



Communication module **GSM-4/GSM-5**



Firmware version 4.14 (GSM-4) / 5.14 (GSM-5)

gsm4_5_en 11/12

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WARNING

For safety reasons, the module should only be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Telephone terminals of the panel should be connected to **PSTN lines only**. Connecting to ISDN lines may cause damage to the equipment.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

CAUTION!

Never turn on power supply of the module and telephone without external antenna connected.

Hereby, SATEL sp. z o.o., declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration of conformity may be consulted at www.satel.eu/ce

The SATEL's goal is to continually upgrade the quality of its products, which may result in alterations of their technical specifications and firmware. The current information on the introduced modifications is available on our website.

Please visit us at:
<http://www.satel.eu>

The settings list, helpful in configuring the GSM-4 or GSM-5 module, is available in electronic form at the www.satel.pl site

The following symbols may be used in this manual:



- note;



- caution.

CONTENTS

1. GENERAL	3
2. MODULE FEATURES	3
3. TYPICAL MODULE APPLICATIONS	4
3.1 BACKUP COMMUNICATION PATH	4
3.2 SUPERVISION / CONTROL OF DEVICES	5
3.3 SIMULATION OF MONITORING STATION	5
3.4 INTEGRATION WITH INTEGRA CONTROL PANELS	6
3.5 WORKING IN CONJUNCTION WITH STAM-1 / STAM-2 MONITORING STATION	6
3.6 WORKING IN CONJUNCTION WITH PBX STATIONS	7
4. DESCRIPTION OF THE MODULE	7
4.1 DESCRIPTION OF THE ELECTRONICS BOARD	7
4.2 LCD DISPLAY	9
4.3 LED INDICATORS [ONLY GSM-5]	11
4.4 BUTTONS	12
4.4.1 Module restart	12
4.5 AUDIBLE SIGNALING IN THE MODULE	13
4.5.1 When controlling inputs	13
4.5.2 When controlling outputs	13
4.5.3 In service mode	13
5. INSTALLATION	13
6. PROGRAMMING	14
6.1 SERVICE MODE	14
6.1.1 Service mode menu	15
6.1.2 Description of functions available only in service mode	21
6.1.3 Entering data by means of buttons	21
6.2 DLOAD10 PROGRAM	22
6.2.1 Local programming	22
6.2.2 Remote programming	24
6.2.3 Main menu of DLOAD10 program	25
6.2.4 Status bar	26
6.2.5 Changing the program access code	26
6.2.6 "GSM-4 / GSM-5" tab	27
6.2.7 "SIM 1/2" tab	30
6.2.8 "Control/Inputs/Outputs" tab	32
6.2.9 "Tel. messaging" tab	37
6.2.10 "Reporting" tab	40
6.2.11 "Reporting – inputs" tab	44
6.2.12 "TCP/IP downloading" tab	45
6.2.13 "Firmware update" tab	46
6.2.14 "Events buffer" tab	47
7. CONTROL	48
7.1 REMOTE	48
7.1.1 Tone control from telephone keypad	48
7.1.2 Using SMS	49
7.1.3 Using CLIP	50
7.2 LOCAL	50
7.2.1 Using the module buttons	50
7.2.2 From the keypad of telephone connected to telephone line output	51
7.3 CONTROL FROM DLOAD10 PROGRAM	51
8. STARTING THE REPORTING	52
8.1 STARTING THE GPRS REPORTING	52
8.1.1 Reporting the module status (GPRS)	53
8.1.2 Reporting events from the control panel (GPRS)	53
8.2 STARTING THE CSD REPORTING	53
8.2.1 Reporting the module status (CSD)	53
8.2.2 Reporting events from the control panel (CSD)	53
8.3 STARTING THE SMS REPORTING	54
8.3.1 Reporting the module status (SMS)	54

8.3.2	Reporting events from the control panel (SMS).....	54
8.4	STARTING THE AUDIO REPORTING	55
8.5	STARTING THE EVENT REPORTING OVER SEVERAL LINKS	55
9.	STARTING THE MESSAGING	55
9.1	STARTING THE VOICE MESSAGING	55
9.2	STARTING THE SMS MESSAGING	56
9.2.1	Changing the text messages content by means of SMS	56
9.3	STARTING THE CLIP MESSAGING	56
10.	CONVERTING THE PAGER TYPE MESSAGES INTO SMS MESSAGES	57
10.1	WORKING IN CONJUNCTION WITH THE DT-1 DIALER	57
11.	SENDING SMS MESSAGES FROM THE TELEPHONE CONNECTED TO TELEPHONE LINE OUTPUT	57
12.	THE RULES FOR CONVERTING THE NUMBERS	59
13.	INITIATING THE MODULE FIRMWARE UPDATE BY SMS MESSAGE	59
14.	RESTORING THE FACTORY SETTINGS.....	59
14.1	DLOAD10 PROGRAM	59
14.2	SERVICE MODE.....	60
14.3	MODULE FACTORY SETTINGS (DLOAD10)	60
15.	SPECIFICATIONS	62

1. General

This manual covers the GSM-4 module (electronics version 3.3, firmware version 4.14) and the GSM-5 module (electronics version 1.2, firmware version 5.14).

2. Module features

- Simulation of analog telephone line when using the GSM connection.
- Capability of operating as a backup communication path for analog telephone line.
- Built-in industrial GSM telephone working in 850/900/1800/1900 MHz cellular telephony networks.
- Support for two SIM cards (GSM-5 module).
- Capability of remotely checking the status of available resources and the account validity of SIM card installed in the module.
- 4 programmable hardwired inputs (NO, NC) to supervise the status of external devices.
- 3 programmable outputs to control the external devices or signal troubles.
- An output to signal the telephone line trouble and/or problem with logging into GSM network.
- Control of outputs or bypassing of the module inputs by means of:
 - module buttons,
 - inputs,
 - telephone keypad (DTMF),
 - SMS messages,
 - CLIP (toll-free),
 - DLOAD10 program.
- Capability of determining the telephone numbers authorized for DTMF or SMS control.
- Messaging about the module related events to 4 telephone numbers in the form of:
 - voice message (played back by SM-2 synthesizer);
 - SMS message,
 - CLIP service (toll-free).
- Reporting the module related events to two monitoring stations in Contact ID or Ademco Express format.
- Conversion and retransmission of event codes received from other devices (simulation of the telephone monitoring station).
- Several ways to send event codes to the monitoring station:
 - GPRS transmissions (encrypted),
 - CSD transmissions,
 - SMS messages,
 - AUDIO transmissions.
- Defining the priority of different ways to report events.
- Capability of storing up to 255 events generated by the module or received from the control panel (modules with built-in GSM u-blox LEON-G100 telephone).
- Capability of converting the PAGER type text messages into SMS messages.
- Capability of limiting the outgoing calls made by means of GSM module telephone to the indicated telephone numbers.

- Module programming:
 - locally: module buttons or computer with the DLOAD10 program installed, connected to the module RS-232 port;
 - remotely: computer with the DLOAD10 program installed, connecting by means of GPRS.
- Display providing information on the module status and facilitating programming by means of buttons.
- RS-232 port to allow:
 - local programming by means of computer with the DLOAD10 program installed;
 - connection to the alarm control panel or computer as an external modem;
 - integration with the INTEGRA control panel;
 - working in conjunction with the STAM-1 / STAM-2 monitoring station;
 - updating the module firmware.
- Capability of remotely updating the module firmware by means of GPRS (modules with built-in GSM u-blox LEON-G100 telephone).
- Powered with 12 V DC ($\pm 15\%$).

3. Typical module applications

The extended functionality of GSM module enables it to be used for a variety of applications. This section presents typical examples of its application. Some of them are capable of being combined with one other.

3.1 Backup communication path

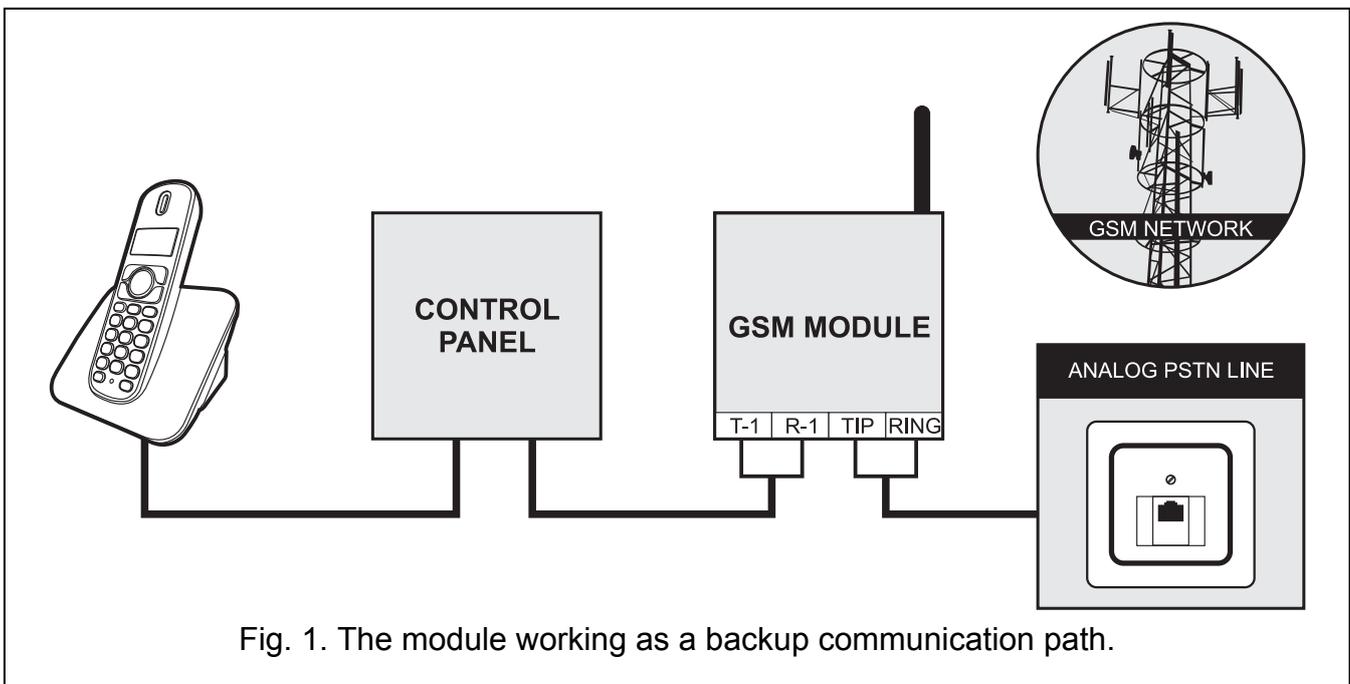


Fig. 1. The module working as a backup communication path.

When connected to the telephone line output (T-1 and R-1 terminals, and in the GSM-4 – also a suitable socket), the devices are capable of making telephone calls via analog telephone line or GSM network. You can select which communication path will be the primary one. If the primary communication path is malfunctioning, the module can automatically switch over to the backup one.

3.2 Supervision / control of devices

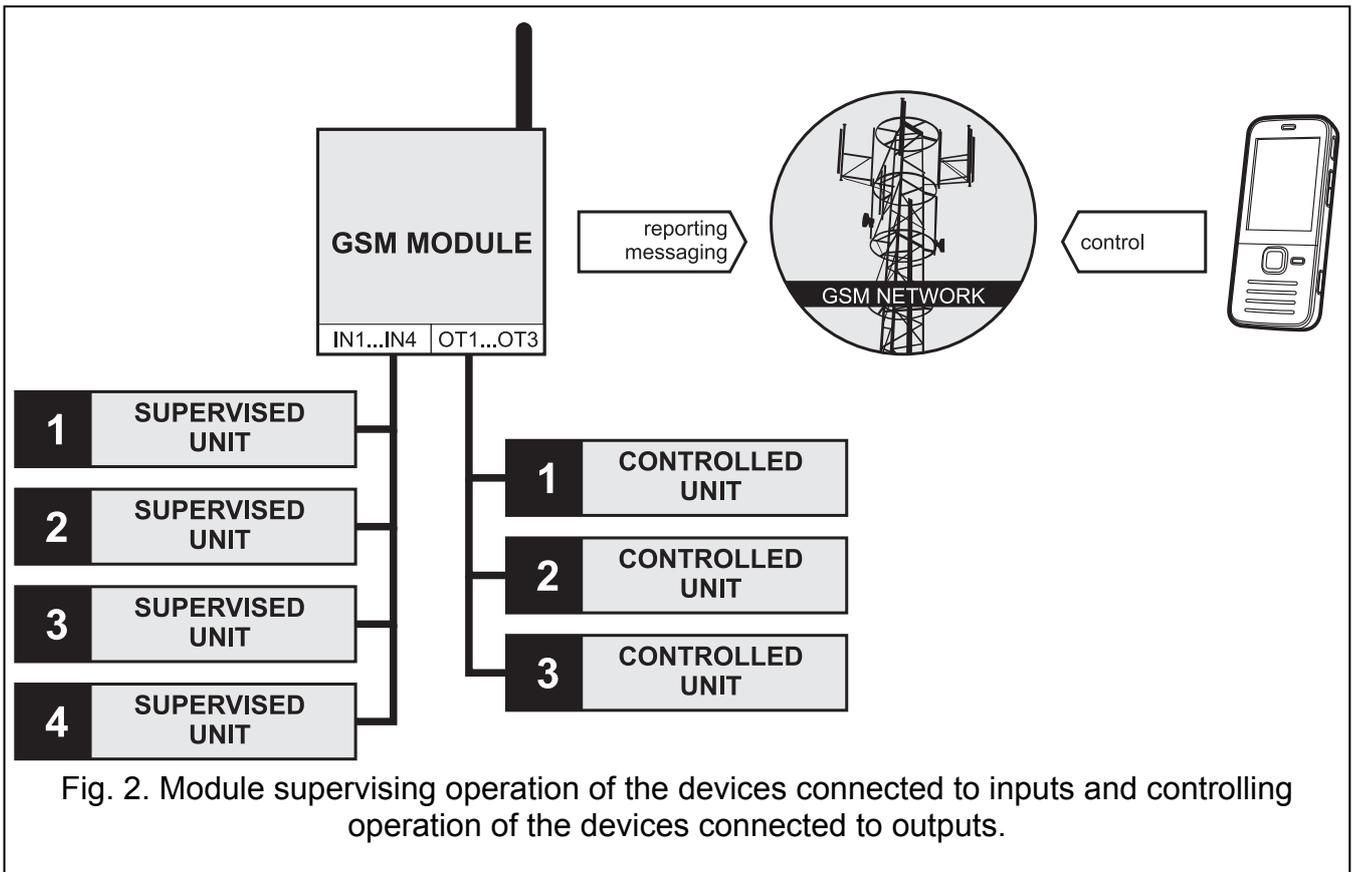


Fig. 2. Module supervising operation of the devices connected to inputs and controlling operation of the devices connected to outputs.

The change of status of the input to which the supervised device is connected may result in:

- sending event code to the monitoring station (GPRS / CSD / SMS reporting);
- notification (messaging) about the event by means of voice, SMS or CLIP message.

The inputs can be bypassed locally (by means of buttons, one of the module inputs or the keypad of telephone connected to the telephone line output) or remotely (by means of SMS messages or telephone keypad (DTMF)).

The devices connected to the module outputs can be controlled locally (by means of buttons, module inputs or the keypad of telephone connected to the telephone line output) or remotely (by means of SMS messages, telephone keypad (DTMF) or CLIP).

3.3 Simulation of monitoring station

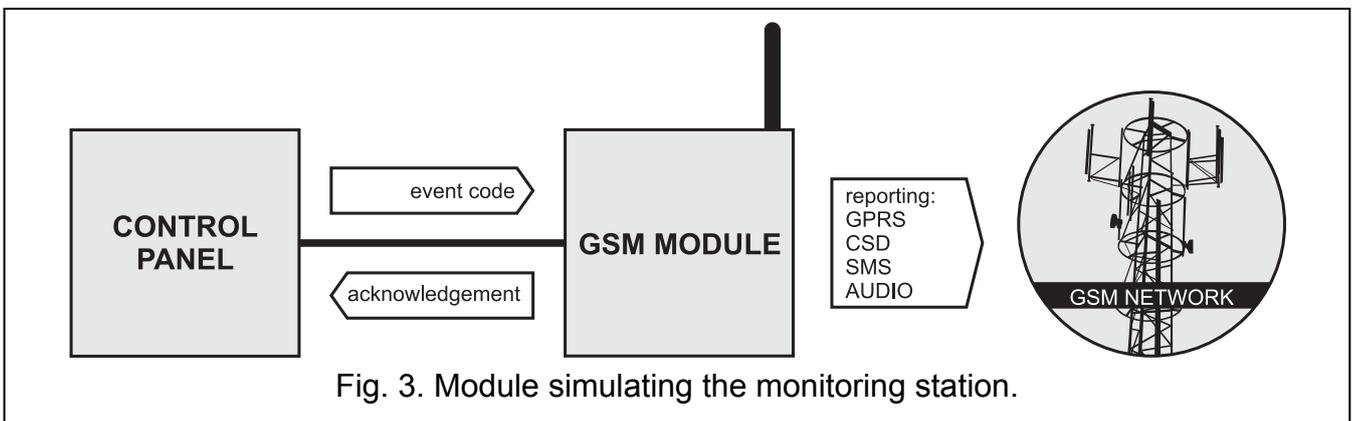


Fig. 3. Module simulating the monitoring station.

The module can forward the event codes received from the control panel to the monitoring station by means of GSM network. Which reporting link will be used to send the event code

and when the module will acknowledge receipt of the code to the control panel depends on the module configuration.

3.4 Integration with INTEGRA control panels

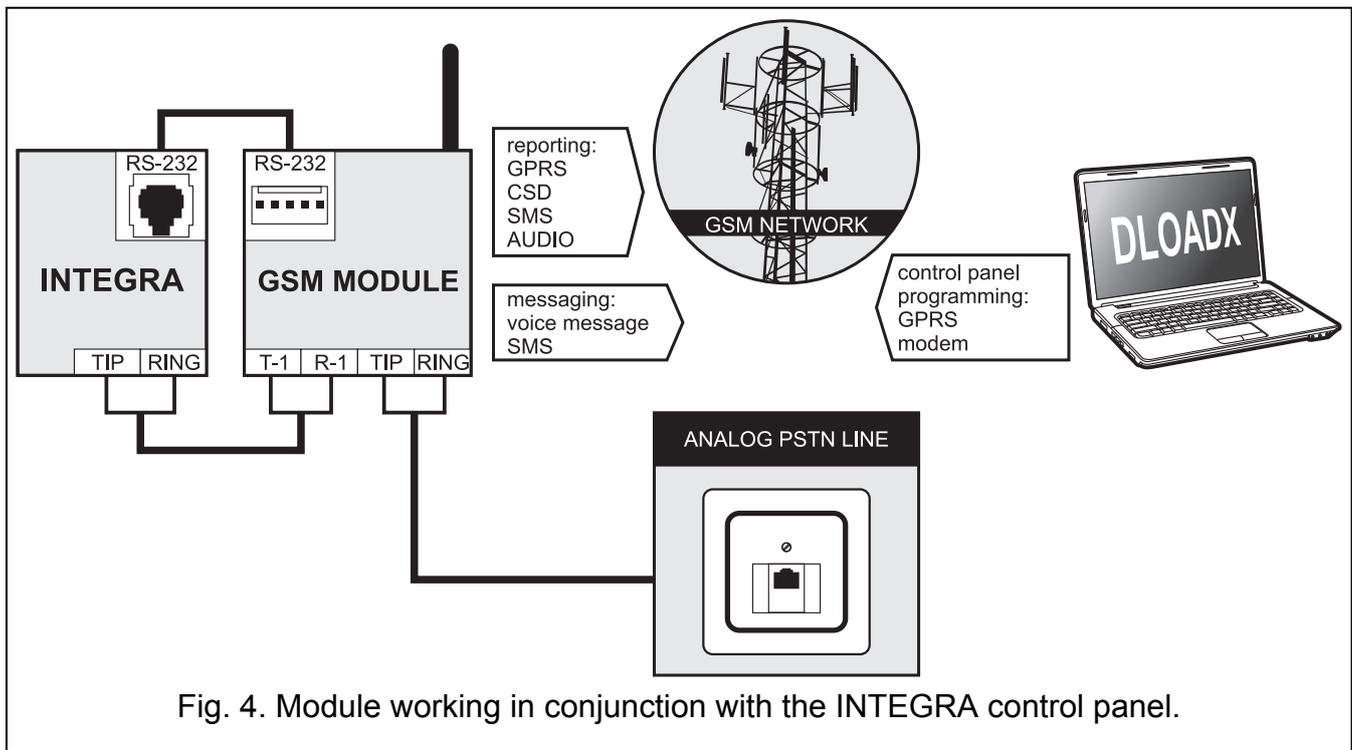


Fig. 4. Module working in conjunction with the INTEGRA control panel.

