GSM communicator *G10T*

(v.2.3X)

USER MANUAL

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Description

GSM communicator can connect to any intruder alarm panel via its landline communicator and transmit messages to an alarm receiving centre (ARC) and/or to a mobile/WEB application. Messages are transmitted using GPRS, SMS via GSM network.
Compatible with control panels which has PSTN telephone communicator.

Features

Connection

- Compatible with most control panels
- Connection to control panels via:
  - TLC terminal connection

Communications

- Communication modes:
  - GPRS
  - SMS
  - DTMF tones
- Primary and backup channels
- If the GPRS connection with primary and backup servers will be lost, information can be sent in SMS messages;
- Mobile/Web application using a cloud service. Allowing user to remotely monitor and control the alarm system
- Domain can be set as an IP address of IP receiver
- Event messages can be transmitted in Contact ID codes
- Event reporting via SMS messages to 4 different users in user customized SMS messages
- *PING* technology to detect communication problems
- Constant control of connection with ARC
- Messages receivers: software IPcom; hardware (HW) receivers RL10 and RM10 and GM5; almost every telephone receiver

Configuration

- Quick and easy configuration and firmware update
- Operating parameters and firmware version can be updated remotely
- Operating parameters are set with program *G10config*

Inputs and outputs

- 1 Output controlled via:
  - Mobile/Web application
  - SMS
  - Internal events
- 2 Inputs, type: NC

Content

Safety requirements

Please read this manual carefully before using the security module *G10T*.
Security communicator *G10T* should be installed and maintained by qualified personnel, having specific knowledge regarding the functioning of GSM devices and safety requirements.
Communicator *G10T* 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 "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.
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- 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.

Communicator G10T operation description

The communicator *G10T* is connected to security control panel contacts for connecting a telephone landline. In case of an event, the security control panel dials number **1234**. Module *G10T* picks up the phone and receives control panel message. After receiving the message, the module transmits it to ARC through GSM connection channel set as primary. If the module is unable to transmit the message through the primary connection channel, the module can send it through GSM connection channel set as backup. Messages are sent through GSM connection according to set IP addresses or telephone numbers.
If the module loses connection with both the primary and the backup IP addresses, the module can send information to ARC with SMS messages.
If G10T loses communication with both primary and backup IP receiver then it will send Contact ID messages with encrypted SMS to SMS receiver (modem) at ARC.
The module can send messages to specified recipients about the breakage/restoration of external circuits *IN1* and *IN2*. Messages can be sent with SMS messages to four mobile phones. SMS message can contain of user-friendly text which describes security control panel event.
Module output *OUT1* state will invert when GSM connection with server at ARC fails/restores or when the module receives an SMS message containing of command to change its output state.
Module can periodically transmit signals PING for testing communication channel.
Note: if G10T will loose communication with any receiver at ARC, it will send *communication trouble* signal to alarm control panel.

Technical specification

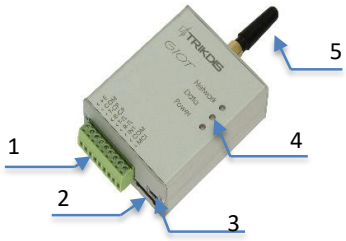
Parameter	Description
Power supply voltage	DC 10…16V
Used current	60–100 mA (stand-by), Up to 250 mA (transmitting)
GSM modem M12	Dual-band 900 / 1800 MHz
Memory	Up to 60 messages
Inputs	2, NC type
Output	1 OC type, commutating up to 30 V voltage and current up to 1 A
Setting configuration	Through the USB port
Operating environment	From -30 °C to 70 °C, with relative air humidity 80% when +20 °C
Dimensions	65 x 79 x 25 mm

Package contents

Communicator *G10T*	1 pc.
Two-sided adhesive tape (10 cm)	1 pc.

Note: GSM antenna of desired type is collected by the additional request.

