



<https://play.google.com/store/apps/details?id=ua.com.glab.easygsmv40>
www.glab.com.ua

**Notification device
easyGPRSv3.0
(Communicator)
Installation and user guide**

Lviv 2016

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Review of functions

- Programming without a computer.
- Error indication while programming and working.
- Cellular network signal strength indication.
- Work with the Satel CA-6, Satel CA-10 centrals using the extended protocol PC-16OUT.
- 2 potential inputs for supply breakdown transmission.
- 2 «open collector» type outputs, each of them can be managed from the security monitoring station phone.
- Programmable «life pulse» transmit time.
- Work with the security monitoring station using the encrypted protocol **GLab-crypto™**.
- Security monitoring station notification of «power off» by transmitting a «device reboot» event.
- Security monitoring station notification of the supply voltage absence and the accumulator discharge without using the device inputs.

Purpose

EasyGPRS communicator is a device of alarm signal transmission from centrals SatelCA6, SatelCA10 and ST-704 to the security monitoring station, using the GLab-crypto™ protocol. External view of the device is shown on **figure 1**.

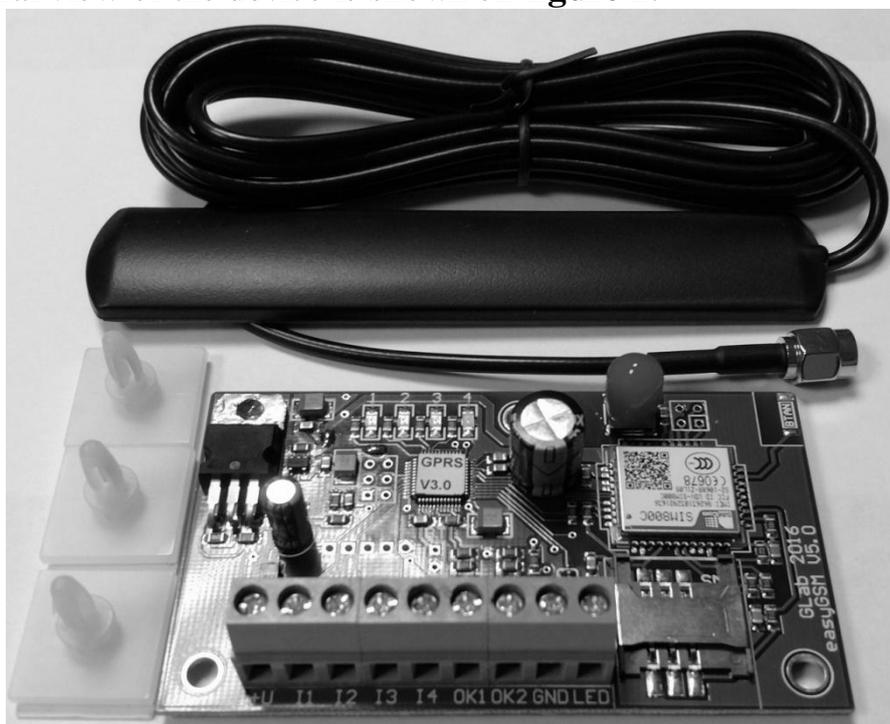


Figure 1.

Specifications

Performance characteristics

Quantity of inputs	4
Quantity of «open collector» type outputs	2
SIM card standard that is supported	GSM
Format of information transmission to the security monitoring station	Glab-crypto
Max. quantity of the security monitoring station server addresses	2
Real-time clock	Yes
Power on ready time, seconds, not more than	30

Electrical specifications

Name	Parameter	Unit	Value
Device supply voltage	U_{pwrdc}	V	+10...+15
Max. current consumption	I_{pwrmax}	mA	1000
Current consumption in stand-by mode, around	I_{pwravg}	mA	50
Max. voltage of log. «1» at the inputs I1 – I4	$U1_{max}$	V	$U_{pwrdc}+1$
Min. voltage of log. «1» at the inputs I1 – I4	$U1_{min}$	V	$U_{pwrdc} * 0,75$
Max. voltage of log. «0» at the inputs I1 – I4	$U0_{max}$	V	$U_{pwrdc} * 0,25$
Min. voltage of log. «0» at the inputs I1 – I4	$U0_{min}$	V	0
Max. load current on OK1 and OK2 outputs (not protected)	I_{okmax}	mA	100
Max. allowed DC voltage on OK1 and OK2 outputs	U_{okmax}	V	15

