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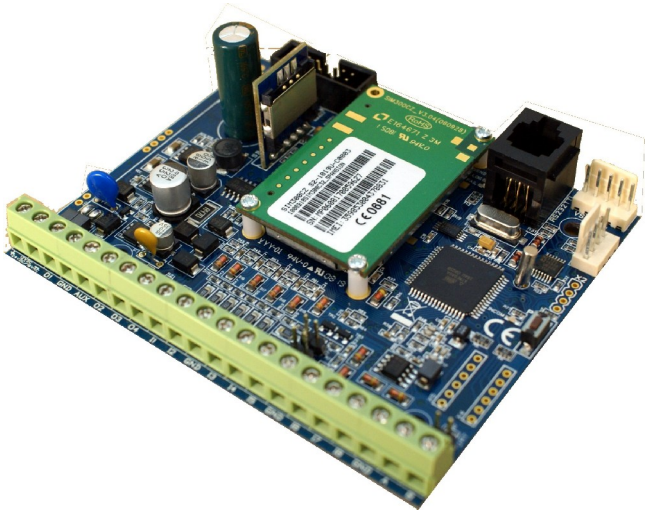
INSTALLATION AND OPERATING MANUAL

MGSM 4.0 (v 1.4S)

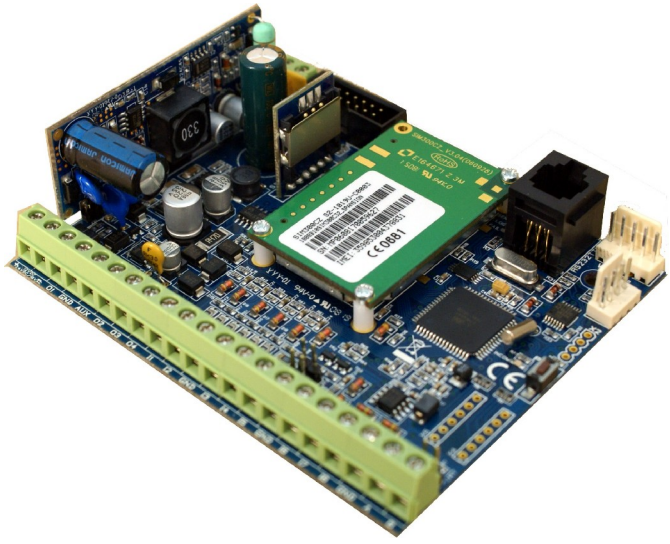
GSM NOTIFICATION AND CONTROLL MODULE



MGSM 4.0-PS (v 1.4S)

GSM NOTIFICATION AND CONTROLL MODULE

WITH BACKUP POWER SUPPLY 13,8V/1,3A



RoHS CE

This notice is very essential for safety personel and end user.

This notice is very essential for correctly operation equipment.

WARNING:

• For safety reasons the equipment may be installed only by qualified personnel.
• Prior to installation read the instructions. All installation procedures should be performed with the power supply disconnected.
• The power supply should not be switched on when the external antenna is disconnected (operating the equipment with the antenna disconnected may damage the transmitter and will void the guarantee!).
• It is not permitted to make any equipment alterations or to service it by unauthorized personnel.
• The equipment should be protected from electrostatic discharge.
• The equipment should be encased in a metal housing and EU principles should be observed regarding: the power supply, housing and shielding – according to application.
• The equipment emits an electromagnetic field and therefore may disturb the operation of other radio equipment (ie. ultra synchrodyne radio receivers etc.)

WEEE MARK

The used electric and electronic products, do not mix with general household waste. There are separate collection system for used electric and electronic products in accordance with legislation under the WEEE Directive (Directive 2002/96/EC) and is effective only with EU.

ATTENTION!

The power-supply (MGSM 4.0-PS) cooperates with the sealed lead-acid battery (SLA). After theoperating period ends, the power-supply shall not be discarded but recycled according to valid regulations (of EU directive no. 91/157/EEC and 93/86/EEC).

1. GENERAL DESCRIPTION

operation with eight telephone numbers (call numbers):
- cooperation with SMS/CLIP monitoring centers
- signalling to private call numbers: SMS, VOICE, SMS+VOICE, CLIP

sending system status information via SMS:
- programming messages from individual inputs
- independent violation and restore (input) information
- power supply failure messages
- system status messages: inputs, outputs, failures

sending voice messages:
- cooperation with VSR-2 voice synthesizers (16 messages)
- cooperation with voice module (MC1), listening in

function 'control panel" -mini alarm unit
- KIT: MGSM 4.0 + PSR-RF+ casing, controlled by: keyfob, SMS, input
- KIT: MGSM 4.0-PS + casing controlled by: SMS, input

inputs [8]:
- wide range of reactions, e.g. arm/disarm, delayed, counter
- choice of operating configuration: 2EOL/NC, 2EOL/NO, EOL, NC, NO (I1-I6)
- triggered inputs „+12V" or „GND„ with configuration NO-NC (I7, I8)

outputs [4]:
- one high current (1A) output and three OC (100mA) outputs
- controlled by: SMS, CLIP, inputs, module status (alarm, failure etc.)
- programmable mode of operation: MONO- (time) or BISTABLE
- logical functions I/O and O/O: AND, OR, NOR, XOR

communication test function:
- cyclical (every 1-99 hours), according to clock
- triggered by input, external polling
- programmable test type: SMS or CLIP (RING)

module programming:
- local by PC (PARTNER GSM): RS232TTL, USB
- remote by SMS (selected parameters)
- remote by PC: modem download (via CSD, required PC+PARTNER GSM+MGSM 4.0)
- function firmware update (FLASH memory)

visual signalisation:
- visual signalisation of operation and failure status
- visual signalisation of outputs status

pamięć zdarzeń:
- rejestrowanie zdarzeń np. zał./wył. alarm
- data i czas zdarzenia
- rejestr 1000 zdarzeń z funkcją nadpisywania

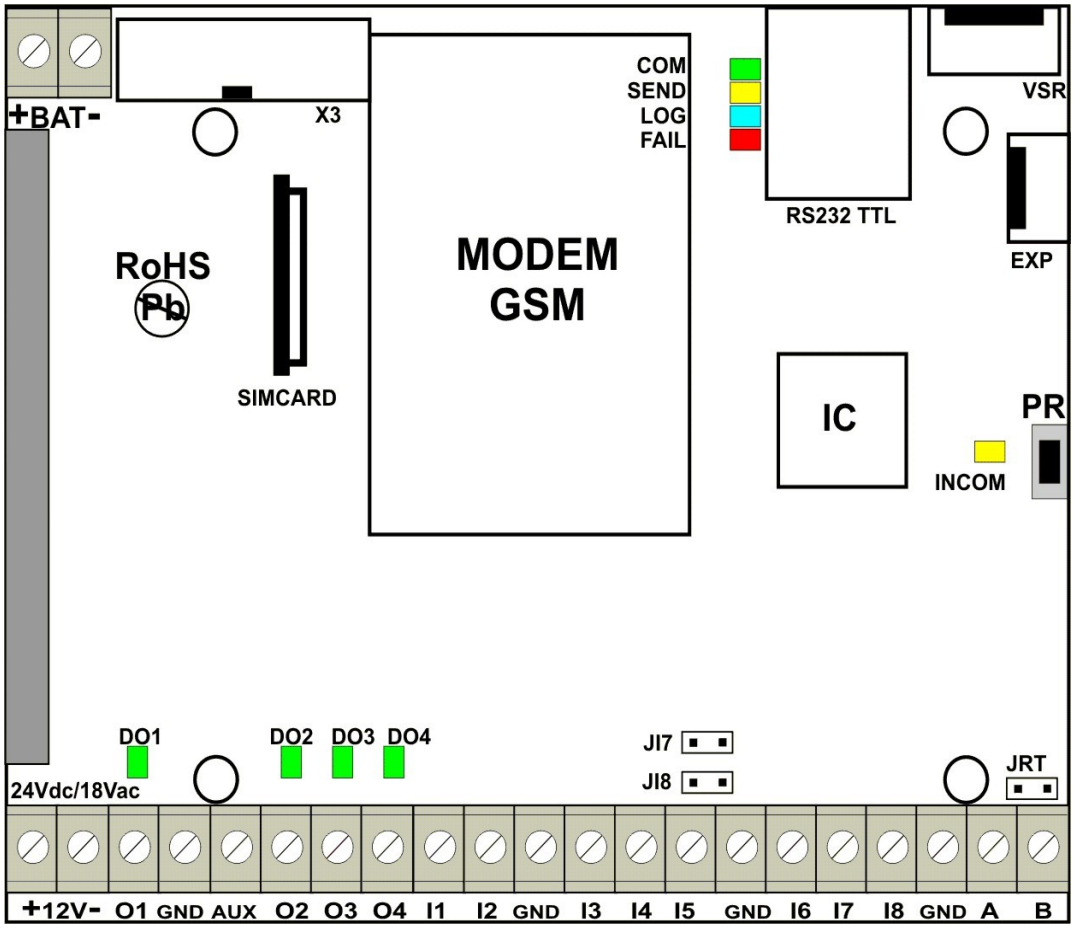
2. PURPOSE

Due to the MGSM 4.0/4.0-PS extended functionality and diagnostics, modular construction, elastic configuration and event memory, it is ideal for:

- intrusion, assault or fire signalling systems:
- as a signalling and controlling channel for control panel
- GSM dialer: SMS, CLIP, SMS+CLIP
- access control systems:
- controlling gateway: by SMS(+acces code) or CLIP
- GSM dialer: system failure, status etc.
- M2M systems - in automatic control systems for two way information exchange:
- GSM transmitter/receiver for technological processes (central heating boiler and pump installations, PLC controllers, house heating or lighting systems
- burglary alarm (systems):
- control panel forfor small objects, with GSM signalling (e.g. A MGSM 4.0 + PSR-RF or MGSM 4.0-PS unit

3. MODULE DESCRIPTION

3.1 BOARD COMPONENTS AND CONNECTORS DESCRIPTION



COMPONENT / CONNECTOR	DESCRIPTION
+12V- 2Vdc/18Vac	power supply input: MGSM 4.0 = 10÷14V/DC MGSM 4.0-PS= 17÷20V/AC or 20÷30V/DC *
O1	high current output (transistor type , switching +12V, 1A protection)
AUX	power supply output for auxillary equipment (short circuit protected: 300mA, PTC resettable fuse)
O2, O3, O4	low current OC outputs (transistor type , switching GND, not protected against short circuits!))
I1÷I6	module inputs (NO, NC, EOL, 2EOL/NC, 2EOL/NO)
I7, I8	module inputs (NO, NC), trigger by GND or +12V (+U)
GND (x4)	common terminals (GND, 0V) of inputs nad outputs
A, B	RS485 bus
X3	not use (for future)
SIMCARD	SIM card socket (vertical)
RS 232 TTL	RJ12 socket for service computer connection

COMPONENT / CONNECTOR	DESCRIPTION
VSR	connector for: voice synthesizer, audio module
EXP	communication connector for auxiliary modules e.g. PSR-RF buffered power supply module with built in two channel radio controller
+BAT-	outputs for battery (BAT, only MGSM 4.0-PS model) BAT+: red, '+' battery BAT-: black, '-' battery
JI7, JI8	I7, I8 input polarization configuration jumpers
JRT	Jumper: termination resistor – RS–485 line (jumper on = 120 Ohm R)
DO1, DO2, DO3, DO4	GREEN LEDs signalling status of outputs
COMM	GREEN LED signalling established communication with telephone
SEND	YELLOW LED signalling SMS sending or diall (in programming mode – communication with the computer)
LOG	BLUE LED signalling network signal level
FAIL	RED LED signalling failure (firmware update in programming mode)
INCOM	YELLOW LED signalling SMS receiving or incomming diall
PR	connection initiation (programming) via RS232 (TTL) switch
MODEM GSM	industrial telephone SIM300CZ
FME-F	FME-F antenna connector (pigtail bulkhead)

3.2 MUDULES DESCRIPTION

3.2.1 VSR-2 : VOICE SYNTHESIZER

This module is used to store and reproduce up to 16 radio announcements (8 x 16s + 8 x 8s). It can be additionally linked with an audio module for listening-in on objects. MSGM 4.0 enables independent summing of messages coming from a number of recordings (5), in the event of violating/sabotaging the input.

3.2.2 ARA: VOICE SYNTHETIZER

Module memorizes 20 second voice message. MGSM 4.0 is fully operable with the ARA synthesizer..

3.2.3 MC1: AUDIO MODULE

The voice module is capable of replaying the object audio during the alarm or after establishing the voice message. The module should be connected to the S-M input.

3.2.4 PSR: BUFFERED POWER SUPPLY MODULE

The buffered power supply module 13.8V DC/1.3A with digital MGSM 4.0 communication. Operation status and failures diagnostics.

3.2.5 PSR-RF: THE BUFFERED POWER SUPPLY MODULE WITH TWO CHANNEL RADIO CONTROLLER

The extended PSR version with built in two channel radio controller for the remote control of the MGSM 4.0 (utilizing the control panel function). PSR-RF as an independent device can functionally replace any two channel radio link and a buffered 13.8V DC/1.3A power supply (together with the O-R2/O-R3 housings).

4. INSTALLATION

The MGSM 4.0/4.0-PS module should be installed indoors, where air humidity is normal (RH=90% max. without condensation) and temperature in the range of -10°C do +45°C. When choosing place of installation the following criteria should be taken into account:

- GSM network availability (of the SIM card operator utilized in the module),

- the availability and distance of alarm signal sources and trigger signals (e.g. the control panel),
- the availability of power supplies (e.g. buffered power supply, power supply module etc.) or installation possibility of such in vicinity,
- the module requires apower supply in the following range:

the **MGSM 4.0 = 10V-14V/1A (min), buffered 13.8V DC power supplies recommended (e.g. recommended dedicated PSR or PSR-RF)**

the MGSM 4.0-PS = 17V-20V/30VA, (the 17V-20V/AC terminals are used for connection the secondary winding of mains transformer: O-R2, O-R3 casings) or DC power supplies recommended 20V-30V/1A min (e.g. PSU 24V DC)

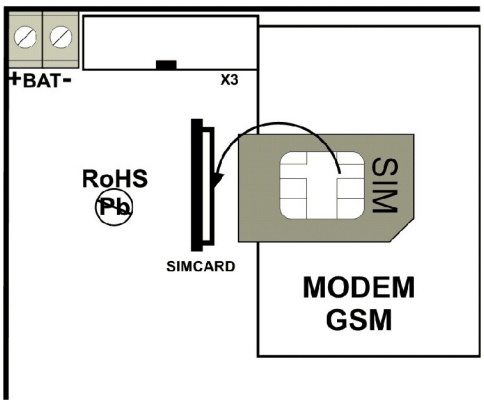
- the availability of the premises to third parties and susceptibility to sabotage attempts,
- keeping safe distance from sources of potential interference (e.g. buildings, radio transmitters, etc. 230V AC main power supply lines).

