Product and Solution Guide

Issue 1

Contents

1 Introduction

Comelit-PAC is the specialised Access Control division within Comelit, with over 60 years' experience in designing and manufacturing security products. Working closely in partnership with consultant engineers, architect partners, distributors, and installers, enables the PAC products to be continually developed to meet the requirements of the access control market and its associated legislation.

GDX has over 35 years' experience in designing and manufacturing Door Entry and Access Control products. Working closely in partnership with an extensive list of local government, housing associations, consultants, and architect partners. GDX continually develops its products to meet all the requirements for the door entry market, along with meeting all the associated legislation.

The GDX Door Entry range has been designed to provide unbeatable reliability and robust functionality, to continually exceed the rigorous demands of the end-user and commercial market sectors. Combined with elegant styling it is designed to provide a high level of user functionality.

With a focus on reliability and ease of installation & maintenance, we offer door entry solutions that deliver affordable door entry security for the customer. Available are targeted options, this is to enable the GDX door entry system to be tailored to suit the customer requirements.

The GDX range of equipment is supplied exclusively through authorised GDX distributors, dealers, and installers. This supports quality design, installation, and in-life maintenance to ensure a great customer experience. Please contact Comelit-PAC Customer Services for details of approved suppliers.

Email: pacgdxcustomerservice@comelit-pac.co.uk

Telephone: 0161 406 3400 opt. 1

Comelit-PAC offers a full range of design support services to our customers and approved installers. We have an experienced sales and support team based throughout the UK who are available to offer no obligation support, help & advice on all aspects of the following:

- Pre-Sales Systems Design
- Tender & Specification Support
- Technical & Site Survey Support

If you wish to discuss your requirements on any matter related to the GDX product range, please contact Customer Services to request contact details for your local support representative.

2 GDX Overview

The GDX product range is a well-established suite of products that provides a high-quality secure door entry solution with integrated access control for the end-user and commercial markets.

GDX Door entry is a solution that enables buildings or locations (such as main entry into a building, car park, bin store, etc) to be electronically secured at points of entry that enables:

- End-user and staff access through optional access control with unique secure ID Devices (electronic keys) to gain entry.
- Visitor access through placing audio or video calls at Entrance Panels to defined addresses within the building. Authentication of the visitor and remote door unlocking for visitor access is then in the hands of the tenant or staff member.

Step 1:
Resident approaches door/entrance to find the control reader.

Step 2:
Token device presented to the access control reader.

Step 3:
Token device validated and door is unlocked to allow access.

Step 2: Call accepted by resident. Visitor is identified/not identified.

Step 1:
Audio or video call is made from door entry panel direct to resident's home.

Access granted:
The door/entrance is released via a door unlock function.

OR

Access denied:
Door/entrance remains locked to visitor to restrict access.

Figure 1 – GDX Door Entry Process Flow

3 GDX Architecture

3.1 Overview

GDX door entry solutions have a flexible and modular approach to securing the perimeter of properties that delivers:

- On-site system that scales from low-rise to high-rise multi-tenanted buildings.
- Management options that link on-site systems into a multi-site 'global' system.
- Door control for electronically securing doors to multi-tenanted buildings.
- Closed calling system for visitors to request access. Available in audio and video options.
- In-built access control option for tenant/staff access.
- Optional concierge solution for centralised end-user/visitor support.
- Configuration and management options:
    - o Locally managed – configure and make changes through the Entrance Panel hardware.
    - o Remotely managed – centralised software management for remote configuration and keyholder management of access control.
- Reporting of door open events and calls for tracking/auditing property use.

Figure 2, below, provides an architectural overview of a GDX door entry solution, including components and connectivity options.
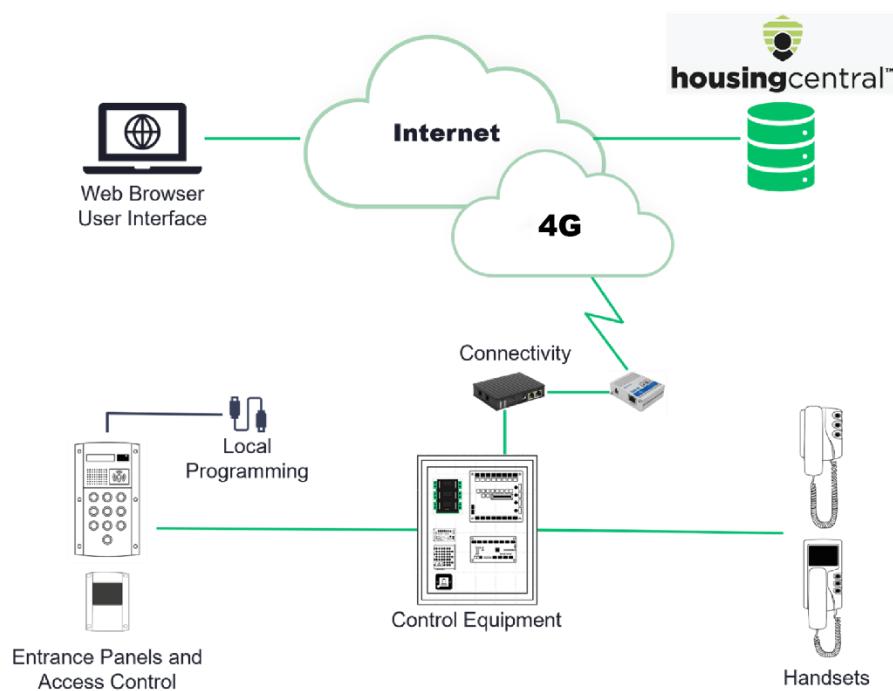

Figure 2 - GDX Architecture

The common elements for all GDX systems are:

- **Entrance Equipment** – providing door control, access control and visitor calling functions through Entrance Panels and access control products.
- **Control Equipment** – powers, controls, and connects all entrance/door equipment and handsets for call control, system communications and management connectivity. Options enable scaling from 8-line systems to 224-line systems.
- **Handsets** – end-user devices for receiving calls (visitor and/or concierge) and remotely unlocking secured entrances.
- **Connectivity** – networking options for remote management include customer provided internet connectivity or GDX provided mobile broadband connectivity for reliable communications from Housing Central™ to on-site equipment for configuration, reporting and keyholder management.
- **Management** – supported through local programming or via a fully managed cloud-hosted Housing Central™ system.

3.2 GDX5 Audio

GDX5 Audio systems support audio calling across the GDX system in the following system variants:

- **2Audio** – supports 2 simultaneous audio calls across a GDX system. Designed for low-rise buildings that only require visitor calling at 2 entrances. Further entrances can be secured through access control readers for added security.
- **7Audio** – supports 7 simultaneous audio calls across a GDX system. Designed for high-rise buildings with up to 7 entrances supporting visitor calling and access. Further entrances can be secured through access control readers for added security.

The GDX5 control equipment is designated as 2Audio or 7Audio and differ only in the scalability of the number of entrances or handsets that can be directly connected.
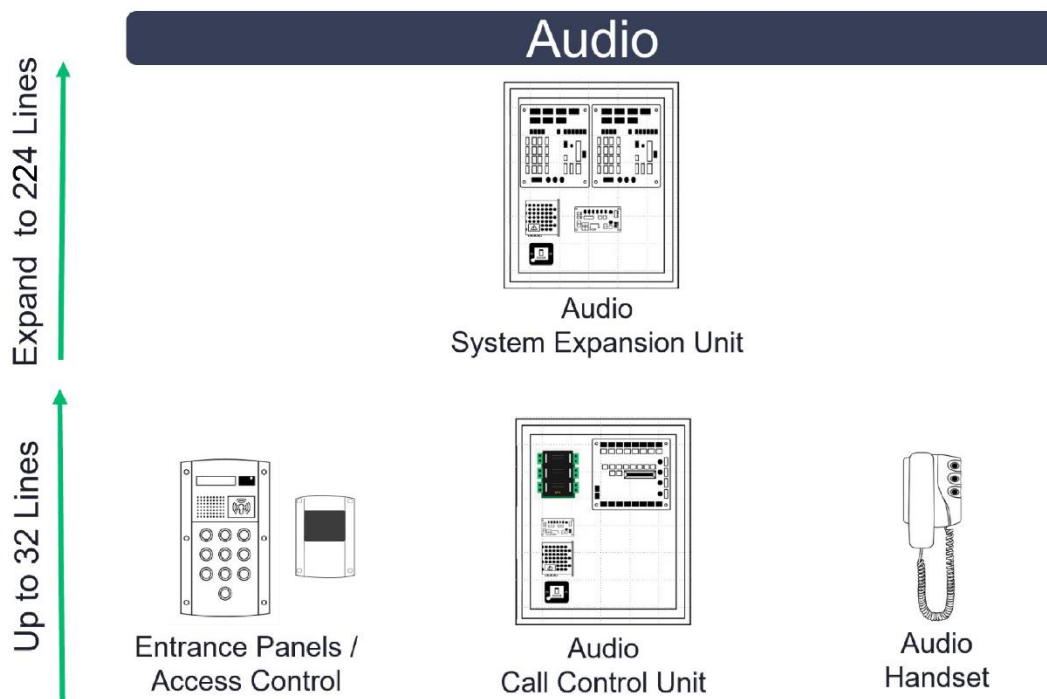
Figure 3 - GDX5 Audio System Overview

3.3 GDX5 Video

GDX5 Video systems support video calling across the GDX system in the following system variants:

- 2Audio with Video – supports 2 simultaneous video calls across a GDX system. Designed for low-rise buildings that only require visitor calling at 2 entrances. Further entrances can be secured through access control readers for added security.
- 7Audio with Video – supports 4 simultaneous video calls across a GDX system. Designed for high-rise buildings with up to 7 entrances supporting visitor calling and access. Further entrances can be secured through access control readers for added security.

The GDX5 control equipment is designated as 2Audio/4Video or 7Audio/4Video and differ only in the scalability of the number of entrances or handsets that can be directly connected.
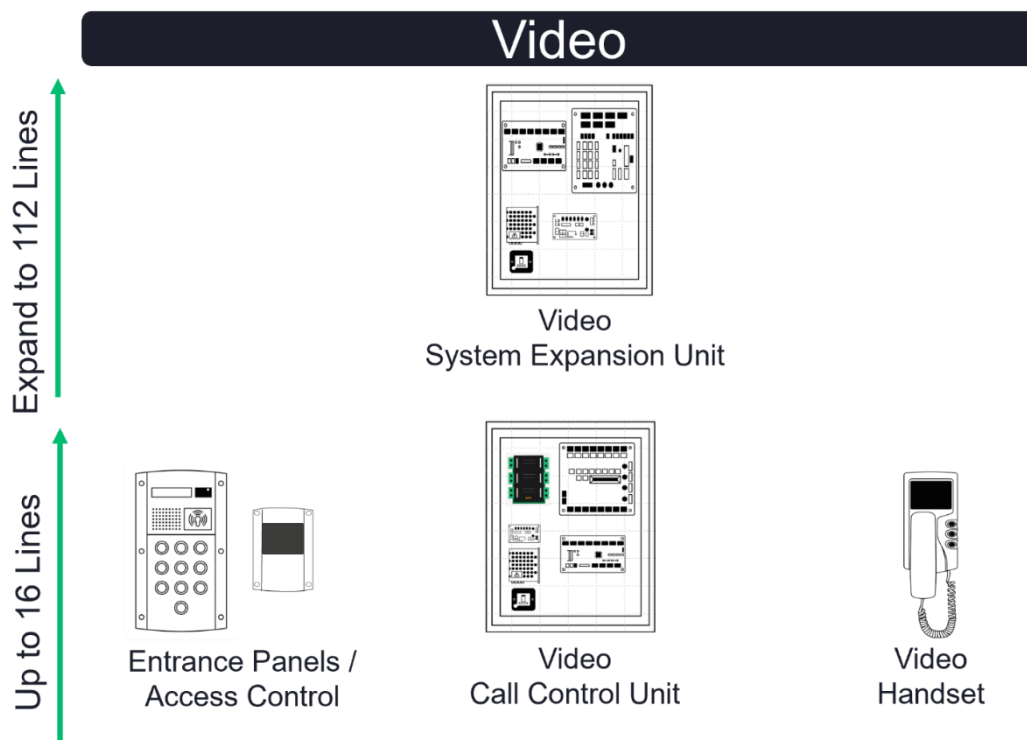

Figure 4 - GDX5 Video System Overview

4 GDX Products

The following sections provide details on all the components used in GDX systems.

