4G GSM

Audio Entry Systems

Installation & Operation Manual

PD-333 Issue 4

GSP1

GSP1-S

GT8 Controller

PS4A Power Supply

ANT-4G/5M Antenna

KEEP IN A SAFE PLACE

Contents

Introduction

These systems are designed to control access through 1 or 2 doors or gates using the 4G mobile network and a single call panel. Visitors use the call panel at the entrance to ring a mobile or landline, converse, and gain access, if granted. A resident, or staff, can also gain access by ringing the system and it automatically recognising their phone number. It is also possible for a landlord or property management company to remotely ring in, using a 6-digit security code, from a different location, converse, and grant access.

Features

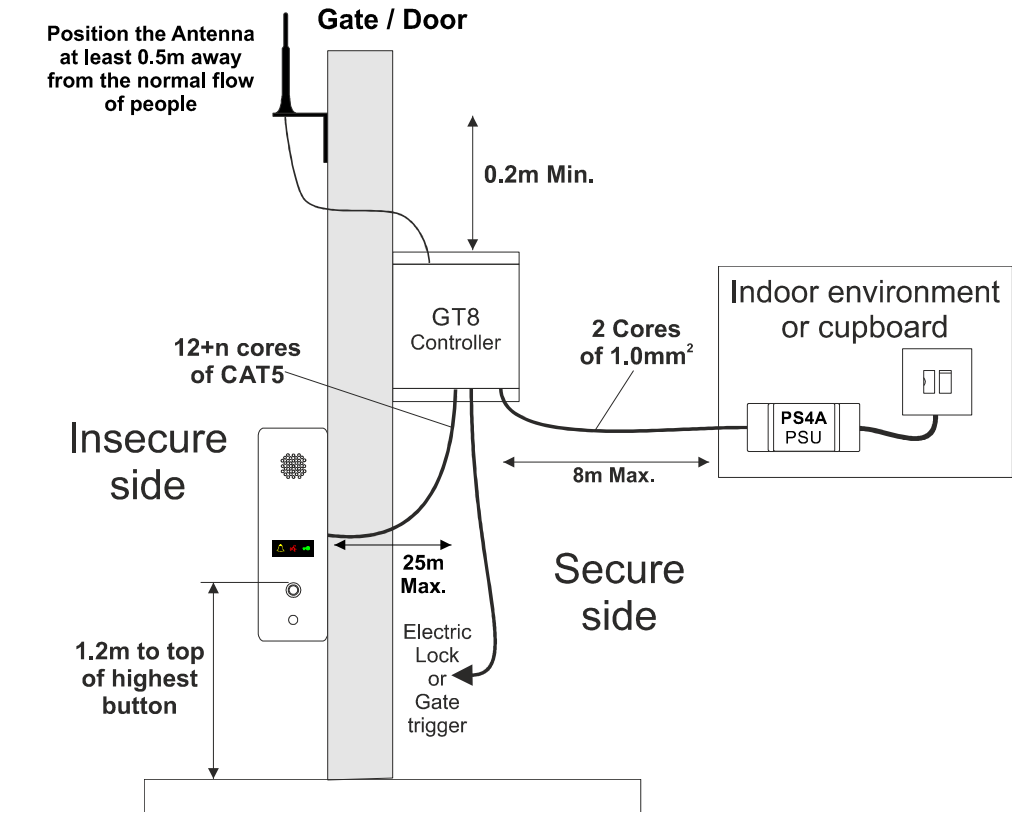
- Marine grade 316 Stainless Steel call panel
  - Up to 8 call buttons
  - Illuminated blue ring call buttons.
  - Reassurance tones and indicators.
  - Options of Fob reader, keypad, trades facility or hearing aid loop/coil
- Calling over 4G, falling back to 3G or 2G if necessary
- 100 Ring to open numbers via Caller ID
- Separate Control unit for increased security
  - Weather resistant IP65 enclosure
  - Relay outputs for 1 or 2 gates/doors (voltage free)
  - Exit input and Programmable 2nd Aux input.
  - Call panel protection to stop vandals unlocking the gate/door.
- Remote call in, converse and unlock from anywhere.
  - 6 Digit security code must be entered.
- High signal strength wall mounting antenna with 5m lead.
- Simple SMS text message programming from anywhere.
- Various call divert options to landline or mobile
  - Up to 3 phone numbers per call button
  - Calls can be diverted to a Master/Caretaker number.
- Anti-tailgating (1 entrance)
- Vehicle and pedestrian gate operation from 1 call panel
- Your choice of SIM / Network, no data plan required.
- Power Supply, 13.8 Vdc, 4A, included for up to 2 entrances.

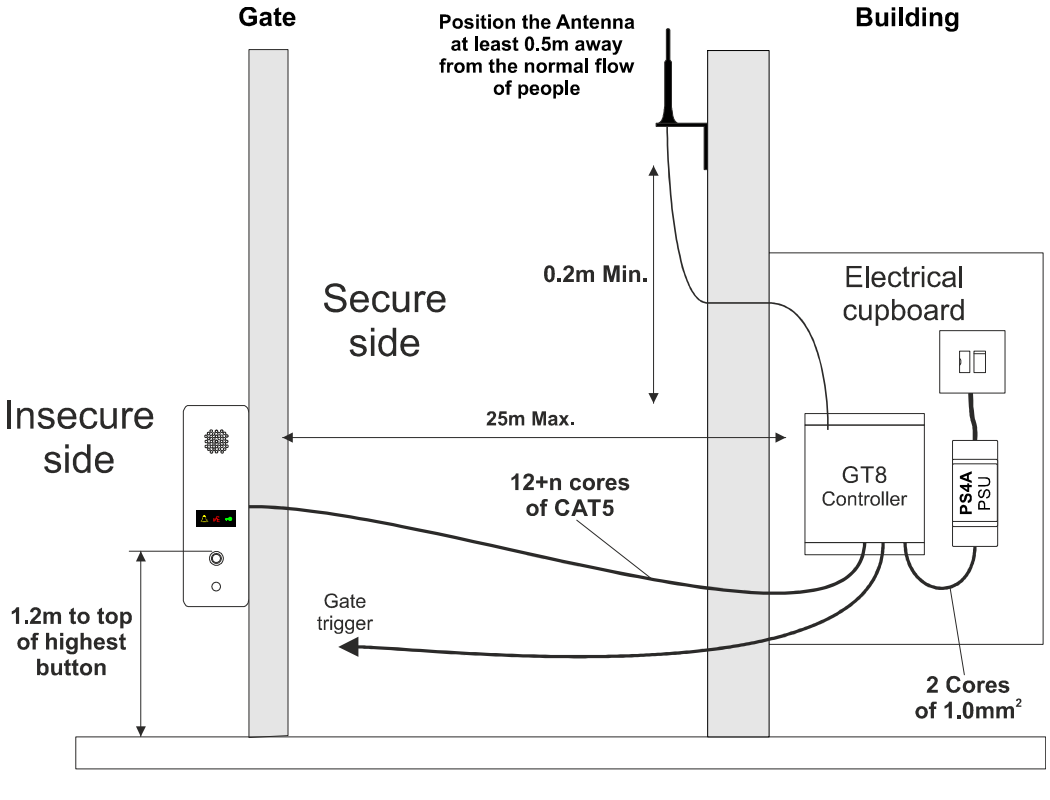
General operation

Standard entrance call

1. One of the call buttons is pressed, the  comes on.
2. The phone number for that button is rung and a ring tone will start.
3. The phone is answered  comes on, conversation is possible, and if the resident wishes to unlock the entrance 1# is pressed for the Main relay/entrance, 2# is pressed for the Aux relay/entrance with  comes on. An unlock reassurance tone will also be heard. #1 Can also be used to operate both relays/entrances at once (see Aux relay mode, page 16).
4. The conversation ends when the resident hangs up or the maximum speech time is reached.
5. If the call wasn't answered by a 1st phone number a 2nd or 3rd number will be attempted, if setup to do so.

Typical cable overviews





n = No. of Call buttons

Cable requirements

GT8 Controller to:	Cable	Cores	Max. distance
PS4A Power Supply**	1.0mm^2	2	8m
GSPn Call Panel	CAT5/CAT6	12+No. of buttons	25m
Exit button	CAT5/CAT6	2	25m
Auxiliary button/input	CAT5/CAT6	2	25m
Electric Lock			
0.5A max.	CAT5/CAT6	4 (doubled)	15m
	1.0mm^2	2	25m
1.0A max.	1.0mm^2	2	18m

Cable types needed

CAT5 Category 5 or 6 unshielded 4 pair solid copper core cable

1.0mm^2 2 Core mains flex with each core equivalent to 1.0mm^2 cross section area

Note: Allow extra cores for features such as a Fob reader, coded access keypad or hearing aid loop/coil.

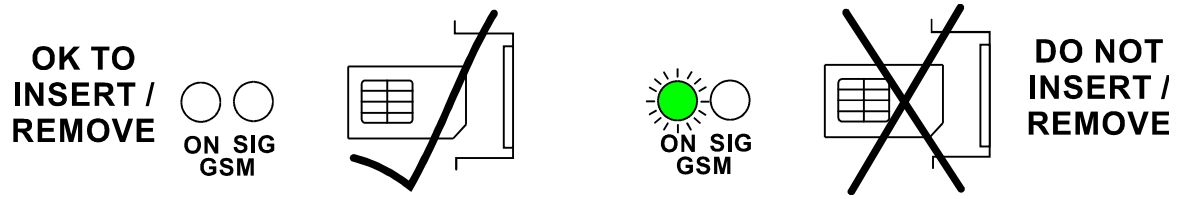
** Contact Technical support if powering electric locking in excess of 1 A or if a battery backed power supply is needed, cable distance limits will be reduced.