The MGSM 4.0/4.0-PS module should be mounted in a dedicated metal housing:
- O-R1, O-R2 or other intended for GSM transmitter or control panel installation: when installing the version without housing,
- information and communication systems via the DIN 35S bus: when installing the version with housing for the DIN 35S (Z101) bus.

4.1. MODULE COMMISSIONNING PROCEDURE

1. The complete signalling and power supply wiring should be implemented.
2. Mount the housing and insert the wiring through the cable glands.
3. Install the SIM card in the module:

Insert the card in the SIMCARD socket in the vertical position, with the golden contacts of the SIM card directed towards the closer edge of the PCB board. The marker (cut-out) of the SIM card must be directed opposite to the direction of inserting.



4. Install the module:
   a) in the O-R1, O-R2 O-R3 housing on the pins included in the kit,
   b) in the GSM transmitter housings or control panel housing on the self adhesive pins supplied with the module,
   c) in the information and communication systems housing using the clip securing the DIN housing to the assembly bus.
4. Connect the optional additional modules: VSR-2, PSR, PSR-RF
5. Connect the wires to the appropriate module connectors.
6. Connect the external antenna to the FME-F connector.
7. Switch on the module power supply.
8. Connect the cable between the service computer and the RS TTL socket (RS232, USB).
9. Configure the module according to requirements.
10. Perform tests.
11. Disconnect the cable from the RS TTL connector.

Remarks:

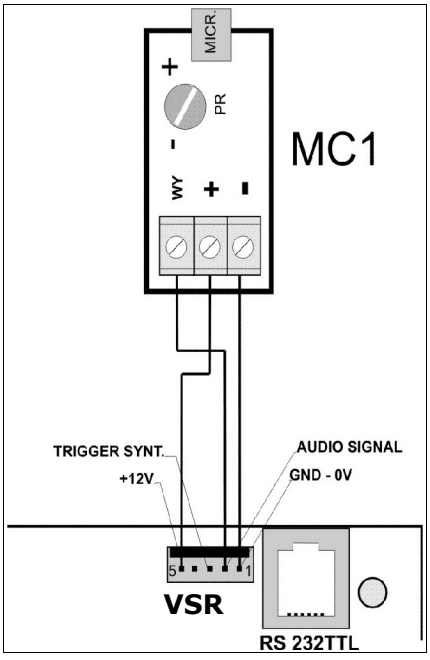
- **Observe all possible precautionary measures against static discharge to protect the electronic components.**
- **Do not switch on the power supply when the external antenna is not connected.**
- **When installing in O-R2, O-R3 and other dedicated housings, intended for using with the mains power supply (with transformer), do not connect the N ("zero") cable to the PE grounding clamp of the 230V AC mains power supply. Connecting the N cable to the PE clamp may damage the electronic components, as GND is then directly connected to PE! If there is no separate grounding cable provided, the clamp should be left disconnected.**

- **In pt. 2.b pins should be inserted in the module PCB board (4 pcs.) Remove the protective foil from the adhesive layer, place on the inside degreased housing surface and press lightly.**

4.2. CONNECTING THE VOICE SYNTHETIZER OR AUDIO MODULE.

The MGSM 4.0/4.0-PS module has a VSR socket intended for connecting the VSR-2, ARA and the MC-1 audio or other (e.g. utilized in CCTV) voice synthesizer modules, provisioned for listening in on the object.

- The voice synthesizer can record and relay a voice command when an event (alarm) occurs in the system. Replay is performed automatically after establishing voice communication. The message is repeated cyclically until the connection is terminated. The voice synthesizer should be connected directly to the VSR connector and the message recorded after the power supply is switched on (built in microphone).
  The message is stored even after the power supply is disconnected (disconnected synthesizer).The synthesizer has a MINIJACK output for listening to the recording.
- Listening in on the object can be accomplished with the MC1 module, when the alarm is triggered or when a voice messages is established (connecting with the module from authorized lines). To connect the MGSM 3.0x, MGSM 4.0/4.0-PS, MGSM 5.0/5.0-PS, VSR-2 and MC1 (or other) modules, the 5-pin plug should be used. The connections should be performed, as on the diagram, using the microphone cable or twisted UTP pair over small distances.



VSR, AUDIO-IN	DESCRIPTION
1	GND – 0V, power supply ground
2	AUDIO SIGNAL – audio signal input
3	SYNTHESIZER TRIGGER - 5V during the alarm, voice message (period 20s)
4	not used
5	+ 12V – voice synthesizer or audio module power supply

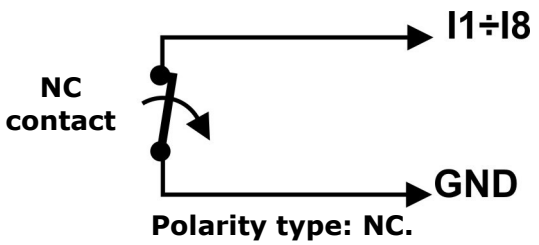
4.3. DEVICE CONNECTION TO INPUTS

MGSM $^{4.0/4.0\text{-}PS}$x can operate with many types of input polarities. It can operate with any of the following:

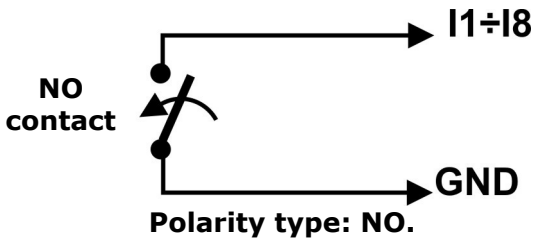
- detectors with outputs: NC (normally closed), NO (normally open),
- alarm outputs: relay (RELAY zero potential contacts)
- open collector (OC, BELL – negative power supply controlled)
- high current (positive power supply controlled +12V)

TYPE / POLARITY / INPUTS	NC	NO	EOL	2EOL/NC	2EOL/NO
I1÷I6	√	√	√	√	√
I7, I8	√ (GND or +12V)	√ (GND or +12V)	X	X	X

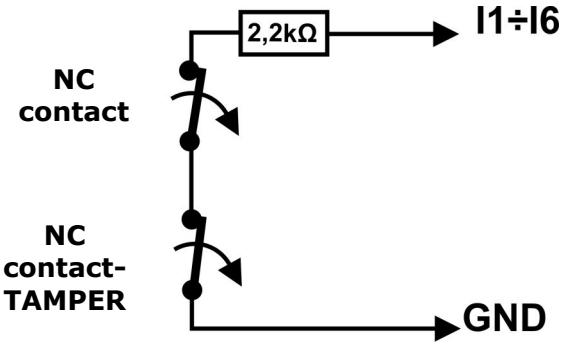
√ - Ix input operates with given type of polarity
X - Ix input does not operate with given type of polarity



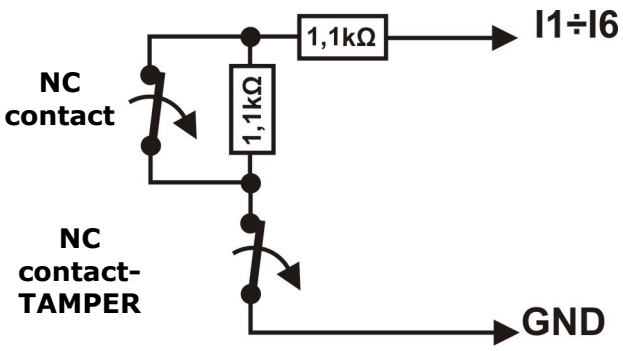
Polarity type: NC.



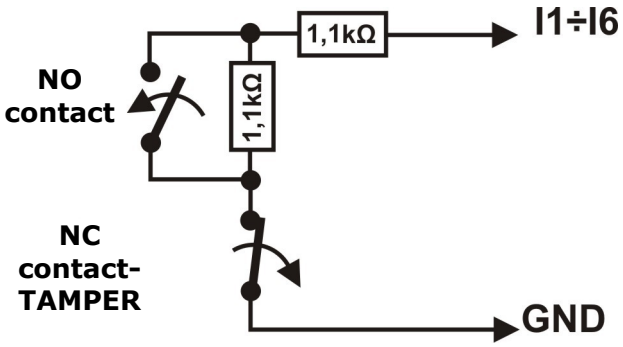
Polarity type: NO.



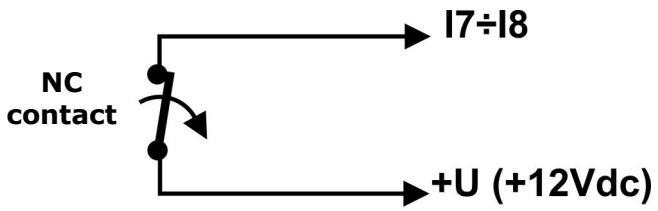
Polarity type: EOL (with a TAMPER contact).



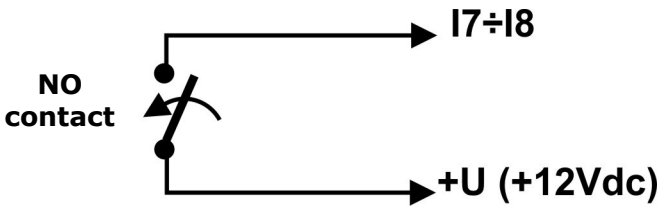
Polarity type: 2EOL/NC (with a TAMPER contact).



Polarity type: 2EOL/NO (with a TAMPER contact).



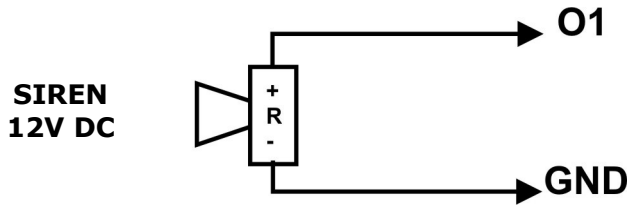
Polarity type (only I7, I8): NO
trigger by +12V,
(the jumper JI7 or JI8 is't installed)



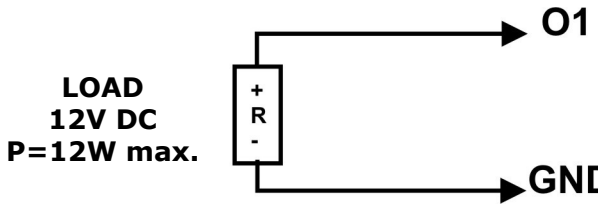
Polarity type (only I7, I8): NC
trigger by +12V,
(the jumper JI7 or JI8 is't installed)

4.4. DEVICE CONNECTION TO OUTPUT.

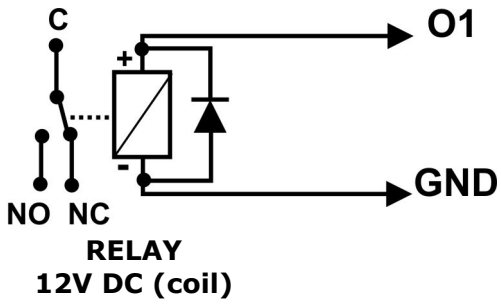
The MGSM 4.0/4.0-PS module has outputs for control and signalling the operation status.
- O1: in the active state can connect (NO) or disconnect (NC) the +12V power supply (transistor output controlling the power supply "+" with an electronic fuse triggered at 1A)



Output O1: connecting a siren 12VDC/1A max.
(acoustical and/or optical signaling).

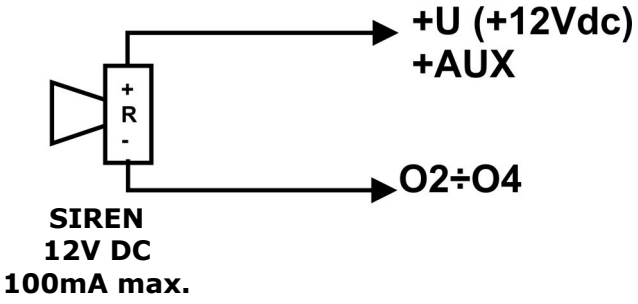


Output O1: connecting a load 12VDC/1A max.

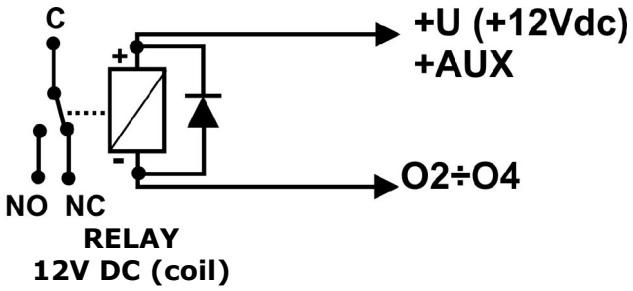


Output O1: connecting a relay 12VDC (coil).

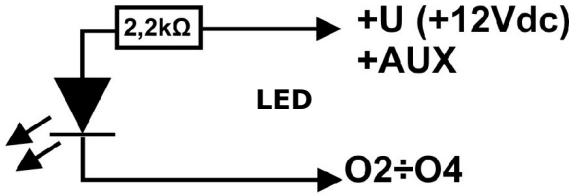
- **O2, O3, O4** in the active state can connect (NO) or disconnect (NC) the 0V power supply (GND), the open collector (OC) transistor outputs, control the ground of the power supply, 100mA max.



Output O2, O3, O4: connecting a siren 12VDC/100mA max.
(acoustical and/or optical signaling).

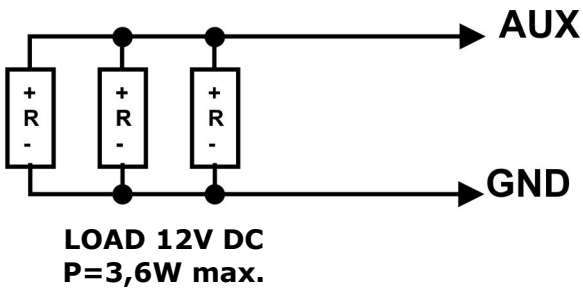


Output O2, O3, O4: connecting a relay 12VDC (coil)



Output O2, O3, O4: connecting a LED (+12V=AUX)

- **AUX** power supply output for auxillary equipment: 12V, 300mA max. The output has short circuit protected by PTC fuse (resettable). If the AUX output is loaded by current exceeding 300mA-600 mA the automatic isolation of output voltage. Then the load shall be disconnected from the AUX output for about 1 min.



- **Output AUX: connecting a load 12V DC (e.g. detectors, code lock, LED)**

Remarks:

- **The maximum 02, 03, 04 outputs current is 100 mA (R min. = 140 Ohm at 13.8V DC).**

5. PROGRAM „PARTNER GSM”

The PARTNER GSM software is intended for operation on PC class computers running under the WINDOWS 9X/Me/2000/XP/VISTA operating system. Communication between PARTNER GSM and MGSM 4.0/4.0-PS is accomplished via: the RS232 port or the USB (1.1, 2.0) port utilizing communication cables with a built in RS-232-RS232-TTL or a USB-RS232-TTL converter. Dedicated RS232-MGSM or USB-MGSM cables are recommended.