4.1 Entrance Equipment

GDX equipment used at entrances to buildings help secure the property and enable visitor calling, door control and access control through a variety of product options. The following sections detail the options available.

4.1.1 Entrance Panels

The GDX5 Entrance Panel is a high-quality door entry panel that has been designed and manufactured to withstand the harshest and most demanding of environments. The GDX5 Entrance Panel has an anti-vandal design which meets requirements for deploying in urban areas either at the entrance to properties or remote locations such as car park barriers or help points.

With an ease of installation and maintenance in mind, the panel is provided fully assembled with customer defined options available at time of order. The Entrance Panel design supports in-life maintenance through modular and replaceable components with easy access through an internal hinged chassis which holds the electronic circuitry including the external wiring connections.

The Entrance Panel comes in two styles, Compact and Mitre Bezel:

- The mitre bezel panel is provided with a flush mounted backbox which fully surrounds the faceplate to offer very high protection from vandalism.
- The compact panel is available in flush mounted (standard) or surface mounted (option) and can also be provided with a surface mounted stainless-steel backbox.

The following diagrams show the two Entrance Panel styles:

Figure 5 – GDX5 Mitre Bezel Entrance Panel
(Including yellow bezels and braille engraving options)

Figure 6 – GDX5 Compact Entrance Panel

The Entrance Panel supports multiple functions as the focal point at the main entrance to the building. From access control for end-users to call and remote door unlock functions for visitors.

The following sections provide details on all the standard functionality of the Entrance Panels (both mitre bezel and compact) as well as the options that are available to order or configure.

4.1.1.1 Design Functions

- 1 button to 15 button variants with user definable engraved labels per button (up to 6 characters per button).
- The Entrance Panels are manufactured from 2.5mm stainless-steel conforming to BS1449 Type 316.
- The Entrance Panel faceplate is secured to the back box with × 6 tamper-proof stainless-steel Mono-Drive® 5 high security screws.
- The stainless-steel Entrance Panel buttons are rated to IP66 standard.
- All electronic components within the Entrance Panel are mounted on a removable plastic hinged chassis, enabling easy access for wiring, installation & maintenance.
- For ease of installation and maintenance all internal and external cables within the Entrance Panel are connected by removable plug-in terminal blocks.
- High visibility engraved operating instructions and customer defined engraved address information is supported at time of order.
- The Entrance Panel contains a backlit LCD screen which provides the following information for call and general system status reports:
  - o System Ready
  - o Handset In Privacy
  - o Handset Engaged
  - o Call Answered
  - o Call Completed
  - o Door Open
  - o Fire Access

- o Service Access
- o Service Denied
- o Flat Call
- Three styles of stainless-steel Entrance Panel are available to best suit the local environment:
    - o Flush Mounted Mitred Bezel
    - o Flush Mounted Compact
    - o Surface Mounted Compact
- Entrance Panels have the following configuration option:
    - o Functional operation – each button is configured and dedicated to a specific address. A single button push will initiate a call to that address. Maximum 15 buttons are available on the functional Entrance Panel.
    - o Digital operation – 12 or 13 button panels with a standard keypad layout for 0-9, Call and Cancel, Service or Trade button operation as well as 14 and 15 button panels. The visitor is required to dial the address needed and place the call through the keypad operation.

4.1.1.2 Call Functions

- A visitor requests access to the property by using the Entrance Panel to make a call to the appropriate end-user.
- An audible tone sounds at the Entrance Panel on each button push.
- The tenant's handset is used to answer a visitor call initiated from the Entrance Panel. A full duplex conversation is then supported before the end-user can admit the visitor, if they wish to do so, by selecting the lock release button on the handset.
- The audio call and door lock release functions on the Handset shall only become active after a call is successfully made from the Entrance Panel.
- The call will be between the Entrance Panel and specific Audio Handset, no crosstalk or overhearing from other handsets on the system is possible.
- The call from the Entrance Panel to the Handset will last for a pre-set duration before timing out. The call time duration is configurable.
- The pre-answer call duration period, before an unanswered call is reset by the system, is configurable within the range of 1 to 99 seconds.
- The post-answer call duration period, before an answered call is reset by the system, is configurable within the range of 1 to 99 seconds.
- The call tone duration at the handset, after a call button has been pressed, is configurable within the range of 1 to 20 seconds.
- Speech volume at the Entrance Panel is programmable to suit local requirements.

4.1.1.3 Door Control Functions

- If the resident releases the door lock, an audible tone sounds at the Entrance Panel as confirmation of the lock release.
- The Entrance Panel provides visual confirmation for the visitor of the lock release by displaying "Door Open" on the LCD screen.
- The door lock release period is configurable within the range of 1 to 20 seconds.
- If the door locking system is fitted with door contacts, the system shall automatically detect when the door is in a closed position and engage the door locking system to prevent visitor tailgating.
- An optional door monitoring facility is available that provides a visual alert on the relevant Handset if the door remains open past a programmed time. This time is configurable between 1 to 99 minutes.
- A Service or Trades Button option on the Entrance Panel can allow access to the property for delivery of mail, papers, etc. This can be programmed to activate at set times of the day (up to a

maximum of 2 periods) on a day-by-day basis and is activated through a dedicated Service/Trade button on the Entrance Panel.

- The electronic time clock within the Entrance Panel has automatic BST/GMT adjustment to avoid the need to manually change time settings.

4.1.1.4 Access Control Options

Please see Section 4.4.1.1

4.1.1.5 Equality Act Options

- The Entrance Panel is Equality Act (previously known as Disability Discrimination Act) compliant. It should be mounted and positioned to take into consideration all requirements and guidelines within the Equality Act and any other relevant codes of practice.
- The Entrance Panels shall incorporate Raster™ Braille for all button numbers and block addresses engraved on the Entrance Panel for the benefit of visually impaired visitors.
- Raster™ Braille is a patented technology for braille signage that produces braille with perfectly rounded domed Braille dots, that complies with all the latest standards and codes.
- As a visual aid the Entrance Panel buttons can be provided with bright yellow bezels to make them highly visible.
- The yellow bezels consist of a vandal resistant baked enamel coating for durability.
- A hard-of-hearing induction loop can be added (as a standalone option) to any Entrance Panel. This provides a signal to users with hearing aids set to the 'T' (Telecoil) setting that enhances calls and audible tones from the system.

4.1.2 Entrance Options

Options to expand the GDX5 systems for secured entrances are covered in the following sections.

4.1.2.1 Access Control Readers

- Standalone vandal resistant readers are available for doors/entrances that do not require support for visitor calling.
- The access control readers are provided in 2 options:
  - Low Frequency RFid technology
  - High Frequency RFid technology
- The access control reader is vandal resistant with a metal housing incorporating a high impact polycarbonate lexan window.
- The lexan window incorporates contrasting colours for Equality Act compliance.
- The standalone access control reader supports up to 1000 ID Devices.
- The standalone access control reader provides the following audible verification upon presentation of a fob for user reassurance:
  - Valid Fob – tone for release duration to indicate door release.
  - Invalid Fob – single bleep to indicate fob read but invalid.

The following diagrams show these standalone readers.

Figure 7 – GDX5 Standalone Access Control Reader

4.1.2.2 Fire Switches

- A purpose designed mechanical key switch provides over-ride access for authorised emergency services personnel in case of an emergency.
- Fire Switches are provided in a stainless-steel vandal resistant housing manufactured from 2.5mm Type 316 stainless-steel conforming to BS1449.
- Fire Switches are available in two options:
  - Flush Mounted
  - Surface Mounted

4.1.2.3 Exit Devices

- Exit Devices provide a user activated door unlocking function that enables exit from the secure side of the secured door/entrance.
- Options for Exit Devices range from Push Button to Handsfree as per the following sections:

4.1.2.3.1   Stainless Steel Push Button Exit Device

3 variants of Stainless-Steel Push Button Exit Devices are detailed in the following table:

Single Gang – provided with a 25mm stainless-steel vandal resistant button. Conforms to IP66 standards for indoor/outdoor use.	
Single Gang with yellow bezel – provided with a 25mm stainless-steel vandal resistant button with a bright yellow bezel around the exit button. This yellow bezel consists of a vandal resistant baked enamel coating for durability and Equality Act compliance. Conforms to IP66 standards for indoor/outdoor use.	
Architrave – provided with a 20mm stainless-steel vandal resistant push button. Conforms to IP66 standards for indoor/outdoor use.	

4.1.2.3.2   Hands-Free

Provided with an infrared (IR) sensor within a stainless-steel housing, that is activated when a hand is waved in front of the sensor. Indoor use only.

Figure 8 – Hands-Free Exit Device

4.2 Control Equipment

The GDX5 control equipment provides all calls, wiring terminations and power across the GDX system. The following sections provide details on the GDX5 control equipment that supports GDX5 Audio and GDX5 Video systems.

4.2.1   GDX5 Audio

4.2.1.1   Audio Call Control Units

GDX5 Audio Call Control Units (CCU) are the central control system that directly terminates Lines and Entrance Panels as well as providing system power. The CCU's are available in 4 options:

- 2Audio 8-Line CCU
- 2Audio 16-Line CCU
- 7Audio 8-Line CCU
- 7Audio 16-Line CCU

Each CCU is provided as follows:

- Quality, lockable metal enclosure
- Backplate with standardised layout of all related control equipment
- Fused Spur for power input
- Power Supply for providing GDX system power
- Battery Charging unit for battery charging and enabling battery power to be used for the system in the event of a power failure
- Audio Line card for centralised call management and directly terminating lines and entrance panels (when a System Expansion Unit is not being used)
- Space for an optional PAC Access Controller when enhanced access control is required

The following figure shows a CCU within its enclosure.

Figure 9 – GDX5 Audio Call Control Unit

4.2.1.1.1   Functionality

- The CCU is available in four variants:
  - 2Audio 8-Line – supporting up to 8 Audio Lines (up to 2 handsets per line), 2 simultaneous audio calls and 2 secured entrances (entrance panels or standalone access control readers).
  - 2Audio 16-Line – supporting up to 16 Audio Lines (up to 2 handsets per line), 2 simultaneous audio calls and 2 secured entrances (entrance panels or standalone access control readers).
  - 7Audio 8-Line – supporting up to 8 Audio Lines (up to 2 handsets per line), 7 simultaneous audio calls and 4 secured entrances (entrance panels or standalone access control readers).
  - 7Audio 16-Line – supporting up to 16 Audio Lines (up to 2 handsets per line), 7 simultaneous audio calls and 4 secured entrances (entrance panels or standalone access control readers).
- The CCU provides:
  - The audio call connection between the Entrance Panel and the Audio Handset.
  - The Door unlock signal from the Audio Handset to the Entrance Panel.
- Audio Handsets are fully isolated ensuring complete privacy of speech between the handset and Entrance Panel, so it is not possible for any other handset on the system to overhear a call.
- The handsets registered to the CCU are protected by a self-resetting electronic fuse. Should a fault develop in an Audio Handset the electronic fuse disconnects the handset from the system. All other handsets connected to the system continue to operate as per normal. When the fault is cleared from the system the fuse will automatically reset, enabling the Audio Handset to return to an active state.
- Audio Handsets connected to the CCU are continuously monitored. An LCD display on the Line Card provides a visual indication of the status of each connected handset for ease of maintenance and trouble shooting.
- The CCU also controls the signal to the Entrance Panel to unlock the door when the resident presses the Enter button during a call.
- The door unlock output is powered by a 12V DC signal and is protected by a 1.6 Amp slow blow glass fuse.
- The CCU supports the following door lock functions via jumper configuration:
  - 'Normally open' (fail safe).
  - 'Normally closed' (fail secure).
- Supports a Door contact connection for providing system alerts when a door is forced or left open.
- Supports a Fire switch connection for manual over-ride by authorised emergency personnel.
- Supports a Request To Exit (RTE) connection for a door to be unlocked from the secure side when exiting the building via an Exit Device.

