ProCon GSM

INSTALLATION AND APPLICATION MANUAL

for module version 1.4

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I.   Basic descriptions

The device can be used as a complement of control panels, or independently for 4 inputs GSM markers and control panels. Notifications can be sent for 8 phone number in SMS / voice message form. Relay output for call-identification control or siren operation. SMS forwarding feature. Power supply monitoring. GSM signal monitoring. Programming is recommended from PC!

II.   Steps of installation

1. Switch off the PIN code request on the SIM Card. You can make it with another mobile phone or using ProRead software.

2. Maybe the new SIM card needs activation on the Mobile Network. Usually it is just one regular phone call.

3. Put the SIM Card into the ProCon GSM device.

4. Switch on the ProCon GSM device connecting the external power supply (12 Volt / 0.5 Ampere) Also connect the lithium-polimer battery (optional)

5. After switching on, the red LED will continuously lit. This means, the device operates. After the green is permanently lit, it means, the module verifies the GSM status.

In normal working condition the green LED blinks. The number of blinking means the network power:

*   1-2 blink = weak network power

*   3 blinks = regular network power

*   4-5 blinks = good network power

In case the red and green LED is blinking together, means the module has a failure. Number of blinking means the error code:

1 blink	Configuring modem
2 blinks	GSM module does not work
3 blinks	SIM card not inserted
4 blinks	SIM card protected with PIN code
10 blinks	Device is in Modem mode (needs restart to exit this mode)

In case the green LED is continuously lit, the module cannot register on the GSM network. (Not enough network power or bad SIM card).

6. Programming the ProCon GSM can be performed via SMS or using a PC. With SMS message only the basic functions can be programmed. For advanced functions, to connect the module to a PC, you need a Serial (RS232) or a USB cable, which you can buy as an option.

III.   Programming through SMS message

Parameters to set

In the examples the security code of the modules appears as 1234. If you change this code, please substitute 1234 with a new code. The examples in the manual will appear in blue colour. You have to send it via SMS. Further settings can be programmed using a PC.

After SMS message programming modules must be restarted. It can be performed with disconnecting power supply or with 1234reset SMS command.

1. Changing the security code

1234cod4321 where 4321 is the new SMS security code.

The SMS security code can be only four digits, but for higher security you can even use letters.

Important: The security code is case sensitive! Use letters only from the English alphabet!

Start every SMS with this security code.

2. Setting phone numbers to alarm

1234swnumber1, number2, number3,......, number8,

number1=phone number to alarm. When its place is empty in the message, the number will stay intact in the settings. If you set "d" in the place of the number, it will delete it. Using this system, you can program eight phone numbers sending only one SMS. Phone numbers must be separated with comma "," mark.

Example:

number1, number 2=phone number to set, number3, number4=previously set number stay intact, number5, number6, number7, number8=to delete.

1234sw0630888888,0620222222,,,d,d,d,d

3. Installer settings
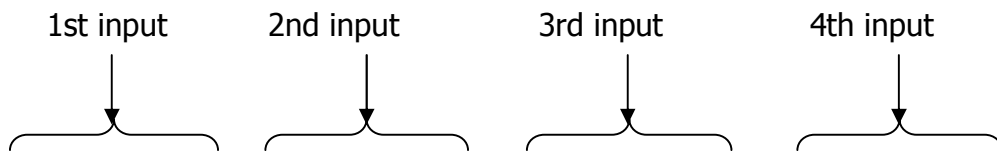
| 1st input | 2nd input | 3rd input | 4th input |

1234osssssssssvvvvvvvvv, sssssssssvvvvvvvvv, sssssssssvvvvvvvvv, sssssssssvvvvvvvvv,tttt,k

ssssssss= Eight letters „s" means, which previously set phone numbers must be notified by SMS. If „s"=1 SMS will be send to this phone number, if 0 then not. If you leave it blank, previous settings will stay valid.

vvvvvvvv= Eight letters „v" means, which previously set phone numbers must be notified by VOICE calling. If „v"=1 the number must be dialled, if 0 then not. If you leave it blank, previous settings will stay valid.

tttt= Type of the four inputs (IN1...IN4). The value of „t" can be 0-5.

0	Input is switched off
1	24 hour regular input
2	Not used
3	Input, which can switched with autonomous alarm mode
4	Not used
5	Input to activate and deactivate the module externally

If you type „i" letter before the input it will be inverted.

k= Type of the output. Value of „k" can be 1-7.