5.1. SOFTWARE DESCRIPTION

The software supports a graphical and text menu. Forbidden operations or functions for a given type of device are displayed as inactive (grey icons and text). Communication functions are active only after the correct configuration of the RS 232 port (COM) and initiation of communication with the module.

FILE
> NEW - configuring the MGSM xxx module in the offline mode
> READ – opening the configuration file from the computer disc (*rpm)
> WRITE – writing the present configuration to the computer disc
> **EXIT** – exiting the PARTNER GSM software

MODULE
> OPEN/CLOSE COM PORT – open or close the RS 232 port marked in the COM bookmark
> READ F4 – read the module configuration (communication active)
> WRITE F5 – write configuration to module (communication active)
> IN-4 INPUT MODULE ADD/DELETE –adds /deletes the module IN-4 configuration bookmark in the off-line mode
> **POWER SUPPLY PSR-RF ADD/REMOVE** - adds/removes the PSR/PSR-RF power supply module configuration bookmark in off-line mode

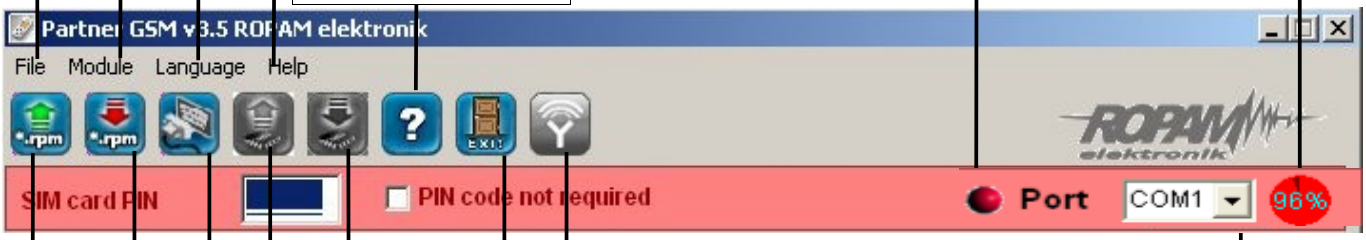
LANGUAGE
> choice of language: e.g. english

HELP
> HELP – open help file
> HOME PAGE – opens page www.ropam.eu

PROGRAMMING/FLASHING PROGRESS MARKER

HELP – open help file

ACTIVE COMMUNNICATION MARKER



CHOICE OF COM PORT NUMBER (RS 232)

MODEM CONNECTION (CSD) – start/stop remote configuration via modem connection.

EXIT – exit PARTNER GSM software

WRITE F5 - write module configuration (communication active)
- communication active (red color)
- communication not active (grey color)

READ F4 - read module configuration (communication active)
- communication active (red color)
- communication not active (grey color)

OPEN/CLOSE COM PORT – RS 232 port marked in the COM bookmark
- COM CLOSED (not active), - COM OPEN (active)

WRITE – write current configuration to computer HDD (local)

READ – open file with configuration from computer HDD, CD etc. (*rpm file)

5.2. "PARTNER GSM" COMMUNNICATION WITH THE MGSM 4.0/4.0-PS

5.2.2 LOCAL CONFIGURATION VIA RS 232TTL (PC: RS232, USB)

The MGSM 4.0/4.0-PS module is configured via the RS 232 TTL interface. To enter the configuration process, the following actions should be performed:

1. Switch off the module power supply.
2. Connect the communication cable to the RS 232 connector on the module board.
3. Connect the cable to the service computer port (options: RS 232 or USB).
4. Start the service computer and the PARTNER GSM software.
5. Switch on the module power supply.
6. In the PARTNER GSM software:
   - **Enter the PASSWORD in the COMMUNICATION OPTIONS (factory password: 123B);**
   - Select the COM port number and open it; the state of "waiting to be connected with the module" is signalled by a message in the footnote: WAITING FOR MODULE RESPONSE.
7. Press the PR switch (ca. 1 second), yellow SEND diode flashes.
8. The module communication should be initiated – the communication options should become visible. Furthermore, the functioning communication is signalled by the flashing „light" next to the port number 

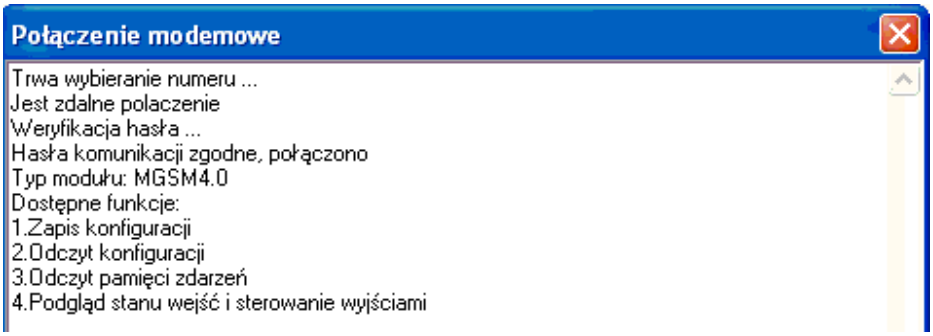
and the COMMUNICATION ESTABLISHED message is displayed in the PARTNER GSM software footnote, together with the device type, modem and module firmware version number.
9. Configure the module, perform (ON-LINE) tests etc.
   During the read/write etc. this is signalled with an appropriate message in the program footnote by a fractional indicator. 

10. To end the communication, press the PR switch (the yellow SEND LED will flash 4-5 times).
11. Disconnect the cable from the RS 232TTL connector.
12. Perform tests and user training.

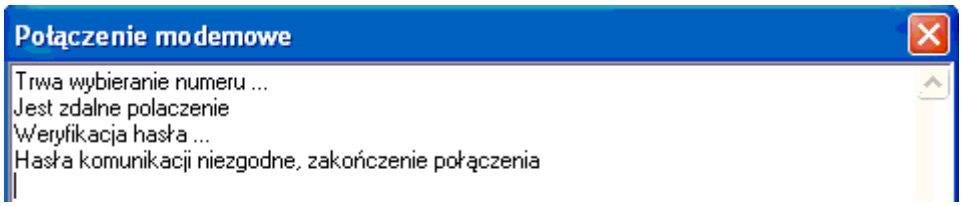
5.2.2 REMOTE CONFIGURATION VIA MODEM CONNECTION (CSD)

In the local connection mode for MGSM 4.0/4.0-PS module (via RS232 – see: Local Configuration), it is possible to establish a modem connection with another module. In **order to establish a modem connection, follow these steps:**

1. Enter **the PASSWORD in the COMMUNICATION OPTIONS (factory password: 123B) The password must be identical to the password in the MGSM 4.0 /4.0-PS remote module and the MODEM ACCESS option must be programmed.**
2. Click the MODEM CONNECTION icon. 
3. The correct list of modem connection sessions will be confirmed by an appropriate message.



4. Incorrect connection, communication password discrepancy, lack of modem access will be confirmed by an appropriate message.



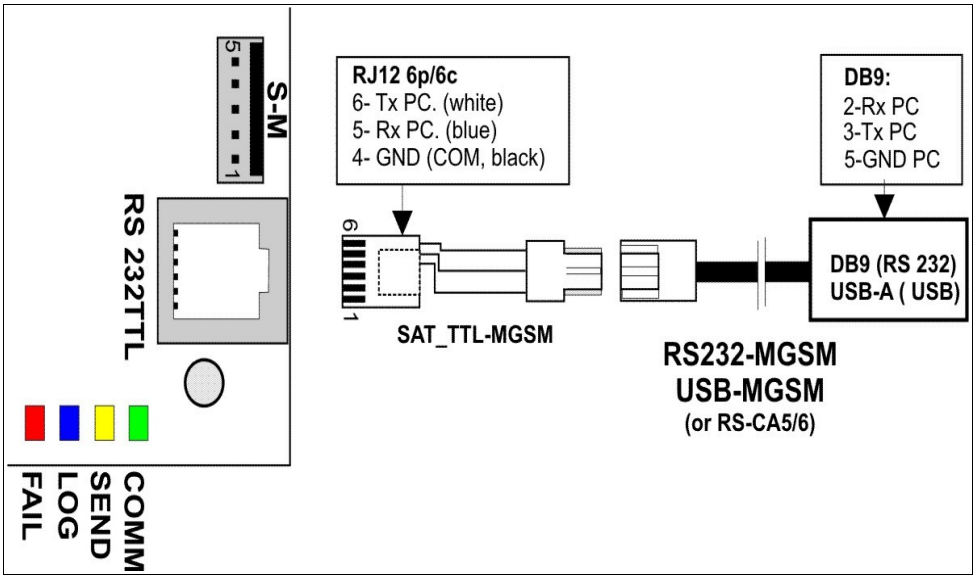
5. While in modem connection, the following functions are available:
6. SAVE CONFIGURATION
   READ CONFIGURATION
   EVENT MEMORY READOUT
7. ONLINE MODE – MONITORING OF STATUS AND OUTPUT CONTROL (around 1-2s delay).
8. Press the MODEM CONNECTION icon to end communication.

REMARKS:

In the event that the modem connection is interrupted while changing the configuration, the module will be automatically restored, based on the backup copy. The configuration back-up copy is made automatically after each correct configuration change (confirmation of the CRC checksum).

5.3. COMMUNNICATIONS CABLES: RS232-MGSM, USB-MGSM.

Connection diagram of the RS232-MGSM or the USB-MGSM cable to the MGSM 4.0/4.0-PS module. The SAT_TTL-MGSM cross-over is delivered together with the cable. After disconnecting it, the cable can be used for programming other devices with an RS232TTL interface (equivalent to RS-CA5/CA6). The RS232-MGSM cable should be used to connect with the PLC controller if the SMS received from the RS232 sending function is utilized.



6. FUNCTIONAL DESCRIPTION

Functions' descriptions and configuration method are explained in the windows and by messages in the PARTNER GSM software.

Remarks:

The constantly updated software and newly implemented new functions can be downloaded using the PARTNER GSM software. The most recent version of the software can be downloaded from www.ropam.eu or directly in PARTNER GSM s oftware using the UPDATE option.

6.1. SIM CARD PIN (accessible in all bookmarks)

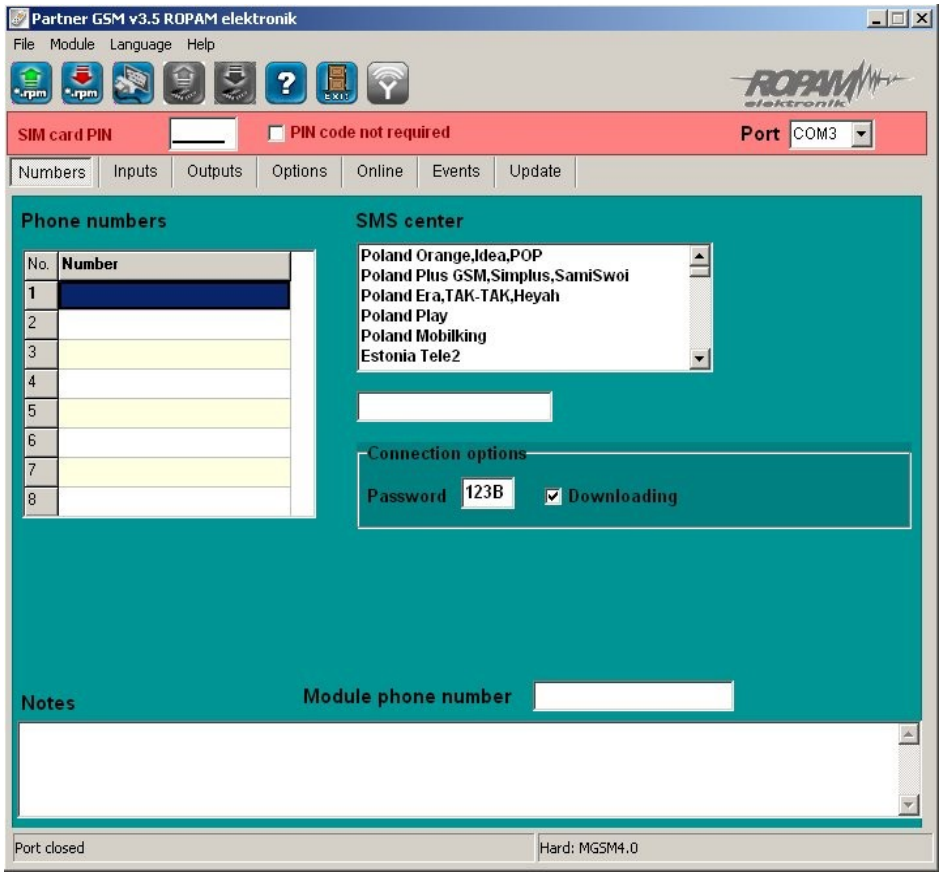
The SIM card PIN installed in the telephone should be entered in this field. When using a card without a PIN code, the "PIN code not required" option should be marked.

Remarks:

- **the default setting is: „PIN code not required". The SIM card can be installed and the module commissioned without concern about blocking the SIM card by entering the wrong PIN from module.**
- **function „PIN code not required " is not disable PIN code request for SIM card. If you would using this function, you must using a mobile phone to changes security option on SIM card.**

6.2. NUMBERS

Telephone numbers, SMS center numbers, module SIM card PIN number and an installation note can be entered in this bookmark.



Remarks:

module telephone number and the note are not entered into the module memory but into a file on the local PC computer.

6.2.1 PHONE NUMBERS

The MGSM 4.0/4.0-PS module can signal four telephone numbers. The numbers should be enteredusing the international format.

e.g. mobile number: +48555666777, fixed phone number: +48125556677

6.2.2 SMS CENTER

The SMS center number should be chosen from the operators list bookmark (the number will be displayed automatically) or the field edited manually. The number should be entered using the international format.

Remarks:

- **The SMS CENTER is the SMS center number of the of the module SIM card telephone GSM operator.**
- **when number is wrong or missing, SMS sending will be blocked!**

6.2.3 OBJECT TELEPHONE NUMBER

This is the number of the SIM card in the module telephone. This field is not recorded in the module, but only serves as an information note. The number is recorded in the configuration file in the service computer. (see. 5.2.2 REMOTE CONFIGURATION VIA MODEM CONNECTION)

6.2.4 COMMUNICATION OPTIONS

PASSWORD – it must be composed of four characters. The combination of digits and letters is permitted. (Characters in the password are case-sensitive).
The password is used to secure the communication with a PC: via local and modem connection.

