

# Cardax FT Controller 5000GL

Cardax FT Controller 5000GL provides flexible system architecture with options of GBUS and LOCAL BUS communications to field devices, to meet a wide range of site requirements.



G  
GBUS

L  
LOCAL BUS

## Cardax FT Controller 5000GL

The Cardax FT Controller 5000GL is one of the key components of Cardax FT integrated security systems. It is an intelligent, microprocessor-based access controller incorporating a 32 bit Intel microprocessor. Configured through Cardax FT Command Centre, it manages access control and security functions in the Cardax FT system.

The Cardax FT Controller 5000GL has connections for both families of Cardax FT field devices – GBUS and LOCAL BUS. This enables cost effective flexible configuration and expansion options. On-board connections include:

- One GBUS port to support:
  - 8 GBUS I/O devices (including GBUS Universal Reader Interfaces for reader connections), and
  - 4 Cardax FT Remote Arming Terminals, and
  - 16 PowerFence Trophy FT Fence Controllers
- One LOCAL BUS port (with 2 separate channels):
  - to support 16 LOCAL BUS devices, or
  - to convert to a second GBUS port

- 4 balanced inputs
- 1 relay output

The combination of field devices connected to a Cardax FT Controller 5000GL provides the inputs, outputs and reader connections. The Cardax FT Controller 5000GL can control up to eight doors and store access details of up to 92,000 cardholders, depending on database storage allocation settings.

The structure of the Cardax FT system architecture provides powerful and flexible configuration. Relationships can be configured directly between Cardax FT Controllers. For example, inputs on one Controller can be monitored and acted on by another Controller.

Refer to the Cardax FT GBUS I/O Devices and the Cardax FT LOCAL BUS I/O Devices datasheets for information on these devices.

## Inputs and Outputs on the Cardax FT Controller 5000GL

The Cardax FT Controller 5000GL contains four, 4-state balanced inputs and a single

relay output on-board. These can be used for door control or general I/O functions.

Additional inputs and/or outputs can be added to the Cardax FT Controller 5000GL if required. Cardax FT GBUS I/O devices can be added either inside the Cardax FT Cabinet that houses the Controller, or in a separate Cardax FT Cabinet. Including devices in the same cabinet that houses the Controller is achieved by mounting a Controller Sub-Plate in the cabinet over the Controller 5000GL. Variable end of line resistance (not LOCAL BUS) is supported for GBUS and Cardax FT Controller 5000GL.

## Distributed Intelligence and Data Storage

Distributed intelligence is a significant feature of the Cardax FT system architecture. All Cardax FT field devices connecting to Cardax FT Controllers can operate independently of the Cardax FT Command Centre Server. This ensures that if the site experiences network communications problems, full operation of access control and alarms management is maintained.

The relevant fields of the cardholder database, alarm configuration and security parameters are downloaded to the Controllers allowing for instant access and alarm control decisions.

All events and alarms are date and time stamped before being sent to the Cardax FT Command Centre Server. Each Cardax FT Controller 5000GL is capable of buffering events should communications with the Command Centre fail. The Cardax FT Controller 5000GL will transfer the buffered events to the Command Centre automatically when communications are re-established.

The database is capable of supporting up to a maximum of 92,000 card records or 44,000 events for access

control functions. The number of cardholders and events is determined by the cardholder / event ratio.

### Communications

The communications between the Cardax FT Controller 5000GL and the Cardax FT Command Centre use TCP/IP, a world standard network and Internet transmission protocol, over an Ethernet network. The Cardax FT Controller 5000GL provides a standard 10BaseT connection point.

Remote Cardax FT Controller 5000GLs can be connected to the system via a TCP/IP Wide Area Network (WAN).

