



GSM module CG5
(v.1.05)

User manual

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Safety requirements

Please read this manual carefully before using the security module *CG5*.

Security module *CG5* should be installed and maintained by qualified personnel, having specific knowledge regarding the functioning of GSM devices and safety requirements. The device must be disconnected from power supply source before starting device installation.

Module *CG5* should be mounted in places with restricted access and in safe distance from any sensitive electronic equipment. The device is not resistant to mechanical effects, dampness and hazardous chemical environment.

Liability restrictions

- When buying the Device, the Buyer agrees that the Device is a part of a security system of premises, which sends messages about security system status. The Device, when installed, does not diminish the probability of burglary, fire, intrusion or other breach of premises.
- UAB "TRIKDIS" is not responsible for burglary, fire or any other breach of Buyer's and/or User's premises and is not liable for any direct or indirect damages incurred thereof.
- When buying the Device, the Buyer agrees that the Device supplied by UAB "TRIKDIS" fully meets his requirements for intended use.
- UAB "TRIKDIS" provides no guarantees that the Device shall function as declared if the Device is installed and used not according to its original purpose, user manual and relevant electronic and technical conditions.
- UAB "TRIKDIS" is in no way associated with GSM/GPRS/Internet service providers (operators), thus UAB "TRIKDIS" is in no way responsible for any defects in Device operation if they have occurred because of the loss of GSM/GPRS/Internet connection, or because of other defects in the service provider network.
- UAB "TRIKDIS" has no control and is not responsible for the prices and marketing of network services provided by the GSM/GPRS/Internet service providers.
- UAB „TRIKDIS" is not responsible if GSM/GPRS/Internet services are not provided to the Buyer and/or User of the Device or were cancelled and any direct or indirect damages were incurred thereof.
- UAB „TRIKDIS" is not responsible for any direct or indirect damages incurred by the Buyer and/or User of the Device due to loss of electricity.
- UAB „TRIKDIS" is not liable if Device firmware versions were not updated by the Buyer and/or the User on time.
- User manual of the Device can contain technical inaccuracies, grammatical or typographical errors. UAB "TRIKDIS" reserves the right to correct, update and/or change information in the installation manual.

GSM module CG5

CG5 is a device, which sends SMS text messages to mobile phones about events in the security system of the premises.

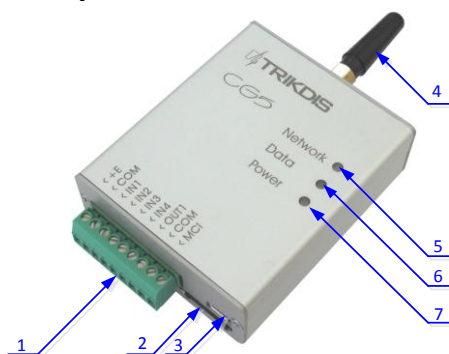
Features

- Sends SMS messages when any of the input circuits are disturbed
- Events can be described with Lithuanian, Latin or Russian characters
- User can be alerted about the sending of SMS messages with a phone call
- Power-supply voltage control
- LED indication about device operation status and GSM signal strength
- Output can be controlled with an SMS message
- Operating parameters can be set with a program CG5config or by sending SMS messages

Description of Device Operation

- Module CG5 can be set to operate in one of the two modes:
 - a) Constant input control mode (**24 h**). After the control panel has changed the state of its PGM output, module input circuit is broken. Module CG5 immediately sends an SMS message with pre-set content to a mobile phone. When the input state restores, the module CG5 will send an SMS message about input circuit restore. General wiring diagram is given in Fig. 1.
 - b) Mode without constant input control (**Control panel**). When operating in this mode, input MCI functions as an input status controller. While input MCI is connected with COM, disturbances in inputs IN1...IN4 are ignored and SMS messages about them are not sent. After the MCI input circuit has been broken, the module CG5 will send an SMS message informing that the inputs are *Under Control* and disturbances in inputs IN1...IN4 circuits will no longer are ignored. When circuits of the inputs IN1...IN4 are broken, module will send messages about these events.
- Output OUT1 can be used to connect a siren. Siren is activated when module CG5 registers an event. Switching off mode *Under Control* deactivates the siren. Switching on the mode *Under Control* is followed by one short siren signal and switching off – by two.
- Module CG5 has five NC type inputs. When operating in **24 h** mode, module MCI input is the fifth NC type input, and when operating in **Control panel** mode it operates as a controller for the other four inputs.
- SMS messages can be sent to up to four mobile phones. It is possible to configure what type of messages should be sent to certain phones.
- Module can alert users about events by making short calls to any of the chosen phones. Call duration is 20 seconds.
- Messages will be sent with a time stamp, when the internal clock of the module is set with an SMS message.
- Output OUT1 is open collector type and can commutate direct voltage up to 30 V and current up to 1 A. If the output is set to “Siren” mode, after disturbing the input circuits the output is activated for two minutes.
- Sending interval for periodic “Test” messages is from 1 to 240 hours.
- Module monitors power supply voltage. When voltage drops below 11,5 V, a message informing about the drop in voltage is sent. Message is also sent when voltage restores to 12,6 V.