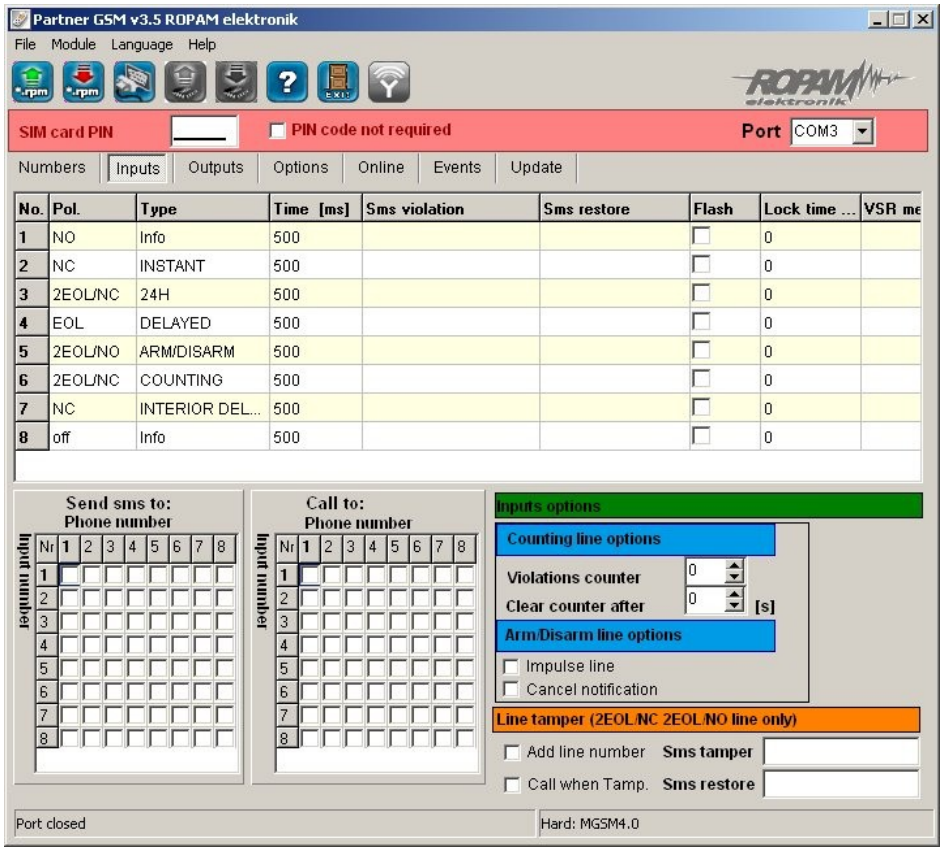
MODEM ACCESS – marking this option enables establishing a modem connection with a remote PC+MGSM 4.0.

6.2.5 NOTES

This field is not recorded in the module, but only serves as an information note. It is recorded only in the configuration file on the service computer.

6.3 INPUTS

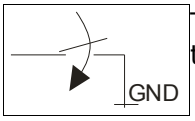
Input configuration, module reactions to violations and restore to normal state can be set in this bookmark. The module has eight inputs on the main board.



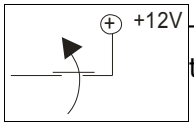
6.3.1 MGSM INPUTS

- **POLARITY:**
  The inputs of MGSM 4.0/4.0-PS can operate with many types polarities:
  I1-I6: NO, NC, EOL, 2EOL/NO, 2EOL/NC, OFF
  I7-I8: NO, NC trigger by (0V) or (+VDC)

  - **NO –** denotes the GND level triggered signal (0V DC) NORMALLY OPEN state input. The **I7, I8** inputs can be triggered by GND (0V DC) or "plus" (+V_{DC}), depending on the **JI7** and **JI8** settings.



The input in the NORMALLY OPEN state is triggered by the GND (0V) signal.

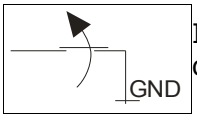


The input in the NORMALLY OPEN state is triggered by the "plus" (+U) signal.

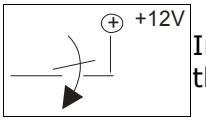
JI7 is by default (ON)/ **NO** in the software	**I7** in the NORMALLY OPEN state, is triggered by the (short circuit) GND signal.
JI7 is (OFF)/ **NO** in the software	**I7** in the NORMALLY OPEN state, is triggered by the disconnecting"plus" signal

JI8 is by default (ON)/ **NO** in the software	**I8** in the NORMALLY OPEN state, is triggered by the (short circuit) GND signal.
JI8 is (OFF)/ **NO** in the software	**I8** in the NORMALLY OPEN state, is triggered by the disconnecting"plus" signal

- **NC –** denotes the input NORMALLY CLOSED state , triggered by disconnecting „mass" (0V DC).
  The **I7, I8** inputs can be triggered by GND (0V DC) or "plus" (+V_{DC}), depending on the **JI7** and **JI8** settings.



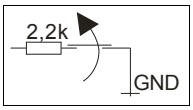
Input in the NORMALLY CLOSED state, triggered by disconnecting "mass".



Input in the NORMALLY CLOSED state, triggered by the (short circuit) "plus" (+U) signal.

JI7 is by default (ON)/ **NC** in the software	**I7** in the NORMALLY CLOSED state, triggered by disconnecting "mass".
JI7 is (OFF)/ **NC** in the software	**I7** in the NORMALLY CLOSED state, is triggered by the (short circuit) "plus" signal.
JI8 is by default (ON)/ **NC** in the software	**I7** in the NORMALLY CLOSED state, triggered by disconnecting "mass".
JI8 is (OFF)/ **NC** in the software	**I7** in the NORMALLY CLOSED state, is triggered by the (short circuit) "plus" signal.

- **EOL –** denotes the input in the PARAMETRIC state (one parametric resistor), triggered by **disconnecting the parametric resistor 2.2 kΩ which must be connected between the input and the system mass.**



The input in the PARAMETRIC state is triggered by disconnecting the parametric 2.2 kΩ resistor.

- **2EOL/NO** – denotes an input in the configuration: two-parametric, NORMALLY OPEN sensor; the sensor's circuit is closed with two 1.1 kΩ resistors. 2 EOL inputs enable the control panel a simultaneous monitoring of sensor status and its sabotage contact.

- **2EOL/NC** – denotes an input in the configuration: two-parametric, NORMALLY CLOSED sensor; the sensor's circuit is closed with two 1.1 kΩ resistors. 2 EOL inputs enable the control panel a simultaneous monitoring of sensor status and its sabotage contact.

- **OFF –** switches the input off independently of other input settings

Remarks:

- **inputs I1-I8 can be triggered directly by low current OC outputs**
- **inputs: I7, I8 can be triggered by positive high current outputs**

- **TYPE:**
  - **INFO**- data on input does not trigger the alarm function, but initiates SMS sending and the call queuing process.
  - **24h-** module enters the alarm state, sends SMS messages and makes calls, independently of whether it is in the standby mode or not.
  - **INSTANT -** the line initiates the alarm, **SMS messages and calling when the module is in the armed mode.**
  - **ARM/DISARM- s**witching ARM/DISARM line, violation switches standby mode on, end of violation switches it off. Line can operate also in the pulse mode ("pulsed line" option on) as follows: first violation arms the module, the second violation disarms it and so on alternately. The ARM/DISARM line can switch the SMS and voice signalling off when the option SIGNALLING OFF is marked (signalling will be terminated when the module is disarmed, independently of the signalling function progress!).
  - **DELAYED -** line triggers the alarm, SMS messaging and calling after time for entry has elapsed, only when the module is disarmed. The time for entry can be set in the OPTIONS bookmark.
  - **INTERIOR DELAYED** - the line triggers the alarm, text messaging (SMS) and calling after the time for entry has expired and the armed mode has not been switched off, if the DELAYED entry has been violated in the first place. Otherwise, it operates as a NORMAL entry.
    The time for entry can be set in the OPTIONS tab.
  - **COUNTING** – violation of this type of line will result in the incrementation of the violation counter and when it reaches it's value, this will initiate the alarm procedures. The line is active in the module standby mode (exactly like the NORMAL) and the violation counter is reset after a certain time measured from the last violation.

e.g. for values as on the diagram, to initiate the alarm from the counter line, it should be violated 2 times at intervals not exceeding 60 seconds.

- **REACTION TIME**
  This parameter determines the time in ms (1s=1000ms), during which the input must be violated, for it's change of state to be detected. For each input, the reaction time can be set independently (500 ms by default)

- **FLASH**
  Determines whether the sent SMS message is to be displayed directly on the telephone screen (flash), or whether it should be read from the "received mail" box. Selecting the option configures the input SMS type for the "violation" and "entry restore"

Remarks:

- **it should be remembered that FLASH type SMS messages can be very easily overlooked, because they are not recorded in the telephone (they disappear from the telephone screen when there is an incoming call)**
- **the FLASH option may not be available when sending SMS messages to a different operator than the one whose card is in the module (this does not depend on the settings but is a result of the limitations imposed by the operators!).**

- **BLOCK FOR**
  The time of blocking the input (response) after the first violation. This option is active for the following TYPES of entry: INFO, NORMAL, DELAYED, INTERNAL DELAYED, 24H. The time of blocking can be set separately for each entry (the default setting is 0s). Min/max time = 1/360min (this option is used for limiting the number of messages and when using the MGSM 4.0/4.0-PS as an alarm control panel; it enables the actual control of the armed mode through the SMS messages).

- **VSR**
  This column enables configuring of the content of voice messages, in cooperation with the VSR-2 Voice Synthesiser.

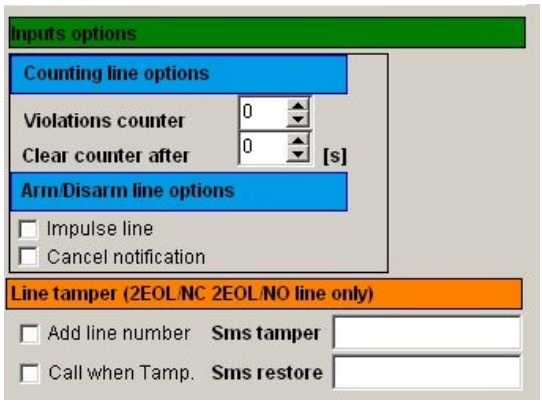
Enter the characters corresponding to the numbers of registered voice messages and/or object sound detectors:
- Messages: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F
(message maximum time: 0-7 = 16s; 8-F = 8s.)
- Audio module (microphone): m

It is possible to sum the content of message by entering a number of characters (no more than 5), separated by a comma. The messages will be presented in a sequence, according to the entry in the "m" tab. Each entry can be configured separately.

e.g. The sequence: 0,1,3,A
will make the messages appear in "0, 1, 3, A" sequence, as one content.

e.g. The sequence: 0,1,3,5,m
will make the messages appear in "0,1,3,5" sequence and activate the object sound (until the voice connection is terminated by the user or the time of calling has expired).

- **INPUT OPTIONS**



- OPTIONS FOR THE COUNTER-TYPE LINE
It configures the COUNTER-type input: the number of violations and time of resetting the violation counter (s).

- OPTIONS FOR ARM/DISARM-TYPE LINE
Marking the IMPULSE LINE enables the controlling of the armed mode as a "switch":
the first violation activates the armed mode, while the second violation deactivates it, etc.
(No marking = controlling the armed mode as a "switch"; violation of the entry: activates the armed mode and the entry returns to its normal status: armed mode is deactivated).

Marking the option DELETE MESSAGE results in terminating the SMS and VOICE messages when the armed mode/alarm is switched off, regardless of the progress of the acknowledgement action!

- LINE TAMPER
The SMS message content relating to the sabotaging of 2EOL/NO and 2EOL/NC inputs is entered in this tab.
Marking the ADD LINE NUMBER option results in adding an input number to the SMS message content, for example: TAMPER I1, END OF TAMPER I1.

Marking the CALL WHEN TAMPER option causes the activation of the voice message action, according to the marked telephone numbers and message content (selected messages).

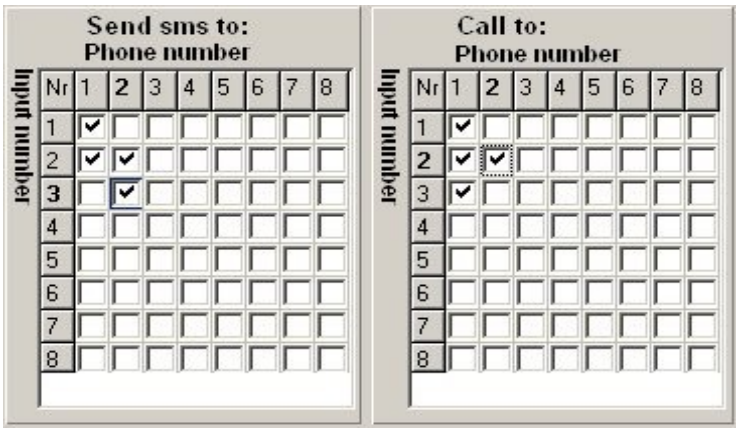
6.3.2 SMS CONTENT: SMS VIOLATION / SMS RETURN

The content of the SMS message sent after an event has occurred is entered in this tab. It is possible to send independent SMS messages upon violation and entry return. The maximum

length of the SMS message is 20 characters. Do not use special characters (for example: letters of the Polish alphabet).

6.3.3 SEND SMS TO / CALL:

This tab enables the flexible determination of the telephone numbers to which an SMS message and/or voice message is to be sent. Mark the cursor at the intersection of the input number and telephone number in the SEND SMS TO and CALL tabs.

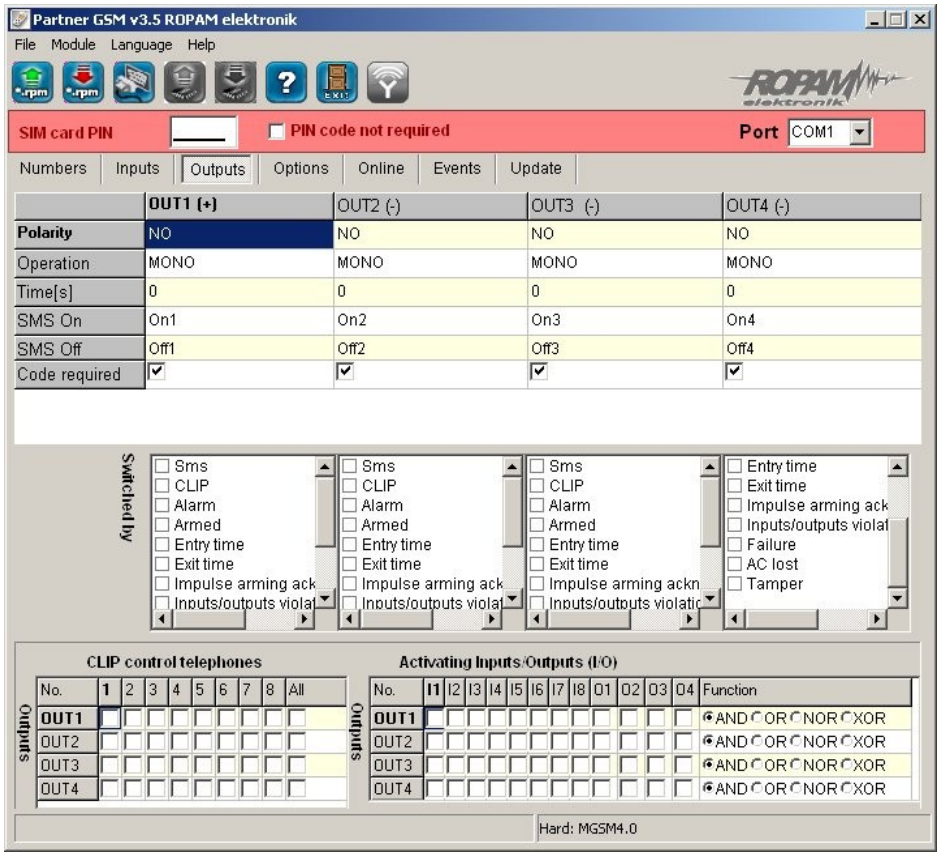


For example, a sample configuration can be:
- Violation and/or return of I1 will result in: sending an SMS message and activating a voice connection with telephone number 1.
- Violation and/or return of I2 will result in: sending an SMS message and activating a voice connection with telephone numbers 1 and 2.
- Violation and/or return of I3 will result in: sending an SMS message to telephone number 2 and activating a voice connection with telephone number 1.

