![SATEL®]

COMMUNICATION MODULE
GSM-4

$C\:E$

USER MANUAL

⚠️ **WARNING**

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

In order to avoid any operational problems with the control panel, it is recommended that you become familiar with this manual before you start using the equipment.

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

Never turn on power supply of the module and GM47 telephone without external antenna connected.

Making any construction changes or unauthorized repairs is prohibited. Particularly, do not remove the cover which protects electronic circuits against atmospheric discharge.

CONTENTS

1. GSM-4 MODULE FEATURES

- Simulation of analog telephone line by the use of cellular connection - which makes it possible to report an alarm situation at the site in case the analog line is out of order or missing.

- Operation with alarm control panels and with other equipment (e. g. DT-1 plus telephone set) using the telephone line for transmitting the voice information about the alarm, or for sending the text message to paging system.

- Operation in conjunction with the STAM-1 monitoring station, which makes monitoring of the sites possible with the use of **SMS** short messages.

- Function of an external modem for the CA-64 alarm control panel (support of DLOAD64 and GUARD64 programs)*.

- Answering incoming and making outgoing calls via cable telephone network and via mobile communication system (cellular network).

- Option to choose the basic outgoing line: GSM / cable (subscriber line).

- Signaling of answering (receiving) a call initiated from the module T-1, R-1 terminals by changing the voltage polarization across those terminals (possibility of tariffication).

- Operation with PBX telephone exchange as additional subscriber's line.

- Impulse and tone dialing modes.

- Substitution of the direct access to cable telephone network and the access to cable telephone network via PBX.

- Four inputs, the violation of which (and restoring to normal status) can be monitored by SMS messages, voice messages or CLIP type information.

- Three outputs for controlling the electrical devices (e. g. by relays directly connected to the module).

- Output for signaling the telephone line failure and the cellular line failure.

- Test messaging (monitoring) in order to confirm the module operative condition.

- Possibility to control the outputs activity by violating the inputs (e.g. tripping alarm device after actuation of an alarm sensor) or by CLIP type calling.

- Remote controlling of the status of module's outputs and bypassing of the module inputs by using SMS text message or dual tone phone push-buttons (DTMF Signals).

- Capability of recognizing the message directed to paging system and transmitting it in the form of SMS text message to any cellular telephone number. SMS messages are always sent, irrespective of availability of subscriber's telephone line.

- Possibility of restricting the access to cellular telephone by making connections to 32 precisely defined numbers, or reduction of available numbers by assigning initial digits to such numbers.

- Operation with SONY ERICSSON GM47 two-range professional cellular telephone, compatible with GSM 900/1800 networks.

- Checking for cellular telephone availability and for antenna signal level.

- Remote programming of the module from PC computer by using the DLOAD10 program.

- RS interface (connecting to computer, STAM-1 or CA-64).

* - function available for the CA-64 control panel with v1.04.03 program and DLOAD64 v1.04.04 and GUARD64 v1.04.03 programs (or later versions).

Figure 1. Hookup of the module to telephone line.
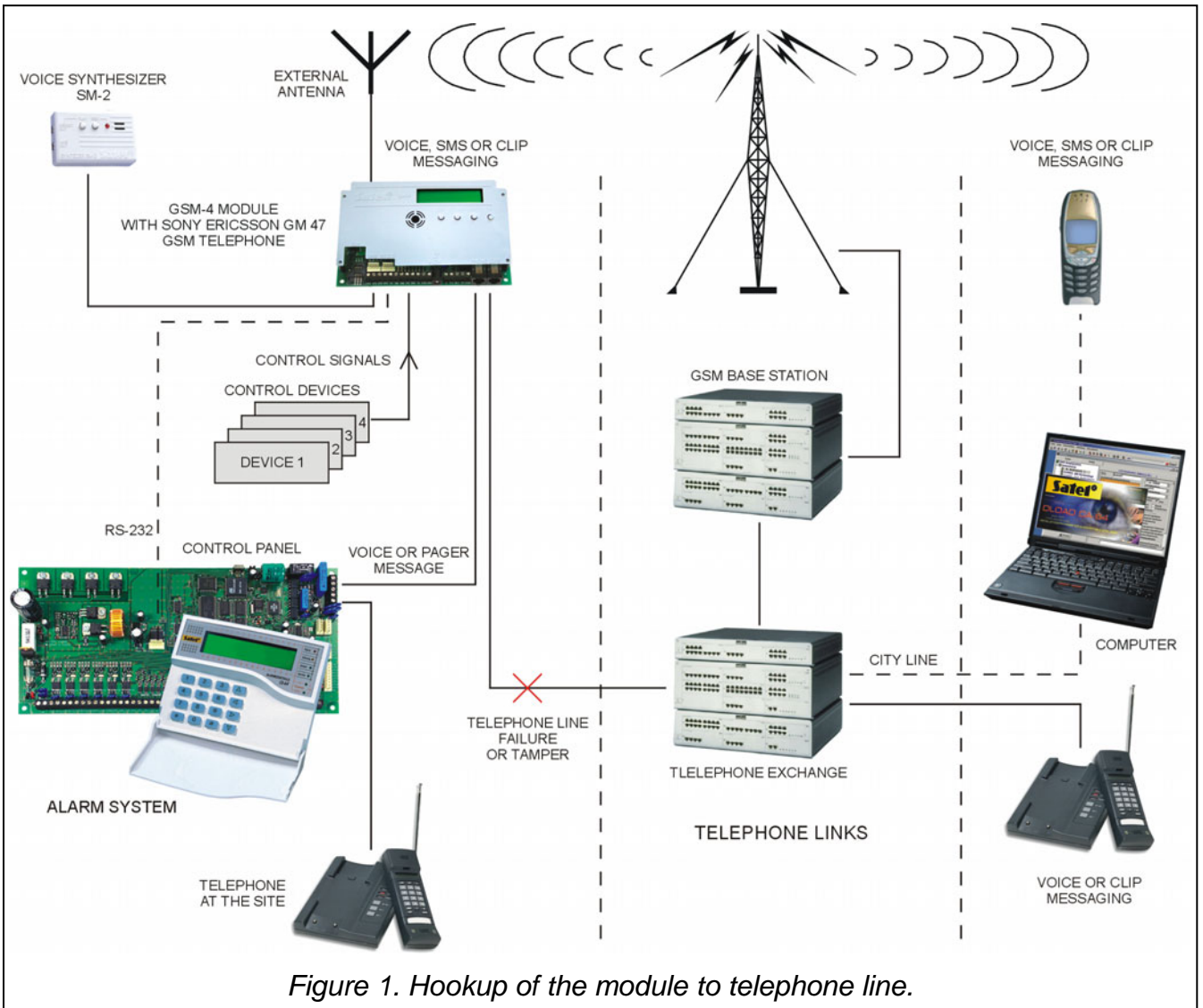
2. LIMITATIONS

Since cellular telephones are designed having in view the best possible transmission of the voice signals, it is reasonable that the data compression systems, which are used in cellular communication, introduce distortions into the audio signals transmitted. For this reason, transmission of modem signals (downloading) through a simulated telephone line may be difficult.

Cellular telephones make limitation in using the remote control function by DTMF signals. Not every type of cellular telephone can generate the proper form of these signals. Some models of cellular telephone have a special function permitting the DTMF control - in such case, this special function is to be activated.

The function of remote control by DTMF signals are always available from a traditional, stationary telephone set. The only limitations in this case can result from the quality of telephone cables and the telephone signal level, which reaches the module.

3. DESCRIPTION OF THE MODULE

THE MODULE'S TERMINALS:

TIP, RING - public exchange telephone line (subscriber's line)

LINE - jack for public exchange telephone line

T-1, R-1 - extension telephone line (connection to the alarm control panel or to a telephone set)

PHONE - jack for extension telephone line

+ 12V - power supply input

GND - ground (0V)

+V - power output (12V; max. 300mA)

-V - ground (0V)

SM2 - socket for the SM-2 voice synthesizer

IN1-IN4 - the module's inputs

OT1-OT3 - the controlling output (OC)

OT4 - output (OC) for signaling the failure of telephone line or GM47 telephone

The figure 2 shows the arrangement of terminals and essential elements, which are important for connecting and programming the GSM-4 module.

Figure 2. View of the PCB of GSM-4 module.
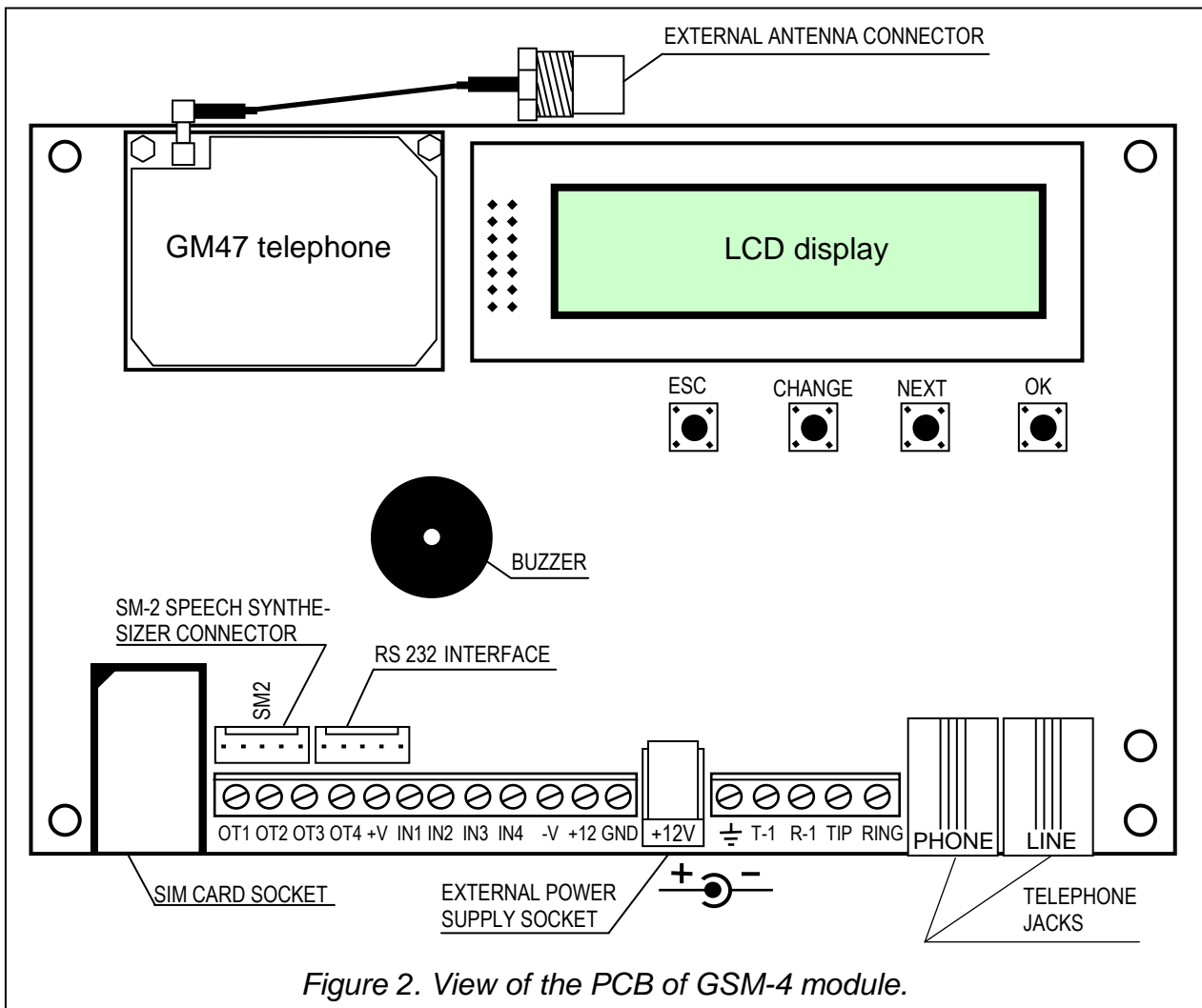
For power supply of external equipment you should use the +V & −V outputs, whose max. current load must not exceed 300mA. It should be borne in mind, that the capacity of connected power supply unit must be adequate for power demand of the module and the devices connected to it.

The module has the built in **LCD display** which is used for reading the information on the current status of the module, and for programming the data required during normal operation.

In the first line of LCD display (during normal operation), the following information is displayed: the telephone line status, the GM47 telephone status, power level of the signal received by antenna (0-4) and the status of the inputs and the outputs of the module. The status of receiving / sending modem data is indicated (R and W symbols). The antenna symbol flashes during the communication of the GM47 telephone with GSM base station (during telephone connection as well). In the second line, the information about the current status of the module is displayed (e. g. dialing, loss of telephone line, telephone number at dialing and others).

