GSM Gate Control

INSTALLATION AND APPLICATION GUIDE

► **Features:**

- Control of switching relays with free calls and telephone number recognition
- Sending SMS with adjustable text activated by contacts
- Programmable via USB, SMS or GSM data call
- Large event memory

► **Applications:**

- Control of gates, barriers and other electronic devices via GSM network
- Notification about fault outputs or status of switches via SMS text

Table of contents

1 GSM Gate Control basic functions

Controlling (open and close) of electric gates and barriers via GSM call. Sending SMS messages about the state of different switch contacts (tamper, end-state etc.).
Control of relay outputs (according to the mode and access authorization adjusted) by calling the number of the SIM card placed in the module.
Control (open/close) can be performed only from the authorized telephone numbers set in the module. Since only the caller telephone number is necessary for the identification and control, therefore the call does not have to be accepted (picked up) so it will be free of cost.
The authorization of users and control functions must be set previously.

2 Programming the GSM Gate Control

The programming of the GSM Gate Control is possible in three different ways:

- Via SMS message from a cellular phone
- With the „REMOTER" programmer from a PC via USB port
- With the „REMOTER" programmer from a PC via GSM data call

2.1 Programming via SMS message

It is important that each command message has to begin with * character and has to end with # character!
Of course more commands can be sent in one SMS but the beginning and end characters must be used and one message must not be longer than 160 characters. If the response message from the module would exceed 160 characters, the message will only contain the first 160 characters.

Further adjustments can be performed by registering the installer telephone number:
First the installer telephone number has to be set, which will be authorized to register further users and perform further adjustments:

The SMS command to be sent	Response SMS text
*ADMIN#	YOU ARE REGISTERED AS ADMIN!

Note. The **ADMIN#* message will be accepted only once.
Change or delete the admin phone number is only available from a PC via USB port.

SMS commands and adjustments:

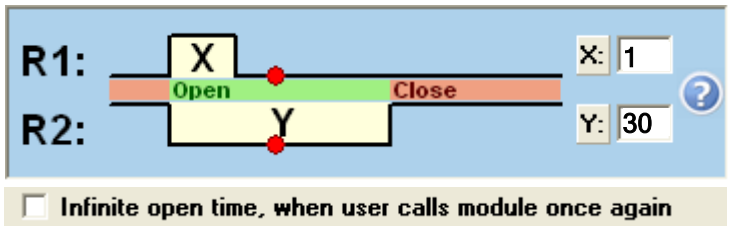
SMS command	SMS text	SMS Response	Meaning of response
Add new user	***n=TELNUMBER*NAME#**	NEW USER REGISTERED.	New user is registered
		NUMBER ERROR!	The user phone number entered is too short or too long
		SYNTAX ERROR!	You have not used separator character (* or #)
		BAD MESSAGE TERMINATE!	Your SMS does not end with "#" character
		PHONE NUMBER ALREADY EXISTS!	The phone number entered already exists in the system
Remove user	***d=TELNUMBER*NAME#** or ***d=*NAME#** or ***d=TELNUMBER#**	DELETE SUCCESFULL	User is removed
		DELETE FAILED: UNKNOWN PHONE NUMBER!	The phone number entered does not exist in the system
		DELETE FAILED: UNKNOWN USERNAME!	The user name entered does not exist in the system
Remove all users (only for installers)	***E*ADMIN#**	CLEAN SUCCES!	All users removed
Download registered users	***L#**	*Phone Nr.1* … *Phone Nr.15*	The phone number of the first 15 registered users
Login as first user (authorized as installer)	***ADMIN#**	YOU ARE REGISTERED AS ADMIN!	The sender of the SMS has been registered as installer on the authorization list
Control modes	***M=1,X=1,Y=1,O=1#** ***M=2,X=1,Y=1,Z=1,O=1#** ***M=3,X=1,Y=1,Z=1,O=1#** ***M=4,X=1,Y=1#**	1. MODE ACTIVATED	1. Selected mode is activated
Assign SMS texts to input contacts	***S1=SMS_TEXT#** … ***S4=SMS_TEXT#**	SMS1 TEXT CHANGED	SMS text assigned to input 1. has been modified
Assign SMS phone numbers to input contacts	***T1=TELNUMBER#** … ***T4=TELNUMBER#**	SMS1 NUMBER CHANGED	SMS phone number assigned to input 1. has been modified
SMS forwarding	***SF=TELNUMBER#**	SMS FORWARD CHANGED	The phone number for SMS forwarding has been modified
Phone number of the SIM card	***MT=TELNUMBER#**	REMOTER NUMBER CHANGED	The phone number of the SIM card has been modified
Opening hours	***OT=OPEN,CLOSE#**	ACCES TIME CHANGED	Opening hours modified

