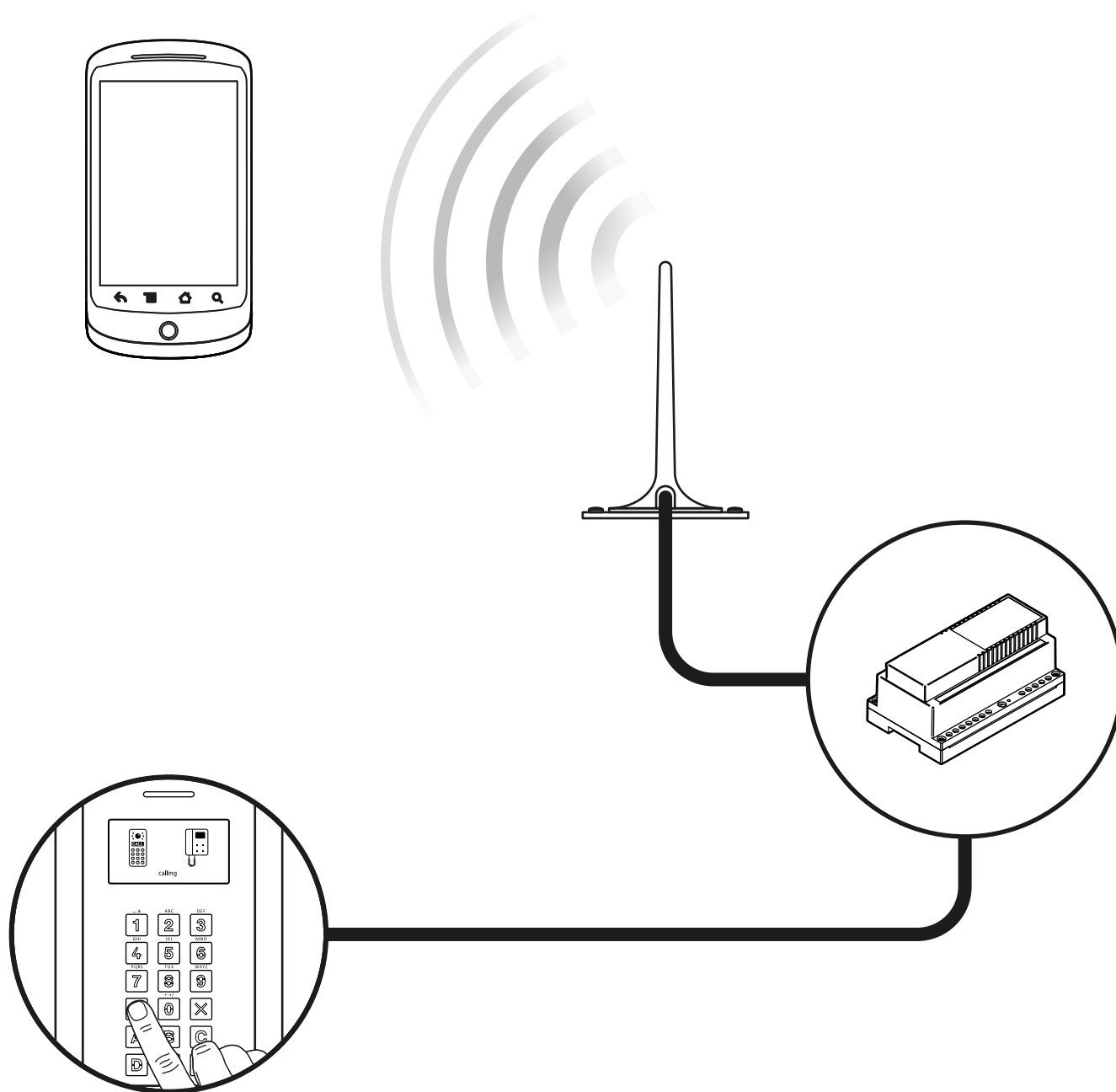


VX2200 GSM MODULE

GSM Interface Module for the VX2200 Digital System

ART. 2270



Technical Manual



Declaration of Conformity

EU RoHS DECLARATION OF CONFORMITY

Telit Communications certifies that the UL865-EUR (Dual Band 2G EGSM900/DCS1800 and Dual Band 3G FDD I/FDD VIII Wireless Module) is in compliance with the essential requirements and other relevant provisions of European Directive 1999/5/EC (R&TTE). The conformity with the essential requirements of the Directive 1999/5/EC has been demonstrated against the following harmonized standards:

Article of Directive 1999/5/EC	Harmonized Standard Reference
Health & Safety (R&TTE art. 3.1a)	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + AC2011 EN 62311:2008
EMC (R&TTE art. 3.1b)	EN 301 489-1 V1.9.2 EN 301 489-7 V1.3.1 EN 301 489-24 V1.5.1
RF Spectrum use (R&TTE art. 3.2)	EN 301 511 V9.02 EN 301 908-1 V5.2.1 EN 301 908-2 V5.2.1



WARNING!

To comply with FCC RF exposure requirements, a separation distance of 20cm (7.87") or more must be maintained between the antenna of this product and all persons.

Separate FCC approval for this product is not required as it will be classed as a fixed installation.

THIS PRODUCT IS NOT DESIGNED TO BE USED AS AN EMERGENCY CALL POINT.

MANUFACTURER



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Cert. N. IT05/1217

made in
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The product is CE marked demonstrating its conformity and is for distribution within all member states of the EU with no restrictions. This product follows the provisions of the European Directives 2014/30/EU (EMC); 2014/35/EU (LVD); 2011/65/EU (RoHS): CE marking 93/68/EEC.

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Introduction

MANUAL INTRODUCTION

The information in this manual is intended as an installation and commissioning guide for the Art.2270 GSM interface module for the VX2200 digital system. This manual should be read carefully before the installation commences. Any damage caused to the equipment due to faulty installation where the information in this manual has not been followed is not the responsibility of Videx Security Ltd.

It is recommended that the Art.2270 GSM module and any other Videx equipment is installed by a competent electrician, security or communications engineer.

For UK customers Videx run free training courses for engineers who are unfamiliar or who have not installed this system before. Technical help is also available on tel: 0191 224 3174 during office hours (8:30am - 5:00pm MON to FRI) or via e-mail: tech@videxuk.com.

A copy of this Technical Manual can also be downloaded from the Videx websites: www.videxuk.com, www.videx.it.

SYSTEM INTRODUCTION

The Art.2270 GSM module is designed to work on the same technology as mobile phones and also interface with the VX2200 digital 2 wire bus system. It enables a call to be made from an entry point (door, gate etc.) to any telephone number (mobile or land line). It connects directly to the 2 wire bus (L and - databus) and is compatible with the full range of VX2200 intercom panels both functional and digital and because of this flexibility it can be integrated into small or large VX2200 digital systems that also comprises of Videx audiophones (e.g. Art.3171 etc.) and videophones (e.g. Art.6272 etc.).

It is possible to program up to 180 users where programming is carried out using phones ID's with each programmed phone ID able to call four telephone numbers (if the first is busy or not answered, the call can be diverted to up to three different numbers). The GSM module works on either a 2G or 3G network. Features of the system include:

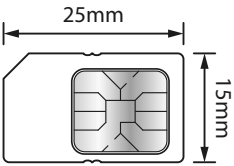
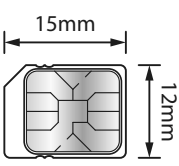
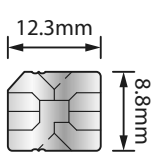
- Program up to 180 users (phone ID's 1 to 180) each with 4 programmable telephone numbers (primary and 3 diverts).
- 3 dry contact relay outputs (relay 1, 2 and 3).
- 3 switched 0V auxiliary inputs (A1, A2 and A3).
- 3 programmable automated SMS messages triggered by the auxiliary inputs.
- Apartment alarm signal on the L and - databus which can activate the relays and/or send an SMS message to the master number.
- Dial to Open facility for each relay output (this feature enables up to 1000 stored numbers (000 - 999) per relay to dial into the GSM module, the module will not answer these calls, but will activate the corresponding relay without being charged for the call).
- Programmable timeband facility.
- Micro USB connection (for ease of programming using the GSMSK PC software).
- RS485 bus connection (for ease of programming using the GSMSK PC software).
- Integrated bootloader function (for updating the module's firmware via the GSMSK PC software).
- Event logging system (which can record up to 8000 events).

Programming of the telephone numbers and the additional features can be carried out via text messaging (refer to pages 24 to 33) or PC using the GSMSK PC software (refer to the **GSMSK_66251720_EN_V1-3** software manual or later version).

SIM CARD SELECTION

A SIM card is required for this product but not supplied by Videx. The Art.2270 GSM module can only accept a standard size SIM card (refer to the following SIM card size chart), both a micro-SIM and nano-SIM are not suitable. It is recommended to choose the SIM card which has the best coverage for the area in which the intercom panel will be installed. Both contract and 'Pay as you go' SIM cards can be used, however if using a 'Pay as you go' we would recommend setting up an automatic top up to avoid running short on credit and losing the use of the intercom panel. Alternatively if you already have a contract mobile phone it should be possible to get a second SIM card and telephone number on the existing account. For more information contact the SIM card provider or visit their web sites.

Introduction

Standard SIM		Micro-SIM		Nano-SIM	
					

NETWORK PROVIDER SELECTION

It is imperative that for the reliable operation of the system that the best network provider for the area is selected. Problems such as network disconnection can occur if the provider has signal or interference problems for that area. We would recommend using a GSM signal strength meter to survey the intended antenna location. Contact Videx for more information on where to purchase a tester.

For UK customers, as an initial check we also recommend visiting the ofcom website www.ofcom.org.uk and follow the onsite links to their online mobile coverage tool. This tool will advise on the best coverage for the main network providers and other general queries that you may have about the service provider.

For customers from other countries we suggest to consult the website of the network provider that will be used to check the coverage. The antenna should always be mounted vertically at the highest point possible. Metal structures and sources of interference such as power cables, control panels etc. can affect signals and so the antenna should be mounted away from these.

PRECAUTIONARY ADVICE

- When mounting the GSM antenna, choose a location which is away from human interaction and away from the GSM module. Route the GSM antenna cable from the module so that it is separate from the power supply cables.
- Always ensure the power is switched **OFF** to the GSM module before inserting or removing the SIM card.
- New SIM cards will need registering with the network service provider before they can be used. Full details of how this is done can normally be found in the SIM card pack. It will normally require that the SIM card is inserted into a mobile phone, a number dialled and instructions followed. While the SIM is in the mobile phone it would be a good time to disable any PIN codes, call diverts, ring back and disable features such as voicemail and text alerts. Details of how to do this can be found on the SIM card provider's web site or by calling their customer services. Recommended SIM card providers for the UK are: Vodafone, T-Mobile, O2 or Orange/EE. For network service providers outside of the UK it is recommended that you consult with the service providers of your respective country directly either by telephone or via their website.
- To be able to receive text messages from the GSM module, the SIM card will require an SMS service centre number. This is normally preinstalled on new SIM cards but if you are having trouble receiving SMS messages you will need to confirm this by inserting the SIM card into a mobile phone and using the phones menu options to check it. If a number is not programmed then it should be programmed while in the phone (the number can be obtained from the network service provider).
- Voicemail and text alerts must be switched **OFF** on the SIM card when using the dial in to release the door/gate feature. For Vodafone and O2 this can be done while the SIM card is in the GSM module. For Orange/EE, T-Mobile and other providers the SIM card must be removed from the module, inserted into a mobile phone and the mobile phone menu instructions followed. This procedure may vary from provider to provider of different countries, we suggest contacting your provider for information.
- When storing the GSM module's telephone number in your own mobile phone avoid using an obvious name such as 'Front Door, or 'My Gate' as this would make it easy to decipher if your phone was lost or stolen.
- The PIN request feature must be disabled on the SIM card before using it in the module. It is likely on a new SIM card that it will not be enabled but if it is, it will prevent the system from working at all.
- This product may not be suitable for installation in hospitals, health care facilities or in the presence of flammable gases or liquids. Seek advice and authorisation before installing this product in these locations. **This product is not designed to be used as an emergency call point.**

Network provider and services configuration codes mentioned in this manual are specific for the UK. Please contact the network provider of your country for the corresponding codes.

IMPORTANT NOTE ABOUT THE SIM

When using a pay monthly SIM card you must ask the service provider to put a spend limit (credit limit) on the account (Vodafone call this service 'spend checker'). This is to safeguard against possible problems which could result in a large phone bill at the end of the month. All providers offer this service. You will need to either ring them or e-mail them to set this up. Automatic top ups should also have a monthly limit. We would suggest a limit of £50.00 which should be more than enough. This service is not provided by Videx.

System Components

DESCRIPTION

For the Art.2270 GSM module to work the system requires any intercom panel from the VX2200 range (see table below), a 12Vdc power supply (DR-15-12 or HDR-15-12, 12Vdc 1.25A), a standard 25mm x 15mm size SIM card (refer to notes on **Sim Card Selection** on pages 4 and 5) and a GSM antenna.

Like other devices for the digital VX2200 2 wire bus system the Art.2270 GSM module connects to the 2 wire databus L and -. Programming of the module can be carried out by sending text (SMS) messages or by using the GSMSK PC software (ver 3.1.0.10 or later), also refer to the programming manual **GSMSK_66251720_EN_V1-3** (or later).

COMPATIBLE VX2200 INTERCOM PANELS

The following table shows the range of VX2200 intercom panels that can be used with the Art.2270 GSM module:

Functional Panel Type	Description
Art.4203-n (audio)	4000 series modular range audio panel, where n = 0, 1, 2, 1D or 2D buttons. When using the Art.4203-0 the appropriate 4000 series button module(s) will also be required (Art.4842, Art.4842D, Art.4843, Art.4843D, Art.4844, Art.4844D, Art.4845 and Art.4845D) depending on the size of the system.
Art.4283-n (audio & video)	4000 series modular range video panel, where n = 0/C, 1/C or 1D/C buttons. When using the Art.4283-0/C the appropriate 4000 series button module(s) will also be required (Art.4842, Art.4842D, Art.4843, Art.4843D, Art.4844, Art.4844D, Art.4845 and Art.4845D) depending on the size of the system.
Art.8203-n (audio)	8000 series modular range audio panel, where n = 0, 1 or 2 buttons. When using the Art.8203-0 the appropriate 8000 series button module(s) will also be required (Art.8842, Art.8842D, Art.8843, Art.8843D, Art.8844, Art.8844D, Art.8845 and Art.8845D) depending on the size of the system.
Art.VR4KAM2W-n (audio)	Vandal Resistant 4000 series modular range audio panel, where n = 0, 1, 2, 3 or 1NP buttons. When using the Art.VRKAM2W-0 the appropriate VR4K series button module(s) will also be required (Art.VR4KBM-4, Art.VR4KBM-5, Art.VR4KBM-6, Art.VR4KBM-7, Art.VR4KBM-8, Art.VR4KBM-9, Art.VR4KBM-2NP, Art.VR4KBM-3NP and Art.VR4KBM-4NP) depending on the size of the system.
VR120/138-n (audio)	Vandal Resistant VR120 series audio panel, where n = the number of call buttons required (up to 24).
VR120/138-n/CL (audio + codelock)	Vandal Resistant VR120 series audio panel with codelock facility, where n = the number of call buttons required (up to 24).
VR120/138-n/PR (audio + proximity)	Vandal Resistant VR120 series audio panel with proximity reader, where n = the number of call buttons required (up to 24).
VR120/138-n/V (audio & video)	Vandal Resistant VR120 series video panel, where n = the number of call buttons required (up to 24).
VR120/138-n/V/CL (audio & video + codelock)	Vandal Resistant VR120 series video panel with codelock facility, where n = the number of call buttons required (up to 24).
VR120/138-n/V/PR (audio & video + proximity)	Vandal Resistant VR120 series video panel with proximity reader, where n = the number of call buttons required (up to 24).
Digital Panel Type	Description
Art.4202 series (audio)	4000 series modular range, digital audio panel (with A-F alpha-numeric keypad, Art.4202 or name scroll facility, Art.4202/R).
Art.4202V series (audio & video)	4000 series modular range, digital video panel (with A-F alpha-numeric keypad, Art.4202V or name scroll facility, Art.4202/RV or name scroll facility).
Art.8202 series (audio)	8000 series modular range, digital audio panel (with A-H alpha-numeric keypad, Art.8202 or name scroll facility, Art.8202R).
SP300-1 series (audio)	Vandal Resistant 2200 digital audio panel and bezel box.
SP301-1C series (audio & video)	Vandal Resistant 2200 digital video panel with colour camera and bezel box.
Art.4212 series (audio)	Vandal Resistant 4000 series modular range, digital audio panel (with A-F alpha-numeric keypad, Art.4212 or name scroll facility, Art.4212R and proximity). Including Art.4212/UK and Art.4212R/UK.
Art.4212V series (audio & video)	Vandal Resistant 4000 series modular range, digital video panel (with A-F alpha-numeric keypad, Art.4212V or name scroll facility, Art.4212RV and proximity). Including Art.4212V/UK and Art.4212RV/UK.

System Components and Available Versions

12VDC 1.25A POWER SUPPLY (DR-15-12 OR HDR-15-12)

The Art.2270 GSM module is designed to work with power supplies in the range of 12Vdc-13.8Vdc and should be capable of supplying a constant current of no less than 1A. The recommended power supply to use is the DR-15-12 or the HDR-15-12, 12Vdc 1.25A power supply, see **Fig.1** for model DR-15-12.

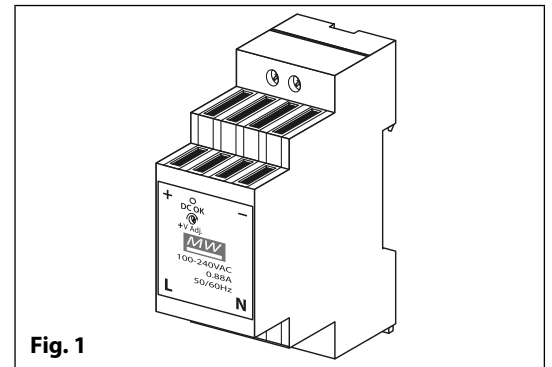


Fig. 1

ART. 432 GSM ANTENNA

The Art.432 GSM antenna connects to the SMA female bulkhead connection on the bottom side of the Art.2270 GSM module (just above the A1 and A2 terminals). A GSM antenna with an SMA male connector should be used (see to **Fig.2**).

Antenna Parts

1. GSM antenna with magnetic base.
2. Self-threading screw ($\varnothing 3.5\text{mm} \times 9.5\text{mm}$).
3. Aluminium L bracket for mounting.
4. SMA male connector (cable length 2.5m).
5. Expansion type wall plugs ($\varnothing 6\text{mm}$).
6. Self-threading screw ($\varnothing 4\text{mm} \times 30\text{mm}$).

IMPORTANT NOTE: An antenna must always be fitted for the Art.2270 GSM module to work. Always route the GSM antenna cable away from the module to avoid interference on the speech channels.

