CONTROLLER *GV1*
(v.2)

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.

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- 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.

Controller *GV1*

Controller GV1 is a device which using allows controlling electrical engineering equipment remotely. A subscriber dials to the controller and this causes changing state of its relay output.

Features

- Relay output can be switched by the authorized persons with their telephone calling
- Can be set unauthorized relay output switching mode
- Sends SMS messages if the input ZONE circuit is disturbed
- Events can be described with your text
- LED indication about device operation status and GSM signal strength
- Operating parameters can be set with both the program GProg2 or SMS messages

Description of Controller Operation

- Controller GV1 can be set to switch its relay output in one of these two modes:
  a) *Authorized switching*. Controller changes the state of its relay output, when the Controller traces a call from person who telephone number was entered into subscriber's phonebook. The Controller rejects ringing and changes state of its relay output. Unauthorized calls are ignored.
  b) *Unauthorized switching*. A state of Controller relay output can be changed when the Controller traces a call. The Controller doesn't check if the number was entered into subscriber's phonebook. The Controller just rejects ringing and changes state of its relay output. So, here is necessary that person must know GSM number of SIM card put in the Controller.

- Controller GV1 has one input ZONE which type (NC or NO or EOL=2.2 kΩ) can be freely set according your requirements. If input external circuit is disturbed, *GV1* can send SMS messages about this event to two cell phones.

Controller components
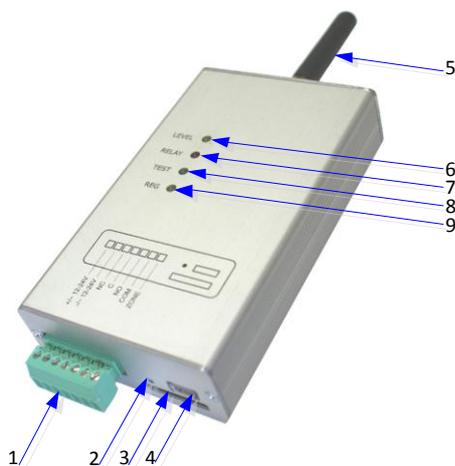
1 – Terminal block for external contacts
2 – micro-switch RESET
3 – SIM card holder
4 – USB port for setting configuration
5 – GSM antenna SMA type
6 – indicator "LEVEL"
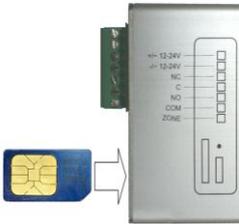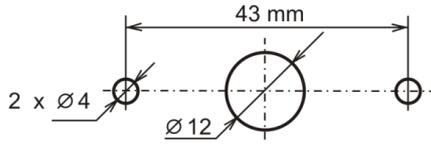7 – indicator "RELAY"
8 – indicator "TEST"
9 – indicator "REG"

Terminal block description

| Contact	Description
+/~12-24V	Power supply clamps
NO	Relay output NO clamp (normally open)
C	Relay common clamp (NC type)
NC	Relay output NC clamp (normally closed)
COM	Common clamp (input)
ZONE	Input clamp

Light indication

LED	Operation	Description
LEVEL	ON	GSM signal level is maximum
	OFF	No GSM signal
	Flashing	Low GSM signal level
RELAY	ON	State of relay output changes
TEST	OFF	No power supply
	Flashing	Power supply is connected, processor is operating
REG	ON	Modem is registered to GSM network
	OFF	Modem has not registered to GSM network
	Flashing	Modem is registering to GSM network

Controller installation steps

	Steps	Notes
1.	Set the Controller operating parameters by using the configuration software *GProg2*.	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 Controller to the 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 controller and antenna:
4.	Screw the GSM antenna on.	
5.	Connect the Controller to electrical engineering equipment.	Possible **Wiring diagram** is given below.
6.	Switch on the security system power supply and press the button RESET.	
7.	Evaluate if GSM signal strength is sufficient according to Light indication.	Sufficient GSM signal strength is level 5 (five yellow flashes of indicator *LEVEL*). If GSM signal strength is not sufficient, use other antenna type.
8.	Check if the Controller operates by your settings.	

Wiring diagram
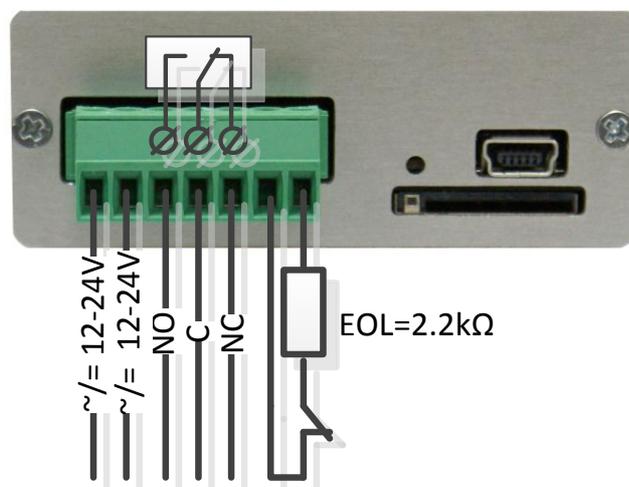
Setting operating parameters with a computer

Controller GV1 operating parameters are set with a program *GProg2*. The program can be found in website www.trikdis.lt.