4.2.1.1.2   Installation and specifications

- The CCU is housed in a durable lockable sheet steel metal enclosure suitable for wall mounting.
- The enclosure is rated to IP66 indoor/outdoor standard.
- The enclosure is H 600 x W 400 x D 100mm.
- The enclosure is supplied in a polyester powder coated finish.
- The enclosure is secured by two high security barrel type key locks.
- All equipment in the enclosure (Line Card, Battery Charging Unit, PSU and mains isolation devices) are mounted on a removable galvanised sheet steel metal chassis plate for ease of system installation.

- The CCU is provided with the following pre-wired power equipment for a single, easy to install solution:
  - A 230V AC mains Low Voltage DC Power Supply Unit (PSU) to power all necessary system components and ancillaries.
  - The PSU is isolated by a fused double pole mains isolation spur to BS 5733 standard.
  - A battery backup charging module with leads for battery connection.
- Internal and external cables into the CCU are via removable plug-in connectors for ease of installation and maintenance.
- A battery backup charging facility enables normal system operation during a mains power outage or disruption. In the event of a mains supply failure a visual indication shall be provided on the charging facility to indicate that the system is currently being supported by standby batteries.
- To prevent permanent damage to the standby batteries resulting from a complete discharge of the batteries, the charging facility will automatically monitor the battery levels and remove the system from standby battery power if such critical levels are reached.

4.2.1.2   Audio System Expansion Units

GDX5 Audio System Expansion Units (SEU) provide expansion of the control system to enable system sizes of 16 to 224 Lines. Each SEU directly terminates and powers Entrance Panels, as well as providing call switching to directly connected Call Control Units. The Audio SEU's are available in 2 options:

- 2Audio 112-Line SEU
- 1Audio 224-Line SEU

Each SEU is provided as follows:

- Quality, lockable metal enclosure
- Backplate with standardised layout of all related control equipment
- Fused Spur for power input
- Power Supply for providing GDX system power
- Battery Charging unit for battery charging and enabling battery power to be used for the system in the event of a power failure
- Audio Distribution cards for call management and directly terminating CCUs and entrance panels
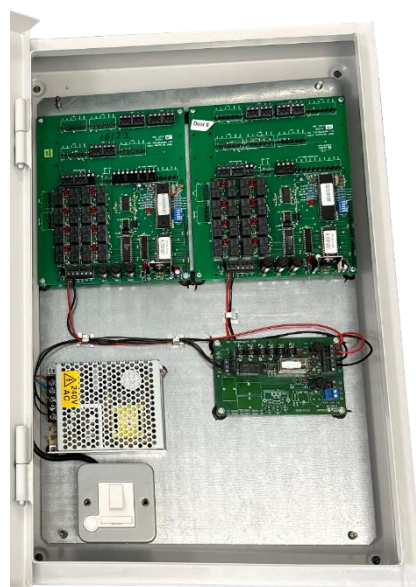
Figure 10 – GDX5 Audio System Expansion Unit

4.2.1.2.1   Functionality

- The SEU is available in two variants:
    - 2Audio 112-Line – supporting up to 2 Audio Channels, 7 CCU connections and 2 Entrances (entrance panels or standalone access control readers). Pre-programmed to support GDX5 audio systems up to 112 Lines.
    - 1Audio 224-Line – supporting up to 1 Audio Channel, 14 CCU connections and 2 Entrances (1 entrance panels and 1 standalone access control reader). Pre-programmed to support GDX5 audio systems up to 224 Lines.
- The SEU provides:
    - The audio call connection between the Entrance Panel and CCU's for onward connection to destination handsets
    - The Door unlock signal from the CCU to the Entrance Panel
- The door unlock output is powered by a 12V DC signal and is protected by a 1.6 Amp slow blow glass fuse.
- The SEU supports the following door lock functions via jumper configuration:
    - 'Normally open' (fail safe).
    - 'Normally closed' (fail secure).
- Supports a Door contact connection for providing system alerts when a door is forced or left open.
- Supports a Fire switch connection for manual over-ride by authorised emergency personnel.
- Supports a Request To Exit (RTE) connection for a door to be unlocked from the secure side when exiting the building via an Exit Device.

4.2.1.2.2   Installation and Specifications

- The SEU is housed in a durable lockable sheet steel metal enclosure suitable for wall mounting.
- The enclosure is rated to IP66 indoor/outdoor standard.
- The enclosure is H 600 x W 400 x D 100mm.
- The enclosure is supplied in a polyester powder coated finish.
- The enclosure is secured by two high security barrel type key locks.
- All equipment in the enclosure (Distribution Cards, Battery Charging Unit, PSU and mains isolation devices) are mounted on a removable galvanised sheet steel metal chassis plate for ease of system installation.
- The SEU is provided with the following pre-wired power equipment for a single, easy to install solution:
    - A 230V AC mains Low Voltage DC Power Supply Unit (PSU) to power all necessary system components and ancillaries.
    - The PSU is isolated by a fused double pole mains isolation spur to BS 5733 standard.
    - A battery backup charging module with leads for battery connection.
- Internal and external cables into the SEU are via removable plug-in connectors for ease of installation and maintenance.
- A battery backup charging facility enables normal system operation during a mains power outage or disruption. In the event of a mains supply failure a visual indication shall be provided on the charging facility to indicate that the system is currently being supported by standby batteries.
- To prevent permanent damage to the standby batteries resulting from a complete discharge of the batteries, the charging facility will automatically monitor the battery levels and remove the system from standby battery power if such critical levels are reached

4.2.2 GDX5 Video

4.2.2.1 Video Call Control Units

GDX5 Video Call Control Units (CCU) are the central control system that directly terminates Lines and Entrance Panels as well as providing system power. The CCU's come in two options:

- 2Audio with Video 8-Line CCU
- 7Audio with Video 8-Line CCU

Each CCU is provided as follows:

- Quality, lockable metal enclosure
- Backplate with standardised layout of all related control equipment
- Fused Spur for power input
- Power Supply for providing GDX system power
- Battery Charging unit for battery charging and enabling battery power to be used for the system in the event of a power failure
- Audio Line card for centralised call management and directly terminating lines and entrance panels (when a System Expansion Unit is not being used)
- Space for an optional PAC Access Controller when enhanced access control is required

Figure 11 – GDX5 Video Call Control Unit

4.2.2.1.1　Functionality

- The CCU is available in two variants:
  - 2Audio with Video 8-Line – supporting up to 8 Video handsets (one main video handset plus one secondary audio-only handset per residence), up to 2 simultaneous video calls (1 per entrance panel). If only 1 entrance panel is installed an additional standalone access control reader can also be fitted.
  - 7Audio with Video 8-Line – supporting up to 8 Video handsets (one main video handset plus one secondary audio-only handset per residence) up to 4 simultaneous video calls (1 per entrance panel). For each standalone access control reader required, you must reduce the number of entrance panels accordingly.
- The CCU provides:
  - The video call connection between the Entrance Panel and the Video Handset.
  - The Door unlock signal from the Video Handset to the Entrance Panel.
- Video Handsets are fully isolated ensuring complete privacy of speech between the handset and Entrance Panel, so it is not possible for any other handset on the system to overhear a call.
- The handsets registered to the CCU are protected by a self-resetting electronic fuse. Should a fault develop in a Video Handset the electronic fuse disconnects the handset from the system. All other handsets connected to the system continue to operate as per normal. When the fault is cleared from the system the fuse will automatically reset, enabling the Video Handset to return to an active state.
- Video Handsets connected to the CCU are continuously monitored. An LCD display on the Line Card provides a visual indication of the status of each connected handset for ease of maintenance and trouble shooting.
- The CCU also controls the signal to the Entrance Panel to unlock the door when the resident presses the Enter button during a call.
- The door unlock output is powered by a 12V DC signal and is protected by a 1.6 Amp slow blow glass fuse.
- The CCU supports the following door lock functions via jumper configuration:
  - 'Normally open' (fail safe).
  - 'Normally closed' (fail secure).
- Supports a Door contact connection for providing system alerts when a door is forced or left open.
- Supports a Fire switch connection for manual over-ride by authorised emergency personnel.
- Supports a Request To Exit (RTE) connection for a door to be unlocked from the secure side when exiting the building via an Exit Device.

4.2.2.1.2　Installation and Specifications

- The CCU is housed in a durable lockable sheet steel metal enclosure suitable for wall mounting.
- The enclosure is rated to IP66 indoor/outdoor standard.
- The enclosure is H 600 x W 400 x D 100mm.
- The enclosure is supplied in a polyester powder coated finish.
- The enclosure is secured by two high security barrel type key locks.
- All equipment in the enclosure (Line Card, Battery Charging Unit, PSU and mains isolation devices) are mounted on a removable galvanised sheet steel metal chassis plate for ease of system installation.
- The CCU is provided with the following pre-wired power equipment for a single, easy to install solution:
  - A 230V AC mains Low Voltage DC Power Supply Unit (PSU) to power all necessary system components and ancillaries.
  - The PSU is isolated by a fused double pole mains isolation spur to BS 5733 standard.
  - A battery backup charging module with leads for battery connection.
- Internal and external cables into the CCU are via removable plug-in connectors for ease of installation and maintenance.

- A battery backup charging facility enables normal system operation during a mains power outage or disruption. In the event of a mains supply failure a visual indication shall be provided on the charging facility to indicate that the system is currently being supported by standby batteries.
- To prevent permanent damage to the standby batteries resulting from a complete discharge of the batteries, the charging facility will automatically monitor the battery levels and remove the system from standby battery power if such critical levels are reached.
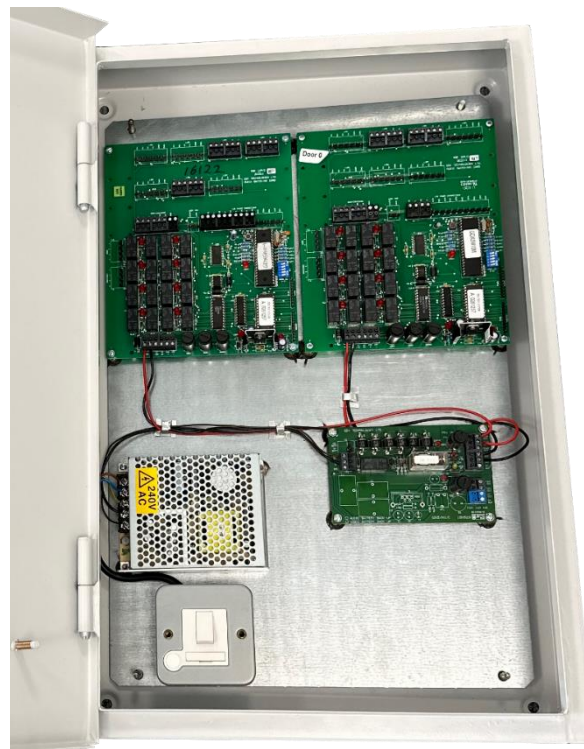
4.2.2.2   Video System Expansion Units

GDX5 Video System Expansion Units (SEU) provide expansion of the control system to enable system sizes of 8 to 56 Lines. Each SEU directly terminates and powers Entrance Panels, as well as providing call switching to directly connected Call Control Units. The GDX5 Video SEU is available in a single option:

- 1Audio & Video 56-Line SEU

The SEU is provided as follows:

- Quality, lockable metal enclosure
- Backplate with standardised layout of all related control equipment
- Fused Spur for power input
- Power Supply for providing GDX system power
- Battery Charging unit for battery charging and enabling battery power to be used for the system in the event of a power failure
- Audio Distribution cards for call management and directly terminating CCUs and entrance panels

Figure 12 – GDX5 Video System Expansion Unit

4.2.2.2.1   Functionality

- The SEU is available as follows:
    - 1Audio & Video 56-Line – supporting up to 1 Audio with Video Channel, 7 CCU connections and 2 entrances (1 entrance panels and 1 standalone access control reader). Pre-programmed to support GDX5 video systems up to 56 Lines.
- The SEU provides:
    - The video call connection between the Entrance Panel and CCUs for onward connection to destination handsets
    - The Door unlock signal from the CCU to the Entrance Panel
- The door unlock output is powered by a 12V DC signal and is protected by a 1.6 Amp slow blow glass fuse.
- The SEU supports the following door lock functions via jumper configuration:
    - 'Normally open' (fail safe).
    - 'Normally closed' (fail secure).
- Supports a Door contact connection for providing system alerts when a door is forced or left open.
- Supports a Fire switch connection for manual over-ride by authorised emergency personnel.
- Supports a Request To Exit (RTE) connection for a door to be unlocked from the secure side when exiting the building via an Exit Device.