Outside view



1. Terminal block
2. SIM card holder
3. USB socket
4. LED indicators
5. GSM antenna

Description of terminal block

Contact	Description
+E	+12V power supply clamp
COM	Common clamp
TIP	For connecting to the TIP clamp of security control panel
RING	For connecting to the RING clamp of security control panel
IN1	1st input clamp (NC type)
IN2	2nd input clamp (NC type)
OUT1	PGM output clamp (OC type)
COM	Common clamp
MCI	Provided for future use

Light indication

LED	Operation	Description
Network presents status of connection to GSM network	Green ON	Module has been 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
Data presents data exchange.	Green ON	Unsent messages present in module memory
	Red ON	Unable messages to be sent
	Green flashing	Messages are being received from the control panel
	Red flashing rapidly	Module configuration is incorrect
	Red flashing	SIM card error
Power presents power supply status, functioning of microcontroller and programming status	Green flashing	Power supply is sufficient, microcontroller is functioning
	Yellow flashing	Power supply is not sufficient (≤11,5 V) but microcontroller is functioning
	Green and yellow flashing in turn	Programming mode

Communicator installation steps

1. Set the operating parameters for the security control panel telephone communicator according to recommendations in section Recommendations for programming of security control panel.
2. Configure communicator parameters before installation. For communicator configuration please refer to chapter **Setting Operating Parameters.**
3. Insert Standard SIM card to the holder.

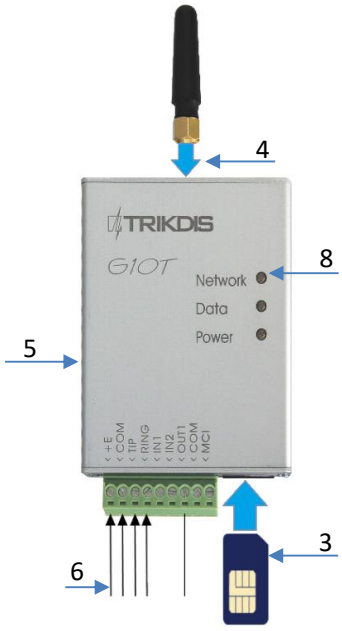
Note: Using your mobile phone, register SIM card in the GSM network and enable mobile data communication service.
We recommend do not use prepaid SIM card.
Disable PIN code request!

4. Screw the GPS antenna on.
5. Fasten the communicator with adhesive tape.
6. Connect wires as shown in Wiring diagrams.
7. Connect a DC power supply.
8. Check GSM signal strength according to light indication.

Note: Sufficient GSM signal strength is level 5 (five yellow flashes of indicator ***Network***). If GSM signal strength is not sufficient, use other antenna type.

9. Check if the module sends messages according to its configuration.

Note: The message must be sent and received at the specified IP address site. If messages are sent to a mobile phone, check if all messages are received.

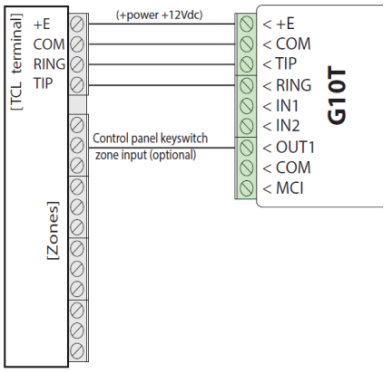


Program security control panel

Use Programming manual of particular security control panel to set operation parameters as following:

1. Enable the PSTN dialler of the panel.
2. Select DTMF mode.
3. Select Contact ID communication format.
4. Enter a telephone number for dialling (you can use any number not shorter than 2-digits).
5. Enter a 4-digit account number in the panel.

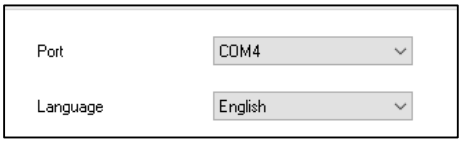
Wiring diagram



Setting of operating parameters

Communicator *G10T* operating parameters are set with computer program *G10config.* The program can be found in website www.trikdis.lt.

