2T-Technology

Voyager Voice – Talking Intercom

Sleek & Hooded



4G & 3G & 2G Intercom system
Installation & User Manual

Scan the QR code and
watch the installation video.

IPhone Installer App

Android Installer App

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Before Installation

This system should only be installed by a professional automatic gate installer or access control specialist.

Please ensure you are familiar with the function and features of this system by using the system on a workshop bench before you go to site for installation.

Site Signal Level Survey

Please check the signal levels for the network you are about to use to install this system. Some GSM networks have good coverage in some areas and none in other areas. See our tech Support Note on "Measure GSM Signal Levels on Site for different Networks" on our web site at: www.2t-tec.com/technical-notes/

Once installed the device will display the signal level it sees on the Signal Strength LED on the PCB and will respond to an SMS text command to give the Signal Level it is receiving from the network you are using. Please confirm this level is good.

SIM Card

If there is no SIM installed then you will have to:

A) Obtain a SIM with credit. This device is a 2G/3G/4G device so all available SIM cards should work without a problem.

B) When obtaining the SIM ask that voice mail is turned off.

C) Vodafone and O2 PAYG SIM cards don't have a PIN number on the SIM. But other operators still put a security PIN on their SIM cards. This must be removed before using the SIM on the GSM device.

Note:
Some functions of this GSM device, like Keypad Codes, are dependent on the GSM device having the correct date and time of day. The GSM device gets this by sending itself an SMS text after power up. To do this the SIM must have credit and without this, many of the features of Keypad Codes will be absent or fail to operate.

For this and other reasons we strongly recommend the use of a Bill Pay contract SIM with this intercom. Please contact your distributor or 2T Technology at sales@2t-tec.com to get details on our cost competitive Bill Pay SIM.

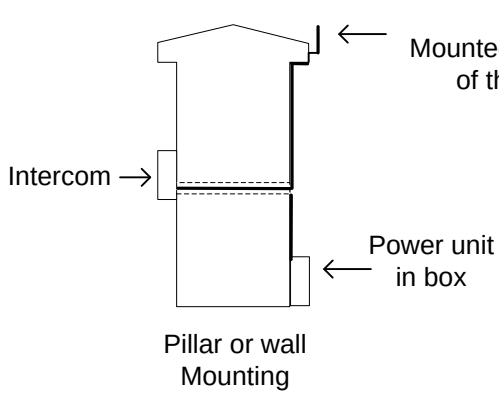
Power

A) You Must use the power supply provided with the device
B) Please place the power supply within a meter or two of the device. Long runs of narrow cable will cause problems.
C) For longer runs of power cable between the power supply and the device

Up to 2 meters - Use minimum 0.5mm^2 (20 gauge)
Up to 4 meters - Use minimum 0.75mm^2 (18 gauge)
Up to 8 meters - Use minimum 1.0mm^2 (16 gauge)

If using Cat 5 cable then, up to a distance of 2 meters, at a minimum, you Must use 2 cores per power supply line. This gives a cable cross section of 0.4 mm^2. Going beyond 2 meters you need to use a thicker core cable.

Pillar or Wall Mounting the Intercom



**Keep the Antenna at least 1 meter from the Intercom and at least 1 meter from the Power unit. Keep the power unit at least 0.5 meter from the Intercom.

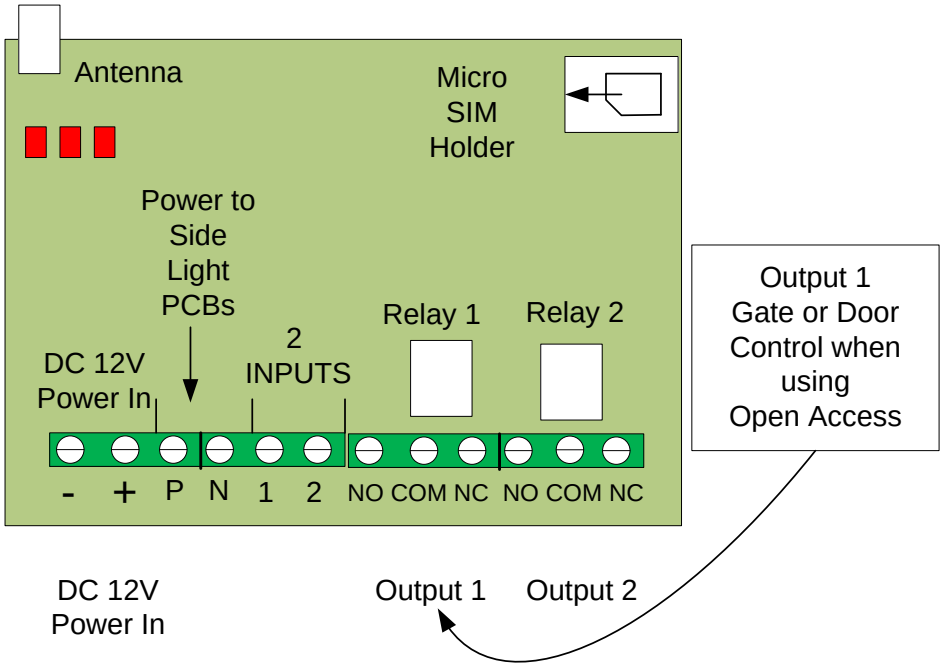
1. **Unscrew the top two screws from the body of the intercom.** There are four security screws holding the front panel to the body of the intercom. The tool for opening these screws is in the box. Please leave the plastic protection on the Intercom body until your installation is complete to protect the surface from scratches.