Equipment location

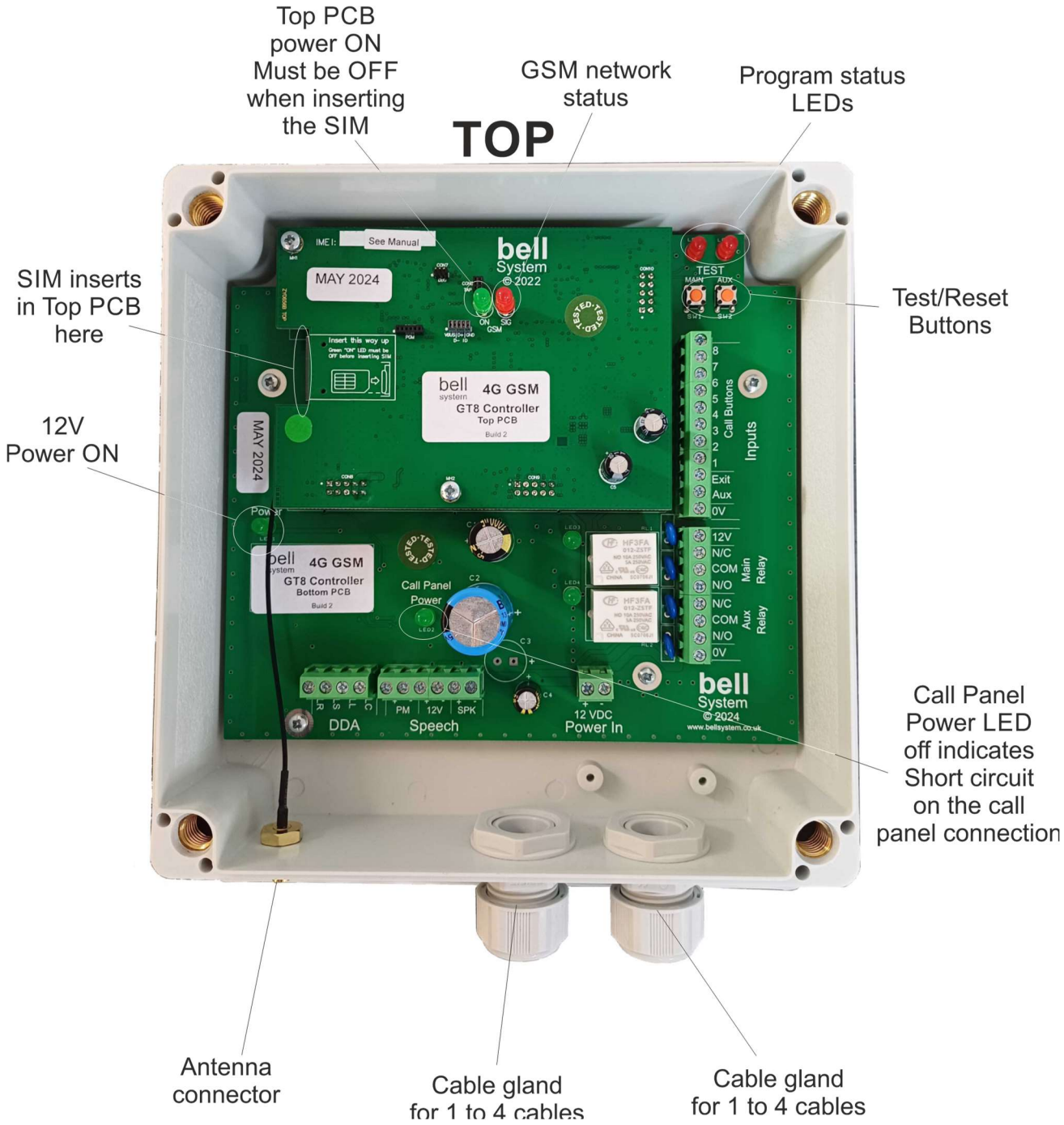
1. Refer to the ‘Typical cable overview and positioning’ diagram page 4.
2. The Antenna must be mounted at least 0.5m from the normal flow of people. For best reception mount it as high as possible and away from cables and metal structures. A 3m lead is included, **do not cut, or adjust the length**. Avoid running the antenna cable next to the power supply or entrance cable. Antenna installation must be carried out with the system powered down.
3. Position the GT8 Controller within 25m of the entrance in a secure location, this unit can be mounted outside. Mount it at least 20cm lower than the Antenna.
4. Position the PS4A Power Supply indoors and close to the GT8 Controller. Refer to the PS4A Product leaflet for full installation instructions.

SIM Card

5. A SIM card will need to be purchased. Please check signal coverage using the postcode checkers provided by network providers on the internet, this system works on the 4G network, but can also operate on 3G or 2G networks, if required. It is recommended that a 4G network is selected, with 4G/VoLTE calling capability, to maximise the lifetime of the system. The SIM should be voice enabled and not a dedicated data SIM. This system does not require a SIM Data plan. An unlimited minutes and text plan is ideal.
6. Check the SIM in a mobile phone first at the site location. This may require testing with different providers to get the best signal. A standard size SIM is required (not nano or micro).
7. Contact the chosen network provider and ask them to disable the voicemail and set SMS alerts / bill notifications to an alternative such as email (keep the SIM in a phone at this point).
8. Ensure there is no PIN/LOCK code set for the SIM (there is normally no PIN set on most new SIMs).
9. For SIMs with a monthly contract ensure there is a spend limit setup on the account. Most SIM providers have an online account option which can be used to manage and monitor the balance. Pay As You Go SIMs will need an automatic top-up to be setup.
10. Make sure there is no power to the GT8 top PCB before inserting or removing the SIM, otherwise it may damage the SIM, note the SIM socket is spring loaded:



GT8 8 Way controller



The GT8 will take approximately 50 secs to startup with the Program status LEDs both flashing until ready to use. Full LED status information is provided on page 43.

Note: The GT8 must be mounted so that the cable glands and antenna connector are at the bottom. To be sealed adequately there must at least one 6mm cable in each cable gland.

Quick programming guide

The system has been setup at the factory to provide a minimum amount of setup.

1. Make sure the GT8 Controller has started up (bottom PCB red LEDs have finished flashing).
2. Set the 6-digit Security code, used for all programming operations. This has a default of 000000 and requires changing before other programming is enabled, see page 23, e.g. send SMS text 000000?026?723457# to set it to 723457. Note this step has to be done first and is a security measure to avoid misuse of the system.
3. Check the signal strength is ok, referring to page 29, e.g. send SMS test 723457?202?#, when using a Security code of 723457, and check the value returned is between 20 and 31.
4. Program at least 1 phone number to ring for each call button used, see pages 24 and 26, e.g. send SMS text 723457?101?07955542327# to set call button 1 to phone 07955542327 when using Security code 723457.

In most applications only the above steps will be required, but the following additional features maybe required.

5. If required, add phone numbers to automatically unlock when ringing in with a caller ID, see pages 11 and 27, e.g. Send SMS text 723457?198?01234567890# to recognise phone no. 01234567890 when using Security code 723457.
6. If required, set the Call-in code number to allow remote dial in calls and access, see pages 11 and 22.
7. If more than 1 phone number is to be rung from a single call button, set the call divert option required (see page 17), as well as, the Aux input mode required (see page 18).
8. If there are 2 entrances to be controlled, refer to pages 37 and 38.
9. If anti-tailgating is to be used, refer to page 37.
10. If the system alive automated text/SMS feature is required set the System alive days and phone no., see pages 23 and 24.

IMPORTANT: Use the space provided at the back of this manual to record the Security code, important settings and phones numbers allocated.

Caller ID automatic unlocking

1. A call is made to the system from a recognised phone number, possibly from a mobile phone as staff or a resident is coming up to the entrance. If the phone number is not recognised the operation reverts to **Remote call-in code** operation.
2. The Main relay/entrance unlocks for the set time. The  symbol will illuminate and a unlock reassurance tone sound heard. The Aux relay / a 2nd entrance can also operate at the same time if set to do so (see Aux Relay mode , page 16).

Refer to Adding a Caller ID unlock number, setting 198, page 27.

Remote call-in code

1. A phone calls the system (this cannot be a phone number used for Caller ID unlocking unless the feature is disabled).
2. The system answers (the ring stops and 1 beep is heard) and then a 6-digit number followed by # (e.g. 784589#) needs to be entered on the phone keypad within 30 seconds, the 6-digit number is referred to as the Call-in code. 1 Beep will be heard for the right number and conversation will then be possible, 2 Beeps for the wrong number. If 5 wrong attempts are made in succession the call-in code operation will be disabled for 15 minutes.
3. 1# (Main) or 2# (Auxiliary) can then operate the appropriate entrance/relay. A beep will be heard in the phone, followed by the  symbol illuminating and an unlock tone at the entrance. #1 can also operate the Aux relay / a 2nd entrance at the same time if set to do so (see Aux Relay mode, page 16).
4. The conversation ends when the phone hangs up or the maximum speech time is reached.

Note to maximise security the remote call-in code operation is disabled by default (refer to the Call-in code, setting 020, see page 22). This feature can be used to help a person gain entry, when a caretaker, warden or managing agent already knowns that a visitor is at the entrance.

System alive feature

Every so many days a “SYSTEM ALIVE” SMS text message can be automatically sent to a nominated phone number. This indicates the system is up and running. If there is a power cut a “SYSTEM RESTARTED” SMS text message will be sent when power comes back up, if this feature is enabled.

This feature is disabled by default. If the just the System Alive phone number is set “SYSTEM RESTARTED” will operate. If both the System alive days and phone number are set both SMS text messages will be sent, see pages 23 and 24.

This feature can also be used to refresh some Pay as you go SIMs to avoid them expiring and also give an indication of system operation.

Programming

programming is performed by sending a programming sequence/command in a text message (SMS) to the GT8 controller, an SMS will be returned with an “OK” added. If “ERROR” is added instead, check the original SMS was correct. Each programming command starts with a fixed 6 digit Security code, then a fixed 3 digit setting code, then the new value, with the “?” between each part and finishing with the “#”. Details are provided in the following sections.