1. Connect the communicator G10T with a computer using a USB cable.
   a. Download the USB driver file *USB_COM.inf* for MS Windows OS from the website www.trikdis.lt.
   b. 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.
   c. In the wizard window select the function ***Yes, this time only*** and press the button ***Next***.
   d. 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.
   e. Follow the remaining wizard instructions to finish the USB driver installation.
2. Start the program *G10config*.
3. Select the program directory ***Settings***.

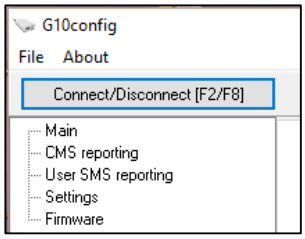


a) In the drop-down list **Port** select the port to which the module is connected.

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

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

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



Note: When the module *G10T* is connected to a computer, module LED ***Power*** indicator should flash green and yellow in turn. Program *G10config* status bar should indicate connection status ***Connected*** and display the following information about the connected module:

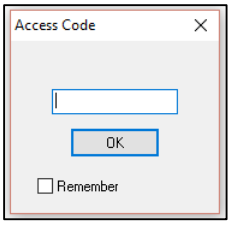
Dev: G10Tv2 Module type

IMEI: 862170010406286 Device IMEI number

SN: 000006 Module serial number

Ver: 1.64 Firmware version installed in the module

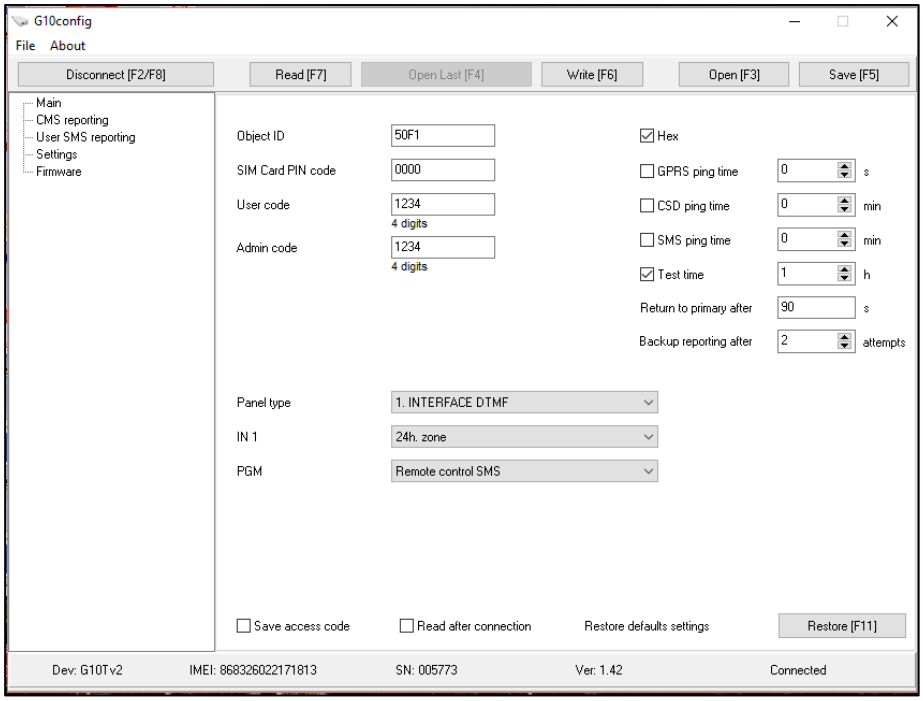
4. Press the button ***Read [F7]***.



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

Note: If you want for the program 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.

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



Object ID G10T transfers messages of security control panel containing its ID number set in. Here is the section for setting ID number (0001-FFFF) for G10T in case to identify to which object belong messages generated by particular G10T. Set 4 symbol value;

SIM Card PIN code Section for entering the SIM card PIN code. Leave this field by default 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 Admin code, all module parameters can be changed and also access to parameter change can be restricted for persons connecting with the User code.