GSM modem

Frequency range	GSM 850/EGSM 900/ DCS 1800/ PCS1900, automatic selection
GSM class	Small MS
Transmitter power	Class 4 (2W) at EGSM900/GSM850 Class 1 (1W) at DCS1800/PCS1900
SIM interface	Support SIM card: 1,8V, 3V

Work preparation, connection and programming

Requirements for SIM cards of GSM operator.

The device supports standard GSM Phase1, GSM Phase2+ SIM cards with 1,8 and 3,3 Volts supply voltage. This means that any operator SIM card manufactured not earlier than 2004 will work.

The SIM card must be activated, also the PIN request when turning on the phone must be cancelled for the card.

SIM card installation.

Connect the antenna to the SMA connector of the device (see **figure 2**).

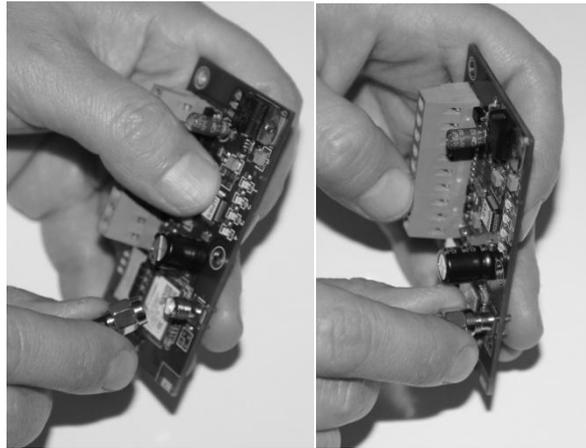


Figure 2.

ATTENTION!

Turning on the device without the GSM antenna causes the GSM module to malfunction. Note that the manufacturer's warranty does not apply to the GSM module.

Insert the SIM card into the device as shown on **figure 3**.

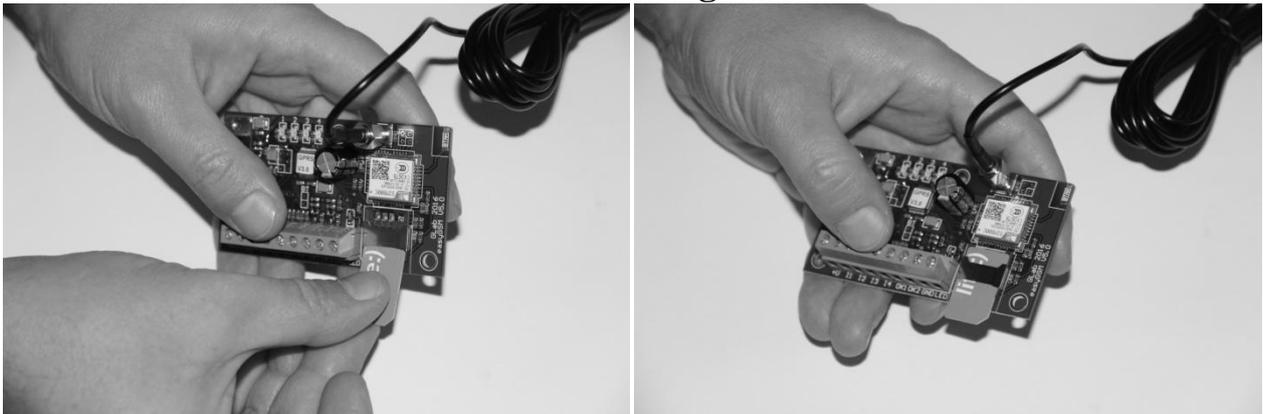


Figure 3.

Purpose of inputs.

Table 1. Purpose of the device inputs.