4.2.2.2.2   Installation and Specifications

- The SEU is housed in a durable lockable sheet steel metal enclosure suitable for wall mounting.
- The enclosure is rated to IP66 indoor/outdoor standard.
- The enclosure is H 600 x W 400 x D 100mm.
- The enclosure is supplied in a polyester powder coated finish.
- The enclosure is secured by two high security barrel type key locks.
- All equipment in the enclosure (Distribution Cards, Battery Charging Unit, PSU and mains isolation devices) are mounted on a removable galvanised sheet steel metal chassis plate for ease of system installation.
- The SEU is provided with the following pre-wired power equipment for a single, easy to install solution:
    - A 230V AC mains Low Voltage DC Power Supply Unit (PSU) to power all necessary system components and ancillaries.
    - The PSU is isolated by a fused double pole mains isolation spur to BS 5733 standard.
    - A battery backup charging module with leads for battery connection.
- Internal and external cables into the SEU are via removable plug-in connectors for ease of installation and maintenance.
- A battery backup charging facility enables normal system operation during a mains power outage or disruption. In the event of a mains supply failure a visual indication shall be provided on the charging facility to indicate that the system is currently being supported by standby batteries.
- To prevent permanent damage to the standby batteries resulting from a complete discharge of the batteries, the charging facility will automatically monitor the battery levels and remove the system from standby battery power if such critical levels are reached

4.3 Handsets

4.3.1 GDX5 Audio Handset

The Audio Handset is designed to provide reliable audio call and door unlocking functionality. It offers true ease of use with clear user feedback during operation.

There are two variants of the GDX5 Audio Handset:
- 2 button Audio handset with door unlock and privacy functions
- 3 button Audio handset with door unlock, privacy and concierge call functions

Figure 13 – GDX5 2 Button Audio Handset

The following provides the detailed functionality of the GDX5 Audio Handsets:

- The audio handset is manufactured from high quality white UL rated ABS plastic suitable for wall mounting.
- It is designed to be robust with vandal resistant construction.
- The handset incorporates spring loaded mountings within the base of the handset to alleviate any potential mounting or handset operational difficulties due to fixing onto uneven wall surfaces.
- The handset has large 20mm buttons with raised tactile symbols and LED indicators for Equality Act compliance.
- The 2 button Audio Handset has 2 functioning buttons:
  - Privacy button.
  - Enter button.
- The 3 button Audio Handset has 3 functioning buttons:
  - Privacy button.
  - Enter button.
  - Concierge call button.
- The following are provided to indicate an incoming call:
  - A tone will sound at the Audio Handset.
  - The Privacy button lights up green.

- Having answered the call, the resident can hold a full duplex audio conversation with the visitor to ascertain their identity. The following indicators are provided during a call:
  - o The Privacy button remains lit up in green for the duration of the call.
  - o The Enter button flashes red for the duration of the call.
- If the resident wants to admit the visitor, they press the Enter button on the handset to release the door lock. On activating the door lock the following are provided to indicate operation:
  - o A tone will sound at the Audio Handset.
  - o The Enter button will light up red.
- The Privacy button on the handset can be used to provide a Do Not Disturb mode for the resident. When the Privacy button is pressed it will light up red to indicate that privacy mode is active.
- This privacy mode can be reverted by the following means:
  - o Press the Privacy button once. At this point the red light switches off.
  - o The system has a configurable time setting to automatically revert the Audio Handset to non-privacy mode to avoid handsets being inadvertently left in privacy mode. The system default is 6 hours, but this is programmable within the range of 1 to 99 hours by the administrator of the GDX system.
- If the door monitoring facility is utilised and the door remains physically open over a configured alarm period, the Audio Handset Enter button remains lit up red until the door is closed.
- A high-quality microphone and speaker (with inbuilt induction loop) provide clear duplex speech between the Entrance Panel and the Audio Handset.
- All handsets on the system shall have complete privacy of speech to ensure that the call is only between the Entrance Panel and residence being called. Another residence cannot intercept or listen into this call.
- The only time the call system will be busy is if a resident is talking to a visitor at one Entrance Panel and another visitor is attempting to call the same resident from another Entrance Panel. The visitor will be informed by the Entrance Panel LCD display with a "Phone engaged" message.
- The Audio Handset supports configurable volume control. This is adjusted by the administrator of the GDX system.
- The Audio Handset is Equality Act compliant with inbuilt hard of hearing support through an inductive coupler within the handset. This enhances the quality of speech when the 'T' position is selected on an external hearing device.
- Additional devices may be added as follows:
  - o An Audio Handset for extension of a call into the residence.
  - o An extension Beacon/Sounder for visual and audible extension of an incoming call.

4.3.2 GDX5 Video Handset

The Video Handset is designed to provide reliable video call and door unlocking functionality. It offers true ease of use with clear user feedback during operation.

There are two variants of the GDX5 Video Handset:
- 2 button Video handset with door unlock and privacy functions
- 3 button Video handset with door unlock, privacy and concierge call functions

Figure 14 – GDX5 2 Button Video Handset

The following provides the detailed functionality of the GDX5 Video Handsets:

- The Video Handset is manufactured from high quality white UL rated ABS plastic suitable for wall mounting.
- The Video Handset has a 4" Colour TFT monitor that provides high-definition full colour images and a wide viewing angle for ease of use.
- It is designed to be robust with vandal resistant construction.
- The handset incorporates spring loaded mountings within the base of the handset to alleviate any potential mounting or handset operational difficulties due to fixing onto uneven wall surfaces.
- The handset has large 20mm buttons with raised tactile symbols and LED indicators for Equality Act compliance.
- The 2 button Video Handset has 2 functioning buttons:
  - Privacy button.
  - Enter button.
- The 3 button Video Handset has 3 functioning buttons:
  - Privacy button.
  - Enter button.
  - Concierge call button.

- The following are provided to indicate an incoming call:
  - A tone will sound at the Video Handset.
  - The Privacy button lights up green.
  - A video image of the caller will be displayed
- Having answered the call, the resident can hold a full duplex video conversation with the visitor to ascertain their identity. The following indicators are provided during a call:
  - The Privacy button remains lit up in green for the duration of the call.
  - The Enter button flashes red for the duration of the call.
- If the resident wants to admit the visitor, they press the Enter button on the handset to release the door lock. On activating the door lock the following are provided to indicate operation:
  - A tone will sound at the Video Handset.
  - The Enter button will light up red.
- The Privacy button on the handset can be used to provide a Do Not Disturb mode for the resident. When the Privacy button is pressed it will light up red to indicate that privacy mode is active.
- This privacy mode can be reverted by the following means:
  - Press the Privacy button once. At this point the red light switches off.
  - The system has a configurable time setting to automatically revert the Video Handset to non-privacy mode to avoid handsets being inadvertently left in privacy mode. The system default is 6 hours, but this is programmable within the range of 1 to 99 hours by the administrator of the GDX system.
- If the door monitoring facility is utilised and the door remains physically open over a configured alarm period, the Video Handset Enter button remains lit up red until the door is closed.
- A high-quality microphone and speaker (with inbuilt induction loop) provide clear duplex speech between the Entrance Panel and the Video Handset.
- All handsets on the system shall have complete privacy of speech to ensure that the call is only between the Entrance Panel and residence being called. Another residence cannot intercept or listen into this call.
- The only time the call system will be busy is if a resident is talking to a visitor at one Entrance Panel and another visitor is attempting to call the same resident from another Entrance Panel. The visitor will be informed by the Entrance Panel LCD display with a "Phone engaged" message.
- The Video Handset supports configurable volume control. This is adjusted by the administrator of the GDX system.
- The Video Handset is Equality Act compliant with inbuilt hard of hearing support through an inductive coupler within the handset. This enhances the quality of speech when the 'T' position is selected on an external hearing device.
- Additional devices may be added as follows:
  - An Audio Handset for extension of a call into the residence.
  - An extension Beacon/Sounder for visual and audible extension of an incoming call

4.3.3 Beacon / Sounder

An LED Flashing Beacon / Sounder is available to extend the visitor call ring to another part of the residence.

- The Beacon / Sounder is connected to the handset to provide indication of the handset ringing to assist the hard of hearing.
- The Beacon / Sounder draws power from the Handset therefore no additional local power is required.
- The Beacon / Sounder is manufactured from high quality white UL V0 Rated ABS plastic.

4.4 Access Control

GDX Systems offer Access Control to provide easy access for approved residents/staff that enables access through the GDX secured doors.

There are two access control options for GDX systems:

- GDX Access Control – inbuilt access control for GDX systems that provides up to 1000 unique keyholder records either at an Entrance Panel or through a GDX standalone access control reader.
- 3rd party Access Control – such as PAC access control that offers enhanced access control options and security.

This section covers the GDX Access Control capability. If enhanced access control is required, PAC access control can easily be integrated with a GDX system to offer additional security including:

- More than 1000 Keyholder records
- Access Control for lifts
- CCTV integration for real-time monitoring and video verified events
- Alarm and event management
- 3rd party integration of building control, fire, alarm systems

For information on enhanced PAC access control please refer to the PAC Access Control website or email pacgdxsales@comelit-pac.co.uk.

4.4.1 GDX Access Control

GDX Access Control is an option that can be added to any GDX5 system through the addition of the following:

- Entrance Panel Access Control reader
- Standalone Access Control reader

GDX Access Control is built into the GDX system to enable efficient and reliable ID Device reads and door unlocking for authorised keyholders. The GDX access control system provides the storing of up to 1000 ID Devices.

The reader options are covered in the following sections.

4.4.1.1 Entrance Panel Access Control Readers

- Entrance Panels have an option for an integrated access control reader to support access, through the secured doors, by using ID Devices.
- There are 4 Entrance Panel access control readers:
  - Entrance Panel: Access Control reader - RFID, 3rd Party HF (EPRF-001)
  - Entrance Panel: Access Control reader - RFID, 3rd Party LF (EPRF-002)
  - Entrance Panel: Access Control reader - RFID, HF (EPRF-003)
  - Entrance Panel: Access Control reader - RFID, LF (EPRF-004)
- All Entrance Panels have the facility to add the integrated access control reader later if necessary.
- No additional cabling is required to support the use of an integrated access control reader.
- The access control reader is protected by a vandal resistant, high impact polycarbonate Lexan window incorporated within the Entrance Panel stainless-steel faceplate.
- The Lexan window incorporates a raised tactile symbol and contrasting colours for Equality Act compliance.
- The inbuilt access controller can store up to 1000 ID Device records.