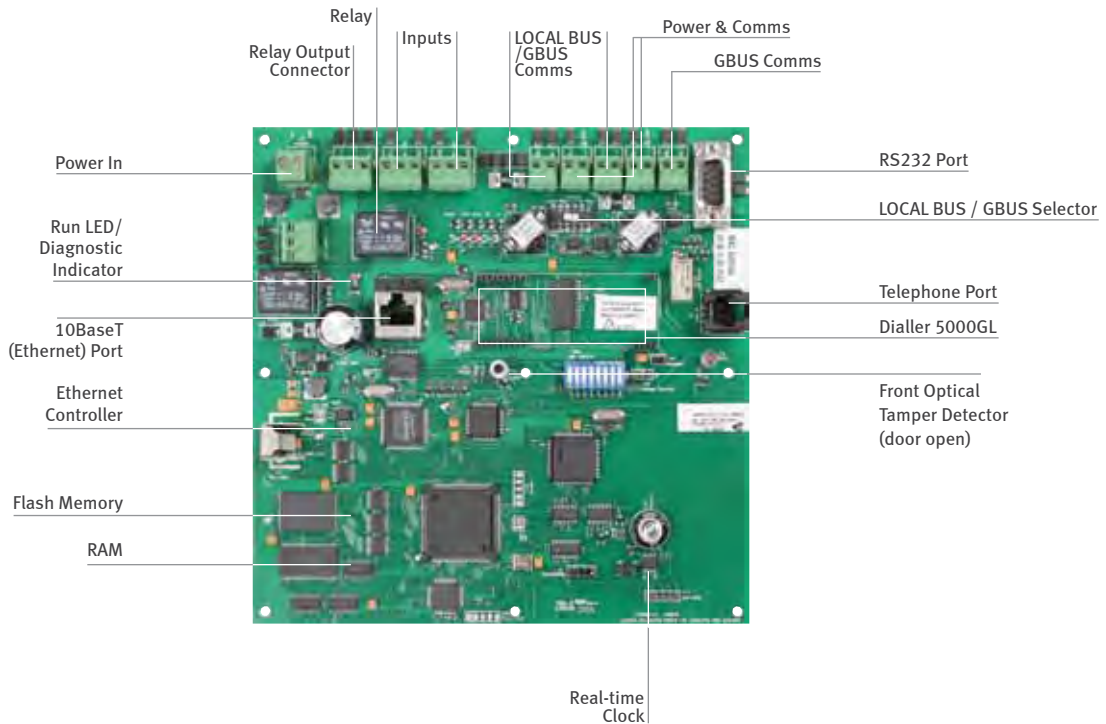
Cardax has a range of industrial switches to provide a solution for redundant Ethernet network communications.

The Cardax FT Controller 5000GL has been designed to meet the communications requirements of all the Cardax FT GBUS and LOCAL BUS field devices and the digitised audio messages generated by the intercom in the Cardax FT Intelligent Door Terminal. Field devices are connected to the Cardax FT Controller 5000GL via either GBUS (non-isolated low speed RS485) or LOCAL BUS (high speed isolated RS485).

### Peer-to-Peer Communications

The Cardax FT Controller 5000GL can directly communicate with other Cardax FT Controllers. The peer-to-peer communications enable the Controllers to communicate with each other over a LAN/WAN using TCP/IP for the purposes of monitoring,

## Key Features of the Cardax FT Controller 5000GL



back-up and control. This significant feature provides extensive flexibility and efficient system configuration. For example, a Cardax FT Dialler 5000GL resident on a Controller 5000GL can be configured to transmit events originating from any Cardax FT Controller to a remote alarm monitoring station.

It is recommended that installers attach a back-up power supply to the Cardax FT Controller 5000GL so it can continue to operate for at least 24 hours in the event of a mains supply failure. The back-up power supply can be monitored by connecting relay outputs. These can then be monitored using the inputs on a Cardax FT Controller 5000GL or a connected field device.

#### **Dial-Up**

An on-board connection is provided for the Cardax FT Dialler 5000GL to support dial-up communications with Cardax FT Command Centre directly or via the Internet.

Dial-up enables the Cardax FT Controller 5000GL to be located remotely enabling it to transmit information:

- At scheduled times
- When the event buffer is becoming full
- In response to certain events such as alarms for off-site alarm monitoring.