<i>Input</i>	<i>Purpose (for mode *C0* and *C2*)</i>	<i>Purpose (for mode *C1*)</i>
I1	Alarm button. Active level – logical «0».	Alarm button. Active level – logical «0».
I2	Tamper alarm. Active level – logical «0».	Tamper alarm. Active level – logical «0».
I3	Signal «CLK» PC16OUT	Alarm zone 3. Active level – logical «0».
I4	Signal «DATA» PC16OUT	Arm group 1. Active level – logical «0».

Connecting the device to SatelCA6, SatelCA10.

The (typical) example of device connection is displayed in Appendix 1.

Template recording.

An automatic recording of the necessary for the device to work monitoring station administrator's phone number is possible to the phone book of the SIM card. In order to do so you need to delete an entry named «GBGPRS001» from the SIM card phone book (if the card has already been used in the device), install the SIM card with removed PIN request into the device and power the device. In around 30 seconds the red LED «4» will light up – the template has been recorded into the SIM card phone book. Turn off the power, remove the SIM card. See section *LED indication* for more specific information on LED indication.

Programming.

Before the programming start, write down the phone number of the security monitoring station (the operator's mobile phone number) to the main SIM card cell named «GBGPRS001» using your cell phone.

Insert the SIM card into the device. Power the device. In around 30 seconds the LED «4» (red) will light up and the LED «3» (yellow) will blink 8 times with a long pause. It means that the device is in the standby mode, awaiting an SMS with programming settings. The SMS format is described in section *SMS command format*.

After receiving an SMS with the correct settings the device reboots and tries to establish connection with the GRAPH server, IP addresses and port numbers of which were written in the SMS. This mode is indicated by a constant glow of the LED «4» (red) and 7 times blink with a long pause of the LED «3» (yellow). After a successful connection with the GRAPH server is established, the device will send a request for an encryption key to the security monitoring station operator. (See Appendix 2: The GRAPH server program usage).

ATTENTION!

The GRAPH client must be running at the monitoring station operator's workplace in order for him to receive an encryption key request.

After obtaining a permission to receive the key, given by the operator, the device reboots and enters the main working mode (information transmission to the monitoring station). (See section *LED indication*).

Connecting the outputs.

ATTENTION!

The device outputs have limited loaded capability. Output current MUST NOT EXCEED 100mA!

The device outputs are of «open collector» type and are commutated to the common ground. The «LED» output is used to connect the LED indicating arm/disarm (see Appendix 1).

The outputs can be used for remote management of various equipment, control of security panel operation or arming confirmation indicating LED management by the security monitoring station operator.

LED indication.

The LED indication (see **figure 4**) of the device works in **three modes**.

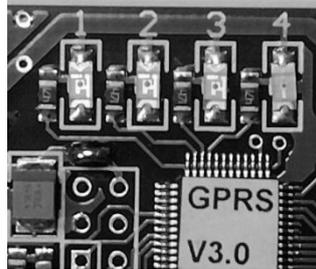


Figure 4.

Mode 1– error indication (red LED «4» glows constantly).

This mode is often used while the device is turning on to inform the user of the device’s inability to work properly. The yellow LED «3» shows the error code. The green LEDs «1» and «2» show the entry number where a mistake is found. For example, if LED «1» blinks 7 times in a row after a pause, it means that the error is in entry №7 (see **Table 2** and **Table 5**).

Table 2. Error codes of the device.

<i>LED «3», number of impulses</i>	<i>Error description</i>
1	Error in the programming entry. Read the error code and change the SMS with the programming settings.
2	SIM card error. Clear all the SIM card contacts or replace the card.
3	PIN code error. Turn off the PIN code request in the security settings.
4	No connection to the GSM modem. Contact the manufacturer’s service.
7	Awaiting the encryption key. Not an error.
8	Awaiting an SMS with settings. Not an error.

ATTENTION!

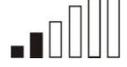
The device indicates errors only for 30 seconds. Afterwards the device will reboot the GSM modem and perform another attempt to enter the working mode. This does not concern the standby mode while waiting for the encryption key or an SMS with settings.

Mode 2 (red LED «4» does not glow or blinks) – **working mode**.