Module components



- 1 – Terminal block for external contacts
- 2 – SIM card holder
- 3 – USB port for changing CG5 parameters
- 4 – GSM antenna
- 5 – indicator “Network”
- 6 – indicator “Data”
- 7 – indicator “Power”


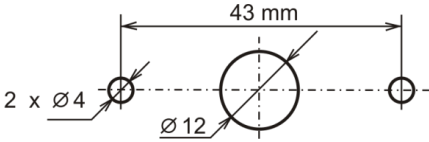
Terminal block description

Contact	Description
+E	+12 V power supply clamp
COM	Common clamp
IN1...IN4	Input clamps (NC type)
OUT1	Output clamps (OC type)
COM	Common clamp
MCI	Programmable input clamp

Light indication

LED	Operation	Description
Indicator Network displays connection with GSM network status	Green flashing	Is registering to GSM network
	Green ON	Connection to GSM network present
	Yellow flashing	Number of yellow flashes represent GSM signal strength
	Yellow ON	SMS message is being sent
Indicator Data displays data buffer status	Green ON	Unsent messages present
	Red ON	Messages are unable to be sent
	Red flashing	Module configuration is incorrect
	Red flashing rapidly	SIM card error
Indicator Power displays power supply status, functioning of microcontroller and programming status.	Green flashing	Power supply is sufficient, microcontroller is functioning properly
	Yellow flashing	Power supply is not sufficient ($\leq 11,5$ V), microcontroller is functioning properly
	Green and yellow flashing in turn	Programming mode

Module installation

Actions	Notes
1. Set Module operating parameters by using the <i>CG5config</i> configuration software installed in a computer.	Follow instructions given in chapter Setting operating parameters with a computer , page 5.
2. Insert an activated SIM card 	<ol style="list-style-type: none"> Contact a GSM service provider in order to receive a SIM card. We do not recommend using <i>pay as you go</i> SIM cards. SIM card PIN code request must be disabled.
3. Fasten the module to the control panel metal casing by using M3x6 screws or an adhesive fastening tape	The location and dimensions of holes to be drilled in the casing for fastening the module and antenna: 
4. Screw the GSM antenna on.	
5. Connect the Module to other security system devices according to the schemes given below.	Possible Wiring diagrams are given in page 5.
6. Switch on the security system power supply.	
7. Evaluate if GSM signal strength is sufficient according to Light indication.	Sufficient GSM signal strength is level 5 (five yellow flashes of indicator Network). If GSM signal strength is not sufficient, use other antenna type.
8. Set the Module internal clock.	Send SMS message to the Module with information about time
9. Check if the module sends SMS messages.	Take notice if time shown in the received SMS message corresponds to the time of the actual event.

Wiring diagrams

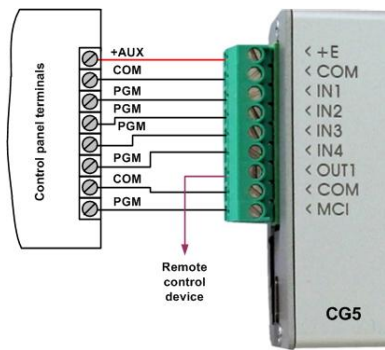


Fig.1 General wiring diagram to the control panel when constant input control mode (24 h) is set.

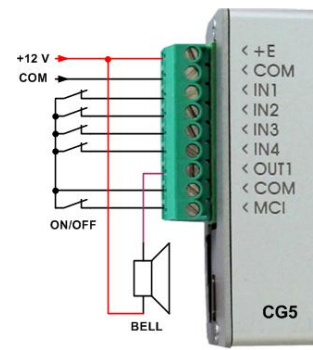


Fig.2 General wiring diagram when operating mode without constant input control (**Control panel**) is set.

Setting operating parameters with a computer

We recommend using program *CG5config* for setting up module *CG5* operating parameters. This will allow to set parameters of the equipment quicker and easier. The program can be found on website www.trikdis.lt.

