TRIKDIS

GSM communicator *G09*

(v.1.61)

User Manual and Installation Guide

Draugystes g. 17,
LT-51229 Kaunas
E-mail: info@trikdis.lt
www.trikdis.lt

Purpose of the document

This document introduces the features of GSM communicator *G09*, describes its operation, parameter setting procedure and usage peculiarities.

Contents

Safety requirements

Be sure to familiarise yourself with this manual before using communicator *G09*.
Communicator may only be installed and maintained by trained specialists, who possess knowledge about operation of low voltage and signal transmission devices and their safety requirements.
Communicator *G09* must be set up in a limited access area and in a safe distance from sensitive electronic equipment.
Communicator is not resistant to mechanical effects, humidity and aggressive chemical environment.

1. GSM communicator *G09*

GSM communicator *G09* is used to send security alarm system signals from the protected object to the IP receivers operating in SIA standard DC-09 protocol in the monitoring station using GPRS.

Main features:

- messages are transmitted to the monitoring station via GPRS and/or via voice channel;
- messages transmitted using GPRS are sent in SIA standard DC-09 protocol and match protocol *Contact ID* codes;
- messages transmitted via voice channel may be sent to PSTN receiver in DTMF tones in SIA standard DC-05 protocol *Contact ID* codes;
- messages are sent via indicated communication channel or, if communication fails – via the backup channel;
- ability to send SMS messages to the mobile phones of up to 4 users;
- two NC type inputs;
- one PGM output, which may be controlled remotely;
- operation parameters are set using USB connection and software *G10config*;

1.1. Operation description

Communicator *G09* may be connected to security control panel data bus, its programmable outputs or to control panel telephone communicator using adequate connection. Information is read, converted to corresponding *Connect ID* protocol codes and transmitted via communication channels set during the programming. Messages are sent to the monitoring station and/or user mobile phones.

Communicator sends messages regarding status changes in the external circuit of inputs *IN1* and *IN2*. Message transmission may be suspended temporarily by setting input *IN1* to control mode.

Communicator controls power supply and, in case of the limits being exceeded, generates and sends appropriate messages and signals about it using light indicators.

Two technologies are supported for message transmission to the monitoring station: GPRS and/or voice channel sending DTMF tones. SMS text messages are sent to users.

Messages are using GPRS technology in TCP/UDP protocols following SIA standard DC-09 requirements.

Received or generated message is sent via set main channel. Communicator sends messages to users once a message reception confirmation is received from the monitoring station receiver. If confirmation is not received in time, message transmission is repeated several times, and if unsuccessful, carried out via the backup channel (if such is set).

Messages may be sent to four user mobile phones using SMS messages. Every security panel message is attributed with a understandable SMS text message. SMS messages may be distributed among the different users according to a sent message type.

Communicator may perform a continuous communication control of receiving equipment by periodically sending communication test signals, to which reception confirmation is being received. When communication via the main channel fails (reception confirmation is not received), messages are being transmitted via the backup channel. Communicator will periodically try to restore communication via the main channel according to the parameters set during the programming.

Communicator output OUT1 status changes when facing communication or operation problems. Operation mode is set during the programming.

Received or generated messages is directed to a MCI data bus. MCI data bus is designated for message transmission via several different communication channels. MCI data bus messages are received only by compatible devices: SP131, G10, E10, T10.

Communicator messages are received by the receiver in the monitoring station.

Messages sent via IP channels are received by an IP receiver which is able to receive and process messages sent in standard SIA DC-09 protocol. Encrypted or not encrypted messages may be sent. Communicator also sends the communication device identification number, which may match the object identification number or may be original.

Messages sent in DTMF signals are received by PSTN telephone receiver which is able to receive and process messages sent in standard SIA DC-05 protocol.

1.2. Technical parameters

GSM modem frequencies	850 / 900 / 1800 / 1900 MHz
GSM communication technologies	TCP/IP or UDP/IP via GPRS Voice channel in DTMF tones
Message transmission protocols	SIA DC-09-2007 or SIA DC-09-2012 SIA DC-05 Contact ID
Encryption protocol	AES128, encryption key length 128 bits (16 symbols) or not encrypted
Inputs	CLK, DATA communication via security panel data bus IN1 and IN2, input type NC
Programmable output	OUT1, OC type, commutates voltage of up to 30 V and direct current of up to 1 A
Memory	up to 60 messages
Parameters setting	via USB port
Power supply	DC 10 V ÷ 15 V
Used current	60 ÷ 100 mA (on standby), up to 500 mA (while sending data)
Workplace	Air temperature from -10°C to +50°C, Relative humidity up to 80 % when +20°C
Measures	65 x 79 x 25 mm

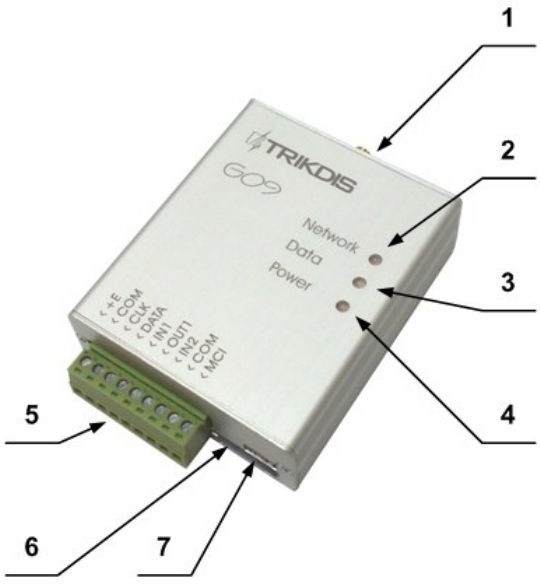
1.3. Equipment

Communicator *G09*	1 pc.
Adhesive mounting tape (10 cm)	1 pc.