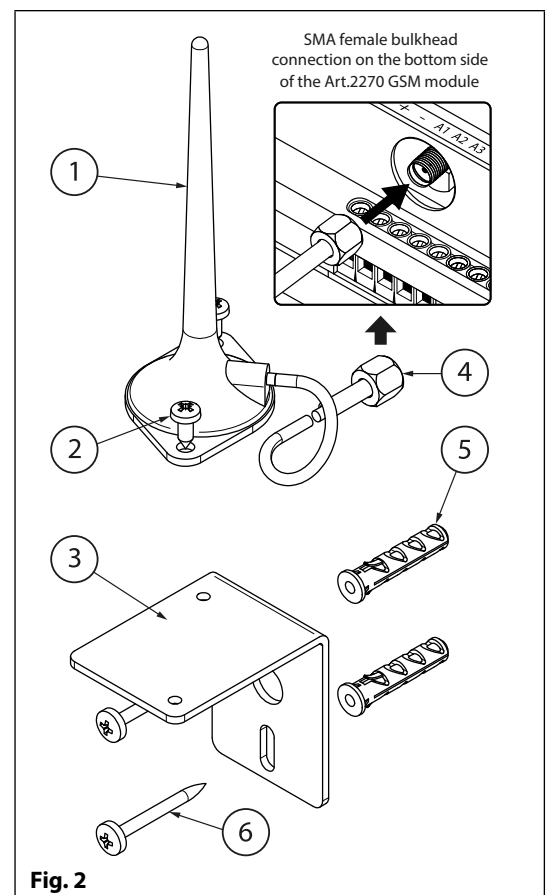
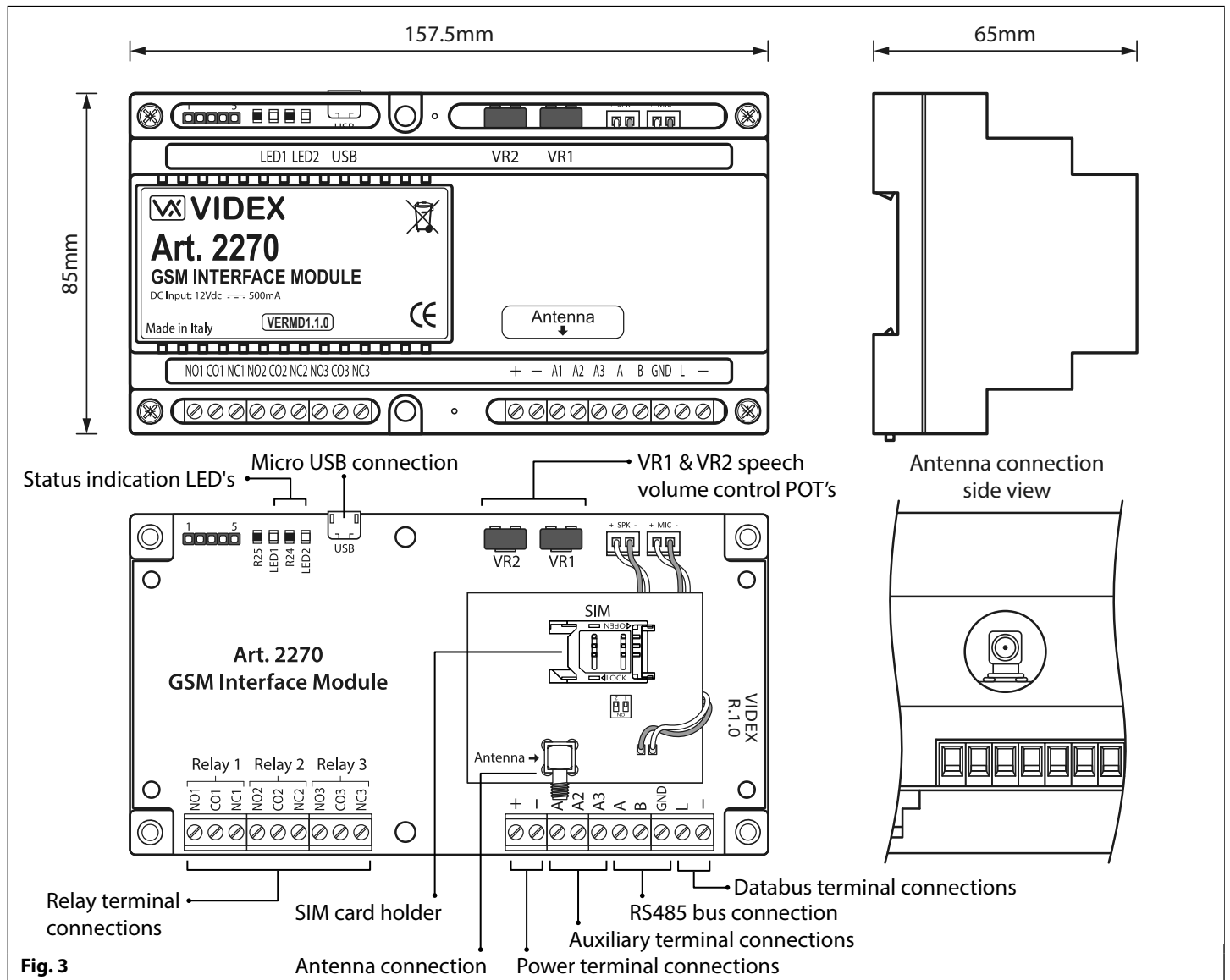


Fig. 2

IMPORTANT NOTE: Intercom panel setup and configuration for the compatible panel types listed in the table shown on page 6 can be found in either the VX2200 technical manual: VX2K2HDIGSYS Version 1.1 (or later) or the relevant installation instructions that accompany the respective intercom panel.

Technical Information

ART. 2270 MODULE



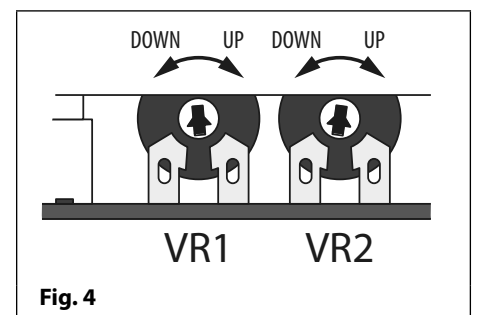
MODULE VOLUME ADJUSTMENT POTS (VR1 & VR2)

There are 2 volume adjustment POT's located on the top right side of the Art.2270 module, see **Fig.3**. The **VR1** POT control can be used to adjust the speech volume towards the door panel (panel's speaker) and the **VR2** POT control can be used to adjust the speech volume towards the telephone line (panel's microphone). Additionally, the volume can also be adjusted during a call electronically via the telephone keypad (refer to user command table 1 on page 35).

By default both the **VR1** and **VR2** adjustment POTs are set to approximately halfway, see **Fig.4**.

Speaker Volume Adjustment (speech from phone to panel) - to increase the speaker volume turn the **VR1** POT clockwise (up) and to decrease the speaker volume turn the **VR1** POT anti-clockwise (down).

Microphone Volume Adjustment (speech from panel to phone) - to increase the microphone volume turn the **VR2** POT clockwise (up) and to decrease the microphone volume turn the **VR2** POT anti-clockwise (down).



USB CONNECTION

The micro-USB connection allows the Art.2270 module to be connected to a laptop/PC for ease of programming (refer to page 18 for connecting the GSM module to a laptop/PC). Further information on programming using the GSMSK PC software can be found in the following manual: **GSMSK_66251720_EN_V1-3** (or later version).

Technical Information

TERMINAL CONNECTIONS

Terminal	Description
NO1	Normally open 1 relay contact.
CO1	Common 1 relay contact.
NC1	Normally closed 1 relay contact.
NO2	Normally open 2 relay contact.
CO2	Common 2 relay contact.
NC2	Normally closed 2 relay contact.
NO3	Normally open 3 relay contact.
CO3	Common 3 relay contact.
NC3	Normally closed 3 relay contact.
Relay 1, 2 and 3 contacts: 3A@24Vdc 3A@120Vac	
+	+12Vdc power input (500mA max.)
-	0V ground power.
A1	Auxiliary 1 input (triggers relay 1 when A1 mode set to 000, switched 0V, default).
A2	Auxiliary 2 input (triggers relay 2 when A2 mode set to 000, switched 0V, default).
A3	Auxiliary 3 input (triggers relay 3 when A3 mode set to 000, switched 0V, default).
A	RS485 bus connection (for ease of programming and permanent connection for monitoring purposes).
B	
GND	
L	BUS line data input.
-	BUS line ground input.

STATUS INDICATION LED'S

LED	Description
	During 'power up' the red LED (LED1) will flash continuously while trying to connect the Art.2270 module to the network. As soon as the module is connected to the network it will switch OFF. The LED will also switch ON whenever the line is in use or the module is busy and will flash whenever the network connection is lost and is trying to re-establish a connection.
	The green LED (LED2) will flash whenever it sees data on the L and - bus connection (when the Art.2270 module is in use). The LED will switch ON and stay ON during communication via the USB or RS485 bus connection. In standby when the module is not in use the LED will be switched OFF.

TECHNICAL SPECIFICATION

Working Voltage	: 12Vdc +/- 10%
Standby Current	: approx. 60mA
Max. Current	: approx. 500mA (max.)
Phone ID's (call buttons)	: 1 up to 180 (max.)
Telephone Numbers per ID	: 4 telephone numbers (1 primary, 3 diverts)
Dial to Open Numbers	: up to 1000 per relay (max.), 3000 DTO numbers in total
Status Indication LED's	: 2 (red LED1 power up/busy, green LED2 data)
Programming	: SMS messaging or PC software
Auxiliary Inputs	: 3 (A1, A2 and A3 switched 0V input)
Dry Contact Relay	: 3 (relay 1, 2 and 3), 3A @ 24Vdc, 3A @ 120Vac
Event Log	: up to 8000 events
USB Port	: micro USB
RS485 Bus Connection	: A, B and GND
Timebands	: 1 programmable timeband
Dimensions	: 157.5mm (W) x 85mm (L) x 65mm (D)
Working Temp.	: -10 +50°C

FUNCTIONAL INTERCOM PANEL CONNECTIONS

VIDEX Art. 2270 GSM INTERFACE MODULE
DC Input: 12Vdc $i_m = 500mA$
Made in Italy VERMD1.1.0

Art.432 Antenna

230Vac ~ 50/60Hz Mains Input

12Vdc Fail Secure Lock Release

12Vdc Fail Safe Lock Release

14v MOV

Art.4203-1 Intercom Door Panel

Fig. 5

Fig. 5

VX2200 GSM Interface Module - Technical Manual

Wiring Diagrams

FUNCTIONAL INTERCOM PANEL CONNECTIONS (SECURED BY DESIGN LOCK WIRING)

The following wiring diagram, **Fig.6** similar to **Fig.5** shown on page 10, shows the wiring connections for a functional panel, in this example an **Art.VR4KAM2W (Art.138N speaker)** functional panel. To meet the Secured by Design specification the lock release is connected directly from the relay output (in this example relay 1) on the GSM module. The GSM module would be located in a secure location away from the intercom door panel with only the connections for the L and - databus and power connections. The wiring configuration of the panel's buttons can be found in the following technical manual: **VX2K2HDIGSYS Version 1.1** or the relevant installation instructions that come with the speaker module. The same wiring diagram can also be used for other series functional panels.

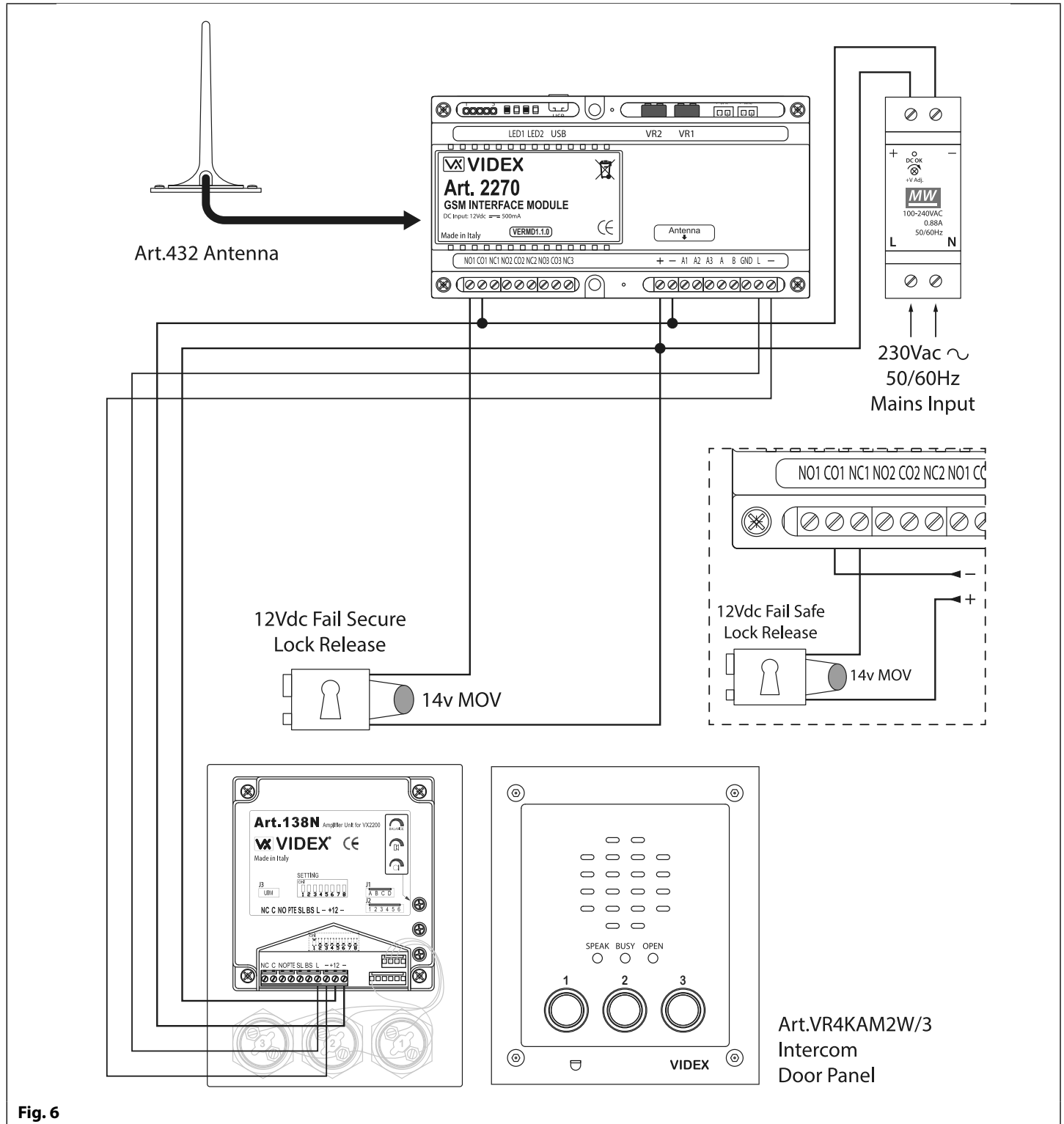


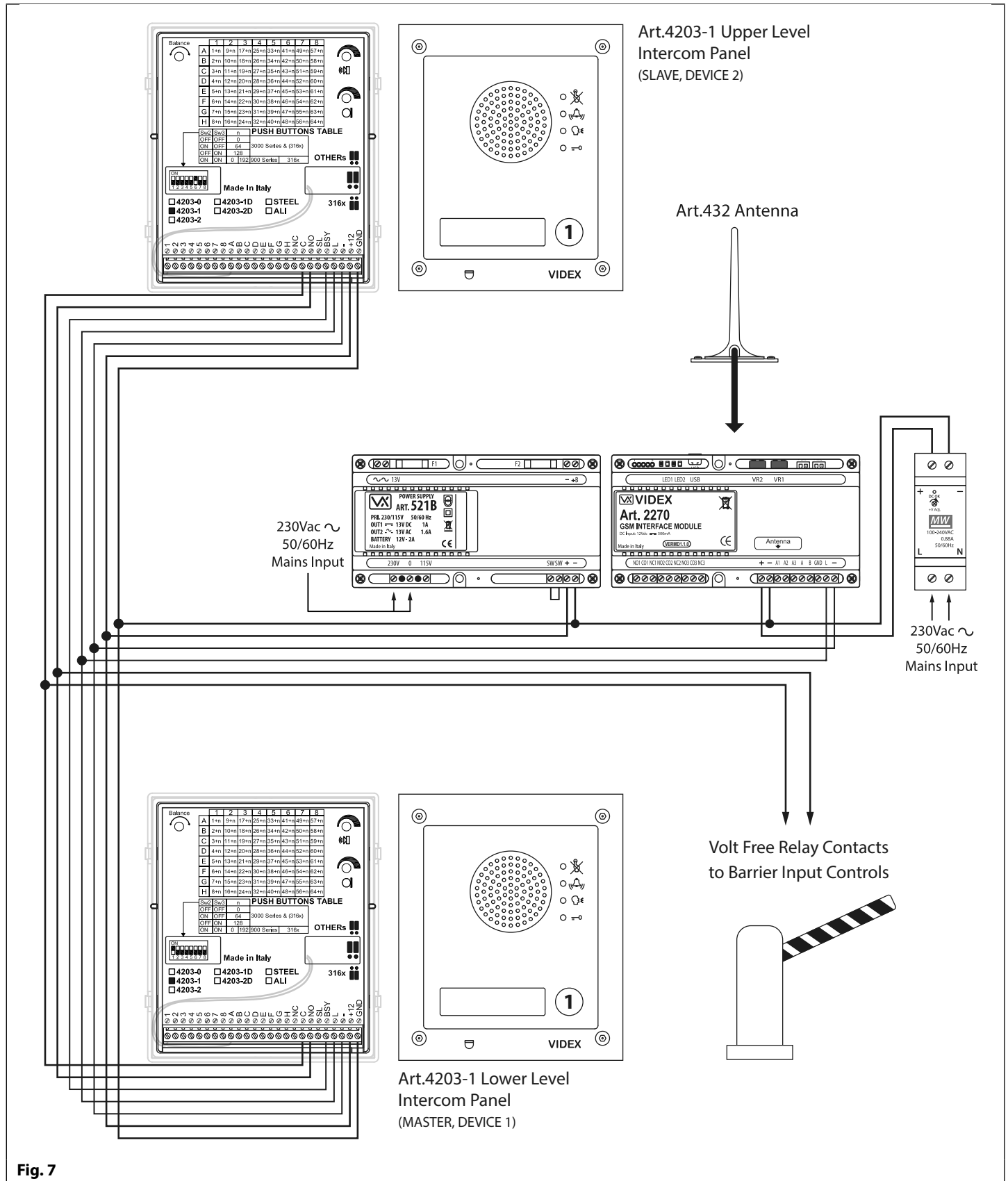
Fig. 6

A fail secure lock release is shown, for fail safe lock release connections move the lock wire from normally open (**NO1**) across to terminal normally closed (**NC1**) as shown in **Fig.6**. The same method of wiring locks can be applied to relay 2 and relay 3.

Wiring Diagrams

FUNCTIONAL INTERCOM PANEL CONNECTIONS (DUAL HEIGHT BARRIER EXAMPLE)

The following wiring diagram, **Fig.7**, shows the connections for two functional panels as a “dual-height barrier” configuration, in this example two **Art.4203-1** (speaker) panels with volt free connections to a set of barrier controls. The wiring configuration of the panel's buttons can be found in the following technical manual: **VX2K2HDIGSYS Version 1.1** or the relevant installation instructions that come with the speaker module. The same wiring diagram can also be used for other series functional panels.



Wiring Diagrams

DIGITAL INTERCOM PANEL CONNECTIONS

The following wiring diagram, **Fig.8**, shows the connections for a digital panel, in this example an **Art.4202RV** digital panel with other connections for an **Art.6478** videophone. The VX2200 system setup, configuration and the digital panel's programming can be found in the following technical manual: **VX2K2HDIGSYS Version 1.1**. For the **Art.6478** setup and configuration refer to the installation instructions: **66251320-EN-V1.5**.