In this mode the red LED «4» can blink if there is no cellular network coverage or the network signal strength is not enough for normal device operation. Yellow LED «3» is used to indicate the operation of the GSM modem. If the LED «3» blinks 1 time per second, it means that the modem is being registered in the GSM operator network. If the LED «3» blinks 1 time per 3 seconds, the modem is already registered at the network. If the LED «3» glows and fades one time per 0,3 second, the GPRS connection to the

GRAPH program is established. If the LED «3» blinks often, there is an ongoing attempt to transmit a message. The green LEDs «2», «1» and the red LED «4» are used to display signal strength of the cellular network operator. Approximate signal level values are displayed in **Table 3**.

Table 3. Approximate level values of the cellular network operator signal.

<i>LED</i>			<i>Level</i>	<i>Notes</i>
«2»	«1»	«4»		
glows	glows	does not glow		Maximum signal strength.
does not glow	glows	does not glow		At about 50% signal strength. Enough for normal device operation.
does not glow	blinks	does not glow		Signal strength is not enough for normal device operation. External antenna is needed.
does not glow	does not glow	blinks		The device cannot operate. External antenna is needed.

Mode 3 – indicating communication with the security monitoring station.

This mode is used **control the data transfer** in the security protocol **GLab-crypto**.

Yellow LED «3» indicates:

An attempt to transmit data to the monitoring station and wait for connection is accompanied by **fast blinking**.

Working modes of outputs.

Every output of the device has 3 independent working modes (see **Table 4**).

Table 4. Working modes of outputs «OK1» or «OK2».

<i>Values sent in SMS</i>	<i>Working mode description</i>
0	The according output works in monostable mode. The output can be activated or deactivated with an SMS command. See the command format in section «Output OK1, OK2 management».
1	The according output works in bistable mode. The output can be activated for up to 99 seconds with an SMS command. See the command format in section «Output OK1, OK2 management».
2	The according output controls the LED that is indicating arming confirmation. In case of successful transmission of the «armed» message to the monitoring station, this output becomes activated for 30 seconds. This also applies to the separate LED output (does not require programming).

SMS command format

Programming the settings.

A text SMS with commands «*1XX*CYYY*» inside the message body is used to program the settings. List of commands is displayed in **Table 5**.

Table 5.

<i>Command</i>	<i>Example</i>	<i>Note</i>
0XX	*010*	Frequency of sending the test message to the security monitoring station. Number x 30 seconds. In case of 00 the test message will not be sent.
1X	*10*	OK1 working mode. 0 – monostable, 1 – bistable, 2– arming confirmation (receipt).
2X	*20*	OK2 working mode. 0 – monostable, 1 – bistable, 2– arming confirmation (receipt).
3XXXX	*31111*	Object number for transmission to the monitoring station. 4 digits.
4xxx.xxx.xxx.xxx	*4192.168.1.1*	IP address of the GRAPH receiver first line.
5xxxxx	*510000*	IP port number (socket) of the GRAPH receiver first line. Must contain 5 digits.
6xxx.xxx.xxx.xxx	*6192.168.1.2*	IP address of the GRAPH receiver second line.
7xxxxx	*710000*	IP port number (socket) of the GRAPH receiver second line. Must contain 5 digits.
8xxxxxxx	*8internet*	Name of the GPRS access point.
9xxxxxxx	*9www.kyivstar.net*	Name of the GPRS connection.
Axxxxxxxx	*A *	User name for GPRS access. If not used, there soul be a «space» symbol between the «A» letter and «*».
Bxxxxxxxx	*B *	User password for GPRS access. If not used, there soul be a «space» symbol between the «B» letter and «*».
Cx	*C0*	Input working mode. «0» - PC16OUT Satel, «1» - potential inputs, «2» - PC16OUT ST-704.
Dxx	*D11*	Open collector management (see section Output OK1, OK2 management).
E	*E*	Settings reset.
F	*F*	Remote device reboot.

An example of SMS for settings programming:

*010*10*21*31234*4192.168.1.1*502050*6abc.com*702051*8internet*9www.kyivstar.net*A *B *C0*

ATTENTION!

All of the IP addresses in the example above are given only for understanding the SMS format!

Note that the usage of the Cyrillic alphabet inside the SMS is unacceptable

Output OK1, OK2 management.

A text SMS with commands «*DXX*DYYY*» inside the message body are used to manage outputs. List of commands is displayed in **Table 6** and **Table 7**.