Note:

GSM operator SIM card and GSM antenna with screwed male-type connector are also necessary in order to ensure operation of the communicator.

1.4. Overall view of communicator G09



1. GSM antenna connector
2. Indicator *Network*
3. Indicator *Data*
4. Indicator *Power*
5. Terminal block
6. USB connection for programming
7. SIM card slot

1.5. Purpose of contacts

Contact	*Purpose*
+E	+12 V power supply terminal
COM	General terminal
CLK	Synchronisation signal terminal
DATA	Data signal terminal
IN1	1st input terminal (type NC)
OUT1	1st output terminal (type OC)
IN2	2nd input terminal (type NC)
COM	General terminal
MCI	MCI data bus terminal

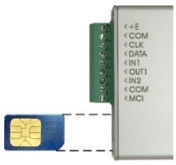
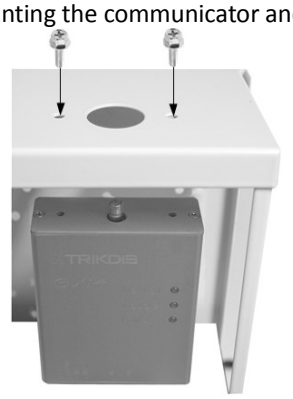
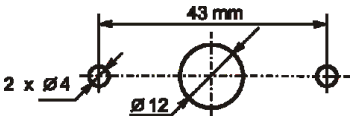
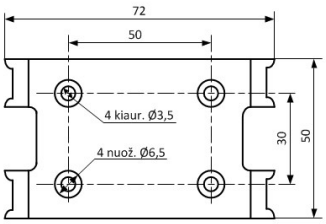
1.6. Light indication

Light indication	*Status*	*Description*
Network denotes connection with the GSM network status	Green flashing	Connecting to the GSM network
	Green light	Communicator is connected to the GSM network
	Yellow flashing	The amount of yellow flashes denotes GSM connection strength
	Yellow light	A message is being sent
Data denotes data exchange	OFF	No messages or problems
	Red flashing	SIM card problem
	Red flashing intensely	Incorrect communicator settings
	Green flashing	Data is being received
	Green light	Unsent messages in memory
	Red light	Problem with message sending
Power denotes power supply status, microprocessor operation and programming mode.	Green flashing	Power supply and microprocessor are in operation, voltage is regular
	Yellow flashing	Insufficient power supply voltage (below 11.5 V), microprocessor is in operation
	Green and yellow flashing in turns	Programming mode

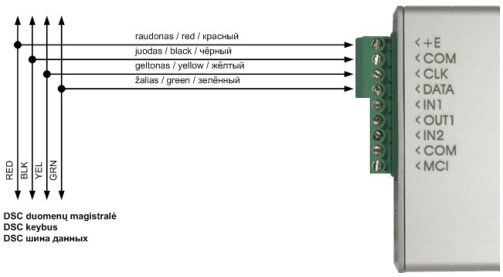
2. Communicator installation

2.1. Installation procedures

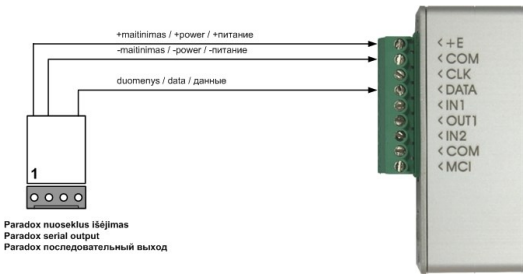
Action	*Notes*
1. Set communicator operation parameters.	Refer to information laid out in section **Setting operation parameters**. For example, to receive all messages via one channel, e.g. via GPRS, it is enough to: – see *G10config Main* window. Enter communicator (object) identification number into the field ***Object ID*** and *PING* signal and *Test* message sending periods into fields ***GPRS PING time*** and ***Test time***; – see *G10config GPRS* window. Select the GPRS transmission channel in the list ***GPRS***, enter static IP address of the monitoring station and the port number in the fields ***IP address*** and ***Port***, enter the access point name (APN) of the GPRS network in which the SIM card, that is inserted into the communicator, operates in the field ***APN***. **Note:** Enter ***DNS*** value if server IP name is indicated instead of the IP address. – Indicate message encryption key in the field ***Encryption key*** if sent messages are encrypted. It must match the IP

	receiver‘s message decryption key.
2. Insert an active SIM card. 	Refer to your mobile network operator with regard to the SIM card. It is not recommended to use pre-paid SIM cards.
3. Fix the communicator into the control panel case using M3x6 screws, adhesive mounting tape or plastic holder PH.	Position and measures of the holes to be drilled in the casing for mounting the communicator and the antenna:   Positions and measures of the holder PH and holes for mounting:  
4. Screw the GSM antenna.	
5. Connect communicator to security control panel according to the diagram.	See section **Connection diagrams**.
6. Turn on the power supply.	
7. Check light indicators to evaluate whether the strength of the GSM connection is sufficient.	Sufficient level is level 5 (5 yellow flashes by light indicator ***Network***). Use a different type antenna if the GSM connection level is insufficient.
8. Check whether communicator is sending messages according to the parameters set during the configuration.	A message must be sent and received at the indicated IP address. Check whether all SMS messages are received if messages are sent to the mobile phone.