- The access control reader utilises RFid technology to read/validate the RFid ID Devices and grant access to validated fobs at a read distance of up to 10mm.
- Fob options are detailed in the ID Devices section.
- No batteries or user replaceable parts are contained in the fobs.
- The Entrance Panel LCD screen will provide the following visual verification upon presentation of an ID Device:
    - Valid ID Device.
    - Invalid ID Device.
- The Entrance Panel will provide the following audible verification upon presentation of a fob:
    - Valid ID Device – tone for door lock release duration.
    - Invalid ID Device – single bleep to indicate ID Device has been read but it is invalid.
- Administration of Fobs is supported via the following methods:
    - Locally at the Entrance Panel.
    - Remotely via a cloud hosted management platform.

The following diagram shows the integrated reader on the front of the GDX Entrance Panel.

Figure 15 - GDX Integrated Access Control Reader

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4.4.2 Standalone Access Control readers

- Standalone, vandal resistant, access control readers are available for doors/entrances that do not require the ability to place a visitor call.
- There are 4 Standalone access control readers:
    - Reader: RFID HF - GDX Vandal, flush mount (RDRRF-019)
    - Reader: RFID HF - GDX Vandal, surface mount (RDRRF-020)
    - Reader: RFID LF - GDX Vandal, flush mount (RDRRF-021)
    - Reader: RFID LF - GDX Vandal, surface mount (RDRRF-022)
- The reader is protected by a vandal resistant, metal housing incorporating a high impact polycarbonate lexan window.
- The lexan window incorporates contrasting colours for Equality Act compliance.
- The standalone access control reader supports up to 1000 ID Devices.
- The standalone access control reader provides the following audible verification upon presentation of a fob for user reassurance:
    - Valid Fob – tone for release duration to indicate door release.
    - Invalid Fob – single bleep to indicate fob read but invalid.

Figure 16 – GDX5 Standalone Access Control Reader

4.4.3 ID Devices

The following section provides information on all the ID Devices available to use with a GDX Access Control system.

4.4.3.1 High Frequency ID Devices

The following High Frequency (HF) ID Devices can be used with GDX Access Control that uses HF access control readers in the Entrance Panels or Standalone access control readers.

PAC OPS™ Lite ID Devices utilise 13.56MHz RFID passive proximity technology to be self-powered and reliable.

The PAC OPS™ Lite Fobs come in 2 variants and are detailed in the following table:

Fob	Description	Accessories
PAC OPS™ Lite Fob with clip	- Pre-configured identity code using a 1K MIFARE® 4 Byte serial number. - Fully Encapsulated in blue ABS plastic. - Double sealed and ultrasonically welded. - Metal eyelet for attachment to keyring or lanyard. - Self-powered, no need for batteries. - ISO 14443 compliant. - Lifetime guarantee against electronic failure.	None
PAC OPS™ Lite Fob without clip	- Pre-configured identity code using a 1K MIFARE™ 4 Byte serial number. - Interchangeable colour clip for ease of identification of fob to multiple residents in a single residence. - Fully Encapsulated in blue ABS plastic. - Double sealed and ultrasonically welded. - Metal eyelet for attachment to keyring or lanyard. - Self-powered, no need for batteries. - ISO 14443 compliant. - Lifetime guarantee against electronic failure.	Colour Clips in the following colours: - Red - Green - Blue - Yellow - White - Black - Orange - Grey

4.4.3.2 Low Frequency ID Devices

The following Low Frequency (LF) ID Devices can be used with GDX Access Control that uses LF access control readers in the Entrance Panels or Standalone access control readers

PAC ID Devices utilise 153.6kHz RFID passive proximity technology to be self-powered and reliable.

PAC LF Fobs come in 2 variants as detailed in the following table:

Fob	Description	Accessories
PAC Fob with clip	• Unique pre-configured identity code • Fully Encapsulated in black ABS plastic • Double sealed and ultrasonically welded • Metal eyelet for attachment to keyring or lanyard • Self-powered, no need for batteries • Lifetime Guarantee against electronic failure	None
PAC Fob without clip	• Unique pre-configured identity code • Interchangeable colour clip for ease of identification of fob to multiple residents in a single residence. • Fully Encapsulated in black ABS plastic • Double sealed and ultrasonically welded • Metal eyelet for attachment to a keyring or lanyard • Self-powered, no need for batteries • Lifetime Guarantee against electronic failure	Colour Logo Clips options: • Red • Green • Blue • Yellow • White • Black • Orange • Turquoise • Brown • Pink • Purple

4.5 Connectivity

Connectivity options exist for all GDX5 systems to enable remote management of system settings and keyholder records.

4.5.1   GDX Gateway

The Gateway is the device that connects the on-site GDX5 system to the Housing Central™ cloud management platform.

Connectivity is supported through the following two options:

- Customer provided internet connection – directly connected into the GDX Gateway to enable communications to the Housing Central™ cloud management platform.
- GDX provided 4G Modem/Router – with the latest mobile connectivity to support a stable and reliable connection to the Housing Central™ cloud management platform. The 4G Modem/Router is directly connected into the GDX Gateway.

The Gateway has the following functions:

- Connects into the GDX Line Card (situated in the CCU) on site via an Ethernet (CAT 5e/6) cable.
- Creates a secure connection to the Housing Central™ cloud management platform.
- Near real-time reporting of on-site events to Housing Central™.
- Compatible with the following network connectivity options:
  - Internet – customer provided, managed, and owned internet connection.
  - Mobile Broadband – GDX provided, managed 4G Modem/Router offering connectivity to Housing Central™.
- Visual LED indicators:
  - Gateway status – green LED to show the Gateway is on.
  - Connection status – green LED to show successful network connectivity.

Figure 17 - GDX Gateway

4.5.2 4G Modem/Router

The GDX 4G Modem/Router provides a simple and stable solution for communications between the GDX system on-site and the Housing Central™ cloud management platform.

The GDX 4G Modem/Router provides mobile connectivity as a fully managed service including:

- 12 months of Mobile data connectivity at time of 4G Modem/Router purchase
- A customer portal for management of data connectivity within the 4G Modem/Router.
- Mobile data package that is tuned to the GDX system needs.
- Managed mobile network connection with support via the GDX support team.
- Flexible mobile network choice that enables the best connection from the site to the secure cloud hosted Housing Central™ platform.
- Fully secure solution with encrypted end-to-end communications between the Gateway and Housing Central™ using the latest and most secure Transport Layer Security protocol (TLS1.3).
- For a reliable mobile connection, it is necessary to ensure that the signal strength of the mobile network is sufficient at the location where the 4 Modem/Router is installed. The 4G Modem/Router comes with a plug-in aerial. If signal strength is an issue, there are several off-the-shelf signal boosting solutions readily available to ensure the mobile connection can be provided the connection reliability required.

Installers will need to conduct signal strength surveys prior to install and ensure installation of the 4G Modem/Router delivers the most reliable mobile signal available at that location (including any required 3rd party boosting equipment).

Figure 18 – 4G Modem/Router

4.6 Management

This section covers the 2 management options available on GDX5 systems:

- Local Management – where configuration of the system and all keyholder management is performed locally via the Entrance Panel.
- Remote Management – where after on-site configuration of the system, the system can be managed remotely (system settings and keyholder management) through a web browser.

4.6.1 Local Management

It is possible to configure and maintain the GDX5 system through the Entrance Panel. This supports the following capability:

Local management is based around using the Entrance Panel to configure the GDX5 system. The following functions are supported:

- Configuration settings at the Entrance Panel include:
    o Entrance Panel number setting – this is to ensure a unique system ID for each panel within the system.
    o Pre-answer ring time – ring duration for an unanswered call.
    o Post-answer call duration – maximum call duration of an answered call.
    o Lock release duration – to determine the door lock release time.
    o Door open alarm – time period before an open door will raise an alert to the resident's handset.
    o Speaker volume – volume of the Entrance Panel speaker.
    o Common Mode – enables ID Device rights to be copied to all Entrance Panels/standalone access control readers in the system.
    o Pair slave – links a GDX standalone access control reader to the Entrance Panel.
    o Factory Default – restores the system back to default settings.
    o Date and time – system date and time setting.
    o Service period – service period time settings for up to 2 programmable service periods and option to enable or disable Sundays from the service periods.
    o Code Access – configuration for setting the PIN number for an optional PIN reader.
- ID Device administration at the Entrance Panel include:
    o Master Fob – up to three Master Fobs can be configured for use in adding/deleting ID Devices into the system.
    o Add ID Device.
    o Delete ID Device.
    o Search ID Device.
    o ID Device count.
- Handset configuration
    o Audio handset ring volume setting.

4.6.2 Remote Management

Remote Management of the GDX5 system through the Housing Central™ cloud management platform supports the following functions:

- Ease of configuration on initial set-up of the system including:
    o Set up guide to support the initial configuration of the system.
    o User Interface designed for clarity.
    o Quick operator registration process.
    o Role based access profiles to offer flexibility on what operators can view and edit.
- In-life management and monitoring including:
    o Keyholder administration for residents / staff.
    o Monitoring activity and alarms across the GDX system.
    o System status monitoring and reports.

The ongoing security of property and residents is enhanced through a connected Housing Central™ cloud management service compared to local management that relies on customer identified faults and issues to be dealt with reactively.

Housing Central™ has been developed to deliver high quality management and monitoring capability including near-real time reporting of events and alarms. This enables the operators of the system to be informed on the health of the GDX5 system and of any on-site events that need proactive attention.

The security of the Housing Central™ account is critical and so security has been designed into the platform as per the following:

- Secure communications using HTTPS (using TLS 1.3) encryption from the web browser to the Housing Central™ account.
- An operator registration process that requires:
    o the Main administrator to invite the new Operator to register via an email sent from Housing Central™.
    o The Operator to complete a mandatory registration process.
    o Email verification of the Operator's email account.
- A zero-trust hardware commissioning process which restricts Hardware and Gateway device configuration to officially manufactured GDX equipment.
- GDX Gateways are coded to only communicate with Housing Central™ and will not send data to any other destination.
- Housing Central™ is hosted within a monitored, secure, and scalable cloud platform to ensure high availability and stability of the Housing Central™ application.
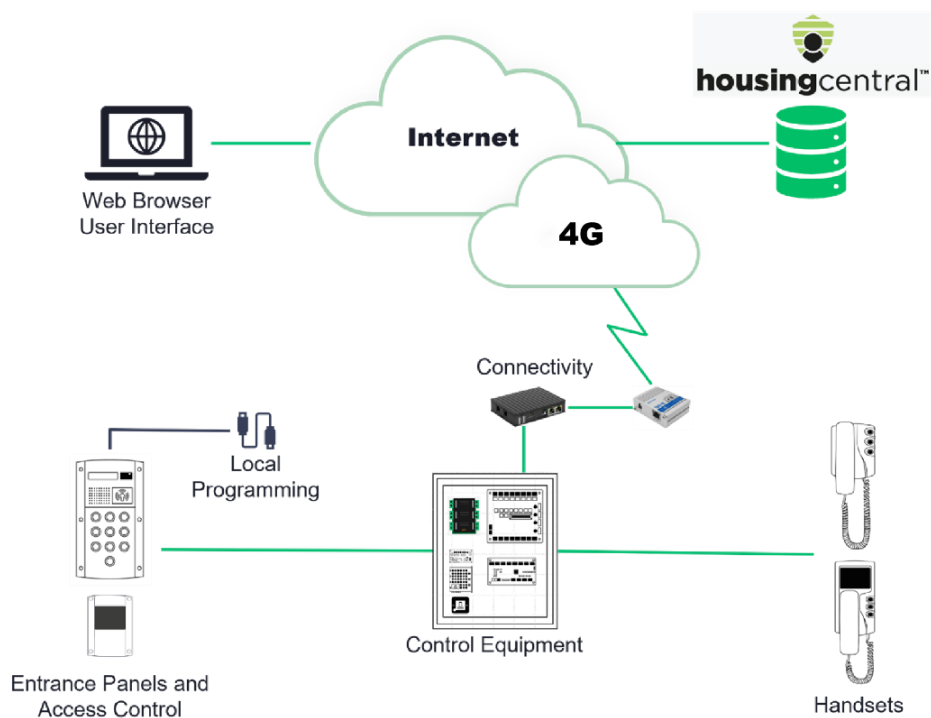
Figure 19 – Housing Central™ Cloud Management Architecture