When connected to the INTEGRA control panel, the module offers the following benefits:

- GSM network as the primary or backup communication path;
- transmission of event codes to the monitoring station via GSM network;
- messaging via GSM network, including SMS messaging (for the INTEGRA Plus control panels, an additional feature is available: messaging by means of SMS messages, whose content corresponds to the description in event log and thus the installer does need to define it);
- remote programming of the control panel from a computer with DLOADX program installed (with a fast data transfer due to GPRS);
- remote management of the alarm system from a computer with GUARDX program installed (with a fast data transfer due to GPRS).

The module can control connection with the INTEGRA control panel.



If communication with the GSM module is to be effected through the RS-232 port, the local programming function in the INTEGRA control panel must be disabled.

3.5 Working in conjunction with STAM-1 / STAM-2 monitoring station

When connected to the STAM-1 / STAM-2 monitoring station, the module makes it possible to receive event codes sent in the form of SMS or CLIP message. If used in conjunction with the STAM-2 monitoring station, the module also enables the monitoring station to receive CSD data transmissions containing the event codes and to send SMS messages.

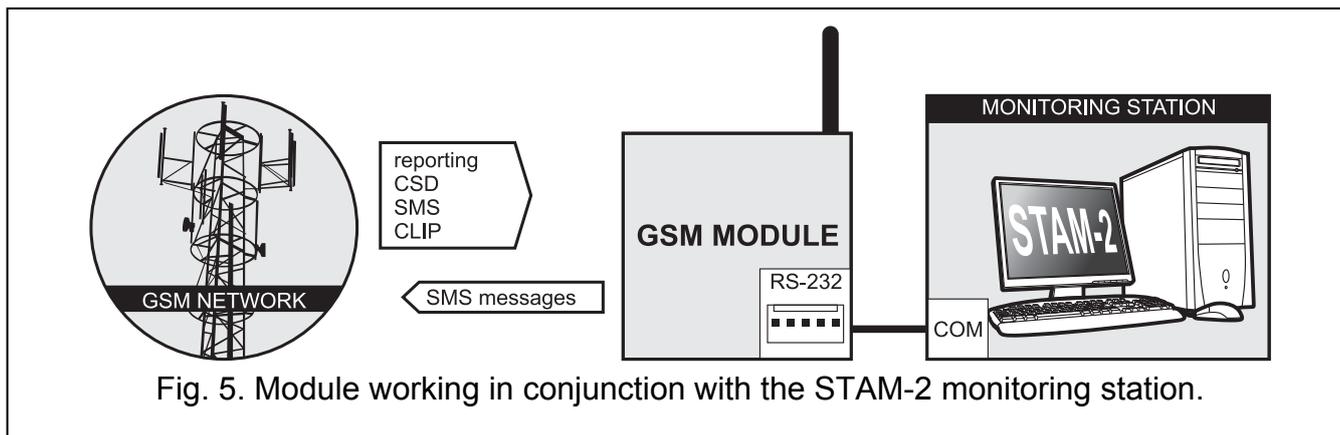


Fig. 5. Module working in conjunction with the STAM-2 monitoring station.

3.6 Working in conjunction with PBX stations

The module can work in conjunction with the Private Branch Exchanges (PBX) as an additional external telephone line. It can be used to make outgoing calls to the mobile phone numbers and thus optimize the costs incurred.

4. Description of the module

4.1 Description of the electronics board

Description of the terminals:

OT1...OT4 – OC type outputs (shorted to ground when active):

OT1 - controlling output.

OT2 - controlling or monitoring trouble signaling output (see: "OT2 - mon.trbl." p. 29).

OT3 - controlling or telephone line trouble signaling output (see: "OT3 - t.l.trbl." p. 29).

OT4 - telephone line trouble and/or GSM network login problem signaling output (see: „OT4 - only GSM" p. 29).

+V – power supply output (12 V DC $\pm 15\%$).

IN1–IN4 – the module's inputs.

-V – common ground (dedicated to external devices supplied from +V output).



The -V and GND are dedicated terminals for different applications and must not be electrically connected.

+12V – power supply input (12 V DC $\pm 15\%$).

GND – common ground.



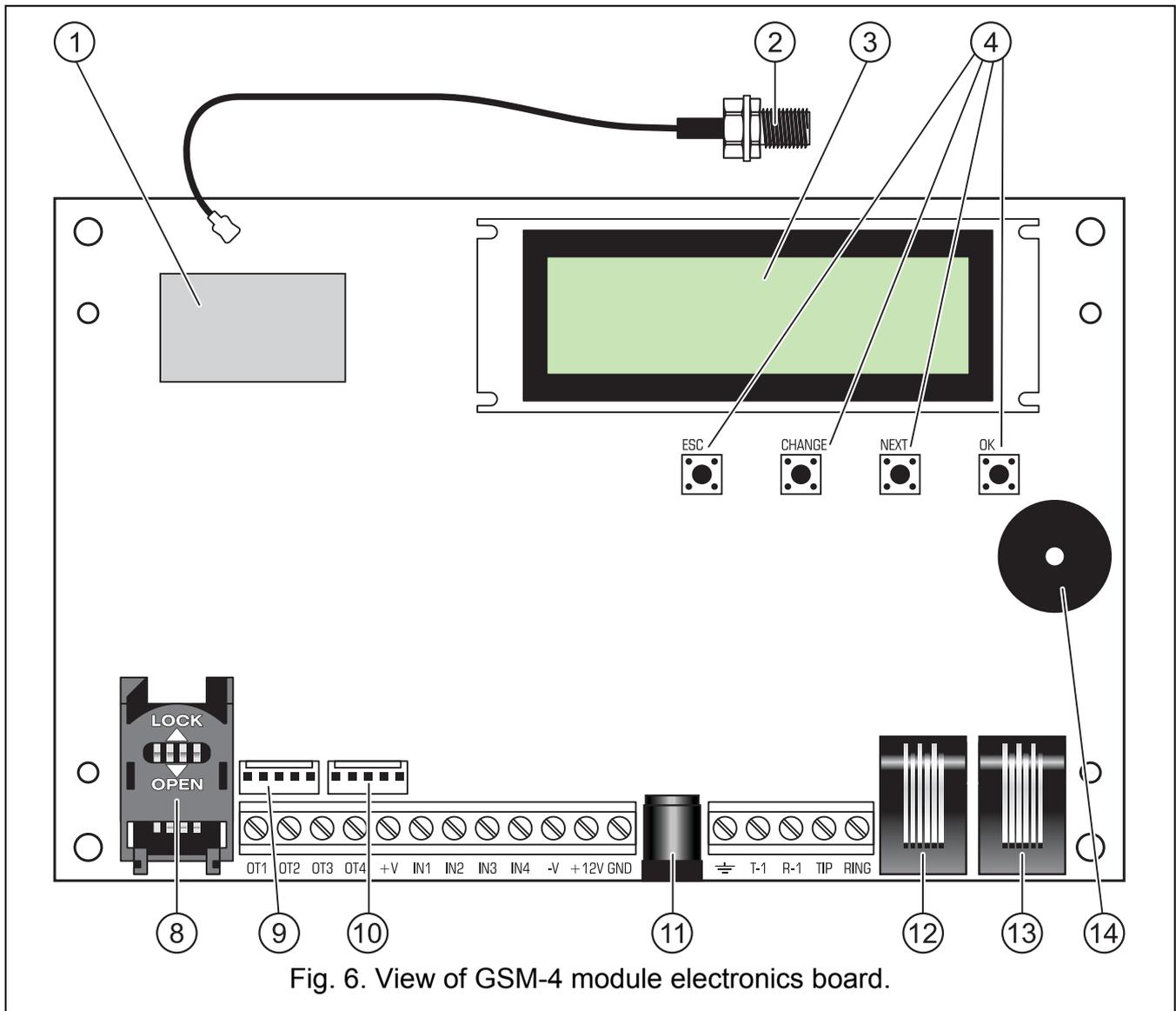
– protective terminal of telephone communicator (connect only to the PE protective circuit of 230 V AC mains).

T-1, R-1 – telephone line output (connection for alarm control panel, telephone set or another device provided with telephone dialer).



When making a telephone call, the module changes the DC voltage polarization on telephone line output (T-1 and R-1 terminals), thus enabling individual charging of the phone calls.

TIP, RING – telephone line input (analog PSTN line).



Explanations for Figures 6 and 7:

- ① **GSM industrial telephone.**
- ② **external antenna connection.**
- ③ **LCD display.**
- ④ **programming buttons.**
- ⑤ **STAT LED** indicating the module status (see section "LED indicators [only GSM-5]" p. 11).
- ⑥ **SIG LED** indicating the level of antenna signal received by GSM telephone (see section "LED indicators [only GSM-5]" p. 11).
- ⑦ **SIM1** and **SIM2 LEDs** indicating the SIM card with which the module is working.
- ⑧ **SIM card socket** (one in the GSM-4 module, two in the GSM-5 module). It is not recommended that SIM card be inserted into the socket before the card PIN code has been programmed in the module. The GPRS service must be activated in the SIM card installed in the module, if the module is to use the functions requiring the GPRS technology.

- ⑨ socket for connecting SM-2 voice synthesizer.
- ⑩ RS-232 port.
- ⑪ jack for external power supply unit .
- ⑫ telephone line output socket (for connection of alarm control panel, telephone set or another device provided with telephone dialer).
- ⑬ telephone line input socket (analog PSTN line).
- ⑭ sounder.

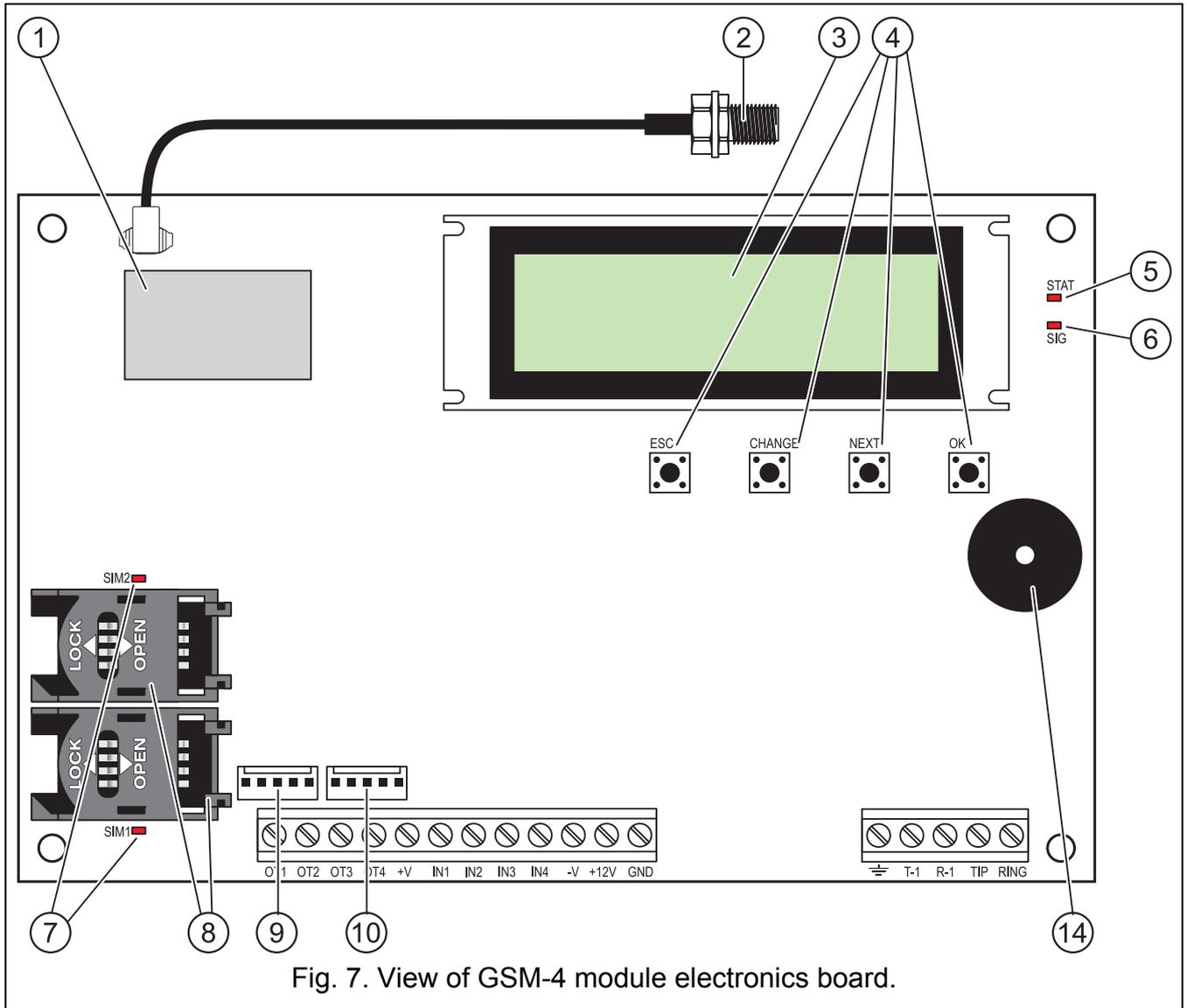


Fig. 7. View of GSM-4 module electronics board.

4.2 LCD display

The integrated display allows you to read information about the module current status.

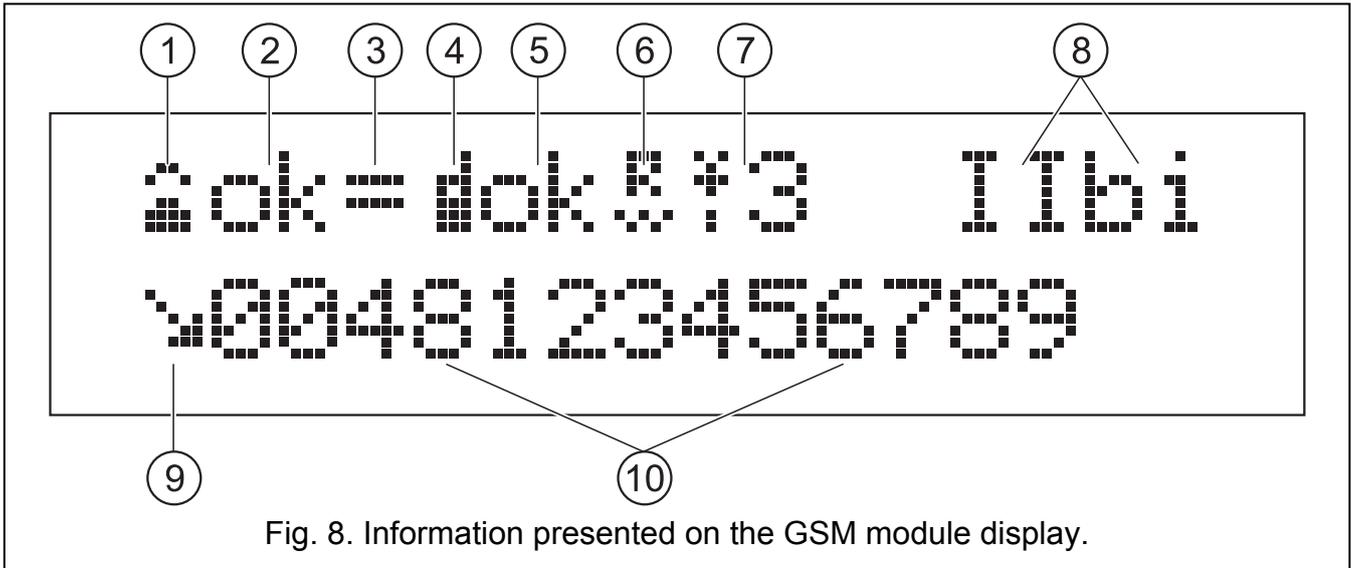


Fig. 8. Information presented on the GSM module display.

Explanations for Figure 8:

- ① the following symbols can be displayed here:
 - ☎ analog telephone line OK; flashing means an analog telephone line trouble;
 - ☎ telephone connected to telephone line output is off the hook.
 - ② the following information can be displayed here:
 - ok analog telephone line OK;
 - ?? analog telephone line trouble.
 - ③ the = symbol can be displayed here, indicating that the module is controlled by an external device (e.g. is working in the fax/modem mode). Flashing of the symbol means data receiving or sending by the STAM-2 monitoring station.
 - ④ the ☎ symbol can be displayed here, indicating the GSM telephone. The flashing symbol means a GSM telephone trouble.
 - ⑤ the following information can be displayed here:
 - ok GSM telephone OK;
 - ?? GSM telephone trouble.
 - ⑥ the ☎ symbol can be displayed here, indicating that the module is connected with the computer through RS-232 port. Flashing of the symbol means data receiving or sending.
- i** The ④, ⑤ and ⑥ fields can display the name of the reporting link (GPRS, CSD or SMS) over which the module is currently sending event codes to the monitoring station.
- ⑦ the field presents information about the level of GSM signal received by the module antenna. The displayed symbol denotes:
 - ☎ the signal level for the GSM-4 module or for the use of SIM1 card by the GSM-5 module;
 - ☎ the signal level for the use of SIM2 card by the GSM-5 module.
 Flashing of the symbol means logging into the SIM card operator network.

- ⑧ symbols indicating the status of inputs / outputs are alternately displayed here (2s / 2s):
 - I input violated;
 - i input in normal state;
 - b input blocked;
 - T input violated, but changing its status does not start messaging ;
 - t input status OK, but changing its status does not start messaging ;
 - O output active; flashing means that the output will remain active for the preset time;
 - o output inactive.
- ⑨ the following symbols can be displayed here:
 - ☒ modem connection;
 - ☒ outgoing call initiated by a device connected to the telephone line output and made by the GSM module telephone;
 - ☒ incoming call to the GSM module telephone.
- ⑩ telephone number can be displayed here.

i In the display lower line, the following items can be shown:

- date and time,
- message indicating occurrence of a specific event.

The display is also used when configuring the module settings. Press and hold down the CHANGE and NEXT buttons simultaneously for about 1 second to display the service mode menu. The functions are presented in two lines. An arrow is displayed on the left-hand side of the currently selected function.

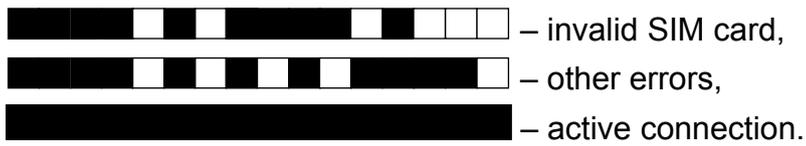
The display backlight illumination can be programmed so as to suit the user's needs.

4.3 LED indicators [only GSM-5]

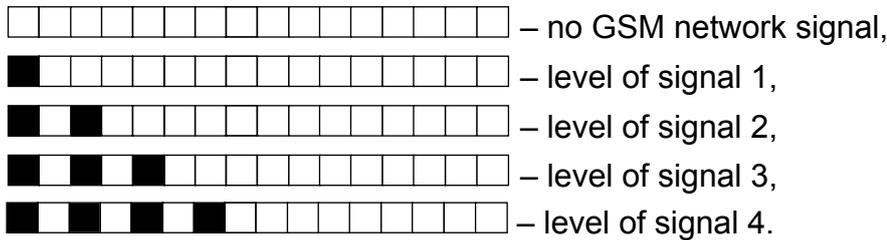
Shown below in graphic form is how the module status is indicated by means of individual LEDs. Each lighting scheme covers about 4 seconds and is repeated after 1 second pause (□ – LED is OFF; ■ – LED is ON).

STAT indicates the module status:

- – (LED off) module power off,
- – normal operation of module,
- – no communication with GSM telephone,
- – invalid PIN code,
- – no PIN code,
- – no SIM card,
- – PUK code required,
- – PH-SIM PIN code required,
- – PIN2 code required,
- – PUK2 code required,
- – SIM card busy,
- – module restart on switching power on,
- – SIM card damaged,



SIG indicates level of signal received by GSM telephone:



4.4 Buttons

The module PCB includes four buttons, which are used to program the device settings and also to manually control the status of module inputs and outputs.

