Quick Start User Guide (Support +44 151 318 0792)

4G, 3G & GSM Cellular Gate Opener

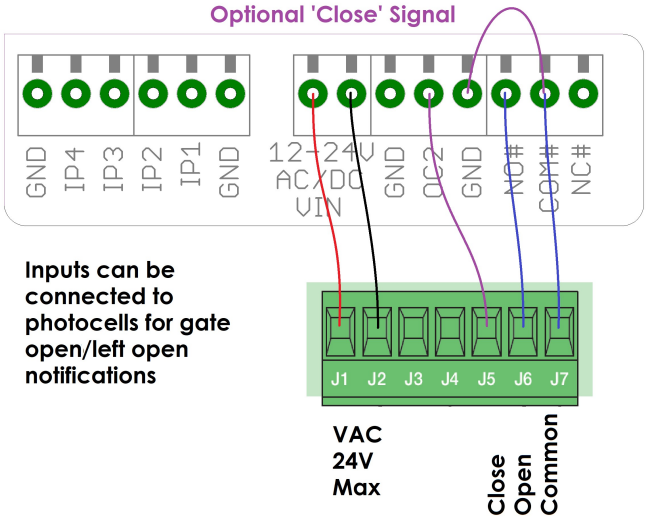
The 4G GSM Gate Opener is a general-purpose SMS and call-controlled switch.
The gate opener can be used to operate an electric gate controller when dialled from a recognised number. If desired, the gate opener can be set to open when any number dials its telephone number.

The unit features 1x volt free output relay and 1x open collector transistor output.
Additionally, the unit features 4x 0-36V input terminals which can be used to initiate the sending of SMS text messages.
It can be powered from 11-24V AC or DC with a current consumption of 15mA when idle to 150mA during a call.

There is space in the memory for up to 1000 users.

The system can be managed by simple SMS commands or via the web using the https://iot-portal.com website.

The unit is available with or without the IP65 rated enclosure.



General Wiring

In general, a gate controller will have COMMON/OPEN terminals which, when connected together, initiate the opening sequence for the gate. The default dial-to-open channel is the volt-free # relay so the 'OPEN' terminal should be connected to this as shown in the diagram.

Typically, the controller will automatically close the gate after a set time period. Some controllers will require a secondary pulse either from the 'OPEN' contact or from a second 'CLOSE' contact. In this case the secondary channel 'OC2' should also be connected as shown.

It is possible to power the GSM gate opener using the auxiliary power output on the gate panel. Ideally a secondary 12V-15VDC power will be used.

The power terminals are not polarity sensitive whether running from DC or AC; connect the power terminals either way around.

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4G VoLTE Gate opener: SMS Programming

Quick Start Procedure

The gate opener can be programmed entirely by sending SMS messages from a user's phone to the gate opener SIM card phone number.
Firstly, the gate opener needs to know which phone is in control. This is done by sending the master command as follows:

Master me …puts this phone in control (i.e. this is an admin phone)

If the gate opener has been used before or already contains a master number you must use the 5-digit PIN. This is the last 5 characters of the IMEI number/10-digit ID.

The 5-digit PIN for 40519**82820** above is '82820'

Master 07968774663,82820. …makes 07968774663 a master phone for gate opener 4051982820

Call me …dials the number that sent the message when button pressed

Call 07968774663. …dials 07968774663 when the button is pressed

Numbers are dialled in the order in which they are added!

Add 07968774663. …adds 07968774663 as a Dial-To-Open number

Remove 07968774663. …removes 07968774663 from the memory

Numbers should be entered with dot . at the end of the number (not mandatory)

List …displays the numbers in the memory (truncated to 8 digits)

Status …displays model, firmware, and output status

Csq …returns received signal strength

Open …operates the # output relay

Close …deactivates the # output relay

Code 1234. …adds 1234 as a # output relay keypad code

Code *4321. …adds *4321 as a * output relay keypad code

Default Settings

To reset all settings back to default values, whilst keeping all numbers in the memory, a master phone can send the following SMS:

Clear settings

The default settings (and its associated SMS command) are as follows:

Dial-to-Open Call Channel:	#	(channel [#/*/Alt]) *alt for Alternate between calls*
Toggle Mode:	Pulse	(rlymode [Pulse/Toggle])
Reject/Connect Calls	Reject	(reject call/connect call)
Text Message Reply	Enabled	(textres [En/Dis])
Voice Reply	Enabled	(voice [En/Dis])
Ring Mode	Enable	(ring [En/Dis])
Keypad Tones	Enable	(ktone [En/Dis])
Portal Access/Logging	Enable	(web [En/Dis])
Voicemail Divert	Enable	(divert [En/Dis]) *allows call to go to voicemail*
Forward	Disable	(forward [En/Temp/Dis])
Technology Scan Mode	0	(RAT (0/1/3) *recommend always '0' for auto*
Relay (DtO) Active Time *s*	1.5s	(rlytime[#/*] [s].) *supplied value -0.5s i.e. 2 = 1.5s*
Maximum Call Time *s*	50s	(ctime [s].)
Maximum Ringing Time *s*	25s	(rtime [s].)
Mic Volume	4	(mic [1-9])
Speaker Volume	3	(vol [1-5])
DTMF	1	(1 or 2 presses to release)

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4G VoLTE Gate opener: Programming via App

The gate opener can be programmed by SMS or via the iot-portal.com app or a mixture of both.

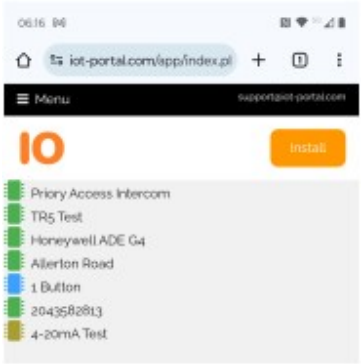
New Users

New installers should scan the 'App Invite' QR code to get to the iot-portal.com app login page. New user phone numbers will not be known to the portal so it will not be possible for the portal to send login SMS messages to these numbers. The 'App Invite' QR code bypasses this restriction. We recommend logging in via phone number for gate openers.

Regular Installers

For users known to the portal, it is preferable to scan the Enrol QR code which will automatically add the device to the app.

Installing the App: Android/PC



On Android and PC, installing the app can be achieved by clicking the Orange 'Install' button in the top right of the display.

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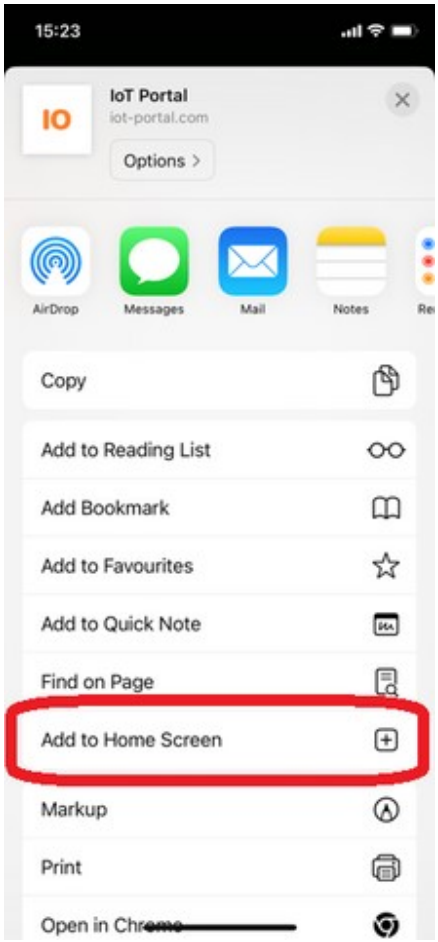
Installing the App: iPhone

It is likely on iPhones that the 'Install' button does not appear unless using Chrome. To *install* the app, follow the below procedure.



Click the 'Add to Home Screen' button to have app appear as an installed app on the home screen of your device.