Summary of programming sequences / commands

Setting parameters (using an example Security code of 723457, n=new value)

Setting	Format	Range	Default	Page
Main relay time	723457?001?n#	1-99 Seconds	5 Sec	15
Aux relay time	723457?002?n#	1-99 Seconds	5 Sec	15
Caller ID disable	723457?003?n#	0-1	0 (Caller ID active)	16
Aux relay mode	723457?004?n#	0-2	0	16
Call divert options	723457?005?n#	0-7	0 (no divert)	17
Extended Aux relay time	723457?006?n#	1-99 Seconds	10 Sec	18
Aux input mode	723457?008?n#	0-3	0 (input disabled)	18
Aux input type	723457?009?n#	0-1	0 (N/O)	19
Talk time	723457?010?n#	5-240 Seconds	60 Sec	19
Ring time	723457?011?n#	3-120 Seconds	15 Sec	20
Mic Volume	723457?012?n#	1-5	3	20
Speaker Volume	723457?013?n#	1-5	3	21
Ring Reassurance Enable	723457?014?n#	0-1	1 (enabled)	21
Lock Reassurance Enable	723457?015?n#	0-1	1 (enabled)	22
Call in code	723457?020?nnnnnn#	000000-999999	000000 (disabled)	22
Security code	723457?026?nnnnnn#	000000-999999	000000 (SMS disabled)	23
System alive days	723457?032?n#	0-240 days	0 (disabled)	23
System Alive phone no.	723457?100?nnnnnnnnnnn#		Empty	24

Call 1 – main no.	723457?101?nnnnnnnnnnn#		Empty	24
Call 2 - main no.	723457?102?nnnnnnnnnnn#		Empty	24
Call 3 - main no.	723457?103?nnnnnnnnnnn#		Empty	24
Call 4 - main no.	723457?104?nnnnnnnnnnn#		Empty	24
Call 5 - main no.	723457?105?nnnnnnnnnnn#		Empty	24
Call 6 - main no.	723457?106?nnnnnnnnnnn#		Empty	24
Call 7 - main no.	723457?107?nnnnnnnnnnn#		Empty	24
Call 8 - main no.	723457?108?nnnnnnnnnnn#		Empty	24
Call 1 - 2nd no.	723457?109?nnnnnnnnnnn#		Empty	25
Call 2 – 2nd no.	723457?110?nnnnnnnnnnn#		Empty	25
Call 3 – 2nd no.	723457?111?nnnnnnnnnnn#		Empty	25
Call 4 – 2nd no.	723457?112?nnnnnnnnnnn#		Empty	25
Call 5 – 2nd no.	723457?113?nnnnnnnnnnn#		Empty	25
Call 6 – 2nd no.	723457?114?nnnnnnnnnnn#		Empty	25
Call 7 – 2nd no.	723457?115?nnnnnnnnnnn#		Empty	25
Call 8 – 2nd no.	723457?116?nnnnnnnnnnn#		Empty	25
Call 1 – 3rd no.	723457?117?nnnnnnnnnnn#		Empty	26
Call 2 – 3rd no.	723457?118?nnnnnnnnnnn#		Empty	26
Call 3 – 3rd no.	723457?119?nnnnnnnnnnn#		Empty	26
Call 4 – 3rd no.	723457?120?nnnnnnnnnnn#		Empty	26
Call 5 – 3rd no.	723457?121?nnnnnnnnnnn#		Empty	26
Call 6 – 3rd no.	723457?122?nnnnnnnnnnn#		Empty	26
Call 7 – 3rd no.	723457?123?nnnnnnnnnnn#		Empty	26
Call 8 – 3rd no.	723457?124?nnnnnnnnnnn#		Empty	26
Master phone no.	723457?125?nnnnnnnnnnn#		Empty	26
Add Caller ID no.	723457?198?nnnnnnnnnnn#			27
Delete Caller ID no.	723457?199?nnnnnnnnnnn#			27

Reading settings, diagnostics, reset and override (n=value read, sss=3 digit setting no.)

Command	Sent	Received (example)	Page
Check a setting	723457?sss?#	723457?sss?n#OK	N/A
Status of Inputs and Outputs	723457?200?#	MRLY=n,ARLY=n,EXIN=n,AXIN=n OK	28
Controller version and IMEI	723457?201?#	GT8 VER=n BLD=n IMEI nnnnnnnnnnnnnn OK	28
Signal strength	723457?202?#	SIGNAL=n OK	29
Operate Main relay	723457?203?#	MRLY ACTIVATED OK	29
Operate Aux relay	723457?204?#	ARLY ACTIVATED OK	30
Check System Alive status	723457?205?#	Time to SA = 1439 mins	30
Factory reset	723457?255?99#	723457?255?99#OK	30

Main relay time (setting 001)

This is the time the GT8 controller Main relay will activate for when operated from the Exit input, via a phone call including Caller ID unlocking (if enabled), or SMS text message.

SMS Text message to send:

Setting	(Security code)?001?(new value)#
Checking	(Security code)?001?#

Range of 1-99 seconds (default 3 secs)

Examples (using a Security code of 723457):

Setting	Sent: 723457?001?10#	Response: 723457?001?10#OK (10 secs)
Checking	Sent: 723457?001?#	Response: 723457?001?3#OK (3 secs)

Auxiliary relay time (setting 002)

This is the time the GT8 Auxiliary relay will activate for when operated from a phone call, SMS text message or Auxiliary input (if enabled).

SMS Text message to send:

Setting	(Security code)?002?(new value)#
Checking	(Security code)?002?#

Range of 1-99 seconds (default 3 secs)

Examples (using a Security code of 723457):

Setting	Sent: 723457?002?10#	Response: 723457?002?10#OK (10 secs)
Checking	Sent: 723457?002?#	Response: 723457?002?3#OK (3 secs)

Caller ID disable (setting 003)

This enables or disabled the use of Caller ID recognition to automatically operate the main relay / entrance.

SMS Text message to send:

Setting	(Security code)?003?(new value)#
Checking	(Security code)?003?#

0 = Caller ID enabled (default), 1 = Caller ID disabled

Examples (using a Security code of 723457):

Setting	Sent: 723457?003?1#	Response: 723457?003?1#OK (disabled)
Checking	Sent: 723457?003?#	Response: 723457?003?0#OK (enabled)

Auxiliary relay mode (setting 004)

This dedicates how the Auxiliary relay operates and whether to use “Door Open” or lock reassurance tones when it operates.

SMS Text message to send:

Setting	(Security code)?004?(new value)#
Checking	(Security code)?004?#

0 - Normal, controlled while on a call, via a Text message or Auxiliary input if enabled (default)

1 - Starts when main relay does (e.g. inner / outer doors) and operates for the Extended Auxiliary relay time, unless triggered by the exit input. No  indicator or Lock reassurance tone other than for the main relay.

2 – Same as 0, but no  indicator or Lock reassurance tone

Examples (using a Security code of 723457):

Setting	Sent: 723457?004?2#	Response: 723457?004?2#OK
Checking	Sent: 723457?004?#	Response: 723457?004?0#OK (normal)

Call divert options (setting 005)

These are the possible options when a call has been initiated from a call button at the entrance.

SMS Text message to send:

Setting	(Security code)?005?(new value)#
Checking	(Security code)?005?#

0 – Only calls the main no. allocated, no divert - default

1 – Only calls the main no. allocated and then diverts to its 2nd no. after the ring time.

2 – Call main no., then 2nd then 3rd when the ring times out

3 – Call main no. associated, then after the ring time divert all to the Master No.

4 – All calls will be to the Master No. as soon as a call button is pressed (main no. not called).

5 – Call main no. associated, then after the ring times out divert to the 2nd no. only if the aux input is active (Auxiliary input mode must be set to call divert, see page 18).

6 – Call the main no. associated, unless the Auxiliary input is active in which case call the Master No. instead (Auxiliary input mode must be set to call divert, see page 18).

7 – Call the main no. associated, unless the Auxiliary input is active in which case don't call any (Auxiliary input mode needs to be set to divert, see page 18). This can be used to disable calls at night or when out of hours. The TS2000-BST time clock can be connected to the Aux input to achieve this at specific times.

Examples (using a Security code of 723457):

Setting	Sent: 723457?005?2#	Response: 723457?005?2#OK (all 3 levels)
Checking	Sent: 723457?005?#	Response: 723457?005?0#OK

Note

The phone numbers to ring must be assigned otherwise the operation will stop at the stage the phone number is attempted.

Extended Auxiliary relay time (setting 006)

This time is only used when the Auxiliary relay mode is set to 1 (inner and outer door). When the Main relay operates the Auxiliary relay will also operate but go for the Extended Auxiliary relay time set.

SMS Text message to send:

Setting	(Security code)?006?(new value)#
Checking	(Security code)?006?#

Range of 1-99 seconds (default 10 secs)

Examples (using a Security code of 723457):

Setting	Sent: 723457?006?20#	Response: 723457?006?20#OK (20 secs)
Checking	Sent: 723457?006?#	Response: 723457?006?10#OK (10 secs)

Auxiliary input mode (setting 008)

This sets how the Auxiliary input is used.

SMS Text message to send:

Setting	(Security code)?008?(new value)#
Checking	(Security code)?008?#

0 – Do nothing - default

1 – Call divert

2 – Used as exit button input for Auxiliary relay

3 – Door monitor contact (Anti-tail gating, please check the Auxiliary input type 009)

Examples (using a Security code of 723457):

Setting	Sent: 723457?008?2#	Response: 723457?008?2#OK (exit button)
Checking	Sent: 343434?008?#	Response: 343434?008?0#OK (disabled)

Auxiliary input type (setting 009)

This sets what the GT8 controller takes as the Auxiliary input active, i.e. an open or closed connection.

SMS Text message to send:

Setting	(Security code)?009?(new value)#
Checking	(Security code)?009?#

0 = N/O (short to activate) - default

1 = N/C (open to activate)

Note: When the Auxiliary input is used as a door monitor contact N/O should mean the connection is open while the door is closed.

Examples (using a Security code of 723457):

Setting	Sent: 723457?009?1#	Response: 723457?009?1#OK (N/C)
Checking	Sent: 723457?009?#	Response: 723457?009?0#OK (N/O)

Talk time (setting 010)

This is the time from when speech is enabled to when the call is automatically hung-up.