Button	In service mode (press and hold down the CHANGE and NEXT keys for 1 second to enter the service mode)	Bypassing / unbypassing the input (press the button three times)	Activating / deactivating the output (press and hold down the button for about 1 second)
ESC	1.go to the "End of service" function in the menu, 2.return from submenu to the main menu, 3.exit from the function without saving the changes.	bypassing / unbypassing the input IN1	activating / deactivating the OT1 output
CHANGE	1.return to the previous function in menu, 2.change of selected element in the function (e. g. an option marker  , a digit or a letter).	bypassing / unbypassing the input IN2	activating / deactivating the OT2 output
NEXT	1.move to next function item within menu, 2.move to next element of the function being programmed at present (e. g. successive digit or successive character).	bypassing / unbypassing the input IN3	activating / deactivating the OT3 output
OK	1.entry into the function selected from menu (indicated by arrow on LCD display) for checking or changing the settings, 2.exit from the function with saving the changes.	bypassing / unbypassing the input IN4	deactivating the OT1-3 outputs

4.4.1 Module restart

Press and hold down the ESC and OK keys simultaneously for 1 second to restart the module. After the restart, information on the device firmware version will be displayed. The status of inputs and outputs will remain unchanged.

4.5 Audible signaling in the module

4.5.1 When controlling inputs

3 short beeps – bypassing the input.

4 short beeps and 1 long beep – unbypassing the input.

4.5.2 When controlling outputs

3 short beeps – deactivating the single output or all outputs deactivating using buttons.

4 short beeps and 1 long beep – activating the output using buttons.

4.5.3 In service mode

2 short beeps – entering the service mode.

4 short beeps and 1 long beep – exiting the service mode.

1 short beep – going to the next or previous function in the service mode.

2 short beeps – entering the function.

2 long beeps – exiting the function without saving changes.

3 short beeps – saving the changes.

5. Installation



Disconnect power before making any electrical connections.

It is not advisable to power up the device if the antenna is not connected.

The GSM module should be installed indoors, in spaces with normal air humidity. When selecting the mounting location, remember that thick masonry walls, metal partitions, etc. will reduce the range of radio signal. It is not advisable to install the module in close vicinity to electrical installations, because this can result in malfunctioning of the device.

The module power supply should have a sufficient output current and be provided with a battery. It is recommended that it be placed at a distance of 3 m or less from the module.



When the supply voltage drops below 9.8 V, restart of the module occurs.

The +V and –V terminals should be used to supply the external devices. Remember that the output current of the connected power supply unit must allow for electric demand of the module and devices connected to it.

The following installation procedure is recommended:

1. Connect the antenna to the on-board connector
2. Connect the control panel, telephone or another device equipped with telephone dialer to the R-1 and T-1 terminals (or to a suitable socket on the electronics board).
3. If the module is to be used as the external modem, connect the module RS-232 port to the suitable port of the device.
4. Connect the analog telephone line to the TIP and RING terminals (or to a suitable socket on the electronics board).
5. Connect the devices whose operation is to be monitored by the module to the input terminals, as required.
6. Connect the devices to be controlled by the module to the output terminals.
7. Connect the power cables to the +12V and GND terminals.
8. Turn on power supply of the module.

9. Using the suitable function, enter the PIN code(s) of SIM card(s) (if required by the SIM card).
10. Turn off power supply of the module.
11. Insert the SIM card into the socket (see: Fig. 9).

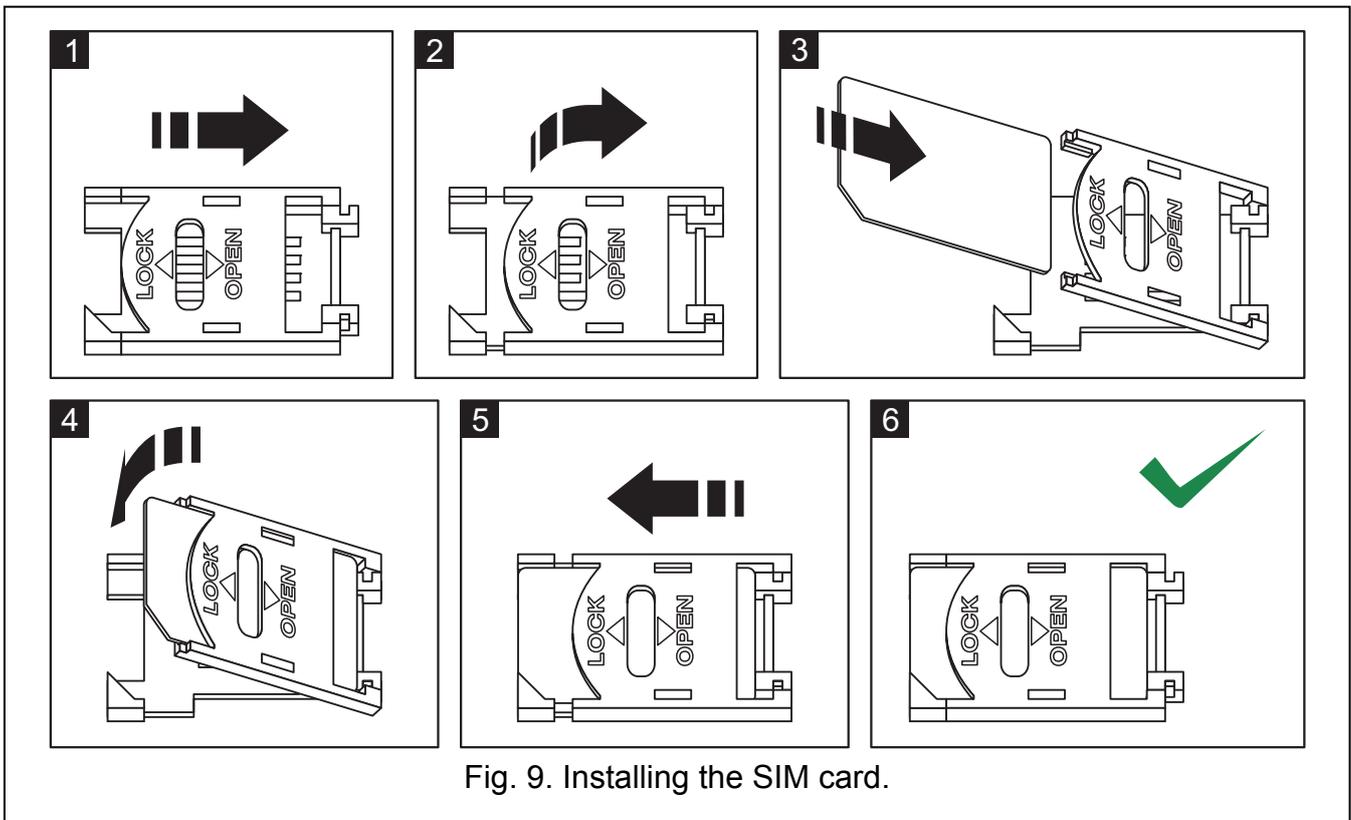


Fig. 9. Installing the SIM card.

12. Turn on power supply of the module. Logging the telephone into the GSM network may take a few minutes.



If the SIM card does not accept the PIN code, first the "Bad PIN, go on ? Wait...", information is displayed, followed by the "Bad PIN, go on ? ESC=Stop" information (in the GSM-5 module, the STAT LED will additionally indicate which PIN code is invalid). The next attempt to use the PIN code will take place after 60 seconds. After the third attempt to use the wrong PIN code, the SIM card will be blocked. To unblock the SIM card, insert it into a mobile phone and enter the PUK code.

6. Programming

You can configure the module using the buttons located on the electronics board or the computer with suitable software (locally and remotely).

6.1 Service mode

Programming the module by means of buttons on the electronics board is possible due to the service functions, available in the service mode menu. To start the service mode, press and hold down simultaneously the CHANGE and NEXT buttons. If required by the module, enter the code to get access to the service mode (see "Service code" p. 27).

If no button is pressed for about 1 minute, the module will exit the service mode automatically.



When the service mode is running, the control of inputs and outputs by means of buttons is impossible.

6.1.1 Service mode menu



The functions applicable only to the GSM-5 module are highlighted with white text against black background.

End of service

Service code

Line loss time

GSM loss time

Time of ringing

Turn off TLvolt

Show TL failure

Show dialing

Signal testing

CLIP -> number

Any numbers

Routing signal

GSM main line

Trbl.-switch I.

FLASH - GSM/TL

FLASH number

Outgoing No 1

Outgoing No 2

Outgoing No 3

Outgoing No 4

Perm. prefix 1

Perm. prefix 2

Perm. prefix 3

Perm. prefix 4

Prefix to erase

Prefix do add

Allowed numbers

Tel.No1 begin.

Tel.No2 begin.

...

Tel.No32 begin.

Messaging

Tel.1 for mess.

Tel.2 for mess.

Tel.3 for mess.

Tel.4 for mess.

Mess.x2 for t.1

Mess.x2 for t.2

Mess.x2 for t.3

Mess.x2 for t.4

Attempts/tel.1

Attempts/tel.2

Attempts/tel.3

Attempts/tel.4
Ack. CLIP tel.1
Ack. CLIP tel.2
Ack. CLIP tel.3
Ack. CLIP tel.4
SMS mess 1 fail
SMS mess 2 fail
SMS mess 3 fail
SMS mess 4 fail
SMS IN1 violat.
SMS IN2 violat.
SMS IN3 violat.
SMS IN4 violat.
SMS fail. line
SMS IN1 restor.
SMS IN2 restor.
SMS IN3 restor.
SMS IN4 restor.
SMS restor.line
SMS test
SMS tst.w.state
TL ok, mess.IN1
TL ok, mess.IN2
TL ok, mess.IN3
TL ok, mess.IN4
IN1 -> Tel.
IN2 -> Tel.
IN3 -> Tel.
IN4 -> Tel.
F.L. -> Tel.
Rest.1 -> Tel.
Rest.2 -> Tel.
Rest.3 -> Tel.
Rest.4 -> Tel.
Rest.L -> Tel.
Test -> Tel.
CLIP -> Tel.
Test period
1st test random
Mess. priority
Mess. sounds
Msg.tel.control
All.tel.control
SMS control
SMS bypass IN1
SMS bypass IN2
SMS bypass IN3

SMS bypass IN4
SMS bypass all
SMS unbyps.IN1
SMS unbyps.IN2
SMS unbyps.IN3
SMS unbyps.IN4
SMS unbyps. all
SMS OT1 on
SMS OT2 on
SMS OT3 on
SMS OT1 off
SMS OT2 off
SMS OT3 off
SMS switch OT1
SMS switch OT2
SMS switch OT3
SMS OT123 off
SMS OT123 on
SMS check I/O
SMS "service"
SMS "user"
SMS mod. format
SMS test period
SMS change tel1
SMS change tel2
SMS change tel3
SMS change tel4
SMS restart
SMS USSD codes
Fwd.unknown SMS

DTMF control

DTMF bypass IN1
DTMF bypass IN2
DTMF bypass IN3
DTMF bypass IN4
DTMF bypass all
DTMF unbyps.IN1
DTMF unbyps.IN2
DTMF unbyps.IN3
DTMF unbyps.IN4
DTMF unbyps.all
DTMF check inps
DTMF OT1 on
DTMF OT2 on
DTMF OT3 on
DTMF OT1 off
DTMF OT2 off

DTMF OT3 off
DTMF switch OT1
DTMF switch OT2
DTMF switch OT3
DTMF OT123 off
DTMF OT123 on
DTMF check outs

CLIP control

CLIP1 - tel. No
CLIP1 → Outputs
CLIP2 - tel. No
CLIP2 → Outputs
CLIP3 - tel. No
CLIP3 → Outputs
CLIP4 - tel. No
CLIP4 → Outputs

Inputs/Outputs

Input IN1 type
Input IN2 type
Input IN3 type
Input IN4 type
IN1 sensit.
IN2 sensit.
IN3 sensit.
IN4 sensit.
IN1 restore
IN2 restore
IN3 restore
IN4 restore
Autobps IN1 aft
Autobps IN2 aft
Autobps IN3 aft
Autobps IN4 aft
Autoreset IN1
Autoreset IN2
Autoreset IN3
Autoreset IN4
IN1 bypass time
IN2 bypass time
IN3 bypass time
IN4 bypass time
IN1 bps.manual.
IN2 bps.manual.
IN3 bps.manual.
IN4 bps.manual.
Bypassing input
Bypassed inputs

OT1 cut-off t.
OT2 cut-off t.
OT3 cut-off t.
OT2 - mon.trbl.
OT3 - t.l.trbl.
OT4 - only GSM
IN1 -> Outputs
IN2 -> Outputs
IN3 -> Outputs
IN4 -> Outputs
Control
OTs to control

Firmware update

SMS firmware
Server address
Server port
Any address
Upd.aft.restart
Update period
SMS firmw.ok
SMS firmw.nonew
SMS firmw.error

Module download

SMS prog.module
Server address
Server port
Any address
Key

DloadX download

SMS prog.DloadX
Server address
Server port
Any address
Encryption
Key

GuardX download

SMS prog.GuardX
Server address
Server port
Any address
Key

GSM options

PIN code

PIN code SIM2

Use SIM2

Time from net.

SIM1 block time

SIM1switch time

SIM2 block time

SIM2switch time

GSM band

GSM band SIM2

PAGER tel. No

SMS centre No

Inter.SMS cent.

SMS centre SIM2

Inter.SMSc SIM2

SMS acknowl. No

Prefix for SMS

LCD backlight

GPRS settings

Monitoring

Events buffer

Test all links

Links to MS1

Links to MS2

APN

User

Password

DNS

APN SIM2

User SIM2

Password SIM2

DNS SIM2

Tst.con.INTEGRA

MS1 address

MS1 port

MS1 key

GPRS 1 key

MS1 sys.ident.

MS2 address

MS2 port

MS2 key

GPRS 2 key

MS2 sys.ident.

MS1 tel.number

MS2 tel.number

MS1 CSD tel.nr

MS2 CSD tel.nr

MS1 SMS tel.nr

MS2 SMS tel.nr

MS1 SMS format

MS2 SMS format

Kissoff period

Attempts/link
Mon.trbl.tel.nr
SMS monit.trbl.
IN1 viol. code
IN2 viol. code
IN3 viol. code
IN4 viol. code
IN1 rest. code
IN2 rest. code
IN3 rest. code
IN4 rest. code
TL trouble code
TL restore code
Test trans.code

Autorestart

Fax/Modem

Modem format

GSM ident.

Beep after SMS

RS baud rate

BTS test

Erase settings

6.1.2 Description of functions available only in service mode

[End of service] – completion of service mode.

[BTS test] – after starting the function, the following information related to GSM network will appear on the display of module with built-in GSM u-blox LEON-G100 telephone:

MCC, MNC, LAC, CI

where:

MCC – Mobile Country Code;

MNC – Mobile Network Code;

LAC – Location Area Code;

CI – Cell Identity.

6.1.3 Entering data by means of buttons

The entered data are presented on the display. The way of programming depends on the type of data entered by means of the service function. See also section "Buttons" p. 12.

Programming the options

At the end of line, on the right-hand side, there is a symbol indicating whether the option is enabled – , or not – * . Pressing the NEXT or CHANGE button will change the currently displayed symbol to the other one.

Entering characters

In functions in which alphanumeric characters are to be entered, there is a flashing cursor displayed, indicating the field that can be edited. The NEXT button is used to move the cursor one position to the right or to move it back to the first position on the left side of the data being entered. The CHANGE button allows you to change the displayed character. Press the button repeatedly until the required character appears.

The data will be written to the module after the OK button is pressed. Use the ESC button to exit the function without saving any changes.

Pressing the CHANGE and NEXT buttons simultaneously will delete at once all the value preprogrammed for the given parameter.

6.2 DLOAD10 program

The DLOAD10 program version 1.00.039 is required for programming and configuration of the GSM-4 module version 4.14 and the GSM-5 module version 5.14. The program is delivered free of charge with the device. Communication between the program and the module can be effected locally or remotely. The module with factory default settings can only be programmed locally.

The program installation file can be found on the CD delivered with the module. You can also download it from the www.satel.eu website. The DLOAD10 program can be installed on the computers running the Windows XP/VISTA/7 operating system.

Access to the program is protected with a code (password). During its first start-up, the program is accessed with the factory default code: 1234 (you do not need to enter it, just click on the "OK" button).



It is recommended that the factory access code be changed. It can be replaced with any sequence of 16 alphanumeric characters.

6.2.1 Local programming

1. Connect the module RS-232 port with the computer serial COM port (see: Fig. 10).

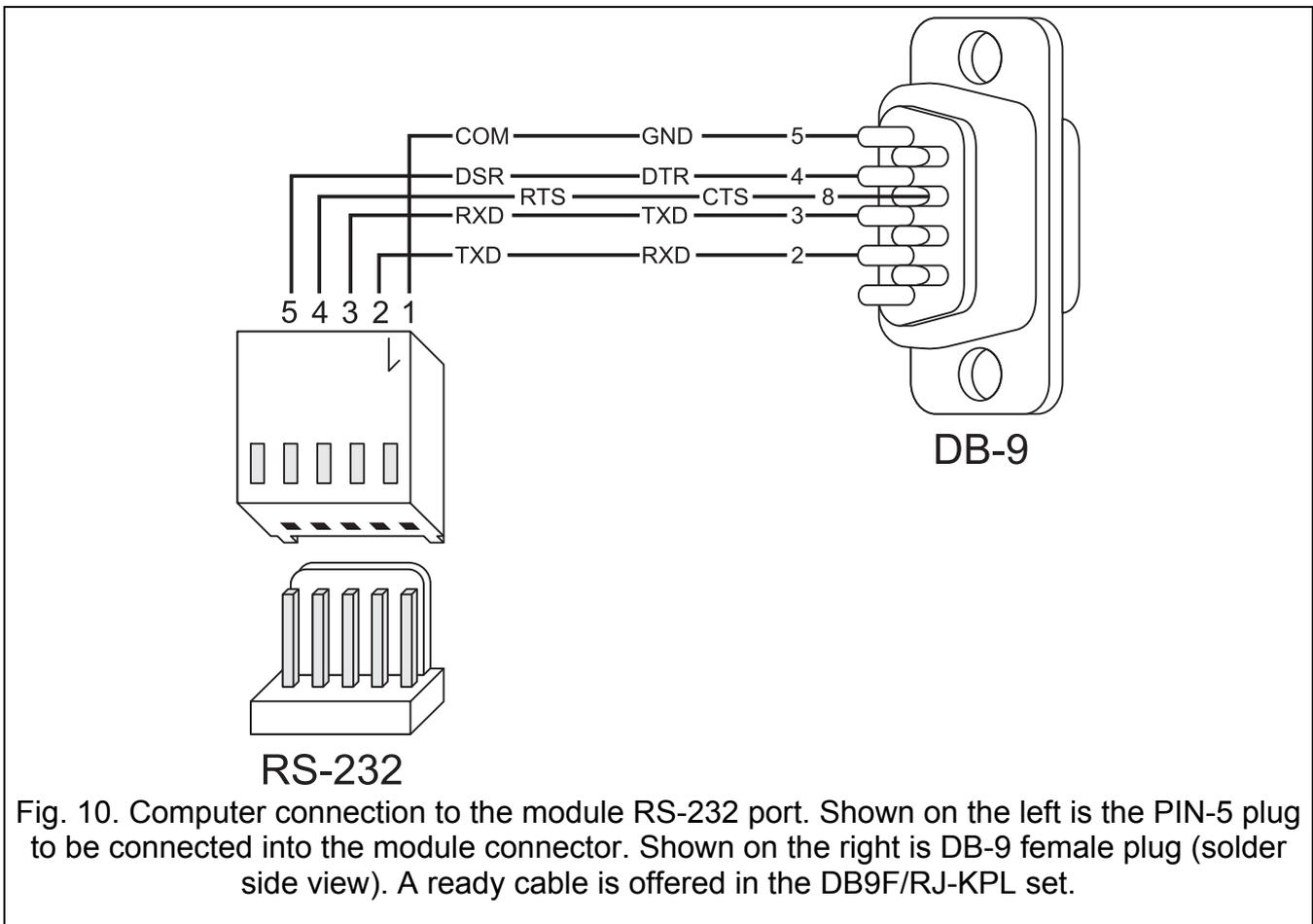


Fig. 10. Computer connection to the module RS-232 port. Shown on the left is the PIN-5 plug to be connected into the module connector. Shown on the right is DB-9 female plug (solder side view). A ready cable is offered in the DB9F/RJ-KPL set.

