

GateOpener

User manual

July 2015

Controls up-to 4 Gates



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1. Overview

The GateOpen is a complete system solution for cellular gate/door access control.

In this document the GateOpen controller will be referred as 'controller', 'unit' or 'device'.

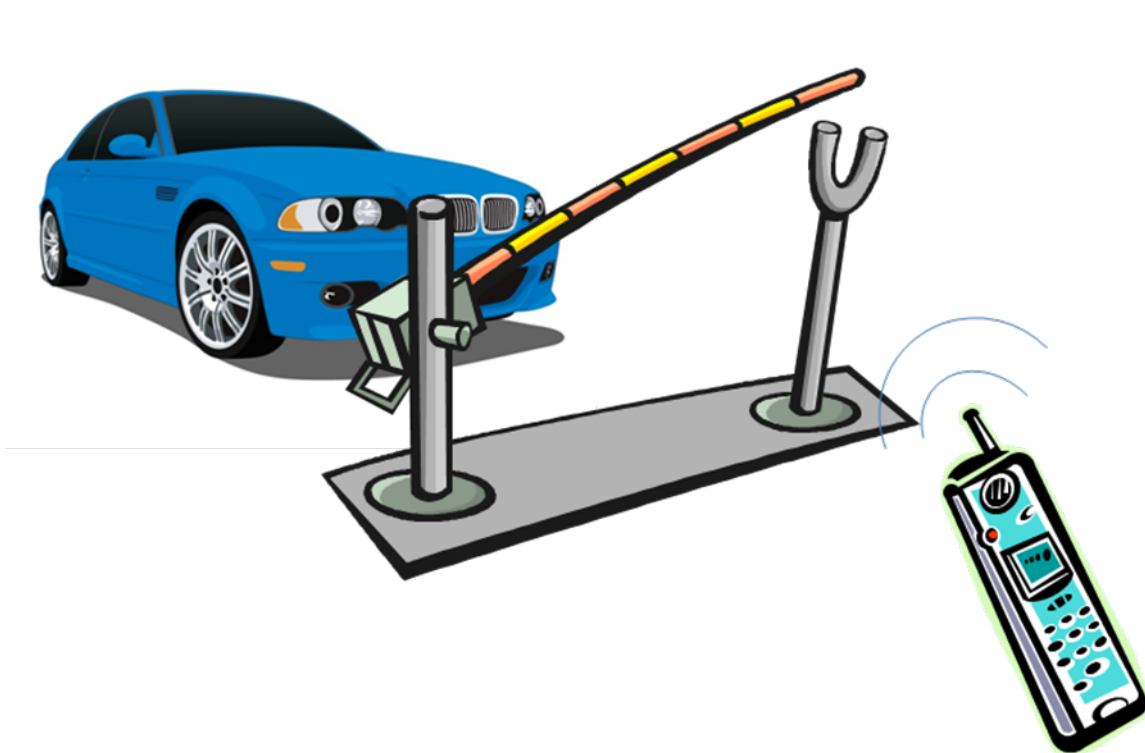
The unit stores whitelist of authorized users; when someone calls the unit, the unit hangs-up the call and verifies that the caller ID exists in the list. If verified, a pulse (momentary contacts closure for specific period) is generated by internal relay, and the gate/door opens.

There is no call cost to the user.

The unit holds up to 3,600 authorized users and up to 400 restricted ('limited' or 'special') users. A total of 4,000 users.

Up to 4 gates can be controlled by one device. Users that are authorized to access more than 1 gate need to enter the gate number following their call to the device (call the device, the phone line connects and the device waits for gate number entry: 1, 2, 3 or 4) depending on the gate to be operated.

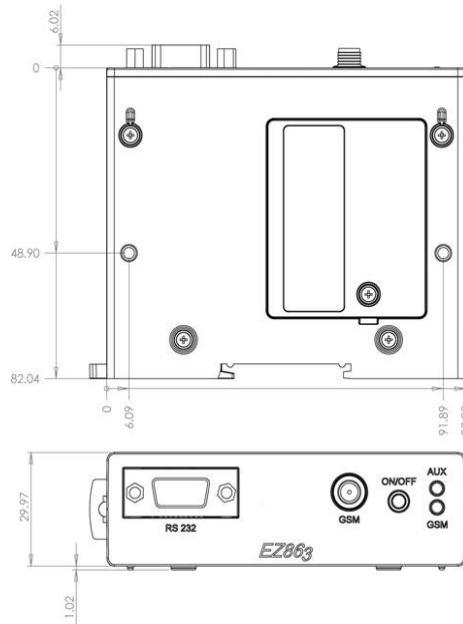
In the event that an authorized user is assigned ONLY one gate (gate # 1), there is no need to select a gate number (once the device's phone number is dialed, the gate automatically opens once the caller's ID is validated).



2. General Product Description

2.1 Dimensions

98 mm x 82mm x 30mm



2.2 Weight

160 grams (5.6 Oz)

2.3 Input voltage

6V-55V DC

2.4 Casing material

Polycarbonate (PC)

Rating: IP40 (avoid exposing the unit to liquid or moisture)

2.5 Environmental requirements

2.5.1 Temperature range

	Ambient temperature	Note
Operating Temperature Range	-20°C to +55°C	The device is fully functional at this temperature-range and meets ETSI specifications.
	-40°C to +85°C	The device is fully functional at this temperature range. Devices operating at temperatures outside the range of -20°C to +55°C, might slightly deviate from ETSI specifications.
Storage and Non-Operating Temperature Range	-40°C to +85°C	

2.5.2 Humidity range

5% - 85%

2.5.3 RoHS compliance

All hardware components are in full compliance with the EU RoHS and WEEE Directives

2.6 GSM frequencies

The unit supports quad-band GSM frequencies

- GSM-850
- E-GSM-900
- DCS-1800
- PCS-1900

2.7 3G frequencies (only for 3G units)

2.7.1 North America

- 850
- 1700
- 1900

2.7.2 Europe

- 850
- 900
- 2100

3. Installation

3.1 Electronic Gate/Door requirements

The Electronic Gate/Door requires dry contact activation.