Notes:

- *The **"Phone line loss"** message is displayed when cable telephone line (subscriber's line) is not connected to TIP and RING terminals or to LINE socket - this is a normal operation condition in case of the loss of such line. It is possible to disable the function of displaying this message – just deselect the „Show T l.failure" option in the main menu.*

- *The GM-47 telephone will not start dialing if the antenna signal level is equal to **zero.***

The status of inputs and outputs are displayed alternately (2s/2s) at last four characters of top line on LCD display (counting from the left to the right) in a form of the following symbols:

	SYMBOL	MEANING
INPUT	i	normal status
	l	violated
	b	bypassed
OUTPUT	o	normal status
	O	active

Table 1

Normal status of input - status in accordance with the input type (NO, NC) set by the service function.

Input violated - the change of the supervised status occurred, from normal to opposite, for the duration at least equal to the time period defined as the sensitivity of the input.

Input bypassed - the status of the input is not supervised by the module.

Normal status of output - output disconnected from ground.

Output activated - output shorted to ground.

When the symbol "**O**" or "**o**" of the output's status blinks, it means that the output was activated by monostable circuit (for the period of time determined by the service function).

Management of SMS text messages is signaled on the module display with the following reports:

SMS sent – after transmitting SMS text message via GM47 telephone.

SMS received - after receiving text message containing SMS password pre-programmed in the module.

Unknown SMS rec. - after receiving SMS message not containing the password pre-programmed in the module.

Figure 3. Module LCD display

- symbol displayed during modem connection
- GSM telephone symbol
- incoming call to GSM telephone
- GSM telephone status
- RS-232 port
  - receiving data
  - sending data
- telephone line status
- antenna signal level
- telephone set symbol
- telephone receiver has been picket up
- status of inputs/outputs (see table 1)
- connection type
  - modem connection
  - voice connection
- telephone number or message
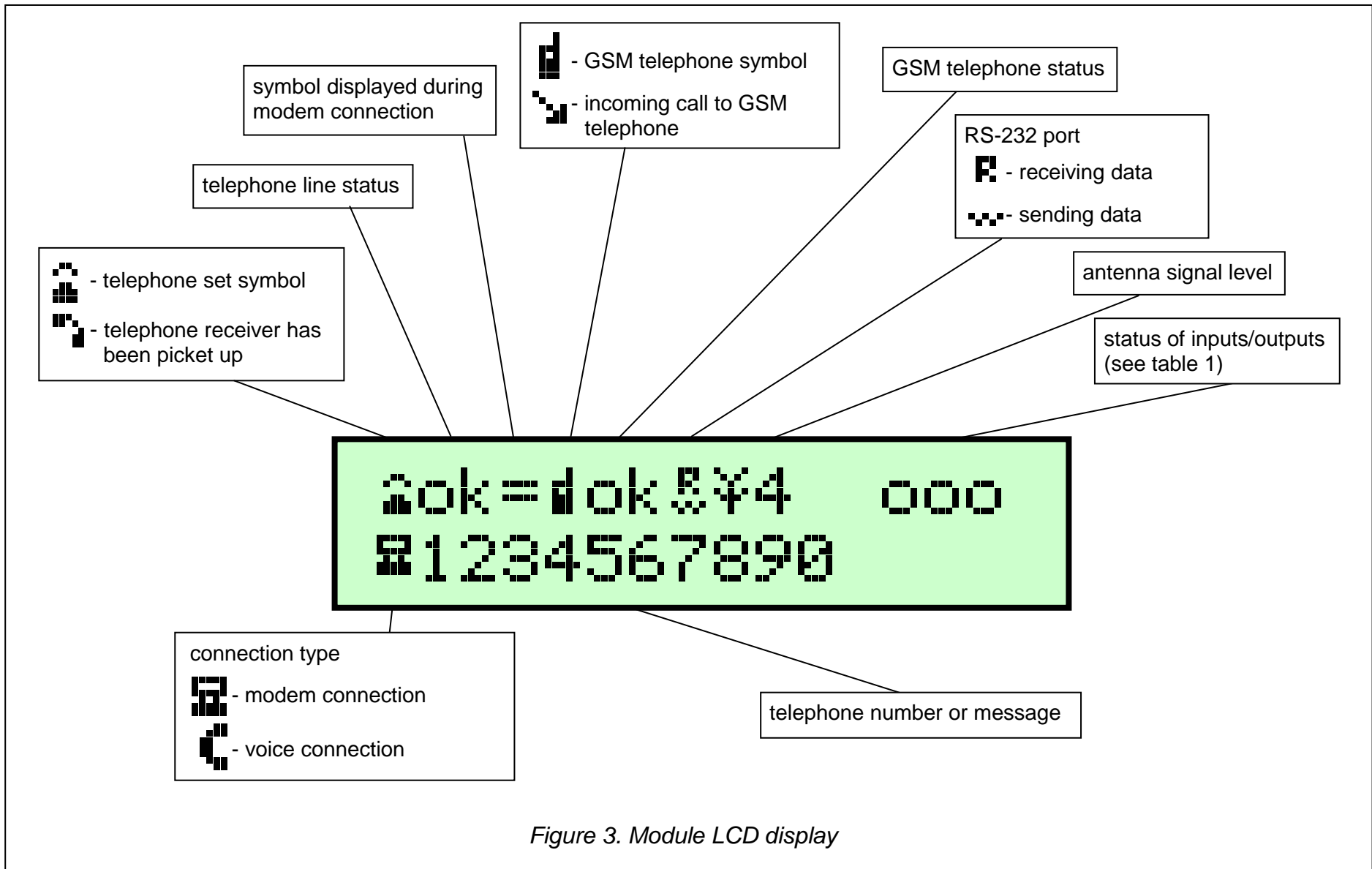
Situated below the display are **four keys** (push-buttons) intended for programming the module and for manually controlling operation of the module inputs and outputs.

PUSH–BUTTON NUMBER	PUSH–BUTTON DESCRIPTION
1	ESC
2	CHANGE
3	NEXT
4	OK

The number of push–buttons given in table above correspond to the number of inputs and outputs during manual control.

Simultaneous pressing and holding for one second both push–buttons, ESC and OK., makes the restart of the module, with program version and GSM telephone model being displayed on LCD display. The restart of the module does not change the status of inputs and outputs. In case of the loss, and then the restoration of power supply of the module, its inputs and outputs are restored to the status before the disconnection of power supply.

The cables of telephone lines: public exchange line (subscriber's) and extension line (to the alarm control panel and telephone set) can be connected to the terminal strip or to the telephone jacks located on the board.

4. OPERATING INSTRUCTION FOR THE **GM47** CELLULAR TELEPHONE

The GM47 industrial cellular telephone, similar as any other cellular telephone, can be operated by **SIM activation card**. The user of the GSM-4 module and the GM47 telephone has to obtain such card. The SIM card is inserted into a special socket provided at the bottom of the printed circuit board.

PIN code, if necessary, is entered in the module's memory by the service function from the sub-menu "**GM47 options**". The change of PIN code or entering PUK code, if needed, is only possible after putting the SIM card into an ordinary cellular telephone.

While making connection, the telephone transmits its own identifier (**ID**), unless this function is reserved at GSM operator (change of option is available via normal telephone set).

The GM47 cellular telephone set is delivered with special cable fitted, having a connector for external antenna (see fig. 2).

5. INSTALLATION

It should be remembered during installation that the GSM-4 module must not be located in the vicinity of electrical installations, since this may involve a risk of malfunctioning. Pay special attention to how the cable is laid between the module and the telephone jack of the alarm control panel.
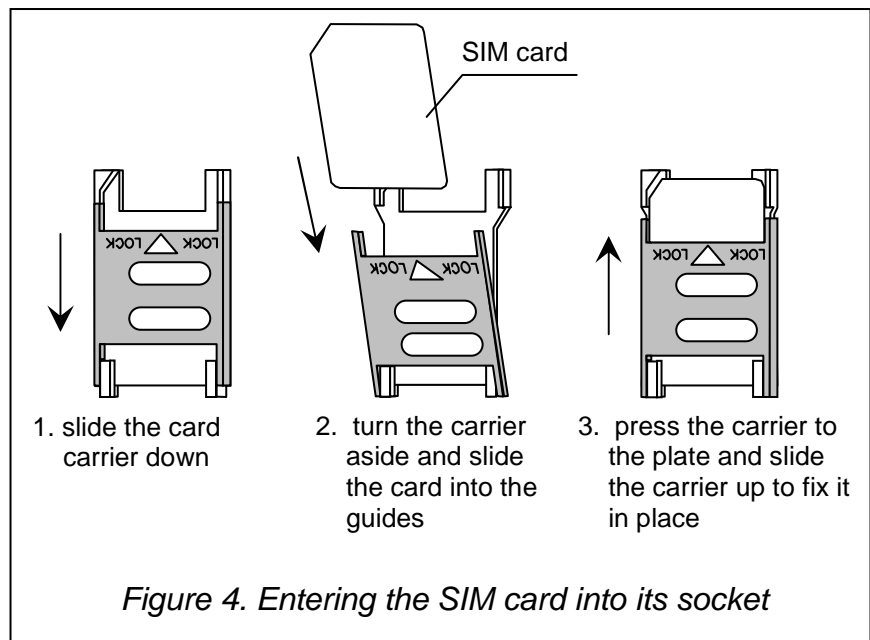
CAUTION: Never turn on power supply of the module and GM47 telephone without external antenna connected.

The following sequence must be strictly observed while putting the module into operation:
1. make complete wiring.,
2. turn on power supply of the module without SIM card inserted into GM47 telephone - „Set the PIN code" message will be displayed by the module.

3. activate the service mode of the module and, where the module may have been preprogrammed before, call the „Delete all" service function (which will restore default settings),

4. enter the PIN code or, using the SIM needs PIN service function, disable the PIN code entering option, which is active by default, unless the SIM needs the PIN code (see section „Description of service functions" – „ GM-47" options),

5. switch off power supply,

6. Insert SIM card into the module (see Fig. 4)

7. turn on the power supply again and program the module as required

1. slide the card carrier down

2. turn the carrier aside and slide the card into the guides

3. press the carrier to the plate and slide the carrier up to fix it in place

SIM card

Figure 4. Entering the SIM card into its socket

Notes:

- *If the SIM card fails to accept the PIN code, a „Bad PIN, go on? ESC=Stop" message will appear. The module will wait 60 seconds for user reaction, then it will repeat the attempt to send the PIN code. Sending a wrong PIN code three times will disable the SIM card. During the countdown you can press the OK key to immediately resend the code to the card, or press the ESC key to stop the countdown to make possible a change of the PIN code for the right one.*

- *The „GSM phone trbl." message is shown on the display until the GM-47 telephone logs in the cellular network. This state may last up to several minutes from the module power supply being turned on.*

- *Audio signaling of the module key operations is not activated until the telephone logs in the network.*

- *The main reasons why the telephone is unable to log in are:*
  - *missing SIM card, SIM card inactive or defective*
  - *insufficient range (antenna signal level = 0)*
  - *antenna not matched to the network range (900/1800MHz) or faulty*
  - *wrong PIN*
  - *„SIM needs PIN" option not selected (where required)*
  - *GM-47 telephone trouble*

The module power supply should have sufficient current capacity. The recommended power supply (for example, the SATEL manufactured APS-15 or APS-30) should be equipped with its own battery.

It is recommended that the power supply unit be situated within 3m distance from the module.

If the supply voltage is lower than 9.8V, restart of the module will follow. Therefore, be sure that the module supply voltage never drops during operation below 9.8V at the maximum current consumption.

6. OPERATION OF THE MODULE WITH ALARM CONTROL PANEL AND STATIONARY TELEPHONE

As shown in Figure 1, the module is to be connected in series between the telephone line (if it is available) and the remaining devices which use the same line. Where a selection option is provided, then, using the appropriate service function, determine which output line (GSM/cable) will be the basic one. The module will test availability of the selected line and in case of troubles the calls will be routed through a parallel line.

The telephone line simulation mode, in which the GSM-4 module takes over the task of handling the devices connected to the T-1 and R-1 terminals, consists in providing across these terminals impedance and voltage required for proper operation of the telephone. From the point of view of the equipment connected, the module is considered as a typical telephone exchange providing the cable telephone line.

When the control panel is „off-hook", or when a user lifts the handset of a telephone connected to the T-1 and R-1 terminals, the module will generate the continuous dialing tone and receive the tone or pulse dialing signals (similarly as the telephone exchange). If the first four digits of the dialed number correspond to the pre-programmed „pager station number", the module goes over to the procedure of receiving the alphanumeric message and sending it as an **SMS text message** (see section „Sending SMS messages"). Checking of the first four digits is always performed.

In case the telephone line is lost or when the GSM telephone has been chosen as the basic connection mode, the module, after receiving the whole telephone number for outgoing connection, makes appropriate corrections to this telephone number, and then initiates dialing and getting connection via the GM47 telephone. The corrections are necessary, since the module gets the dialed telephone number as when connecting via the cable telephone network, while the connection through a cellular telephone requires area codes to be given. The principles of conversion are described in one of following sections. When the cellular telephone gets connected, the module transmits L.F. audio signals between the extension line T-1 and R-1 terminals and the cellular telephone.