SMS Text message to send:

Setting	(Security code)?010?(new value)#
Checking	(Security code)?010?#

5-240 Seconds, default is 60 seconds

Examples (using a Security code of 723457):

Setting	Sent: 723457?010?60#	Response: 723457?010?60#OK (60 secs)
Checking	Sent: 723457?010?#	Response: 723457?010?60#OK (60 secs)

Ring time (setting 011)

This is the ring time before a call is cancelled. The ring is also automatically cancelled/diverted after the same time period when on the 2nd or 3rd divert numbers. This time starts when the GT8 controller detects the line/network ringing out.

SMS Text message to send:

Setting	(Security code)?011?(new value)#
Checking	(Security code)?011?#

3-120 Seconds, default is 15 seconds

Examples (using a Security code of 723457):

Setting	Sent: 723457?011?30#	Response: 723457?011?30#OK (30 secs)
Checking	Sent: 723457?011?#	Response: 723457?011?15#OK (15 secs)

Microphone volume (setting 012)

This sets the call panel Microphone volume/amplification level.

SMS Text message to send:

Setting	(Security code)?012?(new value)#
Checking	(Security code)?012?#

1-5, default is 3

Examples (using a Security code of 723457):

Setting	Sent: 723457?012?5#	Response: 723457?012?5#OK (maximum)
Checking	Sent: 723457?012?#	Response: 723457?012?3#OK

Speaker volume (setting 013)

This sets the call panel Speaker volume.

SMS Text message to send:

Setting	(Security code)?013?(new value)#
Checking	(Security code)?013?#

1-5, default is 3

Examples (using a Security code of 723457):

Setting	Sent: 723457?013?5#	Response: 723457?013?5#OK (maximum)
Checking	Sent: 723457?013?#	Response: 723457?013?3#OK

Ring reassurance enable (setting 014)

This enables or disables the ring reassurance tone.

SMS Text message to send:

Setting	(Security code)?014?(new value)#
Checking	(Security code)?014?#

0-1, default is 1 (enabled)

Examples (using a Security code of 723457):

Setting	Sent: 723457?014?0#	Response: 723457?014?0#OK (disabled)
Checking	Sent: 723457?014?#	Response: 723457?014?1#OK (enabled)

Lock reassurance enable (setting 015)

This enables or disables the lock reassurance tone when the Main or Auxiliary relay activates. Note this is affected by the Auxiliary relay mode (setting 004).

SMS Text message to send:

Setting	(Security code)?015?(new value)#
Checking	(Security code)?015?#

0-1, default is 1 (enabled)

Examples (using a Security code of 723457):

Setting	Sent: 723457?015?0#	Response: 723457?015?0#OK (disabled)
Checking	Sent: 723457?015?#	Response: 723457?015?1#OK (enabled)

Call-in code (setting 020)

This is the code used when dialling in to the system from a phone to enable speech and relay activation. The code must be 6 digits long. This can also be reset using a test button, see page 31)

SMS Text message to send:

Setting	(Security code)?020?(new value)#
Checking	(Security code)?020?#

000000-999999, default is 000000 (disabled)

Examples (using a Security code of 723457):

Setting	Sent: 723457?020?086562#	Response: 723457?020?086562#OK (086562)
Checking	Sent: 723457?020?#	Response: 723457?020?000000#OK (disabled)

Security code (setting 026)

This is the code required with every programming, checking or overriding SMS text message. The code must be 6 digits long. If this code is lost the GT8 controller will need resetting with the test buttons inside (see page 31).

SMS Text message to send:

Setting	(Security code)?026?(new value)#
Checking	(Security code)?026?#

000000-999999, default is 000000 (no other SMS text message operations)

Examples (using a Security code of 000000):

Setting	Sent: 000000?026?723457#	Response: 000000?026?723457#OK (723457)
Checking	Sent: 000000?026?#	Response: 000000?026?000000#OK (default)

Note 000000 is a special case. No other SMS text message programming operation is possible until this has been changed. This is a security provision to avoid the system being misused. Please avoid using common numbers like 123456.

System alive days (setting 032)

This sets the number of days between an automated SMS text message being sent to the System alive phone number. This feature is meant to indicate the system is operating but could also be used to keep a Pay as you go SIM alive.

When the number of days has been reached “SYSTEM ALIVE” is sent to the System alive phone number and then the number of days rolls over.

Note the System alive phone number needs setting to use this feature, see page 24. The counting of the number of days until the next automated SMS is reset on power failure.

SMS Text message to send:

Setting	(Security code)?032?(new value)#
Checking	(Security code)?032?#

0-240 Days, default is 0 days (disabled)

Example – Disable the feature (with a Security code of 723457):

Sent: 723457?032?0#	Response: 723457?032?0#OK

Example – Checking the current setting (with a Security code of 723457):

Sent: 723457?032?#	Response: 723457?032?0#OK

System Alive phone number (setting 100)

This phone number will have an automated “SYSTEM ALIVE” SMS text message sent to it every so many days according to System Alive days setting, page 23. This feature is meant to indicate the system is operating but could also be used to keep a Pay as you go SIM alive. If this feature is used to keep a Pay as you go SIM alive the phone number can be the same as the SIM used in the GT8 Controller. If power fails a “SYSTEM RESTARTED” SMS text message will be sent to this number upon reapplication of power.

SMS Text message to send:

Setting	(Security code)?100?(new value)#
Checking	(Security code)?100?#
Deleting	(Security code)?100?0#

Phone number must be numeric (no +) and between 8 and 15 digits, the default is nothing set.

Example – Setting the phone number to 01234567890 (with a Security code of 723457):

Sent: 723457?100?01234567890#	Response: 723457?100?01234567890#OK

Example – Checking the current setting (with a Security code of 723457):

Sent: 723457?100?#	Response: 723457?100?#OK (not set)

Call buttons 1 - 8, main phone numbers (setting 101-108)

These are the main phone numbers rung when call buttons 1 - 8 are pressed (note this depends on the Call divert option used).

SMS Text message to send:

Setting	(Security code)?101-108?(new value)#
Checking	(Security code)?101-108?#
Deleting	(Security code)?101-108?0#

Phone number must be numeric (no +) and between 8 and 15 digits, the default is not set.

Example – Setting the main phone number for Call button 5 to 01234567890 (with a Security code of 723457):

Sent: 723457?105?01234567890#	Response: 723457?105?01234567890#OK

Example – Checking the current setting of the main phone number for call button 7 (with a Security code of 723457):

Sent: 723457?107?#	Response: 723457?107?#OK (not set)

Call buttons 1 - 8 2nd phone numbers (setting 109-116)

These are the 2nd phone numbers rung when call buttons 1 - 8 are pressed and divert is set (note this depends on the Call divert option used).

SMS Text message to send:

Setting	(Security code)?109-116?(new value)#
Checking	(Security code)?109-116?#
Deleting	(Security code)?109-116?0#

Phone number must be numeric (no +) and between 8 and 15 digits, the default is not set.

Example – Setting the 2nd phone number for Call button 3 to 01234567890 (with a Security code of 723457):

Sent: 723457?111?01234567890#	Response: 723457?111?01234567890#OK

Example – Checking the current setting of the 2nd phone number for call button 1(with a Security code of 723457):

Sent: 723457?109?#	Response: 723457?109?#OK (not set)

Call buttons 1 - 8 3rd phone numbers (setting 117-124)

These are the 3rd phone numbers rung when call buttons 1 - 8 are pressed and divert is set (note this depends on the Call divert option used).

SMS Text message to send:

Setting	(Security code)?117-124?(new value)#
Checking	(Security code)?117-124?#
Deleting	(Security code)?117-124?0#

Phone number must be numeric (no +) and between 8 and 15 digits, the default is not set.

Example – Setting the 3rd phone number for Call button 6 to 01234567890 (with a Security code of 723457):

Sent: 723457?122?01234567890#	Response: 723457?122?01234567890#OK

Example – Checking the current setting of the 3rd phone number for call button 2 (with a Security code of 723457):

Sent: 723457?118?#	Response: 723457?118?#OK (not set)

Master phone number (setting 125)

This is the master phone number which can be diverted to when a call button is pressed depending on the Call divert options setting, Aux input settings and Aux input state.

SMS Text message to send:

Setting	(Security code)?125?(new value)#
Checking	(Security code)?125?#
Deleting	(Security code)125?0#

Phone number must be numeric (no +) and between 8 and 15 digits, the default is not set.

Example – Setting the Master phone number to 01234567890 (with a Security code of 723457):

Sent: 723457?125?01234567890#	Response: 723457?125?01234567890#OK

Example – Checking the current setting of the Master phone number (with a Security code of 723457):

Sent: 723457?125?#	Response: 723457?125?#OK (not set)

Adding a Caller ID unlock number (setting 198)

This adds a phone number to the Caller ID list allowed to activate the main relay (and aux relay if Aux Relay mode (004) is set to 1), when just ringing in and recognising the number. There is a maximum of 100 phone numbers allowed.

SMS Text message to send:

Setting	(Security code)?198?(no. to add)#

The phone number must be numeric (no +) and between 8 and 15 digits.

Example – Adding phone number 07947276323 (with a Security code of 723457):

Sent: 723457?198?07947276323#	Response: 723457?198?07947276323#OK

Note

1. It is important that a separate record of these numbers is kept, please refer to the Caller ID record sheets at the end.
2. If all 100 numbers have been allocated, the returned message will have ERROR added.
3. This function cannot be used to check stored numbers.

Deleting a Caller ID unlock number (setting 199)

This deletes a phone number from the Caller ID list, used to activate the main relay when just ringing in and recognising the number.

SMS Text message to send:

Setting	(Security code)?199?(no. to delete)#

The phone number must be numeric (no +) and between 8 and 15 digits.

Example – Delete phone number 07947276323 (with a Security code of 723457):

Sent: 723457?199?07947276323#	Response: 723457?199?07947276323#OK

Note

1. This function cannot be used to check stored numbers.

Diagnostics, Override and Reset

Checking Input and Output states (setting 200)

This checks the states of the Main relay, Auxiliary relay, Exit input and Aux input. Its main purpose is to diagnose inputs and outputs, such as a stuck exit button.

SMS Text message to send:

Setting	(Security code)?200?#

Note

1. The Auxiliary input state is affected by the Auxiliary input type (setting 009), please check if it is set to N/O or N/C
2. This check should not be used to indicate brief input/output operations, such as main/aux relay operation during a call, as it is not practical to check this in real time due to SMS Text message delays.

