MobilSwitch-Nano-C

Industrial GSM signalling and remote control module with common input and high current relay output

The *MobilSwitch-Nano-C* module is a general, industrial-grade GSM module, developed for remote signaling and remote control. It has a common **input** which is activated by voltage-less contact, and it has a high voltage and high current **relay output**. It can be programmed with its own software called "**Unified**" from any **PC** or **notebook**. The device notifies the users via pre-configured SMS-s and voice calls, and it has an optional acknowledging function. The high current relay can be triggered by user-configured SMS-s or free voice calls **for dedicated users**. The relay can be configured to operate in **monostable** mode (after switching on, the relay is turned off automatically within a time interval) or **bistable** mode. (switching the relay on and off are performed with separate commands). It can be programmed for **8 phone number**s, and can be used as a GSM remote signaling, remote controlling device, either for industrial purposes or home applications, such as remote signaling and controlling security device. The power supply of the device has industrial input range of **10V-30V DC** and draws min. **500mA** current. The carrier's SMS-s can be forwarded to the user-configured phone number, and the device operation can be checked with its built-in signal-of-operation function. It has two variants: either with built-in aerial or **RG-174** magnetic aerial with **SMA** connector.

1. Operation:

The module holds its configured and programmed data even after power-off. In the case of carrier problems or cellular signal loss, the device switches itself off then on, re-connects to cellular network and restores normal operation. The device comes with an enclosure and carrier-independent GSM module in **DIN rail enclosure** with small SMA connected aerial or with external magnetic antenna.

It comes with a free configuration software that can be downloaded from our website: **www.seasoft.hu** It can be configured with any PC-s with a single **Nano-USB** cable.

The *MobilSwitch-Nano-C* has a carrier-independent, industrial-grade GSM module that can be operated with any prepaid or subscription-based **nanoSIM** cards. The low voltage low-current variant is simply called *MobilSwitch-Nano*, or *MobilSwitch-Nano-a* and available also with two antenna variations.
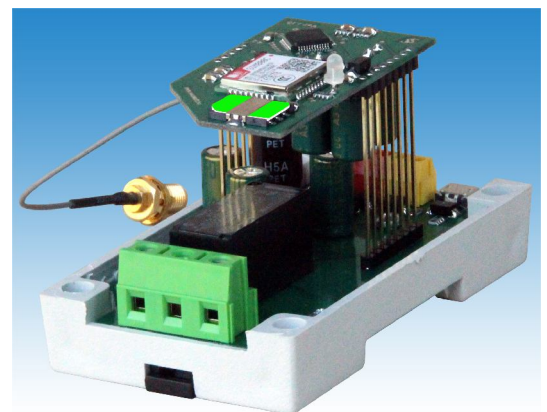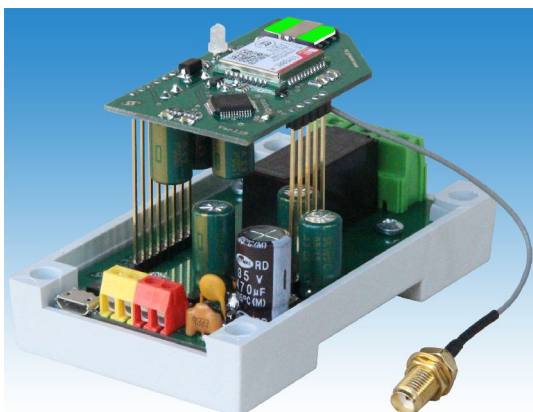
2 . Setup:

To ensure proper setup of *MobilSwitch-Nano-c*, the following instructions should be performed in order:

1   The SIM **PIN must be removed** from the SIM card

2   By inserting the SIM card into a traditional mobile phone, the SMS-sending ability of the card must be checked. Newly issued SIM cards have an initial credit that can only be used for voice calls, thus the SMS-sending ability is enabled only after topping-up the card. **Call-forwarding** has to be disabled. Carrier-issued SMS-s for **missed calls** must be disabled too. In the case of prepaid cards, displaying the **caller-ID** functionality must be enabled via the carrier customer service (enabling the "show caller-ID" option in the settings of a handheld mobile phone is not sufficient when using prepaid cards).