In case the telephone cable line is operative and has been chosen as the basic one, signals from the telephone set (T-1, R-1) are directly transmitted to the telephone line terminals (TIP, RING).

The voice messaging initiated by the alarm control panel is effected in a manner selected as the basic one (if this is impossible, the module selects a substitute way).

When making a call from the telephone connected to the GSM-4 module, the user has **the option to select the connection route: via cable or via GSM**. Lifting the handset makes the basic line available for getting connections. Pressing the **FLASH** key on the telephone will change the output line from the basic one to the substitute one (GSM to cable or cable to GSM). This function of the module is set up by means of the „*FLASH – GSM/TL*" service function.

After the handset is lifted by the subscriber the connection is made with, the module changes the direct voltage polarization across the T-1, R-1 extension line terminals. This function makes it possible to keep individual tariffication of telephone calls.

Since the cellular telephone, being the integral part of the module, has its own number (SIM card number), there is the possibility of calling to this number. **The incoming calls** to the GM47 cellular telephone are transferred to T-1 and R-1 terminals of extension line, and the ringing tone will be generated - similar as during making connection via cable telephone line. It is then possible to answer the incoming call by a telephone set connected to this extension telephone line. To enable this function, the option for answering calls has to be selected by the service function having the same designation. The number of incoming call will be shown on the display.

The capability of answering the calls is utilized for remote controlling the status of outputs and for bypassing and unbypassing the inputs of the module. The possibility of receiving and sending SMS text messages via the GM47 cellular telephone is used for the some purposes. The function of remote control is described in one of following sections.

The module also uses the CLIP type information for messaging as well as for controlling the outputs.

7. GSM-4 WITH STAM-1 MONITORING STATION

The GSM-4 module enables monitoring of sites by means of SMS short text messages. This function is offered by the STAM-1 monitoring station program, version 4.07. Connection of the module to station is shown in Fig.
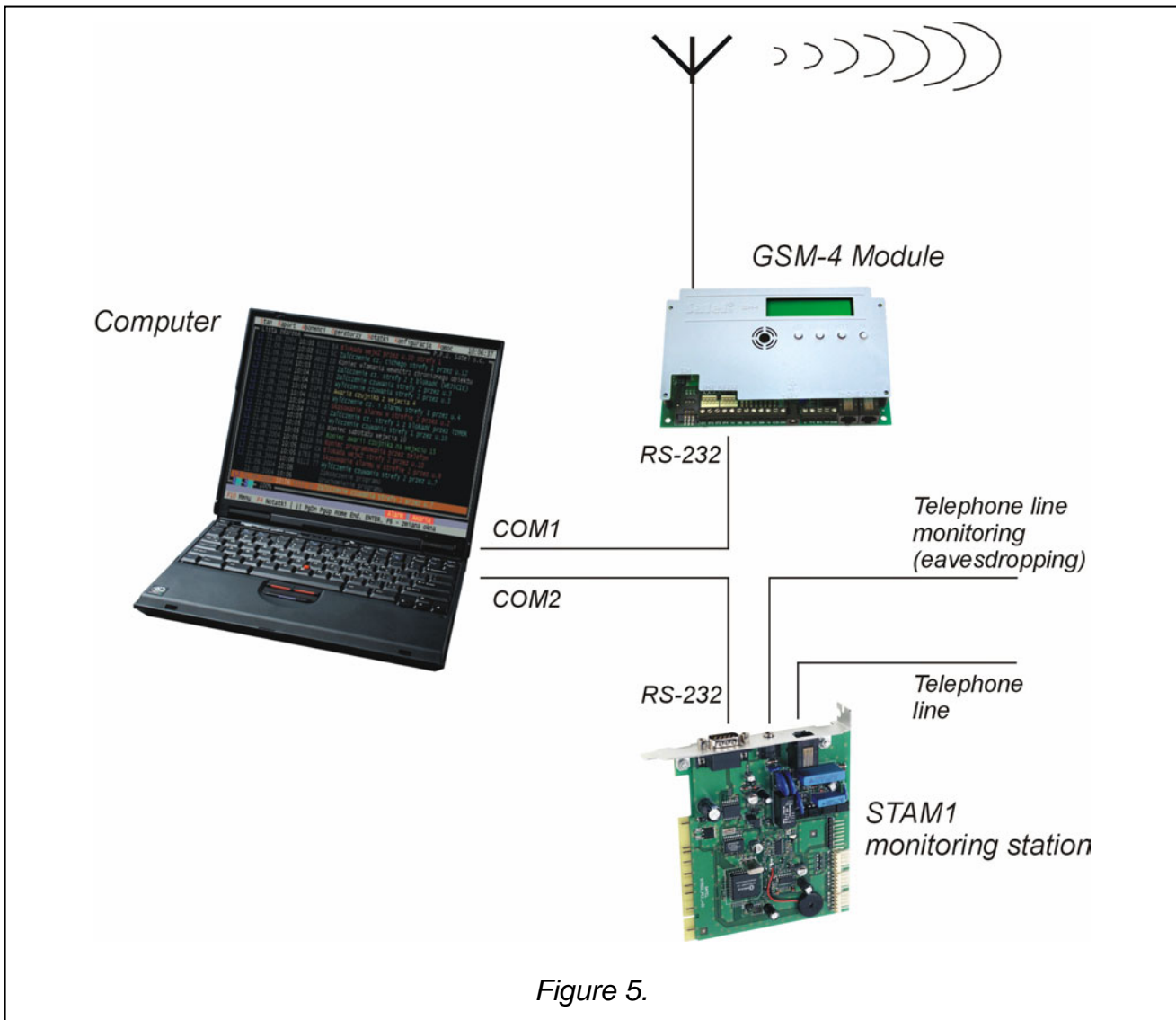
Figure 5.

8. DESCRIPTION OF OUTPUTS AND INPUTS OF THE MODULE

The GSM-4 module is equipped with three outputs and four inputs of the technical features similar to those of inputs and outputs of the alarm control panel. The attendance of the outputs consists in controlling their operation (switching on, switching off and monostable switching) ,while attending the inputs is connected with supervising their status and with monitoring the changes of any status. The supervision of inputs can be bypassed. The

attendance of outputs and inputs is performed by the module irrespective of attending the telephone line.

8.1 OUTPUTS

Outputs (OC – open collector type) are intended for connecting the voltage controlled equipment. The configuration of the output and the way of connecting the load are shown in Fig. 6.

R - load resistance
n - module's output number

n th output n=1,2,3,4

Figure 6.
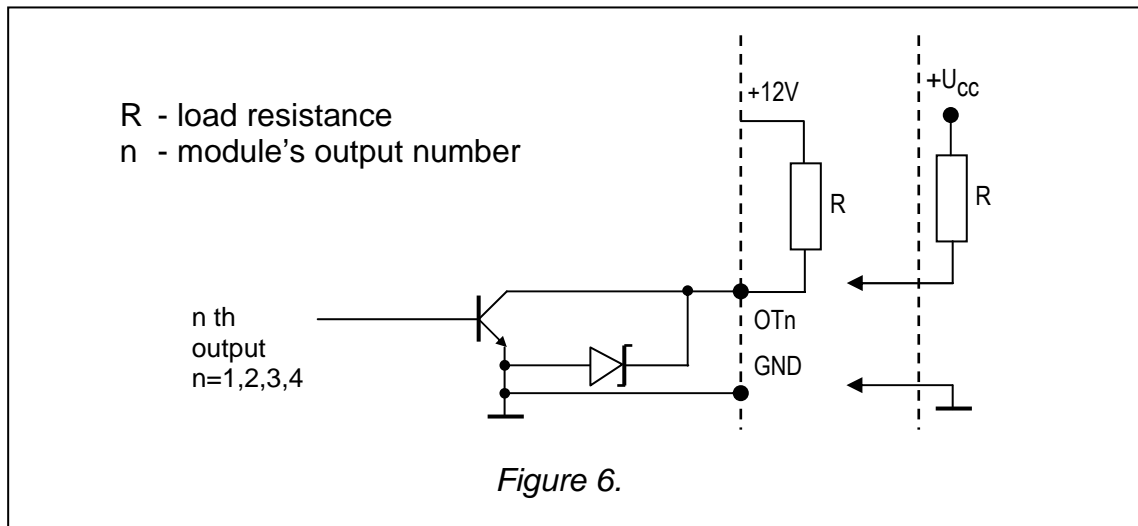
It is possible to connect the load resistance **R** (e. g. Relay) directly to the output, provided that the load current is not greater than **50 mA**.

The output can have one of the two logic status:

"**0**" – output is OFF: **normal status** (contact OTn cut off from ground; n=1,2,3),
"**1**" – output is ON: **active status** (contact OTn shorted to ground; n= 1,2,3).

The GSM-4 module has 3 outputs, which can be used for controlling the electrical equipment. The control of the output's status can be done **remotely** by telephone (traditional or cellular), or **manually** by using the module's push–buttons. The change of the output's status can be also initiated by **the violation of the input**.

The remote control can be implemented by **DTMF** telephone signals or by SMS text messages.

The control by DTMF signals is possible after getting connection with the number of GM47 telephone and entering (from telephone keypad) the password for controlling the output's status.

The control by SMS messages consists in sending, to the number of GM47 cellular telephone, the SMS text message which contains an appropriate password. The text message can be sent from a cellular telephone, or by means of computer and INTERNET.

The status of outputs may be changed in the following way:

- bistable switching: the change of the current status of individual output to the stable opposite status (output which is OFF will go ON, output which is ON will go OFF),
- monostable switching: the change of the status of individual output to the opposite status for the duration set separately for a given output, this duration is set by a special service mode function,
- simultaneous disabling of all outputs – all outputs will be deactivated, irrespective of their previous status,
- simultaneous enabling of all outputs – all outputs will be activated, irrespective of their previous status.

The control of outputs is possible upon programming the appropriate service functions (submenu: *SMS control*, *DTMF control*).

8.2 INPUTS

The detectors of both types, **NC** and **NO**, can be connected to the module. The type of detectors is to be entered in the service function. The wires from the detector are to be connected between the input terminal IN and ground (GND), as shown in Fig. 7.

Figure 7.
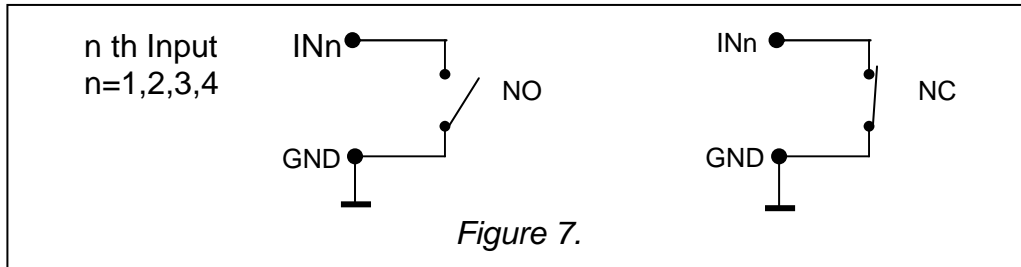
The first parameter, **the sensitivity** of the input is programmed for each input. The sensitivity of the input is defined as a minimum time which must elapse from the moment of the status change at the input (open for NC input, closed for NO input), in order to classify such change as violation of the input. This time delay can have the values within the range from 20 ms to 1275 ms.