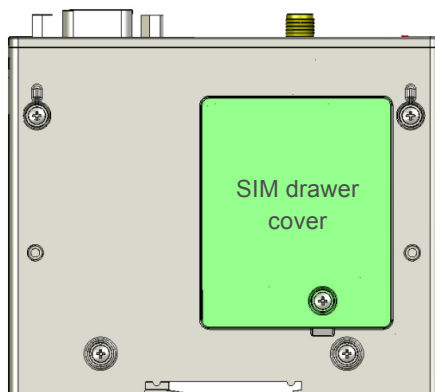
3.2 SIM card insertion

Remove one Phillips screw and lift the SIM drawer cover (picture below).

Unlock and open/lift the SIM card drawer (it is hinged on one end).

Insert the SIM card with proper orientation (note the notched corner) and lock the SIM drawer. Return and fasten the SIM drawer cover with the Phillips screw.

Make sure the SIM card is active, capable (provisioned) to send/receive SMS (Text) messages and phone calls (in order to identify caller IDs).

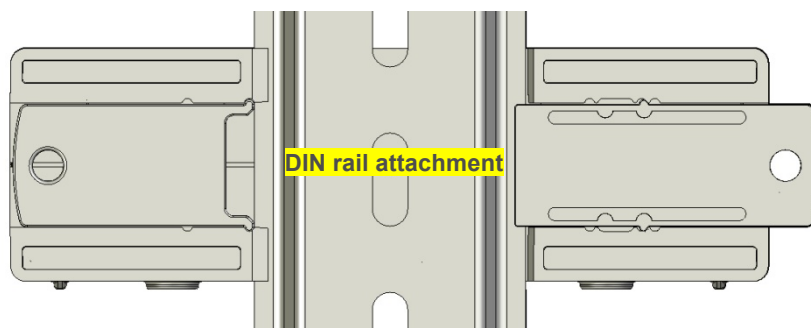


3.3 Field assembly

Make sure the unit is powered off prior to installation.

3.3.1 DIN rail

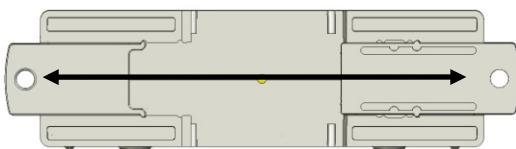
The device/unit is ready to be attached to a DIN rail.



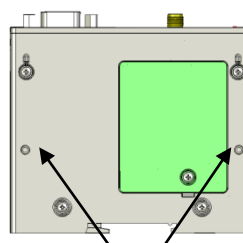
3.3.2 Surface assembly with screws

There are two screw-mounting options for the unit.

1.



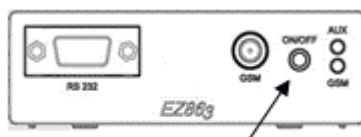
2.



3mm holes for external attachment

3.3.3 Reset button

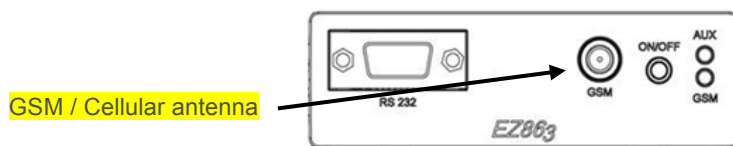
To restart/reset the modem; press and hold the button till the green LED light starts flashing. Once flashing started, release the button. The device will proceed through the restart cycle.



Reset

3.4 GSM antenna

The GSM (cellular) antenna needs to be attached to the SMA connector located on the front panel

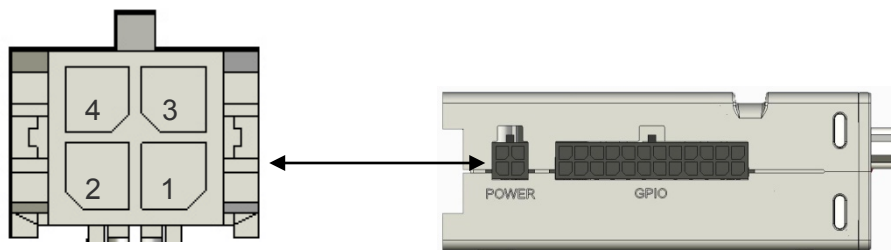


Optionally there will be an additional SMA connector for a GPS antenna.

3.5 Power Supply

The power supply for the device needs to be a single voltage source of 6V-55V DC capable of providing a peak current of 1.2A during an active transmission. The device is protected from supply voltage reversal. An internal fuse ensures an electrical safety according to EN60950. This fuse is not removable.

3.5.1 Input power pinout



Pin	Signal name	Use
1	POWER	Input Power supply range 6-55VDC
2	Reserve	
3	GND	Ground
4	Reserve	

Note: Power can be applied through the 24 pins (GPIO) connectors (instead of the 4 pins connector). Power the unit through one connector (4 pins or 24 pins) ONLY.

3.5.2 Supply voltage requirements

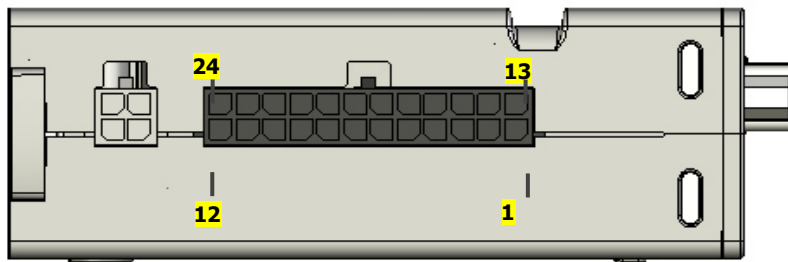
A DC power supply must be connected to the Power input:

- Input voltage range 6V - 55V DC
- Nominal Voltage 12V DC
- Power Supply current rating: min. 1.2A @12V
- Power Supply ripple: max. 120mV
- Input current in idle mode: 25mA @ 12V
- Input average current while GSM network active (call, etc...): 100mA @ 12V

3.6 GPIO pinout

Connect the GateOpen unit according to the description below.