2. **Use the body (rear part) of the intercom to mark the wall or pillar for mounting the intercom.** There are four screw holes for mounting the intercom to the wall.
3. **Decide how to run the power supply cable and the antenna cable,** as these must enter the intercom through the biggest hole in the back of the Intercom body.
4. **Mount the intercom to the wall.**
5. **Now wire the Power Supply and relay output to the terminals on the PCB as described in the diagrams that follow.**

Wiring of the Intercom

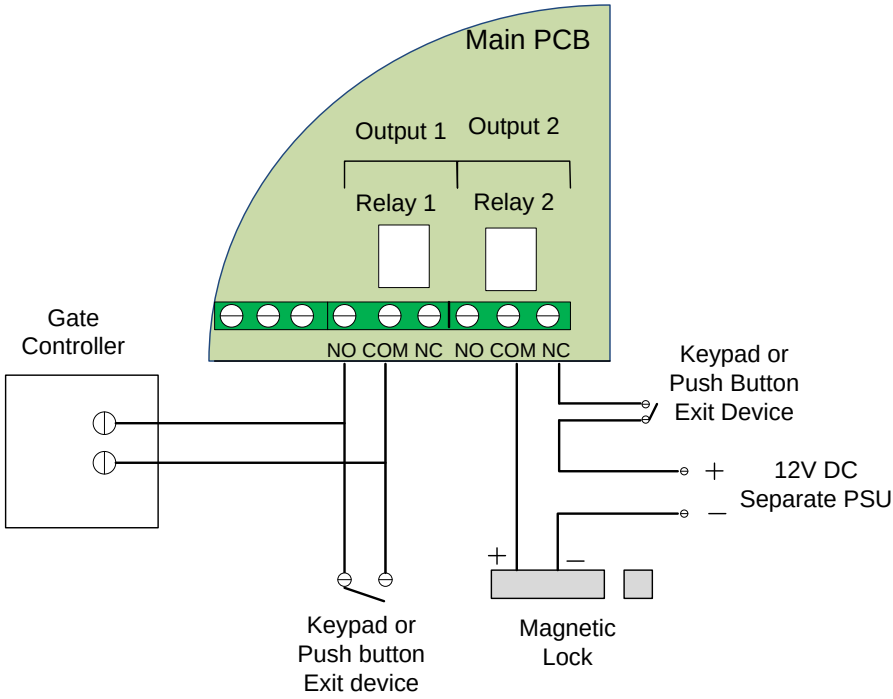
Overview of the main GSM PCB

The Diagram below shows the key connection points on the GSM Intercom PCB.



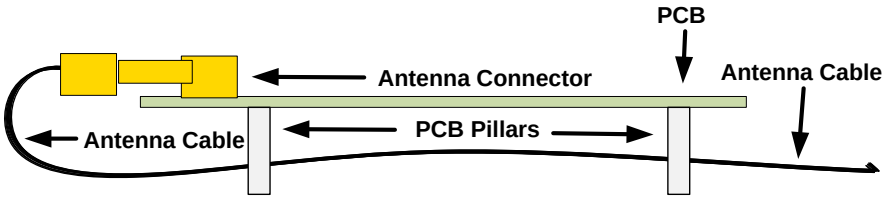
Wiring to the PCB

1. Output connection example



Running the Antenna Cable Underneath the Main PCB

When running the Antenna cable please run it under the main PCB and have it coming up from underneath the PCB to connect to the antenna connector. This stops the Antenna cable from getting pinched when closing the enclosure. See the example diagram below. Also if you have an amount of Antenna cable inside the unit please reel it neatly and stick it with tape to the back box.