Panel type Option ***INTERFACE DTMF*** means that the module is applied to receive information coded in Contact ID format from the telephone communicator of the security control panel in DTMF codes;

IN1 If here were selected the option ***24 zone*** in the drop-down list then after braking of input *IN1* external circuit, the module will transmit a message about this event with a code set in the table ***Module events***.
If here were selected the option ***Backup mode*** then module G10T will start transmitting messages of security control panel after breaking input IN1 external circuit only;

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;

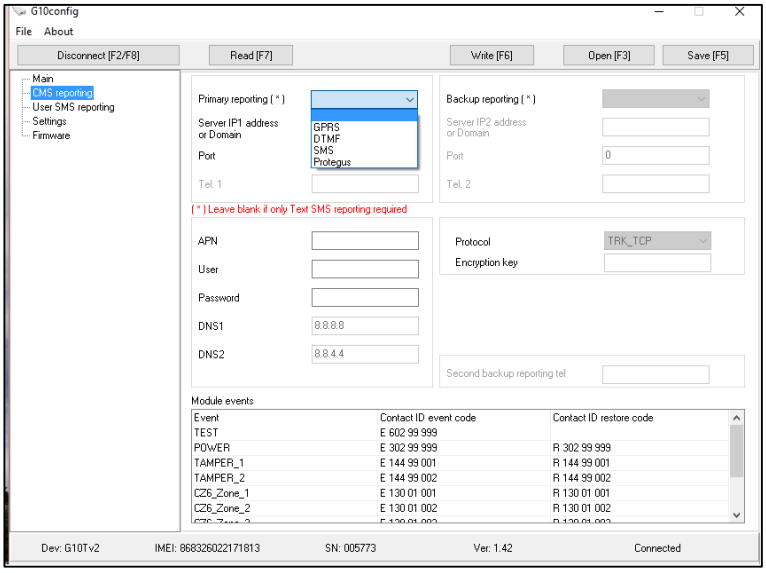
GPRS PING time Time interval according to which the module will send signals PING for polling GPRS connection;

CSD PING time The function is disabled;

SMS PING time Time interval according to which the module will send signals PING for polling SMS communication;

Test time Time interval according to which the module will send messages *Test*.

6. The directory ***GPRS***. Enter the parameters are needed for reporting to an alarm receiving centre (ARC):



Primary reporting Select the primary communication channel in the list, through which the module will transmit messages to ARC.
If ***GPRS*** is selected, enter the IP address or domain name and the port number of ARC in the corresponding boxes ***Server IP1 address or Domain*** and ***Port***;
If ***DTMF*** is selected, enter the telephone number of ARC ***Tel.1***, to which messages will be sent through GSM connection in DTMF tones. The telephone number should be entered with international country code but without the "+" (plus) sign.
If ***SMS*** is selected, enter the telephone number of ARC ***Tel.1***, to which SMS messages will be sent. The telephone number should be entered with international country code but without the "+" (plus) sign.

If ***Protegus*** is selected, all needed fields in section ***Primary reporting*** are filled in automatically, ***Backup reporting*** is disabled.
! Write down IMEI code from status bar, because you will need it in Protegus service registration. How to connect G10 to Protegus see Protegus service.

Backup reporting Drop-down list for setting the backup communication channel, through which the module will transmit messages, when connection through the primary communication channel is lost.
If ***GPRS*** is selected, enter the second server IP address or domain name and the port number of ARC server to the corresponding boxes ***Server IP2 address or Domain*** and ***Port***.
If ***DTMF*** or ***SMS*** is selected, enter the telephone number of ARC ***Tel.2***, to which messages will be sent through GSM connection in DTMF tones or SMS messages. The telephone number should be entered with international country code but without the "+" (plus) sign.

Second backup reporting tel Telephone number of ARC's receiver, to which SMS messages will be sent, when the module has lost GPRS connection with both servers. This option is allowed, when both the primary and the backup GSM connection channels are selected as ***GPRS***. The telephone number should be entered with international country code but without the "+" (plus) sign.

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

Encryption key Section for entering a 6-digit key for encrypting messages sent to ARC. The password must be same as the password entered in a server program *IPcom*.