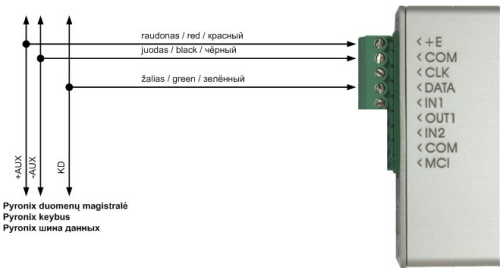
2.2. *Connection diagrams*



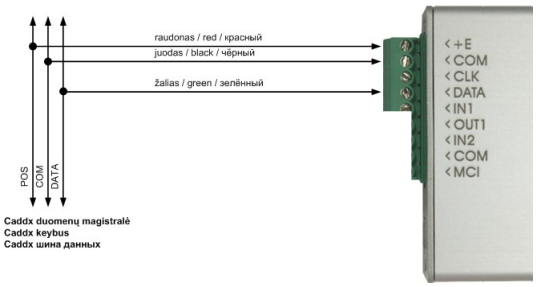
Connecting to *DSC* Power Series security control panels:
PC1616, PC1832, PC1864 PC585, PC1565, PC5020.



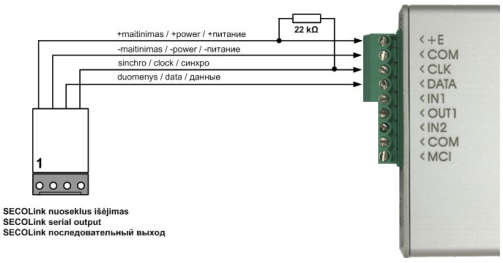
Connecting to *Paradox* security control panels:
SPECTRA SP5500, SP6000, SP7000, 1727, 1728, 1738,
MAGELLAN MG5000, MG5050,
DIGIPLEX EVO48, EVO192, EVO96, NE96,
ESPRIT E55, 728ULT, 738ULT.



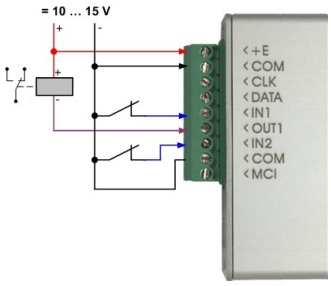
Connecting to *Pyronix* Matrix Series security control panels:
MATRIX 424, MATRIX 832, MATRIX 832+, MATRIX 6, MATRIX 816.



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



Connecting to *SECOLink* security control panels:
PAS832 (communicator firmware must G10 v1.4X or newer)



NC inputs and OC output connection diagram

3. Setting operation parameters

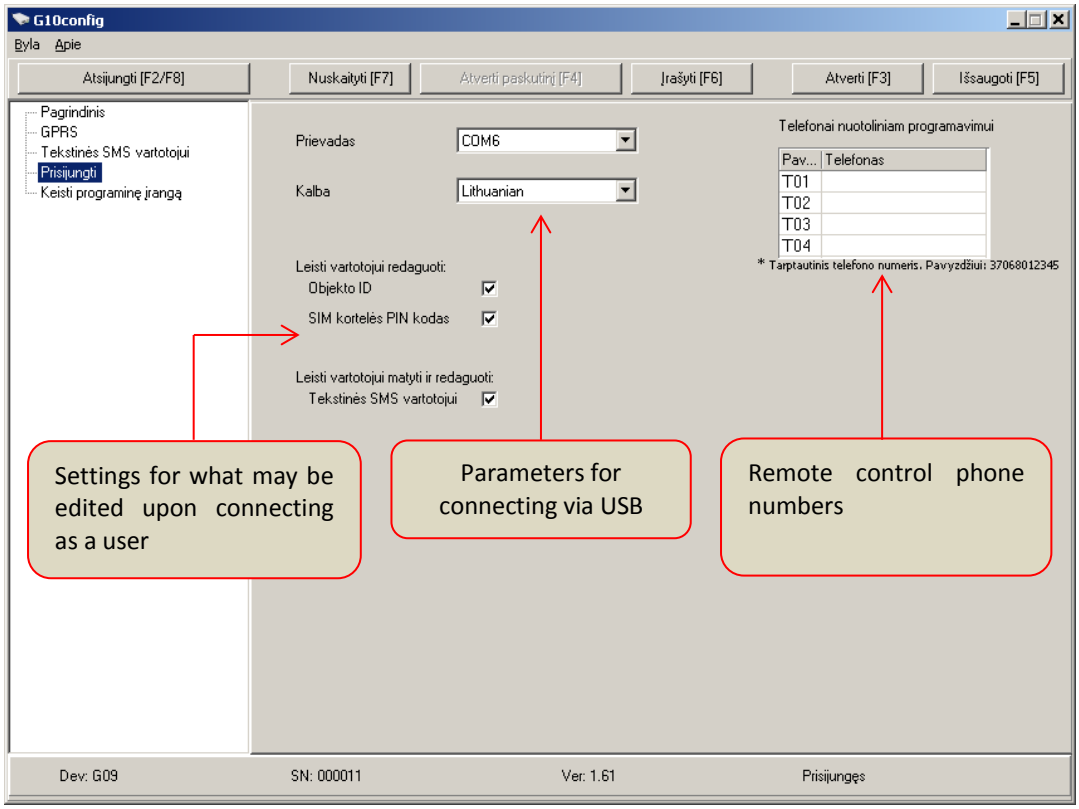
Operation parameters of communicator *G09* are set using software *G10config.* Software may be found on www.trikdis.lt.