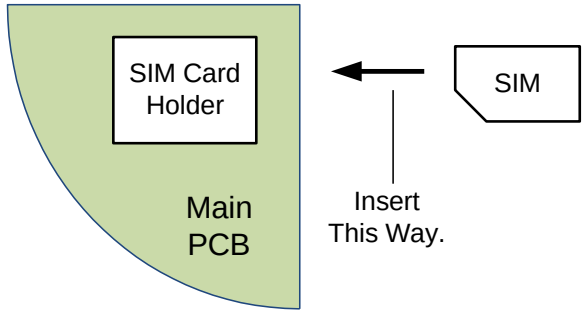


Powering Up

1. Insert the SIM in the GSM device.

A Micro SIM card for a mobile phone is required. The SIM card may be labelled 3G/4G/5G.

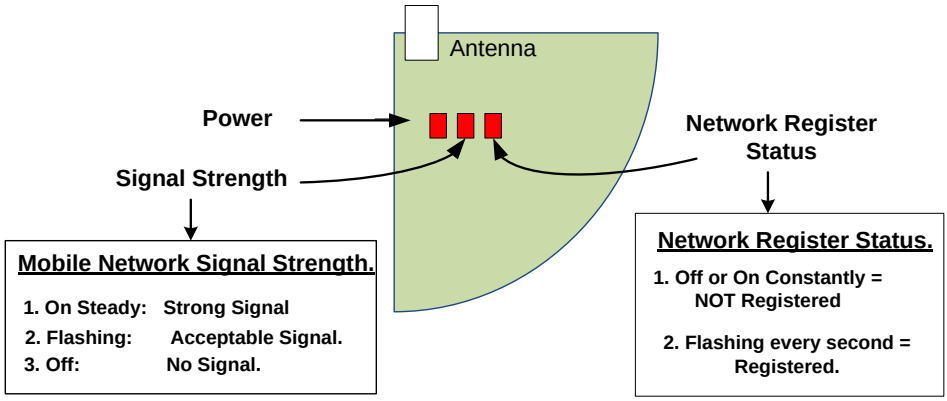
Do not use a SIM card for a tablet or a data only SIM.



2. Apply power to the GSM unit.

The device will ask you to wait.
Initially the Register light will be on constant and as the unit registers on the network, will start to flash every 1 second.

3. Give the Unit about 2 minutes to register when first turned on. When the Signal Strength light is on constantly or flashing the unit has signal from the network. If the signal strength light fails to light at all you may have to change the position of the device to pick up a GSM signal. Raise the antenna to the highest position possible. It may also be an option to use a SIM from a different network. On some occasions it may be necessary to use a high gain antenna, please contact your supplier for this.



4. Wait for Beep-Beep

After between 30 and 60 seconds you will hear the GSM unit go Beep-Beep.

After you hear Beep-Beep the unit is ready for programming and operation.

5. Program the units own phone number into the device.

For the operation of the Keypad, Timers (scheduled events) and the Log the unit needs to know the correct time of day. It gets this from received SMS Text messages.

So that the unit can send itself a text message to synchronise the time of day it needs to know its own phone number.

A) Get the telephone number from the SIM card that you have taken the SIM for the unit from.

B) Program this into the GSM device as follows.

Send this text.	Receive This Text Response
SIM set xxxxxxxxx	SIM Phone number xxxxxxxxx Programmed.

*xxxxxxx represents the GSM device's mobile number eg:0872376605

6. Check Reception levels

Initial installation is now complete. Use the SMS text command below to confirm signal level is acceptable for the GSM device.