Return to primary after Used if both the primary and backup GSM channels are selected for connection with ARC. Enter in the section the duration of time for sending messages though the backup communication channel, when connection through the primary channel has failed;

Backup reporting after Used if both the primary and backup GSM channels are selected for connection with ARC. Enter in the section the number of attempts to transmit information through the primary communication channel, after which the module will connect to the backup communication channel.

Note: Administrator of an alarm receiving centre (ARC) should provide the IP addresses, port and telephone numbers, encryption protocol, key and other parameters necessary for connecting with ARC.

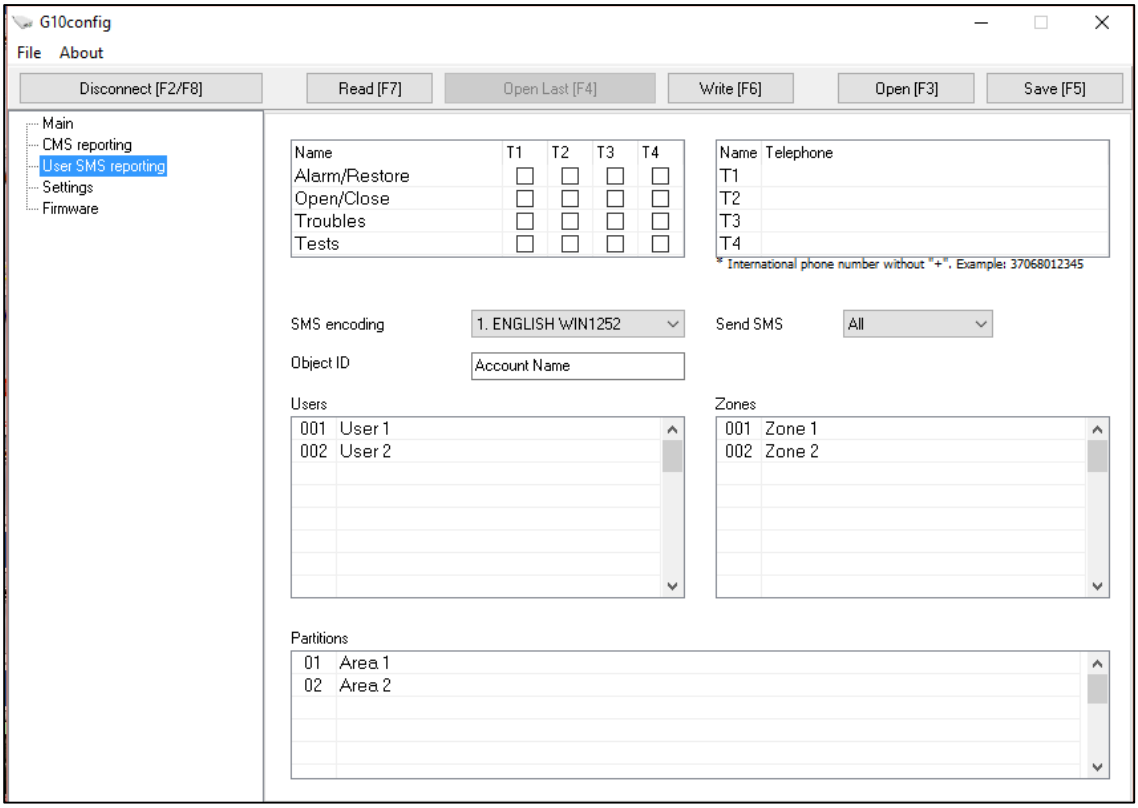
APN Access point name for connecting to the GSM operator's network;
User User name for connecting to the GSM network;
Password Password for connecting to the GSM network;
DNS1, DNS2 We recommend leave values by the default in the sections if you don't get other.

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

Module events Module events are described in the table below. After their occurs the module transmits messages with codes given beside. Event code can be changed by double-clicking the cells ***Contact ID event code*** or ***Contact ID restore code*** and by entering exact values by Contact ID form in the newly opened window. After entering the values press the button ***OK***.