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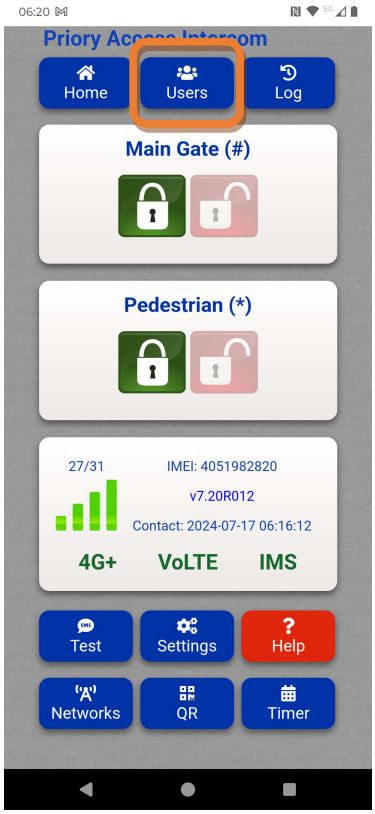
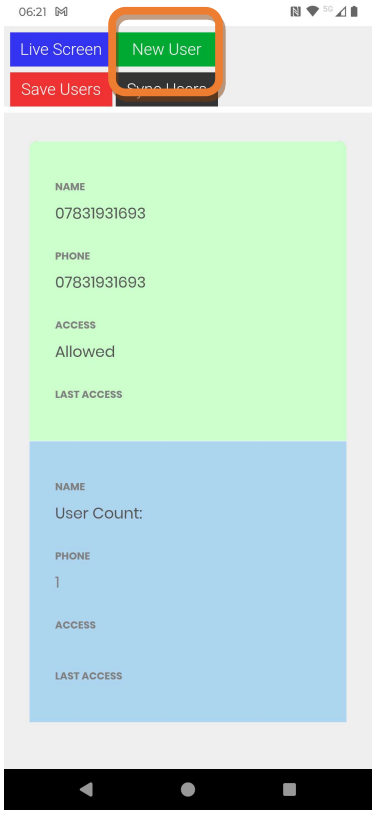
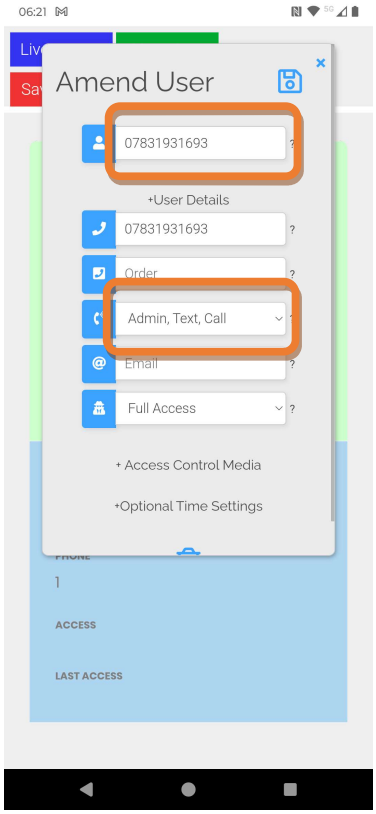
Adding/Amending Users

From the app Home Screen, click the gate opener name (this will be a 10-digit ID unless amended). This will bring up the Live Screen for this gate opener. Clicking the 10-digit ID (or name) will bring up the Change Name modal in order to name the gate opener.







To add and/or amend users, click the Users button at the top of the Live Screen. Click on either an existing user or click the '**New User**' button at the top (green button).
The username will be the phone number unless amended on this screen (see orange box above).
If any numbers have been added by SMS the '**Sync Users**' button (black button) should be clicked before adding/amending numbers. This contacts the gate opener to read any numbers out of its memory. The gate opener must be on and it must have a SIM fitted with data.

Name	Enter the user's name
Phone	Enter the user's phone number
Order	Enter a digit (1,2,3 etc…) to specify the order of dialling
Type	Admin, Call and Dial-To-Open are the relevant options for gate openers*
Email	Enter an email address to login to the app via email (backup method)
Permission (email)	Enter Full Access on any user with access via email

Hover or click the question mark '?' at the end of each input box for more information.

Clicking the Save (disk) icon will save the details to the iot-portal.com cloud database, however, it is mandatory to then click '**Save Users**' (red button) to send the phone numbers to the gate opener.