3   The **nanoSIM** card has to be inserted in the correct position into its slot located at the back of the module, as shown in the figures.

4   The power supply has to be connected in a polarity-correct position. After power-on, the device connects to a cellular network. The green LED blinks periodically after the device is successfully initialized

5   The configurator software can be either launched from the installation CD or can be downloaded from our website www.seasoft.hu. The software can be simply launched, there is no need for software installation.

6   After launching the "*Unified*" configurator software, the device should be connected to the PC with a **NanoUSB** cable.

7   The software automatically recognizes the device family and device type, and it shows its picture along with its wiring instructions. The software automatically loads the default configuration parameters.

8   It is advised to query the status of the device (state of inputs, outputs, supply voltage, signal strength, etc.) to check if the device is registered to the GSM network. After downloading the configuration, the USB should be detached before powering the device off.

9   After downloading the configuration and powering the module off, it

should be turned on again and the overall functionality based on the configuration should be tested thoroughly.
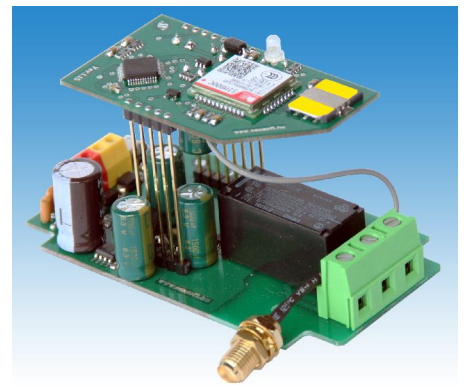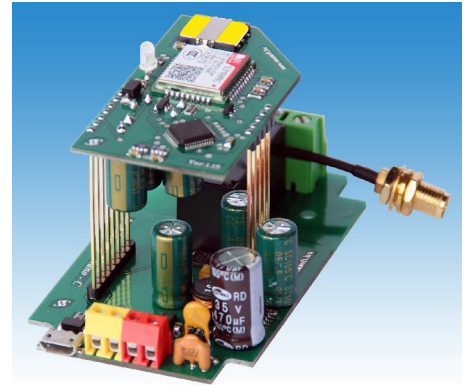
3.   Description of status LED:

- **Yellow** (continous):   After power-on, the yellow LED is on for approximately 10 seconds. During this period, the GSM is initialized. While the module is searching and registering to a GSM network, the yellow LED blinks. After approximately 40 seconds, the yellow blinking stops and turns into green.

- **Green** (blinking)   The frequency of the blinking reflects the signal strength. More blinks within a period mean greater signal strength.

    1 blink than pause   - very weak signal, module sometimes disconnects from network, it is advised to relocate the device.

    2 blinks than pause   - weak signal, device may disconnect from network which results in approximately 30 seconds of outage while the device restarts

    3 blinks than pause   - medium signal strength, device is capable of stable operation

    4 blinks than pause   - strong signal, device is capable of stable operation

    5 blinks than pause   - maximum signal strength

- **Yellow** (blinking)   The yellow LED is blinking during network communication (SMS or voice communication).

- **Red** (fast blinking)   The module cannot find GSM network or antenna is faulty. It may also indicate the followings: SIM card error, SIM PIN is not disabled, SMS or voice modes are disabled on SIM card.

