GSM module *CG5*

(v.2.XX)

Installation manual

Trikdis, JSC
Draugystės st. 17,
LT-51229 Kaunas
Email: info@trikdis.lt
www.trikdis.lt

Safety requirements

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

Security module CG5 shall 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 shall 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 "TRIKIDIS" 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.

Package contents

The Module CG5	1 pc.
GSM antenna of straight type	1 pc.
Two-sided adhesive tape (10 cm)	1 pc.

GSM module CG5

CG5 is a device, which sends SMS messages with text to 1-4 mobile phones about disturbing the security system of the premises. Features:

- Sends SMS messages if one of the input circuits is broken at least
- Every SMS message contains exact event time stamp
- Supports texts about events are set 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, this causes module input circuit breaking. Module *CG5* immediately sends an SMS message with pre-set content to a mobile phone. When the input circuit state restores, the module will send an SMS message about this event. General wiring diagram is given in *Fig. 1.*

b) *Switched input control* mode ***(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 the module CG5 registers an event. Switching off mode Under Control deactivates the siren as well. Switching on the mode Under Control is followed by one short siren signal and switching off – by two.

Module CG5 has five NC / NO / EOL=2.2 kΩ type inputs. When operating in ***24 h*** mode, module *MCI* input is the fifth 24 hour managed input, and when operating in ***Control panel*** mode it operates as a controller for the other four inputs.

SMS messages can be sent to 1-4 mobile phones. It is possible to configure how User can be alerted and what type of messages should be sent to every phone.

Module can 1-9 times call to every chosen phone from the list to alert Users about events in security system. Call duration is 20 seconds.

SMS messages will include an event time stamp, when the module internal clock 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 will be activated for two minutes.

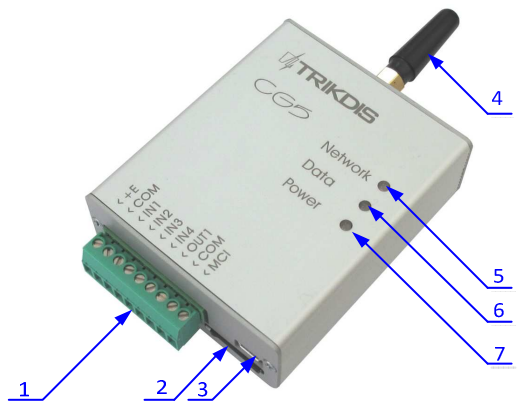
Sending interval for periodic "Test" messages is from 1 to 240 hours. Text of *Test* message can be customized.

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.

Technical parameters

Power supply voltage	DC 12,6 ± 3 V
Used current	60–100 mA (stand-by mode) Up to 250 mA (transmitting mode)
GSM modem frequency	850 / 900 / 1800 MHz
Sending messages	Text SMS messages up to 4 mobile phones
Memory	Up to 60 messages
Inputs	4+1, NC / NO / EOL=2.2 kΩ
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

Module components



1 – Terminal block for external contacts
2 – SIM card holder
3 – USB port for setting up parameters
4 – GSM antenna
5 – indicator "Network"
6 – indicator "Data"
7 – indicator "Power"

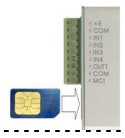
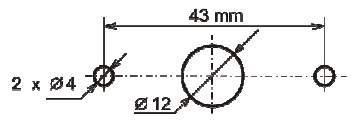
Terminal block description

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 at present is
	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	Memory contains unsent messages
	Red ON	Messages are unable to be sent
	Red flashing	Module configuration is incorrect
	Red flashing rapidly	SIM card error
Indicator Power displays all 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 (≤11,5 V), microcontroller is properly functioning
	Green and yellow flashing in turn	Programming mode

Module installation

Actions	*Notes*
1. Set Module operating parameters by using the *CG5config* 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 	*a) Contact a GSM service provider in order to receive a SIM card. We do not recommend using* pay as you go *SIM cards.* *b) 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

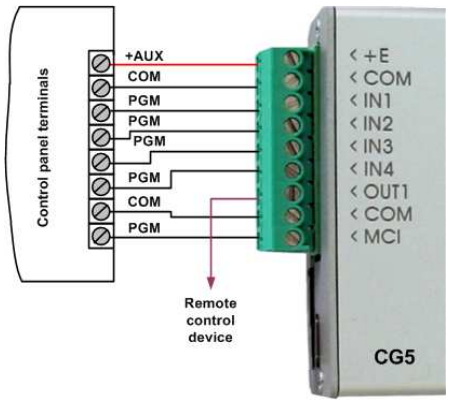


Fig.1 General wiring diagram to the control panel when *constant input control* mode (***24 h***) is set.