2. In the DLOAD10 program, "File" menu, first select "New device", and then "GSM-4/5/LT module" (see: Fig. 11).

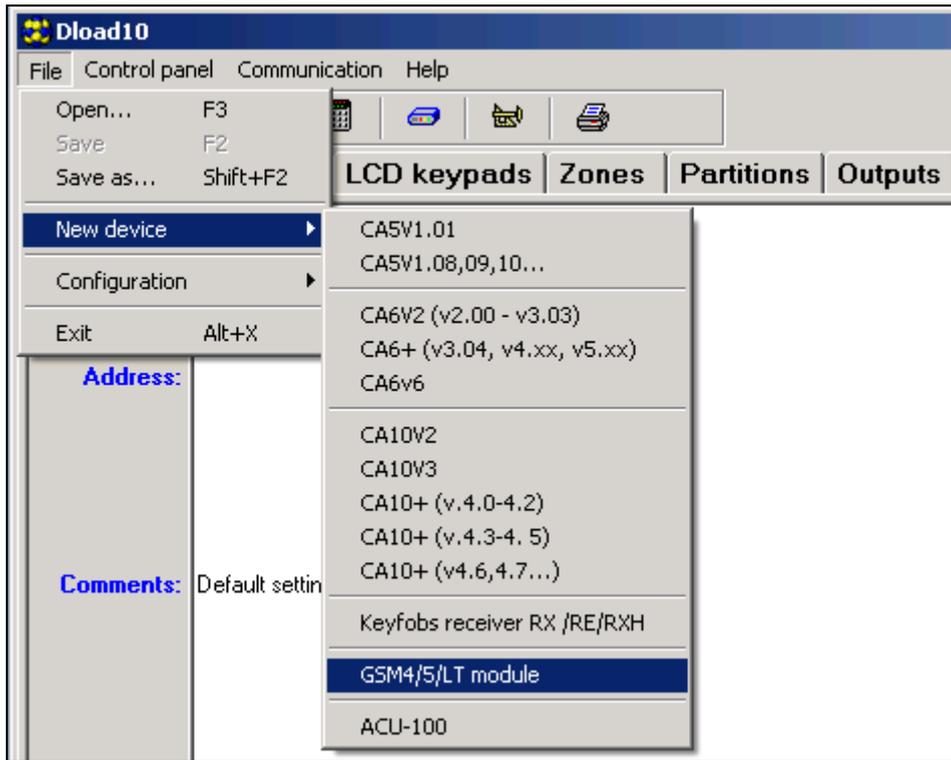


Fig. 11. Selecting the GSM module after starting the DLOAD10 program.

3. Press the  key. The "Configuration" window will open.
4. Indicate the computer port to which the module is connected see: Fig. 12).

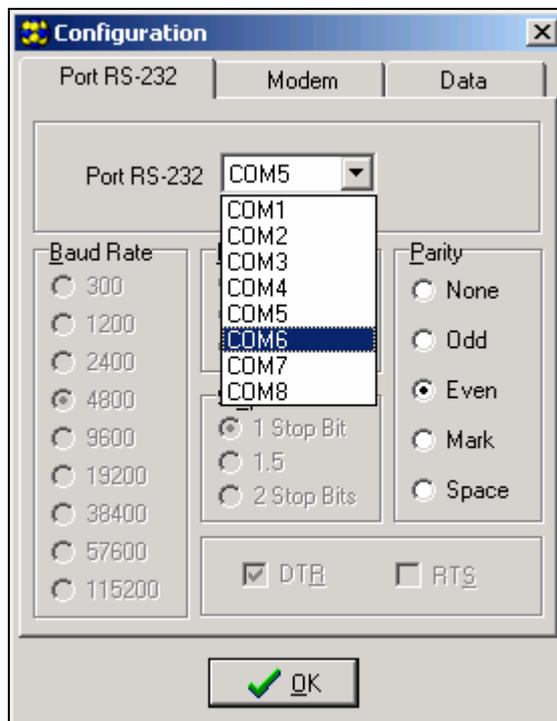


Fig. 12. "Configuration" window.

5. Click on the "OK" button.
6. In the "GSM identifier" field, "GSM-4" / "GSM-5" tab, enter the default value AAAAAA (when connecting to the module with factory settings).

7. Click on the  button. The module data will be read out. Establishing communication will be indicated in the program window by a suitable message.
8. Program suitable parameters for the module.
9. Click on the  button to write the entered data to the module.
10. The programmed data can be saved as a file to the computer disk.



When the programming is completed, disconnect the cable connecting the module to the computer.

6.2.2 Remote programming



During remote programming, the module will not execute any other functions requiring the use of GSM telephone.

The remote programming is available after the following items have been programmed:

- in the "SIM 1/2" tab:
 - PIN code of the SIM card (if PIN code is required by the card);
 - access point name (APN) for the Internet GPRS connection ("GPRS APN" field);
 - DNS server IP address ("DNS server" field) to be used by the module (you do not need to program the DNS server address, if the computer address will be entered as an IP address, not a name);
 - user name for the Internet GPRS connection ("Username" field);
 - password for the Internet GPRS connection ("Password" field);
- in the "TCP/IP downloading" tab:
 - the control command that initiate connection with the computer ("Initiating SMS" field);
 - address of the computer from which the module is to be remotely programmed ("Server address" field);
 - whether the module can connect to the computer whose address will be given in the SMS message ("Server from SMS" option);
 - number of the port through which communication between computer and module is to be effected;
 - DLOAD10 key.

The computer running the DLOAD10 program must have the so-called public address (that can be seen directly in the Internet by everybody).

In order to establish communication between the module and the computer do the following:

1. Start the DLOAD10 program.
2. Select the "TCP/IP" in the "Communication" menu. A window will open in which information on server activation will be displayed (see: Fig. 13).
3. Send to the GSM module telephone number an SMS message containing the control command used to start communication with the DLOAD10 program ("Module download" submenu, "SMS prog.module" function). The module will connect to the computer whose address is programmed in the module.



*If the "Any address" ("Module download" submenu) option is enabled in the module, you can send a message with the **xxxxxx=aaaa:p**. or **xxxxxx=aaaa:p=** content, where "xxxxxx" is the control command used to initiate communication with the DLOAD10 program ("Module download" submenu, "SMS prog.module" function), "aaaa" is the address of computer with which communication is to be established by the module, shown as an IP address or as a name, and "p" is the number of network port through which communication with the DLOAD10 program is to take place. The module*

will connect to the computer whose address was given in the SMS message (the computer address programmed in the GSM module will be ignored). If the control command is correctly indicated in the SMS message, but the other data are incorrect, then the address and port of the server with which communication is to be established will be downloaded from the settings programmed in the module.

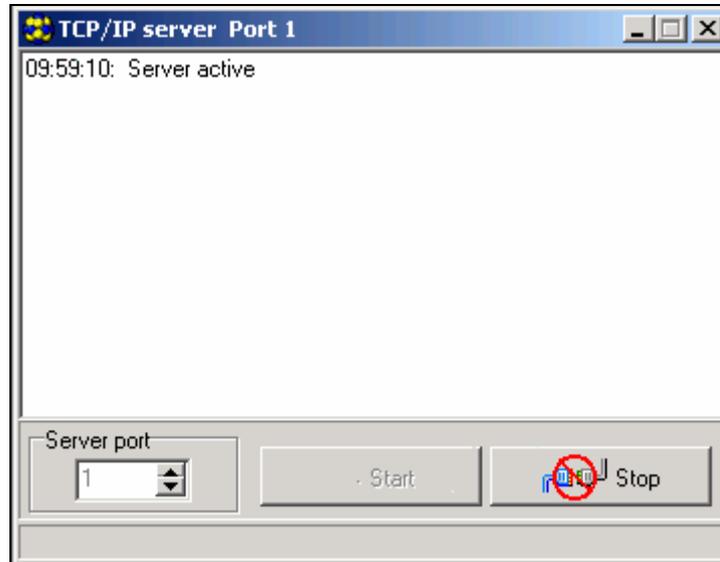


Fig. 13. "TCP/IP" window.

6.2.3 Main menu of DLOAD10 program

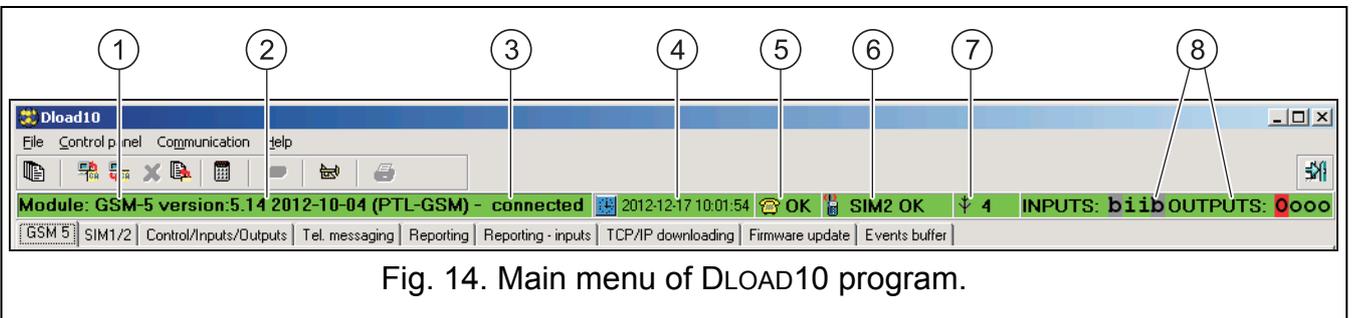


Fig. 14. Main menu of DLOAD10 program.

Explanations for Figure 14:

- 1 - GSM module type.
- 2 - module firmware version (version number and build date).
- 3 - information on the status of communication between module and program.
- 4 - time and date according to the module clock. When logging into the network, the module updates these data automatically, if the operator whose services are used by the module offers such a function and the "Time from net." option is enabled.
- 5 - information on the analog telephone line status.
- 6 - information on the GSM telephone status (with the primary SIM card).
- 7 - level of signal received by the GSM antenna.
- 8 - information on the status of inputs and outputs (identical as on the module LCD display – see p. 11).

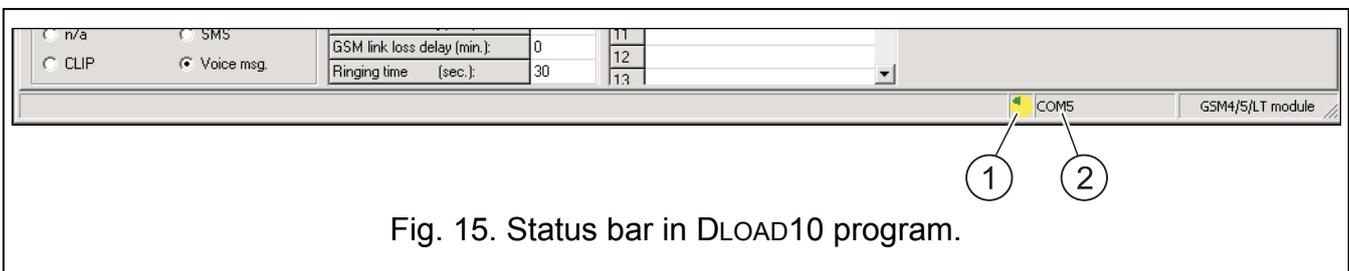
Buttons:



Events – button opens the "Events buffer" tab.

-  Read – button allows reading data from the module.
-  Write – button allows writing data to the module.
-  Quit transmission – button makes it possible to cancel the data reading/writing.
-  Event log read – button allows reading the event log.
-  ON-LINE mode – button opens the window where you can bypass / unbyypass zones and activate / deactivate outputs of the module.
-  Configuration – button opens the "Configuration" window.
-  Exit – button closes the program.

6.2.4 Status bar



Explanations for Figure 15:

1 - icon indicating the status of communication with the module:

- green color – ready to send data;
- alternating green and yellow color – data transmission in progress;
- gray color – COM port disabled.

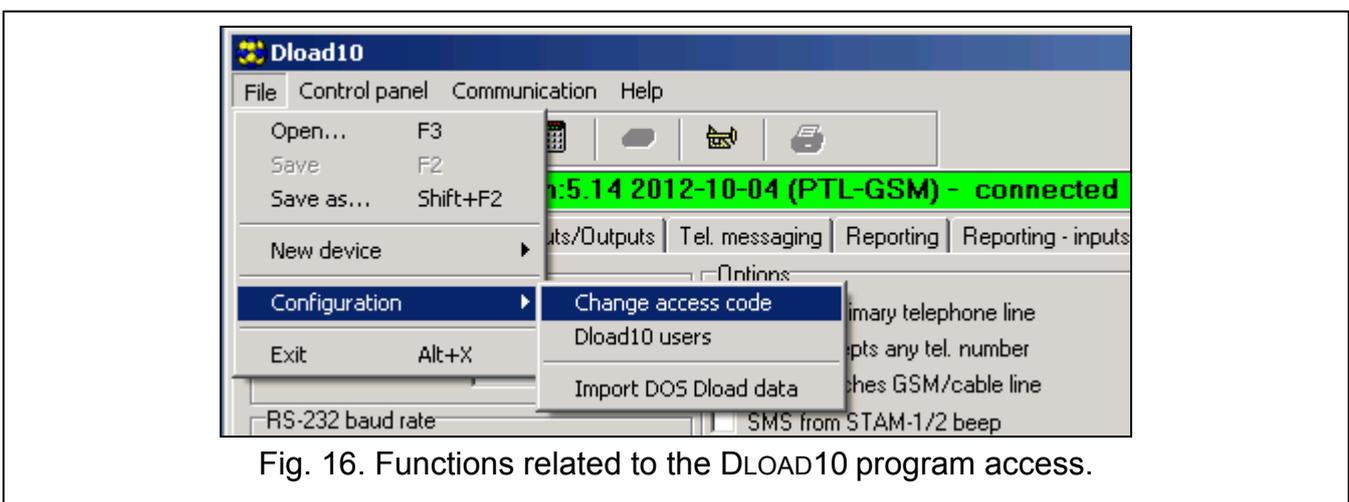
A click on the icon button in case of communication via the RS-232 port – will enable/disable the COM port.

2 - information on way of communication with the module:

- COMn (n = COM port number) – communication through the RS-232 port;
- TCP/IP – communication using the GPRS technology.

6.2.5 Changing the program access code

1. In the "File" menu, select "Configuration", and then "Change access code" (see: Fig. 16).



2. Enter the old access code and click on the "OK" button
3. Enter the new access code and click on the "OK" button.
4. Enter again the new access code and click on the "OK" button.

The program allows to get access based on additional codes which can be programmed and for which authority level can be defined (in the "File" menu, select "Configuration", and then "Dload10 users" – see: Fig. 16).

6.2.6 "GSM-4 / GSM-5" tab



Shown in square brackets are the names of functions as presented on the module display.

Fig. 17. "GSM-5" tab (GSM-5 module).

Password

GSM identifier [GSM ident.] – a sequence of up to 6 alphanumeric characters to identify the module during communication with the DLOAD10 program. Connection between the program and the module can only be established when the identifiers in program and module are consistent. In the module with factory settings, the AAAAAA value is programmed. After establishing communication, this value can be changed. The entered value can be seen when you click on the  button. The identifier is also used during communication with the STAM-1 / STAM-2 monitoring station.

Service code – a sequence of up to 8 digits which enables you to get access to the service mode. If the code is programmed, enter it (see p. 21) at an attempt to start the service mode in the module, when the "Service code" message is displayed. If the code is unknown or invalid, you will only be able to enter the service mode after restoring the factory settings ("Delete all (123=Yes)" message).

Other parameters

RS-232 baud rate [RS baud rate] – the rate of data transfer through the RS-232 port.

Autorestart every [Autorestart] – you can program the time period after which the module, if not used, will restart the telephone. From 1 to 25 hours can be entered. The "use" of the module shall be understood as:

- receiving the module outgoing call,
- occurrence of the incoming call signal,
- receiving acknowledgement of an SMS message sent by the module,
- receiving an SMS message,
- sending data by the module working as an external modem.

The first telephone restart will take place after the programmed time elapsed from saving the settings to module.

Prefix FLASH [FLASH number] – the prefix for changing the primary communication path to the backup one (up to 4 digits). If it precedes the telephone number, the module will switch over to the corresponding communication path. In the control panel, you must program a pause, entering the E or F character after the prefix and before the telephone numbers.

PAGER-SMS conversion

PAGER station tel. no. [PAGER tel. No] – the number after dialing of which by a device connected to the telephone line output the module will simulate the pager station. The further part of the dialed number will be treated as the cellular telephone number to which the PAGER type message will be sent in the form of SMS message. The pager station number can consist of up to 4 digits.



The programmed number must be unique and must not coincide with any other number programmed in the module.

Prefix for SMS [Prefix for SMS] – the country code which must be programmed, if they not precede the cellular phone numbers for PAGER type messaging in the control panel.

LCD backlight

You can select the mode of display backlight (none, auto or permanent).

Options

GSM as primary telephone line [GSM main line] – if this option is enabled, the module GSM telephone is the primary communication path for devices connected to the telephone line output. If the option is disabled, the analog telephone line is the primary communication path.

GSM accepts any tel. number [Any numbers] – enable this option for the module GSM telephone to make calls to any number. If the option is disabled, the module GSM telephone can only be used to make calls to the telephone numbers whose initial digits or whole numbers are programmed in the module (see: "Tel.No 1-32 begin." p. 30).

SMS from STAM-1/2 beep [Beep after SMS] – if this option is enabled, the module connected to the monitoring station will audibly signal sending the SMS message.

Flash switches GSM/cable line [FLASH - GSM/TL] – if this option is enabled, the module will respond to pressing the FLASH key on the keypad of telephone connected to the telephone line output. After taking the receiver off the hook and pressing the FLASH key, the module will switch over from the primary telephone line to the backup one. If the backup line is failed, you will hear the busy tone in the receiver.

Dial tones check [Signal testing] – if this option is enabled, and the receiver of a device connected to the telephone line output is off-hook, the module will check the telephone line input for presence of the signal. If after about 2 seconds the dial tone does not appear, the

call will be made by the GSM telephone and the module will report an analog telephone line trouble.

Show dialed numbers [Show dialing] – if this option is enabled, the numbers dialed by devices connected to the telephone line output are displayed.

Show tel. line trouble [Show TL failure] – if this option is enabled, the "Phone line loss" message will appear on the display in the event of analog telephone line trouble.

OUT2 output - reporting trouble [OT2 - mon.trbl.] – if the option is enabled, the OT2 output indicates the reporting trouble.

OUT3 output - tel. line trouble [OT3 - t.l.trbl.] – if the option is enabled, the OT3 output indicates the analog telephone line trouble.



If the "OT2 - mon.trbl." or "OT3 - t.l.trbl." option is enabled, the selected output cannot be controlled.

OUT4 output - only GSM trouble [OT4 - only GSM] – if this option is enabled, the OT4 output indicates only a problem with logging into the GSM network. If the option is disabled, the output indicates a problem with logging into the GSM network and a telephone line trouble. The problem with logging into the GSM network can be caused by:

- missing SIM card,
- entering a wrong PIN code,
- missing or damaged antenna,
- unavailable GSM network (out of range),
- telephone damage.

Fax/modem – if this option is enabled, the module can be used as an external modem. The module starts working in the modem mode on receiving the AT command, and stops working in this mode when the DTR signal is lost.



Do not enable the "Fax/modem" option, if the module is working in conjunction with the INTEGRA control panel (the control panel is connected to the module RS-232 port).

Switch line if trouble [Trbl-switch I.] – if this option is enabled, the module will be automatically switched over to the backup communication path in case of the primary path trouble.

No voltage on T-1/R-1 if GSM trouble [Turn off TLvolt] – if this option is enabled, voltage on the telephone line terminals will be turned off in case of the GSM telephone trouble.

Generate routing signal [Routing signal] – if the option is enabled, the connection setup is audibly signaled.

Modem format – the transmission standard of the modem with which the GSM module communicates. The format code is to be entered as 2 digits, according to the table below.

format code	modem format for GSM u-blox LEON-G100 telephone
00	auto
04	2400 bps V.22bis
05	2400 bps V.26ter
06	4800 bps V.32
07	9600 bps V.32
12	9600 bps V.34
68	2400 bps V.110/X.31 flag stuffing
70	4800 bps V.110/X.31 flag stuffing
71	9600 bps V.110/X.31 flag stuffing

Table 1. Modem format codes for the GSM u-blox LEON-G100 telephone.

CLIP

Convert "+" to digits: [CLIP -> number] – the digits to which the "+" character will be changed in the telephone number from which the module outputs are controlled by means of CLIP.

CLIP answering [CLIP -> Tel.] – the module offers the CLIP answering feature, which enables its operation to be monitored. The following options are available:

- n/a [in service mode: '] – no answer,
- SMS [in service mode: s] – answer in the form of SMS message with the "Test transmission" content,
- CLIP [in service mode: c] – answer in the CLIP form,
- Voice msg. [in service mode: v] – answer in the form of voice message.



The module will only respond to CLIP from the authorized telephone numbers (see: "Tel.No 1-32 begin." p. 30).

Times

Tel. line loss delay (min.) [Line loss time] – the time after which the module will signal the trouble (loss) of analog telephone line. Values from 0 to 99 minutes can be programmed. Programming the value 0 means that the module will not signal any trouble.

GSM link loss delay (min.) [GSM loss time] – the time after which the module will signal the GSM telephone trouble. Values from 0 to 99 minutes can be programmed. Programming the value 0 means that the module will not signal any trouble.