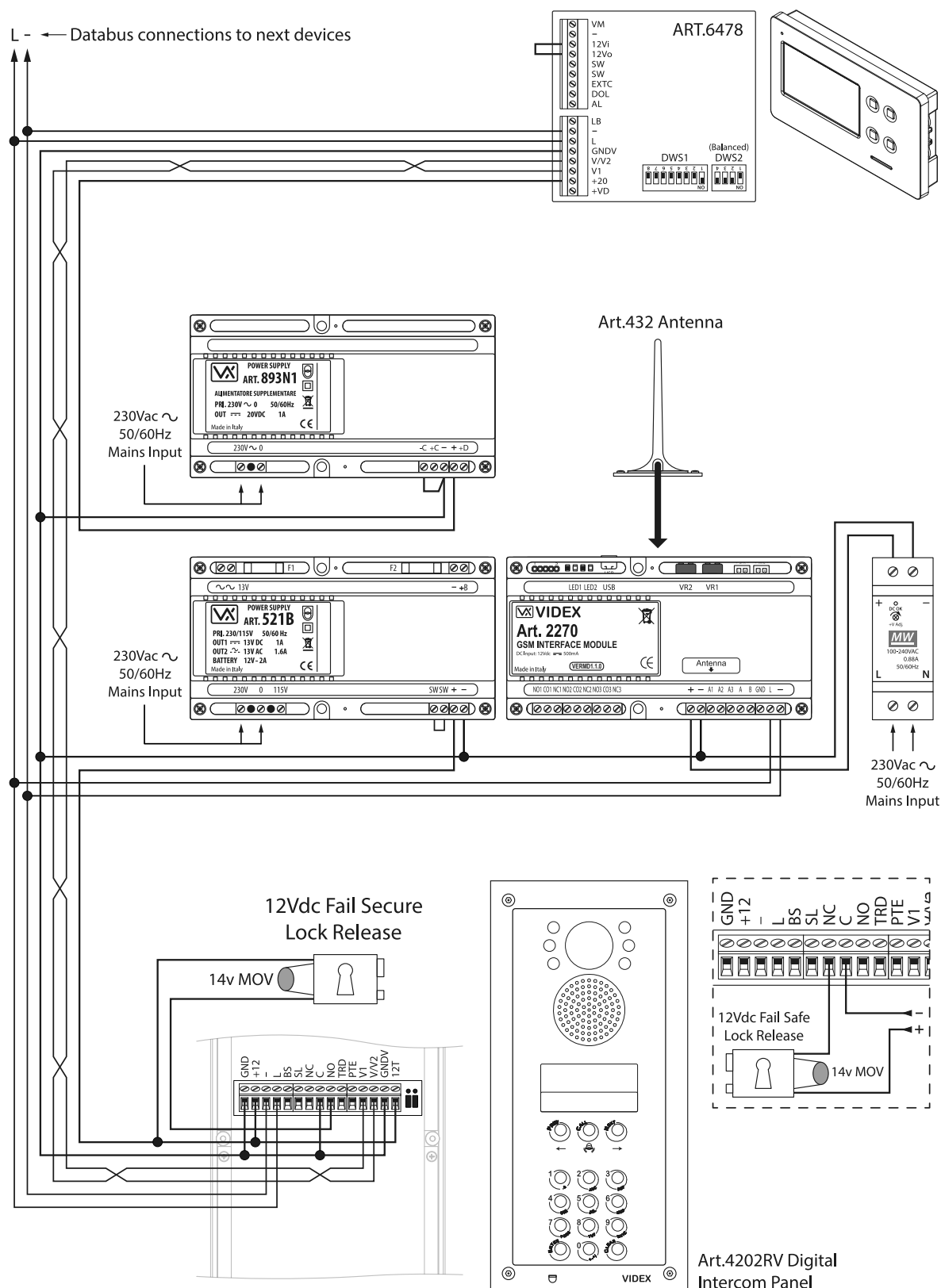
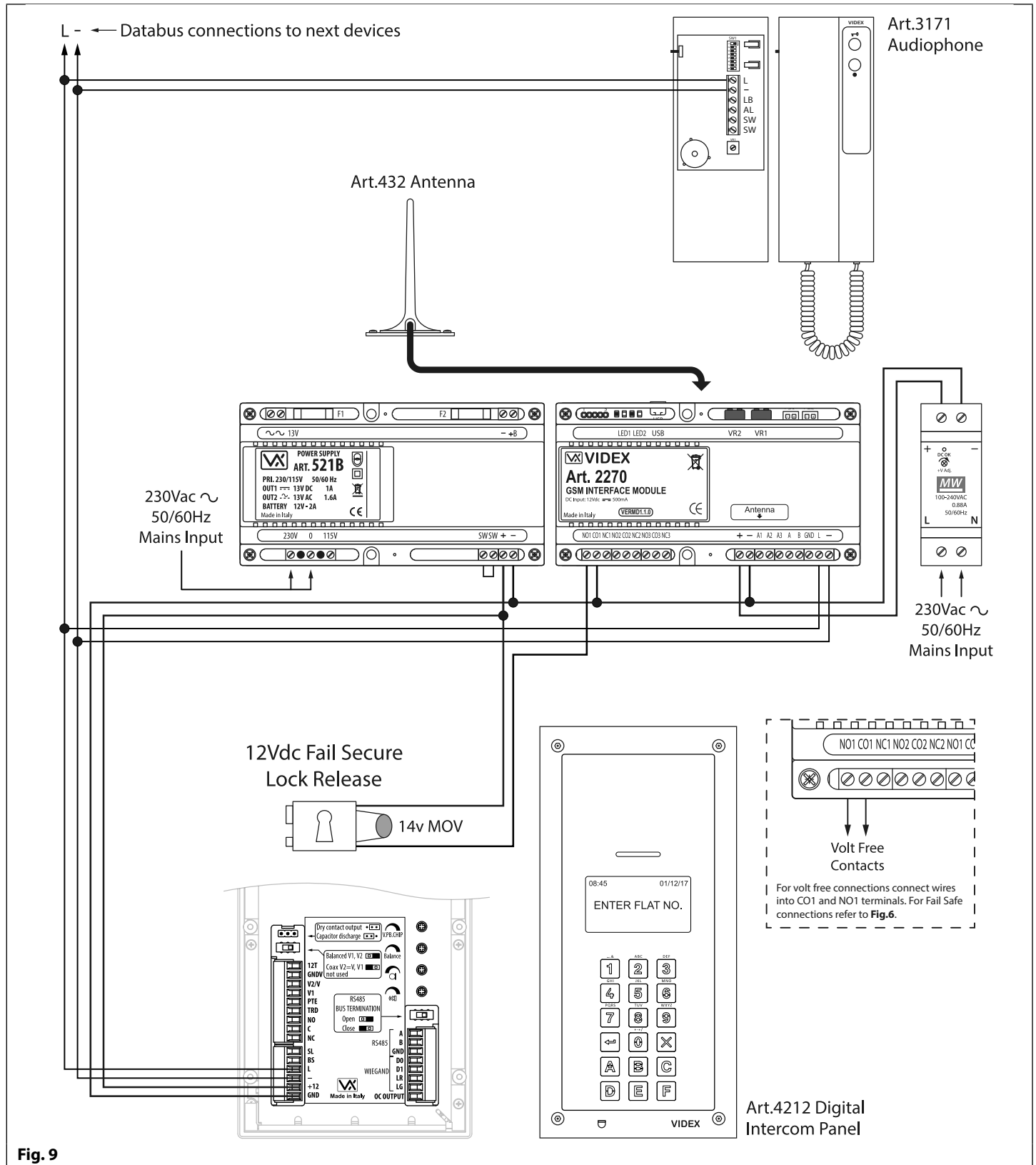


Fig. 8

Wiring Diagrams

DIGITAL INTERCOM PANEL CONNECTIONS (SECURED BY DESIGN LOCK WIRING)

The following wiring diagram, **Fig.9**, shows the connections for a digital panel, in this example an **Art.4212** digital panel with other connections for standard **Art.3171** audiophones. To meet the Secured by Design specification the lock release is connected directly from the relay output (in this example relay 1) on the GSM module. The GSM module would be located in a secure location away from the intercom door panel with only the connections for the L and - databus and power connections. The digital panel's programming can be found in the following installation instructions: **66250203-EN-V0.7** and for the VX2200 system setup and configuration the technical manual: **VX2K2HDIGSYS Version 1.1**.

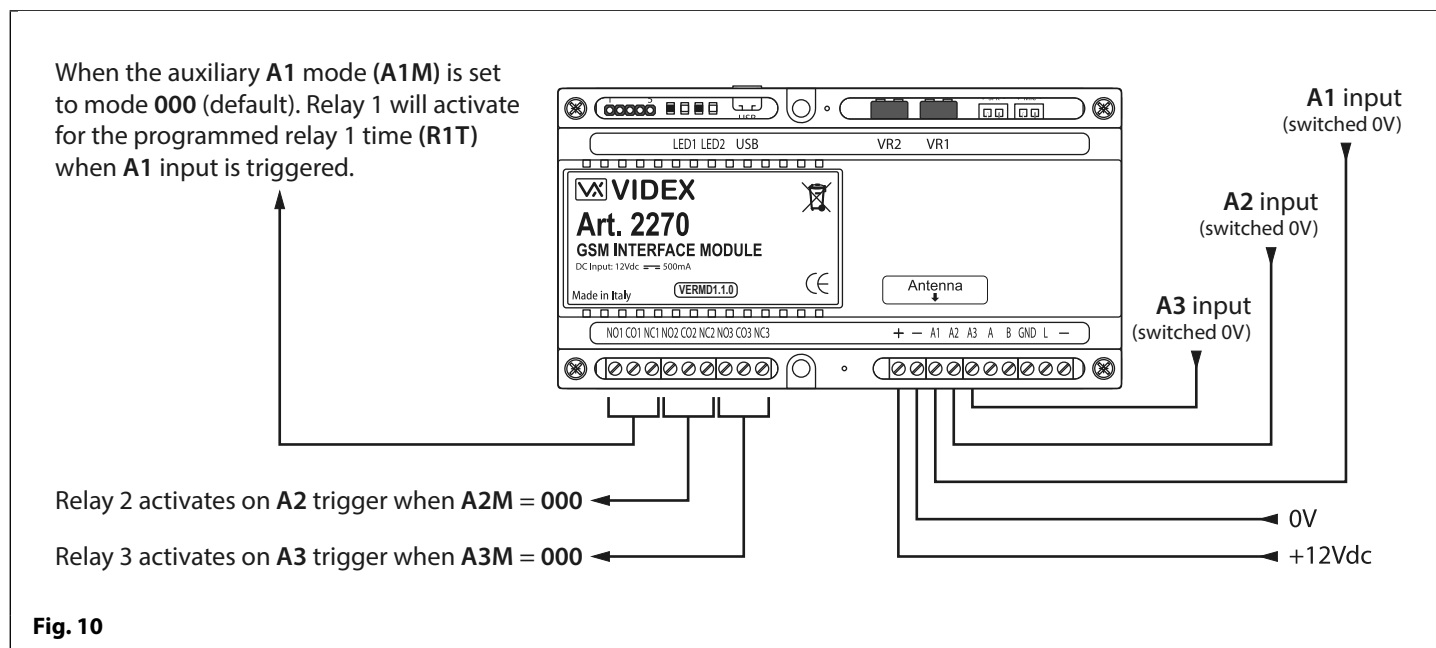


Auxiliary Inputs & Relay Outputs

The Art.2270 module's auxiliary modes (A1M, A2M and A3M) can be programmed to 7 different modes (000 - 006), please refer to programming notes on how to set up the auxiliary output modes on page 27. The auxiliary modes can also be programmed using the GSMSK PC software, please refer to programming manual GSMSK_66251720_EN_V1-3 (or later version).

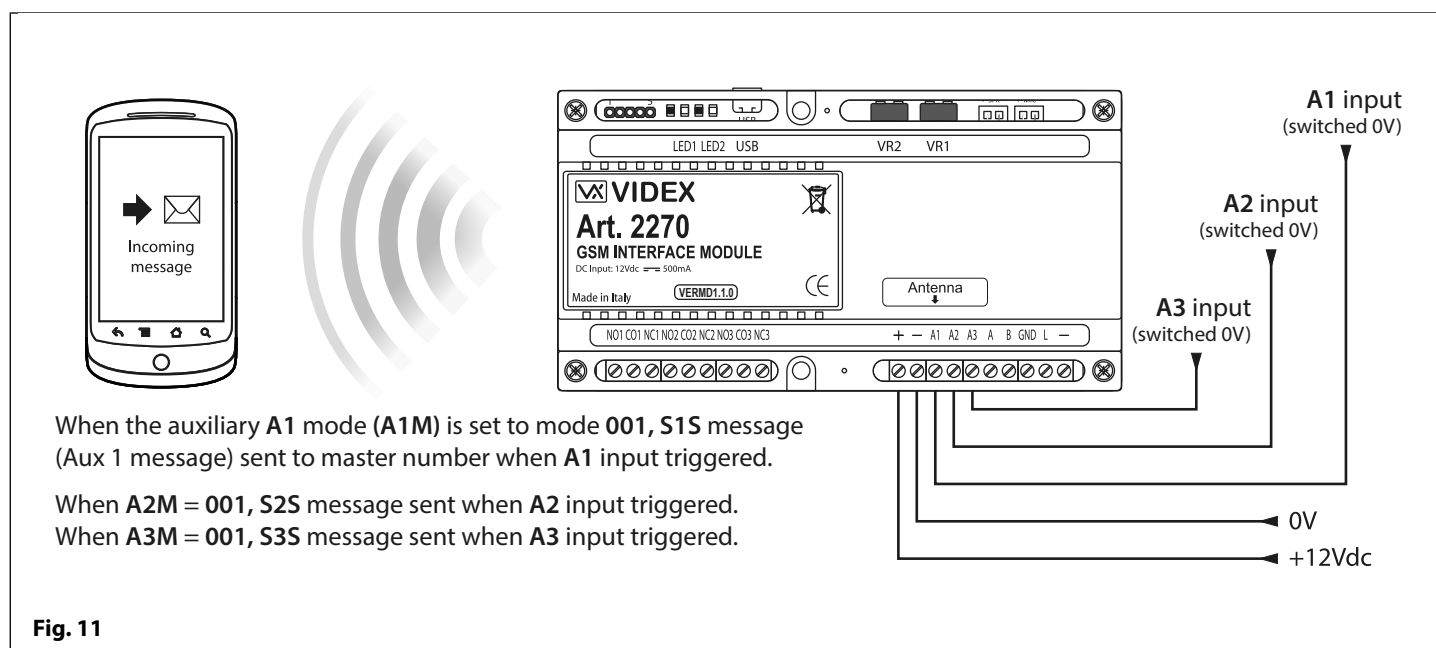
AUXILIARY A1M, A2M AND A3M SET TO MODE 000 (TRIGGERS RESPECTIVE RELAY 1, 2 OR 3)

The example shown in **Fig.10** shows the connection for auxiliary A1 when the A1M mode is set to 000 (default mode). When auxiliary input A1 is triggered by a switched 0V signal it will activate relay 1 for the programmed relay 1 time R1T (also refer to programming notes for auxiliary mode set up and setting relay 1, 2 and 3 times). The auxiliary mode setup can also be applied for A2M and A3M and will activate their respective relays (i.e. A2 input for relay 2 and A3 input for relay 3).



AUXILIARY A1M, A2M AND A3M SET TO MODE 001 (SEND SMS MESSAGE TO MASTER NUMBER)

The example shown in **Fig.11** shows the connection for auxiliary A1 when the A1M mode is set to 001. When auxiliary input A1 is triggered by a switched 0V signal it will send the SMS message stored for S1S to the master number (also refer to programming notes for auxiliary mode set up, storing SMS 1, 2 and 3 messages and storing a master number). The auxiliary mode setup can also be applied for A2M and A3M and will send their respective SMS messages to the master number (i.e. A2 input for S2S message and A3 input for S3S message). Please note the maximum length of each SMS message can be up to 32 characters.



Auxiliary Inputs & Relay Outputs

AUXILIARY A1M, A2M AND A3M SET TO MODE 002 (TRIGGERS RESPECTIVE RELAY FOR DURATION OF CALL)

The example shown in **Fig.12** shows the connection for relay 1 when the **A1M** mode is set to **002**. Relay 1 will activate at the beginning of the call and last for the duration of the call (also refer to programming notes for auxiliary mode set up). The auxiliary mode setup can also be applied for **A2M** and **A3M** and will activate their respective relays (i.e. **A2M** for relay 2 and **A3M** for relay 3).

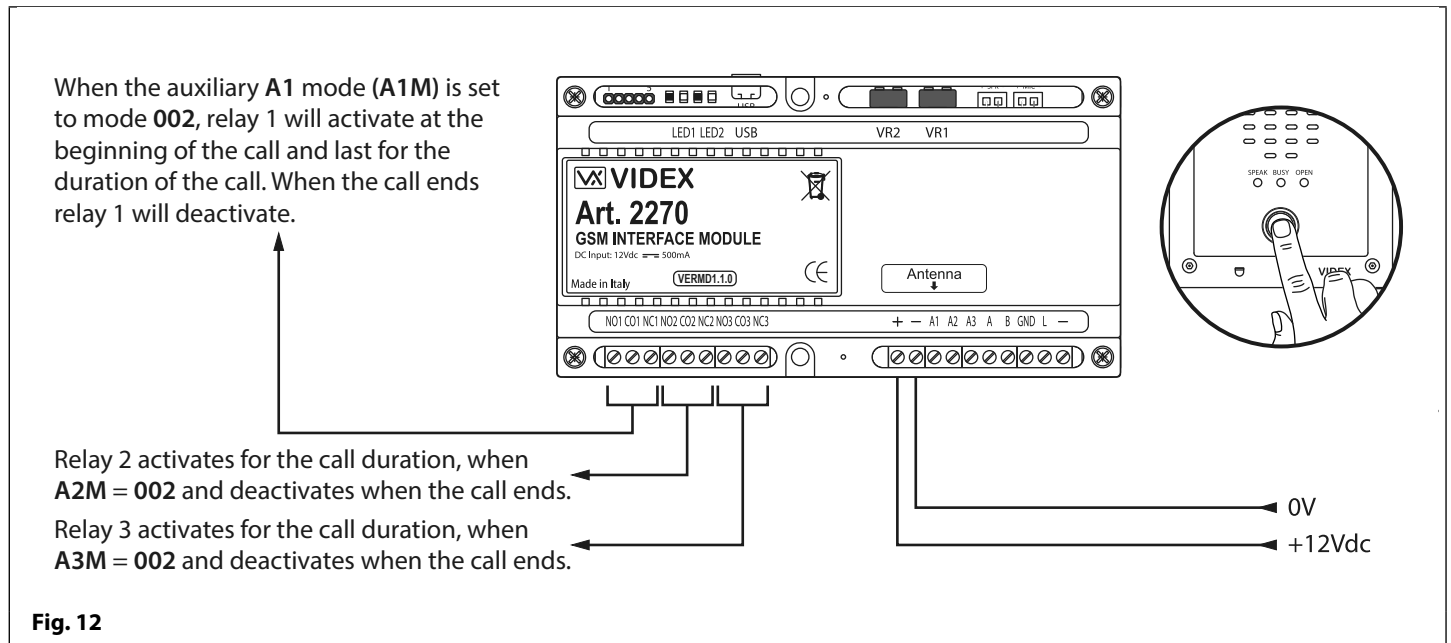


Fig. 12

AUXILIARY A1M, A2M AND A3M SET TO MODE 003 (TRIGGERS RESPECTIVE RELAY FOR THE PROGRAMMED RELAY TIME)

The example shown in **Fig.13** shows the connection for relay 1 when the **A1M** mode is set to **003**. Relay 1 will activate at the beginning of the call for the programmed relay 1 time **R1T** (also refer to programming notes for auxiliary mode set up and setting relay 1, 2 and 3 times). The auxiliary mode setup can also be applied for **A2M** and **A3M** and will activate their respective relays for their respective relay times (i.e. **A2M** for relay 2 time **R2T** and **A3M** for relay 3 time **R3T**).