In most cases, for single gate/door access control, only pins (#24) VIN, (#23) GND, (#13) Relay a, and (#14) Relay b will be used.



Pin	Signal name	I/O	Description
13	Relay a	O	Normally open Relay leg 1 (30V 1A max) – Gate # 1
14	Relay b	O	Normally open Relay leg 2 (30V 1A max) – Gate # 1
23	GND	GND	GROUND
24	VIN	I	Input power supply
5	Gate # 2		Open Collector - requires Ext. relay
6	Gate # 3		Open Collector - requires Ext. relay
7	Gate # 4		Open Collector - requires Ext. relay

* All the unused pins must be left floated

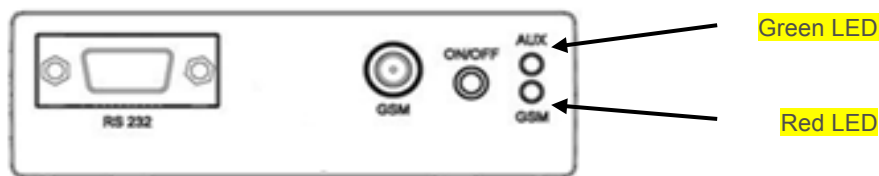
3.7 Powering the device

Once power is applied to the device, the internal software starts loading. The (loading) process takes approx. 1 minute to complete.

The green LED will be turned 'on' indicating that the device is ready for use.

3.8 Status LEDs

The status LEDs are located on the front panel.



3.8.1 Red LED

Network status.

Red LED status	Device Status
Permanently 'ON'	Incoming call A data call is active
Fast interrupt sequence/ flashing rate (every 1s, Time 'ON' 0.5s)	No SIM GSM network search Not registered to the GSM network
Slow interrupt sequence/ flashing rate (every 3s, Time 'ON' 0.3s)	Registered to the GSM network
Off	Device is 'off'

3.8.1 Green LED

GateOpen operate status.

Green LED status	Device Status
Permanently 'ON'	Unit is Ready for calls
Fast interrupt sequence/ flashing rate (every 1s Time 'ON' 0.5s)	Error: Low GSM network signal No SIM GSM network search Not registered to the GSM network
Off	The device is starting up following loading batch of phone numbers, reordering the users list Relay is activated Device off

3.9 Access the gate/door

A registered user may call the unit and activate the (internal) relay (corresponding to Gate#1).

If the user's cellular phone's Caller-ID is blocked (privacy mode), the user can access the unit by sending SMS (text message) since caller-ID will pass through SMS.

If an access control by SMS is desired, the SMS command: O (the letter 'O' in lowercase or uppercase) needs to be sent to the unit.

The text message 'o' is intended by default for gate # 1. For gates other than gate#1, the SMS commands o2, o3, or o4 for the respective gate number should be issued.

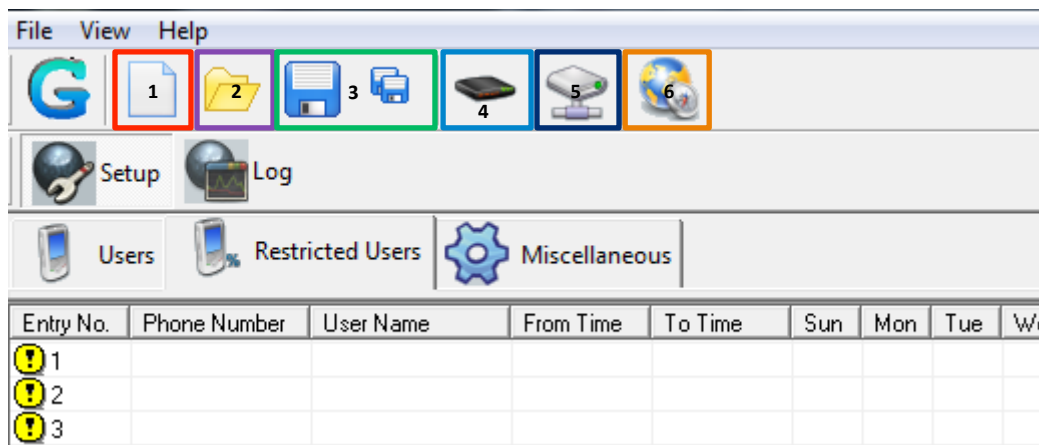
4. Programming the unit

The unit can be programmed in two ways:

1. By using a computer with the GTO software and a serial cable.
2. By SMS/ text message commands.

4.1 GTO software

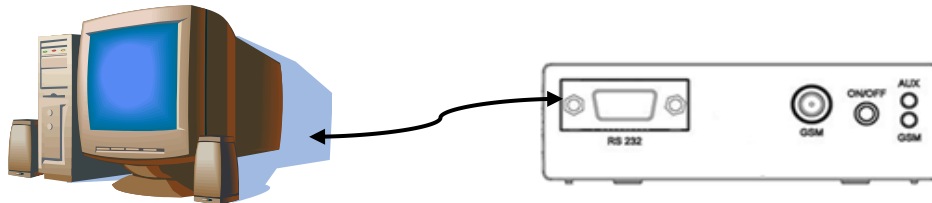
Main screen buttons



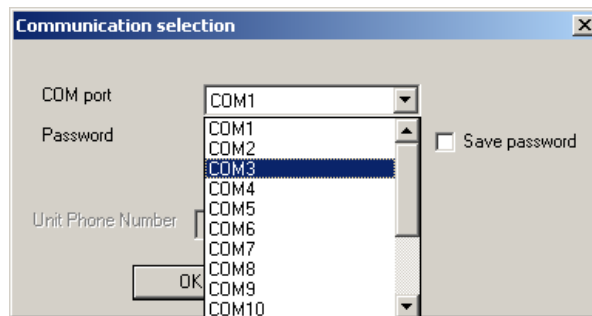
1. **New**
2. **Open**
3. **Save/ Save As**
4. **Connection setup (COM port etc.)**
5. **Connect/Disconnect button**
6. **Change Language**

4.1.1 Serial connection



Connect the serial cable between the GateOpen device and the computer



Start the GTO software and click the 'Communication selection' button



Select 'Direct connection' option, enter the unit password (default password: 1234), select the proper COM port and press OK. Click the 'connect' button.