Send this text.	Receive This Text Response
Diag Levels	See table for response explanation

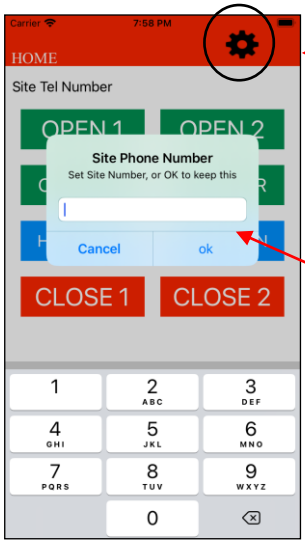
Example Response	Meaning
VV-IKL	VV-IKL = Voyager Voice Integrated Keypad with LEDs
57	SW version 5.7
Signal Level XX	The Current Signal Level For 4G Operation: this number needs to be 8 or higher. For 3G Operation: this number needs to be 8 or higher. For 2G operation: this number needs to be 10 or higher.
Mode is XG	Current mode of operation 2G = 2G Mode 3G = 3G Mode 4G = 4G Mode
SIM Number	This is the GSM device's own phone number. (Set with the "SIM set xxxxx" command)

Please Note: Having set the SIM number in the device at step 5. In the last section, the device can now send itself an SMS text on powering up to synchronise its internal clock. This will be heard as a second Beep-Beep when this text is received by the GSM device. When powering up the device please wait until after both sets of Beep-Beep occur before proceeding to use or configure the GSM device.

Starting with The App

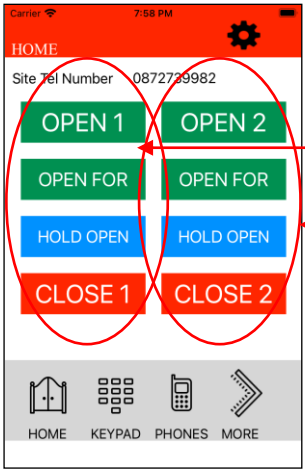
This section covers some of the main points of interest when using the Phone App for programming the GSM Intercom. We will cover five sections here which should give an overview of what can be done, but there are many other items that can be configured with the Phone App.

First Screen



If you need to change the Phone number that the App is communicating with. Or if this GSM Intercom has a security code enabled. Then configure these settings by pressing the configuration wheel. (** Please note to enable the Security code requires sending an SMS text. See page 18. Setting it as Enabled in the App just tells the App that the Security code is on, in this device.)

Enter the Phone Number for the GSM Intercom at this site. Then press ok.



Once the Phone number is entered this first screen can be used for immediate control of the two Outputs.

Control Output 1

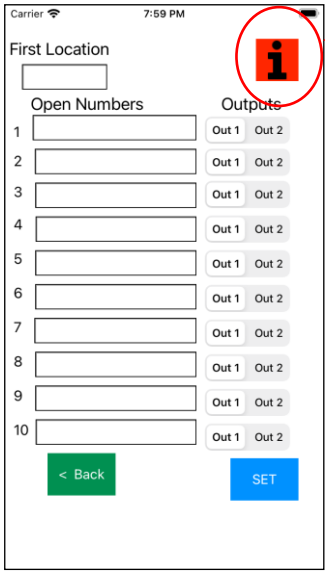
Control Output 2

Select other screens in the App to configure Keypad codes, Phone Numbers and other items.

Setting Call In and Call Out Phone Numbers

Setup for Incoming Calls

The GSM unit defaults to open access. With no programmed Open Telephone numbers any caller can open the gate or door. The GSM device sees the incoming call and hangs up the call. The GSM unit will pulse the Relay. This is a no cost call.



**** Use I button for info on this screen**

Programming open phone numbers with this screen in the App creates a white list where only programmed Open phone number have access to open gates or doors.

This screen allows ten phone numbers to be programmed at a time. Use the last 10 digits from any telephone number, ignoring any international codes.

Any programmed Open number can pulse Output 1 or Output 2 (Possibly: Main gate or Side gate)

Setup for Outgoing Calls

Programming Phone Numbers into the GSM device.

Now program the phone list, with the phone numbers that the GSM device will dial once the intercom button is pressed. For initial testing this is best if it's your own number. It can be changed later using the same screen.
International codes are not required unless the intention is to call a phone number originating in another country.



Using The Intercom

With at least one 'Call Out' Phone number programmed, the device can be tested to place a call to this programmed phone number.

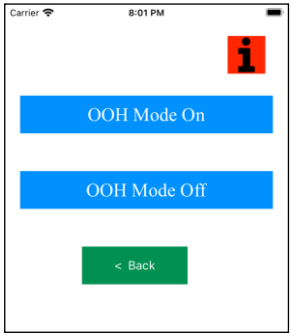
Place the first Outgoing Call

To test calling operation and audio quality you will need a second person either at the intercom or at the mobile phone.