*Admin and Call numbers already have Dial-To-Open access control by default (see security SMS command below)

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Online Programming: Further Information

Any online programming, including using the app, will require a SIM card with data credit and a working data connection. If the buttons are ghosted on your Live Screen, then it is likely the data is not working on your SIM. You may be able to remedy this but, if not, just use SMS programming.

QR Code

A QR code supplied with the product will grant immediate access to the Live Screen. These codes can be destroyed and created on the Live Screen. Scanning the 'Live Screen' QR Code will take you to the Live Screen for that unit. From here you can add your email address and/or phone number on the 'Users' page. You require data on your SIM for this to work!

If you add your phone number as an 'Admin' phone you will then be able to get back to the 'Live Screen' by sending:

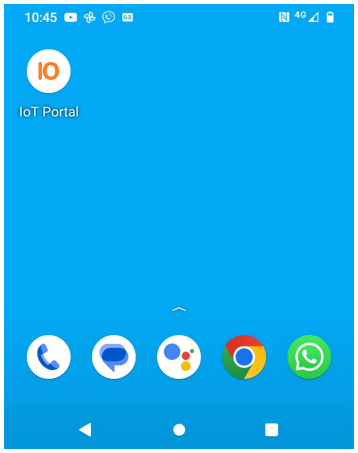
Get link

…from your phone to the gate opener SIM card number. The gate opener will reply with a link which will return you to the Live Screen. The link will be valid until a new one is generated.

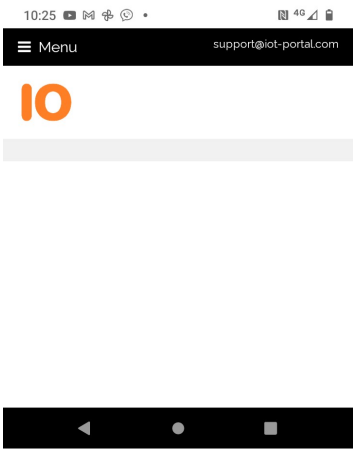
Live Screen - grants access to the Live Screen for programming and operation
View Screen - grants access to the View Screen which allows monitoring only
Enrol Screen - for enrolling devices onto the portal (for installers)
Box Label - description of package contents
Invite QR - links to the app login page and bypasses the restriction on unknown numbers

IoT-Portal App

The app is a simplified version of the portal. It allows you to quickly get to the Live Screen for any device that has your email address stored in it as a 'Full Access' email address or any device that has your phone number in it stored as an 'Admin' or 'Master' phone.
Your credentials are stored in a cookie which allows you to remain logged in for up to 390 days. The app can be used as a website or can be installed as a Progressive Web App (PWA).



https://iot-portal.com/app



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SMS Programming: Further Information

There is storage space in the memory of the gate opener for 1000 numbers. These can comprise of any of the 4 number types.
Numbers programmed as 'Master' numbers allow users to change settings and add other numbers. They are not called when the button is pressed but they will operate the output relays when they dial the SIM card telephone number.
'Call' numbers are the numbers dialled when the inputs on the gate opener are triggered. When a 'Call' number dials the SIM card telephone number the default relay will operate.
'User' numbers are purely for 'dial-to-open' access control. They can operate the output relays when they dial the SIM card number.
'Text' numbers are sent SMS messages when the inputs are triggered.

Registering the Master Phone

The user in charge of setting up the unit (known as the 'Master' user) must first send the following SMS text message to the SIM card number.

If the gate opener is brand new and has never been used it will accept the 'Master me' command

Master me (if OK, the gate opener will say 'Number Added')

If this command does not work you must use the supplied 5-digit pin:

MASTER <master's number>**,**<PIN>. There must be one space after MASTER before the number
There must be a stop (.) at the end of the message
The 5-digit PIN is written on the sticker above

e.g.

Ensure there is no space before or after the comma ','

master 07000000000**,**12345. Sets the master phone number as 07000000000 for PIN 12345

Only the first Master has to use the pin – further master numbers can be added by other masters as follows:

Master 07000000001.