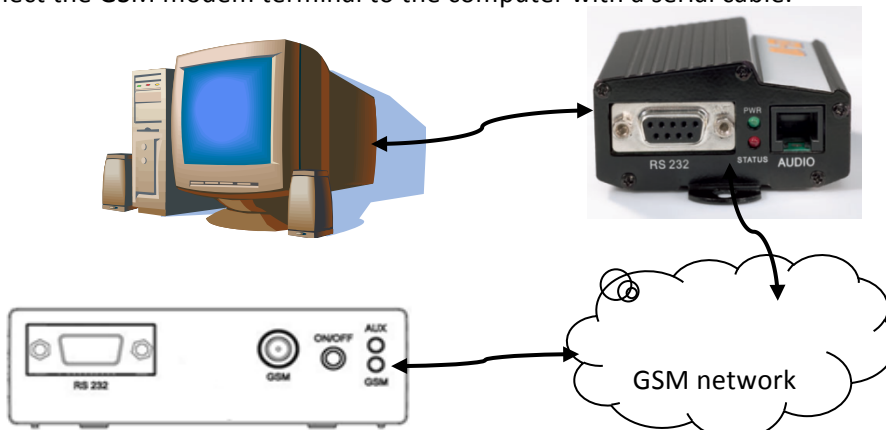
Once connected, the 'disconnect' button  replaces the 'connect' button . While connected to the unit, the green LED (on the front panel) is turned off and the unit does not respond to incoming calls for access control.

4.1.2 Data call connection (CSD connection)

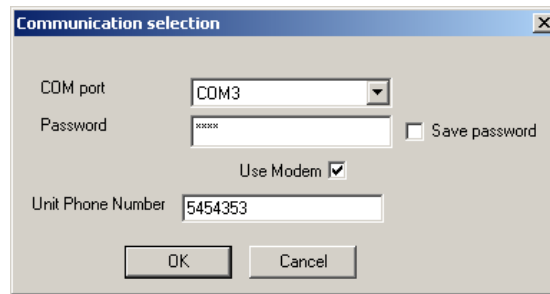
In order to use this option a GSM modem terminal must be used.

Verify with the GSM carrier that both SIM cards (inside the GSM modem terminal and GateOpen unit) support data calls.

Connect the GSM modem terminal to the computer with a serial cable.



Open/Start the GTO software and click the 'Communication selection' button



Check the 'Use Modem' check box, insert the unit password (default password is 1234), select the proper COM port, insert the GateOpen phone number and press OK.

Click the 'Connect' button to establish the connection to the unit; it can take up to one minute to establish the communication.

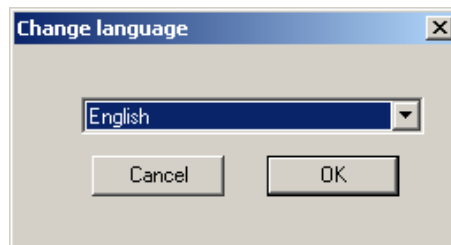
When the communication is established, the 'Disconnect' button appears.

While connected to the unit, the green LED is turned off and no incoming calls for access control can be accepted.

4.1.4 Change the software language

Click the 'Select Language' button, select the language and press OK.

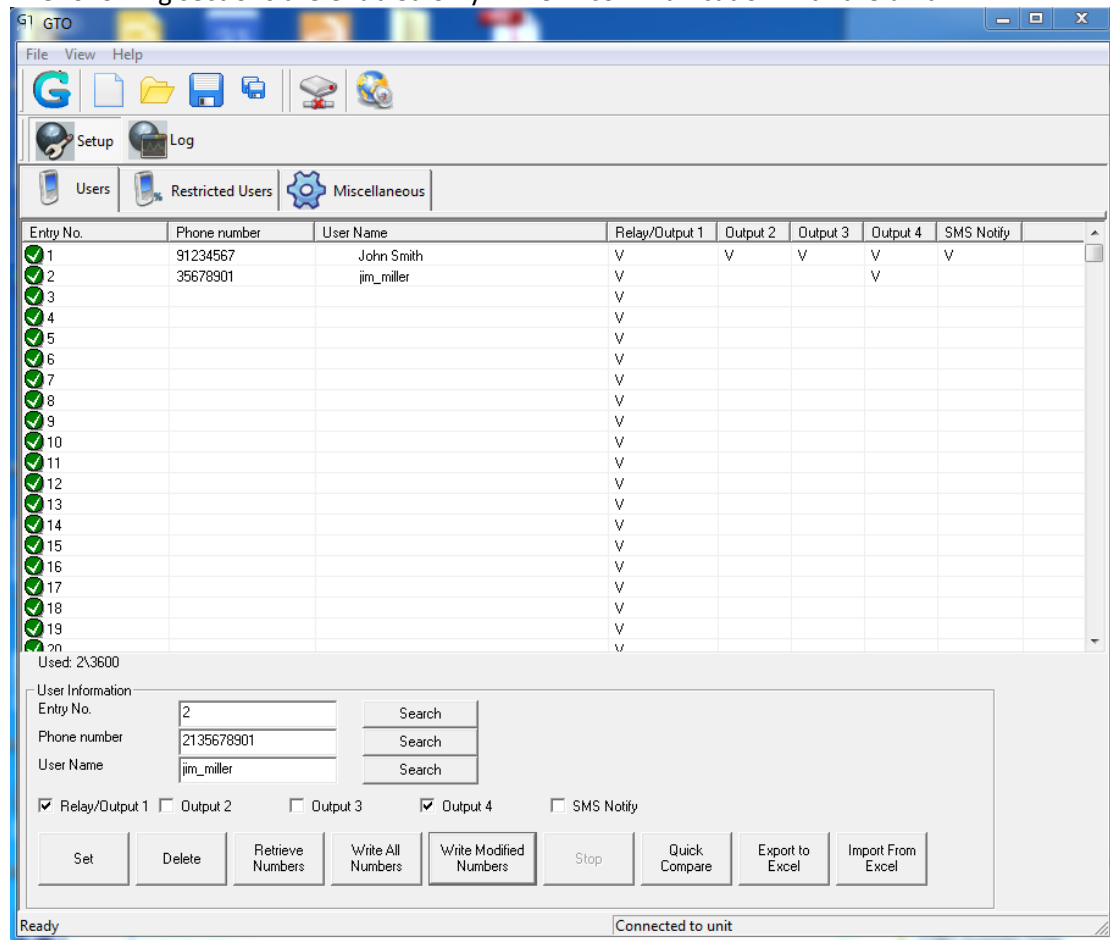
In order for the change to take place, the software must be reopened.