4. Device wiring:

The device requires **+10-30V DC** power supply with at least **500mA** power supply connected to the red connectors which is equipped with polarity protection. The contact input is triggered with **0V**, i.e. pulling them to ground. It is forbidden to connect more than **+5V** to the input in case they are driven by open-collector lines. The relay output is a high voltage high current "**No-Com-Nc**" types. The maximum load of relay output cannot exceed **6A** at **250Vac.** The input of device is equipped with noise protection, however external voltage mus'nt be applied to them. Input can be triggered with small-resistance (and without contact-bouncing) contacts, switches, and relays. The module is equipped with a standard **nanoSIM** holder. The module can be programmed and configured with a **MicroUSB** cable.
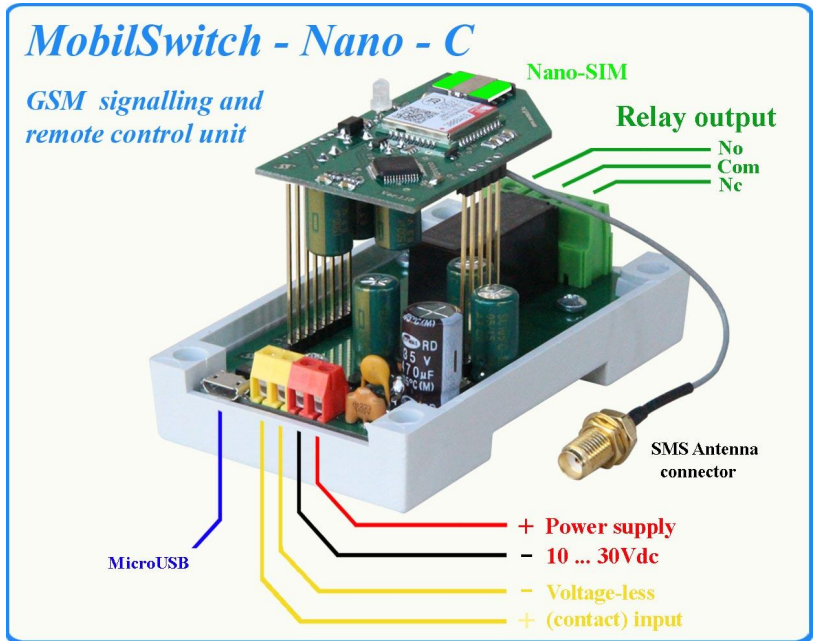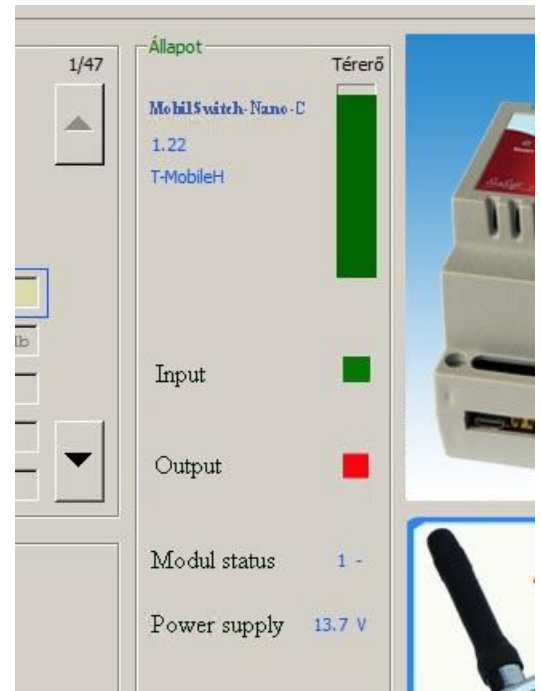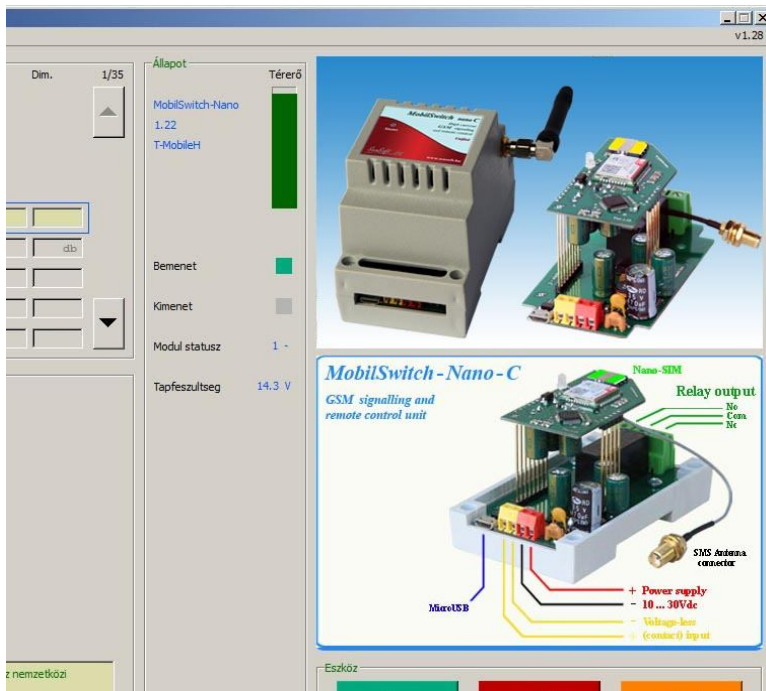