There can be several commands in the message body separated by the «space» symbol.

Table 6. Commands for SMS managing the outputs in mode «0». Monostable mode.

<i>Command</i> (*DXX*DYY)	<i>Description</i>
D10	Deactivate the OK1 output
D11	Activate the OK1 output
D20	Deactivate the OK2 output
D21	Activate the OK2 output

Table 7. Commands for SMS managing the outputs in mode «1». Bistable mode.

<i>Command</i> (*DXXX*DYYY*)	<i>Description</i>
D1XX	Activate the OK1 output for XX seconds* **
D2YY	Activate the OK2 output for YY seconds* **

* Maximum time for the output to be active is 99 seconds.

** If XX or YY equal 00, the output will be activated for minimum 2 seconds.

ATTENTION!

The device ignores incorrect commands or commands which contain Cyrillic letters in the message body.

Warranty

ATTENTION! The manufacturer of the product is liable only within the limits of the warranty obligation for the operation of the device itself and is not responsible for the installation quality of the device, the coverage and service of the GSM operator, the quality of the radio signal, etc.

The manufacturer is not responsible for any accident, caused by the use of the device by both the owner and the third party.

All responsibility for using the device falls on the user.

The manufacturer is liable for warranty repair of the device during 24 month starting from the time the product was sold.

The warranty does not apply to devices that are out of order due to the user's fault, in particular in case of the exploitation and installation rules violation, in case of the damaged warranty seals, in case of mechanical damage presence, as well as in case of malfunctions, caused by lightning strike, short circuit in the network and so on. Also the warranty does not apply to the SIM900 module which is a part of the device.

Scope of delivery

- | | |
|-------------------------------|----------|
| 1.EasyGPRS communicator | – 1 pcs. |
| 2.ADA0068 antenna | – 1 pcs. |
| 3.Installation and user guide | – 1 pcs. |
| 4.Plastic mounting racks | – 3 pcs. |

Appendix 1: Examples of the device connection.

The examples of device connection to the central Satel CA6 (figure 5) and central Satel CA10 (figure 6) are displayed below.

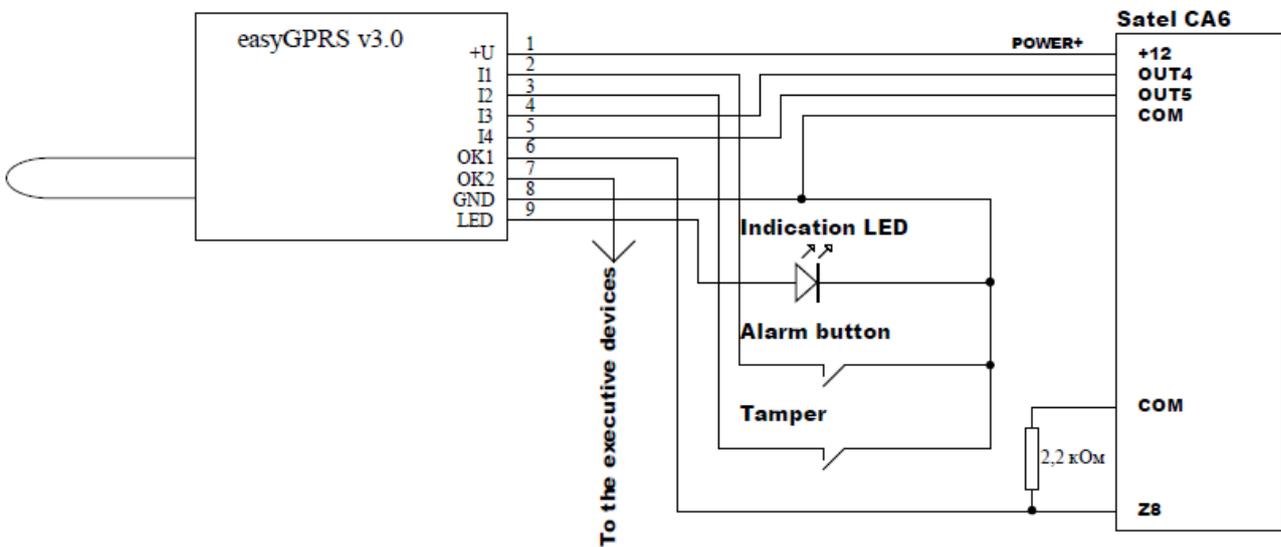


Figure 5. An example of the easyGPRS connection to the Satel CA6.