Example (with a Security code of 723457):

Sent: 723457?200?#	Response: MRLY=1,ARLY=0,EXIN=1,AXIN=0 OK

MRLY = Main relay 0 = Inactive, 1 = Active

ARLY = Auxiliary relay

EXIN = Exit input

AXIN = Aux input

Checking Controller part number, version and IMEI (setting 201)

This checks the version of controller present and the unique IMEI number allocated to the integral GSM modem (which may be needed by your network provider).

SMS Text message to send:

Setting	(Security code)?201?#

Example (GT8 Controller Version 1, Build 1, IMEI 012345678901234, with a Security code of 723457):

Sent: 723457?201?#	Response: GT8 VER=1 BLD=1 IMEI 012345678901234 OK

Check the signal strength (setting 202)

This checks the signal strength received by the GT8 Controller.

SMS Text message to send:

Setting	(Security code)?202?#

Range 0-31, 31 is full strength, 99 means unable to determine.

Example (with a Security code of 723457):

Sent: 723457?202?#	Response: SIGNAL=31 OK

Note

1. The signal strength needs to be in the range 20 to 31 for reliable operation, but this also requires good signal quality. If this number is low, try moving the Antenna or using another network provider. If 99 is returned, try the check again.

Operate Main relay (setting 203)

This operates the Main relay for the Main relay time. This will also operate the Aux relay output if the Aux Relay mode (004) has been set to 1. Note there will be a delay between sending the Text and the Main relay operating, which will be mobile network dependant.

SMS Text message to send:

Setting	(Security code)?203?#

Example (with a Security code of 723457):

Sent: 723457?203?#	Response: MRLY ACTIVATED OK

Operate Auxiliary relay (setting 204)

This operates the Auxiliary relay for the Auxiliary relay time. Note there will be a delay between sending the Text and the Main relay operating which will be mobile network dependant.

SMS Text message to send:

Setting	(Security code)?204?#

Example (with a Security code of 723457):

Sent: 723457?204?#	Response: ARLY ACTIVATED OK

Check System Alive status (setting 205)

This returns the number of minutes left before the System Alive automated SMS test is triggered.

SMS Text message to send:

Setting	(Security code)?205?#

Example (with a Security code of 723457):

Sent: 723457?205?#	Response: Time to SA = 1439 mins

Factory reset (setting 255)

This will reset all settings back to the factory defaults, including Security code, Call-in code, call button and caller ID phone numbers.

SMS Text message to send:

Setting	(Security code)?255?99#

Example (with a Security code of 723457):

Sent: 723457?255?99#	Response: 723457?255?99#OK

Note the test buttons inside the GT8 controller can be used to do a factory reset or just reset the Security code and Call-in code. See the following.

Security code & Call-in code reset via the left TEST button

This procedure will reset the “Security code” & “Call-in code” to the defaults, i.e., Security code 000000 and Call-in code operation disabled (000000).

1. Press and hold the left TEST button in the GT8 controller, on the bottom PCB.
2. Watch the left LED directly above and check the following:
    1. 2 seconds left on.
    2. Left flashing for 3 seconds.
    3. Left off 1 second (defaulted during this time).
    4. Left on for 1 second.
3. Release the left TEST button.

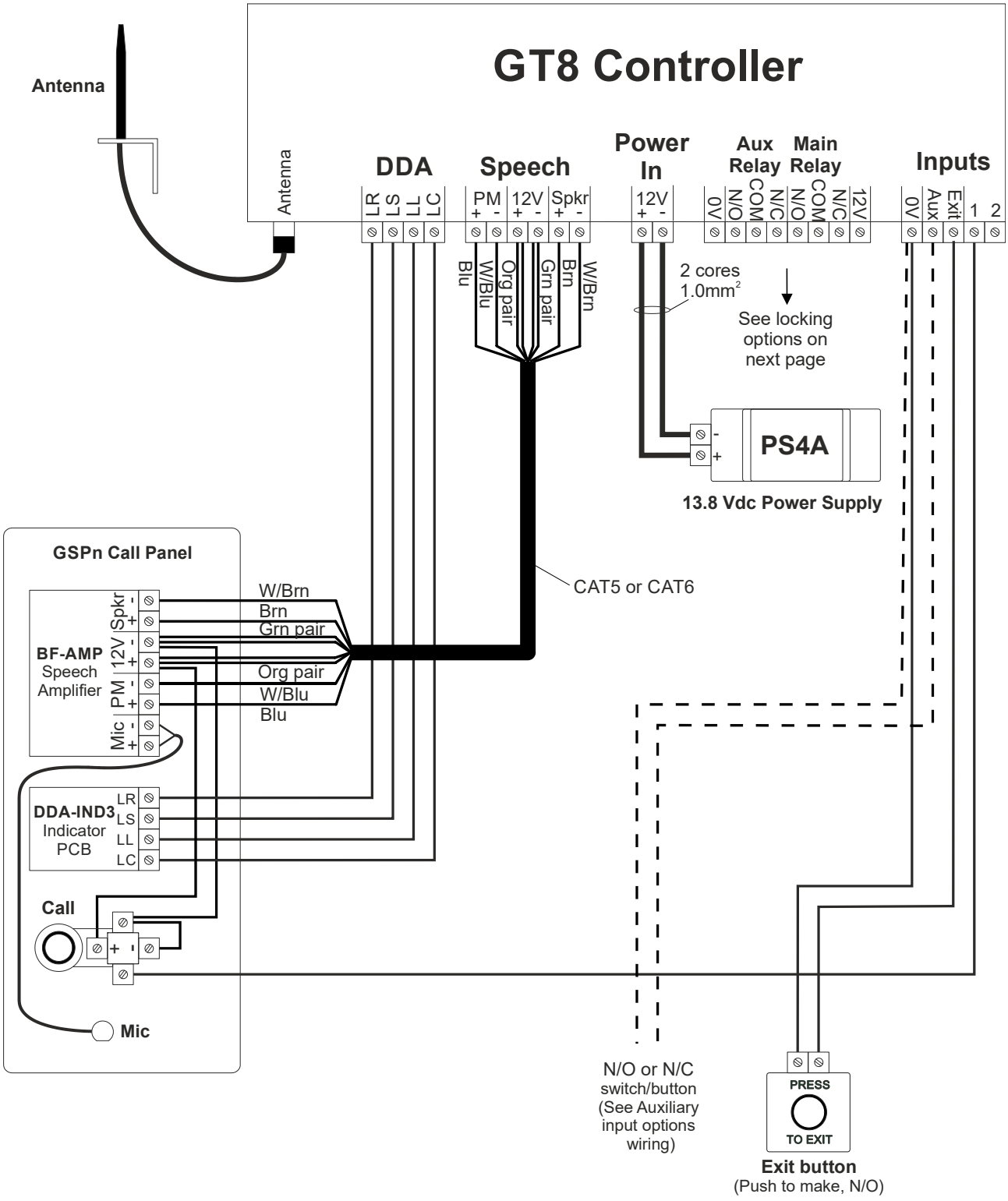
Factory reset via the TEST buttons

This procedure will reset all settings back to the factory defaults, including Security code, Call-in code, call button and caller ID phone numbers.

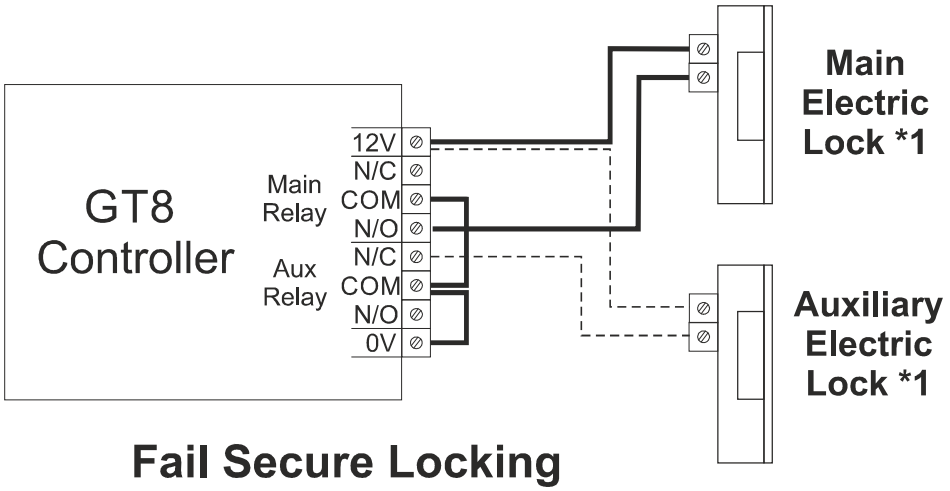
1. Press and hold both TEST buttons in the GT8 controller, on the bottom PCB.
2. Watch the 2 LEDs directly above the test buttons and check the following:
    1. Both LEDs on for 2 seconds.
    2. Both flashing for 3 seconds.
    3. Both off for 1 second while actually resetting.
    4. Both on for 1 second
3. Release the TEST button.

