

# Cardax

## Prox Readers (Mifare Series)

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



Cardax uses 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 reader is a card only reader, 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 teardrop shaped reader is designed for use in both interior and exterior environments. The Cardax Prox reader is designed for standard door mullions.

### 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?

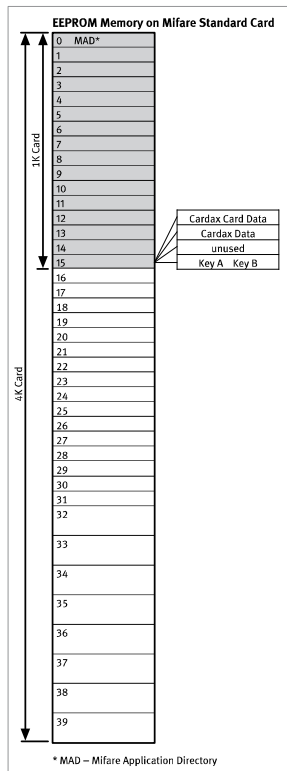
Application data on a Mifare Standard card is stored in an EEPROM memory chip. The EEPROM memory for a Mifare Standard card (1k) is made up of 16 sectors. The EEPROM memory for a Mifare 4k card is made up of 39 sectors.

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.

CSN card reading is supported as an alternative to sector reading.

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.

In addition to Mifare Classic security, Cardax implements an optional layer of security, "Mifare Enhanced Security" (MES). MES helps protect against card cloning, denying access and raising alarms upon unauthorised card presentation.



### 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 readers are self contained units which do 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

Using the Cardax Encoder (Mifare Series), Cardax Smart Cards can be encoded and re-encoded on-site within Cardax FT Command Centre.

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

- Cardax Encoder III
- Cardax Protective Reader Covers

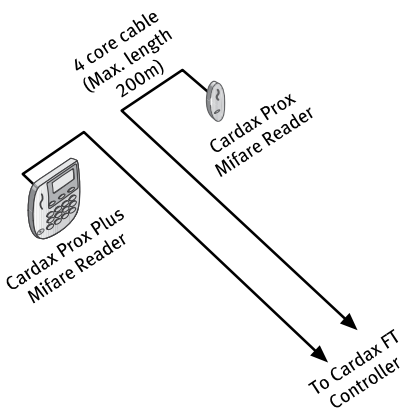
### Other Smart Card Applications

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.

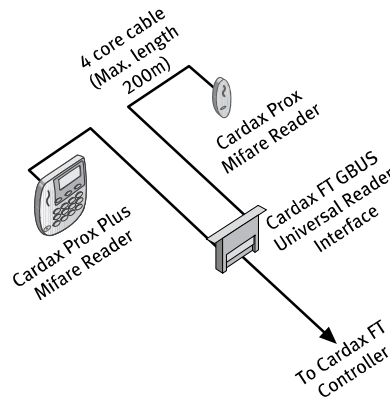
Cardax Encoder (Mifare Series) can encode Cardax access control information onto existing Mifare Standard Cards using Cardax proprietary data format.

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

### Connectivity Diagrams



Cardax Prox Mifare readers connecting to Cardax FT Controller 6000 or 3000 (4R and 8R)



Cardax Prox Mifare readers connecting to Cardax FT Controller via Cardax FT GBUS Universal Reader Interface

September 2009

TECHNICAL SPECIFICATIONS

Cardax Prox (Mifare Series)

Dimensions - Cardax Prox (teardrop)	Height	105 mm
	Width	35 mm
	Depth	17 mm

Dimensions - Cardax Prox Plus	Height	112 mm
	Width	113 mm
	Depth	28 mm

Power Supply	Voltage	13.6 V DC $\pm$ 15%
	Current	- Cardax Prox Mifare 200 mA
		- Cardax Prox Plus Mifare 225 mA

Temperature Range	-10 ° to +55 °C
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Environmental Protection Rating	Cardax Prox (Teardrop) and Cardax Prox Plus	IP54
	Cardax Prox (Teardrop) and Cardax Prox Plus with Protective Reader Covers	IP66

Reading Distance	Cardax Prox Mifare (Teardrop)	up to 50 mm*
	Cardax Prox Plus Mifare	up to 70 mm*

\* Dependent on card type and installation conditions

Cable Specifications	4 core 0.2mm <sup>2</sup> (24 AWG) twisted unshielded (120 pF/m)	200 m
	4 core 0.2mm <sup>2</sup> (24 AWG) twisted shielded* (120 pF/m)	150 m

\* Required to comply with CE requirements

Frequency of Transmission	Card to Reader	13.5 MHz
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Compliance Standards All equipment complies with CE and C-Tick approvals. Please contact Gallagher Security Management Systems for the latest list of approvals.



ACN 002132943

September 2009

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 FT PhotoID optional licenced feature)

Region codes	16
Facility codes	50,000
Card numbers	15,999,999
Issue levels	

\* All Cardax Mifare Cards are compliant with ISO 7812.

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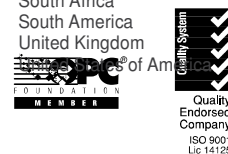
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Part No. 3E1330-09/09  
Part No. USA: 3E1330/US