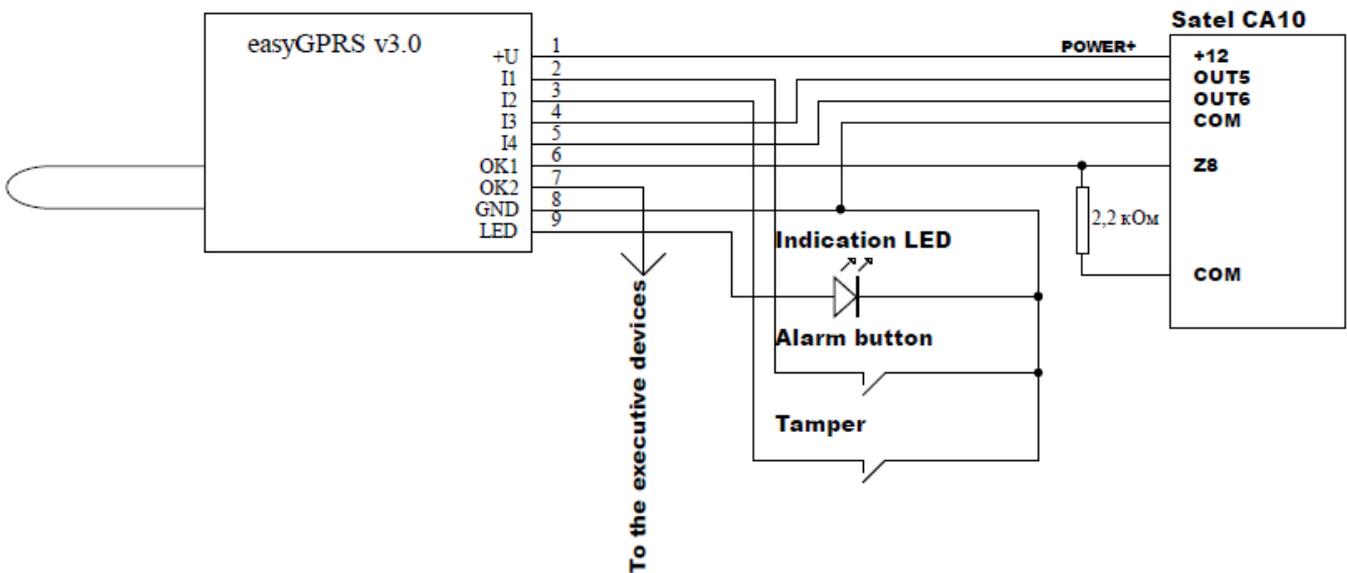


Figure 6. An example of the easyGPRS connection to the Satel CA10.

ATTENTION!

The connection of the I1, I2, OK1 and OK2 clamps is not obligatory.

Appendix 2: The GRAPH server program usage.

The server part of software is designed to receive and decrypt messages in GLab-crypto protocol and to register new transmission devices while giving them an encryption key (for protection against substitution). Decrypted messages in Shur-GARD ContactID format are forwarded to a COM port in an existing system or to the other IP address.

The GRAPH system service will automatically launch after the program has been installed. If the service is not launching, you should execute:

```
"C:\Program Files (x86)\GLAB\GRAPH\GRAPH.exe"-server
```

In order to launch a client part of the server:

Click the «GRAPH Client» icon.

