



## GSM module *G10*

(v.1.3X)

### User manual

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## Safety requirements

Please read this manual carefully before using the security module *G10*.

Security module *G10* 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 external power supply source before starting device installation.

Module *G10* 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 G10

Module G10 is designed to transmit messages from security control panel in a secured object to a monitoring station through a GSM connection. Module features:

- Messages to the monitoring station can be transmitted through GPRS, CSD connection or with SMS messages;
- Messages are sent through a communication channel set as primary and in case of connection failure – through a backup channel;
- Even though the GPRS connection with two servers will be lost, information can be sent in SMS messages;
- Sent messages correspond with *Contact ID* protocol codes;
- SMS messages can be sent to 4 user mobile phones;
- Output *OUT1* status can be controlled remotely;
- Operating parameters and firmware version can be updated remotely;
- Operating parameters are set with program *G10config*.

### Description of device operation

When connected to a DSC, Caddx, Paradox or Pyronix security control panel data bus, the module receives its messages and transmits them to monitoring station over set communication channel. If a message fails to be transmitted through this communication channel, the module can send the message through a backup channel.

If there are set 2 IP addresses and module loses GPRS connection with them, information can be sent to monitoring station in SMS messages.

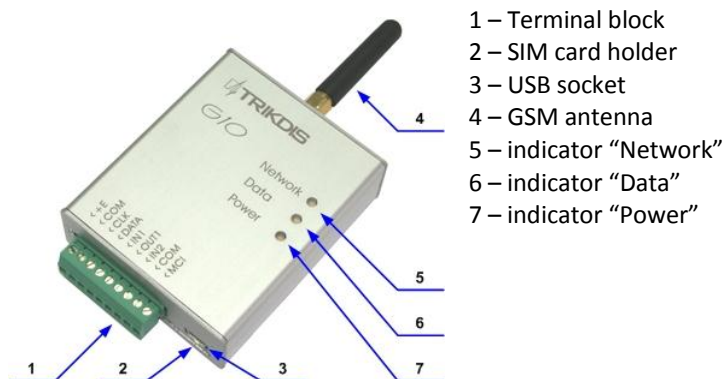
The module can send messages to specified recipients about breaking/restoring external circuit of inputs *IN1* and *IN2*.

The module can periodically send signals *PING* for controlling the connection.

Messages can be sent with SMS messages to 4 mobile phones. There is possible assign understandable text to every security control panel event.

Module output *OUT1* state will change when connection with the monitoring station server fails/restores or when the module receives an SMS message containing of command to change its output state.

### Module components



- 1 – Terminal block
- 2 – SIM card holder
- 3 – USB socket
- 4 – GSM antenna
- 5 – indicator “Network”
- 6 – indicator “Data”
- 7 – indicator “Power”

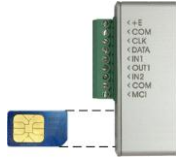
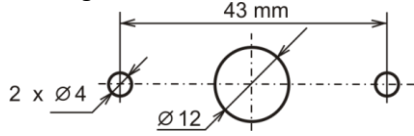
### Terminal block description

Contact	Purpose
+E	+12V power supply clamp
COM	Common clamp
CLK	Synchronizing signal clamp
DATA	Data signal clamp
IN1	1 <sup>st</sup> input clamp (NC type)
OUT1	Output clamp (OC type)
IN2	2 <sup>nd</sup> input clamp (NC type)
COM	Common clamp
MCI	Provided for future use