Dial-up can also occur via an ISP, improving network security and reducing communication costs.

The Cardax FT Command Centre can be programmed to dial a Cardax FT Controller 5000GL when configuration changes need to be sent, or when an operator initiates a request.

#### **Software Upgrades**

The Cardax FT Controller 5000GL can be enhanced in the future via software upgrades. These software upgrades can be implemented through Cardax FT Command Centre. Downloadable Software upgrades can also be implemented via the Cardax FT Controller 5000GL to the Cardax FT Intelligent Door Terminal. The ability to download software over the network means enhancements can be easily and quickly installed in the future.

#### **Data Security**

All data over the network between the Cardax FT Controller 5000GL and the Cardax FT Command Centre server uses industry standard 128-bit encryption technology. High-level (256-bit) AES encryption is available through Cardax FT XtraSec.

All communications between the Cardax FT Controller 5000GL and field devices are encrypted and checksummed to protect data from manipulation during transmission.

#### **Intruder Alarms**

The Cardax FT Controller 5000GL provides sophisticated intruder alarm management, making separate intruder alarm systems superfluous.

Intruder detectors are connected directly to the I/O devices supported by the Controller 5000GL so alarms can be raised at the Cardax FT Command Centre. Outputs can trigger actions such as switching on lights when an intruder is detected.

Arming (setting) and disarming (unsetting) of alarms can be implemented according to a time schedule, via operator overrides, by authorised cardholders at Cardax readers, by keyswitch control, or by the Cardax FT Remote Arming Terminal.

Connecting via the GBUS of the Controller 5000GL the Cardax FT Remote Arming Terminal also enables users to monitor alarms in the field. (Refer to the Cardax FT Remote Arming Terminal datasheet for more information).

When authorised cardholders arm or disarm alarms through the Cardax FT Intelligent Door Terminal, they receive prompts and feedback via its LCD display.

Entry and exit delays can be configured to give the cardholder time to enter or leave the premises. Full event details, including the cardholder's name, are recorded for arm/disarm operations at the Command Centre.

A relay output may be used to indicate the arm / disarm status of a particular alarm zone.

#### **Elevator Control**

The Cardax FT Controller 5000GL provides elevator access control. Card readers may be installed in elevator cars to provide restricted access to floors.

When a Cardax FT Intelligent Door Terminal or Cardax Prox Plus reader is installed, the cardholder can be prompted to enter their PIN before access is granted. Floors may be 'unlocked' (i.e. the elevator floor select button enabled) on a time schedule.

Relay outputs on the Cardax FT Relay Interface, I/O Interface and Reader I/O Interface can be configured to enable the elevator floor select buttons in an elevator car. Inputs on a Cardax FT Reader I/O Interface or Cardax FT I/O Interface can be configured to monitor which floor is selected providing destination reporting to minimise the opportunity of more than one floor being selected.

The flexible design of the Cardax FT Controller 5000GL enables it to be configured for almost any elevator control situation.

The configuration is limited only by combinations of the following:

- Up to 75 elevator levels per elevator shaft
- Up to 2 elevator shafts per Cardax FT Controller 5000GL
- Up to 16 field devices per Cardax FT Controller 5000GL

The Cardax FT Elevator High Level Interface is available.