4.1.5 Users screen

Manage the users' whitelist ('Users' tab).


The following sections are enabled only while in communication with the unit.




- **Get (retrieve) the users list from the GateOpen unit:**
 1. Click the 'Retrieve Numbers' button
 2. Confirmation screen will appear. Click 'Yes'
 3. While retrieving all users' icons will be changed to 
 4. Wait until the process is complete.
 5. Once completed, all retrieved users icons will be changed to 

- **Compare the GTO users list with the GateOpen unit users list**
 1. Click the 'Quick Compare' button
 2. Wait few seconds
 3. The GTO compares batches of 100 users with the GateOpen unit (1-100, 101-200, etc...).
 4. If one or more user(s) in the batch are different, all the 100 batch users' icons will be changed to .
 5. If all 100 users in the batch are equal, the users' icons will be changed to 

- **Add user** (refer to the 'User Information' section on the screen)
 1. Click on an empty user record or enter its entry number in the 'Entry No.' field
 2. Populate the phone number field


3. Enter the user name field
4. Click the 'Set' button, the selected field next to the respective entry number will fill with the information you entered and the icon will be changed to 
5. The changes will not take place until you download (Write) them to the unit

- **Delete user:**


1. Click on a user record or enter the entry number in the 'Entry No.' field
2. Click the 'Delete' button, the selected field's content will be deleted and the icon will change to 
3. The changes will not take place until you download (Write) them to the unit



- **Download (Write) the users list to the GateOpen unit:**

This option, writes the entire user list to the unit. It overwrites all existing records.

1. After finishing adding and deleting users from the list, click the 'Write ALL Numbers' button.
2. Wait for the progress bar to fill, it may take few minutes
3. All the written records' icons will change to 

- **Write the modified users list to the GateOpen unit:**

This option writes only records marked with  icon to the unit.

1. After finishing adding and deleting users from the list, click the 'Write Modified Numbers' button.
2. Wait for the progress bar to fill, it may take few minutes depending on the number of records marked as 
3. All the written records' icons change to 

- **Stop the current process with the GateOpen unit:**

The processes of retrieving numbers from the unit and writing the entire user list/modified users list to the unit can be stop midway by pressing the 'Stop' button. The stop procedure may take a few seconds

- **Export the users' list to Excel file:**

The users' list can be exported to Excel file using the 'Export to Excel' button.

- **Import the users' list from Excel file:**

The users' list can be imported from Excel file using the 'Import from Excel' button. The imported file must be one that was previously exported from the GTO software, otherwise an error will occur.

In order to import Excel file, first export an empty list to Excel file as a template from the GTO software. Populate it and import it back to the GTO software.

- **Search a record in the users' list:**

A record can be searched by entry number, phone number or partial user name. Enter the entry number, phone number or partial user name in the correct field and press the search button next to it.

If the record exists in the list, it will blink four times.

4.1.6 Special (Restricted) users screen

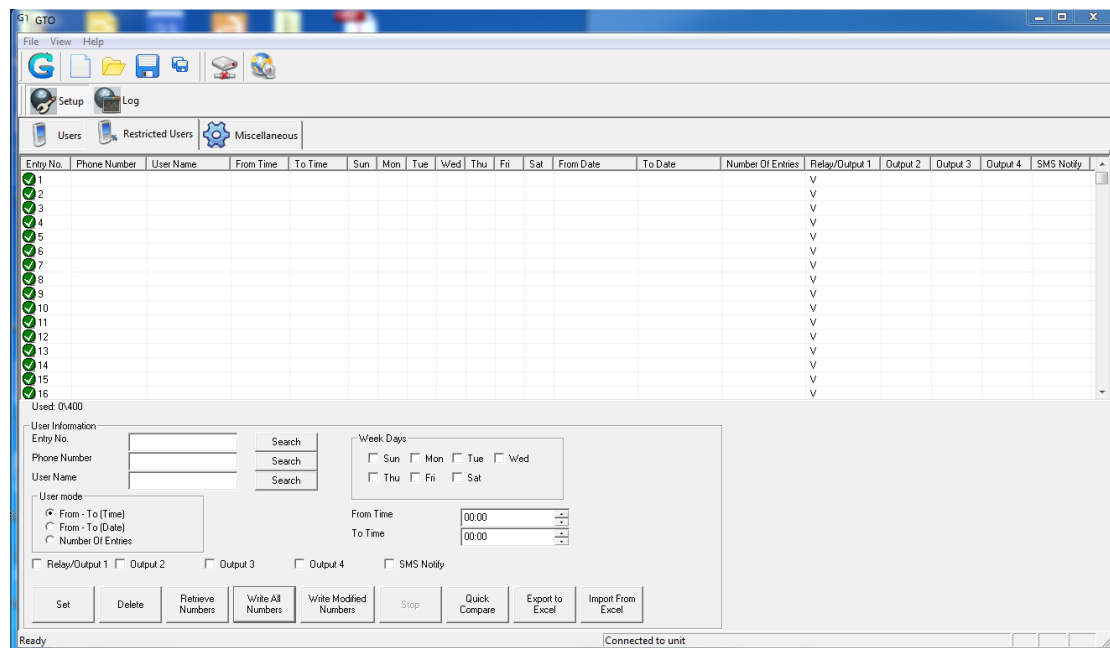
Manage the restricted users' whitelist.