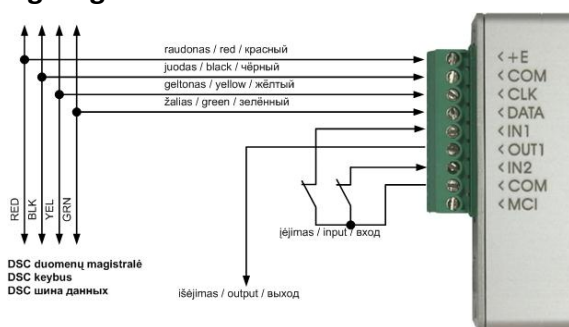
### Light indication

LED	Operation	Description
<b>Network</b> displays connection with GSM network status	Green ON	Module is connected to GSM network
	Yellow ON	Message is being sent
	Green flashing	Connecting to GSM network
	Yellow flashing	Number of yellow flashes represent GSM signal strength
<b>Data</b> displays data buffer status	Green ON	Unsent messages present in module memory
	Red ON	Unable to be sent messages
	Green flashing	Messages are being received from the control panel
	Red flashing rapidly	SIM card error
<b>Power</b> displays power supply status, functioning of microcontroller and programming status.	Red flashing	Module configuration is incorrect
	Green flashing	Power supply is sufficient, microcontroller is functioning
	Yellow flashing	Power supply is not sufficient (<11,5 V), microcontroller is functioning
	Green and yellow flashing in turn	Programming mode

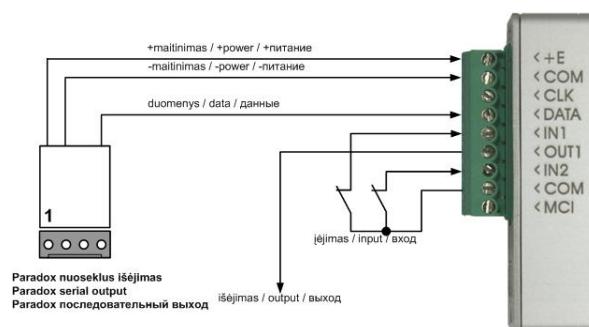
# Module installation

Actions	Notes
<ol style="list-style-type: none"> <li>1. Set module operating parameters</li> <li>2. Insert an activated SIM card</li> </ol> 	<p>Follow information in chapter <b>Setting Operating Parameters</b>.</p> <p>Contact a GSM service provider in order to receive a SIM card. We do not recommend using <i>pay as you go</i> (prepaid) SIM cards.</p>
<ol style="list-style-type: none"> <li>3. Fasten the module to the security control panel metal casing by using either M3x6 screws or adhesive fastening tape</li> </ol>	<p>The location and dimensions of holes to be drilled in the casing for fastening the module and antenna:</p> 
<ol style="list-style-type: none"> <li>4. Screw the GSM antenna on.</li> </ol>	
<ol style="list-style-type: none"> <li>5. Connect the module to the security control panel according to wiring diagrams given below.</li> </ol>	<p>See chapter <b>Wiring diagrams</b>.</p>
<ol style="list-style-type: none"> <li>6. Turn on the system power supply.</li> <li>7. Check GSM signal strength according to light indication.</li> </ol>	<p>Sufficient GSM signal strength is level 5 (five yellow flashes of indicator <b>Network</b>). If GSM signal strength is not sufficient, use other antenna type.</p>
<ol style="list-style-type: none"> <li>8. Check if the module sends messages according to its configuration.</li> </ol>	<p>The message must be sent and received at the specified IP address site. If messages are sent to a mobile phone, check if all SMS messages are received.</p>