Add dial-to-open numbers

To add dial-to-open numbers simple send the command **add** followed by the number and a full stop '.' As follows:

Add 07123456789 Adds 07123456789 as a dial-to-open number

To remove a number the **REMOVE** command is used. Numbers are removed in the reverse order to which they are added:

remove 07574777888.

If a number is both a master number and a call number the last one added will be removed first. If the call number was added after the master number (which is most likely), the call number will be removed by the first REMOVE command sent. If another REMOVE command is sent the master will also be removed by the second command

Outputs and Call Handling

If both outputs are required to operate the gate, it is possible to answer an incoming call and then select which output to operate by pressing the # or * key on your phone keypad. This will activate the corresponding relay output (as per **RLYTIME** and **RLYMODE**) and instantly disconnect the call.
To enter this mode the following message is sent to the gate opener:

ANSWER CALL

The default setting is for the gate opener to reject the call as soon as the number is read. To switch back to this default mode, the following command is sent to the gate opener:

If the output must be controlled for a measured period of time the RING mode is selected. In this mode the relay is activated when a recognised number calls the gate opener for as long as the caller continues to dial the number. The call is never answered. This is also useful when it is not desirable to reject the call. To enter this mode the **RLYMODE** command is used as follows:

RLYMODE RING

The maximum permissible switching voltage is 48V at a current of 0.75A. The relays are protected by a 0.75A thermal fuse.

Typically, the # relay is used to control the main vehicle gate and the * terminal is used to control a pedestrian entry.

Pressing the * or # key during a call operates the corresponding relay for the time set by the RLYTIME command:

Rlytime# 10. (sets the # relay active time to 10 seconds)
Rlytime* 1m. (sets the * relay active time to 1 minute)

On* …holds the * relay active until the…
Off* …command is sent to the gate opener

Similarly, on# and off# controls the # relay.

The **OPEN** and **CLOSE** command operates the # like ON# and OFF# respectively.

The absolute maximum supply voltage is 24V AC or DC. The VIN terminals are not polarity sensitive and can be connected either way around. Current consumption varies from 25mA at idle to 200mA when active.

By default, the dial-to-open access control will operate the # relay for the time set by RLYTIME#.

To enable any incoming number to operate the relays send:

Access any

To revert to the number list send

Access list

Signal Strength

To view the received radio signal strength the '**CSQ**' command is used. The gate opener will naturally use 4G if possible, which can result in low signal strength readings. The 3G and 2G bands frequently offer a high signal strength and will be used when 4G is unavailable. A good RSSI value is over 15 with 31 being the maximum.

Controlling the Output Relays

The output relays can be switched on and off via SMS or via the Live Screen. Master numbers always have access to the output relays. To allow call recipients and dial-to-open numbers access, the security level must be reduced as shown below

Security 77	Maximum security level (SMS functions and dial-to-open require a master phone)
Security 73	Output relay SMS control for all users (i.e. call numbers and dial-to-open numbers)
Security 33	User numbers accepted for dial-to-open and SMS relay control
Security 37 (default)	Dial-to-open access for all users with SMS access only for master users

Output Relay Commands

To switch an output relay on and off simply send the SMS messages on and off along with the target relay as follows:

On#	Switches on the # relay
Off#	Switches off the # relay
On*	Switches on the * relay
Off*	Switches off the # relay

Similarly, the **Open** and **Close** command operate the # relay as **On#** and **Off#** respectively.

It is also possible to control the output relay for a set time up to 9 hours as follows:

On# 3.	Switches the # relay on for 3 seconds
On# 3m.	Switches the # relay on for approximately 3 minutes
On# 499m.	Switches the relay on for 499 minutes (maximum)

Viewing the Number List

The list of numbers in the memory can be read by sending the '**LIST**' command. MXXXXXXXX numbers are master numbers, CMXXXXXXXX numbers are the number to be called when the button is pressed. UXXXXXXXX numbers are the numbers with just dial-to-open access control.

Output Relay Status

The relay status and gate open/closed state can be viewed by sending the '**STATUS**' command. This will return both the gate and relay activation status. Additionally the current firmware version can be found using this command.