4.6.2.1 Home Page

The Housing Central™ landing page is illustrated in the following diagram. Please note this is the main Administrator view with all menu options shown:
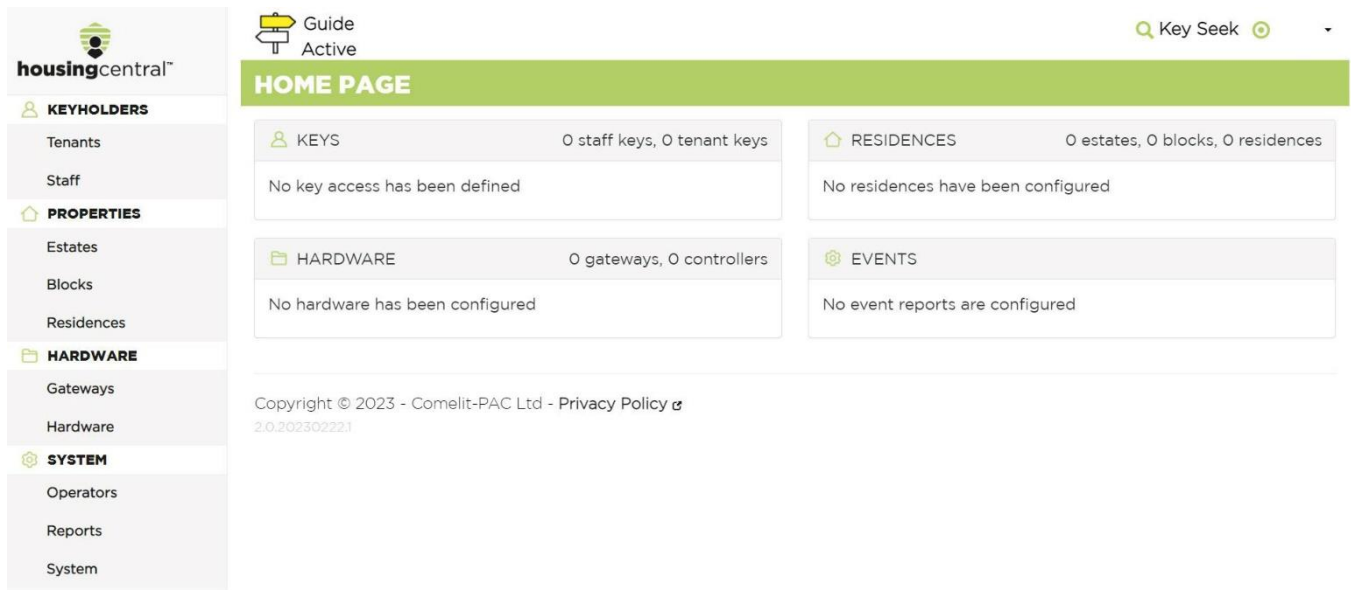

Figure 20 - Housing Central™ Dashboard

Key features include:

- Clear and easy to navigate User Interface.
- Menu system for drilling down into the sub-sections of the application.
- Set-up Guide to aid with initial configuration of the Housing Central™ account.
- Key Seek search to aid easy look up of a keyholders ID.

The following sections detail the menu choices (sections) on the left-hand side of the Home page.

4.6.2.2 Keyholders

The Keyholders section provides the area where Tenants and Staff can be added and managed. This allows access for Tenants and Staff at the secured entrances to the properties through valid ID Devices.

Keyholder ID Device administration is supported in Housing Central™ by use of an Admin Desktop Reader. The Desktop reader is directly connected to the PC running the Housing Central™ via a USB cable. This allows ID Device management with the following functionality supported:

- Add Staff ID Devices and associate them to an Estate.
- Delete Staff ID Devices.
- Add Resident ID Devices and associate them to an Estate, Block and Residence.
- Delete Resident ID Devices.

Please note it is possible to perform bulk imports or uploads of multiple Tenants or Staff members via the System menu which is available to the main Administrator of the Housing Central™ account.

4.6.2.3 Properties

The Properties section allows a logical representation of the site to be built into Housing Central™. This in turn supports the registration of hardware to the Properties to allow effective keyholder management (staff and resident) and in life monitoring and maintenance.

Properties are built into a hierarchical model as per the following:

4.6.2.3.1   Estates

The Estate logically defines the overall area covered by the GDX5 system and represents:

- One or more blocks.
- The perimeter of a gated area.

4.6.2.3.2   Blocks

Blocks allow the Estate to be organised into sub sections and represent where an Entrance Panel (or standalone access control reader) will be located to control access into the Block.

Each block contains one or more residences.

4.6.2.3.3   Residences

Residences represent a unique address within a Block.

4.6.2.4   Hardware

The Hardware section provides a means for associating the following unique hardware within the Housing Central™ system.

4.6.2.4.1   Gateways

Registers the customer gateway(s) to their Housing Central™ account and enables:

- Communication to the GDX5 system.
- Gateway settings for event reporting, messaging, etc.

4.6.2.4.2   Hardware

Supports the association of the following GDX5 hardware:

- Entrance Panel(s).
- Standalone Access Control Reader(s).
- Handset(s).

Enabling Hardware within Housing Central™ supports the events and report functions for tracking of calls, access control events, etc.

4.6.2.5   System

This section provides the following functionality for the Housing Central™ main Administrator:

4.6.2.5.1   Events

Provides a rolling event log of all reportable events and alarms from the GDX5 system with the following functionality:

- Event log is synchronised with the on-site gateway every 10 minutes to provide a near-real time status of activities on-site.
- Ability to export the event log as a CSV file.
- Events are retained for 6 months.
- Live Event Log shows the last 50 events.

The Events shown are as detailed in the following table:

Event Type	Event
Call Events	Call Made by Panel
	Call Answered
	Call Busy

	Call Cancelled	
	Call Door Opened	
Access Events	PTE Activated	
	Fire Activated	
	Door Alarm Activated	
	Fob Activated	
	Fob Declined	
System Events	Watchdog Activated	

4.6.2.5.2   Operators

Enables the operator accounts for the Housing Central™ account to be defined and managed including:

- Creation of Operator account that drives the Registration process via an email sent to the designated Operator's email account.
- Allocation of user privileges to an Operator to allow access to view and edit sections within the Housing Central™ account.
- Ability to disable an Operator's account.
- Ability to delete an Operator's account.

4.6.2.5.3   Reports

Enables the ability to run a report based on current data within the Housing Central™ account. The criteria for report creation are as follows:

- All events.
- Call events.
- Door Open events.
- Keyholder Access events.
- Alarms.
- Engineering events.
- Residence Handset Privacy events.

The report can be generated against a specified entry of:

- From (day, month and year).
- To (day, month and year).

4.6.2.5.4   System

This menu is for the main Administrator of the Housing Central™ account and includes the following functionality:

- Categories – ability to add and delete categories that can be assigned to operator profiles for role-based access management.
- Service Log – details all the service activities performed on the GDX5 system. 6 months of data are maintained within this log.
- Import Tenants – allows an external spreadsheet of tenants to be uploaded into the system.
- Bulk Add Tenants – allows a rapid addition of multiple tenants to the system.
- Import Staff – allows an external spreadsheet of Staff members to be uploaded into the system.
- Bulk Add Staff – allows a rapid addition of multiple Staff members to the system.
- Activity Log – details all operator activity. 6 months of data are maintained within this log.

4.6.2.6 Operator Registration Process

The registration process for Operator's to grant access into the Housing Central™ account is easy and secure as per the following steps:

- Main administrator creates a Username and Email Account entry for each Operator.
- A registration email is sent to the email account created.
- The operator follows the link and registers with the following information:
  - o Name.
  - o Company.
  - o Address.
  - o Password.

- On completion of the registration form, an email is sent to the operator's designated email account for verification.
- Once the email account has been verified, the Operator can log into their Housing Central™ account. They will be restricted to views and editing ability based on the User privileges assigned by the main Administrator.

5 System Design

GDX5 systems are based on standard modular components that enable standardised designs and options to meet the customer requirements.

All designs are based on the following key system attributes:

- Number of Channels – the number of simultaneous calls across a single GDX system.
- Number of Lines – the number of end addresses that can be terminated as a calling destination on a GDX system.
- Number of Entrances – the number of secured entrances supported on a single GDX system

From the above, standard designs with specified control equipment is provided as a system design offering. The following sections define these system designs for use in design of a GDX system.

5.1 GDX5 Audio System Designs

The following sections provide information on all the GDX5 Audio system designs including key functional information.

5.1.1 GDX5 2Audio Calls, 8 or 16 Lines

System that supports the following:

- 2 x audio channels
- 2 x secured entrances
- Up to 16 Lines

System Components:

- Entrance Equipment:
    - o 2 × Entrance Panels
    - o 1 × Entrance Panels and 1 × Standalone Reader
- Control Equipment – 1 x CCU
    - o 1 x 2Audio channel 8-Line Call Control Unit or
    - o 1 x 2Audio channel 16-Line Call Control Unit
- Handsets
    - o Up to 16 x Audio Handset, 2 Button
- Optional expansion through:
    - o Entrance options
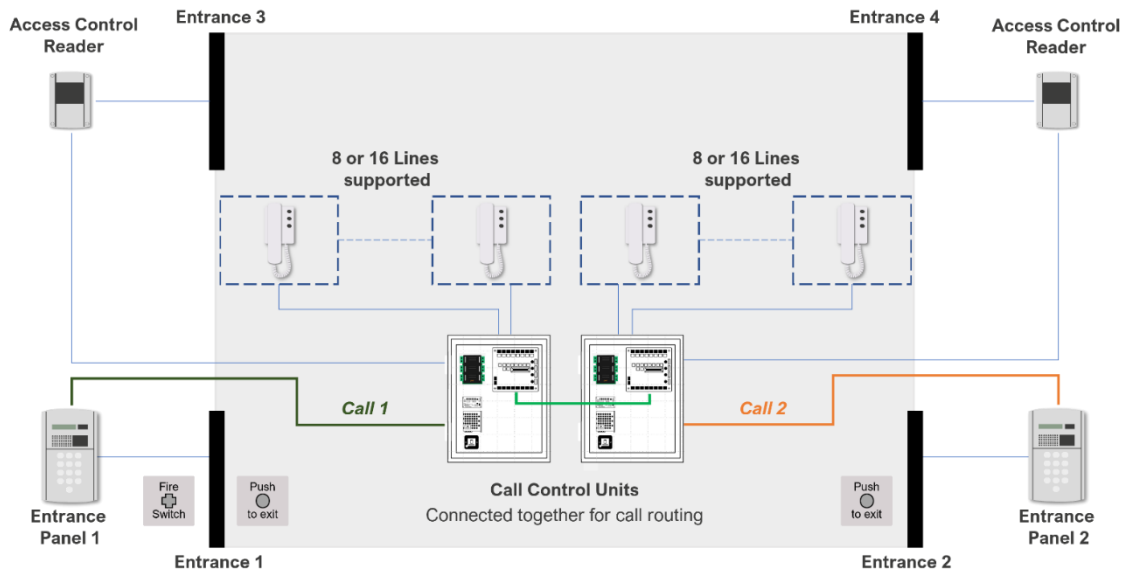   - o Access Control
    - o Connectivity
    - o Remote Management