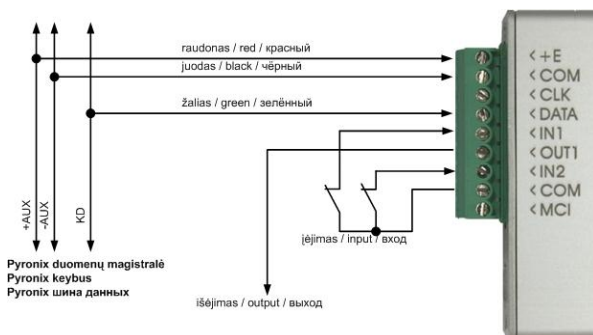
## Wiring diagrams



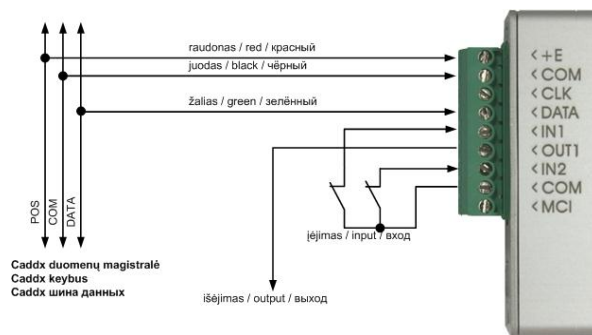
Wiring diagram to *DSC Power Series* security control panels: PC1616, PC1832, PC1864 PC585, PC1565, PC5020.



Wiring diagram to *Paradox* security control panels: SPECTRA SP5500, SP6000, SP7000, 1727, 1728, 1738, MAGELLAN MG5000, MG5050, DIGIPLEX EVO48, EVO192, EVO96, NE96, ESPRIT E55, 728ULT, 738ULT.



Wiring diagram to *Pyronix Matrix Series* security control panels: MATRIX 424, MATRIX 832, MATRIX 832+, MATRIX 6, MATRIX 816.



Wiring diagram to *Caddx* security control panels: NX-4, NX-6, NX-8.

## Setting operating parameters

Module *G10* operating parameters are set with computer program *G10config*. Program can be found in website [www.trikdis.lt](http://www.trikdis.lt).

1. Connect the module *G10* with a computer using a USB cable.

**Note:** USB drivers must be installed in the computer. If the module is connected to a computer for the first time, MS Windows OS should open the window **Found New Hardware Wizard** for installing USB drivers. Download the USB driver file *USB\_COM.inf* for MS Windows OS from the website [www.trikdis.lt](http://www.trikdis.lt). In the wizard window select the function **Yes, this time only** and press the button **Next**. When the window **Please choose your search and installation options** opens, press the button **Browse** and select the place where the file *USB\_COM.inf* was saved. Follow the remaining wizard instructions to finish the USB driver installation.

2. Start the program *G10config*.
3. Select the program directory **Settings**.

Port

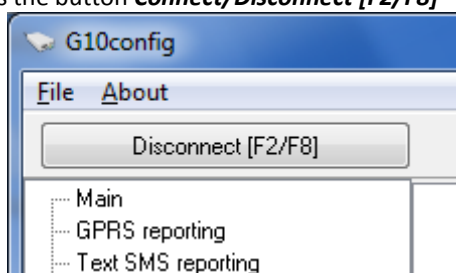
Language

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

**Note:** specific port to which the device is connected will appear only when the device is properly connected.

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

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



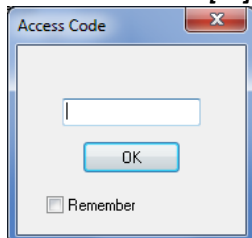
When the module *G10* is connected to a computer, module LED **Power** should flash green and yellow in turn. Program *G10config* status bar should indicate connection status as **Connected** and the following information about the connected module:

Dev: G10 Module type

SN: 000174 Module serial number

Ver: 1.33 Firmware version installed in the module

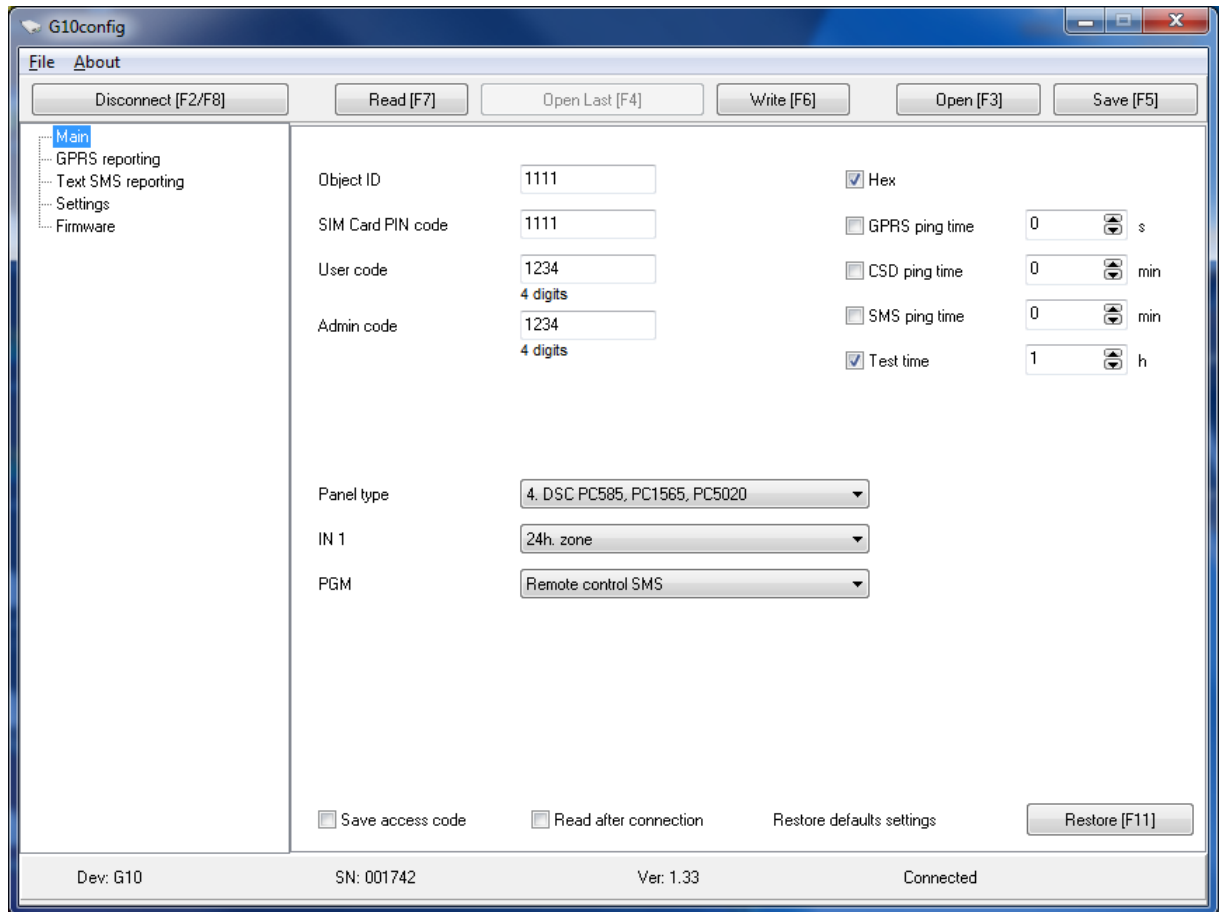
5. Press the button **Read [F7]**



When the window **Access code** opens, enter *the* access code (default access code is **1234**) and press the button **OK**.