(K)	MONO/BI stable	Control with alarm	Control with CallerID
1	BISTABLE	OFF	OFF
2	MONO	ON	OFF
3	BISTABLE	ON	OFF
4	MONO	OFF	ON
5	BISTABLE	OFF	ON
6	MONO	ON	ON
7	BISTABLE	ON	ON

Example: Send SMS to the 2nd and 3rd phone number of first input (IN1),
Voice call to the 1st number of second input (IN2)
First input is inverted 24 hour regular input
Second input is not inverted regular input
Output is monostable (MONO), control with alarm.

1234o0110000000000000,0000000010000000,i1n1,2

4. RESET the GSM module

After SMS message programming the module must be restarted. In case of just phone number modification restart is not mandatory.

1234reset

5. Test request

1234t

If you send this message to the module, it will respond with a simplified status SMS message.

The response will be similar:

IN1: ON/OFF (Status of 1st input)

IN2: ON/OFF (Status of 2nd input)

IN3: ON/OFF (Status of 3rd input)

IN4: ON/OFF (Status of 4th input)

Cover: OPEN/CLOSE (Status of the tamper button)

OUT1: ON/OFF (Status of output)

Alert mode: OFF/ON (Is the switchable inputs of the module active?)

HOUR: MINUTE: GSM internal time (Important parameter using life signal)

6. Switching the output:

The output remains active for the set time in monostable mode. In case, it is set to bistable mode, remains active until the next control (via SMS message or voice call).

You can use it to open a garage door, switch light, heating on/off, start car heating, etc.

Idea: You can switch the output relay even with caller number identification function!

1234k1 activates the output

1234k1on only in case of bistable mode, the output switches on

1234k1of only in case of bistable mode, the output switches off

7. Alarm system mode – activating and deactivating

This function works, if the inputs are set to autonomous alarm mode!

The alarm system can be activated with the following command:

1234close The input will be active and will send alarm.

The function can be activated with SMS message or CallerID.

To switch it off:

1234open The input will be deactivated and will not send alarm.

The function can be activated with SMS message or CallerID.

8. Setting the clock

1234clkhhmm

hh = hour with two digits (e.g. 03)

mm = minute with two digits

Example: 1234clk0523 Sets the GSM clock to 5:23

IV.   Functions

1. Voice calling / SMS message sending in case of alarm

Eight user telephone numbers can be entered where alarms will be reported through voice call and/or SMS message (according to event settings). After alarm, the module first sends the SMS notifications, and then calls the preset phone numbers, until one of the notified persons answers the phone. If you are using circular call function, all of the persons must answer the phone. An option can be set, to send SMS message even if the alarm stops on the input. Then before the text of the message „Setback" will appear.

2. Life signal

With this function you can control, if the module works correctly. The practical set is 7 days, so the module will send one life signal via SMS message weekly. You can set it with a PC for the eight preset phone numbers.

3. Caller number identification (CallerID)

The numbers, stored on the SIM card can be set to accept for caller number identification. You can edit these numbers with your mobile phone or with PC using ProRead software. With this function you can control the preset output of the module or activate/deactivate of the properly configured inputs. If you dial the module it will hang up the calling after first or third ring (depends on the GSM service provider).

From this you will know, if the output switched on or off, or the modules input, - previously set to autonomous alarm mode - is activated or deactivated.

CallerID can be used for different functions, but the number of the ringing can show just for one function.

Priority of ringing signals:

1. Activate/deactivate
2. Relay1 control

Example: Setting CallerID control for Relay1, then module will hang-up the phone line after Relay1 controlled.

4. SMS redirection

Using this function you can set a phone number and any SMS message, which are not interpretable as a control command for the module will resend to. Very useful to have the messages from the GSM service provider about the prepaid SIM cards money balance.

5. SMS sending in case of power failure

Module will send SMS message to preset phone numbers, if input power falls below 7 Volts. User can set also restore message, if power voltage restores and above 8 Volts. This is useful e.g. to forward the information received from the GSM provider about the balance of prepay type SIM cards. (If these fields are blank, the module ignores incoming SMS messages).

Important! Never enter here the phone number of the SIM card placed into the module, because this would initiate an infinite loop of SMS sent to itself right after the first incoming SMS, causing significant expense!

6. **Master reset**

The module clears all phone numbers and restores factory settings.