Adjusting control modes

If the call is performed from a registered user phone number and the user is authorized in that moment to open, the module logs this call as opening in the event memory and activates the relays. The control panels of different installed gates need different open/close control impulses, therefore the module's output control can be selected out of four different modes. In the first three modes one single call is sufficient for the whole open and close cycle, in the fourth mode one call is necessary for opening and one another for closing.

1. **Control mode:** opening on external impulse (closing is automatically made by the gate's control panel). The opening impulse is performed by Relay1, the infrared photocell circuit is controlled by Relay2 (single call).

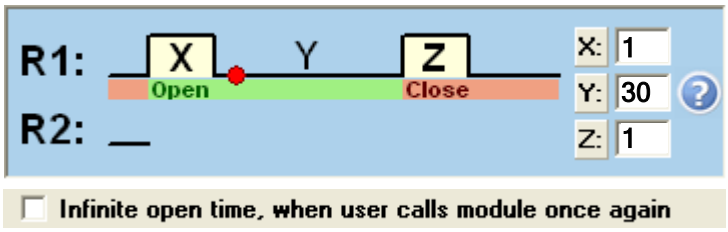
***M=1,X=1,Y=30,O=0#**



SMS command element	Explanation
M=1	1. control mode
X=..	Opening impulse length in seconds
Y=..	Closing infrared photocell circuit interruption time in seconds
O=1 or **O=0**	1: Permanent opening on quick recall

2. **Control mode:** opening on external impulse, closing on next impulse (control is made on the same input) (single call).

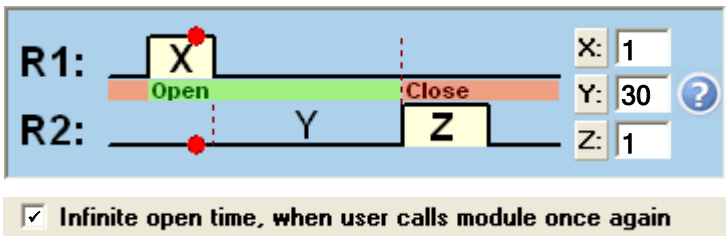
***M=2,X=1,Y=30,Z=1,O=0#**



SMS command element	Explanation
M=2	2. control mode
X=..	Opening impulse length in seconds
Y=..	Time of open state in seconds
Z=..	Closing impulse length in seconds
O=1 or **O=0**	1: Permanent opening on quick recall

3. Control mode: opening on external impulse, closing on external impulse by a single call (control is made on different inputs)

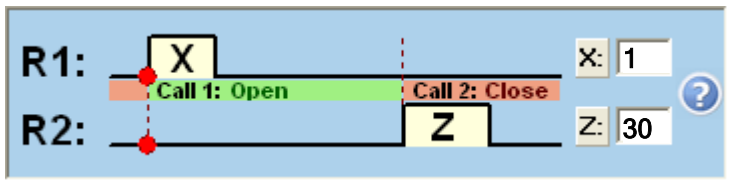
***M=3,X=1,Y=30,Z=1,O=1#**



SMS command element	Explanation
M=3	3. control mode
X=..	Opening impulse length in seconds
Y=..	Time of open state in seconds
Z=..	Closing impulse length in seconds
O=1 or **O=0**	1: Permanent opening on quick recall

4. Control mode: opening on external impulse, closing on external impulse by a recall

***M=4,X=1,Y=30#**



SMS command element	Explanation
M=4	4. control mode
X=..	Opening impulse length in seconds
Y=..	Closing impulse length in seconds

Example:

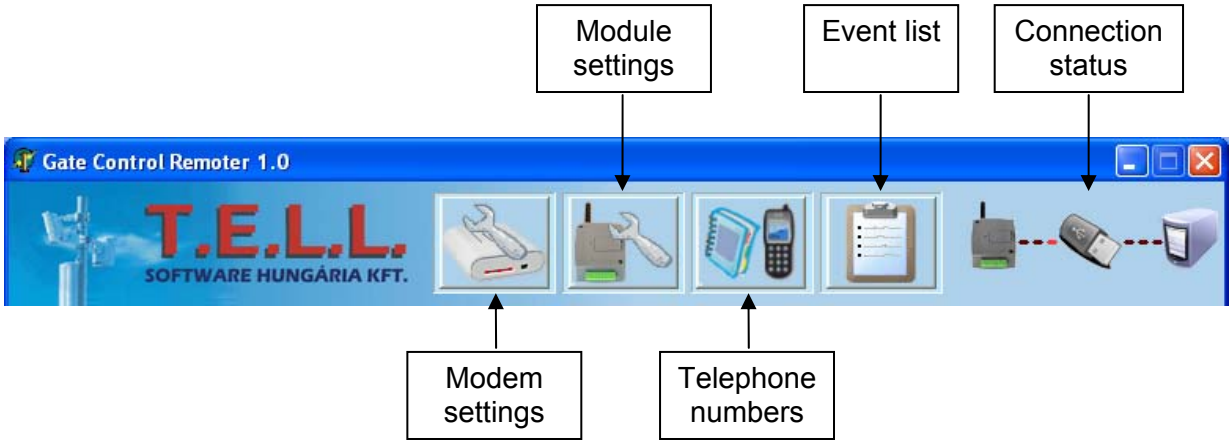
SMS command	SMS text	SMS Response
Login as 1. user (authorized as installer)	***ADMIN#**	YOU ARE REGISTERED AS ADMIN!
Adjusting control mode (2.): opening impulse: 1 sec. Open state time: 30 sec. Closing impulse: 1 sec. Keep open on quick recall: no	***M=2,X=1,Y=30,Z=1,O=0#**	2. MODE ACTIVATED
Assign SMS texts to inputs: IN1 – Cabinet opened IN2 – Gate failure	***S1=Cabinet opened#*S2=Gate failure#**	SMS1 TEXT CHANGED SMS2 TEXT CHANGED

SMS forwarding: 30/111-1111	***SF=06301111111#**	SMS FORWARD CHANGED
Phone number of the SIM card: 30/222-2222	***MT=06302222222#**	REMOTER NUMBER CHANGED
Opening hours: 8-16	***OT=8,16#**	ACCESS TIME CHANGED
Adding new users: 30/333-3333: name1 30/444-4444: name2 30/555-5555: name3 30/666-6666: name4 30/777-7777: name5	***n=06303333333*name1#** ***n=06304444444*name2#** ***n=06305555555*name3#** ***n=06306666666*name4#** ***n=06307777777*name5#**	NEW USER REGISTERED

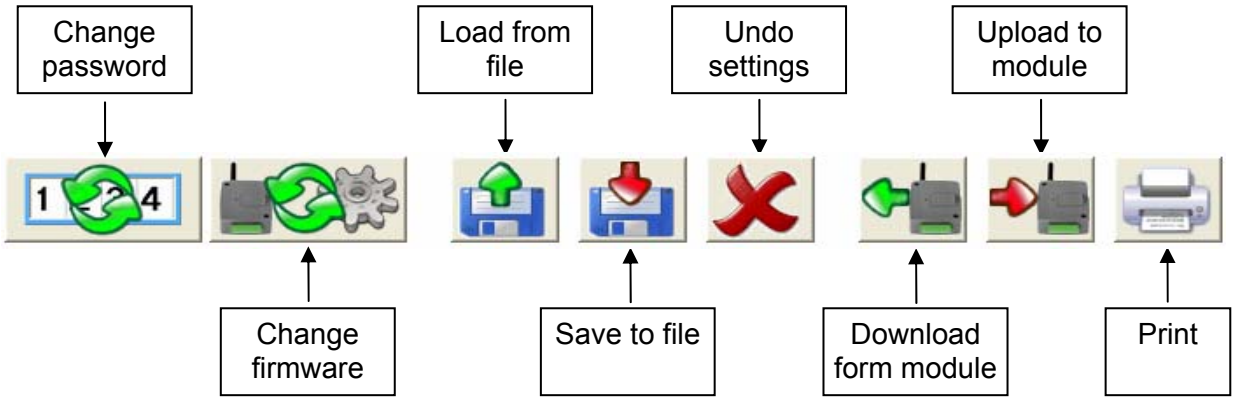
So the SMS message text to be sent to the module is:
***ADMIN#*M=2,X=1,Y=30,Z=1#*S1=Cabinet opened #*S2=Gate failure#*SF...**