- Move the mobile phone away from the intercom.
- Press the intercom button to place a call from the GSM device. The GSM device will call the number at location for phone 1.
- Answer the call and test that audio can be heard by speaking normally at both ends.
- On the mobile Phone, press * followed by **1 or *** followed by **2 (to trigger Output 1 or 2) to grant access** (this will pulse the relay).
- For a user who **doesn't want to grant access terminate the call with #.**
- When the end user is called by the GSM device, just hanging up the phone isn't sufficient. If further numbers are programmed then these will be called in a follow on call. When not granting access, terminate the call by pressing #.

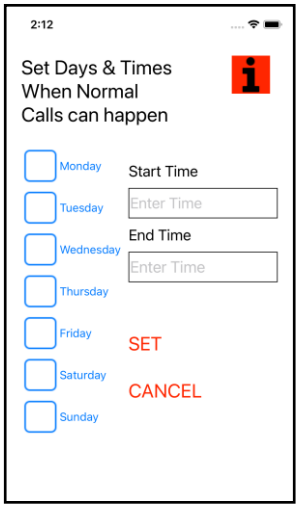
Out Of Hours Setup (Do Not Disturb)

Out of Hours or Do Not Disturb mode ensures that calls can not be made from the GSM Intercom outside of certain times or even on certain days.



First step is to enable this mode of operation with "OOH Mode On"

Then setup the days and times when calls can be made to the phone numbers setup for this intercom to call to.

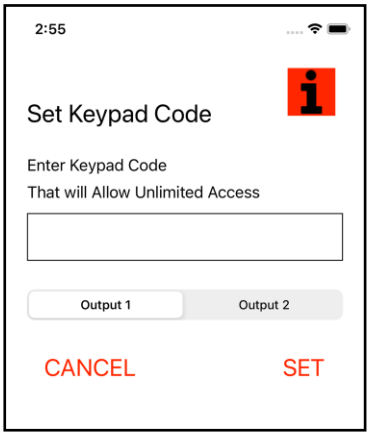




Should you wish that the intercom will place a call to an alternate phone number. Then program and Set this phone number with this screen. An example of this type of requirement might be at an office where, outside of working hours, calls are diverted to the security guard or Security Company.

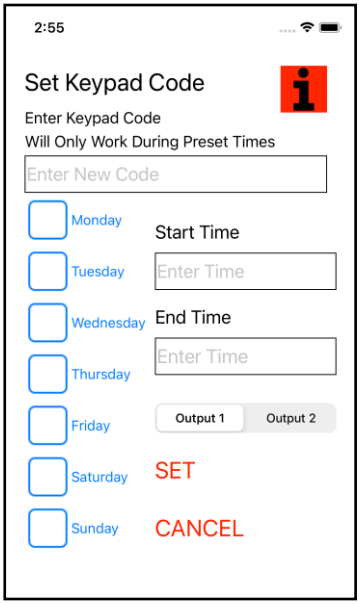
Keypad Codes

Keypad codes are 4 digits and can be setup as standard 24/7 codes, or as time and day limited codes, and even as temporary codes with a limited lifetime.



This screen allows for the setup of a standard 24/7, 4 digit Keypad code which can always be used and lasts forever.
It can control Output 1 or Output 2.

We recommend that all systems have at least one 24/7 code. This code will always allow access irrespective of problems that may occur with the Phone network.

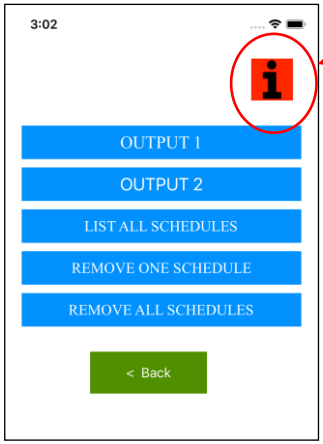


This screen allows for the setup of a time and day limited, 4 digit Keypad code which lasts forever.

It can control Output 1 or Output 2.

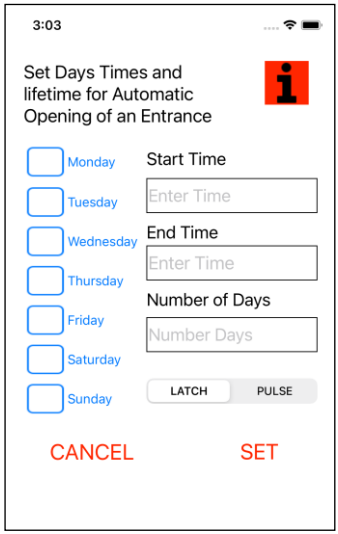
Automatic Schedules

Automatic schedules allow for the automatic opening and closing of gates or doors at pre set days and times.