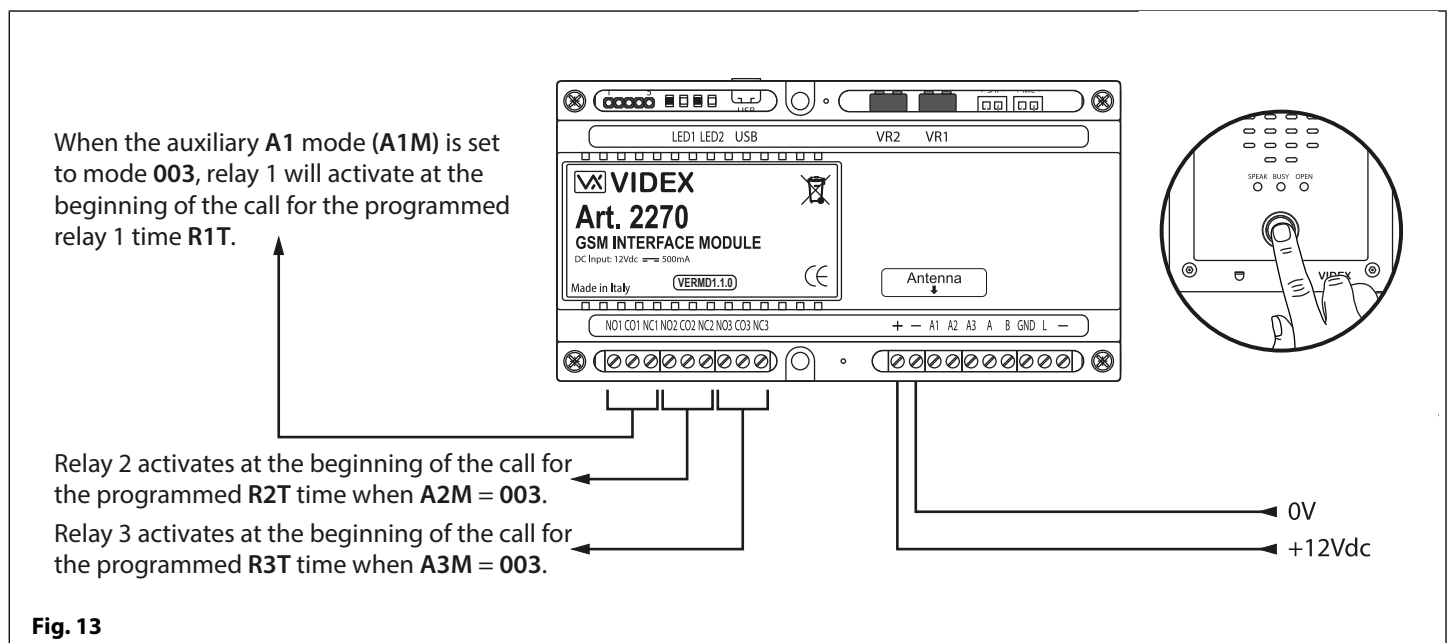
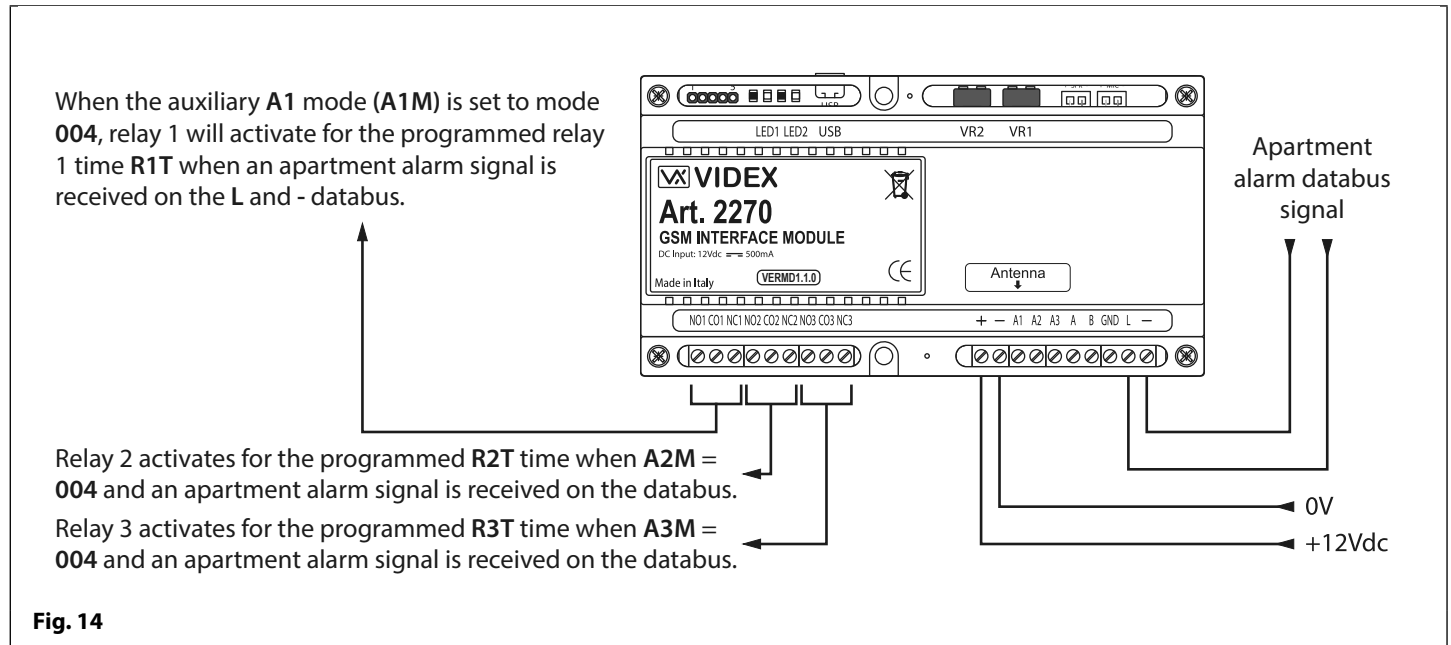


Fig. 13

Auxiliary Inputs & Relay Outputs

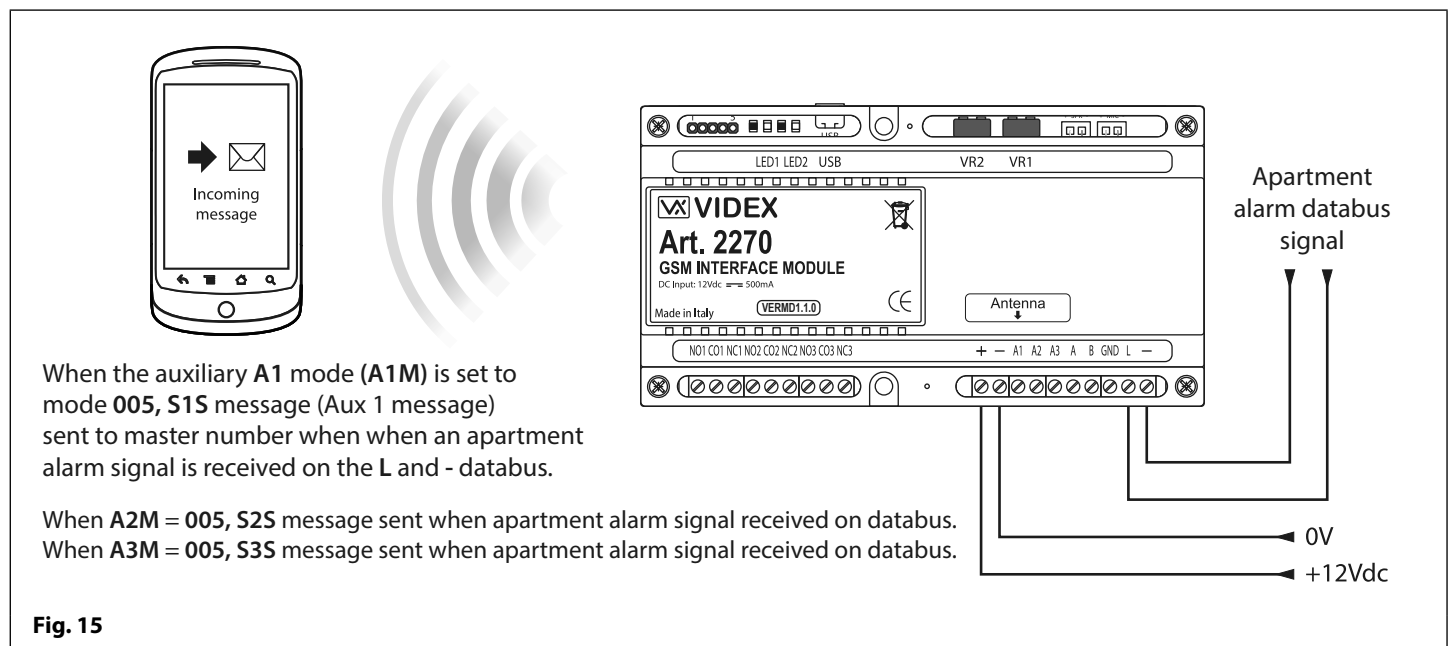
AUXILIARY A1M, A2M AND A3M SET TO MODE 004 (TRIGGERS RESPECTIVE RELAY BY APARTMENT ALARM)

The example shown in **Fig.14** shows the connections for relay 1 and the L and - databus when the **A1M** mode is set to **004**. When the Art.2270 module receives an apartment alarm signal on the databus relay 1 will activate for the programmed relay 1 time **R1T** (also refer to programming notes for auxiliary mode set up and setting relay 1, 2 and 3 times). The auxiliary mode setup can also be applied for **A2M** and **A3M** and will activate their respective relays for their respective relay times (i.e. **A2M** for relay 2 time **R2T** and **A3M** for relay 3 time **R3T**).



AUXILIARY A1M, A2M AND A3M SET TO MODE 005 (SEND SMS MESSAGE TO MASTER NUMBER WHEN TRIGGERED BY APARTMENT ALARM)

The example shown in **Fig.15** shows the connections for the L and - databus when the **A1M** mode is set to **005**. When the Art.2270 module receives an apartment alarm signal on the databus the GSM module will send the SMS message stored for **S1S** to the master number (also refer to programming notes for auxiliary mode set up, storing SMS 1, 2 and 3 messages and storing a master number). The auxiliary mode setup can also be applied for **A2M** and **A3M** and will send their respective SMS messages to the master number (i.e. **A2M** for **S2S** message and **A3M** for **S3S** message). Please note the maximum length of each SMS message can be up to 32 characters.



Auxiliary Inputs & Relay Outputs

AUXILIARY A1M, A2M AND A3M SET TO MODE 006 (RELAY 1, 2 OR 3 TRIGGERED BY DOOR ID 1, 2 OR 3 RESPECTIVELY)

The example shown in **Fig.16** shows the connection for relay 1 when the **A1M** mode is set to **006**. After a call has been made and answered at an apartment (whether it is a programmed telephone number for an apartment or a call made to a Videx audiophone/videophone in an apartment) and the intercom panel's ID (door ID) has been set to **ID.1** the panel's onboard relay will trigger as expected, but also relay 1 on the Art.2270 GSM module will activate for the programmed relay 1 time **R1T** when the lock release signal has been triggered (also refer to programming notes for auxiliary mode set up and setting relay 1, 2 and 3 times). The auxiliary mode setup can also be applied for **A2M** and **A3M** and will activate their relays for their respective relay times (i.e. **A2M** for relay 2 time **R2T** for door **ID.2** and **A3M** for relay 3 time **R3T** for door **ID.3**). For setting up the intercom panel's relay time and door ID refer to the relevant installation instructions that accompany the intercom panel.

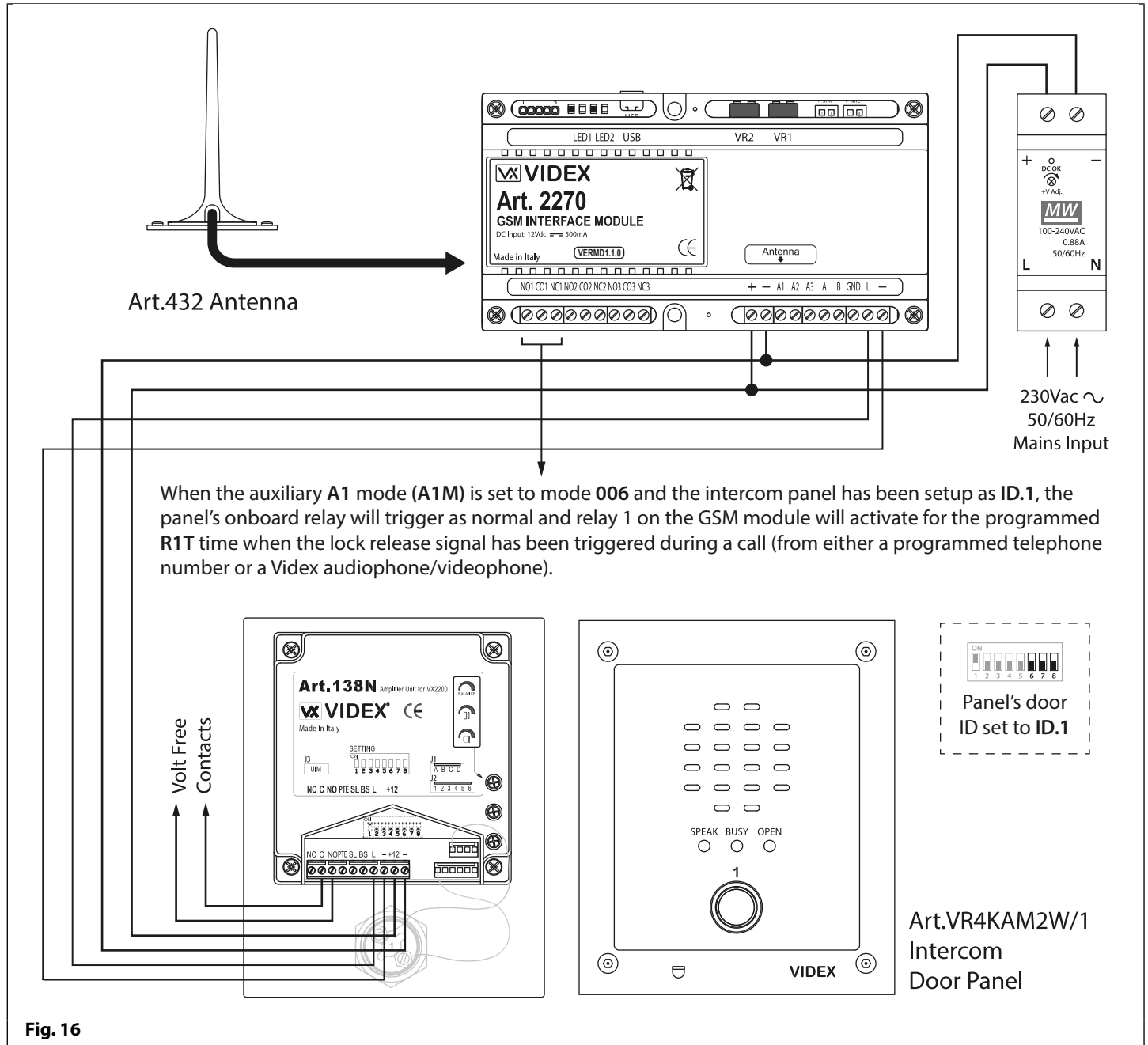


Fig. 16

IMPORTANT NOTE: Only one mode can be set for each auxiliary input (A1, A2 or A3) at any one time, however each individual auxiliary mode can be set differently e.g. auxiliary A1M could be set to mode 001, auxiliary A2M could be set to mode 003 and auxiliary A3M could be set to mode 006.

When any of the auxiliary modes A1M, A2M and A3M are set to mode 002 - 006 the auxiliary inputs A1, A2 and A3 can still activate their respective relays 1, 2 and 3 for the programmed relay times R1T, R2T and R3T as if in mode 000.

Mode 006 is only applicable for intercom panel door ID's 1, 2 and 3.

USB & RS485 Connection

CONNECTIONS TO A PC

The Art.2270 GSM module also includes two options for connecting to a PC: via a USB connection or via an RS485 connection. Both methods of connection are to allow for ease of programming and monitoring using the GSM SK PC software. All programming features described in this manual are also accessible using the software. Further information on using the GSM SK PC software can be found in the technical manual **GSM SK_66251720_EN_V1-3** (or later version).

OPTION 1: USB CONNECTION

The GSM module can be connected using a standard micro-USB to USB cable as shown in **Fig.17**. This method of connection is primarily used for programming and setup of the GSM module only.

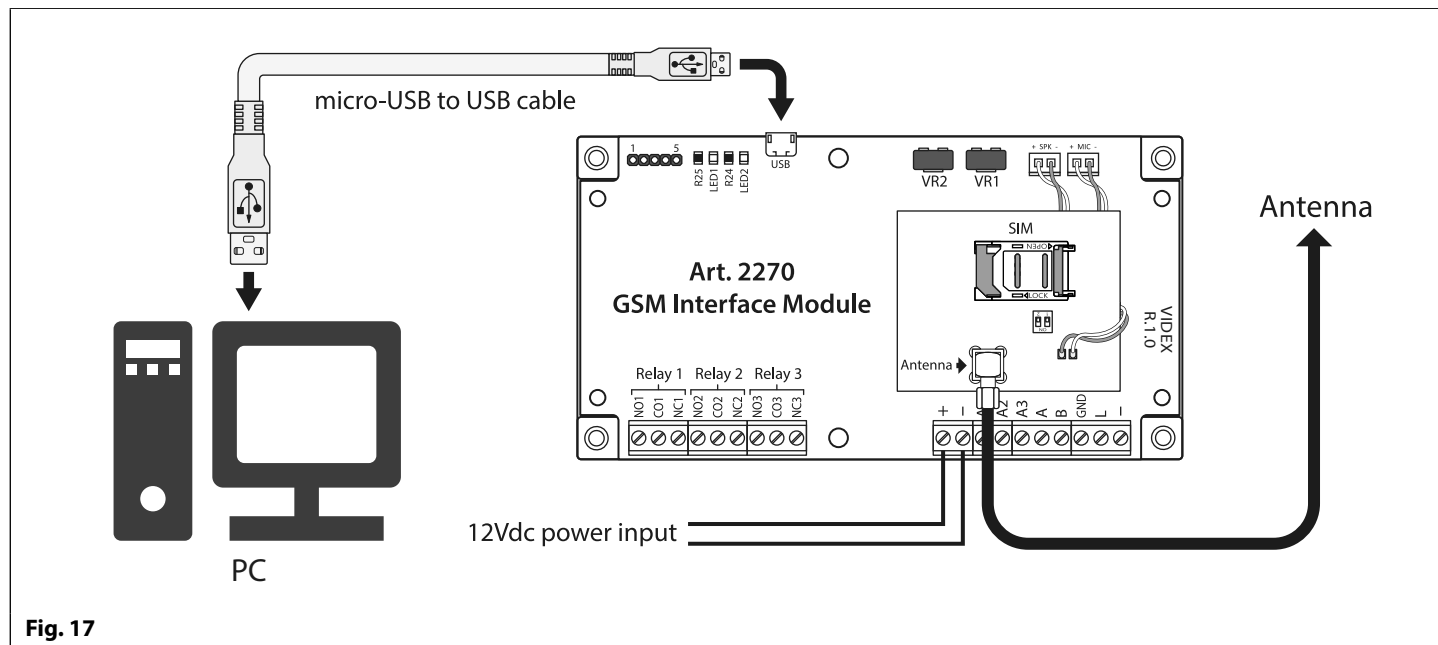


Fig. 17

OPTION 2: RS485 CONNECTION

The GSM module can also be connected using an RS485 bus connection via an RS485 to USB converter (Art.481) as shown in **Fig.18** in instances where a permanent connection to a PC is required for monitoring purposes and downloading event logs. When connected in this way the GSM module can only be connected as a 'one-to-one' bus connection to the PC, another GSM module **cannot** be connected on the same RS485 bus to the PC.