6.4 OUTPUTS

The module outputs configuration is performed in this bookmark. Output control can be performed via SMS messages, CLIP (short telephone connections, so-called "ring"), events in the system e.g. ALARM, ogical functions: AND, OR, NOR, XOR etc. The module main board contains the following:

- **one high current input O1, electronically protected against overload**
- **three low current OC outputs O2, O3, O4**



6.4.1 OUTPUTS - OPTIONS

- **POLARITY**
  Choice of configuration in normal mode:
  - open NO or shorted NC to the module „plus": **O1** output,
  - open NO or shorted NC to the module „mass": outputs **O2, O3, O4**

- **OPERATION**

  MONO - output changes the normal mode after the event marked in the "Switched on by" field for a duration of time specified in the "Time [s]" field, and after it elapses restores to normal mode
  BI - output changes the normal mode after the event marked in the "Switched on by" field to the opposite mode and remains in it until the next event.

- **TIME [s]**
  Determines operation time [s] in the output MONO mode, where the maximum time duration is 9000 seconds.

- **SMS ON**
  Enter the SMS message content in the tab. The content will cause the activation of the given output (On X by default, where X = output number). The maximum length of the SMS message is 20 characters. Do not use special characters (for example: letters of the local alphabet).

- **SMS OFF**
  Enter the SMS message content in the tab. The content will cause deactivation of the given output (OffX by default, where X = output number). The maximum length of the SMS message is 20 characters. Do not use special characters (for example: letters of the local alphabet).

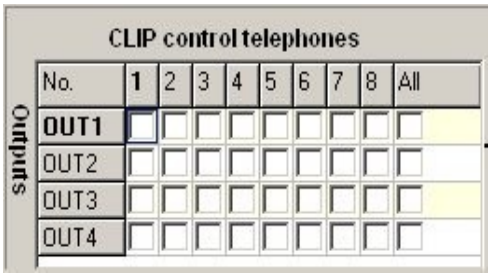
- **CODE REQUIRED**
  Marking this option, in order to control a particular output with SMS messages, will require providing an ACCESS CODE (OPTIONS tab) in the SMS message content, as an addition to the SMS ON/SMS OFF content.

- **SWITCHING VIA**

  - **SMS,** output control via SMS (command + code) is permitted when option is marked
  - **CLIP**, output control by making a short connection with the module telephone number. The function is accessible when control is enabled by selected numbers entered in the "Telephone numbers" fields in the "Numbers authorized to control CLIP" panel, or by entering any number. In addition, the module reaction to incoming calls can be defined by using the "Incoming calls" option
  - **ALARM** output is active when alarm is triggered. (def. normal input)
  - **ARMED** output active (indicator) armed when module counter has finished countdown time to exit. When this option is active, the settings in the "**TIME [s]**" field are ignored.
  - **ENTRY TIME**, output is active during module entry countdown time (def. ARM/DISARM input, delayed)
  - **EXIT TIME** output active during module exit countdown time
  - **IMPULSE ARMING ACKNOWLEDGEMENT** option activates ARM/DISARM module standby time acknowledgement. Function available only for O1 output.
    Signalling: 1 short signal – standby on, 2 short signals: standby off.
  - **INPUT/OUTPUT VIOLATION** – the output is active when the input is violated or output activated. The mask for the inputs/outputs, which activate a particular output, can be configured in the ACTIVATING INPUTS/OUTPUTS.
  - **FAILURE** – the output is activated after a failure has occurred.
  - **NO AC** – the output is activated after a decay in the AC supply has occurred (MGSM 4.0-PS only), the time of delay for signalling "no AC supply" (5s – 1,000 min) is configured in the OPTIONS tab.
  - **TAMPER** – the output is activated when the 2EOL/NC or 2EOL/NO line have been sabotaged.

6.4.2 CLIP CONTROL TELEPHONES

Marking this option authorises the telephone numbers entered in the NUMBERS tab to control the output with the ACTIVATE VIA CLIP option marked. Selecting this option makes EVERY module control the output when connecting via any telephone number.

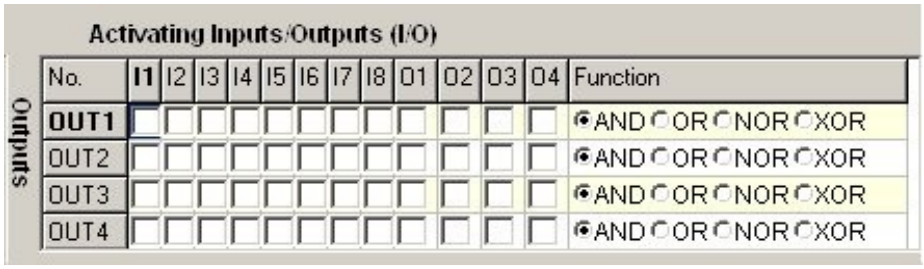


Remarks:

- **it should be remembered, that the number via which we want to control the output can not be "unlisted".**
- **if the numbers 1-8 remain unmarked or the ALL (ANY) option is chosen, the module rejects calls from these numbers**

6.4.3 ACTIVATING INPUTS/OUTPUTS

This tab is used to configure the mask of inputs/outputs for the output with the INPUT/OUTPUT VIOLATION option selected.



The module enables controlling the given output using the selected inputs/outputs and one of four logical functions:

- **Logical function 'and'** (AND, $Y = AB$, where Y = output, A/B = input/output).
  It is a logic circuit which has the following functions: Signal value "1" is present at the output, only if both input signals have the logical value "1".

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

- **Logical function 'or'** (OR, $Y = A + B$, where Y = output, A/B = input/output).
  It is a logical sum circuit which generates the signal value "1" at the output, if at least one of the signals has the same value. It means that "0" appears only when both signals have "0" value.

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

- **Logical function 'nor'** (NOR, $Y = \overline{A + B}$, where Y = output, A/B = input/output).
  It is a logic circuit which has the signal value "1" at the output only when all signals are "0".

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

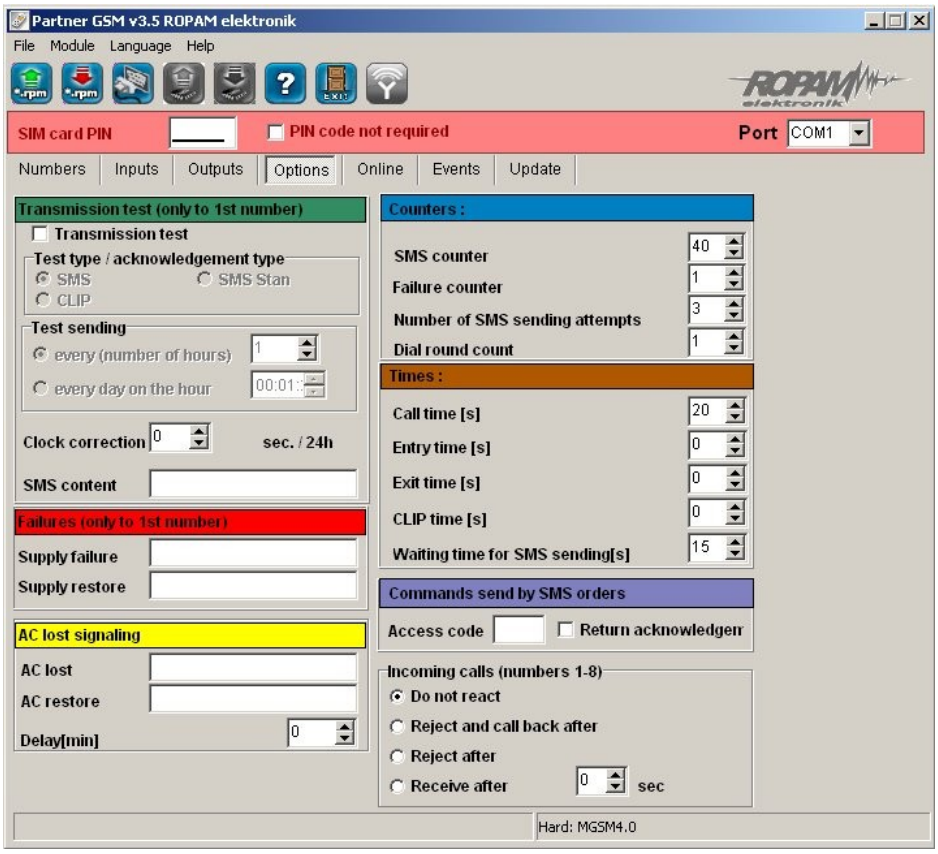
- **Logical function 'xor' (**XOR, $Y = A \oplus B$, where Y = output, A/B = input/output).
  It is a logic circuit which has the signal value "1" at the output only when one of the input signals is "1". In the event that signals equal "0" or more than one signal is "1", then the signal at the output equals "0".

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

6.5 OPTIONS

Options permit configuration of:

- **the transmission test**
- **power supply control**
- **counters limiting quantity and signalling duration times (costs)**
- **time duration of: connections, input delays, CLIP, waiting for SMS message sending**
- **access codes to chosen security code protected functions**

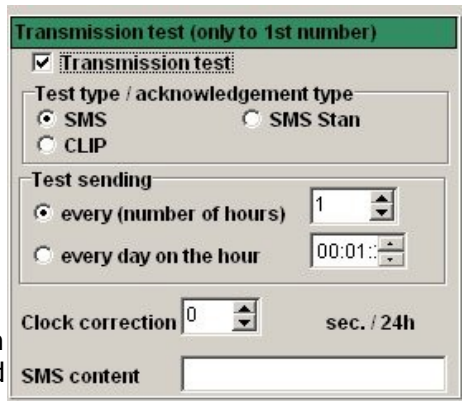


6.5.1 TRANSMISSION TEST

Option enables determination of testing method of the module connection with the GSM network. To activate the options, mark TRANSMISSION TEST.

Remarks:

- **The transmission test is sent only to the first telephone number (entered in the NUMBERS bookmark)**



- **TEST TYPE /ACKNOWLEDGEMENT TYPE** – option permits choice of test type: SMS, CLIP or SMS STAN (see. Command **STATUS)**
- **TEST SENDING** – option permits choice of: cycle point or hour of test sending.
  - **EVERY HOW MANY HOURS** – determines the repeating cycle of test sending - in hours. The cycle countdown begins from the module restart. Transmission cycle countdown reset with immediate testing (CLIP or SMS) is possible. To perform reset, send a **RESETTEST** SMS, to which the module will reply with a transmission test and the next test will be performed after a set number of hours.

e.g. Reset transmission cycle SMS:
xxxx RESETTEST, where xxxx – access code (e.g. adam)

- **EVERYDAY ON THE HOUR** – determines the hour of test performance
This option requires the module clock to be set via the PARTNER GSM software or remotely using the TIME SMS.

Remarks:

- **after cutting off the power supply, the module clock is reset to 2000.01.01, 00:00 hours 00.00**
- **the module restart is permitted using an SMS RESTART message. This command is not acknowledged with a restore message.**

e.g. The module restarting SMS:
xxxx RESTART, where xxxx – access code (e.g. adam)

- **CLOCK CORRECTION** – if the internal module clock reading differs from the real value, the daily average should be computed and set in the bookmark. This function permits +/- 120 seconds time compensation per day. The clock correction can be also performed using the CORRECTION SMS.

e.g. the clock correction SMS:
xxxx CORRECTION zyyy, where xxxx – access code (e.g. adam), z – correction character (+ or -), yyy – correction value in seconds
(example: adam CORRECTION –10 = 10 seconds per 24 hours delay)

- ***SMS CONTENT*** *SMS content to be sent as test information ("GSM module OK" by default) should be entered in the bookmar.*

Remarks:

- **the maximum number of characters 20, do not enter national characters**
- **the module can be tested via an SMS message by sending the module access code - if it is identical to the one in the module memory, it will reply by sending a test SMS.**

e.g. „test on demand":
xxxx, where xxxx – access code (e.g. Adam) (example: adam = reply: GSM module OK

6.5.2 FAILURES

The module permanently monitors the value of the supply voltage. If the supply voltage, measured at module supply terminals (+12V, GND), falls below the value of 11 VDC (or returns above the value of 11V), such information can be sent via an SMS message.

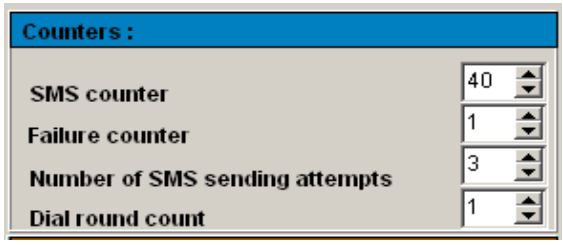
- **SUPPLY FAILURE** - the SMS content signalling a power supply drop below 11V should be entered in the bookmark.
- **SUPPLY RESTORE** - the SMS content signalling a power supply restore above 11V should be entered in the bookmark.
- **NO AC SUPPLY** – enter the SMS message content corresponding to the decay of AC voltage **(MGSM 4.0-PS only)** in the tab. The time of signalisation delay is configured in the DELAY [min] tab (in the 5s – 1,000min range).
- **AC SUPPLY RETURNED** enter the SMS message content that signals the return of AC supply voltage in the tab.

Remarks:

- **The ALARM SMS content is sent only to the first telephone number (entered in the „NUMBERS" bookmark).**
- **Only one information can be entered and a missing SMS implies that no message regarding a given event will be sent.**

6.5.3 COUNTERS

The number of sent SMS messages and the number of telephone calls can be set in this bookmark. Counters may serve to limit costs during failures of input devices (damaged alarm sensor, power supply failure etc.).