5. Device configuration from PC:

The **MobilSwitch-Nano-C** GSM device can be fully programmed and configured with our universal
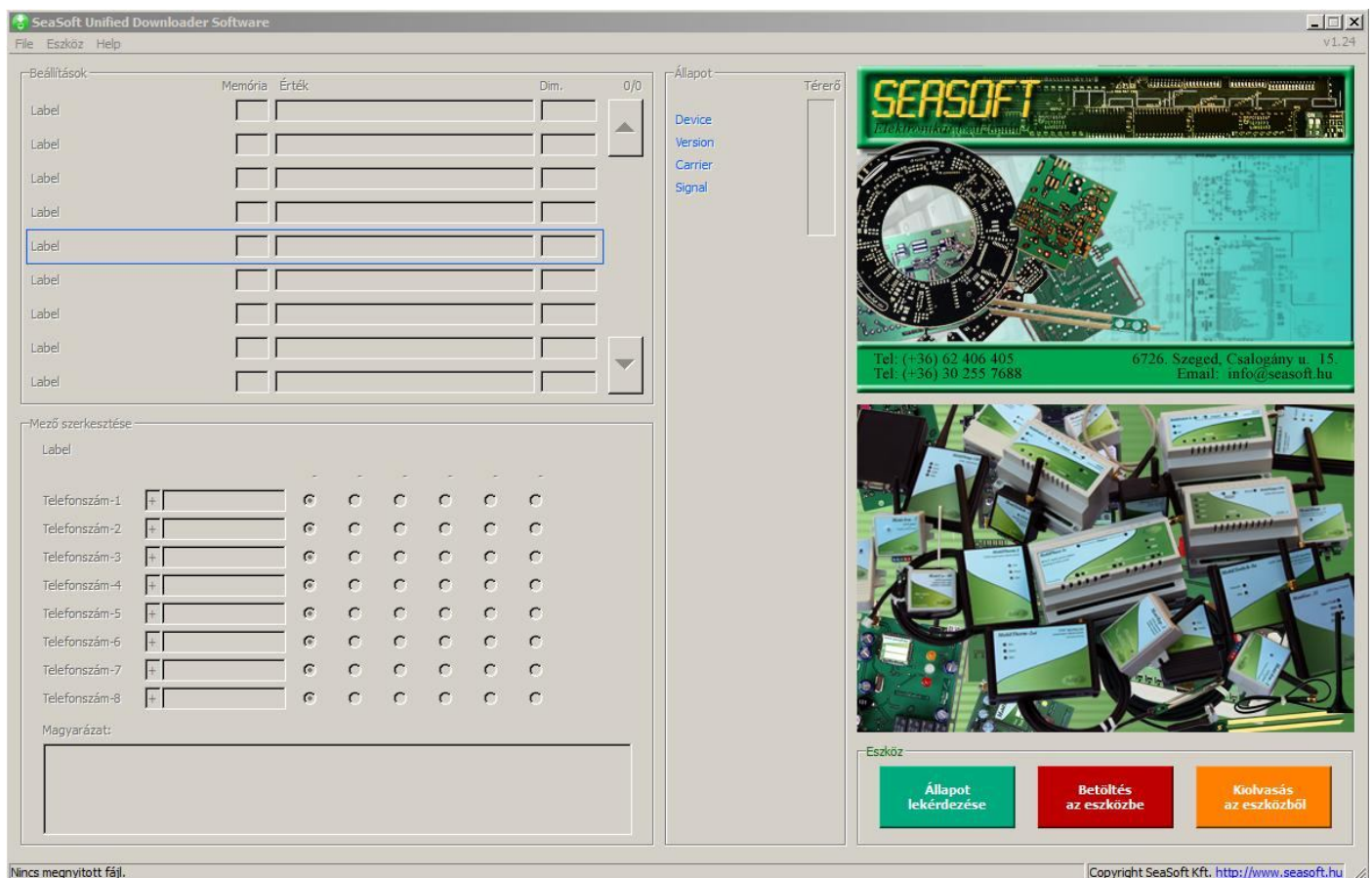
downloader software called **"Unified"** via a **NanoUSB** cable. After powering on the device and plugging in the USB cable, all **Windows** operating systems (**Windows XP**, **7**, **8**, and **10**) automatically recognize the