1. Connect the communicator *G09* to a computer using a USB cable.

Note:

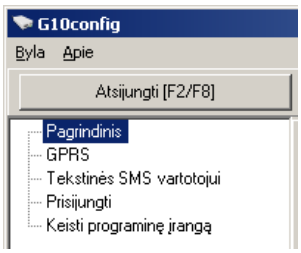
A USB driver must be installed on the computer. A USB driver installation window **Found New Hardware Wizard** should appear on OS MS Windows during the first cable connection between the communicator and the computer. Download OS MS Windows USB driver installation file USB_COM.inf from the website www.trikdis.lt. Select **Yes, this time only** when prompted and click **Next**. A new window **Please choose your search and installation options** will open. Click **Browse** and select the location where USB_COM.inf is saved. To finish the USB driver installation follow remaining installation wizard commands.

2. Run *G10config*.
3. Select ***Connect*** in the menu.



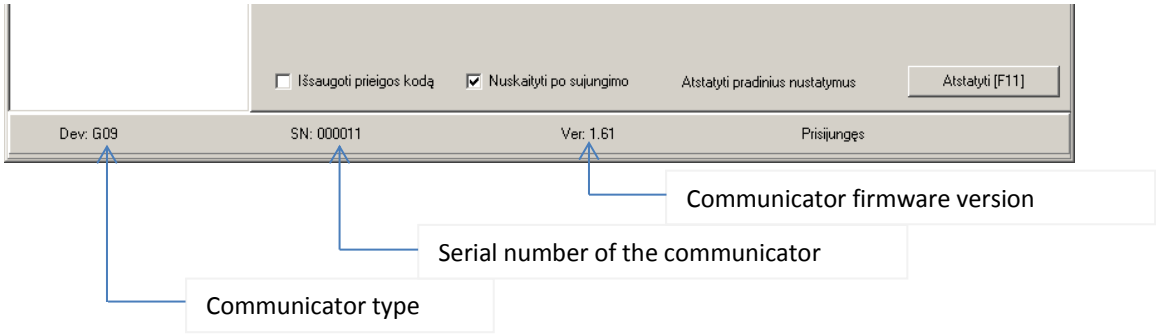
Select the USB port to which the communicator is connected in the list ***Port***.
Note: the particular USB port to which the communicator is connected appears only when the two are connected.
Select the desired working language in the list ***Language***.

4. Click ***Connect [F2/F8]***

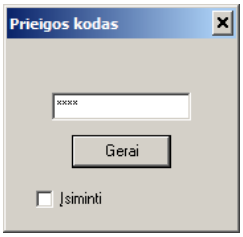


Indicator *Power* should flash green and yellow in turns when communicator *G09* is connected to a computer.

Connection status *Connected* is displayed in the *G10config* status bar alongside the information about the connected communicator.



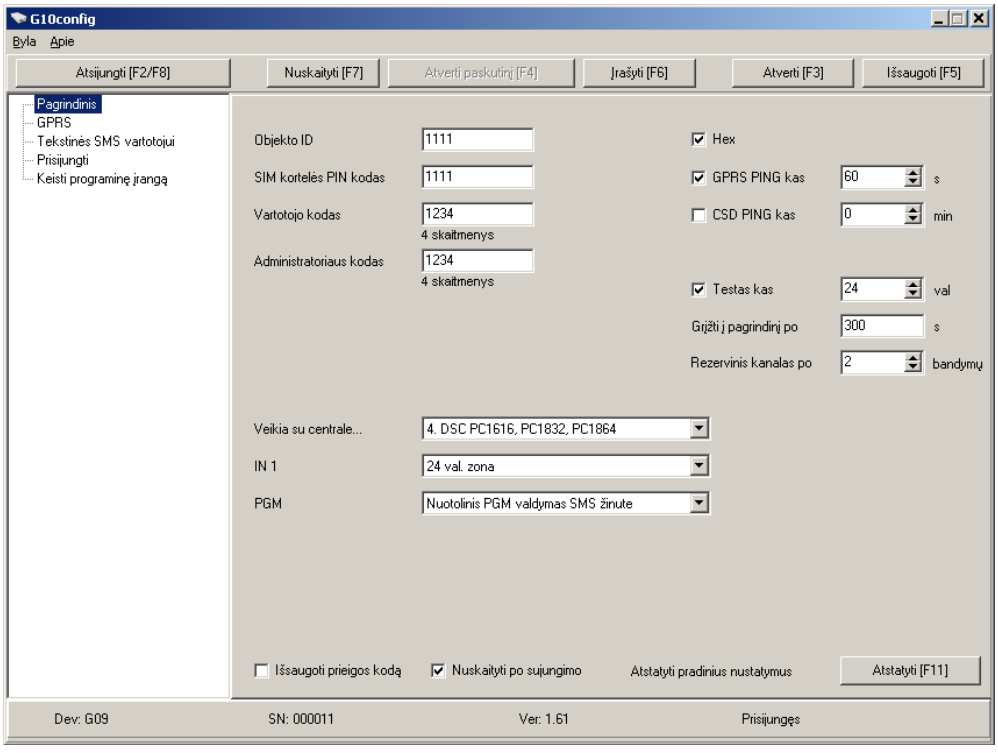
5. Click ***Read [F7]***.