Ring time (sec.) [Time of ringing] – the time during which the incoming GSM call can be answered by the device connected to the telephone line output. After this time has elapsed, the call will be rejected or, if the DTMF control codes have been programmed, the control will be available. Values from 0 to 99 seconds can be programmed. Programming the value 0 means that the module will not answer any calls.



It is recommended that the voice mail be disabled.

Telephone numbers



The telephone numbers can contain up to 16 digits, and the prefixes – up to 8 digits.

Outgoing numbers [Outgoing No. 1–4] – if the number dialed by the device connected to the telephone line output begins with the outgoing number, the module will make a call by means of the GSM telephone to the number entered after the outgoing number.

Perm. prefix [Perm. prefix 1–4] – the initial digits of telephone numbers which will not be corrected when making an outgoing call by the module GSM telephone.

Prefix to erase – the initial digits of telephone numbers which will be deleted when making an outgoing call by the module GSM telephone.

Prefix do add – a string of digits which will be added at the beginning of the telephone number when making an outgoing call by the module GSM telephone.

Allowed tel. numbers [Tel.No 1-32 begin.] – you can program 32 full telephone numbers or just their initial digits (any number), from and to which it will be possible to call using the GSM telephone. The numbers should be entered in the same way, as when dialing the number from a mobile phone.

6.2.7 "SIM 1/2" tab

The GSM-5 module can handle two SIM cards registered with two different cellular telephony providers. The SIM1 is the main card, the SIM2 – the backup card.

Parameters of SIM1 / SIM2 cards

SIM2 [Use SIM2] – when the option is enabled, the module supports both SIM cards (when the option is disabled, only the SIM1 card).

PIN code SIM1 / SIM2 [PIN code / PIN code SIM2] – PIN code of SIM card.



Entering a wrong code may result in blocking the SIM card.

If 2 SIM cards are installed in the module and invalid parameters are entered for the SIM2 card (e.g. a wrong PIN code), the module will only indicate the error after a switch-over from the main card to the SIM2 card.

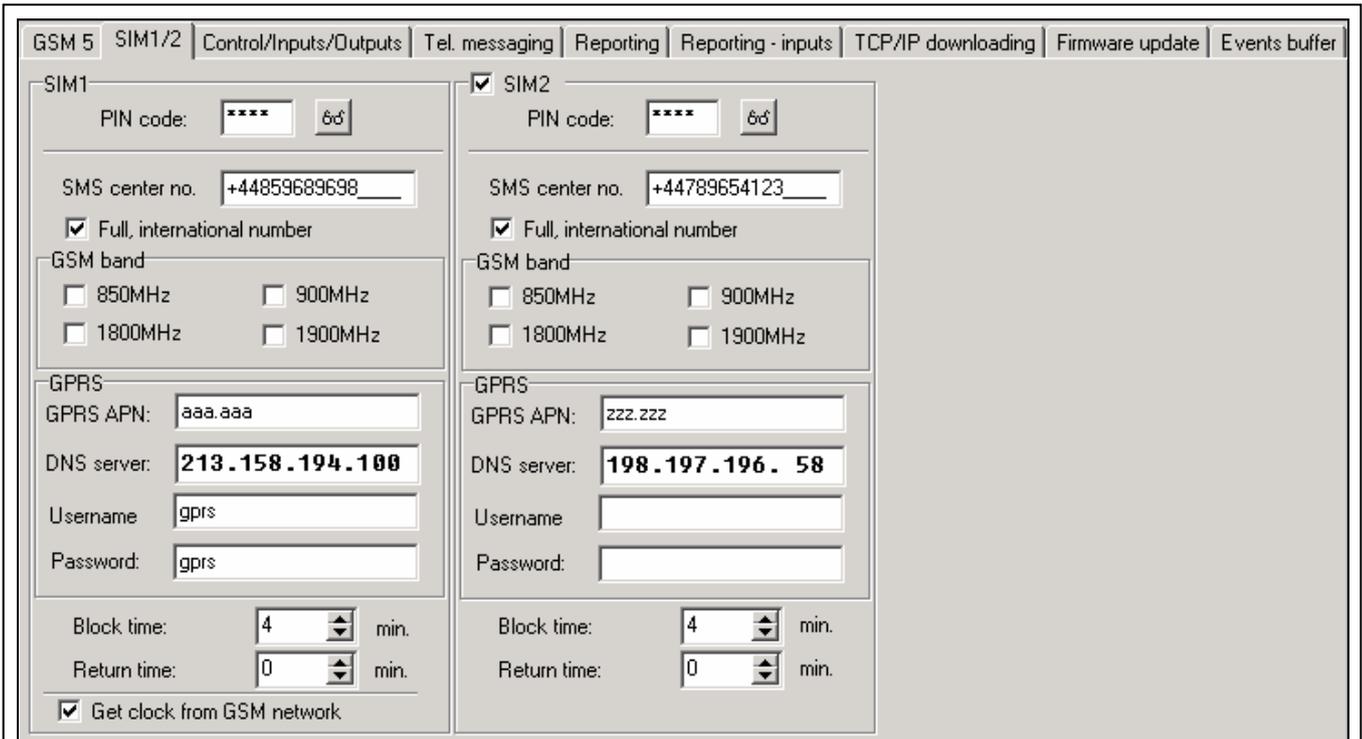


Fig. 18. "SIM1/2" tab (GSM-5 module).

SMS center no. SIM1 / SIM2 [SMS centre No / SMS centre SIM2] – telephone number of the short message service center. If the number has been written by the operator to the memory of SIM card installed in the device, it need not be entered. In such a situation, the module will download it automatically. Otherwise, it is necessary to enter the number, if the module is to send SMS messages. It should be remembered that the number written into the module must be suitable for the network in which the SIM card is registered.

Full, international number SIM1 / SIM2 [Inter.SMS cent. / Inter.SMSc SIM2] – if this option is enabled, the SMS center number must be entered as an international number (i.e. including the country code).

GSM band SIM1 / SIM2 [GSM band / GSM band SIM2] – the frequency bands which are to be supported by the GSM phone (the parameter applies to modules with GSM u-blox LEON-G100 telephone). There are the following bands to choose from:

- 850 MHz,
- 900 MHz,
- 1800 MHz,
- 1900 MHz.

You can select any number of bands. If all or none of them are selected, the module will recognize that all frequencies are available and will choose the most suitable one(s).

GPRS settings

GPRS APN SIM1 / SIM2 [APN / APN SIM2] – access point name for Internet GPRS connection.

DNS server SIM1 / SIM2 [DNS / DNS SIM2] – IP address of DNS server to be used by the module. It is necessary for GPRS communication, when the address of device to which the control panel is to connect (monitoring station, computer with DLOAD10 program) has been entered in the form of a name. If all addresses are entered in the form of an IP address (4 decimal numbers, separated by dots), the DNS server address need not be programmed.

Username SIM1 / SIM2 [User / User SIM2] – user name for Internet GPRS connection.

Password SIM1 / SIM2 [Password / Password SIM2] – password for Internet GPRS connection.



The APN, user name and code must be programmed, if data sending in GPRS technology is to be available (event codes, programming).

Switching between the SIM cards

Block time SIM1 / SIM2 [SIM1 block time / SIM2 block time] – the time during which the module will not be able to switch over to the other SIM card. As regards reporting, the reporting forms programmed as the next in the queue will be skipped during the block time countdown, if they require a switch-over to the other card.

Return time SIM1 / SIM2 [SIM1switch time / SIM2switch time] – the time after which the module will switch over automatically to the other SIM card.



Entering the value 0 for the block time and switch time means that the module will switch over to the other SIM card immediately after execution of the programmed number of attempts to send the event code.

In the DLOAD10 program, the "Block time SIM1" and "Return time SIM1" fields will only be available after selecting the "SIM2" option.

Synchronizing the module clock

Get clock from GSM network [Time from net.] – if this option is enabled, the module will update time and date during each logging into the GSM network (if such a service is offered by the GSM provider).

6.2.8 "Control/Inputs/Outputs" tab



If the OT2 output indicates the reporting trouble, and the OT3 output indicates the telephone line trouble, these outputs cannot be controlled.

SMS control

The module can be remotely controlled by means of SMS messages containing the suitable control command. You can program the control commands after receiving of which the module will (given in parentheses are the names of corresponding functions in the module service mode):

- bypass inputs ("SMS bypass IN1" ... "SMS bypass IN4", "SMS bypass all");
- unbypass inputs ("SMS unbyps.IN1" ... "SMS unbyps.IN4", "SMS unbyps. all");
- activate outputs ("SMS OT1 on" ... "SMS OT3 on", "SMS OT123 on");
- deactivate outputs ("SMS OT1 off" ... "SMS OT3 off", "SMS OT123 off");
- switch over outputs ("SMS switch OT1" ... "SMS switch OT3");
- indicate status of inputs and outputs ("SMS check I/O");

- change modem format ("SMS mod. format");
- initiate modem communication between INTEGRA / CA-64 control panel and DLOADX / DLOAD64 program (SMS "service");
- initiate modem communication between INTEGRA / CA-64 control panel and GUARDX / GUARD64 program (SMS "user");
- be restarted ("SMS restart").



The control command may have any content, but it must consist of six alphanumeric characters.

The control commands may not contain any diacritical marks.

You can use a space character in the control command content, but at least one of the characters must be different from the space character.

GSM 5 | SIM1/2 | **Control/Inputs/Outputs** | Tel. messaging | Reporting | Reporting - inputs | TCP/IP downloading | Firmware update | Events buffer

Command	SMS	DTMF
Bypass input 1	bypai1	1111
Bypass input 2	bypai2	2222
Bypass input 3	bypai3	3333
Bypass input 4	bypai4	4444
Bypass all inputs	bypaai	1234
Unbypass input 1	unbyi1	5555
Unbypass input 2	unbyi2	6666
Unbypass input 3	unbyi3	7777
Unbypass input 4	unbyi4	8888
Unbypass al inputs	unbyai	5678
ON output1	onout1	2211
ON output2	onout2	2212
ON output3	onout3	2213
OFF output1	offou1	3311
OFF output2	offou2	3312
OFF output3	offou3	3313
All outputs off	aouoff	2233
All outputs on	aouton	3322
Check inputs state		1122
Check outputs state		3232
Check inputs/outputs state	chinou	
Set modem format	format	
Call to service	callts	
Call to user	calltu	
Change out state 1	chout1	4411
Change out state 2	chout2	4422
Change out state 3	chout3	4433
Restart module	restar	

Command execution confirmation
Send SMS to tel.:

INPUTS:	IN 1	IN 2	IN 3	IN 4
Input type	2:NO	2:NO	2:NO	2:NO
Input sensitivity	200ms	200ms	200ms	200ms
Input restore	4 sec.	4 sec.	4 sec.	4 sec.
Auto-bypass on alarms	3	3	3	3
Counting period	120 sec.	120 sec.	120 sec.	120 sec.
Auto-bypass duration	24 h.	24 h.	24 h.	24 h.
Bypassing input		X		
Bypassed inputs	X		X	X
Manual bypass enabled	X	X	X	X

OUTPUTS:	OT 1	OT 2	OT 3
Time of operating (mono.)	0 min.	30 sec.	30 sec.
Triggering: input 1:	0<->1		
Triggering: input 2:			0<->1
Triggering: input 3:			
Triggering: input 4:			0
Triggering: CLIP 1:	0<->1		
Triggering: CLIP 2:		1	
Triggering: CLIP 3:			
Triggering: CLIP 4:			
Local control enable	X	X	X

CLIP 1:	+44898989898
CLIP 2:	
CLIP 3:	
CLIP 4:	

Local control tel. no. USSD codes forwarding message:

SMS control only from list of allowed numbers SMS control only from list of messaging tel. numbers

Transfer unknown SMS

notification tel 1 notification tel 2 notification tel 3 notification tel 4 control conf. tel

Fig. 19. "Control/Inputs/Outputs" tab (GSM-5 module).

Set modem format [SMS mod. format]

The SMS message sent to the module to set the modem format must have the following form: **xxxxxx=yy**, where "xxxxxx" is the control command and "yy" is the modem format code (see Table 1 p. 29). Having received such an SMS message, the module will change the modem format.

Call to service [SMS "service"]

The control command can start the remote modem communication between the INTEGRA control panel and the DLOADX program, or between the CA-64 control panel and the DLOAD64 program (this applies to the CA-64 control panel firmware version 1.04.03 or newer, and the DLOAD64 program version 1.04.04 or newer).

The SMS message sent to the module may have the following form: **xxxxxx=yyyy.** or **xxxxxx=yyyy=**, where "xxxxxx" is the control command and "yyyy" is the computer telephone number with which the control panel is to establish communication. If no telephone number is given, the control panel will connect to the number programmed in its memory. If the module receives an SMS message initiating connection with the INTEGRA control panel, and the access to DLOADX program is blocked, the module will send an appropriate SMS message to the telephone number programmed using the „SMS acknowl. No” function (see: p. 35).

Call to user [SMS "user"]

The control command can start the remote modem communication between the INTEGRA control panel and the GUARDX program, or between the CA-64 control panel and the GUARD64 program (this applies to the CA-64 control panel firmware version 1.04.03 or newer, and the GUARD64 program version 1.04.04 or newer).

The SMS message sent to the module may have the following form: **xxxxxx=yyyy.** or **xxxxxx=yyyy=**, where "xxxxxx" is the control command and "yyyy" is the computer telephone number with which the control panel is to establish communication. If no telephone number is given, the control panel will connect to the number programmed in its memory.

DTMF control

The module can be remotely controlled by means of the keypad of telephone from which communication with the module has been established. You can program the codes which, if entered will (given in parentheses are the names of corresponding functions in the module service mode):

- bypass inputs ("DTMF bypass IN1" ... "DTMF bypass IN4", "DTMF bypass all");
- unbypass inputs ("DTMF unbyp.IN1" ... "DTMF unbyp.IN4", "DTMF unbyp.all");
- check status of inputs ("DTMF check inps");
- activate outputs ("DTMF OT1 on" ... "DTMF OT3 on", "DTMF OT123 on");
- deactivate outputs ("DTMF OT1 off" ... "DTMF OT3 off", "DTMF OT123 off");
- switch over status of outputs ("DTMF switch OT1" ... "DTMF switch OT3");
- check status of outputs ("DTMF check outs").

The codes used for DTMF remote control must consist of 4 digits.



The DTMF tones may get distorted during transmission, which will impede the control.

Design of some telephones requires activation of the DTMF feature.

Local control tel. no. [Control]

You can program a 6-digit code that allow to start the local DTMF control. After entering this code from the keypad of telephone connected to the telephone line output, it will be possible to control the module inputs and outputs (see the section describing control from the keypad of telephone connected to the telephone line output p. 51).

Command execution confirmation

Send SMS to tel. [SMS acknowl. No] – the telephone number to which the module will send acknowledgement that the control command received in SMS message has been executed. The message sent by the module will contain information related to the current module status. The entered telephone number must be preceded by the country code.

Inputs

Input type IN1–4 – the input can be programmed as NC (normally closed) or NO (normally open).

Input sensitivity IN1–4 [IN1–4 sensit.] – the time during which the input must be violated so that the event can be registered by the module. Values from the 20 to 1275 ms range can be programmed.

Input restore IN1–4 [IN1–4 restore] – the time counted from the input restore, after which the module will recognize that the normal status of input is restored. You can program 4 seconds or 4 minutes.

Auto-bypass on alarms [Autobps IN1–4 aft] – the number of input violations after which it will be automatically bypassed, after the module registers the end of last violation. Values from 0 to 15 can be programmed. Value 0 means no bypass.

Counting period IN1–4 [Autoreset IN1–4] – the time after which the counter of violations programmed for the given input will be reset. Values from 0 to 127 seconds or minutes can be programmed. Value 0 means that the violations will be counted without time limits.

Auto-bypass duration IN1–4 [IN1–4 bypass time] – if the input is to be automatically bypassed for a specific time period, it must be indicated. Values from 0 to 127 seconds or minutes can be programmed. Value 0 means that the given input will be bypassed until unbypassed by the user.

Bypassing input – you can indicate one input as bypassing input, i.e. its violation will result in bypassing other inputs of the module. The input restore means the end of bypassing.

Bypassed inputs – you can indicate the inputs which will be bypassed after violation of the bypassing input.

Manual bypass enabled [IN1–4 bps.manual.] – you can indicate the inputs which will be available for bypassing by means of module buttons or from the keypad of telephone connected to the telephone line output (see function "Control").

Outputs

Time of operating (mono.) OT1–3 [OT1–3 cut-off t.] – the time during which the output is to be active. Values from the range of 0 to 255 seconds or minutes can be programmed. Value 0 means activation of the output until it is deactivated by the user. If the output has been activated for a time period, the next command to activate the output will restart the time countdown.

Triggering: input 1–4 [IN1–4 -> Outputs] – you can define whether and how the input is to control the output. After double-clicking on the field in the program or pressing the CHANGE button in the module, the following items are displayed in turn:

- **blank field** (in service mode: ·) – the input does not control the output,
- **0** – input violation will deactivate the output,

- **1** – input violation will activate the output,
- **0<->1** (in service mode: x) – input violation will toggle the output status to the opposite one.

Triggering: CLIP 1–4 [CLIP1–4 → Outputs] – you can define whether and how it will be possible to control the output using CLIP from the given telephone (see also: "CLIP1 - tel. No"). After double-clicking on the field in the program or pressing the CHANGE button in the module, the following items are displayed in turn:

- **blank field** (in service mode: ·) – CLIP does not control the output,
- **0** – CLIP will deactivate the output,
- **1** – CLIP will activate the output,
- **0<->1** (in service mode: x) – CLIP will toggle the output status to the opposite one.

Local control enable [OTs to control] – if the output is to be activated / deactivated by means of the telephone set connected to the telephone line output (see: "Control" p. 35), check the field in DLOAD10 program (in service mode: select the output).

CLIP control

CLIP 1–4 [CLIP1 - tel. No] – you can program 4 telephone numbers from which it will be possible to control outputs by means of CLIP.

Module status

USSD codes forwarding message [SMS USSD codes] – the control command which must precede the USSD code in the SMS message sent to the module. The USSD codes enable you e.g. to check the account status of SIM card installed in the module. The SMS message sent to the module must have the following form: "**xxxxxx=yyyy.**" or "**xxxxxx=yyyy=**", where "xxxxxx" is the control command and "yyyy" is the USSD code supported by the operator of GSM network in which the telephone operates (it depends on the SIM card installed in the module). Having received such an SMS message, the module will execute the USSD code contained in it. The answer obtained from the operator is forwarded in the form of SMS message to the telephone number from which the control command was sent.



It is not advisable to use the advanced functions available due to the USSD service if menu is presented in response to the entered code.

Control

SMS control only from list of allowed numbers [All.tel.control] – if this option is enabled, the SMS and DTMF control is only possible from authorized telephone numbers (see: "Tel.No 1-32 begin." p. 30).

SMS control only from list of messaging tel. numbers [Msg.tel.control] – if this option is enabled, the SMS and DTMF control is possible from the telephone whose telephone number is:

- one of the numbers to which the messaging is realized (see: "Tel.1–4 for mess." p. 38),
- the number to which the SMS message is sent with acknowledgement that the SMS control has been executed (see: "SMS acknowl. No" p. 35),
- the number to which the SMS message is sent, if the module fails to send the event code to the monitoring station (see: "Mon.trbl.tel.nr" p. 43).



If the "Msg.tel.control" and "All.tel.control" options are not enabled, the control can be realized from any telephone number.

Transfer unknown SMS [Fwd.unknown SMS] – the module can forward the received unknown SMS messages (e.g. information received from the GSM provider) to:

- telephone numbers to which the messaging is realized (see: "Tel.1–4 for mess." p. 38),
- telephone number to which the SMS message is sent with acknowledgement that the SMS control has been executed (see: "SMS acknowl. No" p. 35).

In service mode, a string of five characters is defined (using the NEXT button to select the next character, and using the CHANGE button to enable / disable forwarding):

1. character – 1. telephone number for messaging (1 – forwarding enabled; * – forwarding disabled);
2. character – 2. telephone number for messaging (2 – forwarding enabled; * – forwarding disabled);
3. character – 3. telephone number for messaging (3 – forwarding enabled; * – forwarding disabled);
4. character – 4. telephone number for messaging (4 – forwarding enabled; * – forwarding disabled);
5. character – telephone number to confirm SMS control (l – forwarding enabled; * - forwarding disabled).

The message content is preceded by the telephone number from which it was sent. For the modules with built-in GSM u-blox LEON-G100 telephone, the message content will be sent in the form of 2 messages, if it contains more than 160 characters, including the message number. For the modules with built-in other telephone model, up to 64 first characters of the received message can be sent.

6.2.9 "Tel. messaging" tab



Further information on the messaging can be found in section "Starting the messaging" p. 55.