the connected device. Our universal software handles and configures all products from the *MobilSwitch, MobilArm, MobilGate* and *MobilTherm* product families. The software automatically recognizes the type of the connected device and it shows its image. The status of the device, including the carrier information, status of the inputs and outputs can be queried by pressing the **"Get Status"** button. All the user parameters can be edited, however it is advised to keep the original format and change the factory values only when necessary. When the module receives an SMS from the carrier or other unknown number (e.g. advertisements), it forwards to the telephone number that can be set under the **#020** memory location. Filling the first telephone number is mandatory, the rest are optional, they can be left empty. Under the **#016 - #019** memory locations, it can be specified which telephone numbers should receive an SMS notification when an input has changed. Each memory location has a short description located at the bottom. Please fill the configuration values with care and do not use accented or special characters. All telephone numbers must be given in the international telephone number format. The edited configuration can be saved to a file and loaded whenever necessary.

The configuration data can be downloaded to and read from the device. The software displays a notification when the configuration was successful and shows an error message notification upon download or read failure.

6. SMS commands:

The device can be programmed remotely with fixed-format SMS commands. :

- **Query command:**   **#?***

Response SMS: **MobilSwitch-Nano Ver:1.22 T-MobileH Rssi:4 Ubat:13.0V A:1, 00:10:00 Panik button:0 Siren:0**

	where:		
		Ver.: 1.22	- firmware
		T-MobileH	- provider's name (here hungarian)
		Rssi:4	- signal quality
		Ubat:13.0V	- power supply in Volts
		A:1	- modul is active(**1**) or passive (**0**)
		00:10:00	- time of temporary disarmd
		Panic button:0	- status of íinput
		Siren:0	- status of output