Enter the access code (default – 1234) when prompted and click ***OK***.
Click ***Remember*** if you want the software to remember your access code. The prompt window will not appear next time.

Tick ***Save access code*** for software to remember the password and not require for it next time.
Click ***Restore [F11]*** to restore the communicator to factory settings. When prompted, click ***Yes***.

*Select **Main** in the menu and set desired parameters:*



Object ID	Field to enter the four-digit identification number;
Hex	Tick if hexadecimal numbers will be used for entering the object ID;
SIM card PIN code	Field for SIM card PIN code. Leave the field empty if PIN code request is disabled;
User code	Field to enter the user code. Only those operation parameters that are allowed to be edited by the administrator can be edited when logging in with the user code;
Admin code	Field to enter the admin code. All operation parameters can be edited when logging in with the admin code. Also, possibilities for editing the operation parameters for those logging in with the user code may be limited;

GPRS PING time Communicator will check GPRS communication with the receiver by sending test signals *NULL* in a specified frequency;

CSD PING time Communicator will check communication with the receiver by sending test signals *PING* via the voice channel in a specified frequency;

Test time Communicator will check communication with the monitoring station by sending test messages *TEST* in a specified frequency;

Return to primary after

Used if both communication channels to the monitoring station are selected – main and backup. Enter the time interval value after which the communicator will try to restore the communication via the main channel (when using the backup communication channel);

Backup reporting after ... attempts

Used if both communication channels to the monitoring station are selected – main and backup. Enter the number of times communicator will try to send a message via the main communication channel and upon failure will start sending messages using the backup communication channel;

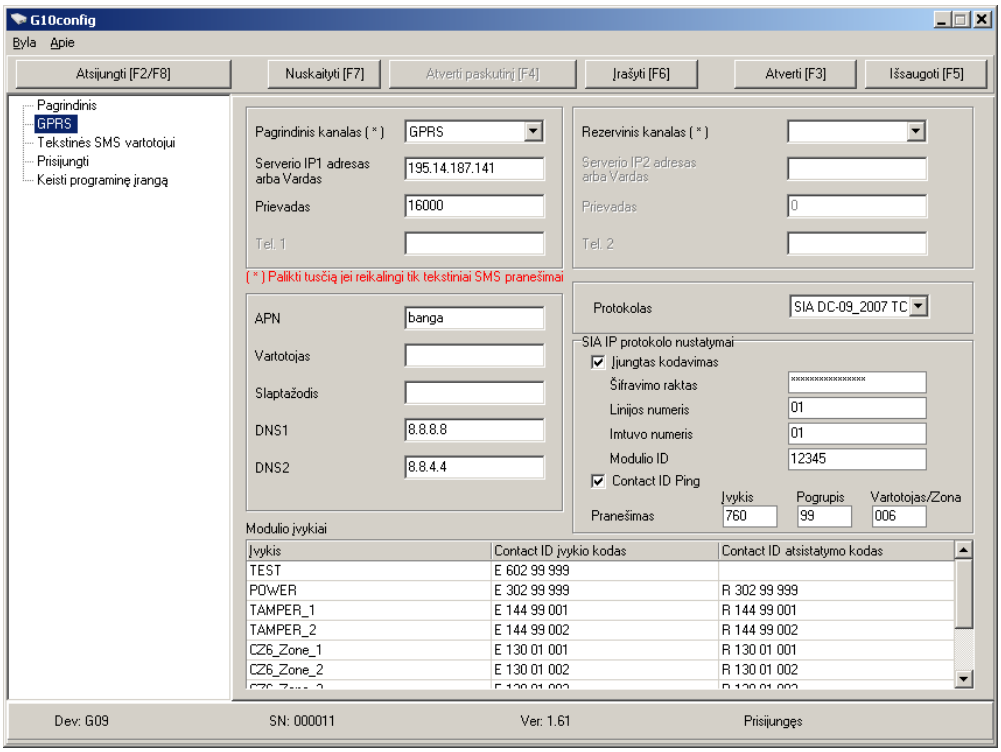
Works with security control panel ...

