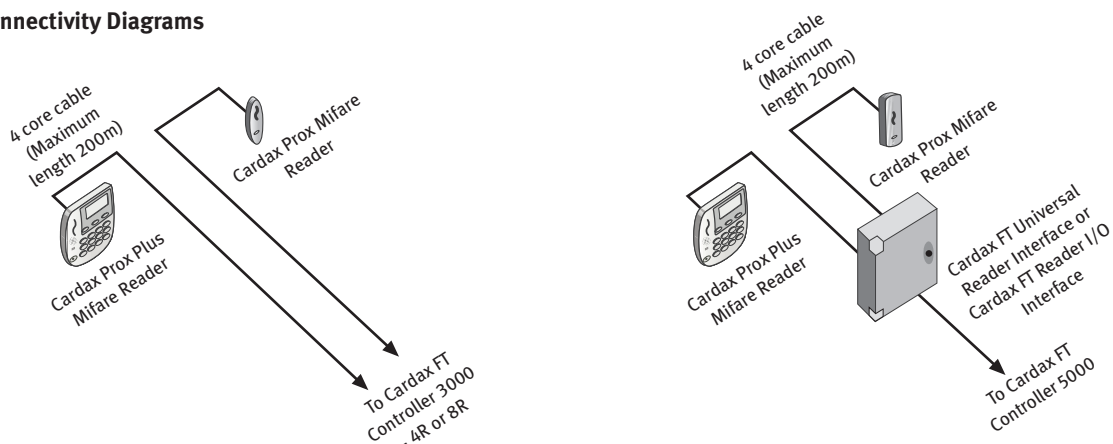- Cardax Encoder III
- Cardax Protective Reader Covers

Other Smart Card Applications

Alongside access control, Cardax Smart Cards can independently support up to 14 other applications (1k card) or 38 other applications (4k card) using Philips® Semiconductors contactless Mifare Standard technology.

Cardax Encoder (Mifare Series) can encode Cardax access control information onto existing Mifare Standard Cards using Cardax proprietary data format.

Smart Card technology is being applied in many industries in a wide range of applications. Mifare Card systems have been used in the following applicatons: Automatic Fare Collection, Road Toll, Airline Ticketing, Banking Cards, City Cards, ID Cards, University Cards, Loyalty Schemes, and Park & Ride.

Connectivity Diagrams

4 core cable (Maximum length 200m)

Cardax Prox Mifare Reader

Cardax Prox Plus Mifare Reader

To Cardax FT Controller 3000 - 4R or 8R

CONTROLLER 3000 Cardax Prox Mifare readers connecting to a Cardax FT Controller 3000

4 core cable (Maximum length 200m)

Cardax Prox Mifare Reader

Cardax Prox Plus Mifare Reader

Cardax FT Universal Reader Interface or Cardax FT Reader I/O Interface

To Cardax FT Controller 5000

CONTROLLER 5000 Cardax Prox Mifare readers connecting to Cardax FT Controller 5000 via a Cardax FT Universal Reader Interface or Cardax FT Reader I/O Interface

TECHNICAL SPECIFICATIONS	Cardax Prox (Mifare Series)	
Dimensions - Cardax Prox (teardrop)		
	Height	105 mm
	Width	35 mm
	Depth	17 mm
Dimensions - Cardax Prox (standard)		
	Height	134 mm
	Width	55 mm
	Depth	31 mm
Dimensions - Cardax Prox (standard) with optional cradle base		
	Height	156 mm
	Width	100 mm
	Depth	31 mm
Dimensions - Cardax Prox Plus	Height	112 mm
	Width	113 mm
	Depth	28 mm
Power Supply	Voltage	13.6 V DC ± 15%
	Current - Cardax Prox Mifare	200 mA
	- Cardax Prox Plus Mifare	225 mA
Temperature Range		0° to +55°C
Environmental Protection Rating	Cardax Prox (Teardrop) and Cardax Prox Plus	IP54
	Cardax Prox (Standard)	IP66
	Cardax Prox (Teardrop) and Cardax Prox Plus with Protective Reader Covers	IP66
Reading Distance	Cardax Prox Mifare (Standard)	30 mm*
	Cardax Prox Mifare (Teardrop)	50 mm*
	Cardax Prox Plus Mifare	70 mm*
* Dependent on card type and installation conditions		
Mounting	Surface (requires 20 mm dia x 15 mm deep cable recess behind reader)	
Cable Specifications	4 core 0.2mm^2 (24 AWG) twisted unshielded (120 pF/m)	200 m
	4 core 0.2mm^2 (24 AWG) twisted shielded* (120 pF/m)	150 m
* Required to comply with CE requirements		
Frequency of Transmission	Card to Reader	13.5 MHz
Compliance Standards $\epsilon\epsilon$ $\mathcal{C}$ ACN 002132943	All equipment complies with CE and C-Tick approvals. Please contact Gallagher Security Management Systems for the latest list of approvals.	

TECHNICAL SPECIFICATIONS	Smart Card Transponders	
Mifare Card Range*	Mifare® Standard 1k (S50) - printable	
	Mifare® Standard 4k (S70) - printable	
	Mifare® Standard 1k (S50) with magnetic stripe - printable	
	Mifare® Standard 4k (S70) with magnetic stripe - printable	
Dimensions	Length	85.6 mm
	Width	54 mm
	Thickness	0.8 mm
Encoding Data (Encoded via Cardax encoder package)		
	Region codes	16
	Facility codes	50,000
	Card numbers	15,999,999
	Issue levels	15

* All Cardax Mifare Cards are compliant with ISO 7812.

Quality System
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