Figure 8. The ways of remotely controlling the status of outputs and the bypass of inputs of the module.
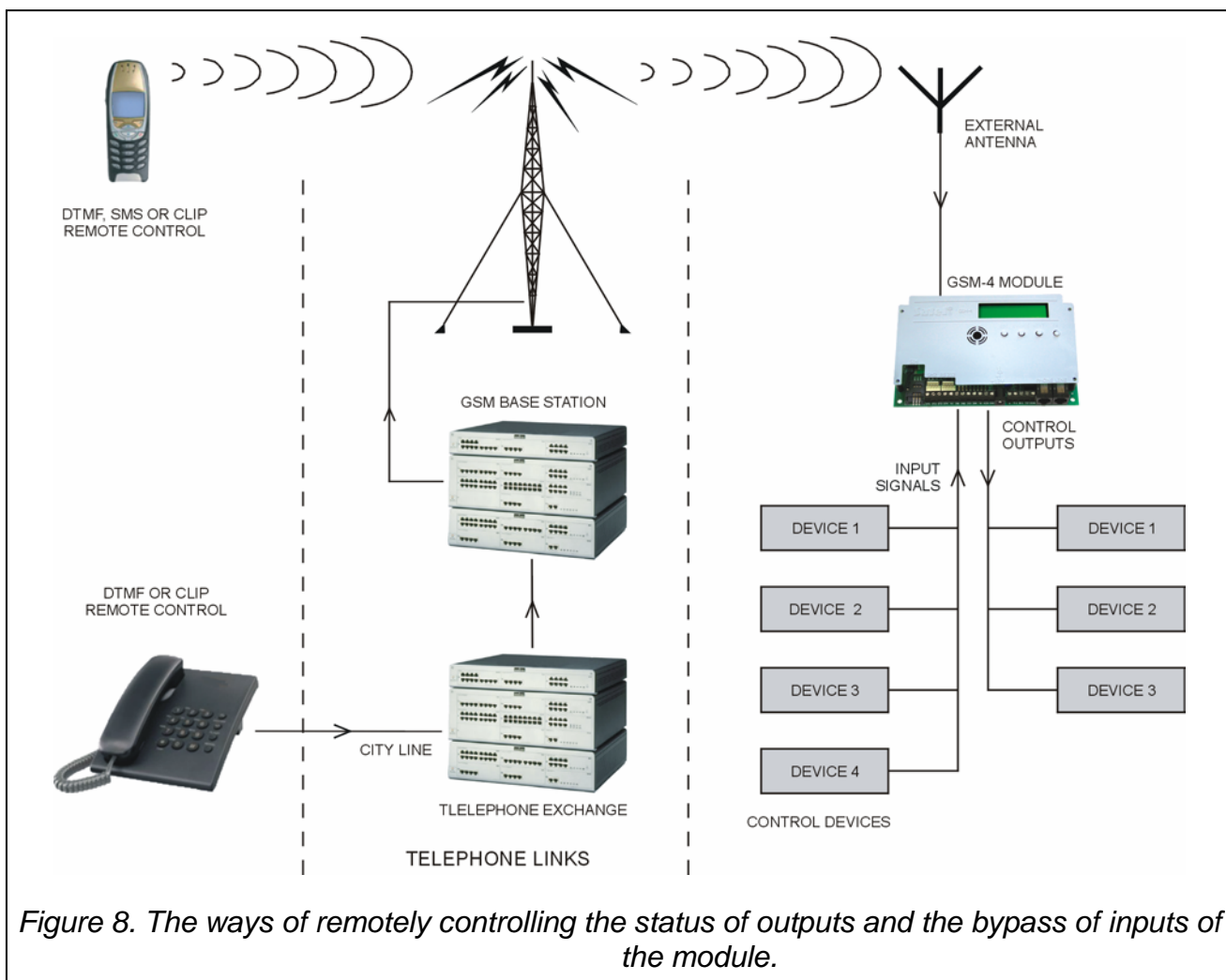
"**The time to restore the input**" is the next parameter to be programmed for each input. Time to restore the input is defined as a time delay which must expire from the termination of

the input violation to the moment in which the module changes the symbol displayed on LCD display (from **I** to **i**) and re-enables the supervision of input status (4 seconds or 4 minutes).

Controlling the operation of inputs consists in **bypassing** and **unbypassing** their operation. This control can be performed **manually** or **remotely**. The remote control is implemented analogous to the remote control of the status of the module outputs. The input can be **automatically** bypassed after one violation or after three violations of such input (set by the service function), or after violating another input (designated as the bypassing input).

9. DESCRIPTION OF METHODS OF CONTROLLING THE STATUS OF THE OUTPUTS AND BYPASSING THE INPUTS

9.1 REMOTE CONTROLLING BY DTMF SIGNALS FROM TOUCH – TONE TELEPHONE KEYPAD

To have the remote control by dual tone phone push-button, it is necessary to properly program the module by using the service functions, as follows:

- mark option "***Answering calls***" as allowable
- set the required "***Time of ringing***"
- program the **password** (4 digits) for controlling the status of outputs and for the bypass of inputs. The contents of the controlling password are loaded into the module's memory by the service functions contained in the submenu of the service mode "***DTMF control***". The password can not recur. To erase to password completely (to disable a given function), simultaneously press push-buttons CHANGE and NEXT.

For remote controlling the status of the outputs or bypassing/unbypassing the inputs follows the sequence:

- dial the GM47 telephone number from any telephone having DTMF features
- wait until "Time of ringing" is completed after which the module will answer a call and generate three short sounds (beeps) acknowledging that the module is ready to have the DTMF controlling enabled.

Note: When receiving a call, the module applies ringing tone to extension line for the duration equal to "Time of ringing". Answering a call from this extension line makes it impossible to use the functions for controlling the outputs.

- Enter from dual tone phone keypad the required control passwords (utilizing DTMF tone signals). After recognizing the password by the module, the respective action will be taken, depending on the password loaded. For example, recognizing the password loaded in the module by the function "*DTMF bist. OUT2*" will make a permanent change of the status of the output OUT2, while recognizing the password programmed by the service function "*DTMF bypass In. 4*" will bypass the supervision of input 4.
- The module acoustically acknowledges the execution of the function by audible indication as follows:
    - **three short beeps** – switching OFF the output (disconnecting the ground)
    - **four short and one long beeps** – switching ON the output (short circuit to ground), such signal also acknowledges the execution of function "DTMF off OUT 123" (switching OFF all outputs simultaneously) and the function "DTMF on OUT 123" (switching ON all outputs)
    - after implementing the function for bypassing/unbypassing the input , the module automatically checks the status of the inputs and generates **four sounds** corresponding to the status of consecutive inputs (1 – 4)

- **short beep** – input unbypassed
- **long beep** – input bypassed

    (for instance: the sequence of signals – short, long, short, long indicate that inputs 1 and 3 are unbypassed, and inputs 2 and 4 are bypassed)
  - ▫ **two long beeps** – the password is unknown to the module
- Enter the next control password or hang up.

The additional feature of the DTMF control function is **the capability of checking the status** of the outputs without necessity of switching these outputs. To obtain such possibility, enter from a telephone keypad the password programmed by the service function "***DTMF check outs.***" After reading the password, the module generates the sound signals indicating only these outputs, which are ON (with the exception of situation when all three outputs are OFF):

- ▫ one short beep – output OT1
- ▫ two short beeps – output OT2
- ▫ three short beeps – output OT3
- ▫ four short and one long beeps – all three outputs are OFF

For example: if, after entering the password, one beep is heard in a telephone receiver, and then after a while three beeps are heard, it means that the first and the third output (OT1 and OT3) are ON, and the second output (OT2) is OFF.

Notes:

- *During checking the status of the output which was switched in monostable mode, the module informs about the normal state (stable) of the output before switching over – irrespective of switching time.*
- *In case of errors while entering the password, press push-button * or # and enter the password from the beginning. A triple attempt of entering the password, which is unknown to the module results in a loss of connection – the module will "hang up".*

9.2   REMOTE CONTROL BY SMS MESSAGES

The remote control by SMS text messages is enabled by entering appropriate password in the module's memory. The contents of the control passwords are loaded in the module's memory by the service functions contained in the submenu of service mode "***SMS control***". The passwords can not recur. To erase to password completely, simultaneously press push-buttons CHANGE and NEXT.

To have this control feature enabled, send to a text message containing the required control password (6 characters) to the GM47 telephone number. After decoding the password by the module, an appropriate action will be initiated, depending on the password transmitted.

E. G.: Recognizing the password loaded into the module's memory by the function "*SMS mono. OUT3*" will result in changing the status of output OT3 to the opposite for the duration set by the function "*Time mono. OUT3*". Recognizing the password entered in the module's memory by the function "*SMS unbypass all*" will result in unbypassing all module's inputs which were bypassed.

It is possible to send to the module a message containing the password only, but it is also permitted that the contents of the message can be longer than just the password (the password can be a part of a longer word). It is important that the password be inserted at the initial part of the text message (32 first characters). This feature enables the user to load the description of the operation in words into the memory of the telephone, from which the controlling is to be executed (SMS to be sent). This capability will keep the user free from the necessity of remembering the passwords or the functions, which these passwords execute.

Only one control password can be sent in one message. Transmitting SMS message not containing the password will make no response of the module. The control function is executed directly after receiving the message and recognizing the control password. The message received will be then cancelled, and the telephone is ready for receiving the next text message.

9.3 ACKNOWLEDGEMENT OF EXECUTING THE SMS CONTROL

If the number to be used for acknowledging the SMS control and SMS centre number are pre-programmed in the module's memory (service functions: "**SMS acknowl. No.**", "**SMS centre No.**"), then after executing the control of individual output by SMS message, the GSM-4 module sends the message confirming the type of control and the present status of outputs. Controlling all outputs simultaneously or bypassing/unbypassing the inputs is confirmed by the message on the present status of all inputs and outputs of the module. The message transmitted by the module can have one of the following forms:

- OUT [n] switched ON (status: OUT1 = ? OUT2 = ? OUT3 = ?)
- OUT [n] switched OFF (status: OUT1 = ? OUT2 = ? OUT3 = ?)
- OUT [n] monostably switched (status: OUT1 = ? OUT2 = ? OUT3 = ?)
- Status of inputs: IN1 =?, IN2 =?, IN3 =?, IN4 =?, status of outputs: OUT1 =?, OUT2 =?, OUT3 =?

when character „[n]" is replaced with the output's number: 1, 2 or 3.

While designating the **output**, character "?" is replaced with the logic state (i. e. The status) of the output:

     0 - output switched OFF (inactive)
     1 - output switched ON (active).

For designating the **inputs**, character "?" is replaced with the letter:

     I - input in normal status unbypassed (non-violated),
     I - input unbypassed violated,
     b - input bypassed.

Notes:

- *The module always acknowledges the stable status, in which the output remains after completing the control (for the monostable switched output – the status in which the output will go after the switching time expires).*
- *The module only confirms performance of the control of inputs or outputs, but it does not confirm performance of other functions effected by means of SMS messages.*

9.4 CONTROLLING THE OUTPUTS BY THE VIOLATION OF INPUTS

The violation of input, besides the telephone messaging, can also result in activating any output or several outputs simultaneously. To initiate such control it is necessary to program relevant functions from submenu "**Inputs/Outputs**" (see section „Description of functions for programming the module").

This control can result in:

Monostable switching – the change of output to the opposite status for the duration determined by the service function "*Time mono. OUT [n]*", where n=1,2,3 indicates the number of output.

Bistable switching – change of the status of the output to the stable opposite status.

Bistable switching with delay – change of the output to the opposite stable status after the time determined by the function "*Time mono. OUT [n]*", where n=1,2,3 indicates the output's number.

9.5 CONTROLLING OUTPUTS BY MEANS OF CLIP FUNCTION

The module allows you to control the outputs by using the CLIP feature. To this end you should call the module number from a corresponding telephone number. The module will decode the number from which the connection is initiated, count the „*calling time*", reset the connection and perform control. If the module user answers the call earlier from the extension line (T-1, R-1), or if the calling party hangs up, the function will be interrupted and the control will not be performed.

An option is provided to save 4 telephone numbers in the module memory and assign to these numbers suitable control of one output or some outputs simultaneously. Operating mode of the outputs is much the same as for control of the **zone violation**.

In order to start the CLIP control function, you should:

- select the „call answering" option
- program the „calling time"
- program the functions from the „**CLIP control**" submenu (telephone numbers, way to control the outputs)

Notes:

- *In some GSM networks the unanswered calls are, after elapse of a certain time delay, automatically transferred to the voice mailbox. If the „calling time" is longer than the call transfer time, the control will not be performed. If this is the case, you should limit the „calling time" so that the module can reset the connection by itself and perform the control.*

- *In order to fully utilize the CLIP control idea and to control the outputs without paying the charges for telephone connections, you should disable the voice mail function. Rejection of a call with enabled voice mail service will divert it to the voice mailbox, the call being counted as realized. The call charge is borne by the calling party.*

9.6 MANUAL CONTROL

9.6.1 Outputs

During normal operation, pressing and holding one of the module's push-button for the duration of 1 second will result in switching over (bistable switch) the status of the output, number of which corresponds to the push-button's number. The message on the output's status is displayed on the LCD display and the module simultaneously generates the sound signal identical to that during remote control by DTMF signals.

The following push–buttons are used for controlling the status of outputs or for bypassing/ unbypassing the inputs:

1. **ESC**   - controlling **OT1**;   bypassing IN1
2. **CHANGE** - controlling **OT2**;   bypassing IN2
3. **NEXT**   - controlling **OT3**;   bypassing IN3
4. **OK**   - switching OFF all outputs;   bypassing IN4

9.6.2 Inputs

The manual bypassing/unbypassing the inputs is also implemented by the GSM-4 module's push–buttons. Pressing one of these push–buttons three time will cause bypassing the input of the number corresponding to the number of a given push–button (see: description of module's push–button). The bypass of this input will be confirmed

on LCD display by displaying character "b" in the field indicating the status of a given input, and by displaying the message "*Inp. n bypassed*", where "n" = 1,2,3,4 corresponds to the input's number. At the same time three short beeps are generated. If this input has been already bypassed, the execution of this operational sequence will result in unbypassing this input. Unbypassing should be acknowledged by changing the indication of the input's status, by displaying the message "*Inp. n unbypassed*" and by audible signals (four short and one long beeps).

Note: *The audible signaling will only work after login of the GM-47 to the network.*

10. MESSAGING

This function is related to the attendance of module's inputs, and is activated by violation or restoration to normal status (termination of violation) of the input, which is not bypassed. Activation of output OT4 or its restoration to normal status, can also initiate messaging, similar as for input.

The messages can be sent maximally to four telephone numbers. The messaging can have a form of SMS message, the sound information or CLIP type information. For the voice messaging, it is possible to initiate the function of calling a given number twice (two phone connections with replaying the message each time).