Select the type of the security control panel to which communicator *G09* is connected. Choose ***INTERFACE C11*** if a connection *C11* or *C14* will be used with the communicator. Choose ***INTERFACE Cx*** if extender *CZ6* will be connected;

IN1 Set the operation parameters of input *IN1*. Select ***24 hour zone*** from the list to send a message immediately after input *IN1* status changes according to the code indicated in ***Module events***. Select ***Control input*** for communicator to send messages only when an external circuit of input *IN1* is broken;

PGM Select **Remote PGM control using SMS message** to change output status once a control command in a SMS message is received (see section **Remote module control**). Output status will change when communication via the main channel fails, if ***Main channel problem*** is selected. Output status will change when communication via the backup channel fails, if ***Backup channel problem*** is selected. Select ***Problem in both channels*** and output status will change when communication via both the main and the backup channel fails;

Enter parameters for communication with the monitoring station in menu field **GPRS**:



Primary reporting Select the main communication channel via which the communicator will send messages to the monitoring station from the list:
Tick ***GPRS*** and enter the IP address and the port number of the monitoring station in the fields ***Server IP1 address or Domain*** and ***Port***.
Tick ***DATA*** and enter the PSTN receiver phone number in the field ***Tel.1*** in order to send *Contact ID* messages in DTMF tones. Phone number is entered with the international country code, but without the + sign;

Backup reporting Select the backup communication channel from the list. The communicator sends messages via the backup channel if communication via the main one is lost
Tick ***GPRS*** and enter the second IP address and the port number of the monitoring station in the fields ***Server IP1 address or Domain*** and ***Port***.
Tick ***DATA*** and enter the PSTN receiver phone number in the field ***Tel. 2*** in order to send Contact ID messages in DTMF tones. Phone number is entered with the international country code, but without the + sign;

Protocol Select the message encryption protocol from the list. Protocol is selected according to the requirements of the IP receiver in the monitoring station;

Enable encryption Tick ***Enable encryption*** to enable message encryption. Enter the encryption key (up to 16 symbols) in the field ***Encryption key***. Key must match the decryption key of the receiver.

Enter device identification number in fields ***Line number***, ***Receiver number*** and ***Module ID***. If receiver may distinguish the number, enter the requested parameters, if not, leave default values;

Contact ID Ping Tick ***Contact IP Ping*** and indicate the Contact ID message to carry out the continuous communication with the monitoring program control. Enter the message if monitoring station is able to control it. Untick, if not.

IP addresses, port and phone numbers, encryption protocol and key, other parameters may only be submitted by the station manager

APN GSM network operator access point name;
User Login for connecting to the GSM network;
Password Password for connecting to the GSM network;
DNS1, DNS2 Server names of the domains. Indicate if IP address name is used;

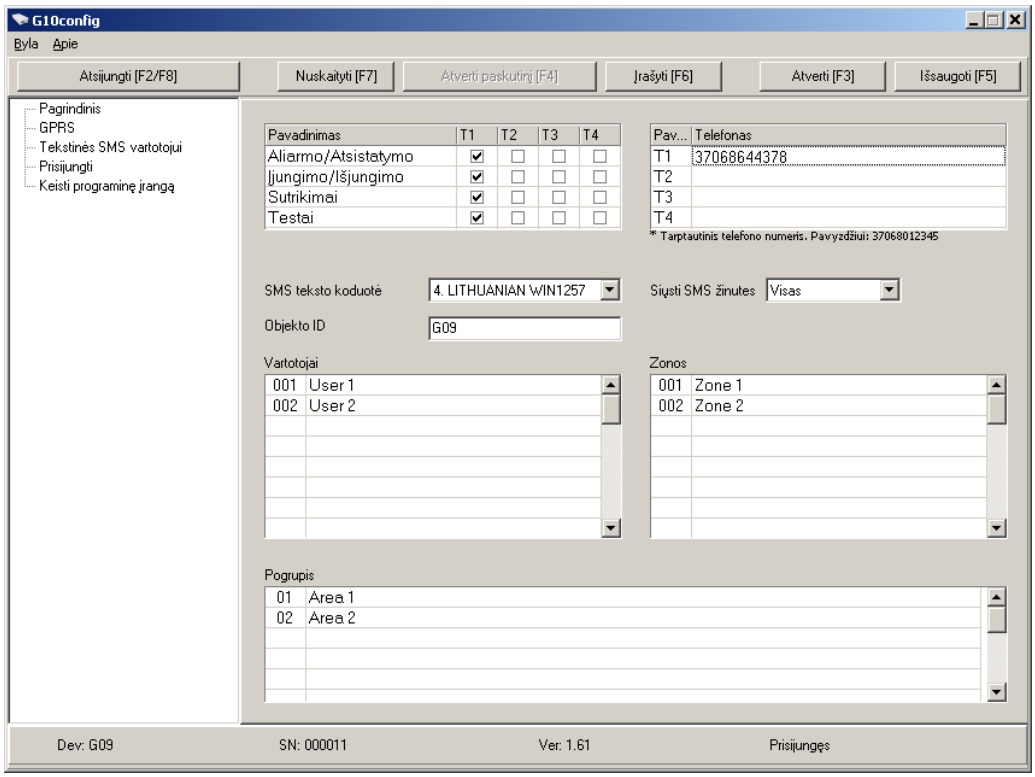
APN, user name, password and DNS values must be submitted by the GSM connection operator the SIM card was purchased from.

Communicator events Communicator events after which messages are sent are displayed in the table below.