A restricted user can activate the outputs (operate a gate) in three ways:


1. Between specific hours in specific week days (e.g. 10:30-15:00 on Sunday and Friday)
2. Between specific dates (e.g. from 05/05/15 08:00 to 06/06/15 23:00)
3. Number of entries – the user is restricted for certain number of activations (entries).

* In order for the restrictions to work, the unit internal clock must be set.


To follow this section, the unit should be connected to a computer with the GTO software.



- **Get (retrieve) the restricted users list from the GateOpen unit:**
 1. Click the 'Retrieve Numbers' button
 2. Verification screen will popup, Click 'Yes'
 3. All users' icons will change to
 4. Wait till the end of the process
 5. All retrieved users icons will change to
- **Compare the GTO restricted users list with the GateOpen unit restricted users list**
 1. Click the 'Quick Compare' button
 2. Wait few till the end of the process
 3. The GTO compares batches of 50 users with the GateOpen unit (1-50, 51-100, etc...).
 4. If one or more users in a batch are different, all 50 batch users' icons will be changed to .
 5. If all 50 users in a batch are matching, the users' icons will be changed to
- **Add a special (Restricted) user:**


1. Click on an empty special user record or populate the 'Entry No.' field at the bottom of the screen (section titled: 'User Information')
2. Enter the phone number field
3. Enter the user name field
4. Select an entry in the 'User mode' section and enter the user mode parameters
5. Click the 'Set' button, the selected field (in the list) will fill with the proper information and the icon will change to 
6. The changes will not take place until you download (write) them to the unit

- **Delete restricted user:**


1. Click on a special user's record or complete the entry number in the 'Entry No.' field
2. Click the 'Delete' button, the selected field will fill with empty parameters and the icon will change to 
3. The changes will not take place until you write them to the unit



- **Write the restricted users list to the GateOpen unit:**

*This option writes the entire user list to the unit, overwriting all existing records.

1. Once you completed adding and deleting users to/from the list, click the 'Write All Numbers' button
2. Wait for the progress bar to fill, it can take several minutes
3. All the written records' icons will change to 

- **Write the modified restricted users list to the GateOpen unit:**

*This option, writes only records that marked with  icon to the unit.

1. Once you completed adding and deleting users from the list, click the 'Write Modified Numbers' button
2. Wait for the progress bar to fill, it can take several minutes depending on the number of records marked with 
3. All the written records icons will change to 

- **Stop the current process with the GateOpen unit:**

The processes of retrieving numbers from the unit and writing the entire/modified restricted user list to the unit can be stopped while in progress by pressing the 'stop' button.

The stop procedure may take a few seconds

- **Export the restricted users' list to Excel file:**

The users' list can be exported to Excel file using the 'Export to Excel' button.

- **Import the users' list from Excel file:**

The restricted users' list can be import from Excel file by using the 'import from Excel' button.

The imported file must be a file that was previously exported from the GTO software, otherwise an error will occur.

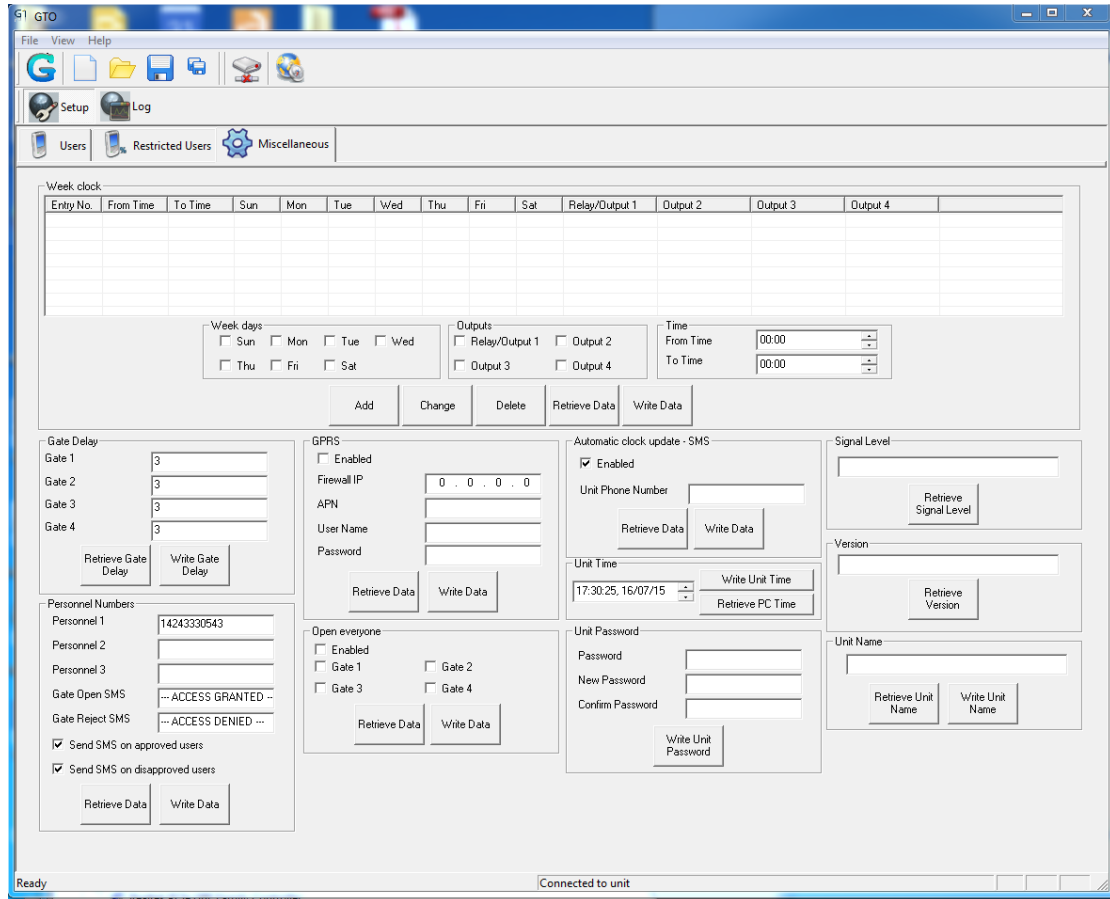
In order to import from Excel file, first export empty list to Excel file as a template, change/ populate it and import it back to the GTO software.