10.1 SMS MESSAGES

The SMS messages to be transmitted can have standard contents or can be modified by the user. The user's own message can be entered by using the module's push–buttons or by utilizing the SMS message sent from another telephone to the GM47 telephone number. The contents of messages are entered by special service mode functions (submenu MESSAGING).

To change the contents of a standard message, it is necessary to follow the steps:

- Initiate the service mode.
- Go to submenu MESSAGING.
- Select appropriate function for programming the contents of SMS message.
- Read the present contents of the message, after recalling the selected functions. By using push–buttons NEXT and CHANGE it is possible to enter your own contents of SMS message regarding the event which corresponds with the function's description.
- Accept the introduced changes by pressing push-button OK, and proceed with programming the next message, or abort the operation of service mode.

To enter the contents of the message by means of another cellular telephone, it is necessary to follow the sequence:

- After recalling the function for programming the contents of a message, simultaneously press and hold push-buttons NEXT and CHANGE .
- If the contents of present message are standard, the information "***Read-out from SMS***" will be displayed on LCD display, and the module will go into "awaiting for SMS message mode" for the duration of approx. 110 seconds.
- Send SMS message (previously prepared) from another cellular telephone to the GM47 telephone number. The message to be sent should be of a special format. The contents of the message, which is to be loaded into the module's memory should be put into brackets and closed by asterisks, as follows: **(**✳**Contents of message**✳**)**.

Notes:

- *If, after recalling the function, the contents of the displayed message is not standard, pressing and holding the push-button NEXT and CHANGE will cancel this message, the next pressing will result in displaying the standard message and only the successive pressing will make it possible to load the message by means of SMS message.*

- *Both push-buttons must be pressed simultaneously, otherwise the module will enter the mode for manual editing the message and it will be necessary to renew the procedure for reading the message from SMS.*

- **The length of the message** *stored in the module's memory is limited to* **32 characters***.*

The standard contents of the transmitted SMS messages are as follows:

> **" Input n violation"**
> **"Input n restore"**   } for inputs; where n = 1,2,3,4
> **"Phone line failure"**
> **"Phone line restore"**   } for output OT4
> **"Test message"**

10.2 VOICE MESSAGING

If the SM-2 voice synthesizer with recorded voice message is connected to the module, the violation of any input and its restoration or activation of output OT4 and its restoration can initiate sending this message to the selected telephone numbers. When sending the message, the module will display corresponding information. Since the module can transmit only one voice message, it is also possible to activate **the sound signaling** for indicating the reason why the messaging was initiated.

After getting connection, the module generates the respective sequence of sounds every 2 seconds:

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 one long beep	- activation of output OT4,
1 long + 1 short beep	- restoration of input 1,
1 long + 2 short beeps	- restoration of input 2,
1 long + 3 short beeps	- restoration of input 3,
1 long + 4 short beeps	- restoration of input 4,
1 long, 1 short, 1 long beep	- restoration of input OT4,
2 long beep	- test message.

10.3 „CLIP" TYPE INFORMATION

The CLIP type information makes use of the calling number presentation function. This type of messaging consists in dialing a programmed telephone number by the GM-47 telephone and then breaking the connection after approx. 20 seconds. The message recipient can read information on the number of the telephone from which the connection was initiated (cellular phone, ISDN, etc.). If the number is busy, the module will repeat the call. The module will consider the messaging completed, if it does not receive the busy signal within approx. 10 seconds from dialing the number. The cellular phone user has an option to early „reject" the connection, but if he carries out this action too early, the module will repeat the call. Answering the call, either by the user or automatically by the „voice mail", is recognized by

the module as completion of messaging, however it entails a toll being charged by the network operator.

Notes:

- *If the cellular phone of the message addressee is OFF or outside the network range, and the voice mail service is inactive, then an automatic message on the existing situation is generated in the receiver and no busy signal is sent back. In such a case, the messaging is considered by the module as completed, while the user loses information on completion thereof.*

- *If the voice mail service is active, the user, after getting access to the network, may be notified, depending on the operator (e.g. by means of an SMS) of the telephone connection with the module number, without leaving any voice message.*

To enable the messaging, it is necessary – after switching ON the GM47 telephone and connecting the sensors to the inputs – to program the module by using the service functions (submenu of service functions: "Messaging", "Inputs/Outputs", "GM47 options"), as follows:

- Program at least one telephone number to which the message is to be transmitted ("***Tel. 1 for mess. 1....4***").

- Determine if the output OT4, or if the inputs after violation or restoration will activate the messaging function (to which telephone number), and/or if the test messaging will be active, and also determine the way of messaging (SMS/CLIP/VOICE) – functions "***In. 1...4 -> Tel.****; **Rest. 1 -> Tel.***; ***F. L. -> Tel.****; **Rest. L. Tel.; Test -> Tel.***"

- If the voice messaging is selected, and several inputs can activate this messaging – set the option "***Mess. sounds***" to distinguish which input was violated.

- Program the required parameters for the inputs (**type, sensitivity, time to restore, automatic bypassing**)

- If the SMS messaging is selected, program the function "***SMS Centre No.***" and the SMS message texts.

All functions for programming the passwords which control the status of outputs and the bypass of inputs are described in section "Description of functions for programming the module".

11. TRANSMITTING SMS MESSAGES

The alarm occurred on secures site can initiate the telephone messaging mode by the alarm control panel. If the alarm control panel has the function for messaging to pager system, it can be used for sending SMS messages to the cellular telephone number. The message transmitted by the control panel is transferred to the GSM-4 module, not to pager station. For example: the alarm control panel CA-64 can send messages to three different paging systems. If one of pager system is assigned to the operation with the GSM-4 module, the remaining two can perform normal function.

To enable the SMS messages to be sent, pre-program telephone number of pager station at the alarm control panel and load appropriate text to be sent into the control panel memory.

The telephone number, as programmed in the control panel, must consist of:

1. The "pager station number" preprogrammed in the GSM-4 module („***Pager tel. No."*** service function).

2. The cellular phone number to which the SMS message is to be sent.

3. The "A" end-of-number character.

Note: *Parts of the number may not be separated from each other by any time interval (pause); the digits must be sent by the control panel as one sequence in DTMF or*

*pulse mode. In case the module has any trouble with receiving the „pager" station number in the tone mode, it is necessary to set the **pulse** dialing mode in the control panel.*

11.1 DESCRIPTION OF THE PROCEDURE FOR CONVERTING PAGER MESSAGE INTO SMS MESSAGE

When the alarm control panel is "Off Hook" and after dialing the number – the module checks the first four digits of that number. If these digits agree with the programmed "Pager tel. No." In the module, then the module sends hand shake signal (similar as pager station) and receives the message sent by the control panel. Next, this message is transmitted via the GM47 cellular telephone as SMS text message. The subscriber's number to whom the message is to be sent, is compiled from the "SMS prefix" pre-programmed in the module and the second part of the number received from the alarm control panel.

Note: Pager number must be unique and can not be the same as any prefix, outgoing numbers or the beginning of other telephone numbers.

For the SMS messages to be sent, it is required to add the prefix with a country code (48 for Poland). This prefix is programmed by the service function "***Prefix for SMS***". If the cellular telephone number is given by the control panel together with prefix, the function "Prefix SMS" should not be programmed.

To enable the transmission of SMS messages, the SMS centre number is to be loaded into the module's memory by the service function "***SMS centre No.***", depending on GSM network in which the telephone is activated.

The parameters of the pager system signal should be **programmed at the alarm control panel** (or telephone set DT-1; DT-1 plus) as follows:

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

11.2 SENDING SMS MESSAGES FROM A STATIONARY TELEPHONE SET

The GSM-4 module user has an option to send SMS messages form a stationary telephone set which generates DTMF signals and is connected to the terminals R-1 and T-1. This operation is done in much the same way as sending SMS messages in the PAGER system.

In order to send an SMS you should:

1. Lift the handset of the telephone connected to the terminals R-1 and T-1.

2. Dial in one sequence the "PAGER station number" and the phone number to which the SMS is to be sent. The number should be entered rather quickly, without any time intervals between consecutive digits. The addressee telephone number must be identical in form as when receiving by the module of the PAGER message from the control panel (the country prefix should be indicated depending on the programmed „ *Prefix for SMS*" function).

3. The properly received number is acknowledged in the handset by two beeps generated by the module (the PAGER station responds in the same way). Lack of acknowledgement or a busy signal means a dialing error and then the procedure must be started anew.

4. Enter the text of message following the instructions below (the time of module waiting for subsequent characters is not limited):

    After calling the function, the module will accept characters in the numeric mode. Pressing each key of the telephone adds a corresponding digit to the message.

By pressing the [*] key twice you will enter the text mode. In the text mode, each numeric key (from 1 to 9) has three letters assigned to it (see illustration beside). Pressing a key means selection of the middle letter. By pressing in turn the key and [*] you will select the left-hand letter on the given key. The right-hand letter is accessible by pressing the given key and [#]. In order to reach the space, press the [0] key. To reach the dash, press [0][*], the point – press [1]. In order to change between the text mode and the numeric mode, press the keys [0] and [#].

Pressing the [#] key when the module is in the numeric mode results in ending the programming and sending the message.

Figure 9. Assignment of alphanumeric characters to telephone keypad.

The GSM-4 module can store in its memory 62 alphanumeric characters to be sent as an SMS message. At an attempt to enter a longer message, the excessive portion of the text will be omitted. There is no possibility to check the content of entered message. If you hang up the handset when entering the text, the function will be interrupted without sending any SMS.

12. THE RULES FOR CONVERTING THE NUMBERS

In case when the GSM-4 module operates in telephone line simulation mode, the number received from the alarm control panel or normal telephone set (before sending it to GM47 telephone) is subjected to the required corrections. Thus, it is not necessary to take the connection route into consideration, while programming the telephone number for messaging or during dialing the number at normal telephone set. The built-in algorithm of the number conversion permits the module to be installed directly on subscriber's line (public exchange telephone line) or on extension lines as well. If such line is cut off or lost , the module will simulate the operation of PBX exchange and after receiving the number of "outgoing line" the module will simulate the access to public exchange telephone line.

The telephone number is processed by the module as follows:

- When dialing the number, the module checks that its first digits correspond to the pager station number, or any of the „*outgoing numbers*".

- 4 seconds since dialing the last digit, the module will recognize the dialing as completed and will proceed to convert the number. If an „*outgoing number*" has been selected, only the digits directly following the number will be subjected to conversion.

The algorithm of converting the number is as follows:

1. If the dialed number begins with one of permanent prefixes (prefix -digits added before the exact telephone number), the module skips to step 4.

2. If the dialed number begins with a "prefix to be erased" this prefix is erased and the module skips to step 4.

3. If the dialed telephone number have no prefixes known to the module, "prefix to be added" is entered to the beginning of the dialed number, and the module skips to step 4.

4. If the dialed telephone number, after correcting in steps 1...3, is included in the list of allowable numbers (*Allowed numbers*), or if the first digits of the dialed number correspond to one of the pre-programmed numbers, or if the option "*Any numbers*" is set - the number is recognized as the correct one, and the module starts to make connection with the dialed

telephone number via the GM47 cellular telephone. Otherwise, the connection is disabled and a busy tone is generated.

13. SERVICE MODE

The access to module's configuration is possible by entering the **service mode**. To enter this mode, simultaneously press and hold push-buttons **CHANGE** and **NEXT** approx. 1 second. While being in the service mode, the module makes the menu accessible (the menu is described below in this section). By using four push-buttons located on module's board, it is possible to go through the menu, select particular function and set the required parameters of these functions (options, numbers, passwords, time periods).

The access to the service mode can be protected by a code. The protection is activated by programming any code with the „*Service code*" function, and deactivated by deleting the code. The code consists of a combination of 1 to 8 digits from the range 0-9. The whole code can be erased in the process of its programming, when the **CHANGE and NEXT** keys are depressed at the same time.

When the code has been programmed, an attempt to enter the service mode will cause the module to display a suitable message and wait for entering the code. Unless the entered code is valid, the module will only enable the user to enter the service mode when all the settings are deleted. The „*Erase settings (123=yes):*" message is displayed – then, entering the digits 123 followed by pressing the OK key will initiate the test and erasing of the module memory (PCF), and then the service mode will be made available.

The push-buttons, while being used in the service mode, have the following meaning:
- **ESC**   move within the menu to item "*End of service*", return from submenu to the main menu, or exit from the function without saving the changes,
- **CHANGE**   return to the previous function in menu or the change of selected element in the function (e. g. an option marker ▓, a digit of a telephone number or a letter of a password),
- **NEXT**   move to next function item within menu or move to next element of the function being programmed at present (e. g. successive digit of the telephone number or successive character of the password),
- **OK**   entry into the function selected from menu (indicated by arrow on LCD display) for checking or changing the settings, exit from the function with saving the changes made.