Communicator events	Meaning of event "E"	Meaning of event "R"
TIME	Internal clock of the module is not set	Internal clock of the module is set
TEST	Periodical module *Test* message	
POWER	Power supply voltage is lower than 11,5 V	Power supply voltage has restored to 12,6 V
TAMPER_1	External circuit of Input IN1 has broken	External circuit of Input IN1 has restored
TAMPER_2	External circuit of Input IN2 has broken	External circuit of Input IN2 has restored

7. If you need to set SMS messages for users of security system, choose the directory ***Text SMS reporting*** and enter the parameters for SMS messages to be sent:



Telephone Telephone numbers ***T1, T2, T3, T4*** of the four users to which SMS messages will be sent. The telephone numbers should be entered with international country code but without the "+" (plus) sign;
Name Choose by which tel. number G10T must send SMS after occurring event of particular type.
Alarm/Restore Messages will be sent when the security system is alarmed/restored (events with E/R 1XX codes);
Open/Close Messages will be sent about the arming/disarming of the security system (events with E/R 4XX codes);
Troubles Messages will be sent about the troubles(restores) in system operation (events with E/R 3XX codes);
Tests System test messages will be sent (events with E 6XX codes).
SMS encoding Choose in the list drop-down the preferred encoding for the text in SMS messages;
Send SMS When ***All*** is chosen, all messages received from the security control panel will be sent to users. When ***Described Only*** is chosen, SMS messages will be sent only about the events in described zones;
Object ID Enter the object name. It will be included in the message sent to user;

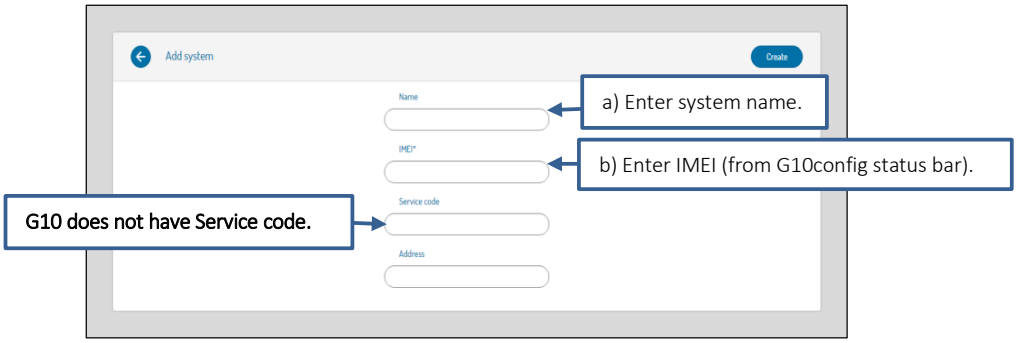
Users	Entries in the table are associated with user codes, with which the security system is armed/disarmed. When a user arms/disarms the security system with his code, his name entered in the table will be included in the SMS message;
Zones	Entries in the table are associated with events in protected zones. When zone is alarmed/restored, its name entered in the table will be included in the SMS message;
Partitions	If the security system is divided into several individually protected areas, entries in the table are associated with these areas. If a zone is alarmed/restored in an area, the name of the partition entered in the table will be included in the SMS message;
Save [F5]	By pressing this button values entered to the program *G10config* can be saved in the computer. A new file with extension *.gst* will be created. It can be used later as a template for configuring other modules.
Restore [F11]	Button for restoring default (factory) operating parameters of the module *G10T*. Press the button ***Yes*** when request window opens.