1. Connect the Controller *GV1* with a computer using a USB cable. Computer must have USB driver installed.

USB driver installation: download the driver installation file *CDM_2.04_.06.01.exe* from the website www.trikdis.lt, save in a computer and double-click it with a mouse. USB driver will be installed automatically. The installation process will end when the progress window closes.

2. Start the program *GProg2*;

3. Choose the command **Settings** in the menu bar and select in the **Serial Port** list the port to which the module is connected. Press the button **OK**.

Note: specific port appears when the module is connected.

3. Choose the command **Devices** in the menu bar and select **GV1**;

4. Press the button **Connect** 🕾 and read the operating parameters set in the Controller by pressing the button **Receive config** ▯➜. Information about the connected controller should be displayed in the status bar of the program *GProg2*.

5. Choose the directory **Main window** and set the following parameters:
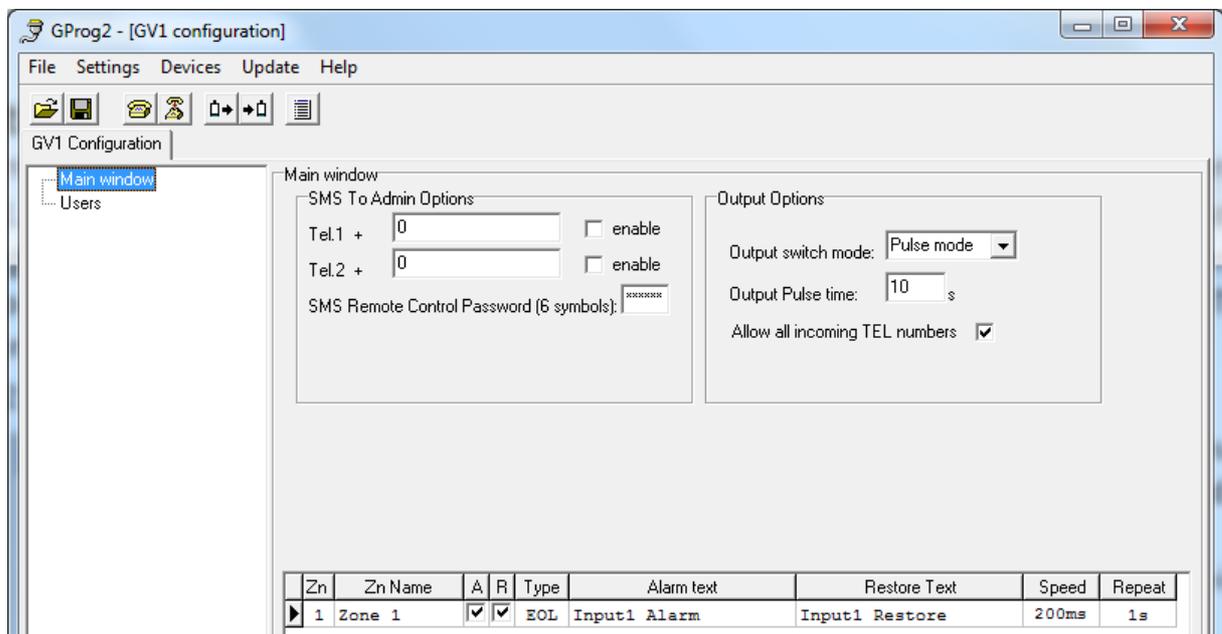
|				
Output Options	Area is applied to set how relay output should operate after receiving a call. If **Pulse mode** is selected, state of relay output will change to the opposite for time period set in section **Output Pulse time**. If **Level mode** is selected, state of relay output will be turned to the opposite when a call is received and state will be turned back to primary position when the Controller receives next call.
Allow all incoming TEL numbers	If this option is checked, state of relay output can be changed by the unauthorized person who knows GSM number of SIM card put in the Controller. If this option unchecked, state of relay output can be changed by the authorized person who telephone number is entered in the list **Users**.

SMS Remote Control Password Box for entering a 6-digit password (default is 123456). Using this password, it is possible to remotely configure the controller. Remember the new password.

SMS to Admin Options Enter the GSM numbers of mobile phones, to which the Controller will send SMS messages after breaking input *ZONE* circuit. GSM numbers should be entered with international country code without the "+" (plus) sign. Check the box **enable** for enabling the number.

Table This is applied for setting conditions for SMS message sending and describing circuit breaking events. If there are checked boxes **A** and **R**, SMS messages will be sent after breaking and restoring input circuit. Select desirable input circuit type in the column **Type** while list is opened by double mouse clicking. There can be described both circuit break and restore events. SMS message with entered text in fields **Alarm Text** and **Restore Text** will be sent if particular event occurs.