The module in the service mode operates in the same way, as during normal mode i. e. it is possible to make and answer calls, but the status is not displayed. Instead of the status, the description of service functions are displayed, thus enabling the user to go through the menu of service mode and to make appropriate changes in the module's configuration. The features of manual controlling the outputs and manual bypassing the inputs are disabled. Holding any push-button will make that the pressing of that push-button is automatically repeated. When no push-button is pressed for the duration of approx. 1 minute, the module automatically exits the service mode.

Service mode menu:

- End of service
- Service code
- T line loss time
- GSM loss time
- Time of ringing
- Show T l.failure
- Show dial.num.
- Signal testing
- Answering calls
- GSM for STAM-1
- Any numbers
- OT4 - GSM only
- GSM main line
- FLASH – GSM/TL
- 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 to add
- **Allowed numbers**
  - Tel. No. 1 begin
  - Tel. No. 2 begin
  - ...
  - Tel. No. 32 begin
- **Messaging**
  - Tel.1 for mess.
  - Tel.2 for mess.
  - Tel.3 for mess.
  - Tel.4 for mess.
  - „+" for tel. 1
  - „+" for tel. 2
  - „+" for tel. 3
  - „+" for tel. 4
  - Mess.x2 for t.1
  - Mess.x2 for t.2
  - Mess.x2 for t.3
  - Mess.x2 for t.4
  - SMS violat.In.1
  - SMS violat.In.2
  - SMS violat.In.3
  - SMS violat.In.4
  - SMS fail. line
  - SMS restor.In.1

```
                                    ── SMS restor.In.2
                                    ── SMS restor.In.3
                                    ── SMS restor.In.4
                                    ── SMS restor.line
                                    ── SMS test
                                    ── In.1 -> Tel.
                                    ── In.2 -> Tel.
                                    ── In.3 -> Tel.
                                    ── In.4 -> Tel.
                                    ── L.F. -> Tel.
                                    ── Rest.1 -> Tel.
                                    ── Rest.2 -> Tel.
                                    ── Rest.3 -> Tel.
                                    ── Rest.4 -> Tel.
                                    ── Rest.L -> Tel.
                                    ── Test -> Tel.
                                    ── Test period
                                    ── No spaces
                                    ── Mess. priority
                                    └─ Mess. sounds
    ── SMS control ─────┬── SMS bypass In.1
                        ── SMS bypass In.2
                        ── SMS bypass In.3
                        ── SMS bypass In.4
                        ── SMS bypass all
                        ── SMS unbyps.In.1
                        ── SMS unbyps.In.2
                        ── SMS unbyps.In.3
                        ── SMS unbyps.In.4
                        ── SMS unbyps.all
                        ── SMS bist. OUT1
                        ── SMS bist. OUT2
                        ── SMS bist. OUT3
                        ── SMS mono. OUT1
                        ── SMS mono. OUT2
                        ── SMS mono. OUT3
                        ── SMS off OUT123
                        ── SMS on OUT123
                        ── SMS check I/O
                        ── SMS mod. format
                        ── SMS „service"
                        └─ SMS „user"
    ── 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 bist. OUT1
                                    ├── DTMF bist. OUT2
                                    ├── DTMF bist. OUT3
                                    ├── DTMF mono. OUT1
                                    ├── DTMF mono. OUT2
                                    ├── DTMF mono. OUT3
                                    ├── DTMF off OUT123
                                    ├── DTMF on OUT123
                                    └── 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 1 type
        │                           ├── Input 2 type
        │                           ├── Input 3 type
        │                           ├── Input 4 type
        │                           ├── Input 1 sensit.
        │                           ├── Input 2 sensit.
        │                           ├── Input 3 sensit.
        │                           ├── Input 4 sensit.
        │                           ├── Input 1 restore
        │                           ├── Input 2 restore
        │                           ├── Input 3 restore
        │                           ├── Input 4 restore
        │                           ├── Inp.1 bypass #1
        │                           ├── Inp.2 bypass #1
        │                           ├── Inp.3 bypass #1
        │                           ├── Inp.4 bypass #1
        │                           ├── Inp.1 bypass #3
        │                           ├── Inp.2 bypass #3
        │                           ├── Inp.3 bypass #3
        │                           ├── Inp.4 bypass #3
        │                           ├── Bypassing input
        │                           ├── Time mono. OUT1
        │                           ├── Time mono. OUT2
        │                           ├── Time mono. OUT3
```

```
                                   ┌── In.1 -> Outputs
                                   ├── In.2 -> Outputs
                                   ├── In.3 -> Outputs
                                   └── In.4 -> Outputs
         ┌── GM-47 options ──┬── SIM needs PIN
         │                   ├── PIN code
         │                   ├── PAGER tel. No.
         │                   ├── CA-64 tel. No.
         │                   ├── SMS centre No.
         │                   ├── SMS acknowl. No.
         │                   ├── Prefix for SMS
         │                   ├── LCD backlight
         │                   ├── Fax/Modem
         │                   ├── Modem format
         │                   ├── DWNL code
         │                   └── RS baud rate
         └── Erase settings
```

14. DESCRIPTION OF FUNCTIONS FOR PROGRAMMING THE MODULE

It is required for the functions for programming the module operation to set option, or possible to enter numeric or alphanumeric data (telephone numbers, SMS messages).

14.1 CHOICE OF OPTION

After the entry into the function (by pressing push-button OK) which requires choosing the option, pressing push-button **CHANGE** makes character ⊻ display (option chosen). The repeated pressing the push-button CHANGE will erase this marker and switch off this option. Pressing the push-button OK will result in storing the present setting of option, and exiting from the function to the menu.

14.2 ENTERING NUMERIC OR ALPHANUMERIC DATA

After getting access to the function (by pressing push-button OK) which requires entering duration, telephone number, password or message, the blinking cursor is displayed on the module's display to show the field where the data can be entered. Each pressing the push-button **CHANGE** will result in changing the displayed digit or character. Digits are changing cyclically in the following order: 1→2→3→4→5→6→7→8→9→0→1→2→3 and so on.

The content of the field for entering alphanumeric character is changing as follows:

A→B→C→D→E→F→G→H→I→J→K→L→M→N→O→P→Q→R→S→T→U→V→W→X→Y→Z→1 →2→3→4→5→6→7→8→9→0→,→.→+→-→✶→/→:→;→= →A→B→C→D and so on.

Pressing the push-button **NEXT** makes the cursor move to the next field to the right, or return to the first field on the left side of the number or password entered. Pressing the push-button **OK** results in storing the entered data and in exiting from the function.

14.3 DESCRIPTION OF THE SERVICE FUNCTIONS

End of service - completion of service mode and move to normal module operation.

Service code – combination of 1 do 8 digits from the range 0-9. Having programmed the code prevents access by the unauthorized users to the entered settings.

Tel. line loss time - the time given in minutes (from 01 up to 99) determines the duration of voltage and current loss in telephone line (TIP, RING) after which the module will signal the line failure by changing the status of output OT4 (see also the function "*OT4 - only GSM*"). The time set in this function does not affect the speed of detecting the line failure and replacing such line with the GM47 telephone - the time of telephone line loss for this purpose is approx. 16 seconds.

GSM loss time - time to expire in minutes to (01 to 99), after which the failure of GSM telephone will be signaled by output OT4. The module can ascertain the GSM telephone failure if this telephone is: disconnected from the module; no SIM card is inserted; required PIN is not entered; antenna signal is at zero level (scale from 0 to 4); or telephone is really damaged - for the duration set.

Time of ringing - this parameter is taken into account when option "*Answering calls*" is chosen. The time given in seconds (from 01 to 99) determines the period of time after which the module "hangs - up", in case of an attempt to call the GM47 telephone number - if nobody answer this call via extension line (T-1, R-1). However, if one of the passwords for controlling the input or output by DTMF signal is programmed - after this time the module will answer a call to enable the remote control. During the "time of ringing", the module transfers the ringing tone to terminals T-1, R-1, thus enabling the telephone set connected to extension line to answer a call.

Show T l.failure – the option activates the function of displaying a message about telephone line failure. It is used when the subscriber's line is permanently connected to the module.

Show dial. num. – the option which decides about displaying a telephone number when a call is made via the module (e.g. when the control panel is reporting an alarm).

Signal testing - selecting this option results in checking the tone in telephone line, after "pick - up". If no continuous tone is detected after approx. 2 seconds, the module will replace the cable line with GSM telephone.

Answering calls - this option determines whether the module can answer the incoming calls to the GM47 telephone. In case of calling the GM47 telephone number (when this option is set), the module generates ringing tone at terminals T-1, R-1 - and after lifting the handset at extension telephone connected to these terminals - transfers the communication from the GM47 telephone to the extension telephone. If nobody pick - up during the time set by the function "*Time of ringing*", the module will hang - up or answer a call itself to enable DTMF control (provided that the service functions for DTMF control are programmed).

GSM for STAM-1 – this option should be activated only in case, that GSM-4 module works as a receiver of monitoring messages for STAM-1 monitoring station.

Any numbers - setting this option permits making outgoing calls from extension telephone, via the GSM-4 module, to any numbers (considering "outgoing line numbers", permanent prefixes, prefixes to be added and prefixes to be erased). If this function is disabled, it will be possible to call, via GSM telephone, only those telephone numbers, which the first digits (or complete telephone numbers) are loaded into the module's memory by the service function "*Tel. No 1 begin.*" ÷ "*Tel. No. 32 begin.*".

OT4 - GSM only - when this option is set, the output OT4 is activated only on the failure of GSM telephone. If this option is not set, the output OT4 is activated on GSM telephone failure and on the failure of cable telephone line (TIP, RING) as well.

GSM main line – checking this option results in selecting the wireless GM47 cellular telephone as the basic line to make connections (initiated from the T-1, R-1 terminals). If this option is unchecked, the cable line is the basic one.

FLASH – GSM/TL – this option activates the function of choosing the connection route (cable network /wireless GSM network) when making a call from a telephone connected to the T-1, R-1 terminals. If this option is selected and after picking up the receiver we press the FLASH key, then GSM-4 module switches from basic telephone line to alternative. Which line is the basic one (cable network or wireless GSM network) is determined with *„GSM main line"* function. If only one of lines be available, the module will choose it automatically without possibility of switching.

Outgoing No. 1-4 - For these functions it is necessary to enter the telephone numbers, which will be treated as the numbers for getting subscriber's line (Public Exchange Telephone Line), in case that the module is not directly connected to subscriber line, but indirectly via private exchange (PBX) - see "*The rules for converting the numbers*".

Perm. prefix 1…4 – initial digits of telephone numbers, that will not be corrected by calling with GSM telephone. It may be for example: codes for GSM network and numbers with area codes.

Prefix to erase – initial digits of telephone numbers, that will be deleted before sending a number to GSM telephone. For example, prefix to erase can have the value: "0" – standard outgoing number for a long-distance call.

Prefix to add – digits, that will be added at the beginning of telephone number before sending to GSM telephone. The prefix to be added is the area code, which is used in the location where the GSM-4 module is installed. The local telephone number, before sending to GSM telephone, will be automatically complemented with the area code.

ALLOWED NUMBERS - the move to submenu for programming the telephone numbers accepted by the module.

Tel. No. 1...32 beginning – for these functions it is required to enter the first digits (any number of digits), or complete telephone numbers, to which the calls can be made via GM47 telephone – if the option "*Any numbers*" is not set. When the option "*Any numbers*" is set, the above mentioned telephone numbers are of no importance. The numbers to be entered must have the same form as the numbers dialed by the GSM telephone i.e. must contain area code, for instance: "602 123456", "58 5551122". If the initial digits are programmed, the dialed number must contain all these programmed digits at the beginning.

Note: The list of telephones 1-32 and the option "Any number" do not affect the selection of addressee of SMS messages.

MESSAGING - the move to submenu of functions for programming the data and options for messaging.

Tel. 1…4 for mess. - programming the telephone numbers to which messaging on violation and restoration of inputs, or activation and switch OFF of output OT4 will be sent. The telephone number programmed by this function must have a complete form including country and area codes or cellular network code, e.g. **4858**3456789; **48501**987654 etc.

„+" for tel. 1...4 – this function, which refers to voice or CLIP messaging, enables / disables the option of adding „+" before the telephone number.

Mess. x2 for T. 1…4 - setting this option for a given telephone number will result in making a call twice to a dialed number and replaying the voice message each time – while executing the voice messaging.

SMS violat. In.1…4 - programming the contents of SMS message to be sent to cellular telephone number after violation of a given input (indication on LCD display i→I). It is possible to choose a standard contents or to enter your own message.

SMS fail. line - programming the contents of SMS message to be sent to cellular telephone number after activating the output OT4 (failure of telephone line).

SMS restor. In. 1 –> 4 - programming the contents of SMS message to be sent to cellular telephone number after the input is restored to normal state (**I→i**).

SMS restor. line - programming the contents of SMS message to be sent to cellular telephone number after restoration of input OT4 to normal state (telephone line available and operative).

SMS test - programming the contents of SMS message to be sent to cellular telephone number in a test message.