Adding Keypad User Codes (Keypad model only)

To add codes to open the gate/door you simply send the following command:

Code 1234.	Adds the code 1234 to the memory **(please note the . at the end of the message)**
Code 7654321.	Adds the code 7654321 to the memory

By default the # output relay is activated when a simple numeric code is entered. To operate the * relay when a code is entered, the '*' character should be the first character in the code. For example:

Code *1234.	This code will operate the * relay when used

Removing Codes

To remove a code, simply send the word 'remove' followed by the code from a master phone. For example:

Remove 1234.	This removes the code 1234 from the memory

Viewing the Code List

To view the numbers in the memory simply send the word '**list**' from a master phone to the keypad. Keypad codes are enclosed in '< >' parentheses. For example:

<1234>

Online Programming

The gate opener has access to the IoT Portal (http://iot-portal.com). This allows settings and numbers to be viewed online. This requires your SIM card to have a data allowance and for the APN to be set. Native SIM cards (i.e. the network's own SIM like O2 and not reseller SIMs like GiffGaff) often do not need the APN to be set. To set the APN the APN command is used as follows:

apn "giffgaff.com","giffgaff","" (where giffgaff.com is the APN, giffgaff is the username and in this case there is no password "")

When the gate opener is required to be online, send the following command:

Get link

Click the temporary link sent in the SMS reply to access the gate opener

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Online Programming

The gate opener has access to the IoT Portal (http://iot-portal.com). This allows settings and numbers to be viewed online. This requires your SIM card to have a data allowance and sometimes requires the APN to be set. The APN for most common networks is automatically set. To set the APN the APN command is used as follows:

apn "giffgaff.com","giffgaff","" (where giffgaff.com is the APN, giffgaff is the username and in this case there is no password "")

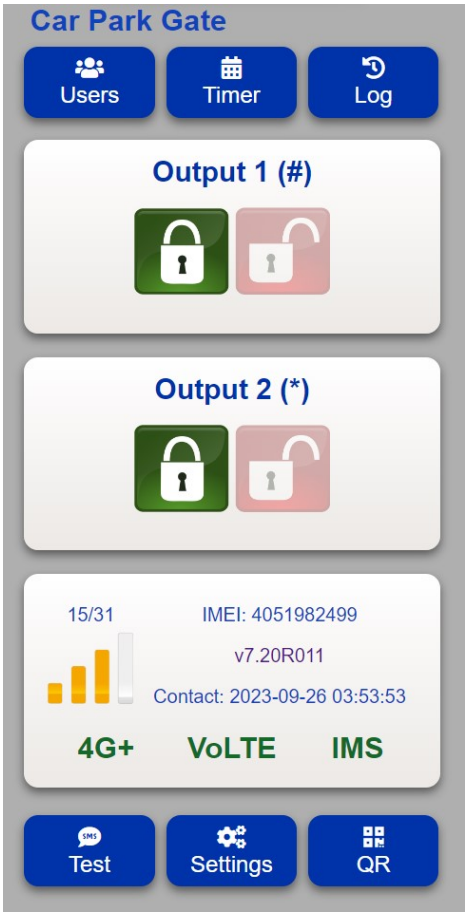
The portal data connection can be enabled and disabled by sending:

Web enable (default)
Web disable

To access the portal, send the following to the gate opener SIM card number

Get link

Click the temporary link sent in the SMS reply to access the gate opener. The link contains a key that will change every time it is requested.



From the Live Screen you can operate your gate/door by clicking on the buttons for output 1 or 2.

The signal strength can also be viewed.

To amend users, click the 'Users' button. See the next page for details.

All settings can be changed via the 'Settings' button on the Live Screen. Hover your mouse over the '?' to display help and the equivalent SMS command.

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What is VoLTE?

At the end of 2025 the analogue phone networks will be shut down in Europe including the UK. 2G may still be around for data but the voice and SMS capability will certainly be gone. You will need a VoLTE compatible SIM from then onwards.

The replacement on 4G is the IP Multimedia System (IMS) with Voice over LTE (VoLTE). Not all networks have fully implemented this yet.