1. Connect the module *CG5* with computer USB port. Computer must have appropriate USB drivers installed.

Note: If the module **CG5** is connected to a MS Windows OS computer for the first time a new **Found New Hardware Wizard** window should open for installing new USB drivers. This window means that a USB driver has to be installed in order to connect to the module **CG5** properly. Download the USB driver file *USB_COM.inf* from website www.trikdis.lt. In the wizard window select the function „**Yes, this time only**” and press the button **Next**. When a new window **Please choose your search and installation options** will open, press the button **Browse** and select the place where the file *USB_COM.inf* was saved. Follow the remaining wizard instructions to finish USB driver installation.

2. Start the program *CG5config*.
3. Select the program directory **Connection**.

Port

Language

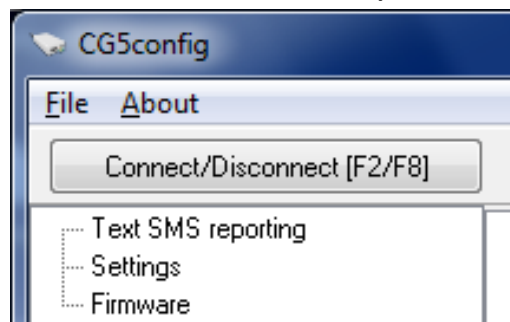
In the drop-down list **Port** select the port to which the module is connected.

Note: specific port to which the device is connected is shown only when the device is properly connected.

In the drop-down list **Language** select the desired software language.

Press the button **Apply**.

4. Press the button **Connect/Disconnect [F2/F8]**

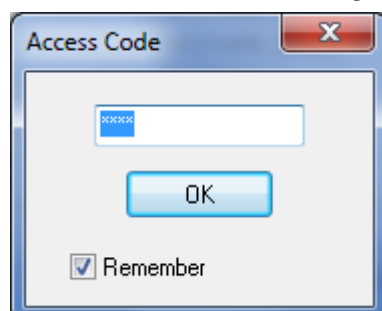


When the module *CG5* is connected to a computer, module LED indicator **Power** should flash green and yellow in turn, and *CG5config* status bar should indicate connection status **Connected**. Further information about the connected module should be displayed in status bar:

Dev: CG5 Module type
 SN: 000039 Module serial number

Ver: 1.04 Firmware version installed in the Module

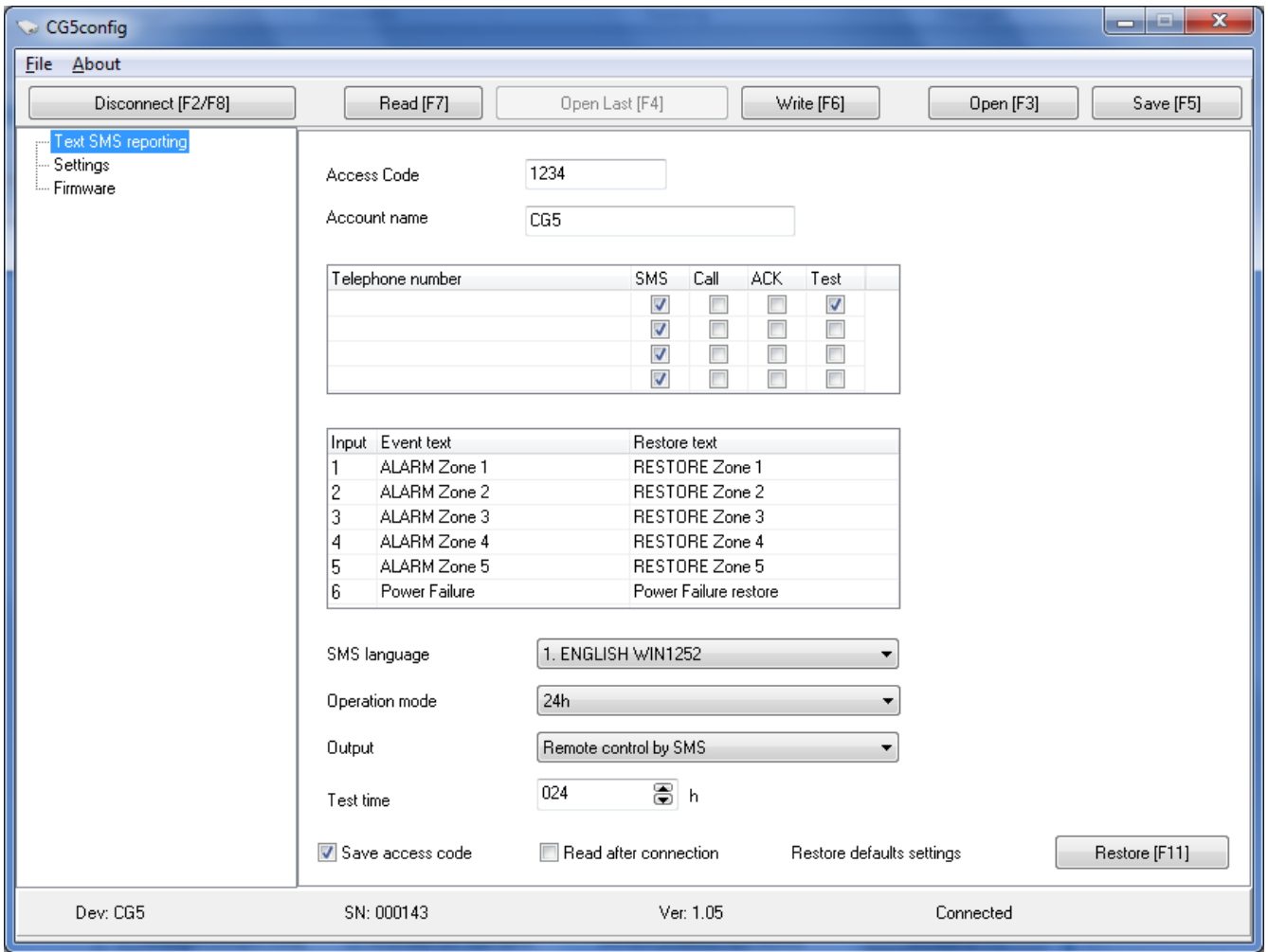
5. Press the button **Read [F7]**



Enter your access code and press the button **OK** in the opened window **Access code** (default access code is **1234**).

If you want *CG5config* to remember your access code check the box **Remember**. Then the **Access code** window will not open, when connecting to the module for the next time.

6. Set the following parameters in the directory **Text SMS reporting**.



Access code Default access code **1234** must be changed to one known only by you and other authorised persons only. This code is used for setting operating parameters of the module and/or to control the state of output *OUT1* with SMS messages. When changing the password, enter a desired four-digit sequence.

Account name If desired, enter the name of the object. Account name will be included in SMS messages.

Telephone number Enter the GSM numbers of mobile phones, to which the module will send SMS messages and/or will make calls. Module parameters can be set or the state of output *OUT1* can be controlled by sending SMS messages only from these numbers. GSM numbers should be entered with international country code without the “+” (plus) sign.

By checking boxes beside the GSM numbers, you can choose which type of messages to send to each recipient and how they will be alerted:

SMS SMS messages are sent to the recipient when security system is alarmed/restored

Call Recipient is alerted by a call when the security system is alarmed/restored

ACK Module *CG5* shall send confirmation about command execution to the recipient who has sent the command.

Test Module shall send test messages to the recipient according to the time period set in the field **Test every**.

Zone alarm/restore events can be described with text. When input circuit is disturbed, an SMS message is sent with text from the appropriate text-box **Event text**. When input circuit is restored – from the text-box **Restore text**. Text about the module power supply status messages can be described in the sixth row.

SMS language Select the format of SMS text encoding in the drop-down list.

Operation mode Select the desired module *CG5* operating mode: **24 h** or **Control panel**.

Output Select the desired output *OUT1* operating mode. If you connect a siren to the output, select **Siren**. If you would like that after receiving a command with SMS message, the module would change the state of its output, select the **Remote control by SMS** mode.

Test time Enter a desired time period according to which the module will send a network test message

7. Press the button **Save [F6]** and information selected and entered in software *CG5config* will be uploaded to module *CG5*.

Values selected and entered in *CG5config* can be saved to the computer by the pressing the button **Save [F5]**. A file with extension *.gst* will be created. It can be used in the future.

If you need to restore module *CG5* default parameters press the button **Restore [F11]** (and press the button **Confirm** when request window newly opens). Module *CG5* default operating parameters can be restored anytime before unplugging the USB cable.

8. Press the button **Disconnect [F8]** and unplug the USB cable.

Updating module firmware version

When the manufacturer adds new features to the module *CG5*, firmware of the previously bought module can be updated:

1. Download the latest *CG5_xxx.prg* update file from the website www.trikdis.lt.
2. Connect the module **CG5** to a computer and start the *CG5config* program. Select the directory **Firmware update** in program *CG5config* and select the downloaded update file *CG5_xxx.prg*.
3. Firmware update will start after pressing the button **Start [F9]**. Wait until **Progress** bar reaches 100%, then press the button **Disconnect [F8]** and unplug the USB cable.
4. Plug the USB cable back in and press the buttons **Connect [F2]** and **Disconnect [F7]**. The new version of module firmware will be displayed in *CG5config* status bar.