In. 1- 4 -> Tel. and **F. L. -> Tel.** - these functions program the options for messaging. These options are used for selecting telephone numbers, to which the messages shall be sent after violating the input or after failure of telephone line, and for choosing the type of messaging (SMS/CLIP/VOICE). The option is set by pressing push-button CHANGE. The successive pressing makes the character display at the telephone numbers:
s – SMS message to be sent
c – CLIP type message
v – sound message to be sent.
(no display) – indicates that a given number is omitted while violating a given input.

Rest. 1…4 -> Tel. and **Rest. L -> Tel** - these functions are utilized for programming the second set of the messaging options. They are used for selecting telephone numbers to which the messages shall be sent after restoration of inputs to normal state or restoration of telephone line, and for choosing the type of messaging (SMS/VOICE). The way of programming is the same as for the function regarding the violation of inputs.

Test ->Tel. - this function is used for programming the messaging options for test messages. You can indicate here to which telephone numbers what types of messages (s, c, v) will be sent during the test messaging. The test message period is programmed with the **Test period** function. The programming procedure is identical as for the input violation functions.

Test period – this function is used for programming the time interval between consecutive test messages to be sent to confirm the module operative condition. The maximum time interval you can program is **99 hours 59 min**. The test messages are carried out irrespective of other messaging related connections.

No spaces – with this function enabled, the module sends no space after the last character in the transmitted message.

Mess. priority - setting this option assigns the priority for messaging. In case of making a call, when the condition for tripping the messaging occurs, the call will be interrupted and the module will transmit the messaging. When this option is not set, the messaging shall be sent after the user hangs-up.

Mess. sounds: setting this option for voice messaging makes the module generate sounds, informing which inputs have been violated (see: "MESSAGING").

SMS CONTROL - the move to submenu of functions for programming the SMS passwords (6 alphanumeric characters) utilized for remote control by SMS messages.

SMS bypass In. 1…4 - the functions assigning the passwords, which allow the system to bypass individual input.

SMS bypass all - the function assigning the password allowing the system to bypass all inputs simultaneously.

SMS unbyps. In 1…4 - the functions assigning the passwords permitting the system to unbypass individual input.

SMS unbypass all - the function assigning the password permitting the system to unbypass all inputs simultaneously.

SMS bist. OUT 1…3 - the functions assigning the passwords permitting the system to switch the state of individual output to the opposite (bistable switch).

SMS mono. OUT 1…3 - the functions assigning the passwords enabling the system to switch the state of individual output in monostable mode (monostable switch).

SMS off OUT 123 - the function assigning the password, which allows the system to switch OFF all outputs simultaneously.

SMS on OUT 123 - the function assigning the password permitting the system to switch ON all outputs simultaneously.

SMS check I/O - the function assigning the password allowing the system to check the state of all inputs and outputs. After receiving this password, the module sends the text message on the present state of outputs and the bypassed inputs – to the telephone number programmed by the function "*SMS acknowl. No.*"

SMS mod. format – this function sets a password which allows to change the preprogrammed modem format. The preprogrammed modem format will be changed after sending a „password=format code" SMS. Two-digit codes assigned to corresponding formats are shown in the table at the description of the ***Modem format*** service function.

SMS „service" – this function sets a password which allows to start remote communication between the CA-64 alarm panel and the DLOAD64 program (it applies to the CA-64 alarm control panel version 1.04.03 or later, and the DLOAD64 program version 1.04.04 or later). In order to start remote communication with the DLOAD64 program, send to the module the following SMS message: „**xxxx=yyyy.**", where „xxxx" means the password, and „yyyy" - the telephone number to be called back by the control panel. Put a dot after the telephone number. If the sent message contains no telephone number, the panel will connect to the number preprogrammed in its memory.

SMS „user" – this function sets a password which allows to start remote communication between the CA-64 alarm panel and the GUARD64 program (it applies to the CA-64 alarm control panel version 1.04.03 or later, and the GUARD64 program version 1.04.04 or later). In order to start remote communication with the GUARD64 program, send to the module the following SMS message: „**xxxx=yyyy.**", where „xxxx" means the password, and „yyyy" - the telephone number to be called back by the control panel. Put a dot after the telephone number. If the sent message contains no telephone number, the panel will connect to the number preprogrammed in its memory.

DTMF CONTROL - the move to submenu of functions for programming the DTMF codes (4 digits) to be used for remote control by dual tone phone keypad.

DTMF bypass In. 1…4 - the functions assigning the codes permitting the system to bypass an individual input.

DTMF bypass all - the function assigning the code, which permits the system to bypass all inputs simultaneously.

DTMF unbyps. In. 1…4 - the functions assigning the codes enabling the system to unbypass separate input.

DTMF unbypas. all - the function assigning the code permitting the system to unbypass all inputs simultaneously.

DTMF check inps - the function assigning the code permitting the system to check the status of module's inputs (bypassed/unbypassed). The way of signaling is described in section "*Description of outputs and input*" of this operating manual. After completing each command for bypassing/unbypassing, the module automatically executes this function.

DTMF bist. OUT 1…3 - the functions assigning the codes enabling the system to switch the state of individual output to the opposite (bistable switch).

DTMF mono OUT 1…3 - the functions assigning the codes permitting the system to switch the state of individual output in monostable mode (monostable switch).

DTMF off OUT 123 - the function assigning the code permitting the system to switch OFF all outputs simultaneously.

DTMF on OUT 123 - the function assigning the code allowing the system to switch ON all outputs simultaneously.

DTMF check outs - the function assigning the code allowing the system to check the state of all outputs. The way of signaling is described in section „REMOTE CONTROLLING BY DTMF SIGNALS FROM TOUCH – TONE TELEPHONE KEYPAD".

CLIP control - opens the submenu of functions controlling the module outputs with the use of CLIP function. You can program four telephone numbers and the output operating mode suitable for the given telephone number.

CLIP1...4 tel. No – programming the telephone numbers from which the control will be realized. The telephone number programmed with this function must be identical with that displayed during presentation of the caller ID in a cellular phone (e.g.: 502345678; 601555999). For a stationary network you should program the area code prefix followed by the actual phone number (e.g.: Gdańsk – **58**1111222; Warsaw - **22**5555666; etc.).

CLIP1...4 → Outputs – functions programming the type of output control to be triggered with the CLIP signal. The programming consists in determination of the control separately for each of the module outputs. Each of the CLIP numbers can perform control of a different kind. To select the option, press the CHANGE key. One or two characters can be displayed at each output:

    b   - bistable switching of the output
    m   - monostable switching of the output
    bm   - bistable switching delayed for the time programmed by the function "*Time mono. OUTn*" (n=1,2,3 – output number). The delay in switching a given output is equal to the time programmed for this output.
   (no mark) -   no control of a given output.

INPUTS/OUTPUTS - the move to submenu of functions for programming the parameters of module's inputs and outputs.

Input 1…4 type - the function assigning the type of sensor connected to the input. Selection of a sensor (1.NO; 2.NC) is done by push-button CHANGE.

Input 1…4 sensit. - the function assigning the sensitivity of each input. The following values (in msec) can be programmed: 20, 40, 60, 80, 100, 130, 160, 200, 250, 300, 400, 500, 600, 800, 1000, 1275.

Input 1…4 restore - the functions assigning the time from the end of violation, after which the inputs shall be again supervised. The possible settings are 4 seconds or 4 minutes. The status of input is indicated as "violated" (**I**) until the restoration time expires.

Inp. 1…4 bypass # 1 - setting this option for these functions will make the input, to which a given function refers, to be automatically bypassed after 1 violation.

Inp. 1…4 bypass # 3 - setting this option within these functions will make the inputs, to which a given function refers, to be automatically bypassed after 3 violations, provided that a given input is not programmed to be bypassed after 1 violation.

Bypassing input - the function selecting the input's number, violation of which will result in bypassing the remaining module's inputs. This operation is bistable - the inputs bypassed will remain in such a status until the end of input violation (**I** → **i**) set by this function. This function is disabled by selecting (during programming) the option designated as "*No number*".

Time mono. OUT 1…3 - the functions determining the duration of monostable switch for a given input (1-99 seconds). Such duration is to be programmed, if it is intended to utilize the functions for controlling the inputs in monostable or bistable mode with delays.

In. 1…4 -> Outputs - the functions programming the way of controlling the outputs to be tripped by the violation of input. Programming consists in choosing the type of control individually for each module's output. Setting the option is done by push-button CHANGE. One or two characters can be displayed at each output:
    b   - bistable switching of the output
    m   - monostable switching of the output
    bm   - bistable switching delayed for the time programmed by the function "*Time mono. OUTn*" (n=1,2,3 – output number). The delay in switching a given output is equal to the time programmed for this output.
    (no mark) - no control of a given output.

GM-47 OPTIONS – the move to submenu of functions for programming the data required for the operation of GM47 cellular telephone.

SIM needs PIN - depending on the SIM card used, the function enables or disables the option of entering the PIN code. By default, this function is "on".

PIN code – the function for entering PIN code of the SIM card inserted in the cellular telephone. The code is entered in the module's memory once. It is possible to read out the loaded PIN code after calling this function. If necessary, the code is transmitted from the GSM-4 module to the telephone. Entering the wrong PIN code can result in blocking SIM card. In case of such situation, the message is displayed on the module's display with a request for entering the PUK code. Entering the PUK code should be performed by using normal cellular telephone (after replacing the SIM card).

PAGER tel. No. - 4 digits which activate the function for sending the message in a form of SMS text message. Detecting these digits at the beginning of the dialed number will result in classifying the remaining part of the number as the cellular telephone number, to which the message from the alarm control panel (in a form of a message to pager system) is to be transmitted.

CA-64 tel. No. - 4 digits of the telephone number, which enable the module to recognize the text message sent by the alarm control panel CA-64.

Note: *The change of the number "pager station" and "alarm control panel CA-64" is updated in the module's memory after the exit from the service mode.*

SMS centre No. - programming the SMS centre number, which is required in order to send the text messages. The entered number depends on GSM network in which the telephone is activated and must be preceded by the country code suitable for the operated network.

SMS acknowl. No. - programming the cellular telephone number to which the module GSM-4 will send SMS messages acknowledging the execution of controlling and the

present status of inputs and outputs. The programmed number must have a complete form including the country code – similar as the SMS centre numbers given above.

Prefix for SMS - it is programmed if the cellular telephone numbers, taken from the alarm control panel while capturing the pager messages, do not possess such a prefix. Programming the prefix enables the module to send SMS messages to the cellular telephone number.

LCD backlight – this function makes it possible to set the mode of display (available for the modules with backlit display). The following setting are possible:
 − none,
 − auto,
 − permanent.

Fax/modem – with this option selected you can use the module as a fax / modem. The RS connector makes it possible to use all the modem and fax features of the GM47 telephone. The module starts working as a modem after it receives the AT signal through the RS port, and stops the operation when the computer DTR signal disappears.

Modem format – function used for setting parameters of the modem the GSM-4 module communicates to. The table below shows all the available modem formats and the codes assigned to them, which are necessary to change the pre-programmed modem for another one by means of an SMS message.

format code	modem format
00	auto
83	56000 V110 ISDN
82	48000 V110 ISDN
81	38400 V110 ISDN
80	28800 V110 ISDN
79	19200 V110 ISDN
75	14400 V110 ISDN
71	9600 V110 ISDN
70	4800 V110 ISDN
68	2400 V110 ISDN
16	28800 V34
15	19200 V34
14	14400 V34
12	9600 V34
07	9600 V32
06	4800 V32
04	2400 V22bis

DWNL code – programming a code which allows starting of the module communication via the RS-232 port with the DLOAD10 program (program version 1.04.15 or later) and with the STAM-1 monitoring station program.

RS baud rate – the function allows setting the data transfer rate via the RS-232 port. The following options are available:
 − 4800 bps

   − 9600 bps
   − 19200 bps

Erase settings: this function erases all telephone numbers and prefixes and restores default settings for options and times. All outputs are switched OFF and all inputs are unbypassed. Before canceling, the module requests for confirmation of such command.

Notes:

- *Each telephone number can consist of maximum 16 digits, and prefix can have maximum 8 digits.*

- *Erasing the telephone number is possible by erasing the last digit (push-button CHANGE and NEXT should be used), until the complete number is cancelled. The whole telephone number can be also erased by holding both push-buttons CHANGE and NEXT simultaneously.*

- *The outgoing line numbers 1...4, permanent prefixes 1...4 and telephone numbers 1...32 do not require that they must be entered consecutively, for example two outgoing line numbers can be entered in any two of four available fields "Outgoing No. 1...4", not necessarily in two first fields.*

- *The changes entered in the service functions have in majority immediate results, i. e. Immediately after the exit from the function by pressing push-button "OK".*

15. DLOAD10 PROGRAM

The GSM-4 module delivery set includes the DLOAD10 program, which enables the module to be programmed from a computer.

The program is designed for IBM PC/AT compatible computers. It works in any computer hardware configuration in the **WINDOWS** (9x/ME/2000/XP) environment. It is recommended that the program be installed on the computer hard drive.

The GSM-4 module communicates with the computer via the RS-232 link.