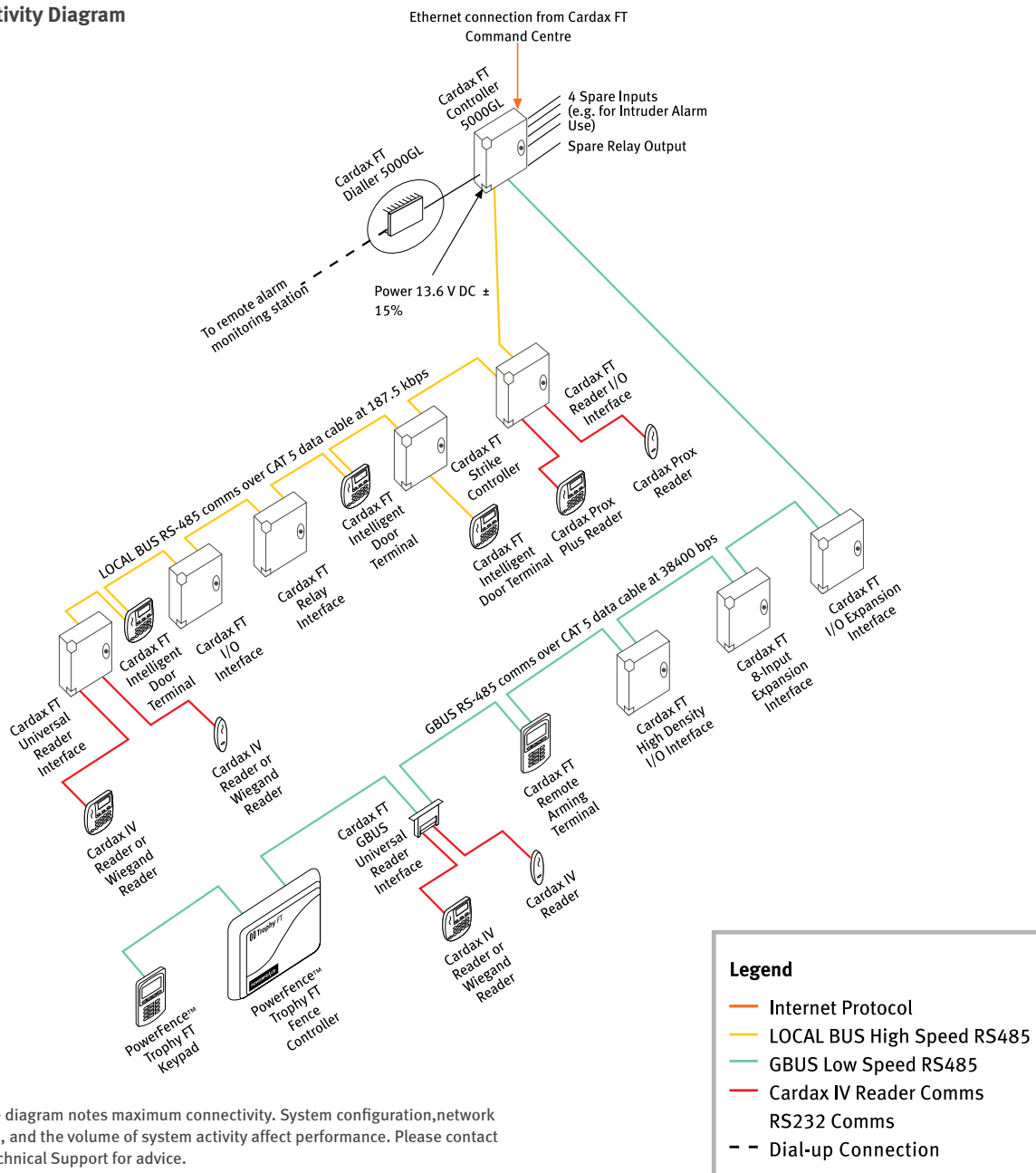
### Cardax FT Controller API

Events can be sent to and received from third party systems with the Cardax FT Controller 5000GL using the Cardax FT Controller Application Programming Interface (API). It is ideal for high level interfaces to third party systems such as DVR and duress systems. Contact us for more information.

### Controller Logic

Cardax FT Controller 5000GL provides the ability to trigger outputs based on programmable logic base rules. Potential uses include switching lighting, setting alarm or fence zones or triggering alarms based on a number of variables occurring. All logic decisions take place at the controller, independently of the Cardax FT server.

## Connectivity Diagram



The above diagram notes maximum connectivity. System configuration, network capacities, and the volume of system activity affect performance. Please contact Cardax Technical Support for advice.

**Clock**

The Cardax FT Controller 5000GL contains its own battery backed real-time clock. The clock is synchronised with Cardax FT Command Centre at least once per hour.