- **Search record in the restricted users' list:**

A record can be searched by entry number, phone number or partial user name.
 Enter an entry number, phone number or partial user name in the correct field and press the 'Search' button next to it.
 If the record exists in the list, it will blink four times.

4.1.7 Miscellanies screen

Manage the unit's (global) parameters.



- Unit name:** (bottom right corner)
 Retrieve or write the unit name
- Unit time:**
 In order to write the current time to the unit, retrieve the PC time and then write it to the unit.
 The unit clock will be lost when the power turned off.
 The unit can retrieve the clock from the Cellular network if the carrier support it.
- Unit password:**
 Define new password for the unit.
 The password is required for the GTO software to communicate with the unit.
 Default password is 1234.
- Gate delay:**

The Gate delay is an analogy to how many seconds you push a button that activates the gate opener. Gate delay defines the time that the outputs will be activated. Retrieve or write the gate delay (in number seconds).

- **Automatic clock update - SMS:**

If enabling this feature, the unit sends to itself SMS on startup and updates its internal clock according to the SMS time stamp.

Unit Phone Number – The phone number of the GateOpen unit.

This feature shouldn't be used if the GSM network carrier supports NITZ (Network Identity and Time Zone).

- **Band selection:**

Retrieve/write the GSM band according to the country GSM support

Note: All newer models are fully automated, this section is omitted from the software.

- **Version:**

Retrieve the GateOpen unit firmware version.

- **Signal level:**

Retrieve the GSM signal level.

- **Open everyone:**

If enabling this feature, the unit will activate the relay for every phone number that is calling the unit, ignoring the users' list.

- **Personnel numbers:**

Phone numbers that receive SMS activities' notifications

- **GPRS:**

When using a SIM card with Static-IP, this section allows configuration for remote access to the device (through the internet). Note that you must have a SIM card with Public Static IP. Some providers' Static IP is local/private not public hence they are not accessible from a remote device.

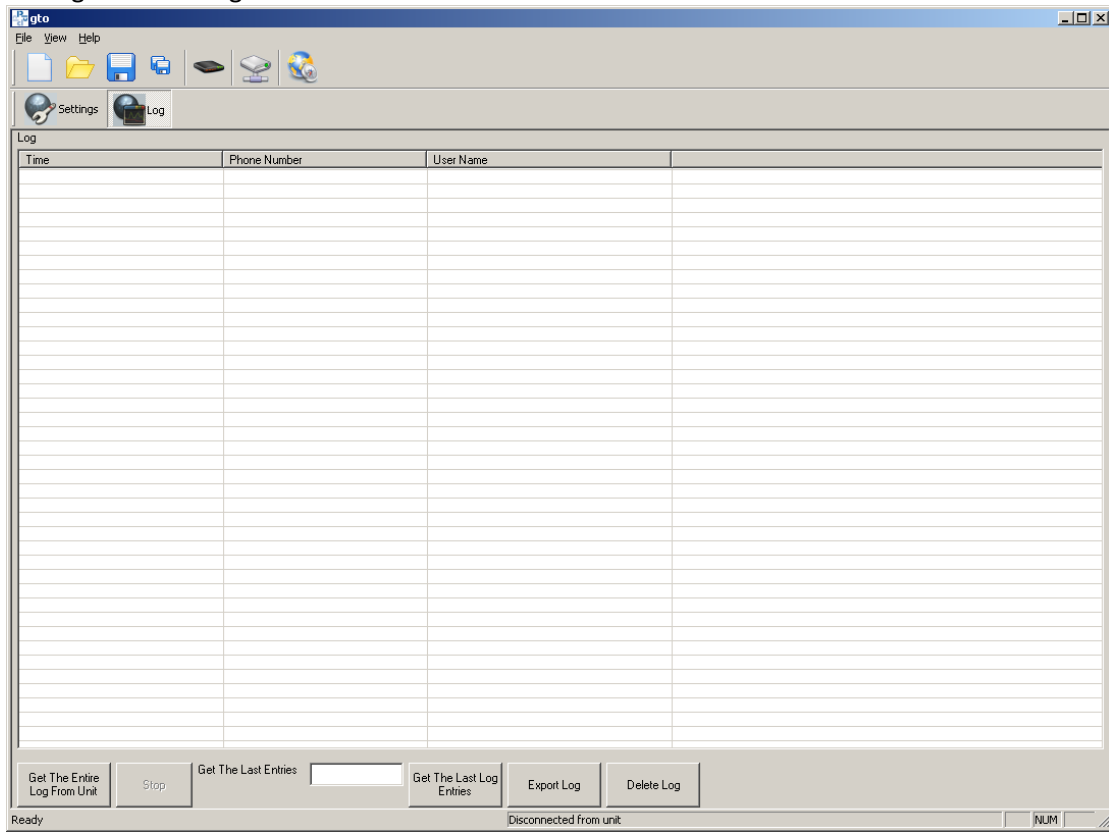
- **Misc. Tab, 'Week Clock' section:**

Global parameters that configure the operation of the device for all users, and gates regardless of their specific restrictions.

Example: A company that operates only on specific days of the week and between specific hours. Once defined, all users (standard and restricted) are automatically restricted to the days and hours as defined in this section.