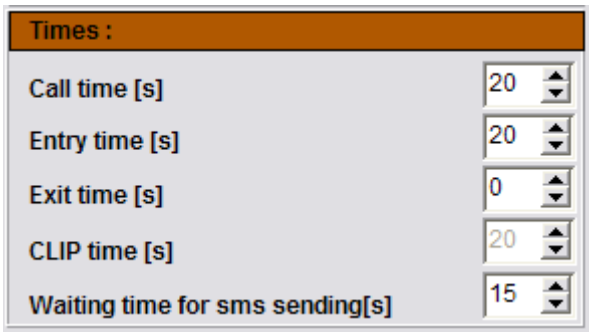


- **SMS COUNTER –** determines the maximum number of sent SMS alarm and information messages during one day.
  Set a number in the range 1-99.
- **FAILURE COUNTER** – determines the maximum number of sent SMS messages containing information about failures (e.g. during the PSR-RF cooperation), during one day.
  Set a number in the range 1-20.
- **THE NUMBER OF SMS SENDING ATTEMPTS** – determines the number of SMS message sending attempts when transmission problems are encountered (e.g. temporary loss of GSM signal level). Set a number in the range 1-10.
- **DIAL ROUND COUNT –** determines the number of telephone connections to each telephone number entered in the NUMBERS bookmark.
  Set a number in the range 1-10.

Remarks:

- **The SMS COUNTER is reset also after execution of the SMS RESETTEST.**
- **The SMS and FALURE counter operate independently i.e. SMS messages regarding failures are not counted by the SMS counter and vice versa.**

6.5.4 TIMES



Telephone connection time, CLIP signal time, waiting time for SMS sending and entry and exit time for ARM/DISARM and DELAYED inputs can be set in this bookmark.

- **CALL TIME [s]** – determines maximum duration of telephone (voice) connection. Time is measured from the moment of call received detection.
  Set the number of seconds in the range 1-64.
- **ENTRY TIME [s]** – determines the maximum entry time counted from the moment of DELAYED type input entry violation. Set the number of seconds in the range 1-600.
- **EXIT TIME [s]** – determines the maximum standby switch on time delay (NORMAL type of inputs) after ARM/DISARM input violation. Set the number of seconds in the range 1-600.
- **CLIP TIME [s]** – determines the maximum waiting for connection time. CLIP time is 3-5 seconds from the call received moment of detection.
  The maximum time for establishment of connection is 20 seconds.
- **WAITING TIME FOR SMS SENDING [s]** – determines module waiting time for correct SMS sending acknowledgement. When no acknowledgement is received in set time, the module will make attempts as many times as set in NUMBER OF SET SMS SEND ATTEMPTS.

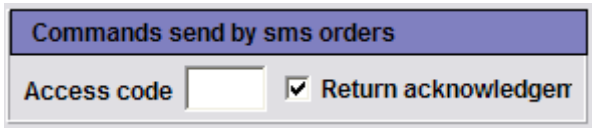
6.5.5 SMS COMMANDS

In this bookmark the ACCESS CODE for the following can be entered:

- module output control
- configuration change of chosen module functions.

The access code must contain four characters. Only alphanumeric characters are allowed.

Marking the RETURN ACKNOWLEDGEMENT option will cause every command sending using the access code, to be acknowledged by a returned SMS confirming a correctly accomplished operation.



Hence a remote change of the ACCESS CODE using an SMS command is possible.

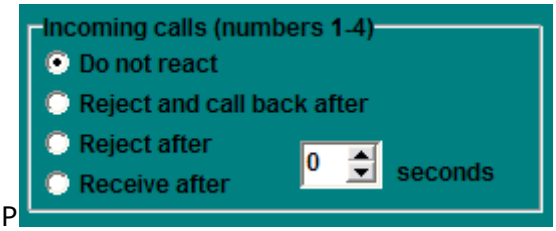
e.g.
xxxx CODE yyyy where: xxxx – present access code (e.g. adam), yyyy – new access code (e.g. 1234)

(example: adam code 1234)

Remarks:

- **capital and small letters are distinguished,**
- **do not enter national characters, missing access code will prevent: output control, „test on demand", change of code function access.**

6.5.6 INCOMING CALLS



This option enables module reaction time setting to incoming calls, which are listed as "Telephone numbers".

- **DO NOT REACT** – module does not take any action
- **REJECT AND CALL BACK AFTER** – incoming call will be rejected after set time [s], and a CLIP will be performed to the calling number.
- **REJECT AFTER** – the incoming call will be rejected after a set time [s].
- **RECEIVE AFTER** – the incoming call will be received after a set time [s]. If a speech synthesizer is connected, the message will be played

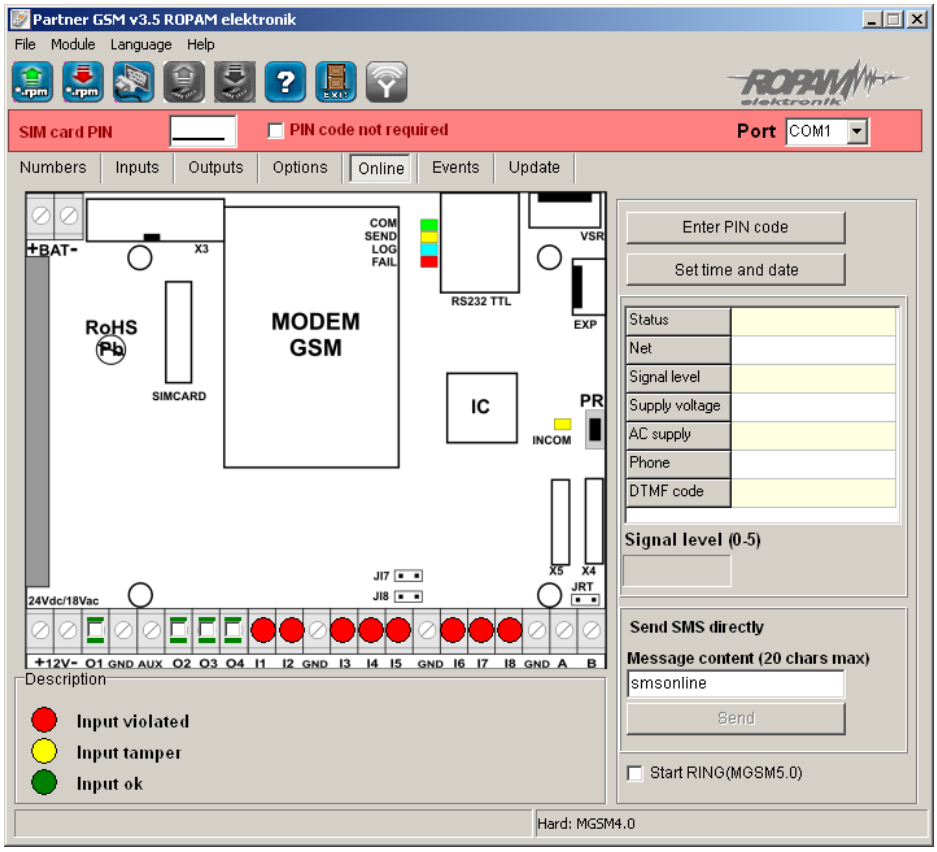
Remarks:

- **the connection time is counted from the first ring detection**
- **incoming calls from other numbers are immediately rejected.**

6.6 ON-LINE

Commissioning and testing configuration bookmark. The following functions are available from the PARTNER GSM software level:

- **monitoring of module inputs status**
- **monitoring of module outputs status (activation)**
- **entering of the module SIM card PIN code**
- **module date and clock synchronization with PC computer**
- **module telephone status monitoring (logged in or not)**
- **monitoring of GSM network signal level status**
- **module power supply voltage**
- **access to control SMS sending option (simulation of test SMS)**



6.6.1 MONITORING OF INPUT STATES

The input states are displayed on round indicators mounted in place of screws securing module connectors. The state of each input is signalled by the color of the indicator:
RED – input violated
GREEN – input not violated
YELLOW- input tampered (sabotaged)

Remarks:

- **ON-LINE monitoring requires an active connection via RS232TTL**

6.6.2 MONITORING OF OUTPUT STATES

The activation of module outputs is possible using this option. An initial test of the signalling device without starting the alarm procedure is possible. To trigger a given output (in accordance with the polarity set in the OUTPUTS bookmark), the white indicator mounted in place of the screws securing the module connector (physically in place of the connector associated with the module output) , should be marked by clicking the mouse button on it. After clicking on it, the „√" character signifying the input activation will be displayed. A second click will mark the indicator and switch the activation off.

6.6.3 ENTER PIN CODE

Pressing ENTER PIN CODE, will cause a PIN code (which is currently displayed in the SIM CARD PIN CODE field) entering command to be sent to the module telephone.
Testing modules containing SIM cards belonging to different operators, without the necessity of configuration changing and it's recording, is possible using this option. The configuration entered in the MGSM module, must have the option PIN CODE NOT REQUIRED marked, to prevent automatic PIN code insertion by the module procedure.

Remarks:

- **all procedures involved in replacing the SIM card, like jumper selection, interface and module connections, should be performed after disconnecting the module power supply and ensuring all available antistatic protection safeguards**

6.6.4 SET TIME AND DATE

Pressing the SET TIME AND DATE FIELD, transfers the time and date form the PC computer to the module. The correct time and date is required for transmission test sending in accordance with the clock and for proper event recoding in the event memory.
The time can be also set using the TIME configuration SMS in the following format:
xxxx TIME year, month, day, hour, minute, where xxxx is the ACCESS CODE

e.g. the clock configuration SMS:
xxxx TIME year, month, hour, minute, where xxxx – ACCESS CODE (e.g. adam)
(example: adam TIME 06, 03, 10, 20, 30 = 2006.03.10; 20.30 hours)

Remarks:

the clock correction can be made in the OPTIONS-CLOCK CORRECTION bookmark

6.6.5 SIn the connection with MGSM mode, the field in the ON-LINE bookmark, contains the following information:

- STATUS informs of the module telephone and SIM card status: network logged in or not
- NET: specifies operator in whose network the telephone module is now logged in
- SIGNAL LEVEL: graphically displays the GSM operator's network signal level in the range 0-5
- SUPPLY VOLTAGE: displays the present supply voltage level on the +12V, GND connectors
- AC SUPPLY: displays the present AC supply voltage (only the MGSM xx-PS)

Remarks:

- **NETWORK allows control of operator, to whose network telephone is logged in, with the roaming option enabled i.e. in the border regions etc.**
- **NETWORK LEVEL below 2 „dashes" is considered too low for correct MGSM module operation and a failure is signalled .**

In this case, either a change in the MGSM module location is necessary or a higher gain antenna should be used.
Before installation and GSM operator choice, it is recommended that a network signal level measurement be performed using a standard cell phone, by placing the phone for ca. 5 minutes at the expected installation place and observing the network level indicator. Attention should be paid to the stability of the reading and the potential weather and time of year influence (e.g. a wooded area with broadleaved trees, has a lower GSM signal damping effect in winter).

- **POWER SUPPLY VOLTAGE indicator enables power supply state monitoring, when the power supply is fully loaded: all outputs switched on (ON-LINE mode), the module engaged in number dialing and signalling (DIRECT SMS SENDING) Lowering of the voltage below 11V DC will be signalled as a failure**

6.6.6 SEND SMS DIRECTLY

The function enables SMS sending directly from the PARTNER GSM software in the ON-LINE mode. The SMS content should be entered in the white field and SEND pressed. The SMS is sent to the first telephone number entered in the NUMBERS bookmark.

Remarks:

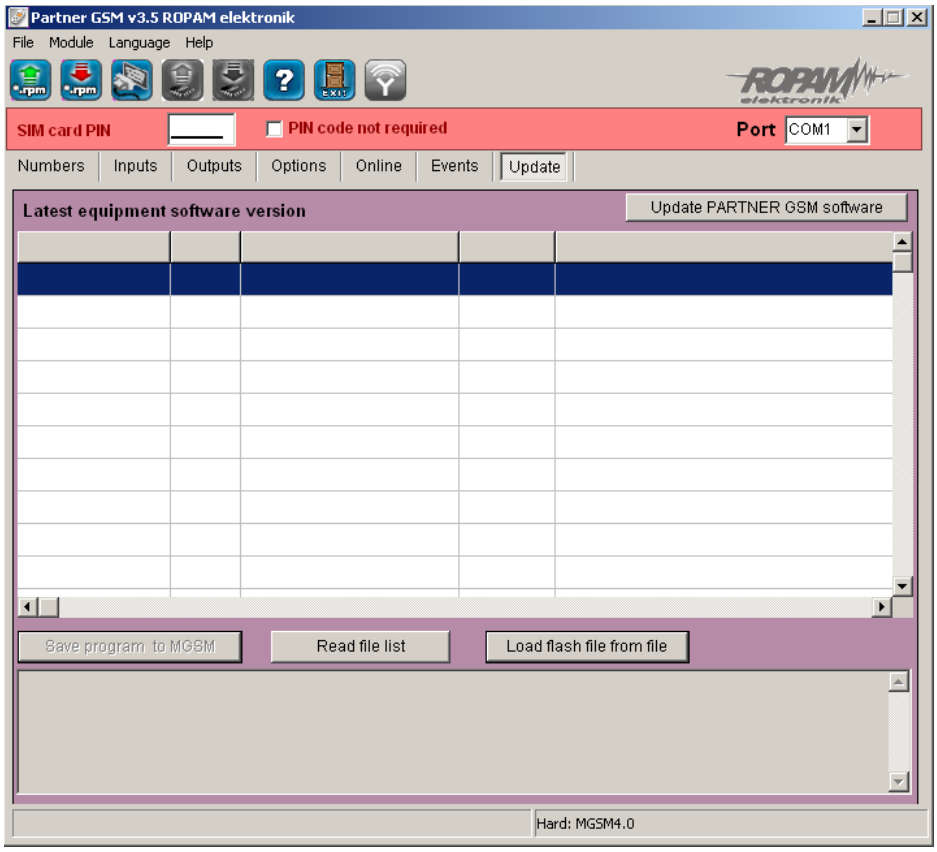
- **the message can not include local characters and may contain maximum 20 alphanumeric characters,**
- **correctness of all SMS messages is tested at the SMS center.**

6.7 UPDATE

The modern solutions deployed in MGSM 4.0/4.0-PS, the processor system with the software in the FLASH memory, permit software updating, often containing new functions. Downloading new FIRMWARE via the module RS232TTL port, is possible without the necessity of uninstalling from the object.

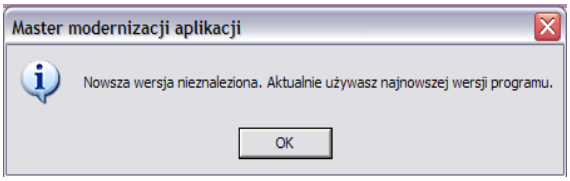
The following operations can be performed in the bookmark:

- **downloading the PARTNER GSM software update from the server,**
- **downloading the file list from the server,**
- **file loading from the local PC (CD),**
- **loading software (firmware) to the module.**



6.7.1 UPDATE 'PARTNER GSM/ SOFTWARE

Pressing the UPDATE PARTNER GSM SOFTWARE field, when in the internet connection mode, will cause a download of the current PARTNER GSM software from the server. After downloading the update, the new version will be installed, and when no newer version is available, this information will be displayed.