Messaging options

Messaging priority [Mess. priority] – if this option is enabled, when during the telephone connection of device connected to the telephone line output and an event occurs which is to be messaged by the module, the connection will be terminated. If this option is disabled, the messaging will only be realized when the device connected to the telephone line output completes the call.

Messaging sounds [Mess. sounds] – if this option is enabled, the module will generate a sequence of sounds every 2 seconds during voice messaging to signal the following events:

- 1 short beep** – violation of input 1,
- 2 short beeps** – violation of input 2,
- 3 short beeps** – violation of input 3,
- 4 short beeps** – violation of input 4,
- 2 short and 1 long beep** – activation of output OT4,
- 1 long, 1 short beep** – IN1 input restore,
- 1 long, 2 short beeps** – IN2 input restore,
- 1 long, 3 short beeps** – IN3 input restore,
- 1 long, 4 short beeps** – IN4 input restore,
- 1 long, 1 short, 1 long beep** – OT4 output status restore to normal,
- 2 long beeps** – test transmission.

GSM 5		SIM1/2		Control/Inputs/Outputs		Tel. messaging		Reporting		Reporting - inputs		TCP/IP downloading		Firmware update		Events buffer																														
Messaging options <input checked="" type="checkbox"/> Messaging priority <input type="checkbox"/> Messaging sounds <input checked="" type="checkbox"/> Test tr. with GSM status				Telephone numbers <table border="1"> <thead> <tr> <th></th> <th> "+"</th> <th>Tel. Number</th> <th>2xMess</th> <th>Rep.</th> <th>Conf.</th> <th>SMS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>+44568956568</td> <td>X</td> <td>3</td> <td>X</td> <td>X</td> </tr> <tr> <td>2</td> <td></td> <td>+44666777888</td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td>+44888444666</td> <td>X</td> <td>3</td> <td>X</td> <td>X</td> </tr> <tr> <td>4</td> <td></td> <td>+44777888999</td> <td></td> <td>3</td> <td></td> <td></td> </tr> </tbody> </table>					"+"	Tel. Number	2xMess	Rep.	Conf.	SMS	1		+44568956568	X	3	X	X	2		+44666777888		3			3		+44888444666	X	3	X	X	4		+44777888999		3						
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3		+44888444666	X	3	X	X																																								
4		+44777888999		3																																										
Test transmission every: <input type="text" value="00 days 00 h. 00 min."/> <input type="checkbox"/> First period random																																														
Event	Tel.1	Tel.2	Tel.3	Tel.4	SMS																																									
Input 1 violated	s			c	Input IN1 violation																																									
Input 1 restore	s			c	Input IN1 restore																																									
Input 2 violated	s				Input IN2 violation																																									
Input 2 restore	s				Input IN2 restore																																									
Input 3 violated		c			Input IN3 violation																																									
Input 3 restore		c			Input IN3 restore																																									
Input 4 violated		c			Input IN4 violation																																									
Input 4 restore		c			Input IN4 restore																																									
Tel. line trouble			s		Phone line failure																																									
Tel. line restore			s		Phone line restore																																									
Test transmission	v			s	Test message																																									
Messaging if telephone line is OK: <input checked="" type="checkbox"/> input 1 <input checked="" type="checkbox"/> input 2 <input checked="" type="checkbox"/> input 3 <input checked="" type="checkbox"/> input 4				SMS control <table border="1"> <thead> <tr> <th>Command</th> <th>SMS</th> </tr> </thead> <tbody> <tr> <td>Change test period</td> <td>chtper</td> </tr> <tr> <td>Change tel. 1</td> <td>chtel1</td> </tr> <tr> <td>Change tel. 2</td> <td>chtel2</td> </tr> <tr> <td>Change tel. 3</td> <td>chtel3</td> </tr> <tr> <td>Change tel. 4</td> <td>chtel4</td> </tr> </tbody> </table>				Command	SMS	Change test period	chtper	Change tel. 1	chtel1	Change tel. 2	chtel2	Change tel. 3	chtel3	Change tel. 4	chtel4																											
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Change tel. 2	chtel2																																													
Change tel. 3	chtel3																																													
Change tel. 4	chtel4																																													

Fig. 20. "Messaging" tab (GSM-5 module).

Test tr. with GSM status [SMS tst.w.state] – if this option is enabled, it is possible to obtain information on the module status, including the content of SMS message programmed for the test transmission (see: "SMS test" p. 39).

Test transmissions

The module test transmissions can be sent every defined time interval and also can be triggered after identification of the calling party telephone number (CLIP). The test transmission can be sent in the form of an SMS message to the selected telephone numbers, can be realized by means of CLIP or voice message to the selected telephone numbers, and can be also sent in the form of event code to the monitoring station.

Test transmission every [Test period] – if the module test transmission is to be periodical by nature, you must program every how many days, hours or minutes it is to be sent. The first test transmission will be sent after the programmed time that has elapsed since saving the settings to the module. Up to 31 days 23 hours 59 minutes can be programmed. The values 00 mean there will be no test transmission.

First period random [1st test random] – if this option is enabled, the first test transmission will be made at a time randomly selected by the module. The next transmissions will take place according to the period programmed using the "Test period" function.

Telephone numbers

Tel. Number 1–4 [Tel.1–4 for mess.] – you can program up to 4 telephone numbers to which the module will be able to send notification messages about the change of status of inputs, OT4 output, as well as test transmissions. It is recommended that the telephone number be preceded by the country code.

2xMess 1–4 [Mess.x2 for t.1–4] – if this option is enabled, the message sent to the given telephone number during the voice messaging will be played back twice.

Rep. 1–4 [Attempts/tel.1–4] – the number of attempts to send notification by means of CLIP to the given telephone number. Values from 1 to 15 can be programmed.



If the "Ack. CLIP tel.1–4" option is disabled, the module will make just one call, regardless of the programmed number of attempts.

Conf. 1–4 [Ack. CLIP tel.1–4] – if this option is enabled, receipt of the CLIP message by the given telephone is to be acknowledged. In order to acknowledge receiving the message, the connection with module must be rejected not earlier than 10 seconds and not later than 20 seconds since the telephone ring is heard. Acknowledgement of receiving the CLIP messaging will make the module stop repeating it.

SMS 1–4 [SMS mess 1–4 fail] – if this option is enabled, failure to receive the acknowledgement of CLIP messaging will result in sending to the given telephone number of an SMS message with content entered for this event.

Assignment of events

For the events about the occurrence of which the module is to notify, you should indicate which telephones and how will be notified. In the DLOAD10 program, you can do so by double clicking on the field corresponding to the telephone number, and in the module – by starting the suitable function and pressing the CHANGE button. The following items will be displayed in turn:

blank field – no messaging,

v – voice message,

s – SMS message,

c – CLIP.

The module can provide information on:

- inputs 1...4 violation (service mode functions: "IN1 -> Tel."..."IN4 -> Tel.");
- inputs 1...4 restore (service mode functions: "Rest.1 -> Tel."..."Rest.2 -> Tel.");
- telephone line trouble (service mode function: "F.L. -> Tel.");
- telephone line restore (service mode function: "Rest.L -> Tel.");

Additionally, the test transmission can be performed (service mode function: "Test -> Tel.").

For the events about which the module can provide information and for the test transmission, you can program the content of messages (service mode functions: "SMS IN1 violat."..."SMS IN4 violat.", "SMS IN1 restor."..."SMS IN4 restor.", "SMS fail. line", "SMS restor.line", "SMS test"), which will be used for SMS messaging. The messages may contain up to 32 characters and must not contain diacritical marks. The content can be modified both by means of DLOAD10 program and service mode, as well as by means of SMS messages (see section "Changing the text messages content by means of SMS" p. 56).

Messaging if telephone line is OK [TL ok, mess.IN1–4]

You can define for each input whether messaging about its status is to be realized when the telephone line works fine. Messaging will be realized, if the option is enabled.

SMS control

Change test period [SMS test period] – the control command which allows programming of the test transmission period by means of SMS message. The SMS message sent to the module should have the following form: "xxxxxx=P", where "xxxxxx" is the control command and "P" is the test transmission period:

0 – no test transmission,

- 1 – 2 h 58 min,
- 2 – 5 h 57 min,
- 3 – 11 h 56 min,
- 4 – 23 h 55 min,
- 5 – 2 d 23 h 53 min,
- 6 – 6 d 23 h 30 min.

Change tel. 1–4 [SMS change tel1–4] – the control command which allows programming of the telephone number for messaging by means of SMS message. The SMS message sent to the module must have the following form: "xxxxxx=yyyy." or "xxxxxx=yyyy=", where "xxxxxx" is the control command and "yyyy" is the new telephone number for messaging. It is recommended that the telephone number be preceded by the country code.

6.2.10 "Reporting" tab

 Further reporting related information can be found in section "Starting the reporting" p. 52.

The screenshot shows the 'Reporting' configuration tab for a GSM-5 module. At the top, there are navigation tabs: GSM 5, SIM1/2, Control/Inputs/Outputs, Tel. messaging, Reporting (selected), Reporting - inputs, TCP/IP downloading, Firmware update, and Events buffer. The main area contains several sections:

- Reporting:** Includes checkboxes for 'Reporting' (checked), 'INTEGRA presence supervision' (checked), 'Events buffering' (checked), and 'Reporting test send all media' (unchecked).
- Retries and Timing:** 'Number of reporting retries before sending other way' is set to 3. 'Kiss off time' is set to 850 ms.
- Reporting station 1:**
 - Station addr.: 212.91.19.99
 - Port: 12345
 - Station key: [masked]
 - System identifier: 6311
 - GPRS key: 66111
 - Priority list: 1 GPRS SIM1, 2, 3, 4, 5, 6, 7, 8. Includes 'Add' and 'Remove' buttons.
 - Telephone numbers: CSD reporting: +44888999555, SMS reporting: [empty]
 - SMS format: Event=●,↑,↓,←,→= [empty]. Includes 'Restore', 'Part.', and 'Z./Mod./User' buttons.
 - AUDIO reporting/station simulation: Tel. Number: 7896
- Reporting station 2:**
 - Station addr.: 201.91.19.99
 - Port: 21456
 - Station key: [masked]
 - System identifier: 0001
 - GPRS key: 04560
 - Priority list: 1 GPRS SIM1, 2 SMS SIM1, 3, 4, 5, 6, 7, 8. Includes 'Add' and 'Remove' buttons.
 - Telephone numbers: CSD reporting: +44777888999, SMS reporting: +44777888999
 - SMS format: Event=●,↑,↓,←,→= [empty]. Includes 'Restore', 'Part.', and 'Z./Mod./User' buttons.
 - AUDIO reporting/station simulation: Tel. Number: 6987
- Reporting trouble messaging:** Send SMS: Monitoring trouble (MS#), Tel. number: +44222333555

Fig. 21. "Reporting" tab (GSM-5 module).

Configuring the reporting

Reporting – if this option is enabled, the module can report to monitoring station.



For the modules with built-in industrial-type GSM telephone other than the u-blox LEON-G100 telephone, enabling the reporting feature will disable the feature of PAGER message conversion into SMS messages.

INTEGRA presence supervision [Tst.con.INTEGRA] – if this option is enabled, the status of connection with INTEGRA control panel through RS-232 port is monitored.

Events buffering [Events buffer] – the option is available in the module with built-in GSM u-blox LEON-G100 telephone. If it is enabled:

- each event received from the control panel is acknowledged at once,
- events (both received from the control panel and generated by the module) are recorded in the event log (see: section "Events buffer" p. 47).

If the option is disabled, depending on the reporting link, receipt of the event is acknowledged to the control panel by:

- GPRS / CSD / AUDIO – GPRS / CSD / AUDIO – after acknowledgement of the event receipt by the monitoring station;
- SMS – after sending the SMS message.



If the events buffering option is enabled, the event codes are not sent through the AUDIO link.

Reporting test send all media [Test all links] – if this option is enabled, the module test transmission is sent over all links which have been programmed using the "Links to MS1 / Links to MS2" function. If the "Events buffer" option is enabled and the test transmission is sent over all links, the "Events buffer" tab will only display the event communicating information about test transmission sent over the reporting link programmed as the last one.

Number of reporting retries before sending other way [Attempts/link] – the number of unsuccessful retries to send the event over the given reporting link, after which the module will make an attempt to send the event over the next link. You can program values from 2 to 255 (by default: 3).

Kiss off time [Kissoff period] – duration of the tone generated by the module to acknowledge receipt of the event from the alarm control panel. The entered value must be suitable for the reporting format selected in the control panel. You can program values from the 100 to 2550 ms range (by default: 850 ms).

Reporting station 1/2

Station addr. [MS1 address / MS1 address] – network address of the monitoring station. It can be entered as an IP address (4 decimal numbers separated by dots) or as a name.

Port [MS1 port / MS2 port] – the number of TCP port on which transmission of events to the monitoring station will take place. **The port number must be consistent with that programmed in the monitoring station.**

Station key [MS1 key / MS2 key] – a sequence of up to 12 alphanumeric characters (digits, letters and special characters) defining the key with which the data sent to the monitoring station will be encrypted. **It must be consistent with that programmed in the monitoring station.**

System identifier [MS1 sys.ident. / MS2 sys.ident.] – 4 characters (digits or letters from A to F), used to identify the module. They must be programmed, if events generated by the module are to be reported, or in the case of GPRS reporting. The value 0000, which is entered by default, means no identifier.

GPRS key [GPRS 1 key / GPRS 2 key] – a sequence of up to 5 alphanumeric characters to identify the module. **It must be consistent with that programmed in the monitoring station** ("ETHM / GPRS key").

Priority [Links to MS1 / Links to MS2]

In the Dload10 program

In order to add a reporting link:

1. Press the "Add" button. A drop-down menu with available reporting links will be displayed.
2. Click on the selected reporting link (for the GSM-5 module, select the reporting link and SIM card). It will be displayed on the list.
3. Proceed in the same way to select next reporting links.

In order to delete a programmed link:

1. Highlight in the list the selected reporting link which is to be removed.
2. Press the "Remove" button.

In order to change the reporting link priority:

1. Click on the selected reporting link on the list.
2. If it is to be moved one position up, press the  button.
3. If it is to be moved one position down, press the  button.

In the module service mode

In order to add a reporting link and set its priority:

1. Select "GSM options" in the main menu, and then enter the "GPRS settings" submenu.
2. Select the "Links to MS1 / MS2" function for the selected station.
3. For the first reporting link in the queue ("Link 1" function), use the CHANGE button to select the type of reporting link and the SIM card (for the module GSM-5).
4. Using the NEXT button, select the next reporting link ("Link 2"..."Link 8" functions).
5. Program in the same way the other reporting links for the selected monitoring station, and then perform the same steps for the other station.
6. Confirm the changes made using the OK button.

In order to remove the programmed link:

1. Select "GSM options" in the main menu, and then enter the "GPRS settings" submenu.
2. Select the "Links to MS1 / MS2" function for the selected station.
3. Using the NEXT button, select the reporting link ("Link 1"..."Link 8" functions) which is to be removed.
4. Press the CHANGE button repeatedly until the [-] character appears.
5. Confirm the changes made using the OK button.



It is advisable to use first the reporting links available for one SIM card. Switching over from one SIM card to the other requires some time (e.g. because of the network login time) and therefore slows down the reporting procedure.

The "SIM1 block time", "SIM2 block time", "SIM1switch time" and "SIM2switch time" parameters have effect on switching over the transmission links.

If the module fails to send an event to the selected monitoring station over all the programmed links in turn, it will restart the reporting procedure after 2.5 minutes.

If more than one reporting link is selected for the given monitoring station and the event has been successfully sent over a link which is not the first on the list, and the module is to send a next event within less than 7.5 minutes, the event will be sent over the same link. The module will make an attempt to send events, starting from the first reporting link on the list, only after 7.5 minutes have elapsed since sending the last event.

Telephone numbers

CDS reporting [MS1 CSD tel.nr / MS2 CSD tel.nr] – the telephone number to which events are reported using the CSD technology. It must be preceded by the country code.



The CSD data transmission service is usually available in the basic package of services offered by the mobile network operator, however before programming suitable parameters you must make sure if it is possible to use it.

SMS reporting [MS1 SMS tel.nr / MS2 SMS tel.nr] – the telephone number to which events are reported using the SMS messages. It must be preceded by the country code.

SMS format [MS1 SMS format / MS2 SMS format]

The SMS message format for SMS reporting must be entered, as required by the monitoring station. The SMS message format programmed by default in the module corresponds to the default settings of STAM-2 monitoring station (program version 1.2.0 or newer). If the events are to be sent in the 4/2 format, only identifier and event code are sent (instead of the ← zone symbol). Question marks will be sent instead of the other special characters of the format.

AUDIO reporting/station simulation

Tel. Number [MS1 tel.number / MS2 tel.number] – the number after dialing of which by the device connected to the telephone line output the module will receive event codes and retransmit them to the monitoring station using the GSM telephone. The method of forwarding the event codes should be determined by selecting the suitable reporting links – see: "Links to MS1 / Links to MS2" p. 42. If the events are to be sent over the AUDIO link, it must be the whole number of the monitoring station to which the events will be sent.



The programmed number must be unique and must not coincide with any other number programmed in the module.

Reporting trouble messaging

Send SMS [SMS monit.trbl.] – the content of SMS message which will be sent if the "Events buffer" option is enabled and the module fails to send the event to the selected monitoring station. The message can contain up to 32 characters.

Tel. number [Mon.trbl.tel.nr] – the telephone number to which SMS message will be sent if the module fails to send the event to the selected monitoring station.

6.2.11 "Reporting – inputs" tab

The module can report to the monitoring station in the following situations:

- inputs 1...4 violation (service mode functions: "IN1 viol. code" ... "IN4 viol. code");
- inputs 1...4 restore (service mode functions: "IN1 rest. code"... "IN4 rest. code");
- telephone line trouble (service mode function: "TL trouble code");
- telephone line restore (service mode function: "TL restore code").

Additionally, the test transmission can be send (service mode function: "Test trans.code").

In the DLOAD10 program, the following parameters should be programmed for each event:

S1 – check the field, if the event is to be sent to the monitoring station 1. Double click to check / uncheck the field.

S2 – check the field, if the event is to be sent to the monitoring station 2. Double click to check / uncheck the field.

Format – the format in which the event code will be sent. Double click to select: 4/2 (Ademco Express) or CID (Contact ID).

CODE – the event code which will be sent to the monitoring station. For the 4/2 format, 2 characters are to be programmed (digits or letters from A to F), and for Contact ID – 3 digits. In the case of Contact ID format, you can use the code editor. To open the window of code editor, click on the button available in the event description field.

R – the event qualifier for Contact ID format, which defines whether it is new event or restore. Double click to check / uncheck the field. If the field is checked, the restore code is sent.

Part. – partition number (refers to Contact ID format).

No. – number of zone / expander / user (refers to Contact ID format).

Event description – the field used for the Contact ID format. It displays description of the event whose code is entered in the "CODE" field. Additionally, the button for opening the Contact ID code editor is available in the field.

Event	S1	S2	Format	CODE	R	Part.	No.	
Input 1 violated	X		CID	130		01	001	Burglary <input type="button" value="..."/>
Input 1 restore	X		CID	130	X	01	001	Burglary restore <input type="button" value="..."/>
Input 2 violated		X	4/2	AA				<input type="button" value="..."/>
Input 2 restore		X	4/2	AB				<input type="button" value="..."/>
Input 3 violated		X	4/2	BA				<input type="button" value="..."/>
Input 3 restore		X	4/2	BB				<input type="button" value="..."/>
Input 4 violated	X		CID	138		01	002	Near alarm <input type="button" value="..."/>
Input 4 restore	X		CID	138	X	01	002	Near alarm restore <input type="button" value="..."/>
Test transmission		X	CID	602		00	000	Periodic reporting test <input type="button" value="..."/>
Tel. line trouble		X	CID	351		00	000	Primary telephone line f <input type="button" value="..."/>
Tel. line restore		X	CID	351	X	00	000	Primary telephone line r <input type="button" value="..."/>

Fig. 22. "Reporting – inputs" tab (GSM-5 module).

In each function of the module service menu, the **ab c ddde ff ggg** sequence is programmed, where:

- a – station 1 (- reporting enabled; - reporting disabled);
- b – station 2 (- reporting enabled; - reporting disabled);
- c – reporting format (N – Ademco Express; C – Contact ID);
- d – event code;

e – event qualifier (* - new event; r – restore);
 ff – partition number;
 ggg – zone / expander / user number.