Figure 10. Connection of computer to module serial port.
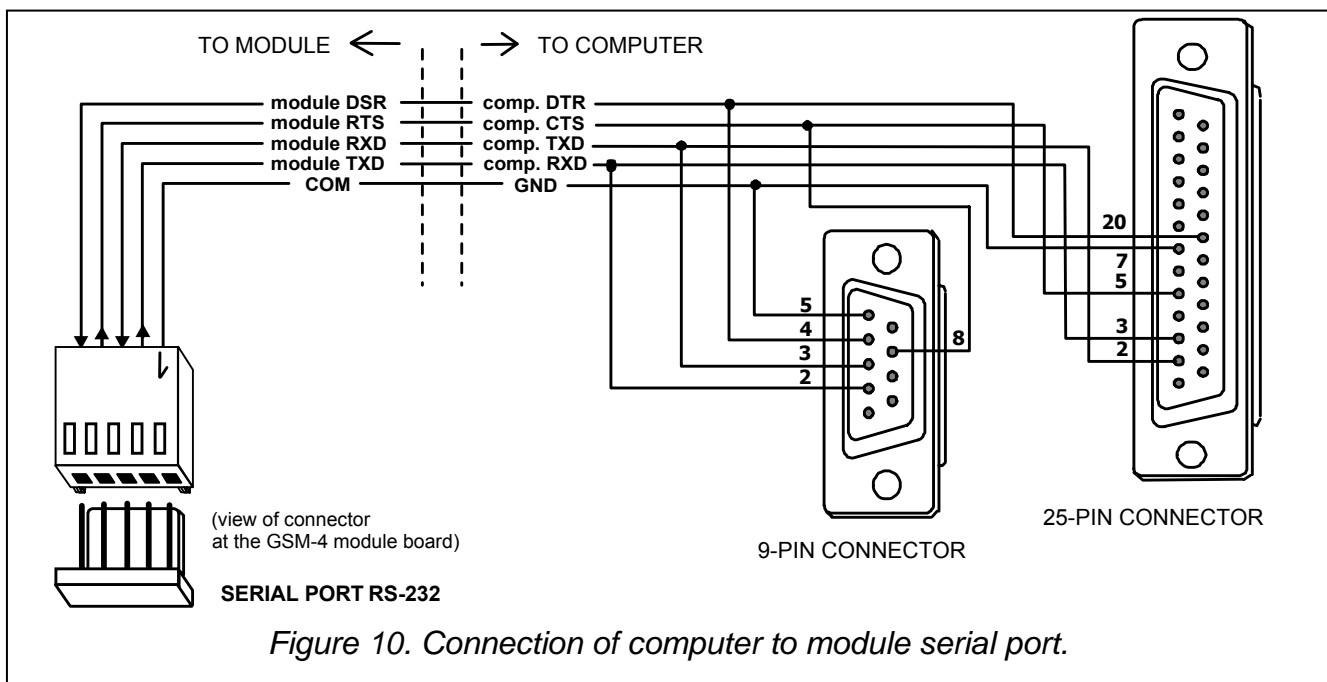
The program installation consists in running the **setup.exe** program from a floppy disk delivered with the module. After installation, the program should be launched. Access to the program is protected with an **access code.** After installation of the program, the access code

is: **1234** and can be changed in any string of 16 alphanumeric characters. As long as the code has its factory form, pressing the „ENTER" key (without entering any code) will start the program with the default access code (1234).

In order to establish communication between the DLOAD10 program and the module, you should follow the procedure below:

1. Connect the RS-232 ports of module and computer with an appropriate cable.
2. Open the window with module data by selecting **File→New device→GSM4/LT module** in the program menu (see figure 11).
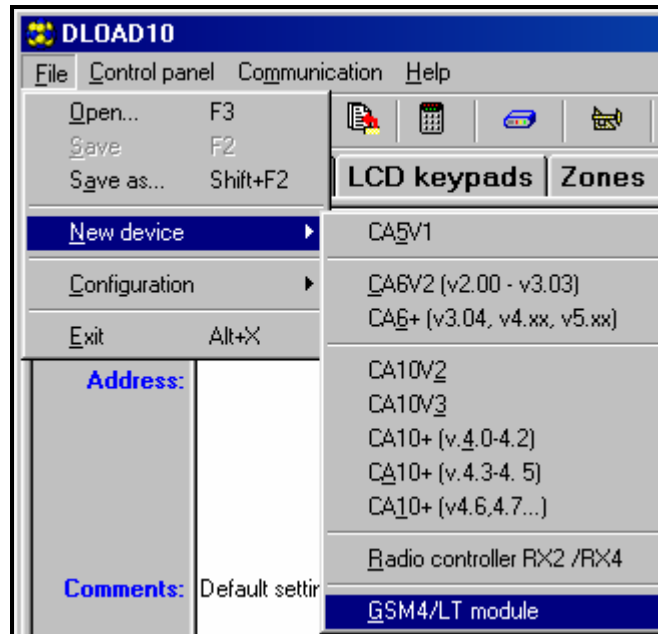

Figure 11.

3. Enter the option of module communication settings by clicking on the ⌨ icon (or through the **Communication→Configuration menu**) and select the port through which the computer connects with the module RS-232 port (see figure 11).
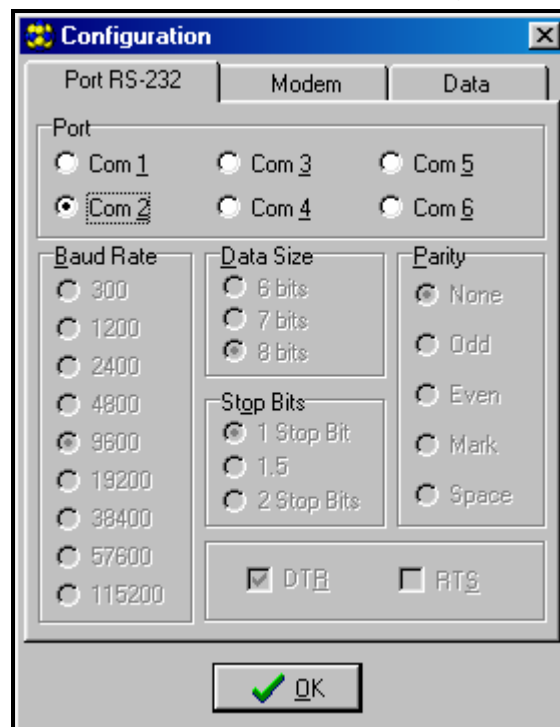

Figure 12.

4. Enter the DOWNLOADING password (preprogrammed in the module with „***DWNL code***"
   service function - see figure 13). By default, the password is not preprogrammed in the
   GSM-4 module.

Figure 13.

5. Read out data from the module by clicking on the [icon] icon. The communication
   establishing process is presented by an appropriated message on the GSM-4 task bar.

6. Program the module.

7. Save new data in the module by clicking on the [icon] icon.

8. If necessary, you can save the programmed data as a file on the computer disk.

9. Disconnect the cable used for programming.

To facilitate using the program and programming the GSM-4 module parameters itself,
a HELP system is provided. The system is accessible from the „**HELP**" menu or, after
pressing the **F1** key, from the computer keyboard. In order to get an immediate access to
more detailed information, it is necessary to select the desired element in the program
window (by moving the mouse pointer onto it and clicking the left mouse button), and then
press the F1 key.

16. EXAMPLES OF PROGRAMMING THE NUMBERS AND PREFIXES

Example 1.

- the module is directly connected to a subscriber line in Gdansk (area code for Gdansk-58)
- outgoing calls via the module are to be allowed only to the following telephone numbers:
  - 111-00-11 - Security Dept.
  - 222-00-22 - Administration Dept.
  - 333-00-33 - residence telephone number of the owner
  - 0-602 440-440 - cellular telephone number of the owner
  - 0-501 550-550 - telephone number of the owner's partner
  - 0-39 77-88-99 - telephone number of the Service

Since the alarm control panel is connected to the subscriber line via the module, these
numbers are to be programmed in the control panel as if the module did not exist (the letter
"D" in the number indicates the mark of waiting for continuous dial tone):

- telephone numbers for messaging: "1110011"
  "2220022"
  "3330033"
  "0D602440440"
  "0D501550550"

The Service is accessible by dialing the following telephone number:

"0D39778899"

Configuring the module for such an operation requires programming the numbers and prefixes, and checking the settings of options, as given below:

- Any number: option OFF
- Signal testing: option chosen
- Permanent prefix: "602", "501", "39",
- Prefix to erase: "0",
- Prefix to add: "58"
- Telephone numbers: "581110011", "582220022", "583330033",
                           "602440440", "501550550", 39778899"

The remaining prefixes and numbers should be blank.

Example 2:

- the module is connected to a PBX (private branch exchange), which has access to two subscriber lines (public telephone exchange lines) in Gdansk (area code-58) after dialing the "outgoing numbers" 71 or 72 ; in addition , PBX has access to the trunk line KOMERTEL (code number –39) after dialing the number 73.
- the calls via the module are to be allowed only to the following telephone numbers:
    - 111-00-11   - Security Dept.
    - 222-00-22   - Administration Dept.
    - 333-00-33   - residence telephone number of the owner
    - 0-602 440-440   - cellular telephone number of the owner
    - 0-501 550-550   - telephone number of the owner's partner
    - 0-39 77-88-99   - telephone number of the Service

While programming (at the alarm control panel) the telephone numbers for messaging, it is required to choose one of three ways of getting connection .(the letter "D" indicates the mark of waiting for continuous dial tone):

"71D1110011" or "72D1110011" or "73D581110011"
"71D2220022" or "72D2220022" or "73D582220022"
"71D3330033" or "72D3330033" or "73D583330033"
"71D0D602440440" or "72D0D602440440" or "73D602440440"
"71D0D501550550" or "72D0D501550550" or "73D501550550"

The service can be rung up by dialing the following number:

"71DoD39778899" or "72D0D39778899" or "73D39778899"

In this case , the module is programmed as follows (items not shown below should be blank):

- Any number: option not chosen
- Signal testing: option chosen
- Outgoing No.:   "71", "72", "73"
- Permanent prefixes: "602", "501", "39"
- Prefix to erase: "0"
- Prefix to add: "58"
-Telephone numbers: "581110011", "582220022", "583330033"
                           "602440440", "501550550", "39778899"

Example 3

- programming to enable the module to send SMS message to cellular telephone number : 602123123

Programming the module is as follows (items shown should be programmed):

- Pager Tel. No.:   1111

      - SMS centre No.:   48602951111(contact GSM representative for the correct number)

      - Prefix for SMS: 48

The pager number to be programmed in the alarm control panel should have the following form (FS-87 to FS-90 in the control panel CA-6; FS-87 to FS-94 in the control panel CA-10):

             1111602123123

The parameters of the paging system to be programmed in the alarm control panel should have the following form (FS-118 in the SATEL control panel CA-6 and CA-10):

             1C 22 0A 0E 70 8A

17. BASIC TECHNICAL DATA

Supply voltage .... DC 10.5V … 14V
Outputs current-carrying capacity 4x 50mA
Current-carrying capacity, supply output (+V; –V).......................................300mA
Maximum current consumption in the telephone standby mode (without outputs supply).....100mA
Maximum current consumption in the telephone active mode (without outputs supply)........250mA

ATTENTION: The SATEL Company recommends that performance of the GSM-4 communication module be regularly tested. An efficient GSM module, which interacts with the security system, greatly increases the chance of successful transmission of alarm information. However, for reasons beyond the Manufacturer's control, it cannot be a 100% source of such information.

18. HISTORY OF THE MANUAL UPDATES

Given below is a description of changes in the manual contents as compared with the v4.00 firmware.

DATE	FIRMWARE VERSION	DESCRIPTION OF CHANGES
November 2003	4.01 4.02	• Information has been added regarding the possibility to use the module as a fax/modem (p. 2, 26, 33). • Information has been added regarding the new message displayed when the SIM card fails to accept the PIN code (p. 8). • Information has been added regarding the display of incoming calls by the module (p. 9). • Information has been added regarding the display of message during voice messaging (p. 18). • Alteration of the description of programming the telephone number in the CA-64 alarm control panel for sending SMS messages (p. 19). • Alteration of the description of telephone number processing in the module when it works in the telephone line simulation mode (p. 21). • Supplementation of the description of functions setting passwords for the module communication with DLOAD64 & GUARD64 programs (s. 30). • Information has been added regarding the DLOAD10 program which permits remote programming of the GSM-4 module (pages 34-36).
March 2004	4.03	• Test message function has been added (pages 18, 24, 29). • CLIP type messaging function has been added (p. 18). • Notes have been added regarding telephone messaging (p. 5), logging (p. 8), SMS confirmation (p. 15).
September 2004	4.04	• Section „Controlling Outputs by means of CLIP Function" has been added (p. 16). • Description of SMS sending from a stationary telephone has been added (p. 20). • CLIP control has been added to the service function menu (p. 25). • Description of new functions has been added (p. 31). • Information on new RS232 port speed – 19200 bps - has been added (p. 34).