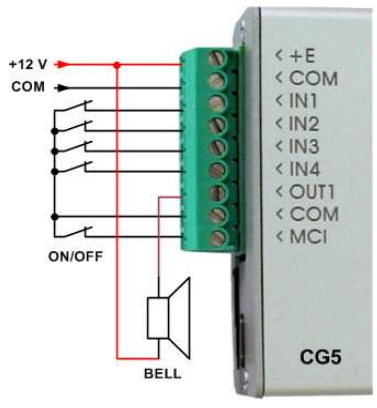


Fig.2 General wiring diagram when *switched input control* mode ***(Control panel)*** *is set.*

Setting of operating parameters with a computer

We recommend using program CG5config for setting up module CG5 operating parameters. This will allow setting 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 ***Settings***.

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.

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

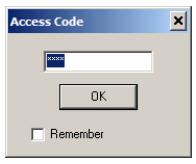
When the module CG5 is connected to a computer, module LED indicator ***Power*** should flash green and yellow in turn, and *CG5config* status bar should indicate connection status ***Connected***. Further information about the connected module should be displayed in status bar:

Dev: CG5 Module type

SN: 000143 Module serial number

Ver: 2.01 Firmware version installed in the module

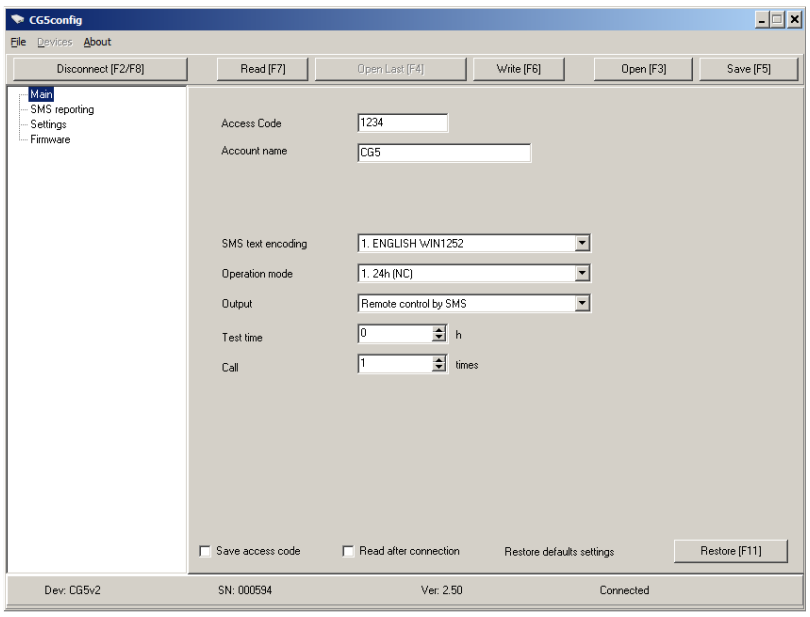
5. Press the button ***Read [F7]***



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 ***SMS reporting***.



Access code Default access code *1234* must be changed to one known 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.

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

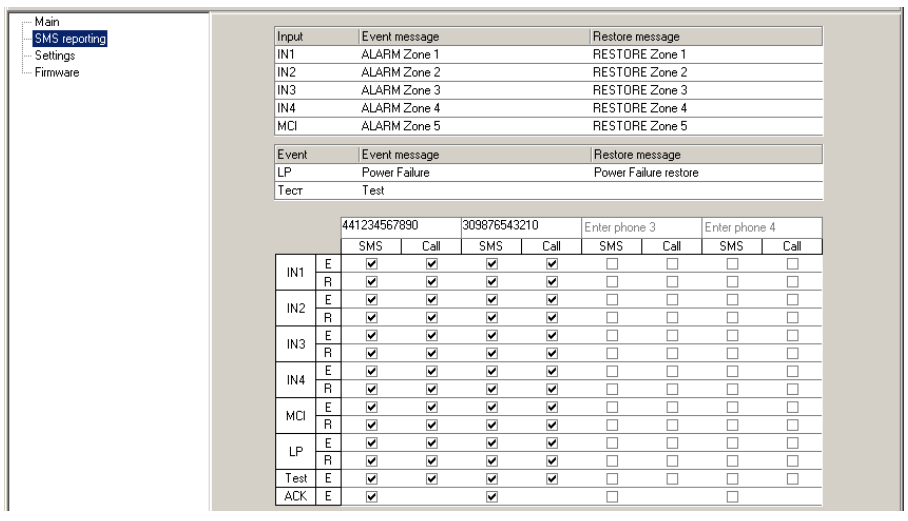
Operation mode Select the desired module CG5 operating mode: either ***24 h*** or ***Control panel***. If there is set NO or NC type, all five inputs will respectively become either NO or NC. If there is set EOL type, inputs IN1...IN4 will become EOL=2.2kΩ and the input MCI – NC.