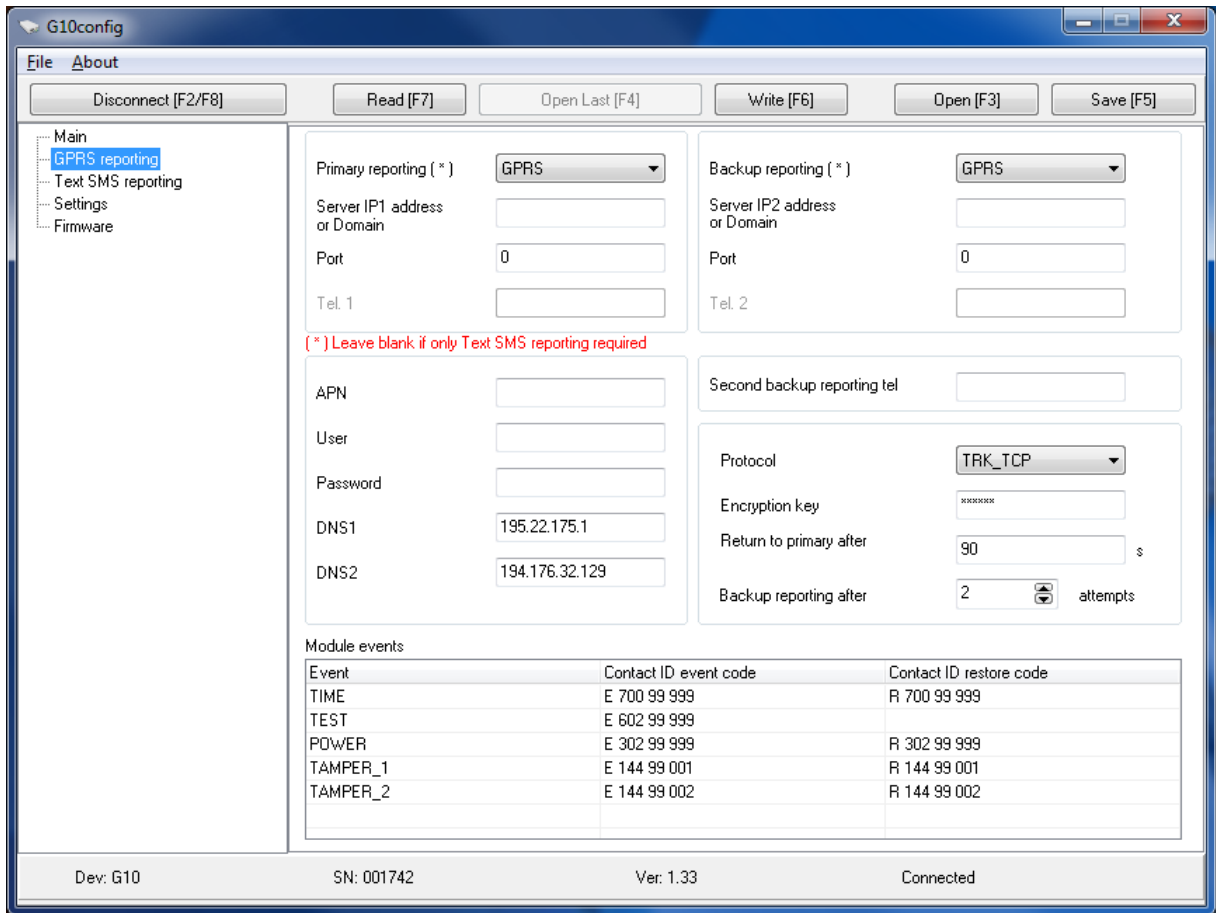
If you want for the program to remember your access code, check the box **Remember**. The window **Access code** will not open when connecting to the module for the next time.

Select the program directory **Main** and set the following parameters:



- Object ID** Section for entering a 4-digit object identification code;
- SIM Card PIN code** Section for entering a SIM card PIN code. Leave this field blank if PIN code request is disabled;
- User code** Section for entering a user code. When connected using a *User code*, only those module parameters can be changed, which change were allowed by the administrator;
- Admin code** Section for entering an administrator code. When connected using an *Administrator code*, all module parameters can be changed and access to parameter change for persons connecting with the *User code* can be restricted.
- Panel type** Select the security control panel type, which is connected to the module *G10*. If an interface *C11*, *C14* or *CZ6* is connected to the module, select the option **INTERFACE C11, C14, CZ6**;
- IN1** When the option **24h zone** is selected in the drop-down list, module will transmit a message with a code set in the table **Module events** after braking/restoring input *IN1* external circuit. When the option **Backup mode** is selected, transmitting security control panel messages will be allowed after breaking input *IN1* external circuit;
- PGM** If the option **Remote control SMS** is selected in the drop-down list, the module will change its output state after receiving an SMS message containing a control command (See chapter **Remote output state control**). If the option **Lost Primary channel** is selected, output state will change to the opposite after losing communication through the primary channel. When the option **Lost Secondary channel** is selected, output state will change to the opposite after losing communication through the backup channel. If the option **Lost Both channels** is selected, output state will change to the opposite after losing communication through the primary and backup channels;
- GPRS PING time** Time interval according to which the module sends signals *PING* for checking GPRS connection;
- CSD PING time** Time interval according to which the module sends signals *PING* for checking CSD connection;
- SMS PING time** Time interval according to which the module sends signals *PING* for checking transmitting over SMSC;
- Test time** Time interval according to which the module sends its **Test** message;

In the directory **GPRS** enter the parameters for connection with the monitoring station:



**Primary reporting**

Select a primary communication channel, through which the module will transmit messages to the monitoring station. If **GPRS** is selected, both IP1 address or domain name of monitoring station and a port number of the server must be specified in the corresponding boxes **Server IP1 address or Domain** and **Port**.

If **DATA** or **SMS** is selected, enter telephone number of the SMS/CSD receiver in the box **Tel.1**, to which module will send messages through CSD connection or with SMS messages. The telephone number must be entered with international country code without the “+” (plus) sign.

**Backup reporting**

The drop-down list is for setting a backup communication channel, through which the module will transmit messages if connection through the primary communication channel is lost. If **GPRS** is selected, both second IP address or domain name of monitoring station and a port number of the server must be specified in the corresponding boxes **Server IP2 address or Domain** and **Port**;

If **DATA** or **SMS** is selected, enter a telephone number of the SMS/CSD receiver in the box **Tel.2**. The telephone number must be entered with international country code without the “+” (plus) sign.

**Second backup reporting tel.**

Telephone number of the monitoring station SMS/CSD receiver, to which the module will send SMS messages if the module has lost GPRS connection with two servers. This option is allowed only if both primary and backup communication channels are selected as **GPRS**. The telephone number must be entered with international country code without the “+” (plus) sign.

**Protocol**

Drop-down list for selecting a protocol for encrypting messages;

**Encryption key**

Section is applied for entering a 6-digit key for encrypting messages. This key has to be identical to a decryption password entered in a server program *IPcom*.

**Return to primary after**

This option is used when both primary and backup channels are set. There must be entered the duration of time for sending messages though the backup communication channel after losing the primary connection;

**Backup reporting after**

This option is used when both primary and backup channels are set. There must be entered the number of attempts to transmit information through the primary communication channel after which the module will connect to the backup communication channel.

Monitoring station administrator must provide the IP address, port, telephone numbers, encryption protocol, key and other parameters necessary for connection with the monitoring station.

**APN**

Access point name for connecting to the GSM operator’s network;

**User**

User name for connecting to the GSM network (Login);

**Password**

Password for connecting to the GSM network;