4.1.8 Log

Manage the unit log



- **Retrieve the entire log**
Retrieves the entire log from the unit

- **Retrieve the most recent entries**
Retrieve the specified number of recent entries from the log

- **Export log**
Export the log to Excel file

- **Delete log**
Delete the entire unit's log, confirmation is required

- **Stop the current process with the GateOpen unit:**
The processes of 'retrieve the entire log' and 'retrieve most recent log' entries can be interrupted/stopped while in process by selecting 'stop' button.
The stop procedure may take a few seconds

4.2 Program the GateOpen unit by SMS commands

Each SMS command sent to the unit, must start with P.<password>

Example: add new phone number 9541122333 (unit's password: 1234)

P.1234A.9541122333

The SMS command's password is the same as the GTO unit password.

The password used in all the examples in this section is 1234 (the unit's factory default)

The unit ignores messages that do not start with p.<password> or if the password is incorrect.

After parsing the SMS command the unit responds to the sender with confirmation or error message (the unit's SIM card must include SMS send and receive features activated).

The SMS command must not exceed 160 characters (a Cellular network limitation).

All the characters in the SMS must be in the same letter case (uppercase or lower case).

In the examples below uppercase characters have been used.

4.2.1 Add new phone numbers

Add new phone numbers to the regular phone list (with authorization to open gate # 1 only)

Syntax: A.<phone number>.<phone number>...

Use a 'dot' to separate the phone numbers from each other.

Example: **P.1234A.9547512152.9525874525**

Add 9547512152 and 9525874525 to the phone list (each with access to Gate # 1 only)

Add new phone number including individual's name:

Syntax: AN.<phone number>.<first-name_last-name>

Example: **P.1234AN.9547512152.Jim_Smith**

Note: No spaces allowed. Space between first and last name will be truncated, therefore enter underscore '_' .

Add new phone number with name for multiple gates

Syntax:

AN.<ph number>.<fname_lname>.<gate#1>.<gate#2>.<gate#3>.<gate#4>.<SMS {0,1}>

Example: **P.1234AN.9547512152.Jim_Smith.1.0.1.1.1**

Add phone number 954-751-2152 with the name 'Jim Smith' and access to gates # 1,3,4 and send SMS with notification for each activity (This SMS notification is marked by the last parameter in the command ('0' disabling the function or '1' for enabling it).

4.2.2 Add new restricted phone number (for gate # 1 only)

Between specific time limits and between specific week days:

Add new restricted user (with specific time and week days).

Syntax: AS.<phone number>.1.<HHMM>.<HHMM>.<week days>

Weekdays: 1-Sunday, 2-Monday...

Example 1: **P.1234AS.9258126248.1.1130.1540.135**

Phone number 9258126248 will be allowed to open gate#1 from 11:30 to 15:40 on Sunday, Tuesday and Thursday (1=Sunday, 2=Monday, etc...)

Example 2: **P.1234AS.9258126248.1.1330.2300.24**

Phone number 9258126248 will have access to gate # 1 from 13:30 to 23:00 on Monday and Wednesday.

Limited Number of entries:

Add new restricted user with limited number of entries.

Syntax: AS.<phone number>.3.<number of entries>

Example: **P.1234AS.9258126248.3.6**

Phone number 9258126248 will be allowed to enter 6 times. Any additional entry attempt will be ignored (and considered to be an illegal attempt).

4.2.3 Delete phone number

Delete phone numbers from the regular (non-restricted users') phone list

Syntax: D.<phone number>.<phone number>....

Use a 'dot' to separate the phone numbers from each other.

Example: **P.1234D.9547512152.9525874525**

Delete 9547512152 and 9525874525 from the regular phone list

4.2.4 Delete restricted (special) phone number

Delete phone numbers from the restricted phone list

Syntax: DS.<phone number>.<phone number>....

Use a 'dot' to separate the phone numbers from each other.

Example: **P.1234DS.9547512152.9525874525**

Delete 9547512152 and 9525874525 from the restricted phone list

4.2.5 Format the entire users list

Erase the entire phone list, regular and restricted.

Syntax: FORMAT

Example: **P.1234FORMAT**

4.2.6 Define the gate delay

Write the gate delay in seconds.

Gate delay defines the period of the outputs to be activated (energized).

Syntax: GOD.<gate#1 delay>.<gate#2 delay>.<gate#3 delay>.<gate#4 delay>

You must specify all 4 gates even when you use a single gate.

Example: **P.1234GOD.7.4.4.5**

Set the gate#1 to 7 seconds delay, gate#2 and #3 to 4 seconds and gate#4 to 5 seconds.

4.2.7 Update the unit clock

Update the unit clock from the SMS time stamp

Syntax: CU

Example: **P.1234CU**

4.2.8 New unit password

Change the current password

Syntax: NP.<new password>

Example: **P.1234NP.4321**

Change the unit password to 4321

4.2.9 Enable/disable the unit

Disable or enable the entire unit.

While the unit is disabled, all the incoming calls will be rejected (covering all 4 gates).

Syntax: EN.{0,1}

Example: **P.1234EN.1**

Enable the unit

Example: **P.1234EN.0**

Disable the unit

4.2.10 Allow access to everyone

Ignore the phone list (regular and restricted) and allow everyone to activate the relay output:

Syntax: OPEN.1234

Example: **P.1234OPEN.13**

Allow access to everyone that calls gate # 1 and #3

Cancel 'Open for everyone' command

Example: **P.1234OPEN.0**

Normal operation (allow access only for authorized individuals)

4.2.11 Retrieve the unit's information

Retrieve information about the unit:

- Number of authorized entries in the phone list
- Number of authorized entries in the restricted/special phone list
- Cellular signal level
- Unit status Enabled/Disabled
- Open to everyone status – Enabled/Disabled

Syntax: INFO

Example: **P.1234INFO**

4.2.11 Retrieve the unit's firmware version

Syntax: VER

Example: **P.1234VER**