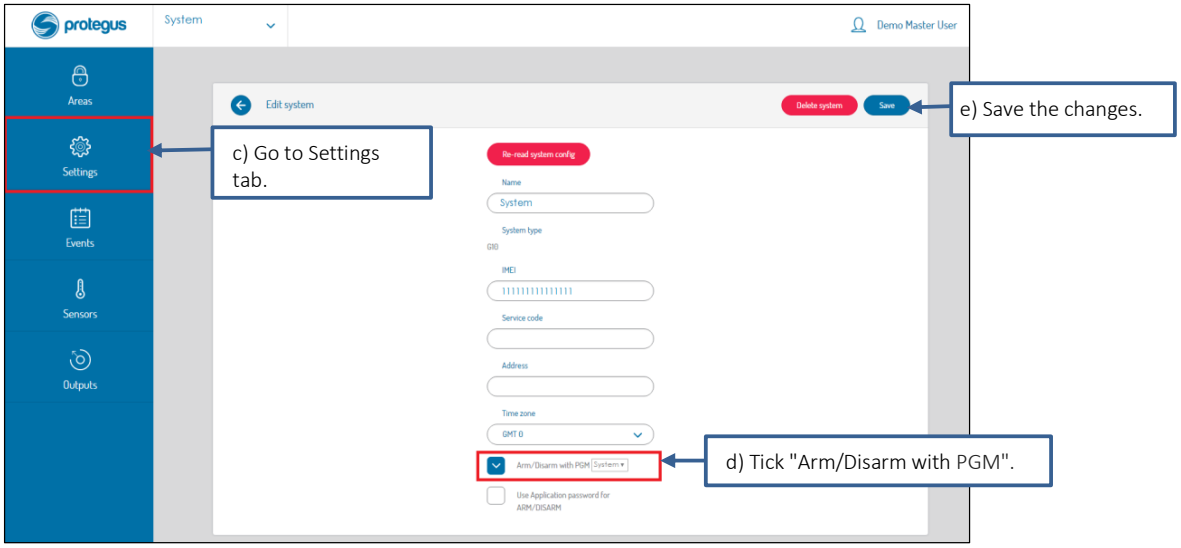
8. Press the button ***Write [F6]*** and values entered in the program *G10config* windows will be uploaded to the module G10T.
9. Press the button ***Disconnect [F8]*** and unplug the USB cable from the USB socket.

Protegus service

Protegus service allows users to remotely monitor and control the communicator.
After communicator G10 is set to work with Protegus service and connected to power supply, you can set that G10 communicator would use open collector output (PGM). The user can trigger the output to activate an input on the host panel to trigger a key-switch zone and arm/disarm the system.
To set PGM for ARM/DISARM system in Protegus application follow these steps:

1. If you do not have Protegus service account you can create it by fill registration form here: www.protegus.eu.
2. To add the system to the Protegus, press "**Add new system +**", and enter required data, follow steps in pictures.





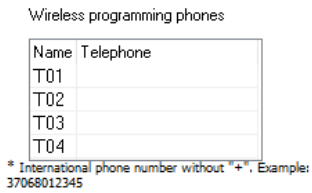
Updating communicator firmware version

When the manufacturer adds new features to the module *G10T*, firmware of the previously bought module can be updated:

1. Download the latest *G10T_vx.xxx.prg* update file from the website www.trikdis.lt.
2. Connect the module *G10T* to a computer and start the program *G10config*. Open directory ***Firmware update*** and select the file *G10T_v2.xxx.prg* saved in the computer.
3. Press the button ***Start [F9].*** Wait until file uploading bar ***Progress*** is full, then press the button ***Disconnect [F8]***. Unplug the USB cable.
4. Plug the USB cable back in. Firmware update process may take 60-90 seconds. Wait until indicator ***Data*** will stop flashing green and press the buttons ***Connect [F2]*** and ***Read [F7]***. The new version of the module firmware will be displayed in *G10config* program status bar.

Setting of configuration remotely

In order to set module *G10T* operating parameters remotely a SMS message with the particular syntax must be sent by GSM number of SIM card put in the module *G10T*. When the module *G10T* receives this SMS message it opens GPRS communication session with software *IPcom*.


Wireless programming phones

Name	Telephone
T01	
T02	
T03	
T04	

* International phone number without "+". Example: 37068012345

If during the previous setting module operating parameters were being entered GSM number of authorised person in the list *G10config / Settings / Wireless programming phones,* the module *G10T* will open GPRS communication session, if it receives SMS message with particular syntax from authorized person's phone.