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

Test time Enter a desired time period according to which the module will send a periodic message with text entered in the row ***Test***.

Call When event occurs module will call to User pre-set number of times.

7. Choose the directory ***SMS reporting*** and set desirable parameters used for reporting.



Zone alarm/restore events can be described with a text. Enter your texts in appropriate text-boxes. When input circuit is disturbed, an SMS message will be sent with text from the appropriate text-box ***Event message***. When input circuit is restored – from the text-box ***Restore message***. Texts which describe events in power supply chain can be entered in the box ***LP***. There can be entered desirable text which will be included in periodic message in the box ***Test***.

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 phones having these numbers. GSM numbers should be entered with international country code without the "+" (plus) sign.

By checking boxes below the GSM numbers, you can choose how each recipient will be alerted and which type of messages will be sent to them:

SMS SMS messages will be sent when appropriate input circuit is broken (box ***E***) and restored (box ***R***),

Call A call will be made to alert that appropriate input circuit is broken (box ***E***) and restored (box ***R***),

LP SMS messages will be sent when informing about disturbances in power supply chain,

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

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

8. Press the button ***Save [F6]*** and set configuration will be uploaded to Module *CG5*.

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

A set configuration file can be created with extention .gst and saved in the computer by the pressing the button ***Save [F5]***. The file as a templet 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 any time before unplugging the USB cable.

Module firmware version updating

When the manufacturer adds new features to the Module *CG5*, firmware of the previously bought CG5 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*** 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 one by one the buttons ***Connect [F2]*** and ***Read [F7]***. The new version of Module firmware will be displayed in status bar of the program *CG5config*. Now you can set additionally configuration according to the manner described in previous chapter. If you don't need this, press the button ***Disconnect [F7]*** and unplug USB cable.

Setting of operating parameters with SMS messages

Some Module operating parameters can be set by sending SMS messages from authorised phone 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!!!.

- SMS syntax: **<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.

Ser No	*Command*	*Content*	*Meaning*
1	SETL	ENG RUS LIT	**Setting of 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	**Entering of recipients' telephone numbers:** - 1st GSM number - 2nd GSM number - 3rd GSM number - 4th GSM number For example: SETN 1234 PHONE1=+37068700000 **Deleting of recipients' telephone numbers:** - 1st GSM number - 2nd GSM number - 3rd GSM number - 4th GSM number For example: SETN 1234 PHONE1=DEL
3	SETE	TEST ACK CALL SMS	**Distributing of messages by their type:** - Enabling sending of Test message - Enabling sending of acknowledgements about command executing - Enabling calling if event happens - Enabling SMS sending if event happens For example: SETE 1234 PHONE1=... TEST=ON ACK=ON CALL=OFF SMS=ON
4	TXTA	<Text>	**Setting of object name:** For example: TXTA 1234 Object name
5	TXTE	Z1=<Text> ..... Z6=<Text>	**Customising of SMS with alarm text:** - Z1...Z6 – input number For example: TXTE 1234 Z1=ALARM in Zone1
6	TXTR	Z1=<Text> ..... Z6=<Text>	**Customising of SMS with restore text:** - Z1...Z6 – input number For example: TXTR 1234 Z1=Restore Zone1
7	TIME	<Time>	**Setting of internal clock:** For example: TIME 1234 YYYY/MM/DD,12:00:00
8	PSW	New PSW	**Setting of password:** - New password (4 digit) For example: PSW 1234 4321
9	RESET		**Module reset:** For example: RESET 1234
10	INFO		**Request for info about module state:** For example: INFO 1234
11	SLEEP		**Stop sending of SMS that have been unsent till RESET command:** For example: SLEEP 1234

Remote switching of PGM output OUT1

In order to change state of output OUT1 you need to 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 syntax	*Meaning*	*Pataba*
OUTPUT 1234 ON	Output turns to position ON (circuit closes)	*1234* – default password. Instead of this, enter your.
OUTPUT 1234 OFF	Output turns to position OFF (circuit opens)	
OUTPUT 1234 PULSE=005	Output turns to position ON for entered time (sec)	

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