To check out if your SIM and network are VoLTE capable send the 'Network Status' command:

LTE Status
RAT: 4G
Signal: 21/31
VoLTE SIM: Y
VoLTE Ready: Y
IMS Ready: Y

RAT – Radio Access Technology
VoLTE – Voice over LTE (4G)
IMS – IP Multimedia System

Controlling the Radio Access Technology (RAT)

If your SIM card does not support VoLTE, you may not be able to receive calls on 4G. In this case you can request that the gate opener connects via 2G or 3G. 3G is due to be phased out shortly so we recommend using 2G where possible. Changing the scan sequence is the safer way to change the RAT.

RAT	Code
2G	01
3G	02
3G	03
4G	04
Auto	00

The auto scan sequence is effectively 04030201

Example;

Scanseq 04030201 …this select 4G first, then 3G (WCDMA), then 3G (TD-CDMA), 2G
Scanseq 0104 …this selects 2G first followed by 4G (recommended for 2G operation)

Scanseq 00 …returns scanning to default

Forcing a RAT

The gate opener can also be selected to use only 1 RAT by sending the RAT command:

RAT	Code
2G	1
3G	2
4G	3
Any	0

RAT 1. …forces the gate opener to use 2G only
RAT 3. …forces the gate opener to use 4G only
RAT 0. …allows the gate opener to use any RAT

Should the service become unavailable on your selected RAT, remove the SIM card and allow the gate opener to reboot without a SIM present. This will set the gate opener to use any RAT.

Other Commands

Pedestrian	…operates the output relay
Access any	…allows any incoming number to operate the barrier
Access none	…turns off dial-to-open
Access list	…only numbers from the number list can operate the barrier

With the gate opener wired and powered up, basic programming should be performed to add a master number.

The LED by the SIM card holder indicates the status of the gate opener. If it is flashing fast it shows there is either no SIM card fitted or the gate opener is unable to use the SIM card. This could be because it has been inserted incorrectly or there is a PIN number on it.

If the unit is flashing every second, this indicates the unit is looking for a network radio signal. Check the aerial if this persists or perhaps change the network.

Once the LED is solidly illuminated then the gate opener is ready for use.

Once the gate opener is running correctly the front panel should be screwed into place. Connect the switch wiring ensuring that the wiring does not get caught between the terminal block and the front cover which will stop the front cover making a good seal with the base.

Fault Finding

The LED will flash to indicate the status of the gate opener. Whilst not connected to the network, the LED will flash every second. When connected it will light solidly.
If the LED continually flashes 1/s, then this indicates the unit cannot get onto the network. Try another network or move the aerial away from metal objects.
If the LED flashes rapidly, this indicates the unit cannot read the SIM card. You can confirm this by removing the SIM. If no change is observed in the LED behaviour, then this confirms the SIM card issue. Try removing PIN numbers from the SIM and check it is in the correct way around.

NB: 12-24V AC/DC Absolute Maximum – Please measure AC voltage with a volt-meter.
Do not wire the gate opener to mains voltages.

Declaration of Conformity

Document Number: DOC_K4GF

Issuer's Name: Priory Access Ltd

Issuer's Address: 23 Goodlass Road, Liverpool, L24 9HJ

Object of the declaration: K4GF_G4G

The object of the declaration described above is in the conformity with the relevant Union harmonisation legislation:

2014/108/EC The Electromagnetic Compatibility

Directive 2011/65/EU The Restriction of Hazardous Substances
Directive 2014/53/EU RED Art3.1(b) Radio Equipment Directive Conformity is shown by compliance with the applicable requirements of the following documents:

Safety: EN 60950-1:2006+A2:2013

EMC: EN 301 489-1 V1.9.2 (2011-09) EN 301 489-7 V1.3.1 (2005-11) EN 301 489-17 V2.2.1 (2012-09) EN 301 489-24 V1.5.1 (2010-10)

Radio: EN 301 511 V12.0.0 (2015-02) EN 300 328 V1.9.1 (2015-02) EN 301908-1 V7.0.1 (2014-11) EN 301908-2 V6.2.1 (2013-10)

Technical Construction File required by this directive is maintained at 23 Goodlass Road, L24 9HJ UK

Signed for and on behalf of Priory Access Ltd

Name: Michael Beaver
Position: Director
Date: 10/08/2022

Made in UK