No.	Function of memory	Factory settings:	User settings:
001	Provider's SMS central	**+36309888000**	
002	Maximal number of sent SMS in 2 hours	**20**	
003	SMS command of modul's **ARM** status	**Arm**	
004	SMS command of modul's **DISARM** status	**Disarm**	
005	SMS command of time of temporary disarmd	**Pause**	
006	Time of temporary disarmed	**01:59:00**	
007	Time interval opf automatic test	**72:00:00**	
008	1st (master) phone number	**+36 30 1234567**	
009	2nd phone number		
010	3rd phone number		
011	4th phone number		
012	5th phone number		
013	6th phone number		
014	7th phone number		
015	8th phone number		
016	Functions when input is **"ON"**	**V1,S1**	
017	Functions when input is **"OFF"**	**V1**	
020	Functions for service SMS messages	**R1,S1**	
021	Functions when comes a call from an unknown user	**S1**	
022	Name of 1st input	**Panic button**	
023	SMS message when input no.1 is **"ON"**	**pressed**	
024	SMS message when input no.1 is **"OFF"**	**released**	
025	Name of input	**Burglary system**	
028	Name of output	**Siren**	
029	SMS command to switch **"ON"** the output no.1	**Sound on**	
030	SMS command to switch **"OFF"** the output no.1	**Sound off**	
031	Name of 2nd output	**Lamp**	
034	Functions in case of a call from a dedicated user	**A1,Z2,Z3,Z4,Z5,Z6**	
035	Timing of output relay	**00:00:05**	
036	Functions in case of acknowlidge requirements		
037	SMS message in case of a call of an un-dedicated user	**Unknown caller**	
099	Status	1	*Non editable !*
500	Type of module	MobilSwitch-Nano-C	*Non editable !*
501	Firmware	1.28	*Non editable !*
502	Signal quality	4	*Non editable !*
509	Proider's name	T-MobileH	*Non editable !*
510	Power supply	13.0	*Non editable !*

- Set output command   **Sound on**

    (now input 1st switched on, look memory #029)

    Response SMS: **MobilSwitch-Nano-c Ver:1.22 T-MobileH Rssi:4 Ubat:13.0V A:1, 00:10:00 Panic button:0 Siren:1**

Warning !   Please note that the device only recognizes the SMS command if the sent SMS command is completely the same (letter by letter) as the command located in the appropriate memory location of the device. In case the sent SMS command does not match any of the commands, the device will not process the command and will forward the SMS to the telephone number located in the #029 memory location.
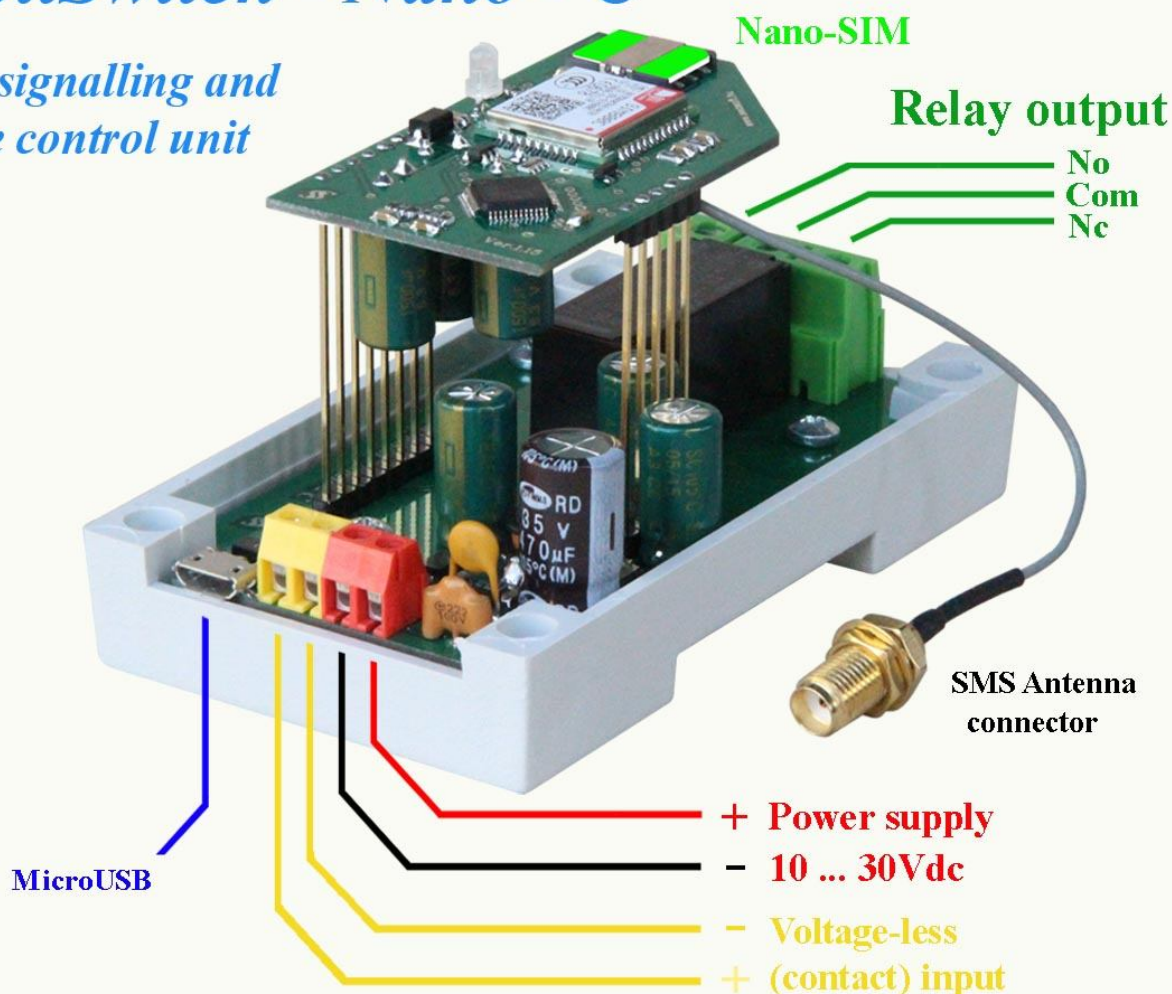
- Enable alarm command: **Arm**

