

# Cardax Prox Readers (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 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.

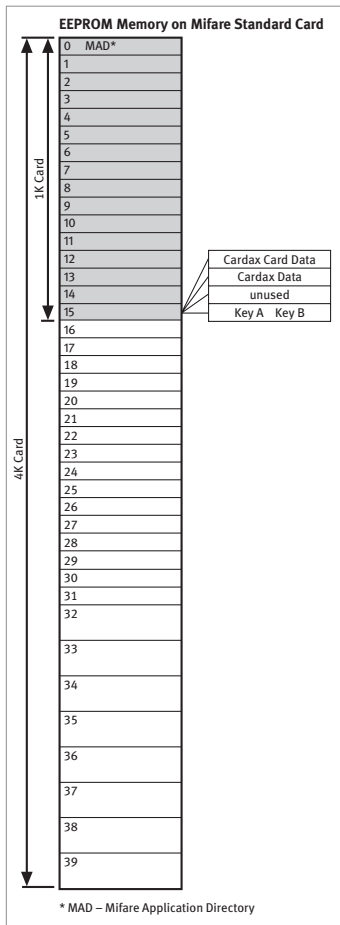
### How does the Cardax Smart Card system work?

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.



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

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.

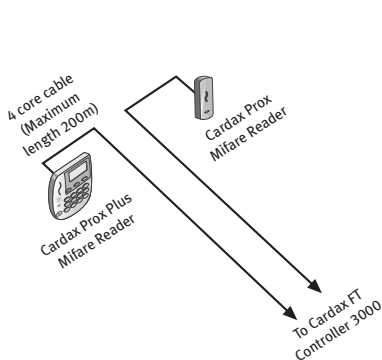
Cardax Encoder (Mifare Series) can encode Cardax access control information onto existing Mifare Standard Cards using Cardax proprietary data format.

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

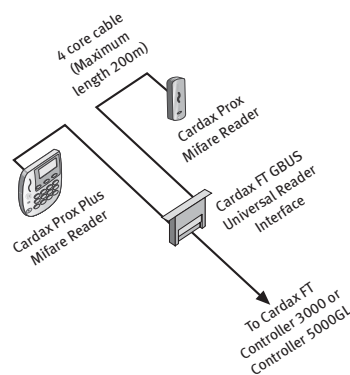
### High Performance Housing with Colour Choice

To suit a wide range of installation environments the reader housing is available in Cardax Cool Grey or Cardax Charcoal. The reader housing is

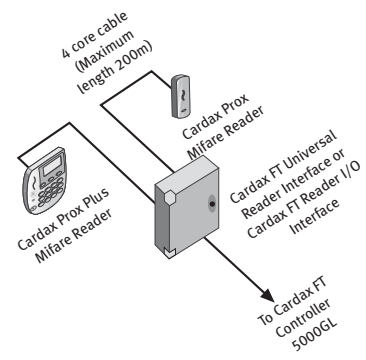
### Connectivity Diagrams



**G** Cardax Prox Mifare readers connecting to Cardax FT Controller 3000



**G** Cardax Prox Mifare readers connecting to Cardax FT Controller 3000 or Cardax FT Controller 5000GL via Cardax FT GBUS Universal Reader Interface



**L** Cardax Prox Mifare readers connecting to Cardax FT Controller 5000GL via Cardax FT Universal Reader Interface or Cardax FT Reader I/O Interface

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**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)	up to 30 mm*
Cardax Prox Mifare (Teardrop)	up to 50 mm*
Cardax Prox Plus Mifare	up to 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 <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

**Compliance Standards**



ACN 002132943

All equipment complies with CE and C-Tick approvals. Please contact Gallagher Security Management Systems for the latest list of approvals.

March 2006

**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	15

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



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