Remarks:

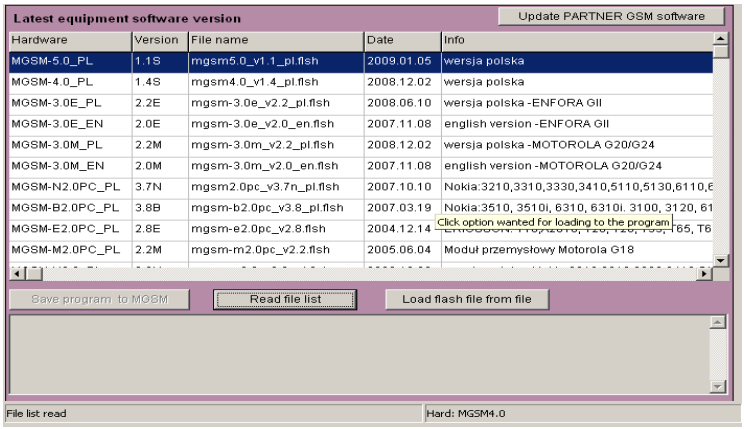
- **the new version of the PARTNER GSM software can be downloaded manually from the www.ropam.eu and installed in the same place as the previous software version.**

6.7.2 UPDATING THE MGSM 4.0/4.0-PS SOFTWARE

When replacing the software (firmware) version:

1. Load the file containing the new firmware version.
This can be performed in two ways:

a. Pressing the IMPORT FILE LIST field in the internet connection mode, will cause a download of the current flash file list (firmware) for all MGSM modules. The file list will be displayed in the dialog window of the PARTNER GSM software. The file appropriate for the hardware configuration (MGSM 4.0/4.0-PSE) should be chosen by clicking it twice. The file will be downloaded and the following information will be displayed:



b. b. Pressing the LOAD FLASH FROM DISC field will activate the file manager window. Point to the required file with update on disc (*flsh) localization, and press OPEN. The file will be loaded and the following information displayed:

np. the file name for MGSM 4.0/4.0-PS version 1.0 will have the form: „mgsm-4.0_v1.0.flsh”

2. Press the SAVE CONFIG TO MGSM switch and observe procedure:
(displayed in the PARTNER GSM software window)

- switch off the module power supply,
- press and hold the PR switch in the module,
- switch on the module power supply,
- keep the switch pressed until the red FAIL LED starts flashing.

The following message will be displayed: FLASH IN PROGRESS – PLEASE WAIT
The firmware in the module microprocessor system will be replaced.

The replacement progress will be shown by the indicator: 

Succesfully terminated operation will be signalled with the message:
FLASH TERMINATED SUCCESFULLY.
PRESS THE PR SWITCH TO RESUME COMMUNICATION.

Remarks:

- **If the WRITE SOFTWARE TO MODULE switch is not active, set the appropriate COM in the** 

bookmark and open the port using the switch  **which will change it’s state to:**  **.**

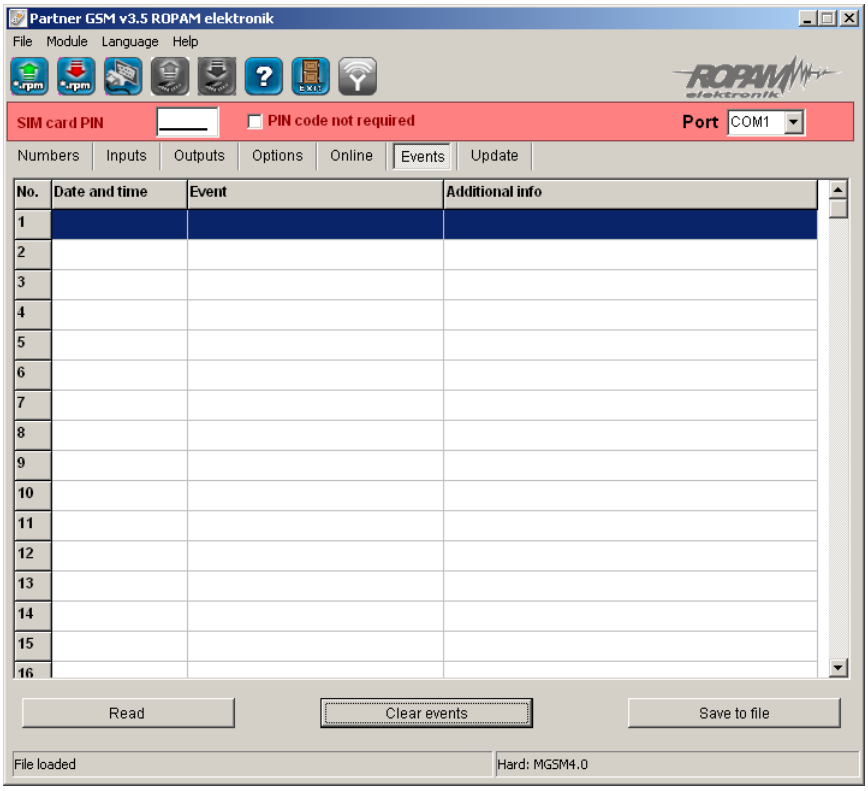
- **During the procedure start the following message may be displayed: Error: BOOT LOADER DID NOT REPLY – REPEAT PROCEDURE. The procedure in point 2 should be repeated, observing the time relations in accordance with the displayed PARTNER GSM messages.**

6.8 EVENTS

The MGSM 4.0/4.0-PSx real time clock enables writing to the module event memory: input entry violations, functions, tests etc. The memory can register up to 90 events taking place recently in such a way, that the oldest information is overwritten successively.

The following operations can be performed in the bookmark:

- **reading of events (when communication active)**
- **delete events from module memory**
- **write to and read from the PC local disc the event list in the .txt format.**



The EVENTS bookmark window is split in three columns:

EVENT DATE AND TIME	ZDARZENIE	**ADDITIONAL INFO**
Format: YEAR.MONTH.DAY HOUR.MINUTE	- line alarm - line restore to normal status - module armed (standby) - module disarmed (standby)/ alarm reset - remote output switch on by SMS - remote output switch off - remote system status polling - transmission clock reset - remote change of signalling telephone number - external diall - transmission test - remote programming - power supply voltage too low - power supply voltage restore - telephone power supply converter failure - low network signal level (< 1 "dash") - network level signal OK - not registered in network - registered in network - problem in sending 3 SMS messages consecutively - setting parity sum error - OUT1 output overload - OUT1 output OK - failed diall - no connection with telephone - restore of telephone connection - etc.	- input number - output number - telephone no.

6.9 POWER SUPPLY PSR-RF

The following modules are dedicated to MGSM 4.0 power supply and control:

- **PSR of the buffered power supply** – enables digital status transmission via SMS (operation/failure), independent 1A output for MGSM-4.0 power supply and 0,3A for other devices, rechargeable batteries max. 1.2 Ah – 7 Ah/12V, power supply event register in the MGSM-4.0E
- **PSR-RF of the buffered power supply with built in two channel radio controller –** range: 50 m-150 m, two channel with relay outputs, extended operation modes, configuration and output status registered in the EEPROM memory (the configuration status is restored to that before the power supply failure, which assures "real" device control, e.g. alarm system controlled by input status), digital transmission control of MGSM-4.0E operation e.g. outputs - ARM/DISARM, standby, assault (PANIC), event transmission via SMS (control enabling independent operation of PSR-RF relay outputs)

Remarks:

- **detailed description: capabilities, functions, PSR and PSR-RF programming are included in the installation manual.**

7. REMOTE CONFIGURATION OF THE MODULE THROUGH SMS MESSAGES

The functionality of the module enables a remote alteration of selected configuration parameters. It is effected through sending a SMS message, which contains an appropriate command with an access code.
When the programming procedure has been completed correctly, the module responses with a SMS message:
"Configuration changed".
If there was an error in configuration, the module sends the following response:
"Error in the configuration message, rectify and resend!"
It means that the SMS format must be checked, its content corrected (if necessary) and the message resent. The following parameters have been entered in the module at the factory (see paragraph 10):

- **Access code: 1111**
- **PIN code request disabled**
- **Sending back the SMS receiving confirmation**

REMARKS:

- ***The size of characters (letters) in the commands is optional. There must be a gap (space) between commands. It is not obligatory to enter all parameters. The parameters omitted in the SMS message will remain unchanged.***
- ***One SMS message can configure more than one parameter. Make sure that the maximum length of a message of 160 characters is not exceeded, in which case the access code is entered only once (at the beginning of the SMS message).***
- ***Do not use national characters (Polish letters).***
- ***Set the telephone language options to: GSM alphabet (coding).***

7.1. Remote configuration of TELEPHONE NUMBERS AND SMS CENTRES

The configuration SMS syntax has the following format:

Parameter	Description	Example	Remarks
yyyy TELx nnnn	Altering or entering a new telephone number (nnnn = telephone number)	1111 TEL1 +48555666777	yyyy = access code nnnn = telephone number in the international format
yyyy TELx	Deleting a particular telephone number from the module's memory	1111 TEL1	yyyy = access code
yyyy ADDTEL nnnn	Entering a new telephone number with first lowest location (nnnn = telephone number)	1111 ADDTEL +48555666777	yyyy = access code nnnn = telephone number in the international format
yyyy DELTEL nnnn	Deleting the telephone number (nnnn = telephone number)	1111 DELTEL +48555666777	yyyy = access code nnnn = telephone number in the international format
yyyy CENTRE nnnn	Altering or entering a new SMS centre number (nnnn = centre number)	1111 CENTRE+48100 200300	yyyy = access code nnnn = SMS centre number in the international number

7.2. Remote configuration of INPUTS

The configuration SMS syntax has the following format:
yyyy Ix [parameter1 parameter2 parameter3.....]
Where:
- yyyy = access code;
- Ix = input with the no. x = {1..8}

Parameter	Description	Example	Remarks
NO **NC** **EOL** **2EOLNC** **2EOLNO** **OFF**	Polarisation of input (see paragraph 6.3.1)	NC	
INFO **24H** **INSTANT** **ARM/DISARM** **DELAYED** **COUNTING** **INTERIOR DEL**	Type of input (see paragraph 6.3.1)	INFO	
TIME tttt	Input sensitivity	TIME 1500	tttt = time in milliseconds [ms]
LOCK tt	The time of locking the entry (response) after the first violation. This option is active for the following TYPES of entry: INFO, NORMAL, DELAYED, INTERNAL DELAYED, 24H.	LOCK 05	tt = time in minutes
SMS xxxxxxxx	The mask for sending SMS messages from a particular input to a particular telephone number (the sequence xxxxxxxx = TEL1…TEL8)	SMS 11010000	x = 1 sending is active x = 0 sending is blocked
CALL xxxxxxxx	The mask for calling VOICE from a particular input to a particular telephone number (the sequence xxxxxxxx = TEL1…TEL8)	CALL 11000000	x = 1 sending is active x = 0 sending is blocked
SMSV "aaaa"	The SMS message sent after a particular input has been violated	SMSV "alarm"	"aaaa" = the maximum of 20 characters
SMSR "aaaa"	The SMS message sent while returning to a particular input	SMSR "end of alarm"	"aaaa" = the maximum of 20 characters

np.
e.g.1: **yyyy I1 EOL INFO TIME 1000 SMS 11000000 CALL 10000000 SMSV "Alarm" SMSR " Restore alarm"**
e.g.2: **yyyy I2 NC 24H TIME 1000 SMS 11000000 CALL 01000000 SMSV "Panic" SMSR "Restore panic"**
yyyy = acces code

7.3. Remote configuration of OUTPUTS

The configuration SMS syntax has the following format:
yyyy Ox [parameter1 parameter2 parameter3 parameter4]
Where:
- yyyy = access code, Ox = output with the no. x = {1..3}

Parameter	Description	Example	Remarks
NO **NC**	Polarisation of output (see paragraph 6.4.1)	NO	
MONO **BI**	Output operation mode (see paragraph 6.4.1)	MONO	
TIME tttt	The time of output operation in MONO mode	TIME 1500	tttt = time in seconds [s] Maximum time is 9,000s
ACTIV xxxxxxxxxxx	The mask for activating the output, according to the ACTIVATE VIA tab and the sequence: SMS, CLIP, ALARM, armed, TIME FOR ENTRY, TIME FOR EXIT, ARMING CONFIRMATION BY IMPULSES, INPUT VIOLATION, FAILURE, NO AC SUPPLY, SABOTAGE	ACTIV 11000000010 00	x = 1 option active x = 0 option inactive *- Marking a number of options results in activation of the output according to the selected logical function (the logical function OR – factory settings)*
SMSON "aaaa"	The content of the SMS message which activates a particular output	SMSON "pump on"	"aaaa" = the maximum of 20 characters
SMSOFF "aaaa"	The content of the SMS message which deactivates a particular output	SMSOFF "pump off"	"aaaa" = the maximum of 20 characters
CLIP xxxxxxxxx	The mask for the numbers authorised to perform CLIP control of a particular output (the sequence xxxxxxxxxxx = TEL1…TEL8… EACH)	CLIP 110000000	x = 1 control is active x = 0 control is blocked

Example:
yyyy O1 NO MONO TIME 100 ACTIVE 11000001000
yyyy = access code

7.4. Remote configuration of TRANSMISSION TEST.

The configuration SMS syntax has the following format:
yyyy TEST [parameter1 parameter2 parameter3…….]
Where:
- yyyy = access code;

Parameter	Description (see paragraph 6.5.1)	Example	Remarks
ON **OFF**	Activation of the transmission test option only (see paragraph 6.5.1)	ON	
CLIP	Altering the transmission test type to CLIP (see paragraph 6.5.1)	CLIP	- After the activation of transmission test, the type is set to SMS sending by default

CONTENT "aaaa"	SMS message is sent as transmission test	CONTENT "GSM Module OK"	"aaaa" = the maximum of 20 characters
TIME hh:mm	Transmission test time, according to the option: "EVERYDAY AT"	TIME 08:30	- Requires adjusting the module clock
INTERVAL hh	Cycle time between transmission tests in hours, according to the option: "EVERY (number of) HOURS"	INTERVAL 24	- The cycle is counted from restarting the module or the RESET TEST command

Example:
yyyy TEST ON CONTENT "GSM Module OK" TIME 3:30 p.m.
yyyy = access code

7.5. Remote configuration of COUNTERS.

The configuration SMS syntax has the following format:
yyyy COUNTER [parameter1 parameter2 parameter3]
Where:
- yyyy = access code;

Parameter	Description (see paragraph 6.5.3)	**Example**	**Remarks**
SMS xx	The counter determines the maximum number of SMS messages sent in 24 hours	SMS 40	xx = a number between 1 and 99
FAILURE xx	The counter determines the maximum number of sent SMS messages with failure information	FAILURE 10	xx = a number between 1 and 20
SMSATTEMPTS xx	The counter determines the number of attempts for sending a SMS message corresponding to a particular problem with transmission (for example: temporary lack of GSM range)	SMSATTEMPTS 10	xx = a number between 1 and 20

ex.
yyyy COUNTER SMS 40 FAILURE 10 SMSATTEMPTS 3
yyyy = access code

7.6. Remote configuration of TIMES.

The configuration SMS syntax has the following format:
yyyy TIMES [parameter1 parameter2 parameter3]
Where:
- yyyy = access code;

Parameter	**Description**	**Example**	**Remarks**
CALL xx	The parameter determines the maximum time of a telephone connection (VOICE-type connection)	CALL40	xx = a number between 1 and 46 seconds
ENTRY xx	The parameter determines the time of entering for the	ENTRY 15	xx = a number between 1 and 600 seconds

	DELAYED input (for the alarm control panel function)		
EXIT xx	The parameter determines the time of exiting for the alarm control panel function	EXIT 30	xx = a number between 1 and 600 seconds
ACLOST xxx	The parameter determines the time of delay for signalling "no AC supply"	ACLOST 060	xxx = a number between 0 and 999 minutes

ex.
yyyy TIME OF CALL 40 ENTRY 15 EXIT 3 ACLOST 060
yyyy = access code

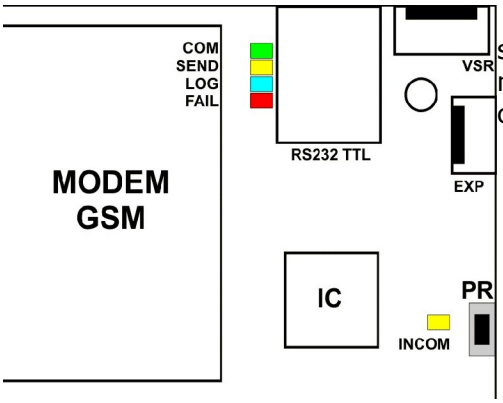
7.7. Remote configuration of other parameters.