SMS message text structure (word $_{space}$ means space between SMS text symbols):

CONNECT$_{space}$1234$_{space}$SERVER=100.100.100.100$_{space}$PORT=1000$_{space}$APN=provider$_{space}$USR=name$_{space}$PSW=psw$_{space}$ENCR=enc

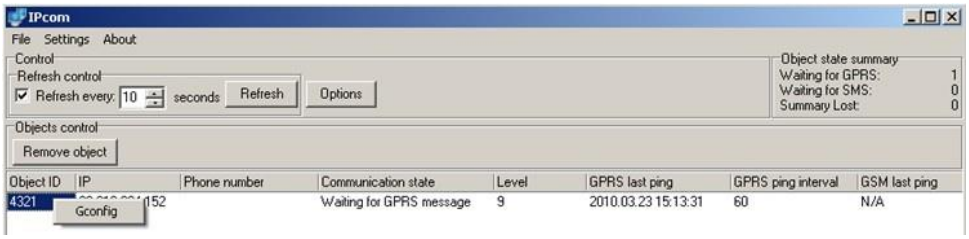
Note: entering values use capital letters!

Description of syntax:

CONNECT	Enter the word "CONNECT" means starting command;
9874	Enter your 4-digit access code to module parameter configuration (default is 1234);
SERVER=value	Enter the word "SERVER=" + enter IP address of the IP receiver, from which module operating parameters will be configured;
PORT=value	Enter the word "PORT=" + enter port of the receiver, from which module operating parameters will be configured;
APN=value	Enter the word "APN=" + enter the GPRS access point name of network where SIM card is operating. If GSM service provider doesn't require any value must be entered, just leave ...$_{space}$APN=$_{space}$... in SMS;
USR=value	Enter the word USR= + enter the *User name* of GPRS access point name of network where SIM card is operating. If GSM service provider doesn't require any value must be entered, just leave ...$_{space}$USR=$_{space}$... in SMS;
PSW=value	Enter the word "PSW=" + enter the *Password* of GPRS access point name of network where SIM card is operating. If GSM service provider doesn't require any value must be entered, just leave ...$_{space}$PSW=$_{space}$... in SMS;
ENCR=value	Enter the word "ENCR=" + enter the 6-digit messages decrypting key which is set in IP receiver (default is 123456).

Order of actions after the message is sent:

1. Open the window of software *IPcom* and select the object ID, which operating parameters of transmitting module should be changed. To select, right click on the ID number.
2. Open the configuration program *G10config*. Left click on the icon *G10config* has been appeared beside the selected ID number.
3. Click on the button ***Connect*** in the opened program *G10config* tool bar. GPRS connection status "*Connected*" must be indicated in the program's status bar. Click the button ***Read [F7]*** on, old configuration to be displayed.
4. Further actions are identical as when the module is connected to a computer with a USB cable. Just set the desirable values of module operating parameters in the opened program *G10config* windows.
5. After entering desirable values click the button ***Write [F6]*** on, the values to be set in the module *G10T*. Just close the program *G10config* and GPRS communication session closes too.



Firmware version upgrading remotely

Connect the module *G10T* with the program *G10config* remotely (See previous chapter how to connect remotely).

1. Open the program *G10config* (See previous chapter how to open the configuration program)
2. Press the button ***Connect***.
3. To read the parameters set in the module press the button ***Read***.
4. Open the window ***Firmware*** and with clicking on the button ***Browse*** select the latest version of the firmware file. Press the button ***Start***.
5. Wait until the firmware will be written into the module processor memory. This may take 1-3 minutes, after which the module will reconnect to the program *G10config*.
6. Set the module operating parameters in the same way as described while connected via USB port.

Remote PGM output switching

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 *ON*	Instead of numbers *1234* enter your *Administrator* or *User* code Key "␣" means space tab. Spaces in notified places must be entered.
OUTPUT␣1234␣OFF	Output state is changed to *OFF*	
OUTPUT␣1234␣PULSE=005	Output state is changed to ON for time period given in seconds	
RESET␣1234	Restart module	