**Managing Different Time Zones and Daylight Savings**

When the system is configured, each Cardax FT Controller 5000GL is assigned an international time zone, relative to Co-ordinated Universal Time (UTC). This includes daylight savings settings. The system records the local time an event is registered at the Cardax FT Controller 5000GL and the time is logged at the Cardax FT Command Centre server.

**Power Supply Required**

The Cardax FT Controller 5000GL runs on 13.6V DC  $\pm$  15% allowing a standard battery backed 12V power supply to be used. The system monitors the power supply for power low, power high and power fail.

**Cardax FT Cabinets**

Two Cardax FT Cabinets are available to accommodate the Cardax FT Controller 5000GL and I/O Devices:

- Cardax FT Cabinet
- Cardax FT Dual Cabinet

The Cardax FT Dual Cabinet is available with or without a power supply.

Refer to the Cardax FT Cabinets data sheet for further information.

# Cardax FT Dialler 5000GL

## Cardax FT Dialler 5000GL

The Cardax FT Dialler 5000GL enables remote alarms management in conjunction with either the Cardax FT Command Centre – the head-end of the system, or with an alarm monitoring company.

The Cardax FT Dialler 5000GL also enables an on-demand connection between the Cardax FT Command Centre and remote Cardax FT Controller 5000GL, for configuration and security management.

The Cardax FT Dialler 5000GL and Cardax FT Controller 5000GL can be configured to dial via both of these methods on the occurrence of an alarm.

## Communications

The Cardax FT Dialler 5000GL dials out to the Cardax FT Command Centre or the alarm monitoring station over telephone lines. Importantly, the Cardax FT Dialler 5000GL is able to seize the phone line to transmit alarms, when the line is shared with a normal phone or other device.

The peer-to-peer communications between Cardax FT Controllers enables

a Controller fitted with a Cardax FT Dialler 5000GL to support off-site alarm monitoring and operate as a back-up dialler for other Cardax FT Controllers (6000, 3000 and 5000GL) on site.

Contact ID Protocol is supported for off-site alarms monitoring.

The Cardax FT Dialler 5000GL facilitates off-site monitoring by transmitting alarms to remote monitoring stations using industry-standard Contact ID data format.

Using Contact ID, the Cardax FT Dialler 5000GL can be configured to:

- Dial on the occurrence of specific alarms or events
- Provide periodic test transmissions (24 hour test and configurable line test)
- Dial on the arming (setting) / disarming (unsetting) of alarm zones.

## Dial-up Connection to Cardax FT Command Centre

The Cardax FT Dialler 5000GL can be used to facilitate communications between the Cardax FT Command Centre server and Cardax FT Controllers located at remote sites. This dial-up

connection can be used for remote site configuration including access control for cardholders and alarm configuration.

The Cardax FT Dialler 5000GL will dial-up on demand, for example when an alarm occurs or when the event buffer of the Cardax FT Controller reaches a pre-defined threshold.

## Configuration

Remote alarms monitoring using the Contact ID protocol and the dial-up connection to the server are set up in the Cardax FT Command Centre.

They can both be configured to dial on the occurrence of an alarm. In this scenario, dial-up to a remote alarm monitoring station occurs first followed up with dial-up to the server.

## Housing and Power

Each Cardax FT Dialler 5000GL is mounted on top of its respective Cardax FT Controller, which is housed in the Cardax FT Cabinet.

## Cardax FT Dialler 5000GL



September 2009

**TECHNICAL SPECIFICATIONS**

**Cardax FT Controller 5000GL**

**Data Configuration and Storage per Cardax FT Controller 5000GL**

The specifications listed below are indicative only. Some items may vary depending on size of data and configuration.