6.2.12 "TCP/IP downloading" tab

Communication over TCP/IP [Module download]

GSM 5	SIM1/2	Control/Inputs/Outputs	Tel. messaging	Reporting	Reporting - inputs	TCP/IP downloading	Firmware update	Events buffer
Communication over TCP/IP			Communication Integra-DloadX			Communication Integra-GuardX		
Server address: 212.91.18.13			Server address: 212.91.18.14			Server address: 212.91.18.15		
<input checked="" type="checkbox"/> Server from SMS			<input checked="" type="checkbox"/> Server from SMS			<input checked="" type="checkbox"/> Server from SMS		
Port: 7092			Port: 7093			Port: 7094		
Initiating SMS: tcp_ip			Initiating SMS: dloadx			Initiating SMS: guardx		
Dload10 key: 98765432100			DloadX key: 213456987400			GuardX key: 321879878940		
			<input checked="" type="checkbox"/> encrypted transmission					

Fig. 23. "TCP/IP downloading" tab (GSM-5 module).

Server address – address of the computer from which the module can be remotely programmed. It can be entered as an IP address or as a name.

Server from SMS [Any address] – if this option is enabled, the address of server, to which the module is to connect, and the port number can be entered in the content of SMS message initiating the connection. If the address is not entered, the module will connect to the server whose address has been programmed in the module.

Port [Server port] – the number of port on which the communication between computer and module will take place.

Initiating SMS [SMS prog. module] – the control command that must be included in the SMS message sent to the telephone number of GSM module, so that the module can start the procedure of establishing communication with the DLOAD10 program (communication using the GPRS technology).

Dload10 key [Key] – the string of 12 alphanumeric characters (digits, letters and special characters) defining the key with which the data sent to the DLOAD10 program will be encrypted. The module will only establish connection to the program using the correct key.

Communication Integra-DloadX [DloadX download]

Server address – the address of computer with the DLOADX program, with which the module (connected to the INTEGRA control panel through RS-232 port) is to communicate using the GPRS technology. It can be entered as an IP address or as a name.

Server from SMS [Any address] – if this option is enabled, the address of server, to which the module is to connect, and the port number can be entered in the content of SMS message initiating the connection. If the address is not entered, the module will connect to the computer whose address has been programmed in the module.

Port [Server port] – the number of port on which the communication with the DLOADX program will take place.

Initiating SMS [SMS prog.DloadX] – the control command that must be included in the SMS message sent to the telephone number of GSM module connected to the control panel, so that the module can establish communication with the DLOADX program using the GPRS technology.

DloadX key [Key] – the string of 12 alphanumeric characters (digits, letters and special characters) defining the key with which the data sent to the DLOADX program will be encrypted. The module will only establish connection to the program using the correct key.

encrypted transmission [Encryption] – if this option is enabled, the data transmission between module and program will be encrypted. The option must be enabled.

Communication Integra-GuardX [GuardX download]

Server address – the address of computer with the GUARDX program, with which the module (connected to the INTEGRA control panel through RS-232 port) is to communicate using the GPRS technology. It can be entered as an IP address or as a name.

Server from SMS [Any address] – if this option is enabled, the address of server, to which the module is to connect, and the port number can be entered in the content of SMS message initiating the connection. If the address is not entered, the module will connect to the computer whose address has been programmed in the module.

Port [Server port] – the number of port on which the communication with the GUARDX program will take place.

Initiating SMS [SMS prog. GuardX] – the control command that must be included in the SMS message sent to the telephone number of GSM module connected to the control panel, so that the module can establish communication with the GUARDX program using the GPRS technology.

GuardX key [Key] – the string of 12 alphanumeric characters (digits, letters and special characters) defining the key with which the data sent to the GUARDX program will be encrypted. The module will only establish connection to the program using the correct key.

6.2.13 "Firmware update" tab

Remote update of the module firmware by means of GPRS is possible for modules with the u-blox LEON-G100 industrial GSM telephone.



For information on the firmware update server please visit the www.satel.eu site.

Fig. 24. "Firmware update" tab (GSM-5 module).

Update server [Server address] – the address of server to which the module is to connect for firmware update. It can be entered as an IP address or as a name.

Port [Server port] – the number of server port shown in the form of decimal numbers.

SMS initiating update [SMS firmware] – the control command that must be included in the SMS message sent to the telephone number of GSM module so as to initiate the firmware update.

Server from SMS [Any address] – if this option is enabled, the address of server, to which the module is to connect, and the port number can be entered in the content of SMS message initiating the connection. If the address is not entered, the module will connect to the server whose address has been programmed in the module.

Check for updates

after every reboot [Upd.aft.restart] – if this option is enabled, the module will connect to the firmware update server after each restart to check whether a new firmware is available.

every... days [Update period] – if the module is to periodically check for updates, you must indicate every how many days it is to take place. You can program up to 31 days. The value 0 means that that module will not periodically connect to the firmware update server.

SMS messages

Update successful [SMS firmw.ok.] – the SMS message which will be sent after successful update of module firmware.

No newer firmware [SMS firmw.nonew] – the SMS message which will be sent after the module has checked that there is no newer firmware for the module.

Update failed [SMS firmw.error] – the SMS message which will be sent after a failed attempt of module firmware update.

i | The SMS messages that informs about the update result may contain up to 32 characters.

6.2.14 "Events buffer" tab

The module with built-in u-blox LEON-G100 GSM telephone has a non-volatile memory recording up to 255 events. The events are saved to memory and the "Events buffer" tab is available, if the events buffering option is enabled (see: "Events buffer" p. 41).

GSM 5 SIM1/2 Control/Inputs/Outputs Tel. messaging Reporting Reporting - inputs TCP/IP downloading Firmware update Events buffer							
	Received	Send	S1	S2	Event code	Description	
4	2012-12-17 13:04:53	12-17 14:06:50	GPRS SIM1		6311-602-1-00-000	Periodic reporting test	
5	2012-12-17 12:56:54	12-17 13:51:22		SMS SIM1	0001-113-3-00-000	Water flow restore	
6	2012-12-17 12:56:47	12-17 13:35:52		SMS SIM1	0001-113-1-00-000	Water flow	
7	2012-12-17 12:56:41	12-17 13:20:22	GPRS SIM1		6311-203-3-00-000	Gate valve sensor restore	
8	2012-12-17 12:56:34	12-17 13:04:53	GPRS SIM1		6311-203-1-00-000	Gate valve sensor	
9	2012-12-17 12:54:15	12-17 12:56:54	GPRS SIM1		6311-522-3-01-001	Output/bell 2 enable	
10	2012-12-17 12:54:07	12-17 12:56:47		SMS SIM1	0001-110-3-00-000	Fire alarm restore	
11	2012-12-17 12:54:06	12-17 12:56:41	GPRS SIM1		6311-522-1-01-001	Output/bell 2 disable	
12	2012-12-17 12:54:00	12-17 12:56:34		SMS SIM1	0001-110-1-00-000	Fire alarm	
13	2012-12-17 12:49:43	12-17 12:54:15		SMS SIM1	0001-389-3-01-002	Detector self test restore	
14	2012-12-17 12:49:37	12-17 12:54:07		SMS SIM1	0001-389-1-01-002	Detector self test fail	
15	2012-12-17 12:49:33	12-17 12:54:06	GPRS SIM1		6311-206-3-00-000	Pump restore	
16	2012-12-17 12:49:28	12-17 12:54:00	GPRS SIM1		6311-206-1-00-000	Pump failure	
17	2012-12-17 12:49:24	12-17 12:49:52		SMS SIM1	0001-602-1-00-000	Periodic reporting test	
18	2012-12-17 12:49:24	12-17 12:49:46	GPRS SIM1		6311-602-1-00-000	Periodic reporting test	
19	2012-12-17 12:46:59	12-17 12:47:08	GPRS SIM1		6311-421-3-00-000	Access denied end	
20	2012-12-17 12:46:53	12-17 12:47:04	GPRS SIM1		6311-421-1-00-000	Access denied	
21	2012-12-17 12:46:31	12-17 12:46:35		SMS SIM1	0001-525-3-01-002	Reversing relay enable	
22	2012-12-17 12:46:25	12-17 12:46:29		SMS SIM1	0001-525-1-01-002	Reversing relay disable	
23	2012-12-17 12:44:40	12-17 12:44:52	GPRS SIM1		6311-202-1-00-000	Low CO2	
24	2012-12-17 12:44:35	12-17 12:44:44	GPRS SIM1		6311-372-1-00-000	Protection loop short	
25	2012-12-17 12:43:58	12-17 12:44:19		SMS SIM1	0001-401-1-00-000	Disarm	
26	2012-12-17 12:43:53	12-17 12:44:15		SMS SIM1	0001-401-3-00-000	Arm	
27	2012-12-17 12:42:21	12-17 12:42:43	GPRS SIM1		6311-130-3-01-001	Burglary restore	
28	2012-12-17 12:42:15	12-17 12:42:39	GPRS SIM1		6311-202-1-00-000	Low CO2	
29	2012-12-17 12:42:10	12-17 12:42:35	GPRS SIM1		6311-145-1-00-000	Expansion module tamper	
30	2012-12-17 12:42:06	12-17 12:42:30		SMS SIM1	0001-130-1-01-002	Near alarm	
31	2012-12-17 12:42:06	12-17 12:42:26	GPRS SIM1		6311-130-3-01-001	Burglary restore	
32	2012-12-17 12:42:04	12-17 12:42:21		SMS SIM1	0001-401-3-00-000	Arm	
33	2012-12-17 12:42:01	12-17 12:42:17	GPRS SIM1		6311-130-1-01-001	Burglary	

Fig. 25. "Events buffer" tab (GSM-5 module).

The events are presented in the descending order (the newest at top, the oldest at bottom). The individual columns show the following information:

Received – the date when event was received by the module.

Send – the date when event was sent by the module to the monitoring station.

S1 / S2 – reporting status (S1 – monitoring station 1, S2 – monitoring station 2):

--- – the event is not reported,

. – the event is waiting to be reported,

name of reporting link – the event was sent successfully to the monitoring station over the indicated link.

Event code

Description – event description (for events in Contact ID format).

Refresh – use this button to download events from the module.

7. Control

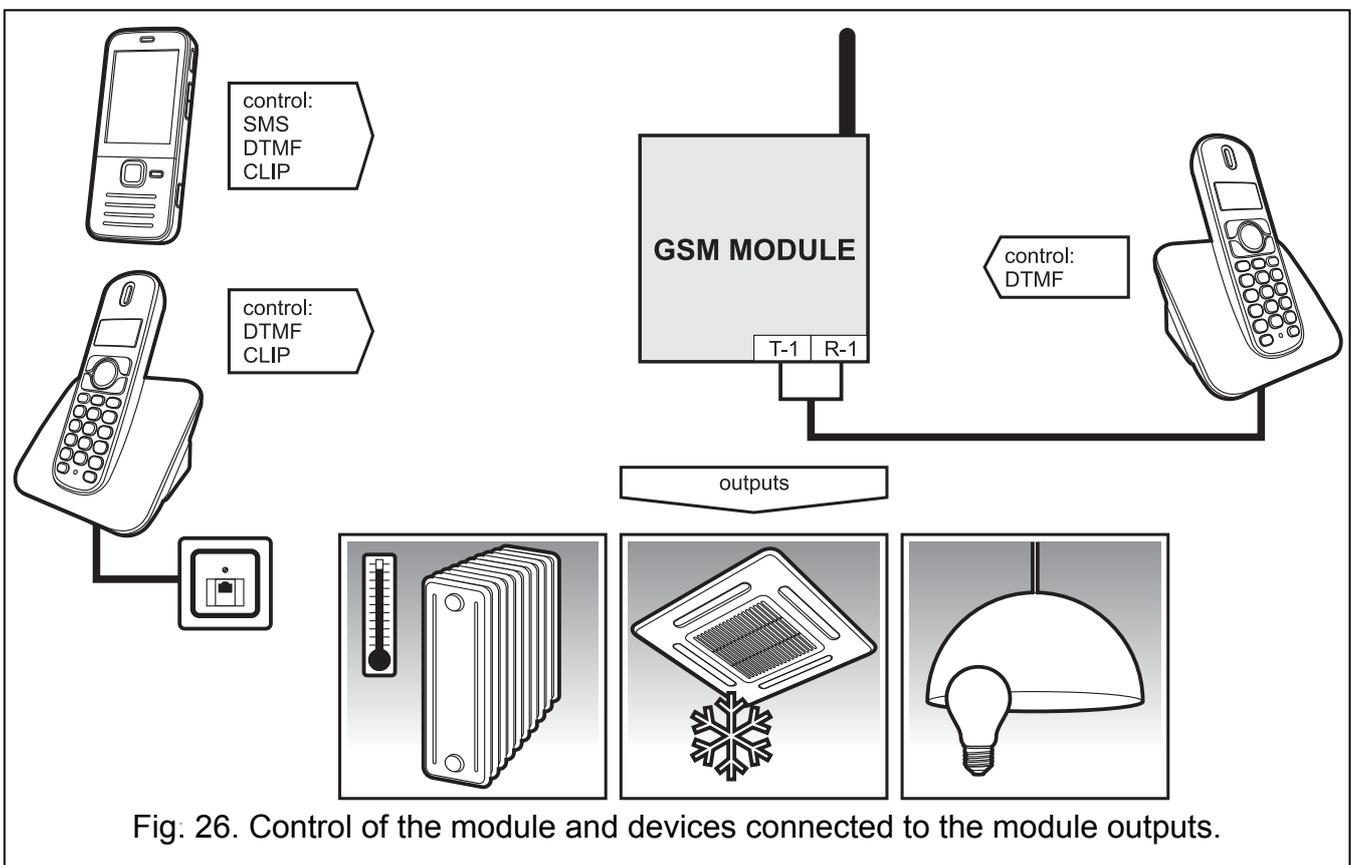


Fig. 26. Control of the module and devices connected to the module outputs.

7.1 Remote

7.1.1 Tone control from telephone keypad

- Program the "Time of ringing" parameter (see p. 30).
- Program the control codes (see: section "DTMF control" p. 34).
- If the control availability is to be limited to the telephones whose numbers:
 - have been programmed in the module (see: "Tel.1-4 for mess." p. 38 and "Mon.trbl.tel.nr" p. 43) – enable the "Msg.tel.control" option (see: p. 36);

- are on the list of authorized numbers (see: "Tel.No 1-32 begin." p. 30) – enable the "All.tel.control" option (see: p. 36).

To use the control, do the following:

1. Call the GSM module telephone number, wait until the programmed ringing time elapses and after hearing 3 short beeps enter the 4-digit control code. Depending on the function executed after entering the code, you can hear the following sounds in the telephone receiver:
 - deactivating output / all outputs: **3 short beeps**;
 - activating output / all outputs: **4 short and 1 long beeps**;
 - bypassing or unbypassing input / all inputs or information on the status of inputs: **a sequence of 4 sounds** in which successive sounds illustrate the status of consecutive inputs:
 - short beep** – input unbypassed,
 - long beep** – input bypassed;
 - information on the status of outputs:
 - 1 short beep** – OT1 output activated,
 - 2 short beeps** – OT2 output activated,
 - 3 short beeps** – OT4 output activated,
 - 4 short and 1 long beeps** – all three outputs are deactivated.

If a wrong control code is entered (which is unknown to the module), **2 long beeps** will be generated by the module.



If you make a mistake when entering the control code, press the [] or [#] key and re-enter the code. Entering a wrong code three times will result in loss of connection with the module.*

2. Enter the next control codes or terminate the connection.

7.1.2 Using SMS

- Program the control commands (see: section "SMS control" p. 32).
- If the control availability is to be limited to the telephones whose numbers:
 - have been programmed in the module (see: "Tel.1-4 for mess." p. 38, "SMS acknowl. No" p. 35 and "Mon.trbl.tel.nr" p. 43) – enable the "Msg.tel.control" option (see: p. 36);
 - are on the list of authorized numbers (see: "Tel.No 1-32 begin." p. 30) – enable the "All.tel.control" option (see: p. 36).
- If module is to confirm execution of the control command by means of SMS message, program the following items:
 - telephone number to which acknowledgements will be sent by the module (see: "SMS acknowl. No" p. 35);
 - SMS center number (see: "SMS centre No" / "SMS centre SIM2" p. 31).

To use the control:

1. Send the SMS message containing a control command to the telephone number of GSM module.



The control command may be just a fragment of the SMS message, but it must be among the first 32 characters. This makes it possible to write the control command, including the comments, to the telephone memory and send the whole to the module.

Several control commands may be included in one SMS message.

2. After execution of the command, the module will send an SMS message, which can have the following form:

"OUT n switched ON (status: OT1=? OT2=? OT3=?)",

"OUT n switched OFF (status: OT1=? OT2=? OT3=?)",

where "n" is the output number, and "?" can take value 0 (inactive) or 1 (active).

"Status: OT1=? OT2=? OT3=?, IN1=? IN2=? IN3=? IN4=?, LT=?, SIG=?, test: ??d??h??m
T1=?...? T2=?...? T3=?...? T4=?...?"

where:

OT1 ÷ OT3 – information on output status [0 – output inactive; 1 – output active].

IN1 ÷ IN4 – information on input status [i or t – input in normal status; l or T – input violated; b – input bypassed].

LT – information on telephone line status [ok – the telephone line OK; ?? – telephone line trouble].

SIG – actual level of signal received by antenna [digits from 0 to 4].

test – information on the time interval at which the test transmission will be sent [currently programmed number of days (d), hours (h) and minutes (m)].

T1 ÷ T4 – information on the telephone numbers programmed by means of "Tel.1–4 for mess." function.



*The SMS message confirming execution of the control command can be sent to another telephone number. In such a case the SMS message sent to the module must have the following form: **xxxxxx=yyyy**. or **xxxxxx=yyyy=**, where "xxxxxx" is the control command and "yyyy" is the telephone number to which the message is to be sent back by the module. If the telephone number is to be preceded by the country code, "00" must be used instead of the "+" character.*

7.1.3 Using CLIP

Using the CLIP you can only control the status of outputs.

- Program the "Time of ringing" parameter (see: p. 30).
- Enter the telephone numbers from which control of the outputs will be possible by means of CLIP (see: "CLIP1 - tel. No" p. 36).
- Determine which outputs and how are to be controlled by CLIP (see: "CLIP1–4→Outputs" p. 36).

To use the control feature, call the telephone number of GSM module, wait until the programmed ringing time elapses and hang up. The module will change the output status.

7.2 Local

7.2.1 Using the module buttons

Bypassing / unbypassing input

Define which inputs are to be bypassed manually (see: "IN1–4 bps.manual." p. 35).



The manual input unbypassing is always available.

In order to bypass / unbypass the input:

1. Press three times the button with number corresponding to the given input. If the input is unbypassed, it will be bypassed, and if it is bypassed, it will be unbypassed.
2. Information on the input status will be displayed and the module will generate a suitable sound (see section "Audible signaling in the module" p. 13).

Activating / deactivating output

1. Press and hold down for about 1 second the button with number corresponding to the given output. If the output is inactive, it will be activated, and if it is active, it will be deactivated.
2. Information on the output status will be displayed and the module will generate a suitable sound (see section "Audible signaling in the module" p. 13).

7.2.2 From the keypad of telephone connected to telephone line output

- Define which inputs are to be bypassed manually (see: "IN1–4 bps.manual." p. 35).
- Define the outputs whose status can be changed by means of the telephone connected to the telephone line output (see: "OTs to control" p. 36).
- Program the six-digit code to allow the local bypassing / unbypassing of inputs and activating / deactivating of outputs (see: "Control" p. 35).

To use the control:

1. Lift the handset and, using the telephone keypad, enter the control code (see: "Control" p. 35). The module will confirm its validity generating 4 short beeps and 1 long beep.
2. Press the [*] key and the keys corresponding to the 2 digits:

the first digit is, respectively:

- 1 - bypass input,
- 2 - unbypass input,
- 3 - check input status (in response, the device will generate beeps):
1 short beep – input unbypassed,
3 long beeps – input bypassed.
- 4 - enable output(s),
- 5 - disable output(s),
- 6 - check output status (in response, the device will generate beeps):
1 short beep – output disabled,
2 short beeps – output enabled.

the second digit is the number of input (1...4) / output (1...3) or all inputs / outputs (0).

3. Execution of the control command will be confirmed with 3 short beeps. If the command is wrong, the module will generate 2 long beeps.
4. Repeat the step 2 operations if the control is to be continued.
5. Hang up to terminate the control.

7.3 Control from Dload10 program

1. Select the "Communication" command on the menu bar to open the menu.
2. Select the "On-line" function in the menu. Alternatively, from the program main window level, press simultaneously the Ctrl+I keys or click on the  button.
3. The "IN/OT" window will be displayed.
4. Select, using the "Bypass / Unbypass" button, which input is to be bypassed / unbypassed.
5. Select, using the "On / Off" button, which output is to be activated / deactivated.

8. Starting the reporting

The module can send to the monitoring station the following event codes:

- generated by the module (input violation / restore, telephone line trouble / restore);
- received from the alarm control panel connected to the telephone line output;
- received from the alarm control panel connected to the RS-232 port.