If the box **Allow all incoming TEL numbers** is <u>unchecked</u> select the folder **Users** and enter telephone numbers of persons' mobile phones who will be able to switch relay output of the Controller. Up to 200 telephone numbers can be entered into the list. Telephone numbers should be entered with international country code without the "+" (plus) sign.
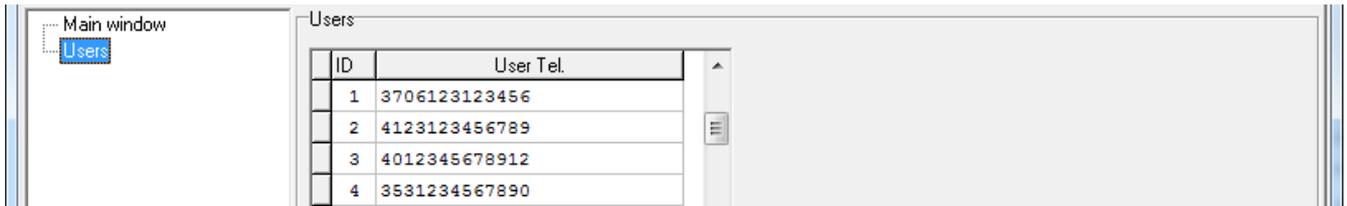
6. Press the button **Send config** ⊞ and values entered in program *GProg2* windows will be transferred to the Controller *GV1*.

7. Press the button **Disconnect** 🕾 and unplug the USB cable from the USB socket.

Note: Values entered in *GProg2* windows can be saved in computer by pressing the button **Save** 🖫. A file with an extension *.tcfg* will be created. It can be used later as a template to configure other Controllers.

Note: If you need to restore Controller *GV1* default parameters you must newly upload with firmware. How to do this, read the chapter below.

Updating module firmware version

When the manufacturer adds new features to the Controller *GV1*, firmware of the previously bought module can be updated:

1. Download the latest *GProg2_xxx.* file from the website www.trikdis.lt and install it in a computer.

2. Connect the Controller *GV1* to the computer, start the program *GProg2* and select the command **Update**. In a newly opened window select the file *GV1.enc* and press the button **Open**.

3. Press the button **Reset** on the module. When the **Updating process** bar is full, press the button **Reset** once again.

4. Press the button **Receive config** ⊡. New firmware version will be displayed in the status bar of the program *GProg2*.

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

Note: When module firmware version is updated, module parameters will change to default (factory) settings. Module parameters must be set again according to the instructions given in the chapter **Setting operating parameters**.

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 Controller. Structure of the SMS message:

PSW[Password]_{space}[Command code]_{space}[Command content]

Note: Change the default password (123456) to new one known only by you.

SMS text for changing the password:

PSW123456 ␣ 98 ␣ xxxxxx   98   command to change the password;
                                     xxxxxx   new password (6 digits);
                                     "␣"   this sign means space between values.

Command and request examples:

SMS text	Command description
PSW123456 ␣ 98 ␣ xxxxxx	Change a password.
PSWxxxxxx ␣ 03 ␣ 37012345789#	Enter User telephone number, which will control equipment connected to.
PSWxxxxxx ␣ 02 ␣ 37012345789#	Delete User telephone number from phonebook.
PSWxxxxxx ␣ 01	Delete all Users' telephone numbers from phonebook.
PSWxxxxxx ␣ 97 ␣ 5	Send a report about GSM signal level and IMEI code.
PSW123456 98 ␣ xxxxxx ␣ 03 ␣ 37012345789# ␣ 97 ␣ 5	Change password, enter User's telephone number and send report about GSM signal level and IMEI code.

In SMS examples: capital letters PSW – command to begin programming,
                        01, 02, 03, 97, 98, 5 – command codes,
                        international telephone number (without sign "+", up to 16 digits),
                        # - signs the ending of telephone number (the number will not be recognized without the ending symbol).

Note: A report will be sent to that telephone, from which the request was received.

Technical parameters

Power supply voltage	AC/DC 12-24 V ± 3 V
Used current	60–100 mA (stand-by) Up to 400 mA (operating)
GSM modem frequency	850 / 900 / 1800 MHz
Sending messages	Text SMS messages up to 2 mobile phones
Inputs	1, NC, NO, EOL=2,2 kΩ type
Output	RELAY contacts NO-C-NC, switching up to 30 V voltage and current up to 1 A
Phonebook	Up to 200 entries
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	121x65x25 mm

Package contents

Module *GV1*	1 pc.
Two-sided adhesive tape (10 cm)	1 pc.
Fastening bolts M3 x 6	2 pcs.

> *Note:* Do not forget to purchase GSM antenna of desirable type with SMA connector (male body /inside threads/ with inner pin).