How to reset externally:

- Remove the module from the external power supply

- Press Reset switch

- Connect the external power supply holding the switch

- Release the reset switch

7. **Switching off the GSM device**

Remove the module from the external power supply, disconnect the battery. If none of the LED's lighting, the device is switched off.

8. **Saving the state of the output to memory**

It is possible to save the state of the output relay to memory. In this case the software reminds it and in case of restart or power failure output will be in its last saved state.

Works only in Bistable configuration.

9. **Activate/deactivate with CallerID**

Using this function, in case of incoming call, module will accept the preset phone number and arm/disarm the preset inputs. Calling the module will hang up after one ring, this means disarming. After four rings the module hangs up in case of arming the system. It is not mandatory to wait for the four rings, user can disconnect before.

10. **Temperature monitoring and alarm (optional panel)**

The module contains an internal temperature sensor. User can set alarm function for high and low temperature presets. Accuracy is approximately ±5°C. This function can be useful for monitoring server rooms, fire alarms, monitoring freezers, aquariums. Actual temperature can be asked with 1234temp command. In case of alarm SMS message and/or calling can be set. SMS text can be modified.

11.   Programming the module from PC:

Power the module from the external power supply and connect to the PC using serial or USB cable. Start ProRead software. If the communication works, the PC recognizes the type of the module and starts its programming sheet. For further information, please read the documentation of our ProRead software. You can save and restore the configurations.

12.   Setting company name for messages

In the registry company name can be set, different than default "ProCon". In case of SMS message status request, message will start with this name (1234t). Useful for OEM selling.

V.   Technical parameters:

1. Inputs

Four inputs can be configured separately. Each can have different configurations. You can set up to eight phone numbers for them. Inputs must be connected as Normal Close (NC) default, during alarm must be released. This operation can be reversed setting "inverting input" function (only with PC programming).

2. Output

If the output enabled, the relays become controllable remotely through phone call. One relay outputs, which gives you a Normal Close (NC). The relays can be loaded maximum 30Volts DC / 1 Ampere. To switch a mains network (230 Volts) an external relay must be connected.

3. Power supply

The device has an internal power supply to generate the internal low voltages. The input power supply on the contacts can be: 8 Volts – 15 Volts DC (0.5 Ampere).
Never operate the module using an alternating current (AC) power supply!

4. How to mount the device in the alarm systems box

- After mounting be sure, that no metal object can touch the panel.

- Place the panel far from the transformer of the alarm system. Otherwise the electromagnetic radiation can disturb the GSM device.

- In case of insufficient GSM network power, please mount a high gain external antenna onto the device. The antenna must have a SMA male connector. We also can supply much kind of antennas for the GSM module upon request.

VI.   Programming table

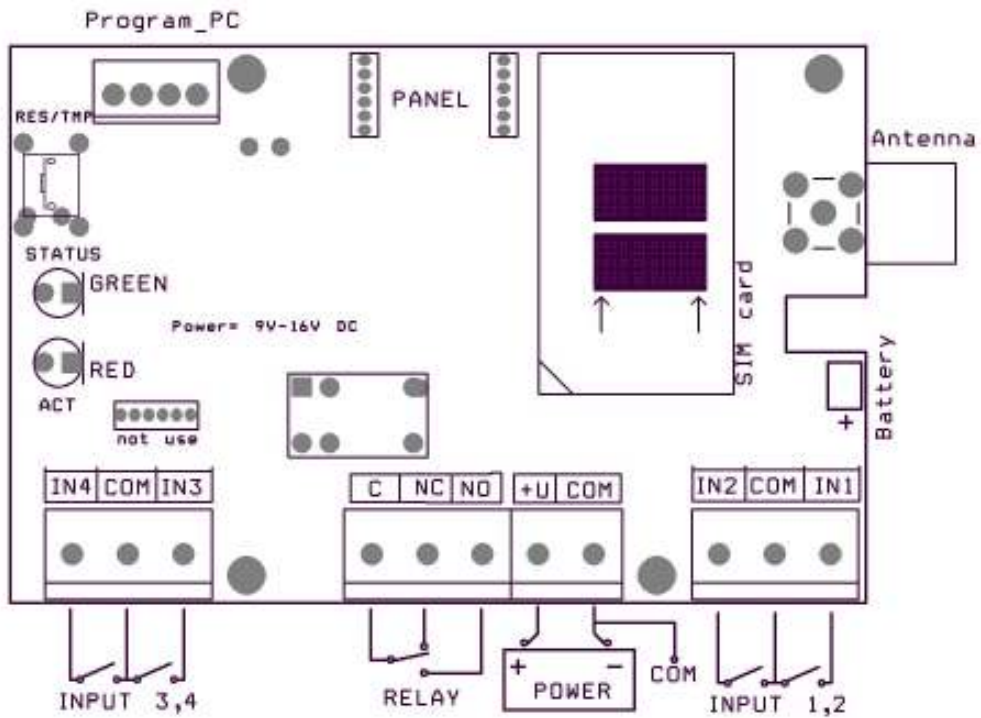|	
1234cod4321	Changing the security code
1234swnumber1, number2, number3,....,number8	Setting phone numbers to alarm
1234osssssssssvvvvvvvvv,sssssssssvvvvvvvvv,tttt,kk	Configuring the inputs
1234reset	RESET the GSM module
1234t	Test request
Switching the outputs	
1234k1	activates the 1st output
1234k1on	only in case of bistable mode, the output switches on
1234k1of	only in case of bistable mode, the output switches off
Alarm system mode – activating and deactivating	
1234close	The input will be active and will send alarm
1234open	The input will be deactivated and will not send alarm
1234clk0523	Setting the clock