Setting operating parameters with SMS messages

Some module operating parameters can be set by sending SMS messages to the GSM number of the SIM card inserted in the module. If function **ACK** for confirming SMS commands is set, module will send back SMS messages with confirmations that: *COMMAND OK, Wrong COMMAND!!!, Wrong PASSWORD!!!, Wrong DATA!!!*.

Structure of the SMS message: **<Command>**_{space}**<Password>**_{spaces}**<Data>**

For example: SETN 1234 PHONE1=+37068700000

Here: SETN – command
1234 – password
PHONE1=+37068700000 – data

Note: All commands in SMS message have to be written in capital letters.

Order	Command	Data	Meaning
1	SETL	ENG RUS LIT	Set the communication language: - English - Russian - Lithuanian For example: SETL 1234 ENG
2	SETN	PHONE1=+370xxx PHONE2=+370xxx PHONE3=+370xxx PHONE4=+370xxx PHONE1=DEL PHONE2=DEL PHONE3=DEL PHONE4=DEL	Enter recipient telephone numbers: - 1 st GSM number - 2 nd GSM number - 3 rd GSM number - 4 th GSM number For example: SETN 1234 PHONE1=+37068700000 Delete recipient telephone numbers: - 1 st GSM number - 2 nd GSM number - 3 rd GSM number - 4 th GSM number For example: SETN 1234 PHONE1=DEL
3	SETE	TEST ACK CALL SMS	Assign messages to recipients by their type: - Sending test message - Sending confirmation of command by SMS message - Calling in case of event - Sending SMS message in case of event For example: SETE 1234 PHONE1 TEST=ON ACK=ON CALL=OFF SMS=ON
4	TXTA	<Text>	Set object name: For example: TXTA 1234 Account name
5	TXTE	Z1=<Text> Z6=<Text>	Set the description about alarm in one of the zones Z1...Z6 – input number For example: TXTE 1234 Z1=Alarm Zone1
6	TXTR	Z1=<Text> Z6=<Text>	Set the description about restore of status in one of the zones Z1...Z6 – input number For example: TXTR 1234 Z1=Restore Zone1
7	TIME	<Time>	Set the internal clock: For example: TIME 1234 2011/04/01,12:00:00
8	PSW		Change password:

		New Password	- New password (four digits) For example: PSW 1234 4321
9	RESET		Module reset: For example: RESET 1234
10	INFO		Information inquiry about module status: For example: INFO 1234
11	SLEEP		Stop sending SMS messages until receiving a RESET command: For example: SLEEP 1234

Changing output status

In order to change state of output OUT1 send an SMS message to the SIM card GSM number of the module. Examples of SMS messages are provided in the table below.

Note: All commands have to be written in capital letters.

SMS message text	Meaning	Note
OUTPUT 1234 ON	Send this SMS message to switch the output to a state <i>Closed</i>	1234 is a default password for changing module parameters. Change this password before using the module to prevent unauthorised access! When changing the password, enter a desired four-digit sequence.
OUTPUT 1234 OFF	Send this SMS message to switch the output to a state <i>Open</i>	
OUTPUT 1234 PULSE=005	Send this SMS message to switch the output to a state <i>Closed</i> for 5 seconds	

Note: Output state can be controlled only when operating mode of the module is set to **24h** and output operating mode is set to **Remote control by SMS**.

Technical parameters

Power supply voltage	DC 12,6 ± 3 V
Used current	60–100 mA (stand-by) Up to 250 mA (transmitting)
GSM modem frequency	850 / 900 / 1800 MHz
Sending messages	Text SMS messages to up to 4 mobile phones
Memory	Up to 60 messages
Inputs	4+1, NC type
Output	1 OC type, commutating up to 30 V voltage and current up to 1 A
Test message sending interval	0 ÷ 240 h
Setting configuration	Through the USB port or with SMS messages
Operating environment	From -10 °C to 50 °C, with relative air humidity 80% when +20 °C
Dimensions	65 x 79 x 25 mm

Package contents

Module CG5	1 pc.
Straight type GSM antenna	1 pc.
Two-sided adhesive tape (10 cm)	1 pc.
Fastening bolts M3 x 6	2 pcs.