**DNS1, DNS2**

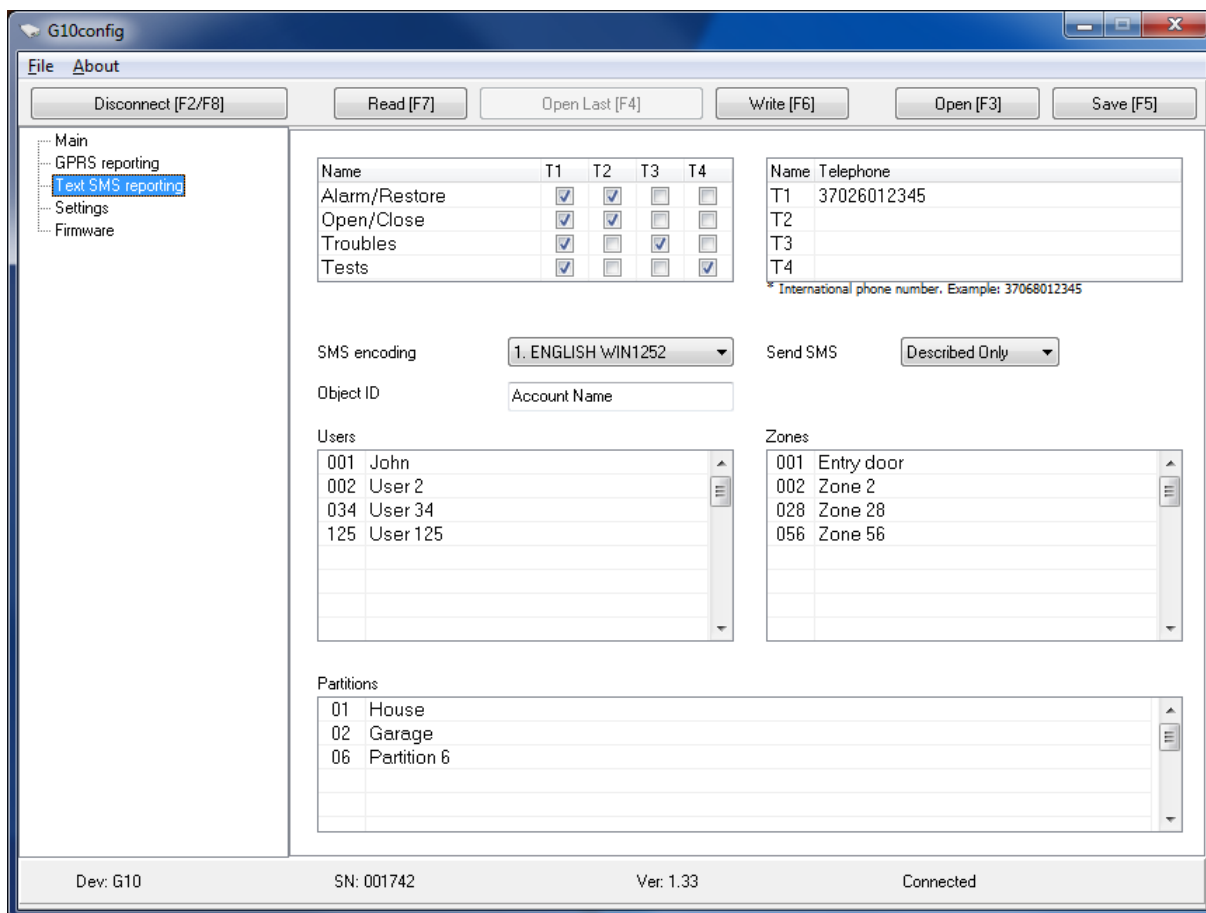
Default addresses must be left if GSM network operator did not provide other values.

APN, name and password should be provided by the GSM network operator from which you have received the SIM card.

**Module events** The table presents module events after which occurring messages will be sent. Event code can be changed by double-clicking the cell **Contact ID event code** or **Contact ID restore code** and by entering exact values in a newly opened window (for setting entered values press the button **OK** in newly opened window).