The configuration SMS syntax has the following format:

Where: yyyy = access code;

Parameter	Description	Example	Remarks
yyyy CODE zzzz	Altering the access code (zzzz = new access code)	1111 CODE 1234	yyyy = present access code zzzz = new access code
yyyy TIME yy, mm, dd, hh, mm	Setting, altering of date and time (yy, mm, dd, hh, mm = year, month, day, hour, minutes)	1111 TIME 02, 01, 01, 12, 05	Gap (space) required after commas
yyyy CORRECTION qsss	Correction of module clock (q = +/- character, sss = correction value [s])	1111 CORRECTION -002	q= +/- sss = max. 120[s]
yyyy RESETTEST	Resetting of the transmission test clock	1111 RESETTEST	
yyyy RESTART	Restarting of modem and module	1111 RESTART	
yyyy DOWNLOADING x	Remote activation/deactivation of the modem connection function	1111 DOWNLOADING 1	X = 1 function enabled x = 0 function disabled
yyyy REPLYSMS x	Remote activation/deactivation of the modem reply function (after receiving SMS commends	1111 DOWNLOADING 1	X = 1 function enabled x = 0 function disabled

8. *MODULE OPERATION SATUS SIGNALLING*



The MGSM 4.0/4.0-PS module is equipped with an optical status signalling system. Four LED diodes mounted on the module board display the operation status of: signalling, communication with PC, software update.

LED	Color
COMM	GREEN color
SEND	YELLOW color
LOG	BLUE color
FAIL	RED color
INCOM	YELLOW color

- **COMM:**
  NORMAL STATE (without signalling and programming action)– short flashes every ca. 1 second = satisfactory communication between the module and telephone

- **SEND:**
  ALARM ACTION: signalling via SMS messages and voice messages is performed according to the following procedures:
  SMS
  - 1 flash = send SMS to NUMBER 1,
  - 2 flashes = send SMS to NUMBER 2,
  - 3 flashes = send SMS to NUMBER 3,
  - 4 flashes = send SMS to NUMBER 4,

  VOICE MESSAGES
  - 1 flash = connection to NUMBER 1,
  - 2 flashes = connection to NUMBER 2,
  - 3 flashes = connection to NUMBER 3,
  - 4 flashes = connection to NUMBER 4,

  PROGRAMMING (communication with PC):
  – flashes ca. every 1 second. = connection with service computer

Remarks:

- **if the signalling is not pre-programmed for a given PHONE NUMBER, the module will pass to the next set job (signalling)**

- **LOG:**
  NORMAL STATE
  - series of 1 to 5 short flashes every ca. 2 seconds = GSM network signal level (1-min. 5 = max.)
  - no flashes = telephone not logged in GSM network

- **FAIL:**
  NORMAL STATE
  series of 1 to 10 short flashes every ca. 2 seconds = state of FAILURE
  1 - low network signal level, below 2 "dashes"
  2 – telephone not logged in network
  3 – unsuccessful attempt to send 3 consecutive SMS messages
  4 - low power supply voltage U<11V on the power supply input
  5 – overloaded O1 high current output (I>1A)
  6 – no communication with the module telephone

7 – PIN code error,
8 – problem with SIM card,
10 – rapid flashing signifies configuration data damage in EEPROM memory

PROGRAMMING (communication with PC):
– flashes every ca. 0.5 second = module firmware update (communication active)

- **INCOM:**
  NORMAL STATE
  - no lit = absense activity incoming calls
  - lit = incoming calls or SMS
  PROGRAMMING (communication with remote PC):
  - lit = connecting with remote PC via CSD (modem link)

9. MODULE CONTROL AND STATUS

The module enables remote controlling of the following options: armed mode, blocking of inputs, outputs (MGSM 4.0, PSR-RF), reading of operational status.

9.1. Remote control of MGSM 4.0 module status:

- The function of controlling the armed mode via SMS is realised by sending a SMS message with the following content:

Command (yyyy = access code)	Description	Example
ARM yyyy	Armed of the module	1234 ARM
DISARM yyyy	Disarmed of the module	1234 DISARM

9.2. Locking of selected inputs

Any input on the device can be locked/unlocked remotely, by sending a SMS command in the following form:

Command (yyyy = access code)	Description	**Example**
yyyy LOCK I1I2I3I4I5I6 I7I8	Activation of the mask for blocking module inputs, until the armed mode is deactivated or module is reset. If the position I1…I8 = 1, then the module blocks the particular input. If the position I1…I8 = 0, then the module ignores the particular input during blocking (its functions remain unchanged)	1234 LOCK 10000000 The I1 input will be blocked
yyyy UNLOCK	All blocked inputs are unblocked	UNLOCK 1234 All inputs are unblocked

9.3. Remote control of output status: MGSM 4.0

It is done by CLIP or SMS messages. Output parameters are configured in the OUTPUTS tab.

- CLIP control consists in carrying out a connection to a telephone number. Depending on the configuration, the module can confirm control execution.
- The function of controlling via SMS messages is realised by sending a SMS message with the following content:

Command (yyyy = access code)	Description	Example
Onx yyyy	ACTIVATION of output x, where "x" (1, 2, 3) is the output no.; yyyy = access code	On1 1212
Offx yyyy	DEACTIVATION of output x, where "x" (1, 2, 3) is the output no.; yyyy = access code	Off1 1212

Remarks:

- **Onx, Offx is default setings.**
  Contents 'on' and 'off" are configured in the OUTPUTS tab.:SMS on, SMS off

9.4. Remote control of relays (outputs) status: PRSR-RF

This is performed either via SMS and the output parameters are configured in the PRS-RF bookmark.

- control via SMS is performed by sending an SMS in the following format:

Command (yyyy= access code)	Description	Example
OnRx yyyy	ON relay x, where x (1,2) is the relay number, yyyy is the access code	OnR1 1212
OffRx yyyy	OFF relay x, where x (1,2) is the relay number, yyyy is the access code	OffR1 1212

9.5. Checking of module status

This function consists in sending a SMS message with the following content: **yyyyy STATUS,** which triggers a module response in the form of a SMS message (where yyyy = access code):

Command (yyyy = access code)	Response
yyyyy STATUS	**Inputs: I1 I2 I3 I4 I5 I6 I7 I8** **Outputs: O1 O2 O3** **System: Armed/Disarmed** **Network: P** **Failure/No failure** **Clock not set** **No connection with PSR** **PSR status: AC.no AC.hi DC1.low DC2.low DC.hi AKU.low AKU.fail** **Rel: R1 R2**

Inputs: I1 I2 I3 I4 I5 I6 I7 I8

(Input status: 0 = intact, 1= violated;
X = disabled, B = blocked, 1=sabotaged)

Outputs: O1 O2 O3 O4

(Output status: 1 = +12V(O1)/0V (O2, O3,O4),

0 = no potential (O1);
output open (O2, O3,O4)
System: Armed/Disarmed
(Status: armed/disarmed)
Network: P
(Network level status P:1-5)
Failure/No failure
(Failure status)
Clock not set
(Date and time missing status)
No AC supply
(For the version with integrated PS feeder)
BAT discharged
(For the version with integrated PS feeder)
No connection with PSR
(Loss of PSR connection status)
PSR status: AC.no AC.hi DC1.low DC2.low DC.hi AKU.low AKU.fail
(PSR/PSR-RF failure status: 0 – no failure, 1 – failure, where:
AC.no = no AC supply voltage present;
AC.hi = supply voltage AC > 24V;
DC1.low = output 1 overloaded (13.8V/1A);
DC1.low = output 2 overloaded (13.8V/0.3A);
DC2.hi= output voltage DC >14.2V (ex. Incorrect potentiometer settings);
AKU.low = low battery voltage U < 11V;
AKU.fail= battery failure during testing (bad technical condition, battery missing, fuse damaged = U < 12V, dynamical test every 10 minutes); R1 R2 (status of relay outputs, 0 = relay not activated, 1 = relay activated).

9.6. Checking of module input status.

This function consists in sending a SMS message with the following content: **yyyy INPUTS,** which triggers a module response in the form of a SMS message (where yyyy = access code):

Command (yyyy = access code)	Response	Example*
yyyy INPUTS	**1 aaaa** **2 aaaa** **3 aaaa** **4 aaaa** **5 aaaa** **6 aaaa** **7 aaaa** **8 aaaa**	**1 armed** **2 no alarm** **3 battery OK** **4 supply OK** **5 no failure**

Where aaaa = SMS message content, taken from the SMS VIOLATION and SMS RETURN tabs in the GSM PARTNER software (configuration files).
* The content corresponds with the status of a particular input:

- **Normal status = SMS RETURN tab**
- **Violation = SMS VIOLATION tab**
- **Tamper = "Tamper" content**

Remarks:

- ***Outputs without defined content are ignored.***
- ***Tampers refers only to 2EOL/NC and 2EOL/NO inputs.***

9.7. Recharging of the SIM account by PREPAID card

(the code from the "scratch" card)

This function consists in sending a SMS message with the following content:

Command (yyyy = access code)	Response	Example*
yyyy loadprepaid xxxx	"**Code sent to networ**k" for the correct recharging of the SIM card account or "**Prepaid load error**" for errors in account recharging	**1111 loadprepaid *109*28945879023892#**

- Where xxxx = the command for recharging a particular network operator, using the 14-digit code from the "scratch" card (zzzzzzzzzzzzzz = "scratch" card code).

10. DEFAULT SETINGS

PARAMETER	No./DESCRIPTION (PARTNER GSM software)	FACTORY SETTINGS
PIN		Not required
ACCES CODE		1111
RETURN ACKNOWLEDGEMENT		active
PASSWORD		123B, Downloading: not set
INPUTS	I1 I2 I3 I4 I5 I6 I7 I8	NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms NO,INFO,500ms
SEND SMS TO	I1 I2 I3 I4 I5 I6 I7 I8	TEL1, TEL2, TEL3 TEL4 TEL1, TEL2, TEL3 TEL4 not set not set not set not set not set not set
CALL TO (VOICE)	I1 I2 I3 I4 I5 I6 I7 I8	TEL1, TEL2, TEL3 TEL4 not set not set not set not set not set not set not set
INPUTS	O1 O2	NO,MONO,3s,SMS +CLIP (TEL1), OR NO,MONO,5s,SMS, OR

	O3 O4	NO,MONO,5s,SMS, OR NC,MONO, AWARIA,OR
COUNTERS	SMS counter Failure counter The number of SMS sending attempts Dial round count	40 10 3 1
TIMES	Call time Entry time Exit time	20s 20s 30s
Transmission test		not set

11. TECHNICAL DATA

TECHNICAL PARAMETERS		Value
Power supply	**MGSM 4.0**	**U = 9V÷14V/DC** min/max @ 1,3A min.
	MGSM 4.0-PS	**U = 17V÷20V/AC** min/max @ 30VA min. **U = 20V÷28V/DC** min/max @ 0,7A min.
Output voltage of the MGSM 4.0-PS*		**Un= 13,8V/DC (+/- 2%)** **U=10,0V-13,8V/DC****
Power of MGSM 4.0-PS (current efficiency)*		**20W (1,3A)**
Failure power supply (signalisation)		**U<11V**
O1 output capacity (transistorised, +U control) NO status = hi-Z high impendance NC status = +U (+12V)		**1A (+/- 5%)max.**
O2, O3, O4 output capacity (transistorised OC, earth control - GND) NO status = hi-Z high impendance NC status = GND (earth, L status)		**100mA @30Vdc** (+/- 5%) max.
O1 output short-circuit protection		**1.0A** Electronically protected, automatic return when failure has disappeared
+AUX output capacity (PTC fuse)		**300mA @20°C** (150% overload, requires a manual reset; load can be disconnected for at least 30s.)
Current consumption for module circuits (without outputs)		**40mA/50mA/300mA** **min/average/max**
Battery compatible with MGSM 4.0-PS*		**12V, 2.3Ah-7Ah (VRL/SLA)**
Charging current for MGSM 4.0-PS battery*		**Ibat = max 0.3A**
Output protection for MGSM 4.0-PS battery* - Disconnection voltage for discharged battery - Reversed polarity - Anti short-circuit		**Ubat < 10.0V** (+/-5%) **YES** **1.6A PTC fuse (returnable)**
GSM Modem – MGSM 4.0/4.0-PS		**SIMCOM 300CZ**
GSM Modem operational frequency		**900/1800 MHz** **(automatically switched)**
Module input type (programmable)		**NO, NC, EOL, 2EOL/NC, 2EOL/NO** Line resistance for a given type: no violation/violation hi-Z/~30Ω, ~30Ω/hi-Z, hi-Z/2k2, 1k1/2k2, 2k2/1k1
Operational conditions		**Class II, -10°C÷+40°C, RH = max 90%** **(no condensation)**
PCB dimensions (W x L x D)		**118 x 79 x 25** **[-/+1] [mm]**
MGSM 4.0/MGSM 4.0-PS weight		**~110/130 [g]**

** for the MGSM 4.0-PS version*
*** buffered operation, battery charging*

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List of versions

Version	Publication date	Change, actualisation description
1.4S	2009.01.15	First english version.

NOTES