Wiring diagrams

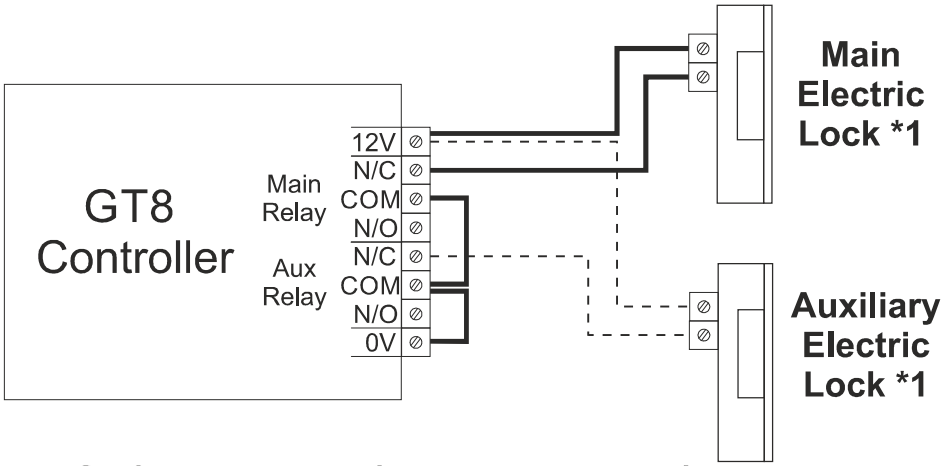
1 Button system wiring



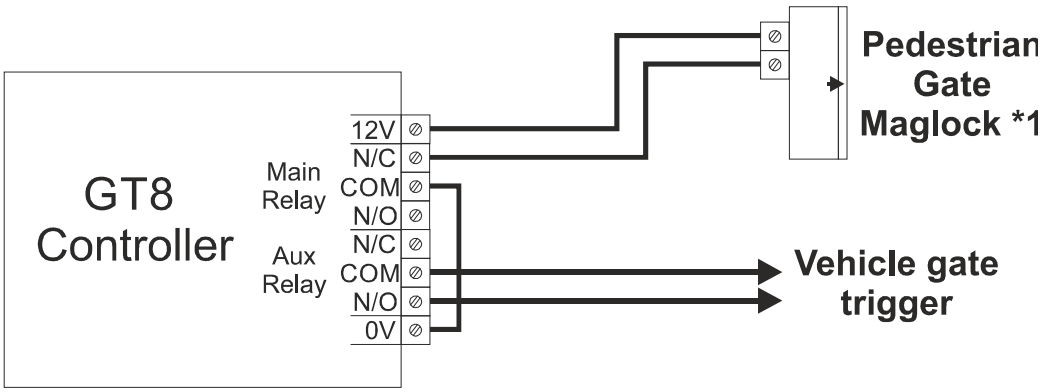
Locking wiring options



Fail Secure Locking



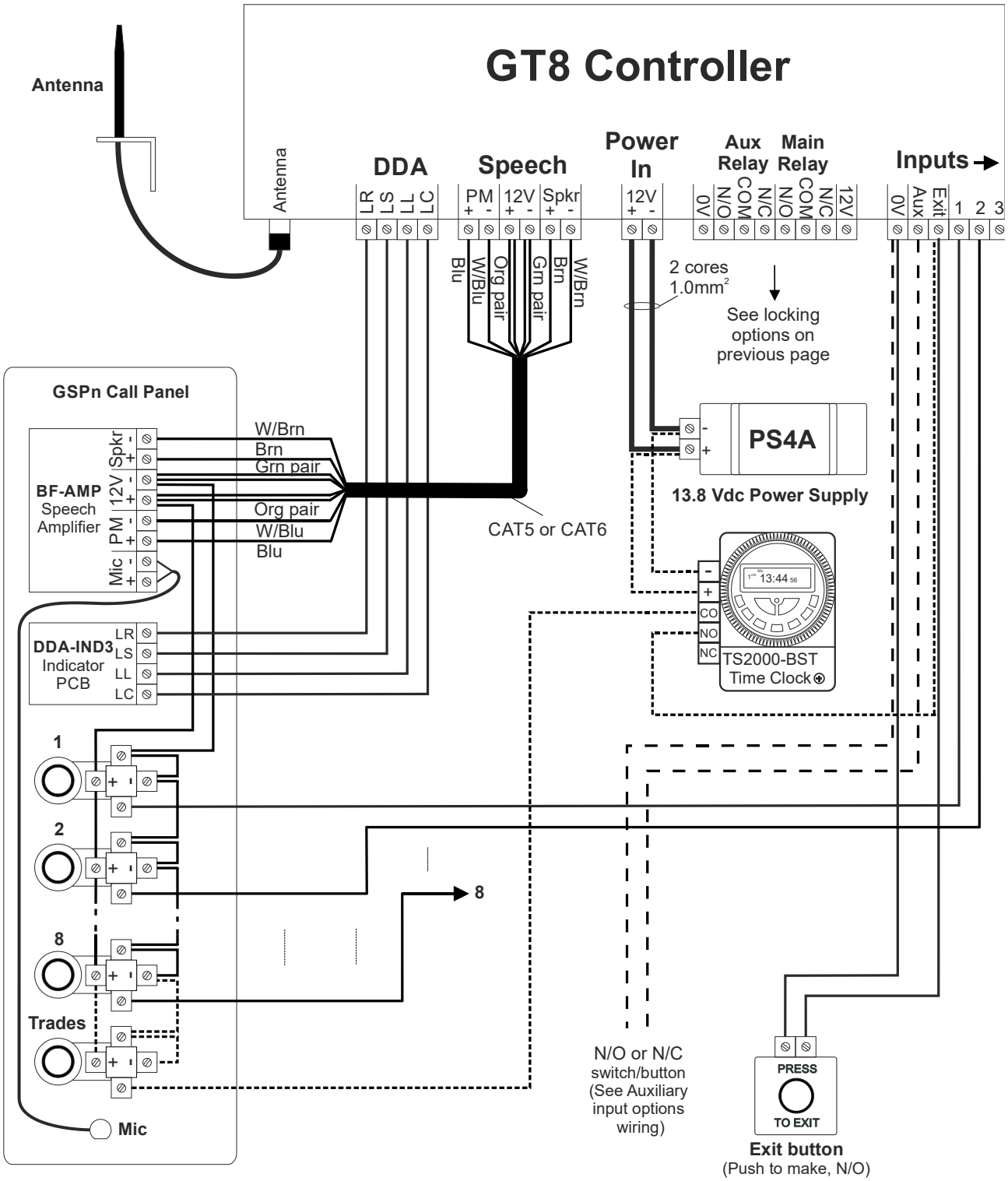
Fail Safe Locking (inc. Maglocks)



Pedestrian and Vehicle gates

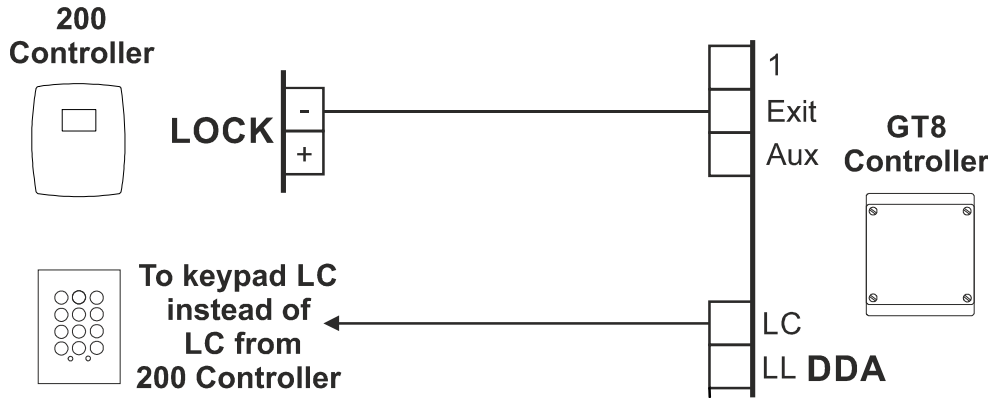
*1 Any Maglock or Highly induction electric lock must be fitted with suitable back EMF suppression, e.g., MOV/diode.