In the dialogue window select the IP address of a computer where the server is running, select the port number for connection and press the «Connect» button:

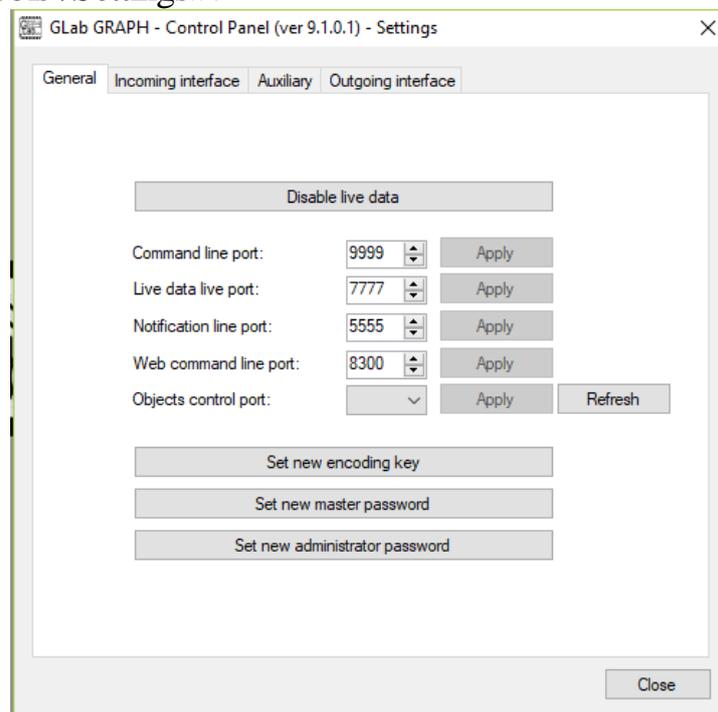
The default password in the program is «master».

The default password for access settings is «admin».

In the following pop-up window click «Tools/Language» and choose a preferable interface language.



Afterwards open «Tools /Settings»:



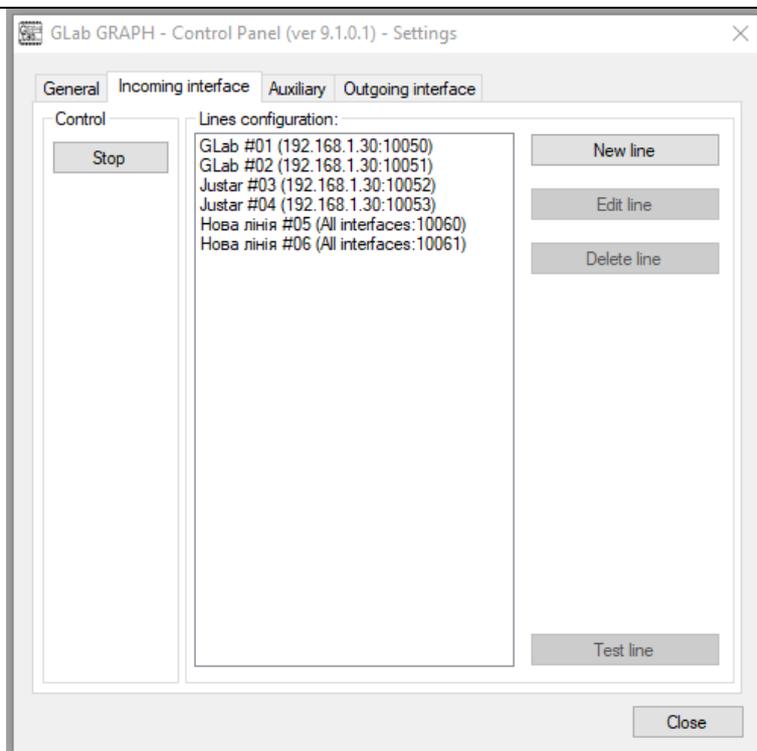
Tab «General»:

- «Disable live data» - serves to allow or forbid viewing data that is received and processed by the server in real time.
- «Command line port» - the connection between the client side and the server is established through that port.
- «Live data live port» - the data to the real time event window is transmitted through that port.

- «Notification line port» - a message about a key request by the object device is displayed through that port.
- «Set new encoding key» - a code phrase (no less than 8 symbols), based on which the program generates the encryption key.