    (Memory #003)   where: **A:1** - After receiving the SMS, the module will be armed and all input changes will trigger notifications

- Disable alarm command: **Disarm**

    (Memory #004)   where: **A:0** - After receiving the SMS, the module will be disarmed and input changes will NOT trigger notifications

- Pause command: **Pause**

    (Memory #006)   where: **01:59:00** - reflects the mute duration. Within this duration, the module does not send notifications upon input changes, however it is still capable of sending response SMS-s.

- Re-program memory command: ***022#Panic trigger***

                       where: **022**   - memory address

                                Panic trigger   - the new value of memory

- Read memory location command: ***022#?***

        Response SMS: ***022#Panic trigger**

7. Miscellaneous and other information:

a.   The device is operational with any **nanoSIM** card

b.   The received SMS-s from the carrier and unknown numbers are forwarded to the telephone number specified under the #020 memory location. Therefore, if a prepaid SIM card is used, the balance status SMS-s are also forwarded to this number. When the prepaid SIM card reaches zero credit, the device is still functional, however it is unable to send SMS-s. Consequently, it is advised to regularly check the credit balance of the SIM card.

c.   After disconnecting **MobilSwitch-Nano-C** GSM signaling and control device from the PC, it restarts itself, which lasts approx. for 40 seconds while the module searches and registers to the carrier network.

d.   The PIN protection must be removed from the **nanoSIM** card prior to usage. The device only works with **nanoSIM** cards that are not PIN-protected.

MobilSwitch - Nano - C

GSM signalling and remote control unit

Nano-SIM

Relay output
No
Com
Nc

SMS Antenna connector

+ **Power supply**
− **10 ... 30Vdc**

MicroUSB

− **Voltage-less**
+ **(contact) input**

8.   Specifications:

Range of power supply:	**10 - 30 Vdc**		Frequency:	**800/900/1800/1900MHz**
Lowest current consuption:	**30 mA**		Communication:	**SMS, voice**
Current consuption when relay on:	**41 mA**		Max. voltage on inputs:	**+6 V max.**
Mean consumption (24hours):	**60 mA**		Aerial connector:	**SMA**
Max. conpuption:	**180 mA**		Ambient temperature	**-30 ... +70 C**

Vertical size of enclosure:	**90 mm**
Vertical size with aerial:	**119 mm**
Vertical size of magnetic aerial:	**110 mm**
Horizontal size of enclosure (with wings):	**54 mm**
Enclosure Z size:	**66 mm**

SeaSoft Ltd. - 2017