2.2 Programming with „REMOTER" programmer

The „REMOTER" programmer software runs on Windows operating systems (Windows XP recommended). The menu of the programmer is the following:



Further icons used in the program:



2.3 Programming via USB port

Start the „REMOTER” program.
Connect the module with a USB cable to the PC.
The program automatically recognizes the module connected to the USB port and a new window will appear displaying the following text: „Module connected…”
Enter the connection password (default setting: 1234)
If an invalid password has been entered, the „Wrong password” message will appear.
If the password is accepted, the „Module settings” window will appear where all the module settings can be adjusted. After a successful connection the window will be filled up automatically with the datas stored in the module. You can find more details about settings in the „Further adjustments” chapter.

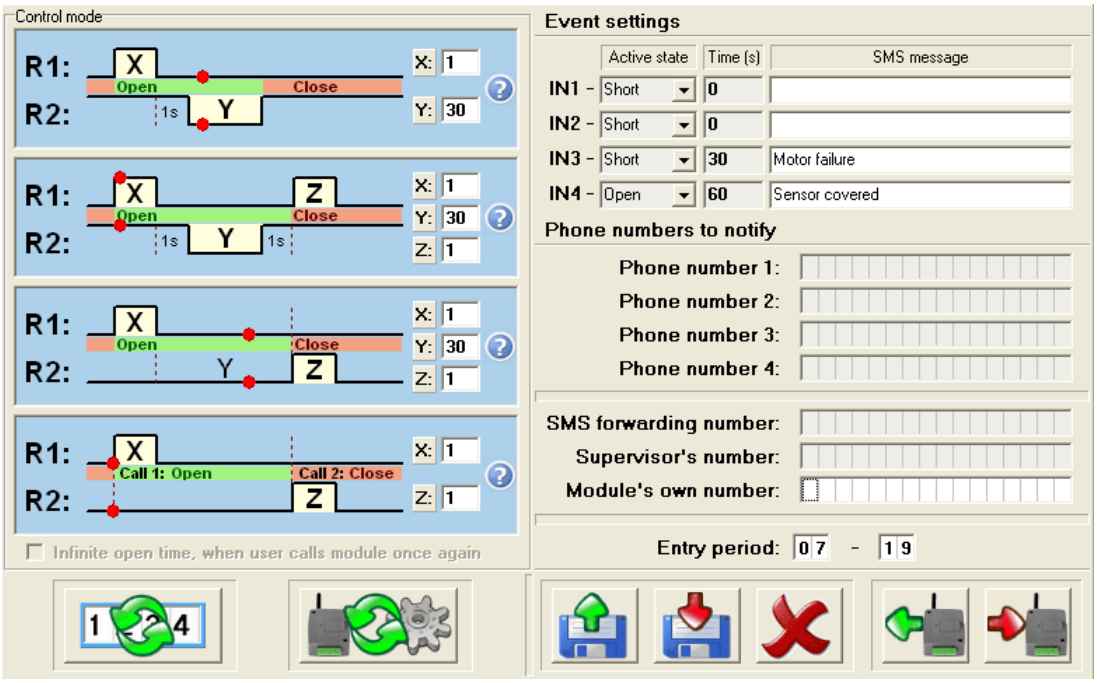
2.4 Programming via GSM data call

If you want to program the module via GSM data call you will need a modem (T.E.L.L. GT64 recommended).
Start the „REMOTER” programmer.
The modem settings can be adjusted by clicking on „Modem settings” icon. The window below will appear:

- Select serial port for the modem
- Enter the module's phone number
- Press dial (success of the connection clears up in about 1 minute, any failure will be displayed: no ringtone, busy, etc.)