Module events	E event description	R event description
<b>TIME</b>	Internal clock of the module is not set	Internal clock of the module is set
<b>TEST</b>	Periodical module <i>Test</i> message	
<b>POWER</b>	Power supply voltage is lower than 11,5 V	Power supply voltage has restored to 12,6 V
<b>TAMPER_1</b>	Input <i>IN1</i> external circuit is broken	Input <i>IN1</i> external circuit is restored
<b>TAMPER_2</b>	Input <i>IN2</i> external circuit is broken	Input <i>IN2</i> external circuit is restored

In the directory **Text SMS to user** enter the parameters, which are necessary to send SMS messages to users:



- Telephone** List is for entering telephone numbers of the users to which SMS messages will be sent (**T1, T2, T3, T4**). Numbers must be entered with international country code without the “+” (plus) sign;
- Name** By selecting the check boxes, SMS message sending condition to user can be set:
- Alarm/Restore** SMS messages will be sent if the security system is alarmed/restored (events with code E/R 1xx);
- Open/Close** SMS messages will be sent if the security system is armed/disarmed (events with code E/R 4xx);
- Troubles** SMS message will be sent if system troubles occur (events with code E/R 3xx);
- Tests** System *Test* will be sent in SMS message (events with code E 6xx);
- SMS encoding** Here can be set desirable SMS character encoding;
- Send SMS** When **All** is set, SMS messages will be sent to user about all events of security control panel. When **Described Only** is set, module will send SMS messages about events in described zones only;
- Object ID** Field where the object name might be entered. It will be included in the SMS message;
- Users** Table entries are linked with codes of users, who can arm / disarm the security system. User who arms / disarms security system by entering its own code, his or her name will be included in the SMS message;
- Zones** Table entries are linked with events in zones under protection. When zone is disturbed/restored entered zone name will be included in the SMS message;
- Partitions** If the security system is divided into several independent protected areas, the table entries are linked with these areas. When area zone is disturbed / restored entered area name will be included in the SMS message.



6. Press the button **Save [F6]** and values entered in the program *G10config* windows will be uploaded to the module *G10*.
7. Press the button **Disconnect [F8]** and unplug the USB cable from the USB socket.

**Save [F5]** By pressing this button values entered to the program *G10config* will be saved to the computer. A file with extension *.gst* will be created. It can be used later as a template to configure other modules.

**Restore [F11]** Press this button if is necessary to restore default (factory) operating parameters. Press the button **Yes** when request window opens.

## Updating module firmware version

When the manufacturer adds new features to the module *G10*, firmware of the previously bought module can be updated:

1. Download the latest *G10\_xxx.prg* update file from the website [www.trikdis.lt](http://www.trikdis.lt).
2. Connect the module *G10* to a computer and start the program *G10config*. Open directory **Firmware** and select the file *G10\_xxx.prg* saved in the computer.
3. Press the button **Start [F9]**. Wait until file uploading bar **Progress** reaches 100%, then press the button **Disconnect [F8]** and unplug the USB cable.
4. Plug the USB cable back in. Firmware updating process starts. This may take 60-90 seconds. Wait until indicator **Data** stops flashing green, and then press the buttons **Connect [F2]** and **Read [F7]**. The new firmware version will be displayed in *G10config* program status bar.

## Remote module control

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

### Notes:

- If the list **Wireless programming phones** is empty, module will change its output state after receiving an SMS message from any mobile phone. If telephone numbers are entered in the list, module output state can be changed only from these phones;
- Output state can be changed when output *OUT1* operating mode is set to **Remote control SMS**;
- SMS messages have to be written in capital letters only!

SMS message text	Meaning	Note
OUTPUT_1234_ON	Output state is changed to <i>ON</i>	Instead of numbers 1234 enter Administrator or User code
OUTPUT_1234_OFF	Output state is changed to <i>OFF</i>	
OUTPUT_1234_PULSE=005	Output state is changed to <i>ON</i> for time period given in seconds	Key “_” means space tab. Spaces in notified places must be entered.
RESET_1234	Restart module	

## Technical specification

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
Memory	Up to 60 messages
Inputs	2, NC type
Output	1 OC type, commutating up to 30 V voltage and current up to 1 A
Setting configuration	Through the USB port
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 <i>G10</i>	1 pc.
Straight type GSM antenna	1 pc.
Two-sided adhesive tape (10 cm)	1 pc.
Fastening bolts M3 x 6	2 pcs.