Event	*"E" event description*	*"R" event description*
TIME	Internal communicator clock is set	Internal communicator clock is not se
TEST	Periodic communicator *TEST* message	
POWER	Power supply lower than 11,5 V	Power supply restored to 12,6 V
TAMPER_1	Communicator input *IN1* circuit is broken	Communicator input *IN1* circuit is restored
TAMPER_2	Communicator input *IN2* circuit is broken	Communicator input *IN2* circuit is restored
CZ6_Zone_1	Extender CZ6 input *IN1* circuit resistance exceeds limits	Extender CZ6 input *IN1* circuit resistance is restored and does not exceed limits
CZ6_Zone_2	Extender CZ6 input *IN2* circuit resistance exceeds limits	Extender CZ6 input *IN2* circuit resistance is restored and does not exceed limits
CZ6_Zone_3	Extender CZ6 input *IN3* circuit resistance exceeds limits	Extender CZ6 input *IN3* circuit resistance is restored and does not exceed limits
CZ6_Zone_4	Extender CZ6 input *IN4* circuit resistance exceeds limits	Extender CZ6 input *IN4* circuit resistance is restored and does not exceed limits
CZ6_Zone_5	Extender CZ6 input *IN5* circuit resistance exceeds limits	Extender CZ6 input *IN5* circuit resistance is restored and does not exceed limits
CZ6_Zone_6	Extender CZ6 input *IN6* circuit resistance exceeds limits	Extender CZ6 input *IN6* circuit resistance is restored and does not exceed limits

Left-click twice on ***Contact ID event code*** or ***Contact ID restore code*** to edit an event code and enter new values in the new window (click ***OK*** to check if correct).

Enter parameter for sending SMS messages to the users in the menu ***Text SMS reporting***:



Telephone	Enter user phone numbers ***T1, T2, T3, T4*** to which SMS messages will be sent. Phone numbers are entered with the international country code, but without the + sign;
Name	Select which users will be sent messages after a different type of an event occurs: Select ***Alarm/Restore*** to send SMS messages about zone violations/restorations (event codes E/R1XX , see **Annex 1**); Select ***Troubles*** to send SMS messages about system operation problems (event codes E/R3XX, see **Annex** 1); Select ***Tests*** to send communication test messages *Test* via SMS messages (event codes E6XX. See **Annex** 1);
SMS encoding	Select the desired SMS encoding from the list;
Object ID	Enter the object name which will be included in the SMS message text;
Send SMS	Select which messages listed in the table *Name* will be sent to users via SMS messages: Select ***All*** to send messages about all events. Messages will be in English, see . **Annex 1**; Select ***Only described*** to send messages about events that are listed in tables *Users, Zones, Partitions.* These tables should only be used in exceptional cases. Entries in the table ***Users*** are linked with the user codes that are used to arm/disarm the alarm system. Name of the user will be included in the SMS message, if the user arms/disarms the alarm system; Entries in the table ***Zones*** are linked with the protected zone events. Zone name specified in the table will be included in the SMS message, when zone is breached/restored.

Entries in the table ***Partitions*** are linked with the partitions of the security system into several independently protected areas. Area name indicated in the table will be included in the SMS message;

6. Click **Save [F6]** to move entered values to the communicator *G09*.
7. Click **Disconnect [F8]** and unplug the USB cable.

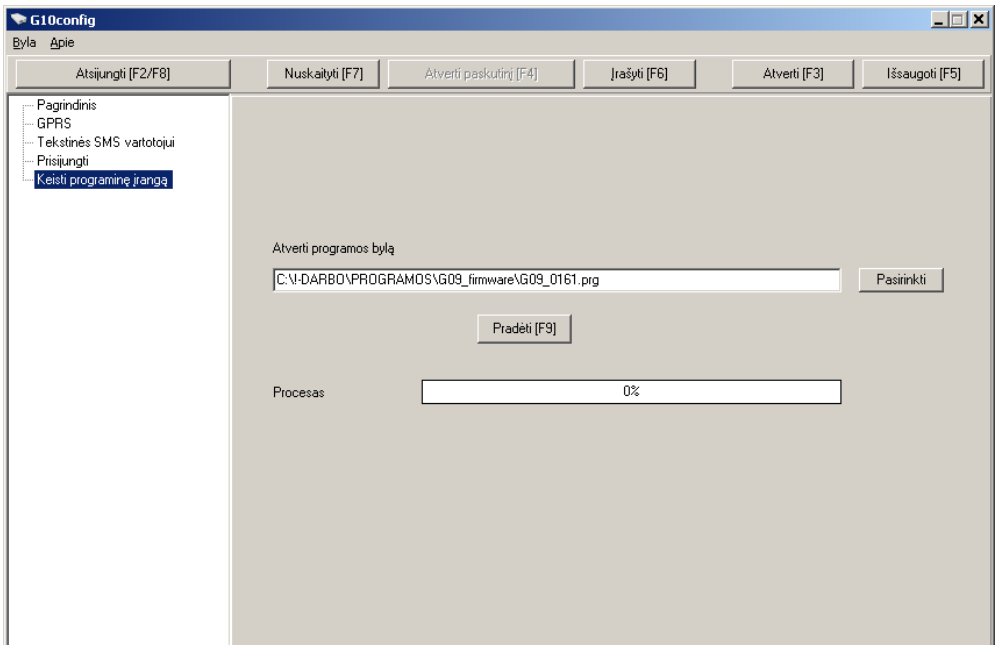
Click ***Save [F5]*** to save entered values on the computer. A file with an extension *.gst* will be created and may be used in the future as a template to configure other modules.

Click ***Open [F3]*** to open previously saved filed with .gst extension.