VII.   Programming using a PC

VIII. Troubleshooting

Failure:	Possible solution:
After power on the red LED still lights	1. Switch off the PIN of the SIM card 2. The SIM card must be activated by the GSM Service provider 3. Check the balance of the SIM card, if you have enough credit. 4. Place the SIM card into a regular cell phone and try to send an SMS.
None of the LEDs light after switch on	1. Check the auxiliary power supply. It must be 9-14 Volts at 1 Ampere.
After switching on the green LED lights continuously	1. Bad network power. Change the Antenna to an external one with SMA connector cable, or place the antenna higher. 2. Not a valid SIM card, check it in a regular mobile phone if it can connect to the network.
After switching on the green LED blinks only one	1. Small network power. Place the module or the antenna higher.
Only the first input (IN1) works. Even the red LED does not blink	1. Disable the autonomous alarm function
IN1 or IN2 does not work. Even the red LED does not blink.	Check the input by the contacts 1. Must be sort circuit (or 0V) by default, floating in case of alarm (if not inverted). 2. Check if the connection is on the right contact.
IN1 or IN2 does not work. After activation of the input red LED lights continuously	In this case the inputs are working, it can be a programming mistake. 1. Send the phone number to position1 (1234sw...) 2. At least one function – SMS or dialing – must be set 3. Check the set parameters using 1234t command.
IN1 or IN2 does not work. Red LED blinks for 2 seconds.	No phone number set. Send the phone number using 1234sw…. format.
IN1 or IN2 does not work. Red LED blinks for longer than 5 seconds.	The module is working and sent an SMS. Probably the set phone number is not correct. For example not a mobile phone number.
Panel is warm	Normal operation, possibly, GSM modem transmits.

IX. Function table of ProCon module

Functions	ProCon
SMS sending	Yes
Dial calling	Yes
Programmable phone numbers	8 numbers
Number of inputs	4 NC
Circular calling	Yes
Li-ion battery	Optional
Power supply requirement	12 Volts / 0.5 Ampere
External antenna	Yes
LED status	Yes
External serial programmer	Yes
Alive signal in SMS	Yes
Tamper switch	Yes
Power failure SMS	Yes
SMS redirection	Yes
Network signal monitoring and SMS sending	Yes
Relay output	1 relay / 1 Ampere
Caller number identification	Yes
Autonomous alarm mode	Yes
Test function with SMS	Yes
PIN protected programming	Yes
ContactID DTMF	No
Status request with SMS	Yes
SMS messages modification	Yes
Master Reset	Yes
Microphone mode	Yes
Memory	Yes / 2Mb
Housing	Optional

X.   Connection diagram

Program_PC

RES/TMP

PANEL

Antenna

STATUS

GREEN

Power= 9V-16V DC

SIM card

RED

ACT

not use

Battery

+

| IN4 | COM | IN3 |

| C | NC | NO |

| +U | COM |

| IN2 | COM | IN1 |

INPUT 3,4

RELAY

POWER

+   −

COM

INPUT 1,2

XI.   Mounting diagram

Antenna

GSM Module

Metal casing of alarm system

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