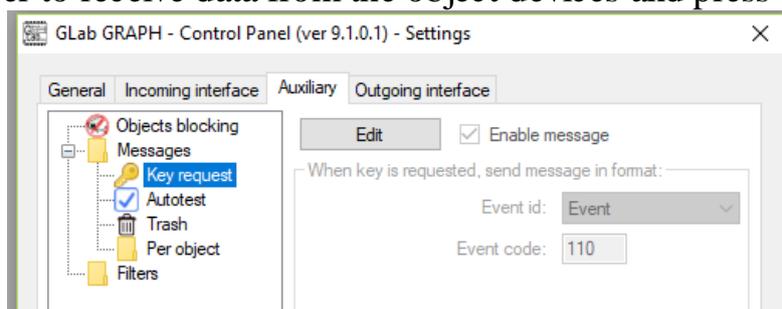
ATTENTION!

The entered code phrase should be written and hidden. If you do not remember a code phrase, after installation to a new computer none of the previously connected devices will work.



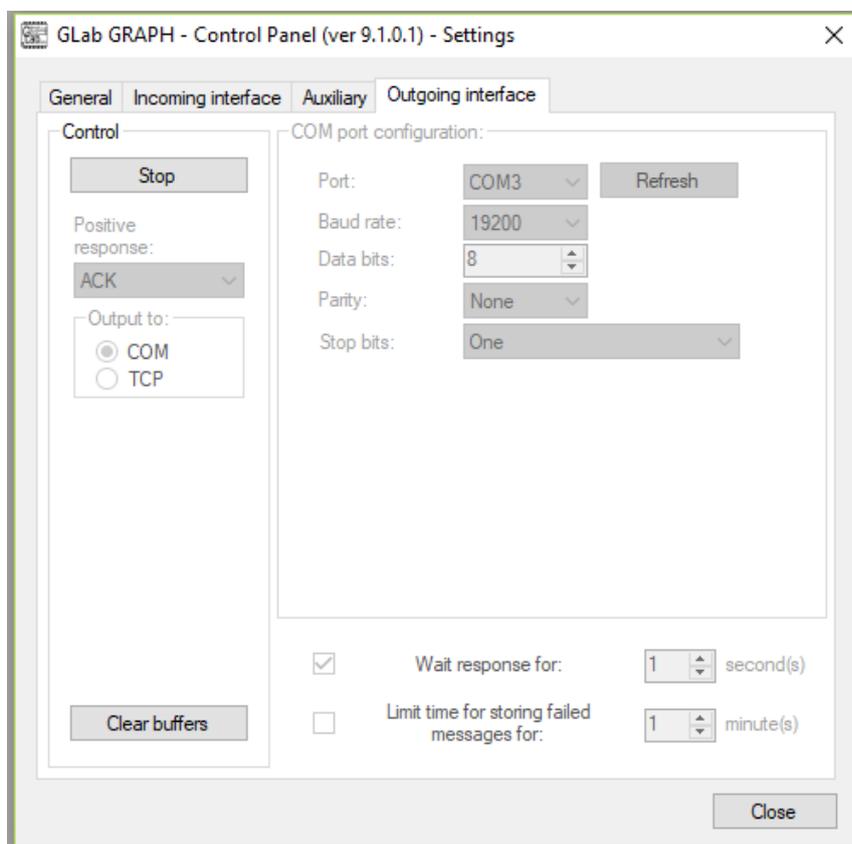
Tab «Input interface»:

Here you should add a «New line», choose the IP address and the port number which will be used by the server to receive data from the object devices and press «Start».



Tab «Service»:

- «Key request». A message in the standard Shur-GARD ContactID format, which is forwarded to the output interface after receiving an encryption key request from the object.
- «Auto test». A message like «5000 18YYYYE60200000[0x14]» (a chosen object number will be written instead of YYYY) will be transmitted with a certain period (in minutes), granted that the checkbox has been marked.



Tab «Output interface» - here it is possible to set the output for received and decrypted messages to COM port of a computer or to an IP address.

If the station software understands the Sur-GARD receiver on the COM port, a free program com0com (<http://com0com.sourceforge.net>) can be used to create a pair of virtual serial ports. Install one of the com0com ports as a Sur-GARD port in the station software. Then choose the second port from the pair in the «Output interface» tab, set the speed, bit quantity, parity control, quantity of stop bits, presence of positive response from the station software and press the «Start» button. If everything was done correctly, the program should be ready for work.

For administrative convenience it is possible in the program to browse input and output interface history files, as well as real time data. (Tab «File/Open»).