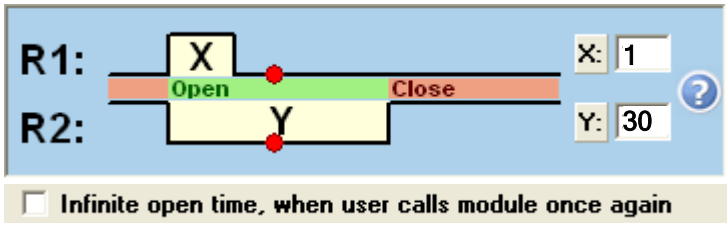
When the connection is established a new window will appear displaying the following: „Module connected…”
Enter the connection password (default setting: 1234)
If an invalid password has been entered, the „Wrong password” message will appear. The „Module settings” window will appear where all the module settings can be adjusted. After a successful connection the window will be filled up automatically with the datas stored in the module. You can find more details about settings in the „Further adjustments” chapter.

2.5 Further adjustments



Event settings: Texts of SMS messages to be sent by activating the four contact inputs (IN1-IN4)
Persons advised: maximum four phone numbers can be set or receive SMS messages activated by the four inputs.
SMS forwarding: the SMS messages received by the module from the GSM service provider will be forwarded to this phone number (not used for programming, but e.g. balance information).
Installer phone number: authorized number to perform SMS settings
Module phone number: phone number of the SIM card placed in the module
Opening hours: working hours can be set here by entering opening and closing hours.
Opening modes:

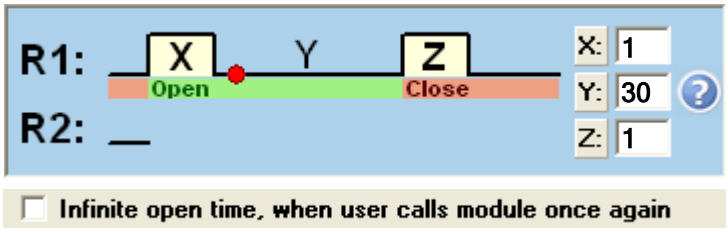
1. Control mode:



At opening relay R1 is activated for X (e.g. 1) second(s). After one second delay relay R2 is deactivated for Y (e.g. 30) seconds. (R2 substitutes the infrared photocell signal to keep the gate open.) R1 is activated: opening begins, R2 is activated: closing begins.
According to the example the opening and opened state period lasts 32 seconds (X+1+Y).
This mode can be used when the control panel of the gate has only an opening input – R1 relay output should be connected here. Output of relay R2 should be connected in serial in the infrared photocell circuit.

Permanent opening on quick recall: if enabled, the gate remains open permanently after a second call from the same user number during the opening or opened period till a third call from the same user number.
If the gate remains open for an undetermined period after the second call it will also close if the module receives ***three calls*** from a ***different user***.

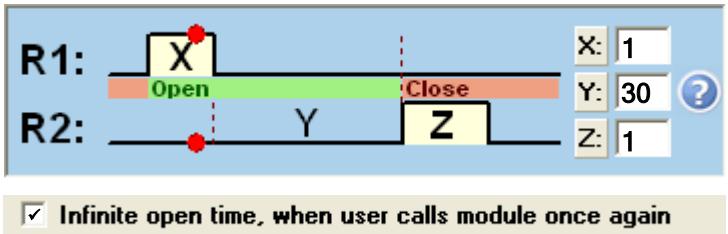
2. Control mode:



At opening relay R1 is activated for X (e.g. 1) second(s). After one second delay relay R2 is deactivated for Y (e.g. 30) seconds. After one second delay R2 will be reactivated for Z (e.g.1) second(s). (R2 substitutes the infrared photocell signal to keep the gate open.)
R1 is activated: opening begins, then at reactivation: closing begins.
According to the example the opening and opened state period lasts 34 (X+1+Y+1+Z) seconds.

Permanent opening on quick recall: if enabled, the gate remains open permanently after a second call from the same user number during the opening or opened period till a third call from the same user number.
If the gate remains open for an undetermined period after the second call it will also close if the module receives ***three calls*** from a ***different user***.

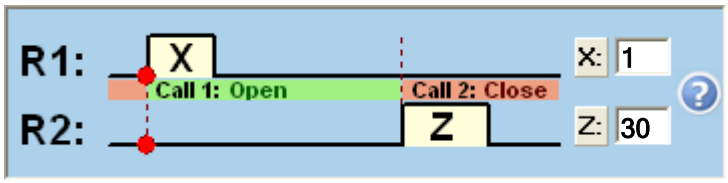
3. Control mode:



At opening relay R1 is activated for X (e.g. 1) second(s), then when X second(s) expire relay R2 is activated after Y (e.g. 30) seconds for Z (e.g. 1) second(s).
R1 is activated: opening begins, then after X+Y seconds R2 is activated: closing begins.
According to the example the opening and opened state period lasts at least 31 seconds.