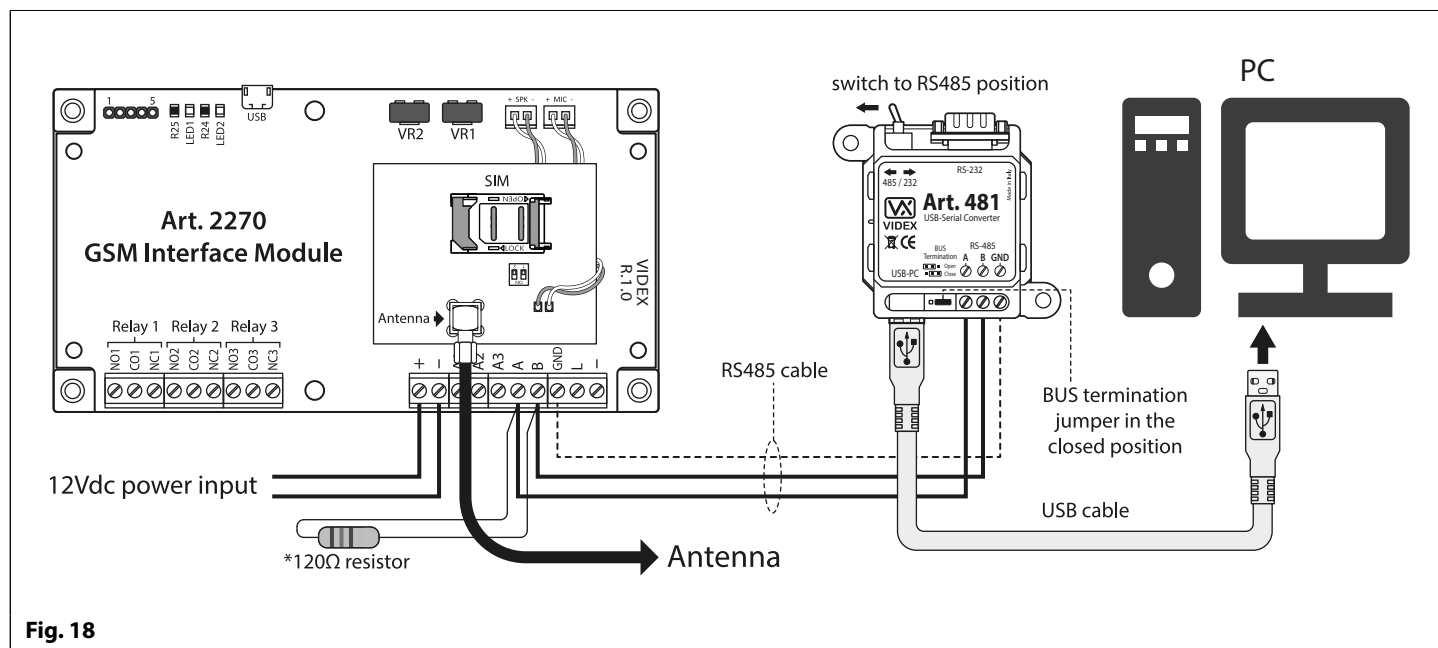


Fig. 18

*For end of line termination a 120 Ohm resistor must be fitted across the RS485 terminals A and B, as shown in **Fig.17**.

General Directions for Installation

CABLE SIZE GUIDE

Refer to the table below for the connections for the power supply output to the GSM module and the lock release connections.

Distance	20m	50m	100m
Cross Sectional Area (CSA)	0.5mm ²	1.0mm ²	1.5mm ²

Ideally the power supply should be located as close to the intercom panel as possible for best performance. The maximum acceptable resistance for the above cables = 3Ω or less for best possible performance.

For other VX2200 system devices refer to the following table. It is recommended that a twisted pair cable is used for the L and -databus connections and for balanced video signal connections V1 and V2 (for video systems).

VX2200 System Cable Requirements				
Connections	50m	100m	200m	300m
L	0.4mm ²	0.5mm ²	0.75mm ²	1.0mm ²
-	0.4mm ²	0.5mm ²	0.75mm ²	1.0mm ²
V1 *	0.35mm ²	0.5mm ²	0.75mm ²	1.0mm ²
V2 *	0.35mm ²	0.5mm ²	0.75mm ²	1.0mm ²
+20V *	0.5mm ²	0.75mm ²	1.0mm ²	1.5mm ²
GNDV *	0.5mm ²	0.75mm ²	1.0mm ²	1.5mm ²
+12V	0.4mm ²	0.75mm ²	1.0mm ²	1.5mm ²
GND	0.4mm ²	0.75mm ²	1.0mm ²	1.5mm ²
All others **	0.25mm ²	0.35mm ²	0.5mm ²	0.75mm ²

* - these connections are only required on video systems.

** - these are optional connections (e.g. door monitoring LED).

The maximum acceptable resistance for all the above connections (except +20V and GNDV) = 7.5 Ohms or less and the maximum acceptable resistance for the video connections +20V and GNDV = 5 Ohms or less for best possible performance. Please note that all cable sizes shown in the tables above are the minimum cable requirements.

IMPORTANT NOTE: Only bare copper (BC) cable should be used (solid or stranded is acceptable). Please be aware that when selecting a cable the following should NOT be used: Copper Coated Steel (CCS) and Copper Clad Aluminium (CCA). While these types of cable may offer a low cost solution they will have a higher resistance than pure copper cable and can affect the overall performance of the system therefore Videx DO NOT recommend these types of cable.

Further cabling information can be found the technical manual **VX2200Blocks1-2** and is also provided in any accompanying installation instructions with the various VX2200 system components.

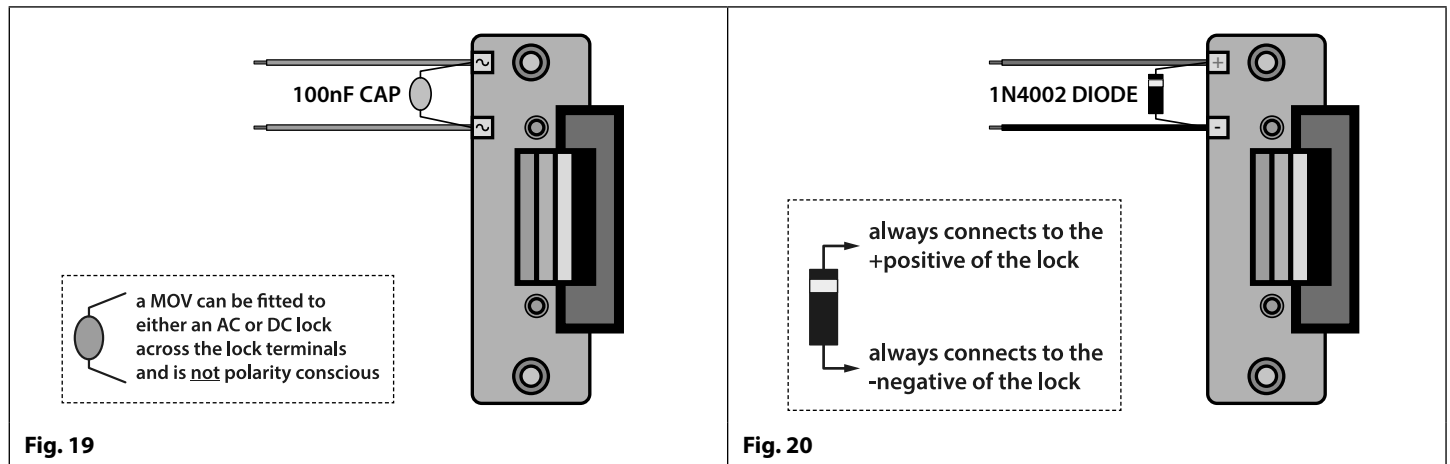
GENERAL INSTALLATION NOTES

- Check that all components are free from damage before installing (do not proceed with installation in the event of damage).
- Keep all packaging away from children.
- Do not obstruct the ventilation openings or slots on any of the devices.
- All connections to mains voltages must be made to the current national standards (I.E.E. wiring regulations for the UK or the appropriate standards of your country).
- Install an appropriate fused spur or isolation switch to isolate the mains.
- Isolate the mains before carrying out any maintenance work on the system.
- Avoid water ingress into the rear of the module, always seal the module frame after installation using a suitable silicon based sealant.
- All intercom and access control cables must be routed separately from the mains.

General Directions for Installation

LOCK RELEASE WIRING AND BACK EMF PROTECTION

When fitting an electric lock release back EMF protection will be required. If fitting an AC lock release then a 100nF ceramic disc capacitor must be fitted across the terminals of the lock, shown in **Fig.19**. If fitting a DC lock release (fail secure or fail safe) then a 1N4002 diode must be fitted across the terminals on the lock, shown in **Fig.20**.



If a 100nF ceramic disc capacitor or a 1N4002 diode are not available then a 14 - 20V MOV (metal oxide varistor) can be fitted across the lock terminals instead (refer to **Fig.19** above) and can be fitted on both an AC and DC lock. Connection examples can also be seen on the wiring diagrams on pages 10 to 14.

CONNECTION TO MAINS, SAFETY AND GUIDANCE NOTES

⚠ IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE COMMENCING WITH THE INSTALLATION.

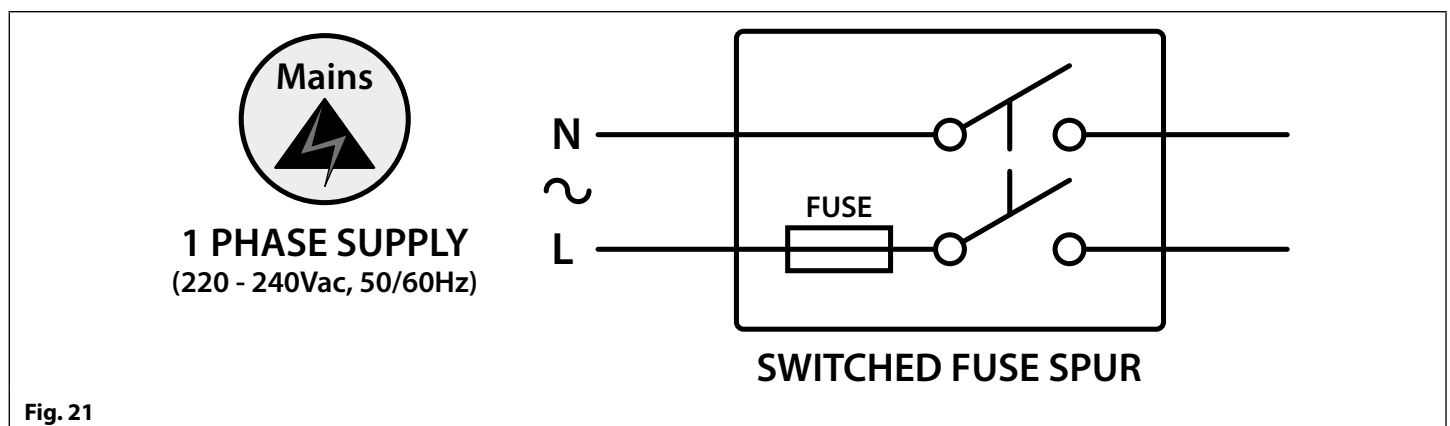
Videx recommends that any cabling and Videx product be installed by a competent and qualified electrician, security installation specialist or communications engineer.

- **DO NOT** install any Videx product in areas where the following may be present or occur:
- Excessive oil or a grease laden atmosphere.
- Corrosive or flammable gases, liquids or vapours.
- Possible obstructions which would prevent or hinder the access and/or removal of the Videx product.

MAINS CONNECTION

The system **MUST** be installed in accordance with the current I.E.E regulations (in particular I.E.E. Wiring regulations BS7671 for the UK), or the appropriate standards of your country, in particular Videx recommends:

- Connecting the system to the mains through an all-pole circuit breaker (refer to **Fig.21**) which shall have contact separation of at least 3mm in each pole and shall disconnect all poles simultaneously.
- That the all-pole circuit breaker shall be placed in such a way to allow for easy access and the switch shall remain readily operable.
- Ensuring that the mains supply (Voltage, Frequency and Phase) complies with the product rating label.
- Isolating the mains before carrying out any maintenance work on the system.



General Directions for Installation

POWER SUPPLY INSTALLATION AND MOUNTING

Follow the steps below when fitting the DL-15-12, Art521B or Art.893N1 DIN type power supply.

- First remove the terminal side covers by unscrewing the retaining screws (if applicable).
- Fix the power supply to a DIN rail (following **Fig.22**, **Fig.23** and **Fig.24**).
- Switch OFF the mains using the circuit breaker (mentioned previously) and then make the connections as shown on the installation (wiring) diagrams.
- Check the connections and secure the wires into the terminals ensuring that the low voltage (signal) cables are routed separately from the high voltage (mains) cables.
- Replace the terminal covers and fix them back into place using the relevant screws (if applicable).
- When all connections are made restore the mains supply.

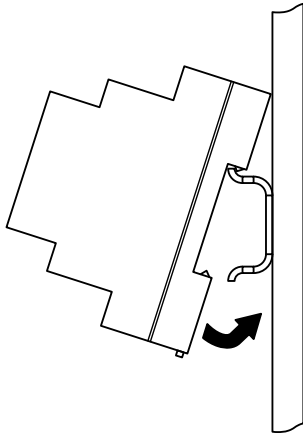


Fig. 22

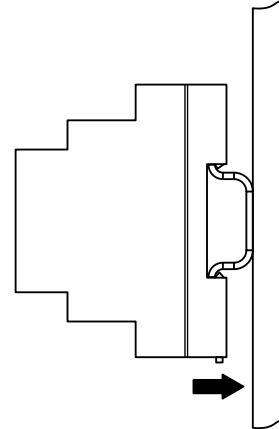


Fig. 23

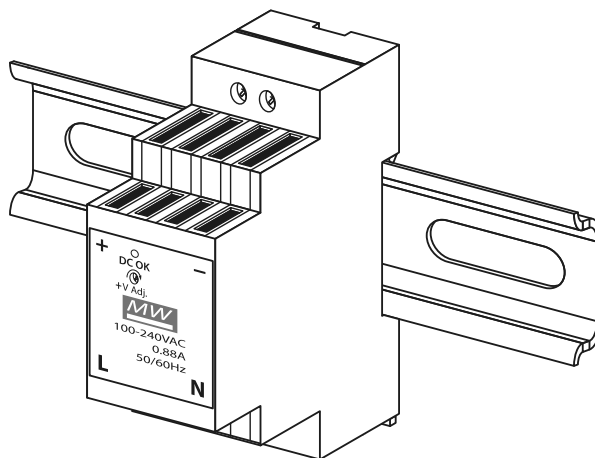


Fig. 24

MOUNTING THE ART.2270 GSM MODULE

The Art.2270 GSM module can also be mounted following the same instructions for mounting a DIN type power supply (described above following **Fig.22**, **Fig.23** and **Fig.24**) and then making the necessary terminal connections shown in the wiring diagrams on pages 10 -14 (depending on the system setup and configuration).

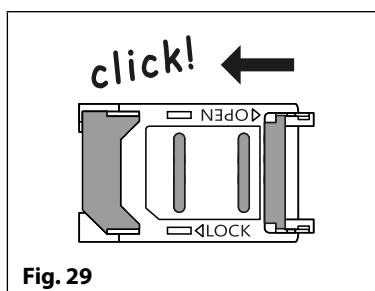
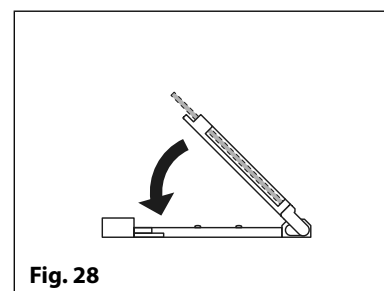
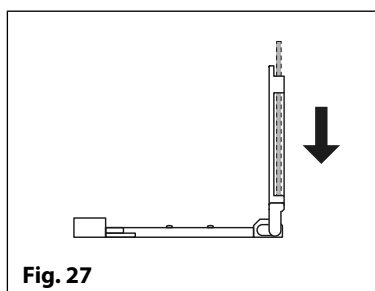
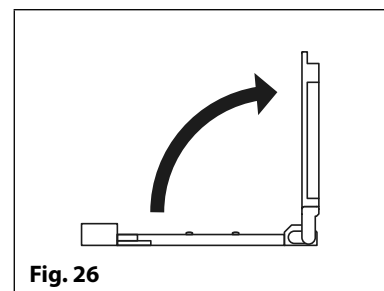
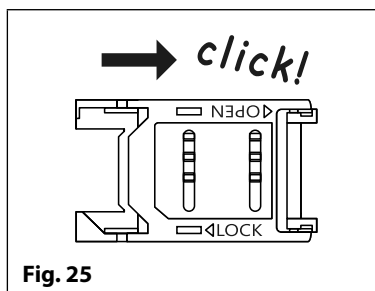
IMPORTANT NOTE: When fitting the SIM card into the GSM module the module itself must be fitted to the DIN rail as described above first. Once mounted on the DIN rail the top cover can be removed by unscrewing the 4 retaining screws to gain access to the SIM card holder pcb. Also refer to Fitting the SIM & Connecting Power notes on page 23.

Fitting the SIM & Connecting Power

FITTING THE SIM CARD AND CONNECTING THE POWER TO THE ART.2270 GSM MODULE

After installing the power supply, antenna, lock output and any other devices required (following the wiring diagrams on pages 10 - 14) and before powering the system up, a registered SIM card must be fitted into the SIM holder on the top side of the GSM module. A SIM card from most network providers can be used, also refer to notes on SIM card selection on pages 4 and 5. Follow the steps below to insert the SIM card.

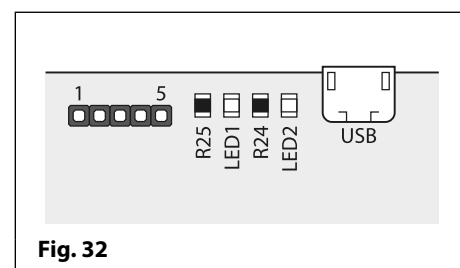
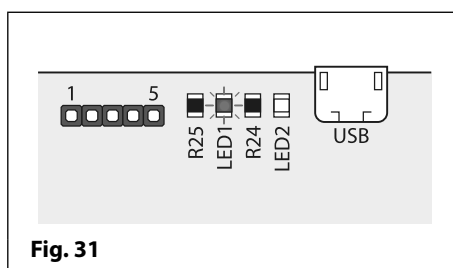
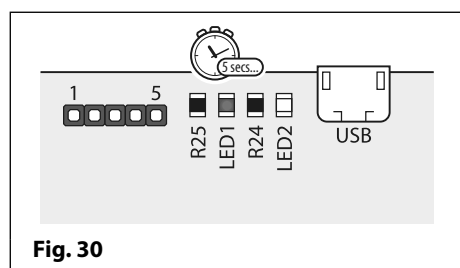
1. First remove the top cover of the Art.2270 module (as described on page 21) to gain access to the SIM holder pcb.
2. On the SIM holder pcb, slide the SIM holder to the right until it 'clicks', as shown in **Fig.25**.
3. The SIM holder is hinged and will open out to the right, see **Fig.26**.
4. Place the SIM card into the holder (it will only fit one way, see **Fig.27**) and fold the holder back down, see **Fig.28**.
5. Slide the SIM holder back to the left until it 'clicks', see **Fig.29**.
6. Once the SIM is in place make any other necessary terminal connections on the GSM module that may be required.
7. Connect the Art.432 GSM antenna and then connect the 12Vdc power supply wires but **DO NOT** power up the system yet.
8. Follow the initialisation process for the Art.2270 GSM module described below.



POWER UP INITIALISATION SEQUENCE FOR THE ART.2270 GSM MODULE

The Art.2270 GSM module requires approximately 20 seconds to initialise properly. We recommend **NOT** sending SMS messages or pressing buttons on the intercom panel during this time.

1. First check all the connections have been made correctly and then power up the system.
2. The red LED (LED1) will switch ON for approximately 5 seconds, as shown in **Fig.30**.
3. After this the red LED (LED1) will continue to flash while it registers with the chosen network, as shown in **Fig.31**.
4. After a further delay the red LED (LED1) will stop flashing, as shown in **Fig.32**, to indicate that the GSM module has registered with the network and is ready to begin programming.



Reset Procedure

RESETTING THE ART.2270 GSM MODULE TO FACTORY DEFAULTS

There are two reset options for the GSM module. The first will reset the master code only (any programming will be retained in the GSM module) and the second will reset everything and clear all stored telephone numbers and reset all settings.

RESETTING THE MASTER CODE TO 1111 (4x1)

1. Ensure the power is switched OFF to the GSM module;
2. Short out the auxiliary terminal **A1** to the - terminal with a piece of link wire, see **Fig.33**;
3. Switch the power back ON to the GSM module, the red LED (LED1) will switch ON for approximately 8 seconds;
4. The red LED (LED1) will then start to flash for approximately 60 seconds while it resets the master code back to 1111 (4x1), as shown in **Fig.34**;
5. After the 60 seconds is up the red LED (LED1) will stop flashing, remove the short between **A1** and the - terminal. The master code has been reset back to 1111 (4x1) and the GSM module is ready for programming.

IMPORTANT NOTE: When a master code reset is performed on the GSM module it will only reset the 4 digit programming code back to factory default 1111, all the settings and programmed information (telephone numbers etc.) will still be stored in the GSM module. No attempt should be made to remove the short before the red LED (LED1) stops flashing otherwise the master code reset will not work.