** Use I button for info on this screen

Select whether we want to set a schedule for Output 1 or Output 2.

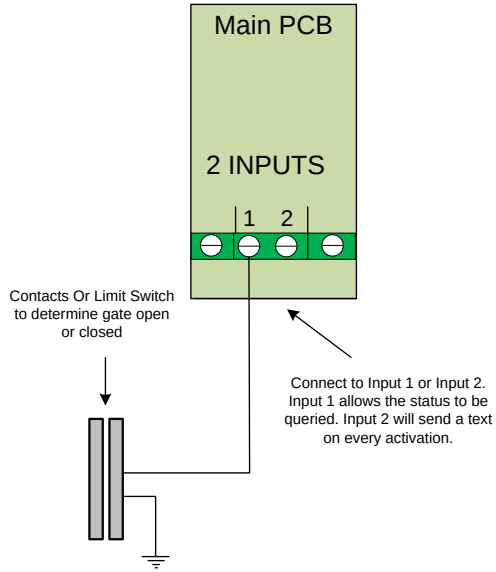


Set up the Schedule that we want to create for this Output. Select Days and Times when the gates will open and then close.

If required this schedule can have a limited lifetime by entering the number of days it exists for by entering number of days at 'Number of Days'

This Output can Latch or pulse at the pre set times.

Configure Input 1 and Input 2 for Open & Close Status.



Input 1 is configured to work as follows.
Wiring a set of contacts as shown in the wiring diagram, into input 1 will allow for the following text command to be sent to determine the gate or door status.

Send this text.	Receive This TxT Response
Gate status or *Door status*	Status open OR Status Closed

Note 1**:** If contacts are not fitted to the gate or door and wired to the input then this message will always return "Status Open"

Input 2 is configured to send an SMS text on all gate or door openings and closings.

Wire a set of contacts or a limit switch, to Input 2 as shown on the wiring diagram and mount on the gate or door so that they separate when it opens

The message will go to the number programmed in Phone 1, unless the Control Phone is programmed (See section on 'Program the Control Phone' in the next section). In which case the message will go to the Control Phone.

Now when the gate or door is opened the number will receive the "Access open" SMS Text automatically.

Set Ring and Talk Time for Outgoing Calls

The device is configured with two timers. The first controls the ring time, i.e. how long the phone being called, will ring for, while the second controls how long the person answering at the phone being called, can talk for.
The defaults for these times are: Ring Time: 20 seconds, Talk Time: 40 seconds. To change these settings use the following commands.

Text to Send	Response	Result
Ring Time xx	Ring Timer set to xx Seconds	The time in seconds that the GSM device will wait for an answer is controlled with this.
Talk time xx	Talk time xx	The time in seconds that the GSM device will allow for in the call is controlled with this.

Options for Security Settings

A security code can be enabled for this device. Once enabled every text message must have the security code at the end of the text command. The code can also be changed to one of your preference.

Text to Send	Response	Result
Code on 8531	Security Code On	Now every command sent must be followed by the current code.
Code off 8531	Security Code Off	Code is off
Change XXXX YYYY	Security code changed	XXXX = New Security Code YYYY = old security code

Program the Control Phone.

The Control phone can be programmed to allow someone other than the person programmed as phone 1 to receive important messages from the system. This may be necessary should the installer have responsibility for maintaining the system.

Text to Send	Response	Result
Control Phone 08XXXX	Control Phone 08XXX programmed	Control Phone now set.
Send Control Phone	Control Phone 08XXX	This is how we check if control phone is set

Set 2G/3G/4G Or Automatic mode.

The GSM module in the device is best suited to selecting the best band to operate on. However it may happen that the device is on 4G but can not get sufficient signal level to make a phone call. In this instance it can often be better to set the module to operate on 3G or 2G. The table below lists the commands used to set the GSM module to different operating bands.

Text to Send	Response	Result
Switch Auto	Starting Switch to Requested Band	Module Can decide the best band to operate on.
Switch 4G	Starting Switch to Requested Band	Module fixed on 4G
Switch 3G	Starting Switch to Requested Band	Module fixed on 3G
Switch 2G	Starting Switch to Requested Band	Module fixed on 2G

Diagnostics

Diagnosing Problems

When On Site the following tools can be used to diagnose problems with this system.