Permanent opening on quick recall: if enabled, the gate remains open permanently after a second call from the same user number during the opening or opened period till a third call from the same user number.
If the gate remains open for an undetermined period after the second call it will also close if the module receives ***three calls*** from a ***different user***.

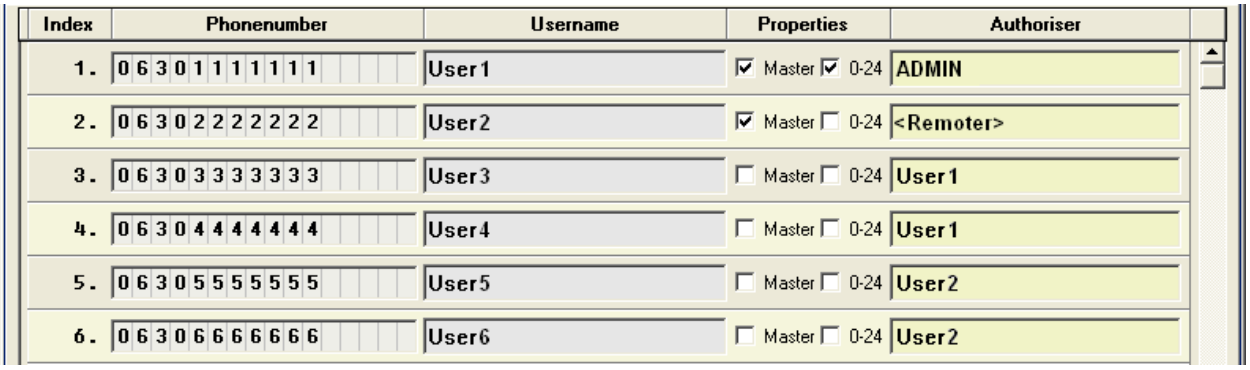
4. Control mode:



At opening relay R1 is activated for X (e.g. 1) second(s), then at second call from the same user relay R2 is activated for Z (e.g. 1) second(s). R1 is activated: opening begins, then after the second call R2 is activated: closing begins.
According to the example the opening and opened state period lasts at least 31 seconds.

Settings can be saved to file, loaded from file, downloaded from the module or transferred to the module. The previous status can be restored by clicking on Undo settings icon (undo modifications).

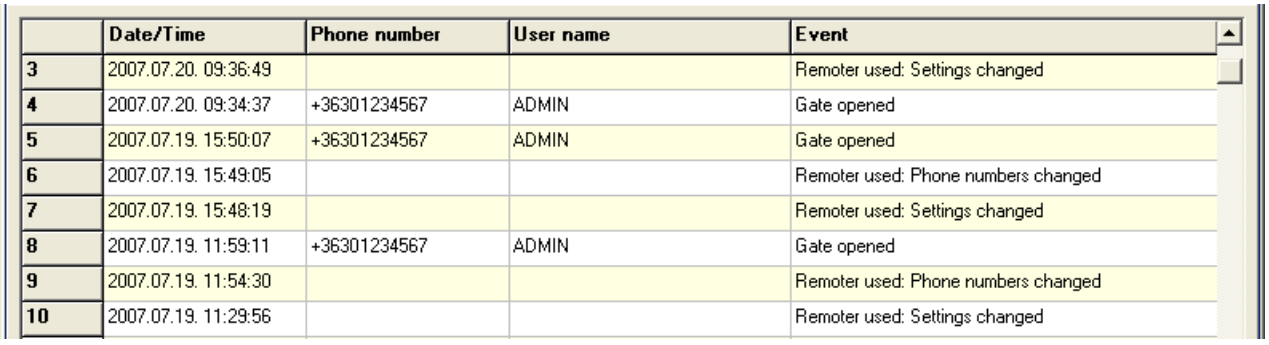
2.6 Phone numbers



Index	Phonenumber	Username	Properties	Authoriser
1.	06301111111	User1	☑ Master ☑ 0-24	ADMIN
2.	06302222222	User2	☑ Master ☐ 0-24	<Remoter>
3.	06303333333	User3	☐ Master ☐ 0-24	User1
4.	06304444444	User4	☐ Master ☐ 0-24	User1
5.	06305555555	User5	☐ Master ☐ 0-24	User2
6.	06306666666	User6	☐ Master ☐ 0-24	User2

User phone numbers can be set in the „Telephone number" bar and user names in the „User name" bar. There are two setting possibilities for each user in the feature bar: by checking in the master feature, the user will be authorized to add new users. By checking in the 0-24 feature the user will be authorized to control the gate at anytime, else only in opening hours.
Phone numbers, names and features can be saved to file, loaded from file (using an individual file format by the program), downloaded from the module or transferred to the module.