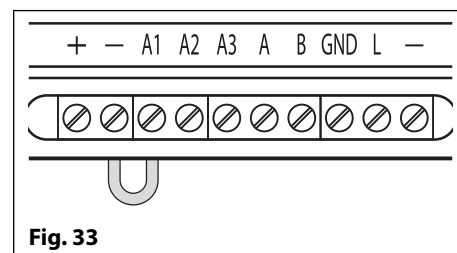


Fig. 33

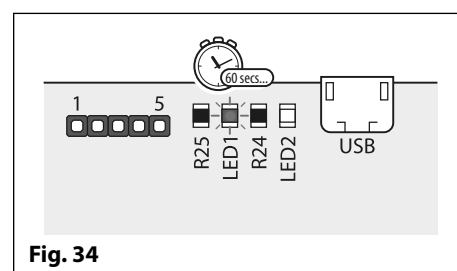


Fig. 34

FULL SYSTEM RESET

1. Ensure the power is switched OFF to the GSM module;
2. Short out the auxiliary terminals **A2** and **A3** to the - terminal with a piece of link wire, see **Fig.35**;
3. Switch the power back ON to the GSM module, initially the red LED (LED1) will switch ON for approximately 8 seconds. The red LED (LED1) will then start to flash, as shown in **Fig.36**;
4. After approximately 12 seconds both the red LED (LED1) and the green LED (LED2) will switch ON for approximately 20 seconds or so while the GSM module resets back to factory default, as shown in **Fig.37**;
5. The red LED (LED1) will start to flash again while the green LED (LED2) stays ON, for a further 5 seconds, as shown in **Fig.38**;
6. After the 5 seconds is up the red LED (LED1) will stop flashing, simultaneously the green LED (LED2) will switch OFF to indicate that the GSM module has been reset back to the factory default;
7. After the reset remove the shorts between the **A2**, **A3** and the - terminals. The GSM module is ready for programming.

IMPORTANT NOTE: When a full system reset is performed on the GSM module it will default any settings back to factory presets and delete all the user information (telephone numbers, dial to open numbers etc.). This method of reset clears all the programming in the GSM module so it is advisable to save or record the information beforehand.

If a high volume of information is stored in the GSM module it can be downloaded and saved using the GSMSK PC software, more details on how to do this can be found in the following manual: GSMSK_66251720_EN_V1-3.

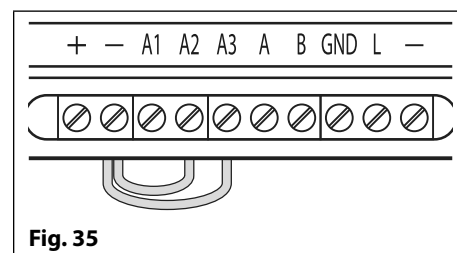


Fig. 35

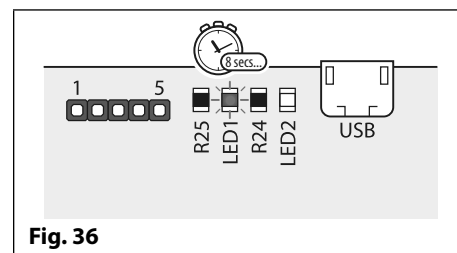


Fig. 36

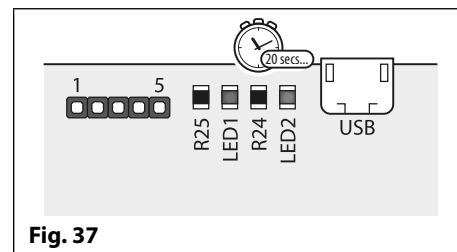


Fig. 37

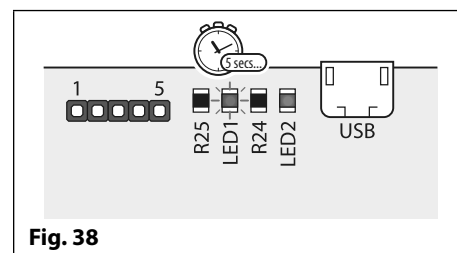


Fig. 38

Programming the GSM Module

PROGRAMMING THE GSM MODULE

Programming the GSM module can be carried out in two ways, either by sending text (SMS) messages or by using the GSMSK PC software (ver 3.1.0.14 or later), also refer to the programming manual **GSMSK_66251720_EN_V1-3** (or later).

IMPORTANT NOTE: When you are required to use " in a text message it is very important to use the correct symbol and not for example ' (or two ' single apostrophes side by side which you will see look the same but will be interpreted differently by the GSM module).

PROGRAMMING BY TEXT MESSAGE

Programming by text message is a simple way to customise the settings of the GSM module and add or delete telephone numbers. If you have a large number of telephone numbers to enter you may find programming easier with the GSMSK PC software. Simply send texts in the following format shown below to the telephone number of the SIM within the GSM module:

<4 DIGIT CODE> <3 DIGIT FUNCTION CODE> <OPTIONAL DATA> <OPTIONAL ?>

4 DIGIT CODE

This code prevents unauthorised access to the programmable features of the system. The code must be four digits long, but can be any combination using digits 0 – 9. The default code is 1111 and will be used for all examples in this manual.

3 DIGIT FUNCTION CODE

The 3 digit function code identifies the programmable feature to be changed. The code must be in capital letters. The following table lists the available codes.

DESCRIPTION	CODE	EXAMPLE	SETTINGS	DEFAULT	PAGE
Store a primary telephone no.	STN	1111STNnnn"01912243174"	nnn = 001 - 180	n/a	26
Store divert 1 telephone no.	STD	1111STDnnn"01912241559"	nnn = 001 - 180	n/a	26
Store divert 2 telephone no.	STE	1111STEnnn"01912243678"	nnn = 001 - 180	n/a	26
Store divert 3 telephone no.	STF	1111STFnnn"01912245326"	nnn = 001 - 180	n/a	26
Store dial to open no. (relay 1)	S1R	1111S1Rnnn"07771234567"	nnn = 000 - 999	n/a	27
Store dial to open no. (relay 2)	S2R	1111S2Rnnn"07892456789"	nnn = 000 - 999	n/a	27
Store dial to open no. (relay 3)	S3R	1111S3Rnnn"07983123456"	nnn = 000 - 999	n/a	27
Delay before call time	DCT	1111DCTnnn	nnn = 000 - 255	000 (disabled)	27
Set call time	SPT	1111SPTnnn	nnn = 000 - 255	040 (40s)	27
Set relay 1 time	R1T	1111R1Tnnn	nnn = 000 - 255	005 (5s)	28
Set relay 2 time	R2T	1111R2Tnnn	nnn = 000 - 255	005 (5s)	28
Set relay 3 time	R3T	1111R3Tnnn	nnn = 000 - 255	005 (5s)	28
Set auxiliary 1 mode	A1M	1111A1Mnnn	nnn = 000 - 006	000	28
Set auxiliary 2 mode	A2M	1111A2Mnnn	nnn = 000 - 006	000	28
Set auxiliary 3 mode	A3M	1111A3Mnnn	nnn = 000 - 006	000	28
Keep connection facility	NOD	1111NODnnn	nnn = 000 - 099	000 (disabled)	28
Divert to next no. time	DIT	1111DITnnn	nnn = 001 - 255	15 (15s)	29
Check GSM signal strength	SIG	1111SIG?	n/a	n/a	29
Check software version	VER	1111VER?	n/a	n/a	29
Store SMS message for A1	S1S	1111S1S"AuxTriggered"	n/a	AuxTriggered	29
Store SMS message for A2	S2S	1111S2S"AuxTriggered"	n/a	AuxTriggered	29
Store SMS message for A3	S3S	1111S3S"AuxTriggered"	n/a	AuxTriggered	29
Change 4 digit code	CDE	1111CDE1234	Any 4 digits	1111	29
Trigger the relay 1	RL1	1111RL1	n/a	n/a	29 - 30
Trigger the relay 2	RL2	1111RL2	n/a	n/a	29 - 30
Trigger the relay 3	RL3	1111RL3	n/a	n/a	29 - 30
Store balance check dial string	SDL	1111SDL"*#1345#"	n/a	n/a	30
Check credit balance	BAL	1111BAL?	n/a	n/a	30
Store master telephone no.	STM	1111STM"07771234567"	n/a	n/a	30

Programming the GSM Module

Store time band	TBA	1111TBA"06002300"	HHMMHHMM	00002359	30 - 31
Check/Set date & time	CLK	1111CLK"yy/mm/dd,hh:mm"?	yy/mm/dd,hh:mm	n/a	31
Send tone after answer (But 1)	DTP	1111DTPn	n = 0 - 9 or X	X	31 - 32
Send tone after answer (Div 1)	DTD	1111DTDn	n = 0 - 9 or X	X	31 - 32
Send DTMF tone delay	DTT	1111DTTnnn	nnn = 001 - 012	003	31 - 32
Enable dial 0 on answer function	EDZ	1111EDZnnn	nnn = 000 or 001	000	32
Enable # (hash) function	ED#	1111ED#nnn	nnn = 000 or 001	000	32
Find a telephone number	FDT	1111FDT" number or ends in"?	n/a	n/a	32
First phone ID to respond to	SID	1111SIDnnn	nnn = 001 - 180	150	33
Last phone ID to respond to	EID	1111EIDnnn	nnn = 001 - 180	150	33
End on last divert	EOD	1111EODnnn	nnn = 000 or 001	000	33
Set door ID	DID	1111DIDnnn	nnn = 001 - 099	001	33
Shutdown and Restart	RBT	1111RBT	n/a	n/a	34
Initiate a special command	PRG	1111PRG(command)	AT commands	n/a	34
AT command to send at start up	AT1	1111AT1"ATxxxxxx"?	Any AT command	n/a	34
AT command to send at start up	AT2	1111AT2"ATxxxxxx"?	Any AT command	n/a	34
AT command to send at start up	AT3	1111AT3"ATxxxxxx"?	Any AT command	n/a	34

OPTIONAL DATA

The optional data will vary depending on the command used. It may be a telephone number, a time setting or may not be used at all. For more information refer to the following command settings.

OPTIONAL ?

Most of the commands support the ? feature. When this is added to the end of the text message, a confirmation text message will be sent back to the sender indicating the new data has been received and stored.

When sending text messages there may be a delay from when you send the message to when it is received by the GSM module depending on how congested the network is.

STORING TELEPHONE NUMBERS (STN, STD, STE AND STF) USING PHONE ID'S

Telephone numbers are programmed using phone ID's instead of call buttons. Phone ID's from 1 up to 180 can be programmed (in the same way that Videx audio and videophones are programmed on the VX2200 system). Each phone ID programmed can call up to four telephone numbers e.g. phone ID.1 can call a primary telephone number and up to 3 divert numbers (if the first is busy or not answered in a certain time it can call a 2nd, 3rd and 4th number if the divert facility is setup). The STN code stores the first number called (primary telephone number) when the relevant call button on the intercom panel is pressed. The STD, STE and STF codes stores the diverted telephone numbers if the first is busy or not answered (the GSM module will divert to the 2nd number then divert to the 3rd number and finally the 4th number). The messages to store/check numbers are as follows (replace STN with STD, STE or STF when storing/checking divert numbers).

1111STNnnn"yyyyyyyyyy"	Store the primary telephone number yyyyyyyyyy in phone ID position nnn.
1111STNnnn"yyyyyyyyyy"?	Store the telephone number yyyyyyyyyy in phone ID position nnn and send a confirmation text message to confirm storage of new number.
1111STNnnn?	Query the telephone number stored in phone ID location nnn. A text message will be sent to the sender with the stored number for that phone ID location.
1111STNnnn""	Delete the telephone number stored in phone ID location nnn.
1111STNnnn""?	Delete the telephone number stored in phone ID location nnn. A text message will be sent to the sender with the delete confirmation for that phone ID location.

nnn is the phone ID number between 001 and 180. The telephone number y can be a maximum of 30 digits. For example: to store the number 01912243174 for phone ID.5 and three divert numbers (if that one is not answered or busy) of 01912241558, 07771234567 and 01912241559 respectively, the following SMS messages would be sent to the GSM module:

1111STN005"01912243174"

1111STD005"01912241558"

1111STE005"07771234567"

1111STF005"01912241559"

Programming the GSM Module

STORING A TELEPHONE NUMBER FOR DIAL TO OPEN RELEASE FOR RELAYS 1, 2 AND 3 (S1R, S2R AND S3R)

The dial to open release allows users to activate the relevant relay (1, 2 or 3) simply by dialling the telephone number of the SIM in the GSM module. The GSM module will check the callers number when it receives a call and if it matches a number on one of the 3 dial to open lists, it will clear the call down (avoiding the caller being charged for the call) and will activate the relevant relays (1, 2 or 3) for the programmed relay time (i.e. dial to open list 1 will trigger relay 1 etc.). Up to 1000 numbers can be stored for each relay (1, 2 or 3).

The programming commands to check, store or delete numbers are as follows (replace S1R with S2R or S3R when storing/checking dial to open numbers for relays 2 and 3 respectively).

1111S1Rnnn"yyyyyyyyyy"	Store the telephone number yyyyyyyyyy in position nnn, where nnn = 000 - 999.
1111S1Rnnn"yyyyyyyyyy"?	Store the telephone number yyyyyyyyyy in position nnn, where nnn = 000 - 999, and send a confirmation text message to confirm storage of new number.
1111S1Rnnn?	Query the telephone number stored in location nnn, where nnn = 000 - 999. A text message will be sent to the sender with the stored number for that location.
1111S1Rnnn""	Delete the telephone number stored in location nnn, where nnn = 000 - 999.
1111S1Rnnn""?	Delete and confirm deletion of a telephone number in location nnn, where nnn = 000 - 999.

IMPORTANT NOTE: It is important to switch OFF voicemail and automatic SMS features on the SIM card in the GSM module when using this feature. Please also note it is important that the number stored, when dialling in to release the door/gate, must have any "caller ID" or "withheld number" function switched OFF on the telephone/mobile that is making the call to the GSM module. If this feature is not switched OFF the GSM module will not recognise the caller's number and simply end the call.

DELAY BEFORE CALL TIME (DCT)

The delay call time is the time delay (from 0 up to 255 seconds) from when the call button is pressed on the intercom panel to when the GSM module starts to dial the programmed telephone number.

This feature is particularly useful if an apartment that has Videx audio or videophones is called from the intercom panel and a delay is required (to allow the user to answer the intercom call on the audio or videophone first before calling the programmed telephone number). In this example the phone ID addressing of the audio or videophones in the apartment is the same phone ID used to program the telephone number using the STN command. If the user answers the call from the intercom panel on the audio or videophones in the apartment, then the DCT time will not continue and the stored telephone number will not be called as the call to the apartment has already been answered. If, however, the user does not answer the call to the apartment on the audio or videophone the initial call to the apartment will continue until the end of the stored DCT time and then proceed to call the stored telephone number.

By default this feature is disabled (the time is set to 000 seconds). The following messages are used to enable and store/check the delay before call time.

1111DCTnnn	Store the delay before call time nnn, where nnn = time in seconds (000 = disabled or nnn = 001 - 255 seconds).
1111DCTnnn?	Store the delay before call time nnn, where nnn = time in seconds (000 = disabled or nnn = 001 - 255 seconds). Also send a confirmation text back to the sender.
1111DCT?	Query the current stored delay before time. A text message will be sent back to the sender showing the stored time.

SET CALL TIME (SPT)

The call time is the maximum time in seconds that a call can last before the GSM module automatically clears the call down. The time can be from 1 second up to 255 seconds and begins from when the call button is pressed on the intercom panel. By default the call time is set to 40 seconds. The following messages are used to set/check the maximum call time.

1111SPTnnn	Store the call time nnn, where nnn = time in seconds (nnn = 001 - 255 seconds).
1111SPTnnn?	Store the call time nnn, where nnn = time in seconds (nnn = 001 - 255 seconds). Also send a confirmation text back to the sender.
1111SPT?	Query the current stored call time. A text message will be sent back to the sender showing the stored time..

Programming the GSM Module

SET RELAY TIMES FOR RELAY 1, 2 AND 3 (R1T, R2T AND R3T)

The relay time for each relay (1, 2 and 3) can be set from 001 – 255 seconds or for latching mode set to 000. This is the time the relay will stay active for once triggered. By default each relay is set for 5 seconds. The following messages are used to set/check the relay times (replace R1T with R2T or R3T when setting/checking the time for relays 2 and 3 respectively).

1111R1Tnnn	Store the relay time nnn, where nnn = time in seconds (000 = latching or nnn = 001 - 255 seconds).
1111R1Tnnn?	Store the relay time nnn, where nnn = time in seconds (000 = latching or nnn = 001 - 255 seconds). Also send a confirmation text back to the sender.
1111R1T?	Query the current stored relay time. A text message will be sent back to the sender showing the stored relay time.

SET AUXILIARY 1, 2 AND 3 MODES (A1M, A2M AND A3M, MODES 000 - 006)

There are seven auxiliary modes that can be set:

Triggers respective relay 1, 2 or 3 (default): nnn = 000

Relay 1 (2 or 3) will activate when auxiliary A1 (A2 or A3) is triggered for the programmed relay time. Refer to **Fig.10** on page 15.

Send respective SMS1, SMS2 or SMS3 message to master number: nnn = 001

When auxiliary A1 (A2 or A3) is triggered send SMS1 (SMS2 or SMS3) message to the master number. Refer to **Fig.11** on page 15.

The respective relay 1, 2 or 3 is triggered for duration of the call when a call is made: nnn = 002

Relay 1 (2 or 3) will trigger for the duration of the call when a call is made from the intercom panel. Refer to **Fig.12** on page 16.

The respective relay 1, 2 or 3 is triggered for the respective relay time when a call is made: nnn = 003

Relay 1 (2 or 3) will trigger for the programmed relay time (R1T, R2T or R3T) when a call is made from the intercom panel. Refer to **Fig.13** on page 16.

An apartment alarm on the databus (L and -) activates respective relay 1, 2 or 3 for the relay time: nnn = 004

Relay 1 (2 or 3) will trigger for the programmed relay time (R1T, R2T or R3T) when an apartment alarm is received on the databus. Refer to **Fig.14** on page 17.

An apartment alarm on the databus (L and -) sends respective SMS1, SMS2 or SMS3 message to master number: nnn = 005

An SMS message (SMS1, SMS2 or SMS3) will be sent to the master number when an apartment alarm is received on the databus. Refer to **Fig.15** on page 17.

Respective relay 1, 2 or 3 is triggered based on door ID setting on intercom panel: nnn = 006

Relay 1 (2 or 3) will trigger for the programmed relay time (R1T, R2T or R3T) when the intercom panel door ID is set to door ID.1 (ID.2 or ID.3 respectively). Refer to **Fig.16** on page 18.

IMPORTANT NOTE: Mode 006 is only applicable for intercom panel door ID's 1, 2 and 3.

The following messages are used to store/check the auxiliary mode setting (replace A1M with A2M or A3M when setting/checking the modes for auxiliary 2 and 3 respectively).

1111A1Mnnn	Store auxiliary 1 mode nnn, where nnn = auxiliary mode 000 - 006.
1111A1Mnnn?	Store auxiliary 1 mode nnn, where nnn = auxiliary mode 000 - 006. Also send a confirmation text back to the sender.
1111A1M?	Query the current stored auxiliary 1 mode. A text message will be sent back to the sender showing the stored A1M mode.

SET DAYS TO WAIT BEFORE MAKING A CALL (NOD)

In the event the GSM module is not used for long periods of time it could be possible that the network disconnects it. To prevent this from happening it is possible to program a time period in days (from 001 – 099 days or disabled 000) to wait before the module makes a short call to refresh the connection to the network. This time period is reset after each call is made on the system and will only happen if the full time period elapses without any incoming or outgoing calls. By default this feature is disabled.

1111NODnnn	Store the time period nnn = time in days (e.g. nnn = 007, time = 7 days).
1111NODnnn?	Store the time period nnn = time in days. Also send a confirmation text back to the sender.
1111NOD?	Query the current stored time period. A text message will be sent back to the sender showing the stored time.

Programming the GSM Module

DIVERT TIME (DIT)

The divert time is the number of seconds to wait for a call to be answered before diverting to the 2nd, 3rd and 4th number. The default time is 15 seconds (the count down begins from when the call button is pressed on the intercom panel, but is refreshed when the telephone being called starts to ring) and can be set from 001 – 255 seconds. The following messages are used to set/check the divert time.