1) LEDs on the PCB
2) Tones and activity from the Phone Network, when calling the device.
3) Red LED System Status indication (Not on VV-IH & VV-IKH)
4) Diagnostic SMS Text Response

When remote from the site the following tools can be used to diagnose problems with this system.

1) Phone Network Tones and device activity when calling the device.
2) Diagnostic SMS Text commands (also available in the App)

The table below lists the SMS Text commands that can be used to diagnose problems with an installed GSM device.

Text to Send	Response received	Result
Test	GSM Intercom Test	Gives basic indication that device is on the network and can respond to SMS text commands.
Diag levels	See the Table in section 6 of Powering Up earlier in this document.	This gives basic details on the device and its current GSM band and signal level
Diag stored	This returns the stored values recorded over the last 5 days.	Features such as the Signal Strength, ability to register etc. are recorded over the last 5 days, and returned.
Diag Live	These are the current values, not yet stored.	

For Diag stored and Diag Live, a typical response to these commands is as follows:

VME-IK 1 NV: SS too low: 5 Not checking SS: 0 Cant register: 0 OS Problem: 0 State stuck: 1

The Details of this response is given as follows:

Returned Text	Meaning
VIME-IK 1 NV:	Product Code, Software Version, 1 = 1.0 and NV means non volatile or stored.
SS too low:	Number of times Signal strength below an acceptable threshold.
Not checking SS	Network not giving a response to the request for Signal Level. Device may reset. When was the SIM last topped up?
Cant register:	Network not allowing the SIM or the device to register on its Network. Device will not function. When was the SIM last topped up?
OS Problem	Internal device problem. Device may reset.
State stuck	Internal device problem. Device may reset.

RED LED - System Health Status Indicator

Normally the Red LED is off. But by pressing the bell button on the keypad 4 times the red led will indicate the health status for the device. (This LED is Not on VV-IH & VV-IKH – Hooded Intercoms)

Red LED	System State	Solution.
RED LED on constantly	**Normal Start up state** from Power Cycle	Wait for the device to leave this state. If it doesn't leave this state there is a serious technical fault. Contact Technical Support
RED LED Flashing every second. RED LED may be off for a few seconds, then on constant and then flashing every second (this is at the same frequency as the green led).	**The device is not registered on the Network**	1. Check SIM is inserted correctly 2. Make sure the SIM has credit and has been topped up in the last 2 months. (Remember it is not enough to have credit on the SIM it must be topped up regularly or it will be deregistered from the Network) 3. The device may be struggling to get enough signal strength to register. In this case check the Register and Signal Strength LEDs on the main PCB. Signal Strength LED should be flashing or On constantly. The Register LED must be flashing every second. 4. If the device is failing to register or if the Signal LED is not flashing or on constantly (a) Put the antenna higher (b) Change the SIM for one from another operator. (c) Get a high gain antenna from your supplier.
RED LED Flashing every 2 seconds	**SIM has no credit to send an SMS text.**	1. Follow 1. and 2. from above and confirm ok 2. Add credit to the SIM. 3. Place the SIM in a mobile phone and confirm the phone can make calls and send SMS texts.
RED LED Flashing every 4 seconds	**Normal** All Good State	**This is the Normal State.** The Red LED skips every two flashes of the Green LED and then flashes.

Trouble Shooting Guide

Question: I have powered up the unit. How will I know when it is ready to operate?

Answer:

1. The first time the unit powers up it will make a "Beep-Beep" noise when it has registered on the network.
2. The Registered LED will flash every second. Hopefully also the Signal Strength LED will be flashing, or on constantly.
3. After the first Beep-Beep the device will then send itself an SMS Text to synchronise time of day operation for this Intercom.
4. Send a text to configure the unit using your mobile phone. Once the text is received the unit will make a Beep-Beep sound.

Question: I have powered up the unit. The Registered LED is flashing every second but the signal strength LED is not lighting at all

Answer:

1. With low 3G signal levels the Signal Strength light may not flash but the unit may operate correctly.
2. If there are problems with the unit due to low signal levels then re locate the GSM unit and antenna so that a better signal level is achieved, or change the SIM in the device for another network, so that better signal level is achieved.
3. If problems persist please contact your supplier to obtain a high gain antenna to solve signal level problems.

Question: I am sending a text messages to the GSM unit but I'm not getting any response.

Answer: Check the following

1. Confirm the unit has power and is registered on the network by checking the 'Registered' LED is flashing every second.
2. You know the device is receiving your Text, because once the text is received the unit will make a Beep-Beep sound.