2.7 Event List



	Date/Time	Phone number	User name	Event
3	2007.07.20. 09:36:49			Remoter used: Settings changed
4	2007.07.20. 09:34:37	+36301234567	ADMIN	Gate opened
5	2007.07.19. 15:50:07	+36301234567	ADMIN	Gate opened
6	2007.07.19. 15:49:05			Remoter used: Phone numbers changed
7	2007.07.19. 15:48:19			Remoter used: Settings changed
8	2007.07.19. 11:59:11	+36301234567	ADMIN	Gate opened
9	2007.07.19. 11:54:30			Remoter used: Phone numbers changed
10	2007.07.19. 11:29:56			Remoter used: Settings changed

The module can store the last 1000 events, which can be downloaded filtered as follows:

The event list can be printed or even saved to file in one of the following 3 file formats:

- Excel: Microsoft Excel format
- CSV: text file, columns separated with commas
- TXT: text file, columns separated with tabulator

3 External elements and functions of the GSM Gate Control

3.1 SIM card holder

The cover can be removed by pressing it horizontally on the marked edge towards the LED display. Place the SIM card here.

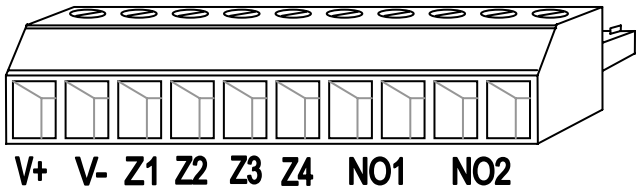
3.2 LED signals

LED	Explanation
Red lights permanently	No GSM network, or turning on / restarting the phone is in progress.
Red and Green flash slowly alternately (in approx. 1 sec. tempo)	The downloaded data is faulty.
Red and Green flash at the same time (in approx. 1,5 sec. tempo)	
Green flashes (one short flash in each approx. 1,5 seconds) Red is off	

3.3 Connecting the antenna

The antenna can be fixed to an FME (pin) connector. The antenna placed in the package assures good transfer at normal receiving conditions. In case of accidentally occurred signal strength problems and/or wave interference (fading) use a different antenna, or find a more suitable place for the module.

3.4 Connecting the module



V+ Power supply 9-24 VDC
V- Negative pole of the power supply
Z1 1. contact input
Z2 2. contact input
Z3 3. contact input
Z4 4. contact input
NO1 1. relay output (normally opened)
NO2 2. relay output (normally opened)

4 Installation guide

Please verify the environment of the module to be placed in before mounting:

- Make a network signal strength measurement with your cellular phone. It can happen that in the desired place the signal strength of the local network is not satisfactory. In this way the place of the module can be changed before installation.
- DO NOT mount the module where it can be affected by strong electromagnetic interference, e.g. electric motors etc. DO NOT mount the module in wet places or in places with a high degree of humidity.

4.1 Starting the module

- Check the SIM card to be placed in properly.
- Check the antenna to be fixed properly into the GSM Gate Control.
- Check the connections to be made as written above.
- Connect the module to the power supply (9-24 VDC). Make sure the power supply is sufficient for the GSM Gate Control. The quiescent current of the GSM Gate Control is 120mA, but during communication it can reach 500mA.

5 Technical informations

5.1 Technical informations of the product

Power supply:	9-24 VDC
Nominal current:	120mA
Maximum current:	500mA
Operating temperature:	-10ºC - +60ºC
Transmission frequency:	GSM 900MHz /1800MHz
Dimensions:	84 x 72 x 32mm
Net weight:	200g
Gross weight (packed):	300g

5.2 Package contents

- GSM Gate Control + connector
- GSM 900MHz / 1800MHz antenna
- User’s guide, warranty card
- CD
- USB A-B cable