1111DITnnn	Store the divert time nnn, where nnn = time in seconds (nnn = 001 - 255 seconds).
1111DITnnn?	Store the divert time nnn, where nnn = time in seconds (nnn = 001 - 255 seconds). Also send a confirmation text back to the sender.
1111DIT?	Query the current stored divert time. A text message will be sent back to the sender showing the stored divert time.

CHECK SIGNAL STRENGTH (SIG)

At any time the signal strength of the GSM module can be checked (also see notes on understanding the signal strength on page 36). It is advisable that when the Art.2270 GSM module is first setup and before any other programming is carried out to check the signal strength of the GSM module. If the signal strength is too low the GSM module may not operate properly, therefore the GSM antenna will need to be repositioned to increase the signal strength. Use the following command to check the signal strength.

1111SIG?	Check the signal strength of the GSM module and send a confirmation text back to the sender.
----------	--

CHECK SOFTWARE VERSION (VER)

It is possible to check the current version of software in the GSM module. This may be necessary to see if an update is required for any additional features or updates for the Art.2270 GSM module which may be included on later versions. Use the following command to check the software version.

1111VER?	Check the software version of the GSM module and send a confirmation text back to the sender.
----------	---

STORE SMS MESSAGE FOR AUXILIARY 1, 2 OR 3 (S1S, S2S OR S3S)

The Art.2270 GSM module is able to send a customised SMS message (S1S, S2S or S3S) to the master telephone number when any of the 3 the auxiliary modes (A1M, A2M or A3M) is set to mode 001 or 005 (also refer to auxiliary mode set up on page 28).

Example 1: when the auxiliary 1 mode A1M is set to 001 then S1S message will be sent to the stored master telephone number when auxiliary input A1 is triggered (also refer to Fig.11 on page 15).

Example 2: when the auxiliary 1 mode A1M is set to 005 then S1S message will be sent to the stored master telephone number when an apartment alarm signal is received on the databus L and - (also refer to Fig.15 on page 17).

The following programming commands can be used to customise/change and check the S1S (S2S or S3S) message. Replace S1S with S2S or S3S when customising/checking the SMS messages for auxiliary 2 and 3 respectively.

1111S1S"AuxTriggered"	Change S1S message to AuxTriggered.
1111S1S"AuxTriggered"?	Change S1S message to AuxTriggered. Also send a confirmation text back to the sender.
1111S1S?	Query the current stored S1S message. A text message will be sent back to the sender showing the stored S1S message.

IMPORTANT NOTE: The SMS message can be a maximum of 32 characters long and cannot include spaces or " as part of the message. If a space is required insert a 7 and a space will be included in the message (for example: House7Alarm will be shown as House Alarm).

CHANGE THE FOUR DIGIT CODE (CDE)

The four digit programming code can be any combination of numbers between 0-9 but must be 4 digits long. The code allows access to the programming commands and is used when sending text messages to the GSM module. Use the following programming message to change the 4 digit code.

1111CDEnnnn	Change the 4 digit code to nnnn (where nnnn = new 4 digit code).
-------------	--

TRIGGER RELAY 1, 2 OR 3 (RL1, RL2 OR RL3)

The 3 relays (1, 2 or 3) on the Art.2270 GSM module can be activated by sending the following text message and will activate the respective relay for the programmed relay time (R1T, R2T or R3T respectively). Replace RL1 with RL2 or RL3 when triggering relay 2 or relay 3 respectively.

Programming the GSM Module

1111RL1	Operate relay 1 on the GSM module for the programmed R1T time.
1111RL1?	Operate relay 1 on the GSM module for the programmed R1T time. Also send a confirmation text back to the sender.

STORE BALANCE CHECK DIAL STRING (SDL)

Several network providers offer the facility to check available balance on their pay as you go tariffs. For example, on Vodafone the string is *#1345# and on O2 the string is *#10#. Other networks may also have this feature. Because the GSM module will not know the details of the network provider's SIM card which you have inserted it will be necessary to store the correct string in order to use the credit balance check features.

1111SDL"*#1345#"	Store the balance check string for a Vodafone pay as you go.
1111SDL"*#10#"	Store the balance check string for an O ² pay as you go.

IMPORTANT NOTE: Videx are only aware of the balance check dial string codes for the UK based network providers mentioned above and are correct at time of print. Check dial string codes for other networks are currently unavailable at this time. Please also note that this programming function is only applicable for pay as you go SIM cards.

CHECK CREDIT BALANCE (BAL)

The balance can only be checked if the correct balance check string has previously been stored using the **SDL** code explained above. At any point the user will be able to send the following text message and the GSM module will reply with the current balance stored on the SIM card.

1111BAL?	Check current balance of the SIM in the GSM module and send a confirmation text back to the sender.
----------	---

In addition to this feature the GSM module also has the facility to monitor the available credit and then text the user to inform them when the credit has fallen below £5.00, €5.00 or \$5.00. It will then remind the user with another text after every 5 calls until the credit has either increased or if it runs out.

To use this feature, the following settings must first be made:

A Pay As You Go SIM card from a provider that offers this service (Vodafone, O2) must be used.

The correct balance check string must be stored using the **SDL** code (see store balance check dial string notes above).

A mobile phone number that is to receive the 'balance low' text must be stored in the master telephone number location using the **STM** code (refer to store master telephone number feature below).

STORE THE MASTER TELEPHONE NUMBER (STM)

The master telephone number is the number which will receive automatic balance updates when the balance gets low (if this feature is setup) and/or will receive the **S1S**, **S2S** or **S3S** messages if the auxiliary mode of the GSM module has been set to either mode **001** or **005** (also refer to set auxiliary 1, 2 and 3 modes on page 28 and store SMS message for auxiliary 1, 2 or 3 on page 29). To store a master telephone number the following programming texts can be sent to the GSM module.

1111STM"yyyyyyyyyy"	Store the telephone number yyyyyyyyyy.
1111STM"yyyyyyyyyy"?	Store the telephone number yyyyyyyyyy and send a confirmation text back to the sender.
1111STM?	Query the master telephone number stored. A text message will be sent to the sender with the stored master number.
1111STM""	Delete the master telephone number stored.
1111STM""?	Delete the master telephone number stored and send a confirmation text back to the sender.

STORE TIME BAND (TBA)

IMPORTANT NOTE: This feature relies on the network providers time zone setting and also if they support NITZ (Network Identity and Time Zone). First check the time/date is correct by sending the SMS message 1111CLK? (also refer to check intercoms time & date feature on page 31). If the time/date returned is incorrect, it maybe that they do not support it. The clock can be set manually but any power cut will result in the time and date being lost unless battery backup is included.

The time band feature allows the call buttons to be disabled or diverted to the master telephone number outside a certain time window. For example, if the time band is set from 6:00am to 11:30pm then the user will only receive calls between the hours of 06:00 in the morning until 23:30 at night. Remember to always use the 24hr clock notation and also ensure the start time is earlier than the stop time. Use the following text messages to store, query and delete the time band.

Programming the GSM Module

1111TBA"HHMMHHMM"	Store the time using this format. The first HHMM is the start time to receive calls (i.e. 0600 for 6am in the morning) and the second HHMM is the time to stop receiving calls (i.e. 2330 for 11:30pm at night).
1111TBA"HHMMHHMM"?	As above but also send a confirmation text back to the sender with the stored setting.
1111TBA?	Query time band setting. A text message will be sent to the sender with the stored time window.
1111TBA""	Delete the time band and allow calls to be received at any time.
1111TBA""?	Delete and confirm deletion of the time band.

CHECK/SET DATE & TIME (CLK)

The check date and time feature relies on the network providers time zone setting (also refer to store time band notes on page 30). After a SIM has been placed into the GSM module and powered up the SIM will attempt to register with the network and automatically synchronise with the network providers time zone setting. The following text messages can be sent to the GSM module to check and set the current time and date. The date and time format is as follows: **yy/mm/dd,hh:mm**, where yy = year, mm = month, dd = date and hh = hour, mm = minutes.

1111CLK?	Check current time & date and send a confirmation text back to the sender.
1111CLK"yy/mm/dd,hh:mm"	Set current time & date.
1111CLK"yy/mm/dd,hh:mm"?	Set current time & date and send a confirmation text back to the sender.

Example: Setting the current time & date to 10:05am, 18th April 2016, the following text can be sent to the GSM module:

1111CLK"16/04/18,10:05"?

The GSM module will reply with the following text:

**CLK = 16/04/18, 10.05 OK
VIDEX GSM**

SEND DTMF TONE AFTER CALL ANSWERED FOR PHONE ID.1 CALL BUTTON (DTP, DTD AND DTT)

It is possible to setup the GSM module to send a DTMF tone after a call is answered. This option is only available for both the primary number of phone ID.1 call button and the divert 1 number for phone ID.1. This feature is useful if the GSM module is dialling into a telephone system where an automated menu is present and a DTMF tone is required to select a particular option from the menu. This feature is disabled by default (set to X). The following programming commands allow the user to setup the DTMF tone(s) required.

- The **DTP** command sets the DTMF tone required (from 0 - 9) after a call is answered for phone ID.1 call button.
- The **DTD** command sets the DTMF tone required (from 0 - 9) after divert 1 call is answered for phone ID.1 call button.
- The **DTT** command sets the delay time from when the call is answered to when the DTMF is sent.

SET DTMF TONE REQUIRED FOR PHONE ID.1 CALL BUTTON PRIMARY NUMBER	
1111DTPn	Set DTMF tone required, where n = 0 - 9 for DTMF tones 0 - 9 or X to disable this feature (for button 1).
1111DTPn?	Set DTMF tone required, where n = 0 - 9 for DTMF tones 0 - 9 or X to disable this feature. Also send a confirmation text back to the sender with the stored DTMF tone setting (for button 1).
SET DTMF TONE REQUIRED FOR PHONE ID.1 CALL BUTTON DIVERT NUMBER	
1111DTDn	Set DTMF tone required, where n = 0 - 9 for DTMF tones 0 - 9 or X to disable this feature (for divert 1).
1111DTDn?	Set DTMF tone required, where n = 0 - 9 for DTMF tones 0 - 9 or X to disable this feature. Also send a confirmation text back to the sender with the stored DTMF tone setting (for divert 1).
SET THE DELAY TIME FROM WHEN THE CALL IS ANSWERED TO WHEN THE DTMF TONE IS SENT	
1111DTTnnn	Set the time nnn, where nnn = 001 - 012 seconds.
1111DTTnnn?	Set the time nnn, where nnn = 001 - 012 seconds and also send a confirmation text back to the sender of the time stored.

Programming the GSM Module

QUERY THE SETTINGS	
1111DTP?	Query the DTMF tone set, replies TP = n, where n = 0 - 9 or X.
1111DTD?	Query the DTMF tone set, replies TD = n, where n = 0 - 9 or X.
1111DTT?	Query the delay time set, replies TT = nnn, where nnn = 001 - 012 seconds.

ENABLE THE DIAL '0' ON ANSWER FUNCTION (EDZ)

When enabled this feature allows an incoming call to be diverted to the programmed divert telephone number if the '0' button on the telephone has not been pressed after answering the call. This can be useful if the user's number has an answerphone service (or answer machine) and they do not want the call to be answered by this service or if the primary number (mobile no.) is switched off.

By default this function is disabled (set to 000). The following texts can be used to enable or disable this function.

1111EDZnnn	Set the dial '0' function nnn: 001 or 000 (001 = enable, 000 = disabled).
1111EDZnnn?	Set the dial '0' function nnn: 001 or 000 (001 = enable, 000 = disabled) also send a confirmation text back to the sender.
1111EDZ?	Query the dial '0' mode set.

When this feature is set the user answering the call must press '0' on their phone to accept the call otherwise the call will be diverted to the next number.

ENABLE THE # (HASH) FUNCTION (ED#)

Once enabled the end user must press the # button on their phone before pressing any other button (also refer to the user command table on page 36) with the exception of when the user needs to enter the 4 digit programming code "1111".

The user will have up to 3 seconds to press the user command button (e.g. button 3 to activate the relay), if the user doesn't press the next button within the 3 second window they will have to press the # button again.

By default this function is disabled (set to 000). The following texts can be used to enable or disable this function.

1111ED#nnn	Set the # function nnn: 001 or 000 (001 = enable, 000 = disabled).
1111ED#nnn?	Set the # function nnn: 001 or 000 (001 = enable, 000 = disabled) also send a confirmation text back to the sender.
1111ED#?	Query the # mode set.

FIND A TELEPHONE NUMBER (FDT)

The find a telephone number feature allows the user to find the dial to open location (between 000 - 999) and on which dial to open list (1, 2 or 3) of where a particular telephone number is stored in the GSM module. It can locate the number from using the full telephone number or a minimum of the last 4 digits of a number (see following examples). The following programming command can be used.

1111FDT"yyyyyyyyyy"?	Find dial to open location of telephone number yyyyyyyyyy stored, where yyyyyyyyyy = telephone number (minimum of 4 digits).
----------------------	--

Example 1: Find dial to open location of the telephone number using the full number **01234567890**, the following text can be sent to the GSM module:

1111FDT"01234567890"?

The GSM module will reply with the following text:

STORED IN (x) nnn OK
VIDEX GSM

where **x** is the dial to open list 1, 2 or 3,
and where **nnn** = the dial to open location 000 - 999 of where the number is stored.

Example 2: Find dial to open location of the telephone number using the last 4 digits of the number **4567**, the following text can be sent to the GSM PRO intercom:

1111FDT"4567"?

The GSM module will reply with the following text:

STORED IN (x) nnn OK
VIDEX GSM

where **x** is the dial to open list 1, 2 or 3,
and where **nnn** = the dial to open location 000 - 999 of where the number is stored.

Programming the GSM Module

FIRST PHONE ID TO RESPOND TO (SID)

The first phone ID to respond to feature is the phone ID of the first set of programmed telephone numbers (primary and divert numbers) that the Art.2270 GSM module will dial when a call for that particular phone ID has been received on the L and - databus connection from the intercom panel.

For example on a VX2200 system the phone ID range ID.1 to ID.10 could be used for calling standard Vindex audio or videophones and the phone ID range starting from ID.11 upwards could be used purely to call programmed telephone numbers stored in the GSM module. When a call from the intercom panel is received on the databus to call phones in the ID range ID.1 to ID.10 the GSM module will ignore these calls and the call from the panel will call through to the respective Vindex audio or videophones as normal. A call from the intercom panel that is received on the databus starting from ID.11 and the GSM module will dial the programmed number(s) that is stored for ID.11 upwards.

By default the first phone ID to respond to is set to phone ID.150, however this can be set from phone **ID.1** up to phone **ID.180**. The following programming commands can be sent to the GSM module to set/check the first phone ID to respond to.

1111SIDnnn	Set the first phone ID to respond to nnn, where nnn = phone ID from 001 - 180.
1111SIDnnn?	Set the first phone ID to respond to nnn, where nnn = phone ID from 001 - 180. Also send a confirmation text back to the sender.
1111SID?	Query the first phone ID to respond to stored in the GSM module.

LAST PHONE ID TO RESPOND TO (EID)

Similar to the previous feature **SID**, the last phone ID to respond to feature is the phone ID of the last set of programmed telephone numbers (primary and divert numbers) that the Art.2270 GSM module will dial when a call for that particular phone ID has been received on the L and - databus connection from the intercom panel.

Using the same example above, if the phone ID range ID.1 to ID.10 is used to call standard Vindex audio or videophones, the first phone ID to respond to (**SID**) is set to start from phone ID.11 and the last phone ID to respond to is set to end on phone ID.20 then the GSM module will only call the programmed telephone number(s) for the phone ID's in the range from ID.11 up to ID.20. Like before any calls from the intercom panel received on the databus to call phones in the ID range ID.1 to ID.10, then the GSM module will ignore these calls and the call from the panel will call through to the respective Vindex audio or videophones as normal.

By default the last phone ID to respond to is set to phone ID.150, however this can be set from phone **ID.1** up to phone **ID.180**. The following programming commands can be sent to the GSM module to set/check the last phone ID to respond to.

1111EIDnnn	Set the last phone ID to respond to nnn, where nnn = phone ID from 001 - 180.
1111EIDnnn?	Set the last phone ID to respond to nnn, where nnn = phone ID from 001 - 180. Also send a confirmation text back to the sender.
1111EID?	Query the last phone ID to respond to stored in the GSM module.

IMPORTANT NOTE: When programming the GSM module it is important to always set both the first phone ID (**SID**) and the last phone ID (**EID**). If left on the default phone ID setting, ID.150, any call from the intercom panel will not call through to any stored telephone numbers (unless a number is actually stored for phone ID.150) as the GSM module will ignore any phone ID's that are not set between the first and last phone ID range.

END ON LAST DIVERT (EOD)

The end on last divert feature allows the GSM module to ring each programmed divert number as usual and if the divert number is not answered it will then proceed to ring the next programmed divert number, if however there is no divert number stored the GSM module will simply end the call.

By default this feature is disabled (set to 000), but can be enabled (set to 001). The following programming commands can be used to set/check the end on divert function.

1111EODnnn	Set end on last divert to nnn, where nnn = 000 (disabled) or 001 (enabled).
1111EODnnn?	Set end on last divert to nnn, where nnn = 000 (disabled) or 001 (enabled). Also send a confirmation text back to the sender.
1111EOD?	Query the end on last divert status stored in the GSM module.

SET DOOR ID (DID)

The set door ID feature is reserved for future expansion and is not currently used at this time.

Programming the GSM Module

SHUTDOWN AND RESTART (RBT)

This command feature allows the GSM module to be remotely shutdown and then rebooted again. The following programming command can be sent to the GSM module.

1111RBT	Shutdown and restart the GSM module.
---------	--------------------------------------

IMPORTANT NOTE: The RBT feature should not be confused with the 'hard-wired' reset (described on page 24). The RBT function simply powers down the GSM module and then powers it back up again.

The following commands are reserved for the technical department for interrogating the GSM module when testing and applying specific additional features that are not covered in this technical manual. For the application of these commands please contact Videx Technical on tel: 0191 224 3174 for UK based customers and Videx customer support on tel: +39 0734 631699 for overseas customers.

PROGRAM BY 'AT' COMMANDS (PRG)

This is an advanced feature of the system which can allow an 'AT' format command to be sent to the OEM GSM module.

1111PRG(command)	Send an 'AT' command to the OEM module.
------------------	---

AT COMMAND SEND AT START UP (AT1, AT2 AND AT3)

The AT commands AT1, AT2 and AT3 are advanced commands of the GSM module that allows additional features to be incorporated into the module for testing purposes and include additional features for a specific application that is not already covered in this manual. The following commands can be sent to the GSM module.

1111AT1"ATxxxxxx"?	Include any AT command for AT1.
1111AT2"ATxxxxxx"?	Include any AT command for AT2.
1111AT3"ATxxxxxx"?	Include any AT command for AT3.

System Operation

MAKING A CALL AND ANSWERING A CALL

When the system is in standby both the red LED (LED1) and the green LED (LED2) on the GSM module will be switched OFF, as shown in **Fig.39**.

To make a call simply press the call button required on the intercom panel. Providing the first phone ID (SID) and last phone ID (EID) range has been set correctly for the stored telephone numbers on the GSM module (also see notes on first and last phone ID programming on page 33) then the GSM module will call the relevant number.

When the call starts the red LED (LED1) on the GSM module will switch ON to indicate a call is in progress and the system is busy, see **Fig.40**. During this period and depending on which intercom panel is installed the relevant call progress LED's will illuminate or the call display will indicate the status of the call (i.e. on a functional panel the busy LED will switch ON or on a digital panel the display will show call in progress etc.).

When the call is answered the red LED (LED1) will stay switched ON, refer to **Fig.41**. Again depending on the intercom panel installed the relevant call progress LED's will illuminate or call status will be indicated on the panel. A conversation between the caller and the user can take place.

Please note that the red LED (LED1) will stay switched ON for the duration of the call and will switch OFF at the end of a call when either the user hangs up the telephone or if the call time (SPT) expires, also refer to set call time notes on page 27.