3. Confirm the SIM in the device has credit and has been topped up in the last 2 months. Having credit on the SIM is not enough. A PAYG SIM must be topped up regularly.
4. Check the spelling and the format of the text, matches that described in this manual. Do not use return to move to the next line when creating a text command.

Question: I have entered a number into phone 1 position but the GSM unit will not place a call to the number.

Answer:

1. Please check steps 1. to 4. In the last answer.
2. Check the devices response Text when you programmed Phone 1. It will list the number it programmed. This number must be correct.
3. Ask the device to return Phone 1 with the Text command "send phone 1" the device should respond with the number it has programmed in Phone 1 position.
4. On occasion the mobile phone number the device must call has very weak signal level or is turned off and the network is unable to place a call to it. Wait until the remote phone is in a different location and confirm it is turned on, and try again.

Question: The GSM unit is operating but it always calls Phone 2 and Phone 3, even if phone 1 is answered.

Answer: The remote phone answering the call must give a response of ***1 or *2** (meaning open Gate or Door) or **#** (Meaning Terminate call, Do not open Gate or Door). Just hanging up the call will cause other numbers to be called.

Question: The GSM unit is not operating. What details can I get from the Green and Red LEDs on the front panel?

Answer:

1. The Green LED simply gives system heartbeat and flashes every second. (Please note these Front Panel LEDs not on the Hooded Intercoms VV-IH & VV-IKH)

2. The Red LED gives the health of the system. Normally the Red led is off. But by pressing the bell button on the keypad 4 times the red led will indicate the health status for the device. (Please note these LEDs are not present on the Hooded Intercoms)
3. This should be flashing every 4 seconds. So it skips two flashes of the green LED and then flashes. If it is not flashing in this sequence, once the device has been running for more than a couple of minutes, please refer to the section that explains the different states that this LED is flashing in, and explains what this state means for this GSM device.

Question: We have set up scheduled events so that the gate opens every day at 9.00 and closes at 6.00. This worked for a week but has now stopped operating. What should we do?

1. The device synchronises its internal clock by sending itself an SMS, if it has been power cycled or if it resets. To do this it must know its own phone number.
2. First off please make sure you have programmed the SIM phone number into the device. Send SMS Text "Diag Levels" to the device. The device will send a response that should include the phone number of the device. See the Table in the section on **Powering Up see 6. Check Reception Levels.**
3. If the number is not programmed then you need to program it now. See the section on **Powering** Up**, see 5. Program the units own phone number into the device.**
4. If the number was programmed please follow the basic diagnostic steps outlined in the section on ' Diagnosing Problems'

Question: I have installed the system as instructed but find an amount of hum and echo on the mobile phone when receiving a call.

Answer:

1. Keep the GSM antenna away from the Intercom. Interference from the antenna can have a very bad effect on audio quality.

Also keep the GSM antenna away from the 12V PSU being used to power the system.

2. Lower the audio gain settings of the microphone and speaker. In areas of poor signal coverage high gain settings will increase the feedback gain and increase the levels of any audio noise present on the network.

Question: What are the most common issues or questions for your technical support department?

Answer:

The most common questions we get relating to our GSM devices, in technical support, are:

a) Questions arising because a Pay As You Go SIM is used and has no credit and is unable to send text responses to text commands. This GSM device is also unable to send itself a text to ensure correct Time of day is available for system operation.

b) Questions arising because a Pay As You Go SIM is used and may have credit but has not been topped up within the required top up period of the network operator. This leads to the SIM being de registered from the network with a gradual removal of its capabilities.

Register of Telephone Numbers Programmed into the GSM Device.	
Phone 1	
Phone 2	
Phone 3	
Phone 4	
Phone 5	

Open 1	
Open 2	
Open 3	
Open 4	
Open 5	
Open 6	
Open 7	
Open 8	
Open 9	
Open 10	
Open 11	
Open 12	
Open 13	
Open 14	
Open 15	
Open 16	
Open 17	
Open 18	
Open 19	
Open 20	
Open 21	
Open 22	
.....	
	This list can go to 200 numbers

Control Phone	

Register of Keypad codes Programmed into the GSM Device.				
	Keypad Code	Valid for X days or Permanent	Days Valid or all days	Times valid between
Key code 1				
Key code 2				
Key code 3				
Key code 4				
Key code 5				
Key code 6				
Key code 7				
Key code 8				
Key code 9				
Key code 10				



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