The module offers the following forms of event code sending to the monitoring station:

- GPRS – packet data transmission.
- CSD – data transmission.
- SMS – SMS messages. If the event code is sent using an SMS message, the module will not receive the acknowledgement of receipt of the event code by the monitoring station. Therefore, this reporting link should be used as the last one (see: "Links to MS1 / Links to MS2" p. 42). In the first place, you should use the reporting links which allow the module to receive the acknowledgement of receipt of the event code by the monitoring station.
- AUDIO – GSM voice link. Only events received from the control panel connected to the telephone line output can be sent in this way. Considering the distortions that may occur when sending event codes over the GSM voice link, using this form of transmission is not recommended.



If the "Events buffer" (see: p. 41) option is enabled, the event codes will not be sent over the AUDIO link.

The control panel and GSM module can be configured so that the event codes are not received by the module, but only sent over the analog telephone line or GSM network (voice link). The control panel must be connected to the telephone line output and the monitoring station telephone number programmed in it must be different from that programmed in the module by means of the "MS1 tel.number / MS2 tel.number" functions (see: p. 43) or the "Reporting" option must be disabled in the module.

8.1 Starting the GPRS reporting

- Enable the "Monitoring" option.
- Program the system identifier (see: p. 41).
- Select GPRS as the reporting link (see "Links to MS1 / Links to MS2" p. 42).
- Enable the event buffering, if the events are to be written to the event log and the module is to acknowledge receipt of events from the control panel before forwarding them to the monitoring station (see: "Events buffer" p. 41).
- If the events buffering option is enabled and the module is to provide information about problems with transmission, enter the content of SMS message (see: "SMS monit.trbl." p 43) and telephone number (see: "Mon.trbl.tel.nr" p. 43) to which the information will be sent.
- Enter the GPRS communication parameters (see: p. 32):
 - name of access point (APN) for the Internet GPRS connection;
 - DNS server IP address which is to be used by the module (you do not need to program the DNS server address, if IP address will be entered for the monitoring station);
 - user name for the Internet GPRS connection;
 - password for the Internet GPRS connection.

8.1.1 Reporting the module status (GPRS)

1. Configure the parameters of monitoring station(s) (see: p. 41):
 - enter the monitoring station address;
 - enter the number of TCP port on which communication with the monitoring station will take place;
 - enter the encryption key for data sent to the monitoring station;
 - enter the system identifier;
 - enter the GPRS key.
2. Define the rules for reporting the module related events (see: p. 44).

8.1.2 Reporting events from the control panel (GPRS)

Control panel connected only to the telephone line output

1. Program the parameters as described in section "Reporting the module status (GPRS)", it. 1.
2. Enter the telephone number which will also be programmed in the control panel for the monitoring station simulated by the module (see: "MS1 tel.number / MS2 tel.number" p. 43).
3. Define duration of the kiss-off tone generated by the module (see: "Kissoff period" p. 41).
4. Enable the "GSM main line" option (see: p. 28).

Control panel connected to RS-232 port

Parameters related to the monitoring stations will be automatically downloaded from the control panel.

You can enable monitoring of the connection with INTEGRA control panel (see: "Tst.con.INTEGRA" p. 41).

8.2 Starting the CSD reporting

- Enable the "Monitoring" option.
- Select CSD as the reporting link (see: " Links to MS1 / Links to MS2" p. 42).
- Enable the event buffering, if the events are to be written to the event log and the module is to acknowledge receipt of events from the control panel before forwarding them to the monitoring station (see: "Events buffer" p. 41).
- If the events buffering option is enabled and the module is to provide information about problems with transmission, enter the content of SMS message (see: "SMS monit.trbl." p 43) and telephone number (see: "Mon.trbl.tel.nr" p. 43) to which the information will be sent.

8.2.1 Reporting the module status (CSD)

1. Configure the parameters of monitoring station(s) (see: p. 41):
 - enter the system identifier;
 - enter the telephone number for CSD reporting.
2. Define the rules for reporting the module related events (see: p. 44).

8.2.2 Reporting events from the control panel (CSD)

Control panel connected only to the telephone line output

1. Program the telephone number for CSD reporting (see: p. 43).

2. Enter the telephone number which will also be programmed in the control panel for the monitoring station simulated by the module (see: "MS1 tel.number / MS2 tel.number" p. 43).
3. Define duration of the kiss-off tone generated by the module (see: "Kissoff period" p. 41).
4. Enable the "GSM main line" option (see: p. 28).

Control panel connected to RS-232 port

1. Program the telephone number for CSD reporting (see: p. 43).
2. You can enable monitoring of the connection with INTEGRA control panel (see: "Tst.con.INTEGRA" p. 41).

8.3 Starting the SMS reporting

- Enable the "Monitoring" option.
- Select SMS as the reporting link (see: " Links to MS1 / Links to MS2" p. 42).
- Enable the event buffering, if the events are to be written to the event log and the module is to acknowledge receipt of events from the control panel before forwarding them to the monitoring station (see: "Events buffer" p. 41).
- If the events buffering option is enabled and the module is to provide information about problems with transmission, enter the content of SMS message (see: "SMS monit.trbl." p 43) and telephone number (see: "Mon.trbl.tel.nr" p. 43) to which the information will be sent.

8.3.1 Reporting the module status (SMS)

1. Configure the parameters of monitoring station(s) (see: p. 41):
 - enter the system identifier;
 - enter the telephone number for SMS reporting;
 - program the SMS message format in which event codes will be sent to the monitoring station.
2. Define the rules for reporting the module related events (see: p. 44).

8.3.2 Reporting events from the control panel (SMS)

Control panel connected only to the telephone line output

1. Program the parameters in the same way as described in section "Reporting the module status (SMS)" it. 1 (you do not need to program the system identifier).
2. Enter the telephone number which will also be programmed in the control panel for the monitoring station simulated by the module (see: "MS1 tel.number / MS2 tel.number" p. 43).
3. Define duration of the kiss-off tone generated by the module (see: "Kissoff period" p. 41).
4. Enable the "GSM main line" option (see: p. 28).

Control panel connected to RS-232 port

1. Program the parameters in the same way as described in section "Reporting the module status (SMS)" it. 1 (you do not need to program the system identifier).
2. You can enable monitoring of the connection with INTEGRA control panel (see: "Tst.con.INTEGRA" p. 41).

8.4 Starting the AUDIO reporting



Only events from the control panel connected to the telephone line output can be sent over the AUDIO link. Events related to the GSM module can not be sent in this way.

- Enable the "Monitoring" option.
- Disable the "Events buffer" option if it is enabled.
- Select AUDIO as the reporting link (see: "Links to MS1 / Links to MS2" p. 42).
- Enter the telephone number for AUDIO reporting (see: "MS1 tel.number / MS2 tel.number" p. 43).
- Enable the "GSM main line" option (see: p. 28).

8.5 Starting the event reporting over several links

If the events are to be sent using various ways of transmission or two SIM cards (in the case of GSM-5 module), do the following:

1. Program the reporting parameters for each of the selected links, as described in previous sections.
2. Define priorities for the selected reporting links (see: "Links to MS1 / Links to MS2" p. 42).
3. In the case of GSM-5 module, if two SIM cards are used, program the blocking time (see: p. 32) and switch time (see: p. 32) as required.
4. Program the number of failed retries to send the event over selected reporting link, after which the module will make an attempt to send it over the next link (see: "Attempts/link" p. 41).

9. Starting the messaging

The module offers the following forms of messaging:

- voice – the voice messaging can be realized if the SM-2 voice synthesizer is connected to the module, because the module provides information about the event by means of a voice message recorded in the synthesizer.
- SMS – the module provides information about the event by means of an SMS message programmed in the module.
- CLIP – the module provides information about the event calling the programmed telephone numbers and hanging up automatically after maximum 50 seconds. The CLIP allows toll-free messaging. The displayed module telephone number is to be considered as notification of the event.

In order to start the messaging you must enter the telephone numbers which will be notified by the module (see: "Tel.1–4 for mess." p. 38).

9.1 Starting the voice messaging

1. Record in the SM-2 voice synthesizer the voice message which is to be used for messaging.
2. Specify if the voice message is to be played back 1 or 2 times for the given telephone number (see: "Mess.x2 for t.1–4" p. 39).
3. Define, as required, the rules for messaging about module related events (see "Assignment of events" p. 39).
4. If several different events can result in triggering the voice messaging, you can enable the "Mess. sounds" (see: p. 37) option to get additional information on the event.

5. Define if the messaging is to be realized for the given input if the telephone line is OK (see: "TL ok, mess.IN1–4" p. 39).

9.2 Starting the SMS messaging

1. Enter the SMS center number, unless it has been written to the SIM card memory by the operator ("SMS centre No / SMS centre SIM2" p. 31).
2. Define, as required, the rules for messaging about module related events (see "Assignment of events" p. 39).
3. Define if the messaging is to be realized for the given input if the telephone line is OK (see: "TL ok, mess.IN1–4" p. 39).

9.2.1 Changing the text messages content by means of SMS



The messages may consist of 32 characters, but must not contain the diacritical marks.

1. Initiate the service mode.
2. Enter the "Messaging" submenu.
3. Select the function for programming the given content of SMS message (see: p. 39).
4. Press and hold down simultaneously the NEXT and CHANGE buttons for about 1 second.
5. If the current message content is a default one, the "Reading from SMS" information will appear on the display. The module will enter the state of waiting for SMS message for about 110 seconds.
6. If the current message content is not a default one, press and hold down the NEXT and CHANGE buttons to erase it. Use the buttons again to display the default message. Press and hold down both buttons again for the module to enter the state of waiting for SMS message.
7. Send an SMS message to the telephone number of GSM module. The message must have the following form: (*xxxxxx*), where "xxxxxx" is the message content. After receiving it, the module will generate 2 short beeps and show the received text on the display.
8. Confirm the changes made by pressing OK.
9. Enter the next messages.
10. Exit the service mode.

9.3 Starting the CLIP messaging

1. If the CLIP messaging is to be realized with acknowledgement, select the "Ack. CLIP tel.1–4" option (see: p. 39).
2. Specify the number of retries of messaging to the given telephone number ("Attempts/tel.1–4" function p. 39).
3. If the module is to send an SMS message to the selected telephone number if the receipt of notification message is not acknowledged, enable the "SMS mess 1–4 fail" option (see: p. 39).
4. Define, as required, the rules for messaging about module related events (see "Assignment of events" p. 39).
5. Define if the messaging is to be realized for the given input if the telephone line is OK (see: "TL ok, mess.IN1–4" p. 39).



The module will recognize the messaging as successful, if:

- *it receives no number busy information for about 10 seconds since dialing the telephone number;*
- *the call is answered.*

If the mobile phone of the message addressee is turned off or out of the network range, and the voice mail service is not active, an automatic message about the existing situation can be generated in the telephone receiver and no number busy signal is sent back. In such a case the module recognizes the notification message as received, while the user loses CLIP message.

In order to acknowledge receipt of the message, the connection with module must be rejected not earlier than 10 seconds and not later than 20 seconds since the telephone ring is heard. If the user rejects the connection too early, the module may retry to send the message (see: "Attempts/tel.1–4" p. 39).

10. Converting the PAGER type messages into SMS messages

The GSM module connected to the device that sends pager messages offers the capability of converting the pager messages into SMS messages.

In the GSM module:

1. Enter the SMS center number, unless it has been written by the operator to the SIM card memory (see: "SMS centre No / SMS centre SIM2" p. 31).
2. Program the number of pager station (see: "PAGER tel. No" p. 28).
3. Program the country code, if the telephone numbers in the device are not preceded by it (see: "Prefix for SMS" p. 28).

10.1 Working in conjunction with the DT-1 dialer

In the DT-1 dialer:

1. Program the signal parameters for the paging system station according to Table 2.

DT-1	C	1	2	2	A	0	E	0	0	7	A	8
-------------	---	---	---	---	---	---	---	---	---	---	---	---

Table 2. Parameters of the paging station signal for the DT-1 dialer.

2. Program the other parameters required to start the PAGER type messaging (see DT-1 dialer manual).

11. Sending SMS messages from the telephone connected to telephone line output

The GSM module makes it possible to send SMS messages from the landline telephone set, generating the DTMF signals, connected to the telephone line output.

The module can work in 2 modes:

1. Numeric mode:
 - pressing any telephone key from 0 to 9 means entering the corresponding digit into the message;
 - pressing the [*] key twice means switching over to the text mode.

2. Text mode:

- three letters correspond to each numeric key (see: Fig. 27);
- pressing the key means entering the middle letter;
- pressing in turn the numeric key and [*] means entering the letter on the left-hand side of the given key;
- pressing in turn the numeric key and [#] means entering the letter on the right-hand side of the given key;
- pressing the [0] key means entering a space,
- pressing in turn the [0] and [*] keys means entering a dash;
- pressing the [1] key means entering a dot,
- pressing in turn the [0] and [#] keys means switching over to the numeric mode.

The message will be sent on pressing the [#] key when the module is in the numeric mode.

Q . Z 1	A B C 2	D E F 3
G H I 4	J K L 5	M N O 6
P R S 7	T U V 8	W X Y 9
*	- _ 0	#

Fig. 27. Assignment of alphanumeric characters to telephone keypad.

In order to send an SMS message:

1. Lift the receiver of the telephone connected to the telephone line output.
2. Dial the pager station number programmed in the module (see: "PAGER tel. No" p. 28), and then the telephone number to which the SMS message is to be sent. The number should be dialed as soon as possible, without time gaps between the successive digits (the country prefix should be entered depending on whether it has been programmed by means of the "Prefix for SMS" function).
3. Two beeps will be generated by the module to acknowledge the number, if correctly received. No acknowledgement or a busy signal mean a dialing error and the necessity to restart the procedure (to make it easier, you can use the "Redial" key).
4. Enter the message according to the above described rules (the time of module waiting for entering the next characters is not limited).



The SMS message sent from a landline telephone set can contain up to 62 alphanumeric characters.

Hanging-up when the text is being entered will terminate the SMS message sending process.

12. The rules for converting the numbers

If the calls are realized by the GSM module telephone, the telephone number received from the control panel or a traditional telephone set is subjected to conversion still before being sent over to the GSM module telephone.

1. When dialing the number, the module first checks if its initial digits are consistent with:
 - the pager station number (see: "PAGER tel. No" p. 28) – the conversion applies to the digits following the pager station number and is limited to adding the prefix before them, if it has been programmed (see: "Prefix for SMS" p. 28),
 - one of the programmed outgoing numbers (see: "Outgoing No. 1–4" p. 30) – the conversion applies to the digits following the outgoing number,
 - the monitoring station telephone number (see: "MS1 tel.number / MS2 tel.number" p. 43) – the number conversion is not applicable.
2. 4 seconds after dialing the last digit, the module proceeds to converting the number.
3. If the dialed number begins with a prefix to erase, the prefix is removed from the number.
4. If the dialed number does not begin with a prefix programmed in the module, a prefix (prefix to add) can be put at the beginning of the number to be dialed.
5. If the dialed number begins with one of the fixed prefixes or has already been corrected, the module will check if it is on the list of authorized numbers (see: "Tel.No 1-32 begin." p. 30). If the number is on the list or the "Any numbers" (see: p. 28) option is enabled – the number will be recognized as correct and the module will make the call.

13. Initiating the module firmware update by SMS message

Send to the telephone number of GSM module an SMS message containing the control command to start the module firmware update ("SMS firmware" function, "Firmware update" submenu). The module will establish connection to the firmware update server whose address is programmed in the module.

If the "Any address" option ("Firmware update" submenu) is enabled in the module, you can send a message with the **xxxxxx=yyyy:zz.** or **xxxxxx=yyyy:zz=** content, where "xxxxxx" is the control command used to start the update, "yyyy" is the address of server with the latest firmware for the module (IP address or name), and "zz" is the server port number. The module will connect to the computer whose address is given in the SMS message. If the control command given in the SMS message is correct, and the other data are wrong, the address and port of the server to which the module is to connect will be downloaded from the settings programmed in the module.

After completion of the update, an SMS message containing information on the result of the process and on the module firmware version will be sent to the telephone number from which the SMS message initiating the firmware update was sent.

14. Restoring the factory settings

14.1 DLOAD10 program

1. Select the "Communication" command on the menu bar to open the menu.
2. Select the "Restore default settings" function in the menu. A window will be displayed in which you are to confirm your intention to restore the module factory settings.

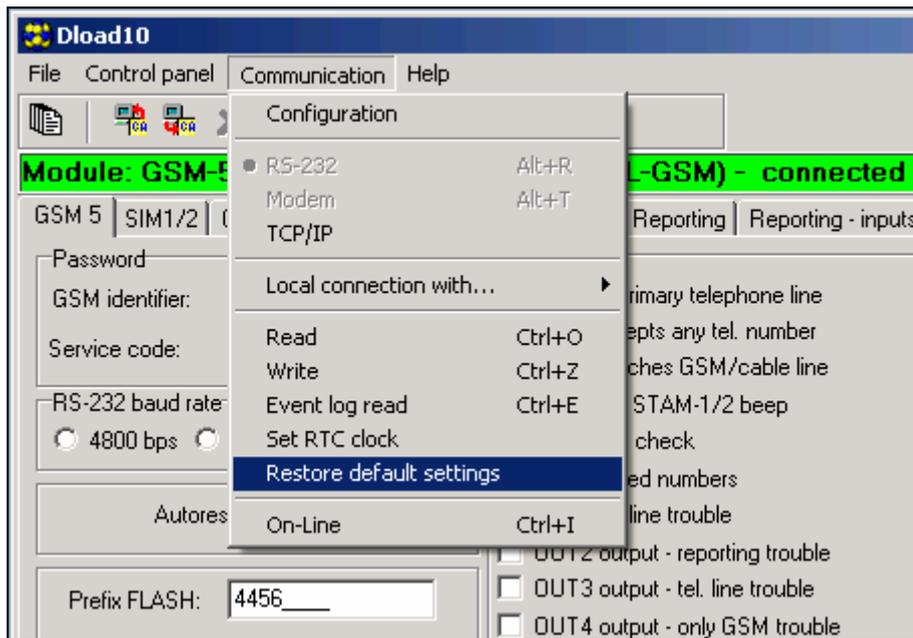


Fig. 28. "Restore default settings" function in the "Communication" menu.

14.2 Service mode

1. Enter the service mode.
2. Select the "Erase settings" function. A prompt will be displayed in response to which you are expected to use the CHANGE button to confirm your intention to restore the module factory settings.

14.3 Module factory settings (DLOAD10)

"GSM 4/5" tab:

GSM identifier: AAAAAA

RS-232 baud rate: 19200 bps

Autorestart every: 24 h

Enabled options:

Show dialed numbers

Show tel. line trouble

Switch line if trouble

No voltage on T-1/R-1 if GSM trouble

LCD backlight: none

Modem format: auto

Convert "+" to digits: 00

CLIP answering: Voice message

Tel. line loss delay: 2

GSM link loss delay: 0

Ringing time: 30

"SIM 1/2" tab:

Enabled options:

Full, international number

Get clock from GSM network

Auto-bypass duration: 0

Return time: 0

"Control/Inputs/Outputs" tab:

Input type IN 1-4: 2.NO

Input sensitivity: 200 ms

Input restore IN 1-4: 4 sec.

Auto-bypass on alarms IN 1-4: 3

Counting period IN 1-4: 120 sec.

Auto-bypass duration IN1-4: 24 h.

Manual bypass enabled IN 1-4: enabled

Time of operating (mono.) OT 1-3: 30 sec.

Local control enable OT 1-3: enabled

"Tel. messaging" tab:

Enabled options:

Messaging priority

Test tr. with GSM status

Messaging if telephone line is OK: from all inputs

Rep. 1-4: 3

SMS messages: default content for all events

"Reporting" tab:

Enabled options:

Events buffering

Number of reporting retries before sending other way: 3

Kiss off time: 850 ms

"Reporting - inputs" tab:

Codes programmed for events: Test transmission, Tel. line trouble, Tel. line restore

"TCP/IP downloading" tab:

Enabled options:

Server from SMS

Encrypted transsmision

"Firmware update" tab:

Enabled options:

Server from SMS

15. Specifications

Number of inputs.....		4
Number of outputs:	OC type.....	3
	power	1
Supply voltage	12 V DC \pm 15%	
Required minimum output current of power supply unit	500 mA	
Standby current consumption	GSM-4 / GSM-5	100 mA
Maximum current consumption:	GSM-4	250 mA
	GSM-5	330 mA
Current-carrying capacity, OC type outputs	50 mA	
Current-carrying capacity, +V outputs.....	300 mA	
Environmental class according to EN50130-5	II	
Operating temperature range.....	-10...+55 °C	
Maximum humidity	93 \pm 3%	
Electronics board dimensions	162 x 104 mm	
Weight of device with enclosure:	GSM-4	955 g
	GSM-5	875 g