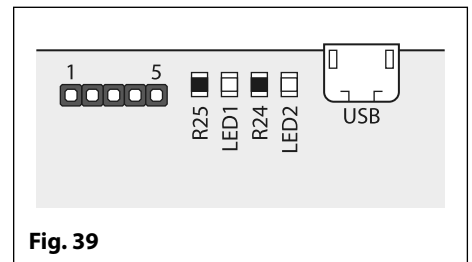


Fig. 39

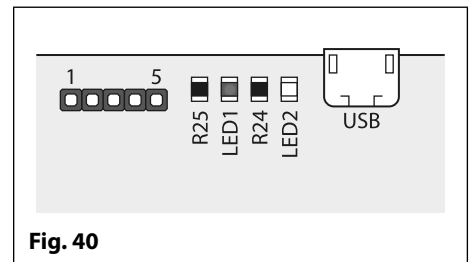


Fig. 40

DIVERTED CALL

First make a call from the intercom panel, as described above. If any divert numbers are programmed in the GSM module and the primary number is not answered the GSM module will dial the divert number(s) after the programmed divert time DIT has elapsed (also refer to STD, STE and STF divert number programming on page 26 and DIT divert time setup on page 29).

IMPORTANT NOTE: When the GSM module diverts to a programmed divert number there will be a brief pause before the module proceeds to dial the divert number. This is normal behaviour from the GSM module. During this time and depending on which intercom panel is installed the appropriate LED's and call reassurance tones or call progress indication on digital displays will still be shown and heard to indicate that the divert call is still active.

When the speech is live during an incoming or diverted call other useful user commands can be activated, please refer to the user command tables on page 36.

DOOR/GATE RELEASE ON THE INSTALLED INTERCOM PANEL

After a call has been answered (either from a direct call or diverted call) to activate the intercom panel's onboard relay to trigger the door/gate press 3 on the telephone.

Again depending on the intercom panel installed the relevant open LED will switch ON and/or reassurance tones heard and the panel's onboard relay will activate for the programmed time (the programmed relay time on the intercom panel will depend on which panel is installed and how it was setup, refer to the accompanying technical documents that came with the intercom panel).

DIAL TO OPEN RELEASE FOR GSM MODULE'S RELAYS 1, 2 AND 3

Activating the GSM module's onboard relays 1, 2 and 3 is only possible if the caller's number has been stored correctly for this feature (also refer to storing dial to open numbers notes on page 27 for correct setup).

Simply dial the mobile number of the SIM in the GSM module. The GSM module will recognise the stored dial to open number calling and the red LED (LED1) will switch ON, as shown in **Fig.41**. The GSM module will drop the call and trigger the relevant relays (1, 2 or 3) for the programmed relay time (R1T, R2T or R3T), after the relay time has elapsed the red LED (LED1) will switch OFF.

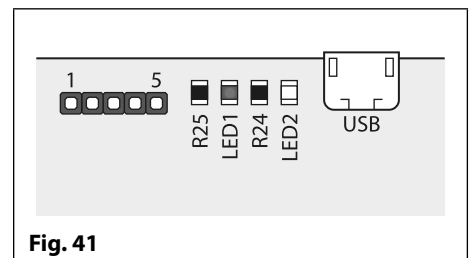


Fig. 41

IMPORTANT NOTE: For this function to operate correctly the stored dial to open number must have any "caller ID" feature or "withheld number" feature switched OFF. If this feature is not switched OFF on the number making the call to the GSM module then the GSM module will not recognise the caller's number and simply drop the call and the relay will not operate.

User Commands

USER COMMAND TABLES

The following user command table shows the user commands that can be carried out during a call. Successful commands are signalled by two beeps from the telephone, errors are signalled by four beeps.

IMPORTANT NOTE: When the EDZ function has been enabled the user must first press the 0 button on their phone to answer the call before pressing any of the following user commands (also refer to page 32 for further information).

Also if the ED# function has been enabled the user must press the # button on their phone before pressing any of the following user commands (also refer to page 32 for further information).

FUNCTION	1st KEY TO PRESS	2nd KEY TO PRESS
Release the door or gate from intercom panel ¹	3	n/a
Activate Relay 1 on GSM module ²	1	n/a
Activate Relay 2 on GSM module ²	2	n/a
Activate Relay 3 on GSM module ²	5	n/a
Electronically adjust door speech volume (panel's speaker) via GSM module	4	0 - 9 (0 = lowest, 9 = highest)
Electronically adjust phone speech volume (panel's mic) via GSM module	7	0 - 9 (0 = lowest, 9 = highest)

¹ - Please note that pressing 3 on the phone after a call has been answered only activates the intercom panel's onboard relay for the programmed relay time that has been setup on the intercom panel. The setup of the relay time on the intercom panel can be carried out following the instructions that accompany the intercom panel used. The only time that the GSM module's relay(s) 1, 2 or 3 will activate when button 3 is pressed on the phone is when the auxiliary mode(s) **A1M, A2M or A3M** on the GSM module has been set to mode **006 (relay 1, 2 or 3 triggered by door ID 1, 2 or 3 respectively)**, also refer to auxiliary mode setup notes on page 28 and **Fig.16** on page 18.

² - Pressing 1, 2 or 5 on the phone after a call has been answered will activate relay 1, 2 or 3 respectively on the GSM module, regardless of which auxiliary mode(s) **A1M, A2M or A3M** on the GSM module has been set to. The relay(s) will activate for the programmed relay time **R1T, R2T or R3T**. If the relay time has been set to latch mode (set to **000**) then pressing 1, 2 or 3 on the phone will act like a 'toggle' button (latch ON/latch OFF).

The next user command table shows the most common SMS text messages that can be sent to the GSM module while in standby (the examples shown in the table use the default 4 digit master code 1111). For all other optional text queries refer to the programming notes on pages 25 - 34.

FUNCTION	MESSAGE TO SEND
Check the signal strength	1111SIG?
Check the available balance ³	1111BAL?
Check the software version	1111VER?
Activate Relay 1 on GSM module ⁴	1111RL1? (? optional, send if confirmation is required)
Activate Relay 2 on GSM module ⁴	1111RL2? (? optional, send if confirmation is required)
Activate Relay 3 on GSM module ⁴	1111RL3? (? optional, send if confirmation is required)
Check Time band setting	1111TBA?
Check Intercom Time and Date	1111CLK?
Find a Dial to Open (dial to open) number ⁵	1111FDT"yyyyyyyyyy"? (where yyyyyyyyyy = telephone number, minimum of 4 digits, also refer to page 32)

³ - The balance can only be checked if the correct balance check string has been stored (also see store balance check dial string **SDL** notes on page 30).

⁴ - When sending the text message **1111RL1?**, **1111RL2?** or **1111RL3?** then relay 1, 2 or 3 will activate respectively on the GSM module, regardless of which auxiliary mode(s) **A1M, A2M or A3M** on the GSM module has been set to. The relay(s) will activate for the programmed relay time **R1T, R2T or R3T**. If the relay time has been set to latch mode (set to **000**) then sending the text message **1111RL1?**, **1111RL2?** or **1111RL3?** will act like a 'toggle' command (latch ON/latch OFF).

⁵ - Remember when using the **FDT** command to find the dial to open location of a phone number a minimum of the last 4 digits of the phone number can be used for the search.

Additional User Information

UNDERSTANDING THE SIGNAL STRENGTH (SIG) AND BIT ERROR RATE (BER)

When a request for signal strength message is sent to the GSM module it will reply with a two part code.

The first part of the code is a signal strength code **SIG** which will be between 0 – 31 or 99. Ideally the signal strength should be as close to 31 as possible for the best possible performance. The lower the number, the weaker the signal. Signal strengths lower than 10 may cause operational problems such as loss of speech quality (and possibly missing DTMF tones) and/or network loss. A signal strength of 99 indicates it could not be detected.

The second part of the code is the bit error rate **BER**. The bit error rate is used in digital telecommunication as a figure of merit for how effectively the receiver (in this case the GSM module) is able to decode transmitted data (the data in this instance are the various text message commands used to program the GSM module, described on pages 25 - 34, speech and DTMF signals used by the GSM module for normal operation). It is the percentage of bits that have errors relative to the total number of bits received in a transmission. Ideally the **BER** code should be as close to 0 as possible, the lower the **BER** the better. High **BER** codes can be caused by noise, interference, distortion or bit synchronisation errors over the transmission of data to the GSM module and as a result the problems described above (loss of speech quality, possibly missing DTMF tones and/or network loss etc.) can occur.

The example below shows the ideal reply to expect when the signal strength query **1111SIG?** is sent to the GSM module:

SIGNAL = 31
BER = 0
OK VIDEX GSM

To achieve the best overall performance from the GSM module a high signal strength **SIG** and low bit error rate **BER** is required. In the event that a low signal strength and high bit error rate is received it is recommended that the **Art.432** antenna is repositioned, where permissible, at the highest point to achieve the best signal. Where this is not possible an alternative high gain antenna can be used, in particular Videx recommends using the **ANT-GSM-2dB-5M** or **ANT-GSM-2dB-15M** high gain antennas or another suitable GSM antenna with a standard SMA male connector.

DIALLING INTO THE GSM MODULE

There are two possible outcomes to dialling into the Art.2270 GSM module:

1. After dialling the GSM number the required relay (1, 2 or 3) will activate and the call will be dropped, provided that the telephone number which is making the call is programmed in one of the 3 dial to open lists (using the **S1R**, **S2R** and **S3R** programming commands described on page 27) and any "caller ID" or "withheld number" feature is switched OFF. Remember the dial to open feature will only activate the GSM module's onboard relay(s) and not the the relay on the intercom panel that the GSM module is connected to.
2. If a call is made to the GSM module from a number that is not stored in one of the 3 dial to open lists then the GSM module will simply end the call and no further action will take place. Even if a number is stored as a primary or divert number (using the **STN**, **STD**, **STE** and **STF** programming commands described on page 26) no further action will take place. Unlike other GSM intercoms (**GSM4K**, **GSMVRK** and the digital GSM), the Art.2270 GSM module is connected to a common **L** and - databus which may also include other VX2200 intercom panels and therefore will not be able to connect the call through to a panel.

SETUP CHECK LIST

- ☒ Inserted a pre-registered SIM card, connected an antenna and 12Vdc power.
- ☒ Connected the Art.2270 GSM module to the **L** and - databus on the VX2200 system.
- ☒ Set the first phone ID (**SID**) which the Art.2270 GSM module will respond to.
- ☒ Set the last phone ID (**EID**) which the Art.2270 GSM module will respond to.
- ☒ Program the telephone numbers for these phone ID's.

User Management

RECORD SHEET

In order to manage the Art.2270 GSM module effectively it is recommended that an up to date record sheet is kept for all the programming particularly if there is a high volume of telephone numbers stored in the module. This will also be useful if any future changes need to be made. The following table format can be used to record the GSM's basic information.

GSM module's telephone No.	
Master code (default 1111)	
Master telephone No.	

The table format below can be used to record the phone ID (call button numbers) and the three divert numbers (from 001 to 180).

PHONE ID (BUTTON NO.)	MEM. LOCATION	TELEPHONE NO.	USER NAME
Phone ID.1	STN001		
Phone ID.1 (divert 1)	STD001		
Phone ID.1 (divert 2)	STE001		
Phone ID.1 (divert 3)	STF001		
↓	↓	↓	↓
Phone ID.180	STN180		
Phone ID.180 (divert 1)	STD180		
Phone ID.180 (divert 2)	STE180		
Phone ID.180 (divert 3)	STF180		

It is also recommended that a record sheet, following the table format below, of the dial to open numbers (**S1R**, **S2R** and **S3R**) should be kept (from 000 to 999).

MEM. LOCATION	TELEPHONE NO.	USER NAME
S1R000.....S1R999		
S2R000.....S2R999		
S3R000.....S3R999		

USING THE GSMSK PC SOFTWARE TO MANAGE USER INFORMATION

Because of the high volume of user information that may need to be recorded it is possible to use the GSMSK PC software (version 3.1.0.14 or later) to record and save the user's information as an excel spreadsheet using the '**Export**' feature. The GSMSK software can be used to record and save the phone ID (call button) setup including divert numbers and the dial to open numbers.

Further information on how to do this can be found in the following technical manual:

- GSMSK_66251720_EN_V1-3 (or later version)

Troubleshooting

SYSTEM CHECKS AND TESTING

The following table can be used to help diagnose any potential issues that may be occur during installation and the system checks that can be carried out to help resolve them.

SYMPTOM	TEST
Interference on the speech (this could be distortion or noise elements over the speech).	Check the signal strength 1111SIG? (if the signal strength is too low the GSM module increases it's power to compensate, causing interference with the speech circuits). Try relocating the antenna or using a more powerful or directional antenna (e.g. high gain antenna mentioned on page 37: ANT-GSM-2dB-5M or ANT-GSM-2dB-15M or another suitable GSM antenna with a standard SMA male connector.
	Ensure the antenna cables are not running close to the power supply cables or the L and - databus wires on the GSM module.
	Try a different SIM card from a different service provider as they may have better coverage in that area.
The GSM module is unresponsive.	Check the power supply output for the GSM module has adequate voltage (12Vdc minimum) as described earlier in this manual (refer to notes on pages 7 and 21).
	Try a full reset (refer to notes on page 24) following the full reset procedure with A2 and A3 linked to the - terminal.
	Try a different SIM card from a different network provider.
	Check the antenna is connected correctly (refer to notes on page 7).
	The GSM module may have a fault.
A long beep followed by a short beep is heard when the button is pressed on a functional panel (refer to table on page 6 for available panel types). Also the call progress LED's on the functional panel may not respond correctly.	No telephone number setup for the phone ID for that button. Check the phone ID programming on the GSM module (see STN notes on page 26). Also check that the first phone ID to respond to and the last phone ID to respond to is setup correctly (see SID and EID notes on page 33).
	Check the SIM card is fitted correctly (refer to notes on page 23).
	Check the antenna is connected correctly (refer to notes on page 7).
	Check the GSM module has the correct 12Vdc power on the + and - terminals.
	Check the L and - databus connections are connected correctly on the GSM module and from the functional panel installed and also check it has sufficient bus voltage (7.5Vdc minimum).
	On the functional panel installed check that the button configuration is correctly wired according to the phone ID programming in the GSM module (see previous note above).
	Also refer to the troubleshooting section on any accompanying technical documents for the functional panel being installed for further guidance.
The door panel display shows 'busy', 'error' or 'not found' when an apartment is called on a digital panel (refer to table on page 6 for available panel types). Also if the speech board is switched ON it may announce 'you have entered an incorrect number, please try again'.	No telephone number setup for the phone ID for that apartment (flat). Check the phone ID programming on the GSM module (see STN notes on page 26). Also check that the first phone ID to respond to and the last phone ID to respond to is setup correctly (see SID and EID notes on page 33).
	Check the SIM card is fitted correctly (refer to notes on page 23).
	Check the antenna is connected correctly (refer to notes on page 7).
	Check the GSM module has the correct 12Vdc power on the + and - terminals.
	Check the L and - databus connections are connected correctly on the GSM module and from the functional panel installed and also check it has sufficient bus voltage (7.5Vdc minimum).
	On the digital panel installed check that the apartment or flat number is actually programmed and/or the phone ID programming matches the phone ID programming in the GSM module (see previous note above).
	Also refer to the troubleshooting section on any accompanying technical documents for the digital panel being installed for further guidance.

Troubleshooting

The GSM module does not respond to SMS messages.	Check the SIM card has an SMS service centre number stored. This will require putting the SIM card into a mobile phone to check. Contact the SIM card provider if you are not sure.
	Check the number you are sending the message to is correct (the mobile number of the SIM card in the GSM module).
	Try a different SIM card from a different network provider.
	Try resetting the 4 digit master code to 1111 (refer to notes on page 24) following the master code reset procedure with A1 linked to the - terminal.
	Check the power supply output for the GSM module has adequate voltage (12Vdc minimum) as described earlier in this manual (refer to notes on pages 7 and 21).
	Check the antenna is connected correctly (refer to notes on page 7).
The GSM module does not respond to SMS messages, but all other functions appear to operate ok, e.g. dial to open feature, adjusting speech volumes, releasing the door/gate on the intercom panel when button 3 pressed on the phone etc.	This issue can occur on smartphones where the SMS messaging input method is set to UNICODE. Smartphones generally have 3 input methods: GSM alphabet, Automatic and UNICODE. The UNICODE setting is typically used when emoticons/emojis are used in the message so the digital GSM will not recognise text messages that are set to this mode.
	Check that the SMS messaging input method setting on the smartphone is not set up as UNICODE and is set to either GSM alphabet or Automatic. This can usually be done via the settings icon on the smartphone. If you are unsure of how to do this Videx recommend consulting with the user's manual that came with the smartphone or consulting directly with the manufacturer of the smartphone.
The call keeps dropping out.	Increase the call time (SPT) in programming (refer to page 27).
	Check the signal strength (111SIG?) and if necessary, move or change the antenna or try a different SIM card provider.
Speech echoes and feeds back.	Try lowering the speaker (VR1) and mic (VR2) volume using the adjustable POTs on the top side of the GSM module (refer to notes page 8).
	Try adjusting the speech volumes electronically using the programmable settings during a call, i.e. when the speech is live (refer to user commands on page 36).
	Check the microphone is fitted correctly in the intercom panel installed (for both functional and digital panels) and that the mic hole is not blocked in any way.
	Try adjusting the mic, speaker and balance POTs on the intercom panel installed (this will vary between functional and digital panels). It is also recommended that you refer to the troubleshooting section on any accompanying technical documents for the functional or digital panel being installed for further guidance.
ERROR message returned in SMS when programming or no SMS returned at all even though a ? was included at the end of the message sent.	Check over the message sent again and compare it with the examples in this manual. Common errors include: 1. Using two apostrophe marks side by side instead of ". Note that these look the same in the message. An easy way to see if this is the problem is to move the cursor along in the message and if the cursor can get between the two " then it is not the correct character used. 2. Lower case letters instead of upper case. For example using stn when STN should be used.
Unable to open the gate/door on the intercom panel or activate the relays on the GSM module from the telephone during a call (DTMF tones not being recognised).	If the DTMF tone to release the gate/door (or other DTMF tones shown in the first user command on page 36) does not work then check to see if the ED# function has been enabled:
	1. Send the following SMS command 111ED#? to the GSM module and wait for a reply confirming the status of this function. 2. Note: If the 111EDZ function (also see notes on page 32) is set to 001 (enabled) then when answering the call it will be necessary to first press 0 to accept the call before 3 can be used to operate the gate/door.
	Further notes on how to effectively use this function and on the setup of this function can be found on page 32. If the above solution does not resolve the problem then please contact Videx technical on tel: 0191 224 3174 for further assistance. For overseas customers contact Videx customer support on tel: (+39) 0734 631 699 for further assistance.

Troubleshooting

IMPORTANT NOTE: The suggestions covered in this troubleshooting section primarily covers the system checks to try for the GSM module. Since the GSM module will be connected to a functional or digital panel it is always recommended that you also refer to the troubleshooting section on any accompanying technical documents for the intercom panel being installed, as there may be solutions to the problems that you've encountered covered in those documents that may not necessarily be covered above.

General Information

SOFTWARE REVISION

DATE	SOFTWARE VERSION	REVISION
04/12/17	VER MD1.1.0	Launch of Art.2270 VX2200 GSM Interface Module

FURTHER READING

Additional programming information using the GSMSK PC software can be found in the following technical manual:

- **GSMSK_66251720_EN_V1-3** (or later version)

Additional VX2200 system setup and programming information can be found in the following technical manual:

- **VX2K2HDIGSYS - Technical Manual Version 1.1** (or later version)

Additional VX2200 cabling information can be found in the following technical manual:

- **VX2200Blocks 1-2**

Other accompanying Technical Documents for any VX2200 system component, which may include (but not limited to):

- **VX2200 Functional Intercom Panels** (refer to table on page 6 for compatible panel types)
- **VX2200 Digital Intercom Panels** (refer to table on page 6 for compatible panel types)
- **VX2200 Audio devices** (3000 series audiophones, 5000 series hands-free apartment stations and audio Kristallo series)
- **VX2200 Video devices** (6200, 6300, 6400 and 6700 series videophones, 5000 series hands-free video Eclipse and video Kristallo series)

Additional information regarding connection to mains supply voltage can be found in the following regulations (for the UK only):

- **I.E.E. Wiring Regulations BS7671**

Notes

This image shows a blank sheet of white paper with horizontal dashed lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting or drawing. There are no margins, text, or other markings on the paper.

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