Figure 21 - 2Audio 8- or 16-Line System

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5.1.2 GDX5 2Audio Calls, 32 Lines

System that supports the following:

- 2 x audio channels
- 4 x secured entrances
- Up to 32 Lines

System Components:

- Entrance Equipment:
  - Up to 4 x Entrance Panels/access control readers (maximum of 2 x Entrance Panels)
- Control Equipment - 2 x CCUs
  - Up to 32 lines can be supported with any combination of 8-line and 16-line CCUs
- Handsets
  - Up to 32 x Audio Handset, 2 Button
- Optional expansion through:
  - Entrance options
  - Access Control
  - Connectivity
  - Remote Management

Figure 22 - 2Audio 32-Line System

5.1.3 GDX5 7Audio Calls, 8 or 16 Lines

System that supports the following:

- 7 x audio channels
- Up to 4 x secured entrances
- Up to 16 Lines

System Components:

- Entrance Equipment:
  - 4 x Entrance Panels/access control readers (maximum of 4 x Entrance Panels)
- Control Equipment – 1 x CCU
  - 1 x 7Audio channel 8-Line Call Control Unit or
  - 1 x 7Audio channel 16-Line Call Control Unit
- Handsets
  - Up to 16 x Audio Handset, 2 Button
- Optional expansion through:
  - Entrance options
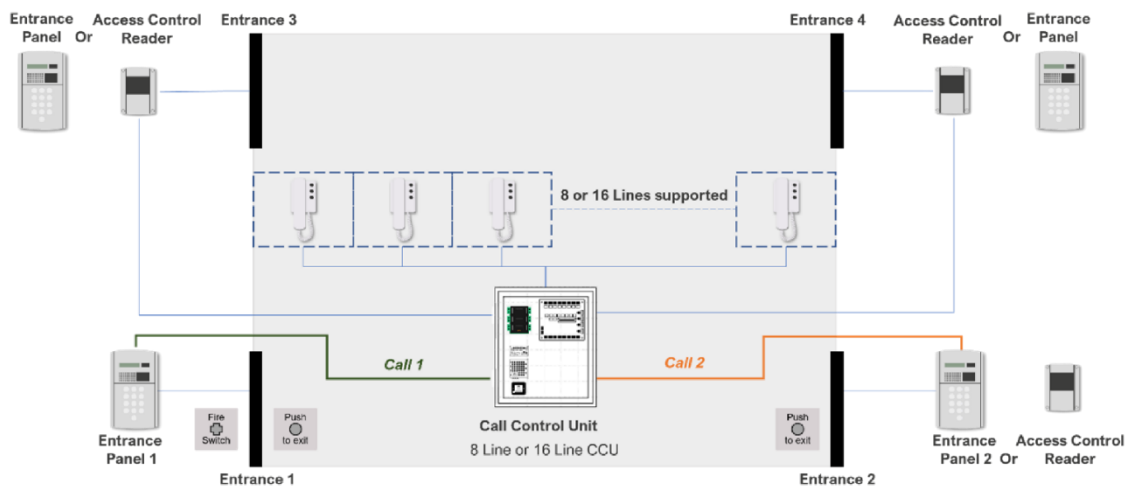 - Access Control
  - Connectivity
  - Remote Management

Figure 23 - 7Audio 8- or 16-Line System

5.1.4 GDX5 7Audio Calls, 32 Lines

System that supports the following:

- 7 x audio channels
- Up to 8 x secured entrances
- Up to 32 Lines

System Components:

- Entrance Equipment:
  - 8 × secure entrances with maximum of 7 × Entrance Panels + 1 × standalone readers per available door connection
- Control Equipment – 2 x CCUs
  - Up to 32 lines can be supported with any combination of 8-line and 16-line CCUs
- Handsets
  - Up to 32 x Audio Handset, 2 Button
- Optional expansion through:
  - Entrance options
  - Access Control
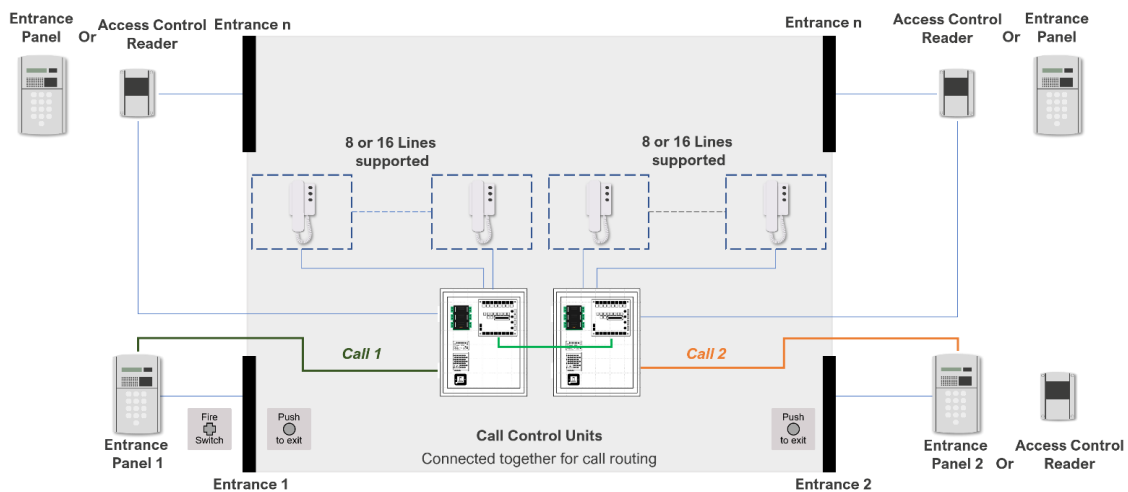 - Connectivity
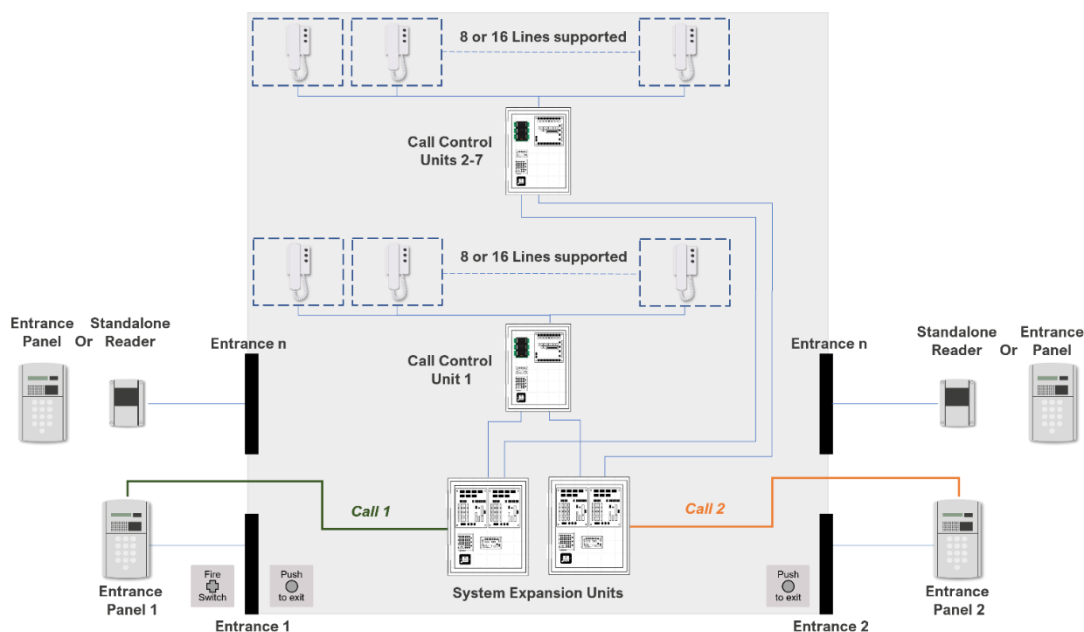 - Remote Management

Figure 24 - 7Audio 32-Line System

5.1.5 GDX5 7Audio Calls, 112 Lines

System that supports the following:

- 7 x audio channels
- Up to 31 x secured entrances
- Up to 112 Lines (systems scale in units of 8 or 16 relating to the CCU)

System Components:

- Entrance Equipment:
  - Up to 31 x Entrance Panels/access control readers (depending on number of audio channels in use)
    - Maximum 7 x Entrance Panels without any Landing Entrance Panels or concierge service
    - Each CCU can support additional 1 × Landing Entrance Panels for each unused audio channel up to a maximum of 4 × Entrance Panels per CCU"
    - If using Concierge service, maximum 6 × Entrance Panels
- Control Equipment
  - Up to 7 x CCUs
    - Up to 7 x 7Audio channel 8-Line Call Control Unit or
    - Up to 7 x 7Audio channel 16-Line Call Control Unit or
    - A mixture of the above
  - Up to 4 x SEUs
    - Up to 4 x 2Audio SEU
- Handsets
  - Up to 112 x Audio Handset, 2 Button or 3 Button
- Optional expansion through:
  - Entrance options
  - Access Control
  - Connectivity
  - Remote Management
  - Concierge (this requires an audio channel to be dedicated and therefore reduces the available channels for visitor calling)

Figure 25 - 7Audio 112-Line System

5.1.6 GDX5 7Audio Calls, 224 Lines

System that supports the following:

- 7 x audio channels
- Up to 63 x secured entrances
- Up to 224 Lines (systems scale in units of 8 or 16 relating to the CCU)

System Components:

- Entrance Equipment:
    - Up to 63 x Entrance Panels/access control readers, (depending on number of audio channels in use)
        - Maximum 7 x Entrance Panels without any Landing Entrance Panels or concierge service
        - "Each CCU can support additional 1 × Landing Entrance Panels for each unused audio channel up to a maximum of 4 × Entrance Panels per CCU
        - If using Concierge service, maximum 6 × Entrance Panels
- Control Equipment
    - Up to 14 x CCUs
        - Up to 14 x 7Audio channel 8-Line Call Control Unit or
        - Up to 14 x 7Audio channel 16-Line Call Control Unit or
        - A mixture of the above
    - Up to 7 x SEUs
        - Up to 7 x 1Audio SEU
- Handsets
    - Up to 224 x Audio Handset, 2 Button or 3 Button
- Optional expansion through:
    - Entrance options
    - Access Control
    - Connectivity
    - Remote Management
    - Concierge (this requires an audio channel to be dedicated and therefore reduces the available channels for visitor calling)
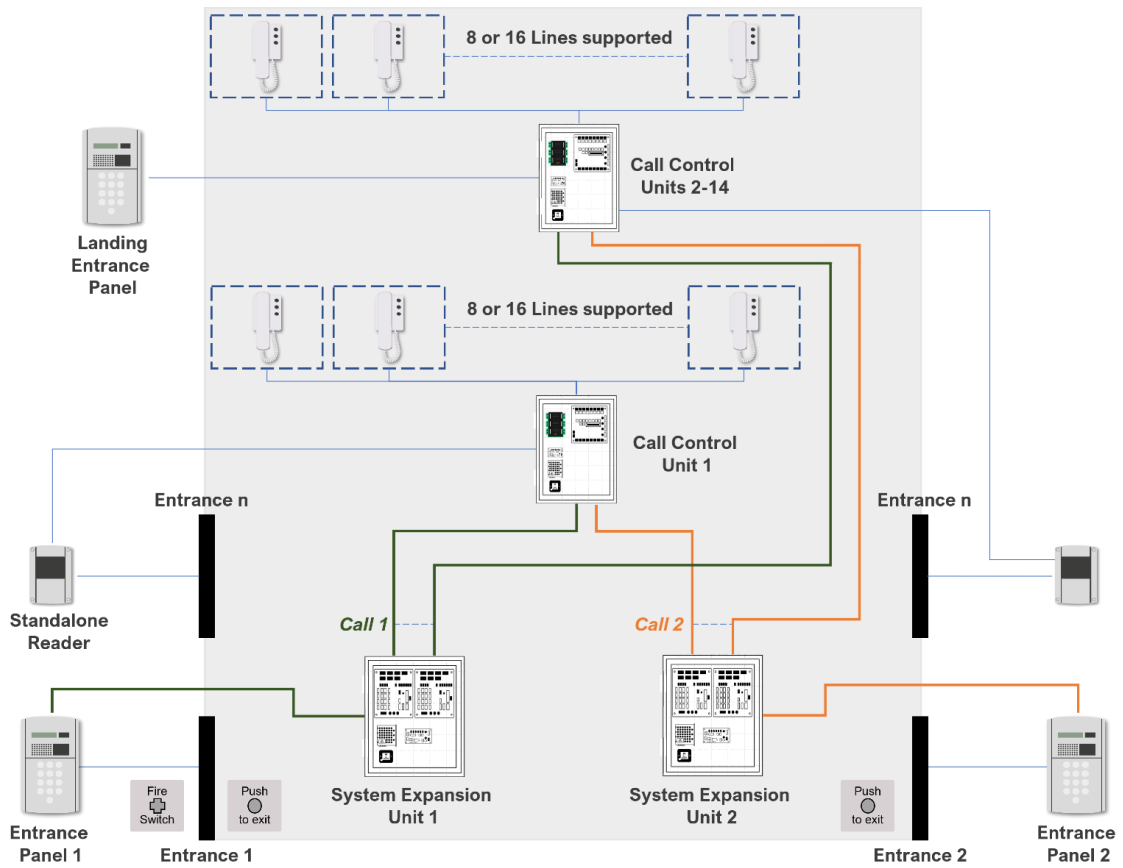
Figure 26 - 7Audio 224-Line System