Multi-button system wiring

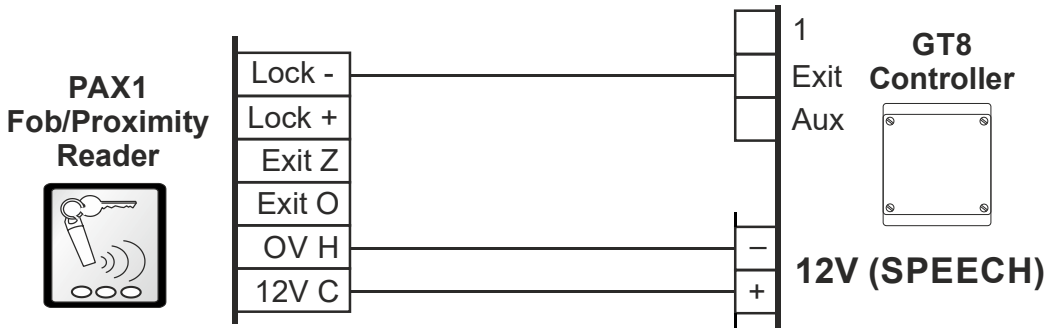


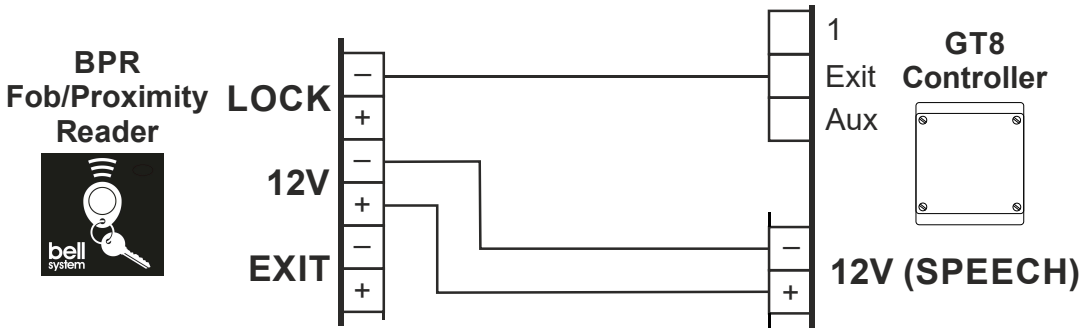
Call panel additional wiring options

216 Coded keypad / 200 Coded Access Controller



Fob/Proximity reader

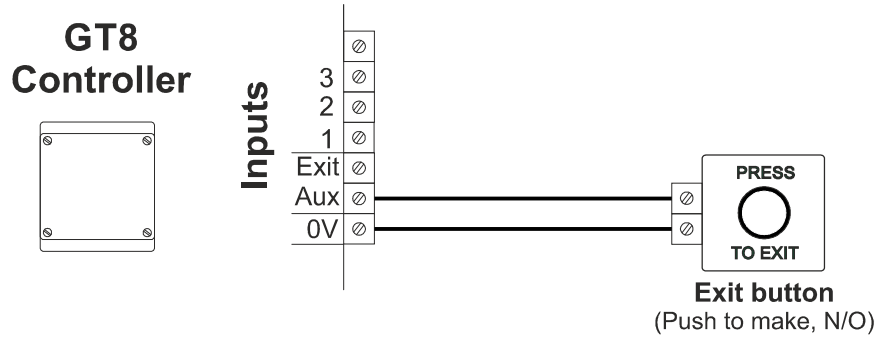




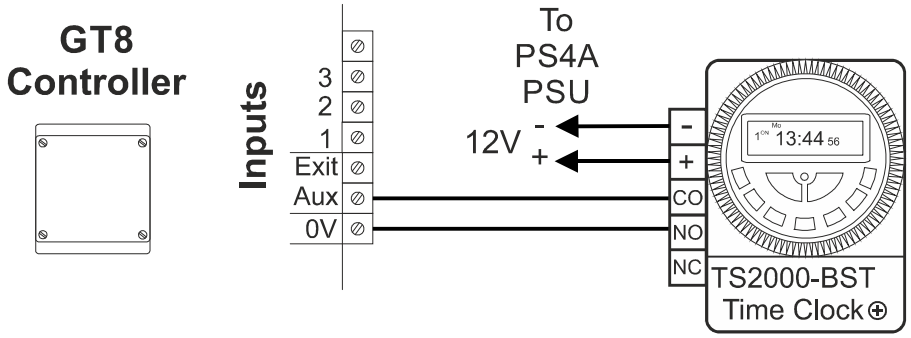
Note Only connect the electric lock to the GT8 Controller. Only adjust the connection on the GT8 Controller for different electric lock types, don't adjust the Fob reader or other controller from the default. Power the 200 Controller from the same Power Supply as the GT8 and wire the remaining keypad connections as shown in the BellCode manual.

Aux input wiring options

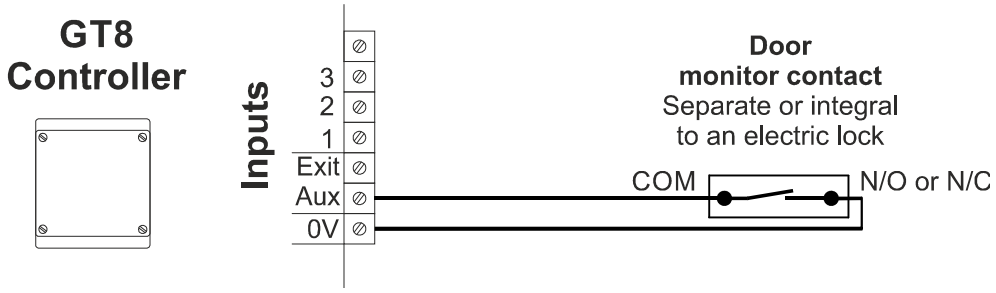
Exit button for Aux relay / 2nd entrance



When used to divert calls during a set time period



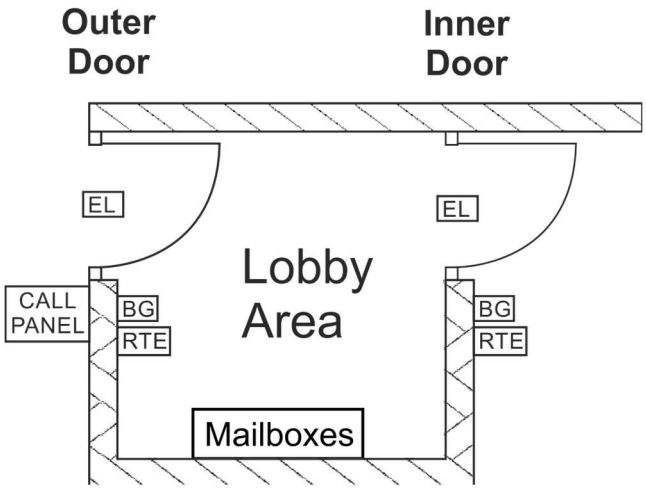
When used for Anti-tailgating



Note

1. It is important to set the Aux input mode for the correct use, see page 18.
2. It is important to configure the Aux input type to be active when shorted or when opened as desired, see page 19. The default is for a short to activate, which maybe the opposite to that required for Anti-tailgating.

Inner/Outer door application



Extra setup (Aux as Inner door)

Aux Input used for the extra exit button
e.g. Text 723457?008?2#

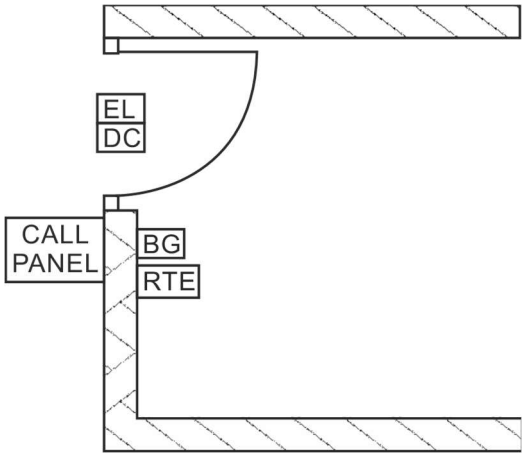
Aux Relay mode as inner/outer door
e.g. Text 723457?004?1#

Adjust the Extended Aux relay time, if necessary (starts the same time as the main, default is 10 secs)
e.g. Text 723457?006?20# (20 seconds)

Assuming 723457 is the Security code

In this scenario there are 2 entrances, requiring entry through the outer entrance and then entry to the inner entrance. When the outer door (Main relay) is unlocked from a phone call (1#) or via a text message the inner entrance (Aux relay) also opens, but for an extended period. Pressing an exit button at either entrance only opens that entrance for the standard Main or Aux relay time as appropriate.

Anti-tailgating application



Extra setup

Aux Input used for a door monitor contact
e.g. Text 723457?008?3#

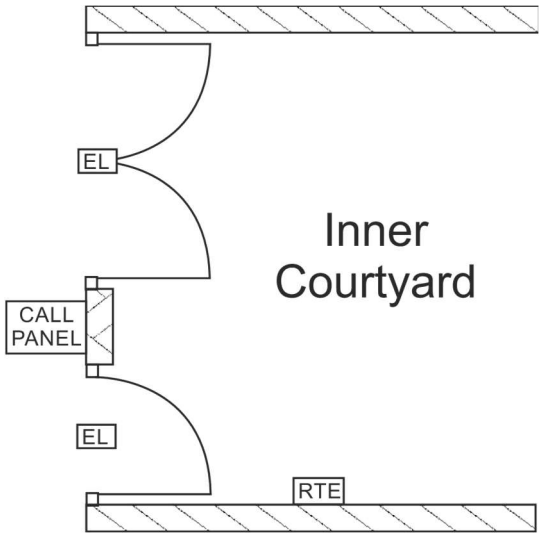
Aux input type:

e.g. Text 723457?009?1# if the door monitor contact is normally shorted, opening when the door opens (the default is the opposite).

Assuming 723457 is the Security code.

This uses the Aux input with a door monitor contact. As soon as the door has been detected as open the Main relay will turn off and the lock deactivate, shortening the unlock time. The entrance will be locked as soon as the door is closed, minimising the likelihood of somebody sneaking in behind.

Vehicle and Pedestrian gate application



Extra setup

No extra, provided the main relay is assigned to the pedestrian gate, aux relay to the automatic vehicle gate.

This application allows both entrances to be opened independently. Use the Main relay for the pedestrian gate and the Aux relay for the automatic vehicle gate. When on a call use 1# to open the pedestrian gate and 2# to open the vehicle gate.

Note

Using the Caller ID feature will open the pedestrian gate. If the Caller ID feature needs to open the vehicle gate instead swop the use of the Main and Aux relays, this will require setting the Aux input up for an exit button, e.g. Text 723457?008?2# (with a Security code of 723457).

EL Electric locking

DC Door monitor / contact

BG Green break glass

RTE Exit button

Troubleshooting

Problem	Solution
Locking	
Not unlocking from 1# or 2# during a call.	1. **Lock wiring fault.** If using 1# (Main relay) press the TEST MAIN button on the GT8 Controller to check. If using 2# (Aux relay) press TEST AUX button on the GT8 Controller to check. Check the changeover of the Main or Aux relay, if necessary, with a continuity meter/buzzer when pressing the button. 2. **Exit or Aux input (used as exit button input) on GT8 Controller and** shorted to 0V and wrong Main or Aux relay connection used. This normally happens when the wrong Exit button connection is wired to the Controller. A push to make button must be used NOT push to break. 3. **Very weak signal to the mobile** phone being called, causing corruption of the 1# or 2#.
Not unlocking via an exit button.	1. **Exit button wiring fault.** Short Exit to 0V on GT8 Controller to unlock and test the input/lock wiring. If using the Aux input as an exit button input short Aux to 0V to unlock and test the input/lock wiring. If using the Aux input check the Auxiliary input mode is set to 2, page 16.
Maglock only weakly holding	1. **Armature plate misaligned or unable to be grabbed**. Check flexible washer fitted correctly. 2. **Voltage to low** at Maglock. Check cable size and connection.
Lock always unlocked (Main relay)	1. **Exit button is shorting** the GT8 Controller EXIT input. Check the exit button is using N/O connections, i.e. push to make.