Recommended max. number of doors (software configuration)	8
Max. number of Access Zones	16
Max. number of Alarm Zones	256
Capacity of unprocessed alarms buffer	100
Recommended max. number of Access Groups	2,000
Recommended max. number of Time Schedules	200
Number of cardholders	Default 60,000. Can be configured up to 92,000*
Number of events	Default 20,000. Can be configured up to 44,000*

\* Number of cardholders and events is determined by the cardholder/event ratio

**Power Supply**

Voltage	13.6 volts DC ± 15%
Current	350 mA

**Inputs/Outputs**

4-State balanced inputs	Default using dual 4k7 ohm termination resistors, configurable
Relay Outputs	Dry contact relays (c/o contacts)

**Relay Specifications**

Resistive load	3 Amps at 24V DC/AC
Inductive load	1 Amp at 24V DC/AC

**Device Communications**

Between Cardax FT Controller 5000GL & GBUS Devices	RS485 at 38.4 Kbits per second
Between Cardax FT Controller 5000GL & LOCAL BUS Devices	RS485 at 187.5 Kbits per second
Wiring format – data	2 wire (using Cat5)
Wiring format – power	2 wire (gauge selected to suit cable length)
Maximum distance - GBUS	1200 m
- LOCAL BUS	500 m

**Network Communications**

Network connection	10BaseT Ethernet port
Network protocol	TCP/IP

**Dial-Up Communications**

Dial up modem	Cardax FT Dialler 5000GL operating PPP protocol
Network service	PPP protocol using PSTN (telephone line) connection
Alarm Monitoring Service	Contact ID protocol using PSTN (telephone line) connection

**On-board Inputs/Outputs**

4-State balanced inputs	4
Relay Outputs	1

**Ports\***

RS485 Ports - GBUS/LOCAL BUS	1 x GBUS and 1 x LOCAL BUS (with 2 channels) OR 2 x GBUS and 0 x LOCAL BUS
GBUS Port	8 GBUS I/O Devices (including GBUS Universal Reader Interface for reader connections) and 4 Cardax FT Remote Arming Terminals (GBUS Device) and 8 PowerFence™ Trophy FT Fence Controllers
LOCAL BUS Port	Supports 16 LOCAL BUS Devices or converts to a second GBUS port

\* GSMS recommends that the following parameters are not exceeded:  
8 doors, running at a maximum of 2 transactions per second while using 2 Cardax FT Remote Arming Terminals

**Shipping Weight**

Cardax FT Controller 5000GL in Cardax FT Cabinet (nominal)	1862 gm
Cardax FT Controller 5000GL (PCB only)	360 gm



October 2009

**TECHNICAL SPECIFICATIONS**

**Cardax FT Cabinets**

refer to **Cardax FT Cabinets Datasheet**

Compliance Standards

All equipment complies with CE, C-Tick and FCC approvals. Please contact Gallagher Security Management Systems for the latest list of approvals. In order to comply with international standards, all Cardax FT units must be installed in Cardax FT Cabinets following the directions in the installation instructions.



ACN 002132943

**TECHNICAL SPECIFICATIONS**

**Cardax FT Dialler 5000GL**

**Dimensions**

Cardax FT Dialler 5000GL

65 X 25mm

**Power Supply**

13.6V ± 15%, 300mA

**Temperature Range**

-10 to +55°C

**EMC Standards**

EN 50130-4

EN 55022

**Mounting**

Cardax FT Dialler 5000GL plugs directly into the Cardax FT Controller 5000GL PCB

**Communication**

RS232

**Compliance Standards**

NZ Telepermit, A-Tick, C-Tick, CE



ACN 002132943



**Part Number**

Dialler 5000GL

C200640

System configuration, network capacities, and the volume of system activity affect performance. Please contact Gallagher Security Management Systems for advice.



**www.gallaghersms.com**

**Gallagher Security Management Systems**

Kahikatea Drive, Hamilton 3206  
Private Bag 3026, Hamilton 3240  
New Zealand  
Phone: +64-7-838 9800  
Fax: +64-7-838 9801  
Email: cdxsales@cardax.com

**Offices and Representatives are located in:**

Asia	Middle East
Australia	New Zealand
Canada	South Africa
Central America	South America
China	United Kingdom
Europe	United States of America



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Part No: 3E1342 - 10/09  
Part No. USA: 3E1342US