4. Upgrading communicator firmware

Previously purchased communicator firmware may be upgraded once the manufacturer updates communicator *G09* with new operation features:

1. Download the newest *G09_vx.xx.prg* file from www.trikdis.lt.
2. Connect the communicator *G09* to the computer, open G10config and select ***Firmware*** in the menu.
3. Click ***Browse*** and select file *G09_vx.xx.prg* saved on the computer in the field *Open firmware file.*
4. Click **Start [F9].** Click **Disconnect [F8]** once the progress bar fills up. Disconnect the USB cable.

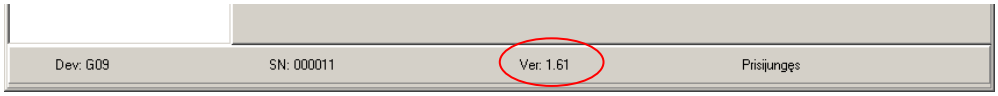


5. Plug in the USB cable back again.

Note:

Firmware upgrade process lasts between 60 to 90 seconds!

Wait until indicator ***Data*** stops flashing green and click ***Connect [F2]*** and ***Read [F7]***. New communicator firmware version will be displayed in the software *G10config* status bar.



5. Remote device control using SMS messages

Send a SMS message to module SIM card number in order to change output OUT1 status. Examples of SMS text messages are indicated in the table below.

SMS message text	*Action*	*Note*
OUTPUT␣1234␣ON	Output status changes to *ON*	Enter *Admin* or *User* access code

OUTPUT␣1234␣OFF	Output status changes to *OFF*	instead of numbers *1234*. Symbol ␣ refers to a space in an SMS message text.
OUTPUT␣1234␣PULSE=005	Output status changes for an indicated number of seconds	
RESET␣1234	Reboots the module	

Notes:

1. *Module will change output status upon receiving an SMS message from any phone if table **Telephones for remote programming** is empty. Module output status may be changed only from the listed phones if at least one entry is in the table.*
2. *Output status may only be change if OUT1 operation mode is set to **Remote PGM control using SMS message**;*
3. *Use only capital letters in the SMS message!*

6. Warranty and limitation of liability

Manufacturer grants warranty for the product installed and operated according to the manual for 24 months.

- By purchasing the Product, the Buyer agrees that the Product is a security system element informing about the status of the system. Set up Product does not decrease the possibility of the robbery, fire, burglary or any other breach of the premises.
- TRIKDIS is not liable in cases of the robbery, fire and other breaches of the premises of the Buyer and/or the Product user and shall not reimburse the resulting property or non-pecuniary damages.
- By purchasing the product, the Buyer agrees that TRIKDIS sold a Product that satisfies the requirements of the Buyer.
- TRIKDIS does not guarantee that the Product will operate in the indicated way if the Product is not used in accordance to its purpose and not set up in accordance to the User manual.
- TRIKDIS is not liable for the Product operation malfunctions, if they have occurred due to the loss of the GSM/GPRS/Internet connection or due to a failure in the networks of the connection service provider.
- TRIKDIS does not influence and is not liable for the pricing and costs of the GSM/GPRS/Internet connection operator services.
- TRIKDIS is not liable for the interruption of GSM/GPRS/Internet connection services to the Product buyer and/or the Product user and the property and non-pecuniary damages incurred thereof.
- TRIKDIS is not liable for the interruption in the electricity supply to the Product buyer and/or the Product user and the property and non-pecuniary damages incurred thereof.
- TRIKDIS is not liable if the Product Buyer and/or the Product user has not updated their product firmware version on time.
- There may be some technical inaccuracies, grammatical and typographical errors in the product manual. TRIKDIS reserves the right to edit, add and/or change the information in the manual.

7. Annex 1. Communicator messages

SMS messages sent by communicator *G09*.

Recorded event CID code	*Event code sent to CSP*	*Text in the Contact ID standard SIA DC-05-1999.09 code table*	*SMS message text sent to a user*
E/R 100	E 100	Medical Alarm	MEDICAL PANIC ALARM
	R 100		
E/R 110, 115	E 110	Fire Alarm	FIRE PANIC ALARM
	R 100		
E/R 120	E 120	Panic Alarm	PANIC ALARM
	R 120		
E 121	E 121	Duress Alarm	DURESS ALARM
E/R 130 … 149	E 130	Burglary Alarm	ALARM
	R 130	Burglary Alarm restore	Alarm restore
E/R 301	E 301	AC Loss	AC Power failure on control panel
	R 301	AC Loss restore	AC Power failure restored on control panel
E/R 302, 309	E 302	Low System battery	Battery Power failure on control panel
	R 302	Low system Battery restore	Battery Power restored failure on control panel
E/R 321	E 321	Bell 1	Bell trouble on control panel
	R 321	Bell 1 restore	Bell trouble restore on control panel
E/R 351	E 351	Telco 1 fault	Phone Line trouble on control panel
	R 351	Telco 1 fault restore	Phone Line trouble restored on control panel
E/R 400, 401, 406, 451	E 401	Open by user	OPEN by
	R 401	Close by user	CLOSE by
E/R 408	E 408	Quick DISARM	Quick DISARM
	R 408	Quick ARM	Quick ARM
E/R 409	E 409	Key switch zone	Key switch zone
	R 409	Key switch restored	Key switch restored
E 602	E 602	Periodic test report	Periodic Test
E/R 700	E 700	Time set*	
	R700	Time isn‘t set*	

** Event codes are indicated in ECID code table.*