	2. **GT8 Controller Exit shorted to 0V**, e.g. 12V- or 0V connection. 3. **Lock wiring fault**. For fail secure locks check for a short on the wiring to the lock. For fail safe wiring check for an open circuit on the wiring to the lock.
Pressing the Exit button only operates the lock for less than a second (GT8 Controller LEDs also go off and then bottom PCB red LEDs flash)	1. **GT8 Controller voltage low or dipping** when current is drawn. Check the cable and lock requirements page 7. 2. **Electric locking powered through SPEECH 12V or DDA LC** terminals, use the 12V terminal dedicated to the MAIN/AUX relays instead. This will also be indicated by the “Call Panel Power” green LED, on the GT8 going off when the Exit button is pressed.
Speech	
No speech heard at the entrance	1. Check the SPKR+/- connections between GT8 Controller and BFAMP Speech unit.
No speech heard at the phone	1. **PM+/- connection shorted or open** circuit between GT8 controller and BF-AMP speech unit.
Speech is low at the entrance	1. **Poor PM+/- connection** between the GT8 controller and BF-AMP speech unit, check for a high resistance. 2. **Adjust the Speaker volume**, see page 21.
Speech is low at the phone	1. Increase the volume on the phone used. 2. Increase the System Mic volume, see page 20, or 3. Check the SPKR+/- connections between GT8 Controller and BFAMP Speech unit for a high resistance.
Call in code operation	
The code is not always being accepted	1. Some phones send out more than 1 button press when the button is held

	in. Try pressing each number for a shorter period.
Call problems	
No call can be made. Pressing the call button only brings on the yellow ring light on the call panel for 1 second	1. **A phone number has not been programmed** for that call button. 2. **Wrong call divert option** has been changed from the default, check it is set correctly, see page 17 and that the Master phone no. has been set if required.
No call can be made. Nothing at all happens, the yellow ring light does not appear at all when a call button is pressed. Call button(s) are not illuminated.	1. **No power** to the GT8 Controller, check all 3 green LEDs are on in the GT8. 2. **Low voltage** to the GT8 Controller. If the bottom 2 green LEDs are on and no LEDs on the top, check there's at least 10V at the Power In terminals. 3. **Call button wire permanently open or short**. Check wiring to GT8 Controller call button inputs 1-8 and check 0V connected to 1 side of all call buttons. 4. **Call button(s) incorrectly wired**. Check + on the call button goes to 12V+ and – on the call button goes to 12V- on the BF-AMP Speech unit. 5. **Short on the call panel wiring**, the green Call Panel Power LED is off or pulsing on the GT8 Controller. Check 12V+/- and LC (12V+) wiring to the Call Panel. Disconnect 12V+ and LC connections at the GT8 end one at a time, until the Call Panel Power LED comes back on, then check the indicated cable or equipment attached. 6. **Electric locking powered through SPEECH 12V or DDA LC** terminals causing the Call Panel electronic fuse to trip (more than 1.2A). Use the 12V terminal dedicated to the MAIN/AUX relays instead.
No call can be made. GT8 Controller left test/reset LED is on, top PCB green "ON" LED is off. Calls and text messages not working	1. The SIM card is not present or incompatible. Insert the SIM or insert a different one, then press the left Test button to continue. Note the SIM

	should not be locked to a network or PIN protected.
No call can be made. GT8 Bottom PCB red LEDs flashing for a long period with the top PCB green LED turning off at the end and then repeating.	1. GT8 “Power In” voltage too low. Check at least 10V. Check the distance and cable size used between the power supply and GT8 Controller is as indicated on page 7.
No ring reassurance tone. Ring LED comes on when a call button is pressed, the phone rings, speech ok both ways, but no call reassurance is heard.	1. The reassurance tone has been disabled, see page 21.
SMS Text messages ok, but no call can be made.	1. **Antenna not connected** to GT8 Controller. 2. **Poor mobile network signal**. Check the signal strength, see page 29. Try a different Antenna location or network, if necessary.
Programming problems	
No SMS text returned	1. **The minimum format for a program sequence/command is not met.** For a programming sequence to be responded to the 1st 7 characters of the Command/Instruction needs to be numeric or “?” and in approximately the correct format otherwise the SMS text is ignored (no SMS text in response, this is done as an anti-spam/phishing measure). 2. **Antenna cable no attached** to GT8 Controller. 3. **No power to GT8 controller**. Check the green “Power” LED is on in the GT8 and the red “SIG” LED is briefly flashing every few seconds. 4. **No SIM in the GT8 Controller**. 5. **Power to GT8 Controller turn off after sending SMS** and then back on.
All SMS text messages return ERROR	1. **Security code is on the factory default of 000000**. Change the Security Code, see page 23.

GT8 Controller LED diagnostics

Top PCB	
GSM Network status red LED (Top PCB marked "SIG")	
Limited network or search for network	600mS on, 600mS off
Registered to network	75mS on, 3secs off
Finding network, not registered yet	LED on
Green power LED, marked "ON"	On while the top PCB is powered
Bottom PCB	
TEST status red LEDs (Bottom PCB)	
Power up	Both on for a couple of seconds and then both flash until initialisation has finished
Call button, Aux input, Exit input or DTMF tone	Left LED 100mS on
SMS Text message	Left LED 1 Sec on (transmit or receive)
Main relay active (left test button)	Left LED on until reset starts
Aux relay active (right test button)	Right LED on until reset starts
Default Security code to 000000 and disable "Call in code" Left TEST button held.	1st – 2 seconds left on, 2nd - 250mS left on,250mS left off for 3 seconds 3rd – Left off 1 second 4th – Left on for 1 second
Factory reset (both TEST buttons held)	1st – 2 seconds both on, 2nd - 250mS both on,250mS both off for 3 seconds 3rd – Left and right off 1 second 4th – Both on for 1 second
SIM not present	Left LED on permanently
Other LEDs	
Relay output green LEDs	Main LED On while active, Aux LED On while active
Green GSM power LED	On when GT8 powered
Green Call Panel Power LED	On when 12V to the Call panel (SPEECH "12V+" and DDA "LC")

System part numbers

GS1	1 Way 4G GSM System with surface ABS mount
GS1/VR	1 Way 4G GSM System with Stainless Steel flush panel
GS1/VRS	1 Way 4G GSM System with Stainless Steel surface panel
GS2/VR	2 Way 4G GSM System with Stainless Steel flush panel
GS2/VRS	2 Way 4G GSM System with Stainless Steel surface panel
GS3/VR	3 Way 4G GSM System with Stainless Steel flush panel
GS3/VRS	3 Way 4G GSM System with Stainless Steel surface panel
GS4/VR	4 Way 4G GSM System with Stainless Steel flush panel
GS4/VRS	4 Way 4G GSM System with Stainless Steel surface panel
GS5/VR	5 Way 4G GSM System with Stainless Steel flush panel
GS5/VRS	5 Way 4G GSM System with Stainless Steel surface panel
GS6/VR	6 Way 4G GSM System with Stainless Steel flush panel
GS6/VRS	6 Way 4G GSM System with Stainless Steel surface panel
GS7/VR	7 Way 4G GSM System with Stainless Steel flush panel
GS7/VRS	7 Way 4G GSM System with Stainless Steel surface panel
GS8/VR	8 Way 4G GSM System with Stainless Steel flush panel
GS8/VRS	8 Way 4G GSM System with Stainless Steel surface panel

All systems include:

1 x GT8 4G GSM Controller, 1-8 way, IP65
1 x PS4A Power Supply, 13.8 Vdc, 4 A
1 x ANT-4G/5M Antenna, wall mounting, with integral 5m cable
1 x Call panel of the appropriate size and style

Specification

GT8 Controller	
GSM module	Telit LE910C1-EU LTE CAT1 bands 1,3,7,8,20, 25dBm max power. With 3G fallback bands 1,3,8, 25dBm max power With 2G fallback (900MHz 33.5dBm max and 1800MHz bands 30.5dBm max)
Calling	4G VoLTE with 3G/2G fallback
Programming	Via SMS Text message
Enclosure	225mm High x 188mm Wide x 70mm Deep (inc. key-hole flanges) - IP65 rated when the cable entries have been sealed.
2 Relay contacts	3A max., 30 Vdc rated (voltage free)
Exit input	Short to 0V to operate Main relay
Aux input	Short to 0V or open to operate
Operating voltage (Power In)	10 Vdc to 15 Vdc
Call Panel output voltage	Power in – 0.5V (Speech 12V+/- and LC)
Call Panel current limit	1.2A (electronic, automatically recovers)
Current consumption	0.5A max.
Location	Indoor or Outdoor (in a secure area)
Operating Temperature	-20 ºC to 40 ºC
Antenna	
Size	Height 385 mm (overall) x 36mm Wide x 160mm Deep (to the wall)
Mounting	Wall mounting via an angle bracket
Cable	5m with SMA connector for direct connection to the GT8
Location	Outdoor (in a secure location)
PS4A Power Supply	
Size	160mm High x 65mm Wide x 55mm Deep
Input	230 Vac, 50Hz nominal
Output	13.8 Vdc nominal
Output current	4A max.
Location	Indoor environment only, wall mounting (in a secure area)
Connection	Mains fused spur required
Operating Temperature	0 ºC to 40 ºC

KEEP IN A SECURE/SAFE PLACE

Important Settings	
Security code (026)	
Call in code (020)	
System alive phone no. (100)	
Master phone no. (125)	
GT8 Controller IMEI	

Call button allocation		
Button	**Phone no.**	**Allocated to**
Call 1 – main no. (101)		
Call 2 – main no. (102)		
Call 3 – main no. (103)		
Call 4 – main no. (104)		
Call 5 – main no. (105)		
Call 6 – main no. (106)		
Call 7 – main no. (107)		
Call 8 – main no. (108)		
Call 1 – 2nd no. (109)		
Call 2 – 2nd no. (110)		
Call 3 – 2nd no. (111)		
Call 4 – 2nd no. (112)		
Call 5 – 2nd no. (113)		
Call 6 – 2nd no. (114)		
Call 7 – 2nd no. (115)		

Call 8 – 2nd no. (116)		
Call 1 – 3rd no. (117)		
Call 2 – 3rd no. (118)		
Call 3 – 3rd no. (119)		
Call 4 – 3rd no. (120)		
Call 5 – 3rd no. (121)		
Call 6 – 3rd no. (122)		
Call 7 – 3rd no. (123)		
Call 8 – 3rd no. (124)		

Caller ID record

	Phone no.	Allocated to
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Tel: 01908 261106 (Sales and Technical Support)
Email: sales@bellsystem.co.uk
technical@bellsystem.co.uk
Website: www.bellsystem.co.uk

Regulations

This product complies with:
Radio Equipment Regulations 2017
Electromagnetic Compatibility Regulations 2016
Electrical Equipment (Safety) Regulation 2016

Directives

This product complies with:
Radio Equipment Directive 2014/53/EU
Electromagnetic Compatibility Directive 2014/30/EU
Low Voltage Directive 2014/35/EU