5.2 GDX5 Video System Designs

The following sections provide information on all the GDX5 Video system designs including key functional information.

5.2.1 GDX5 2Audio with Video Calls, 8 Lines

System that supports the following:

- 2 x audio with video channels
- 2 x secured entrances
- Up to 8 Lines

System Components:

- Entrance Equipment:
    - o 2 × Entrance Panels
    - o 1 × Entrance Panels and 1 × Standalone Reader
- Control Equipment – 1 x CCU
    - o 1 x 2Audio with Video 8-Line Call Control Unit
- Handsets
    - o Up to 8 x Video Handset, 2 Button
- Optional expansion through:
    - o Entrance options
    - o Access Control
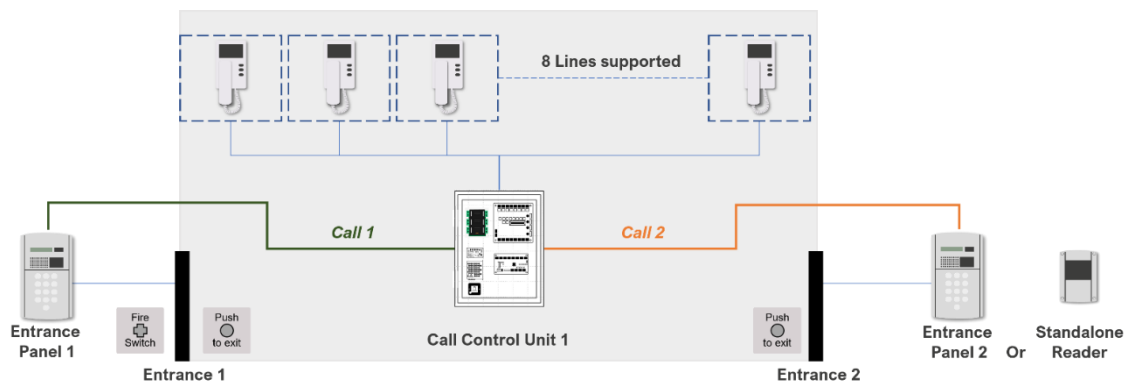   - o Connectivity
    - o Remote Management

Figure 27 - 2Audio 8- or 16-Line System

5.2.2 GDX5 2Audio with Video Calls, 16 Lines

System that supports the following:

- 2 x audio with video channels
- 4 x secured entrances
- Up to 16 Lines

System Components:

- Entrance Equipment:
  - 2 × Entrance Panels
  - 1 × Entrance Panels and 1 × Standalone Reader
- Control Equipment – 2 x CCUs
  - 2 x 2Audio with Video 8-Line Call Control Units
- Handsets
  - Up to 16 x Video Handset, 2 Button
- Optional expansion through:
  - Entrance options
  - Access Control
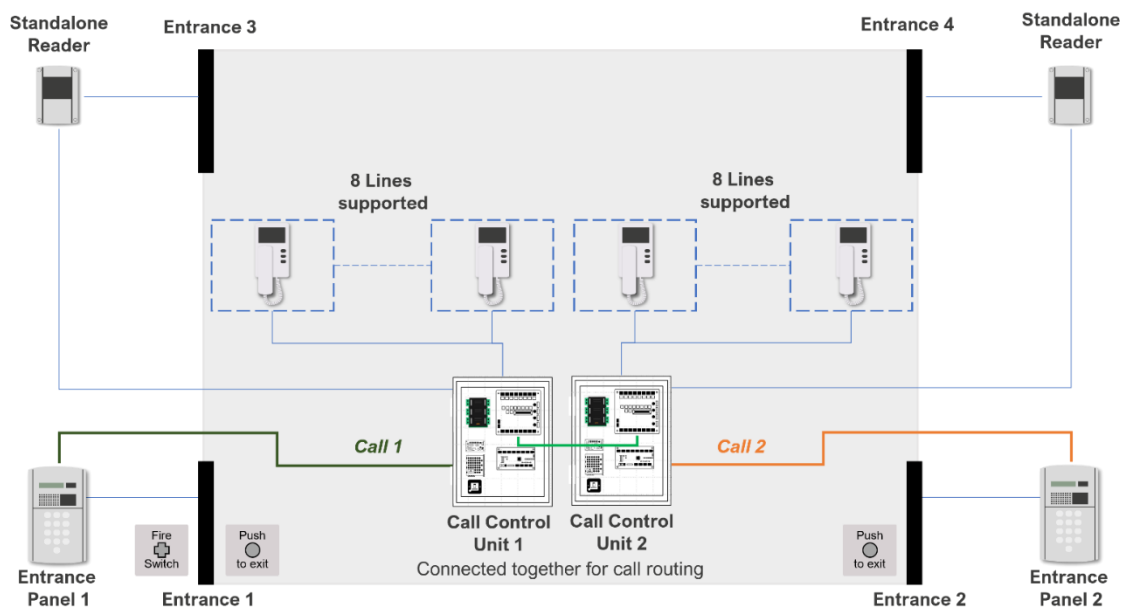 - Connectivity
  - Remote Management

Figure 28 - 2Audio 8- or 16-Line System

5.2.3 GDX5 7Audio with Video Calls, 56 Lines

System that supports the following:

- 7 × audio with up to 4 simultaneous video channels
- Up to 31 x secured entrances
- Up to 56 Lines (systems scale in units of 8)

System Components:

- Entrance Equipment:
    - o Up to 31 Entrance Panels/access control readers, (depending on number of audio channels in use)
        - Maximum 7 x Entrance Panels without any Landing Entrance Panels or concierge service
        - Each CCU can support additional 1 × Landing Entrance Panels for each unused audio channel up to a maximum of 4 × Entrance Panels per CCU
        - If using Concierge service, maximum 6 × Entrance Panels
- Control Equipment
    - o Up to 7 x 7Audio 4Video 8-Line Call Control Units
    - o Up to 7 x 1Audio Video 56 Line SEU
- Handsets
    - o Up to 56 x Video Handset, 2 Button or 3 Button
- Optional expansion through:
    - o Entrance options
    - o Access Control
    - o Connectivity
    - o Remote Management
    - o Concierge (this requires an audio channel to be dedicated and therefore reduces the available channels for visitor calling)
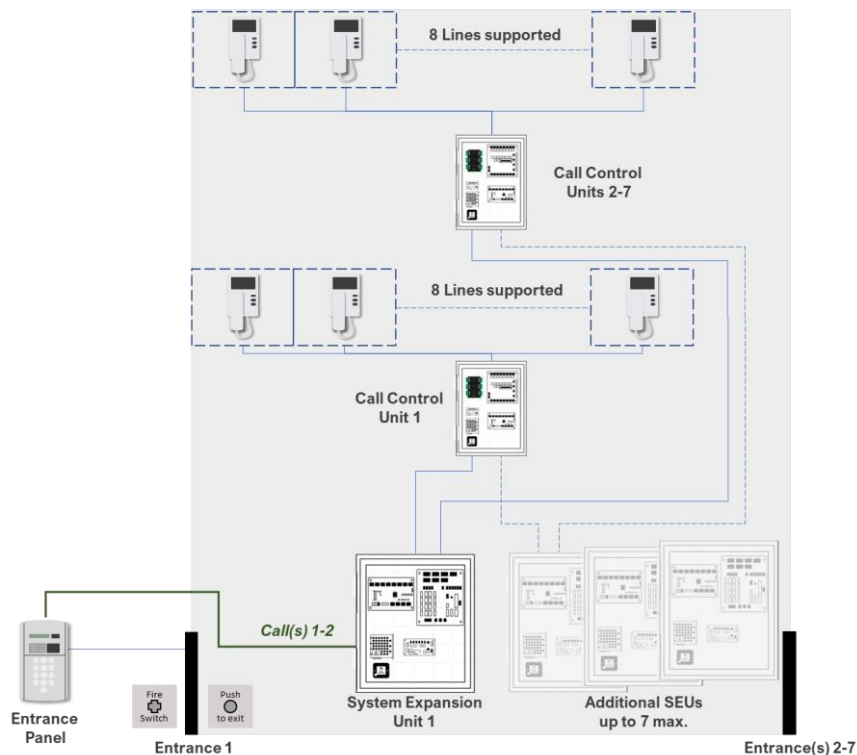

Figure 29 - 7Audio with Video 56-Line System

6 Installation

Comprehensive GDX5 Installation Guides are available. The guides provide full component level installation matched to the System Designs provided in the previous section.

The Installation Guides are available at: Install Guide for up to 32-Line Audio & 16-Line Video Systems & Install Guide for over 32-Line Audio & 16-Line Video Systems

7 Spares

GDX5 is designed and manufactured for years of reliable use. To aid longevity of GDX5 systems, the modular design enables the replacement of many sub-components within the system without having to replace the entire part.

Replaceable components are supported for:

- **Entrance Equipment** – individual components including:
    - Faceplates
    - Backboxes
    - Gasket kit
    - Chassis (internal electronics)
    - Button kits
    - Lexans (access control and camera)
    - Access Control Reader
    - LCD Display
    - Camera
    - Microphone
    - Speaker
    - Sounder (for audible alerts)
- **Control Equipment** – individual components including:
    - Line Cards
    - Distribution Cards
    - Power Supplies
    - Battery Back-Up Cards
- **Handsets** – Headset and cord

8 Glossary

Abbreviation	Description
AES	Advanced Encryption Standard
CEC	California Energy Commission
DDA	Disability Discrimination Act (replaced by EA)
EA	Equality Act
EN	European Standards
HF	High Frequency
IP	Protocol
LAN	Local Area Network
LCD	Liquid Crystal Display
LED Internet	Light Emitting Diode
LF	Low Frequency
MT	Multi-Technology
Ops™	Oneprox Smart
PAC	Proximity Access Control
PSIM	Physical Security Information Management
PSU	Power Supply Unit
RFid	Radio Frequency Identification
RJ45	Ethernet cable connector standard
RTE	Request To Exit
SIP	Session Initiation Protocol
SMB	Small / Medium Business
TFT	Thin Film Transistor
UI	User Interface
WAN	Wide Area Network

Table 1 - Glossary of Terms