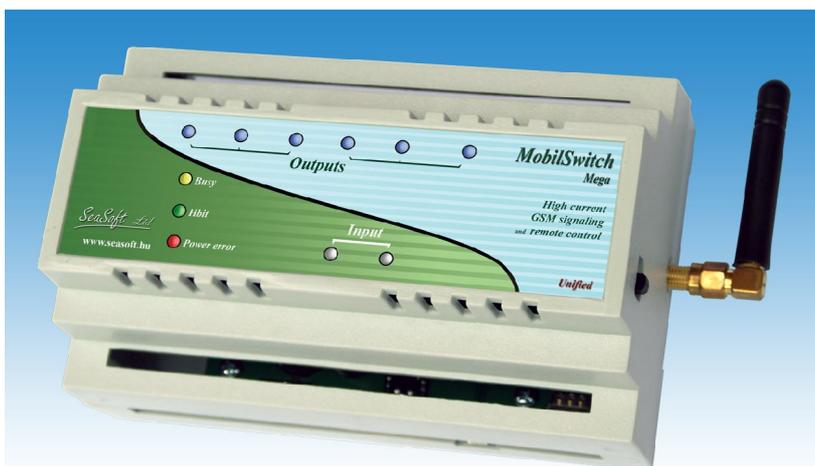


# MobilSwitch-Mega-C

## Industrial GSM signalling and remote control module with 2 inputs and 6 high current relay outputs

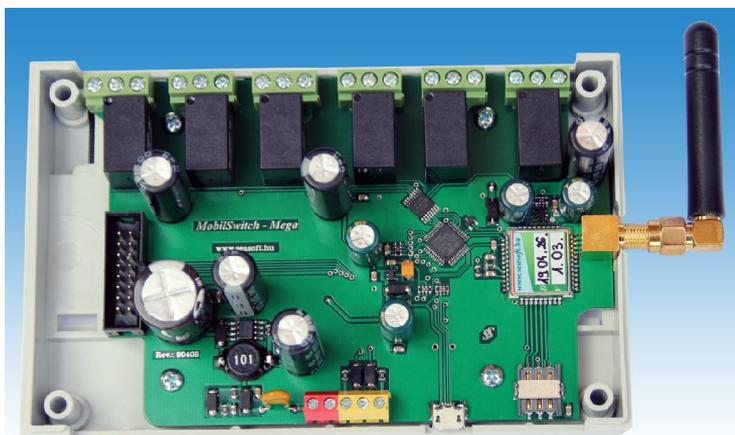
The *MobilSwitch-Mega-C* module is a general, industrial-grade GSM module, developed for remote signaling and remote control. It has **2 inputs** which are activated by voltage-less contact, and it has **6 pcs** of high voltage and high current **relay outputs**. It can be programmed with its own software 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 relays can be triggered by user-configured SMS-s or free voice calls for dedicated users. The relays can be configured to operate in **monostable** mode (after switching on, the relays are turned off automatically within a time interval) or **bistable** mode. (switching the relays on and off are performed with separate commands). It can be programmed for max. **8 phone numbers**, 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-36V DC** and draws min. **800mA** 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, and reconnects to cellular network and restores the normal operation. The device comes with an enclosure and carrier-independent GSM module in DIN rail enclosure with a small SMA connected aerial or with a small external magnetic antenna. This device comes with our free configuration software that can be downloaded from our website: [www.seasoft.hu](http://www.seasoft.hu)

Our devices can be configured with any PC-s with a single **MicroUSB** cable. The *MobilSwitch-Mega-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 called *MobilSwitch-Mega*, or *Mega-a* and available also with two antenna-variations.



## 2. Setup:

To ensure proper setup of *MobilSwitch-Mega-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.
- 3 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).
- 4 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.
- 5 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. The configurator software can be either launched from the installation CD or can be downloaded from our website [www.seasoft.hu](http://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 or to a notebook with a **MicroUSB** cable.
- 7 The software automatically recognizes the device family and device type, and it shows its picture along with its wiring instructions and installation manual. 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 LEDs:

The colorful LEDs located beneath the front cover indicate the status of the device. The upper yellow LED is the "Busy" led, in the middle is the bi-color LED labeled as “Hbit” can express statuses and messages explained below, and the lowerupper, yellow LED labeled as “SMS” indicates the SMS and voice:

The " <b>Busy</b> " LED states:	
<b>Yellow</b> Continuously	This LED is on when the device is sending/receiving SMS-s, initiating voice calls or the user is calling the device.
Blinking:	This LED is blinking during the downloading or reading procedure.

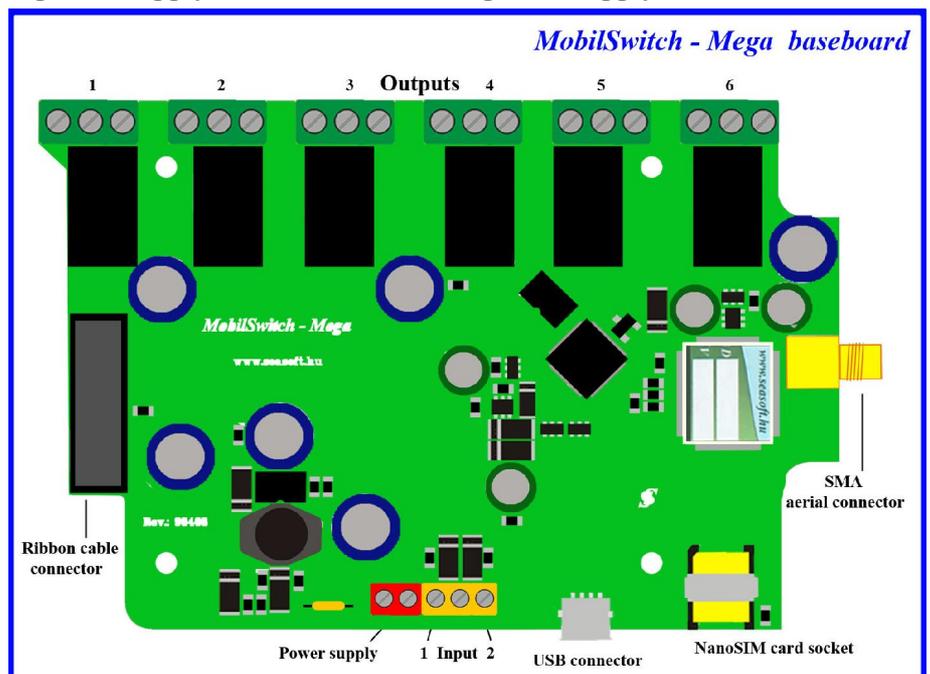
The " <b>Power error</b> " LED states:	
<b>Red</b> Continuously	This LED is on when the device is sending/receiving SMS-s, initiating voice calls or the user is calling the device.
Blinking:	This LED is blinking during the downloading or reading procedure.

The " <b>Status</b> " LED states:		
<b>Yellow</b> (continuously)	Modem is initializing itself, searching for network. This state lasts for 30-40 seconds after power-on.	
	The GSM modem is busy, sending receiving SMS or a phone call	
<b>Green</b> (blinking)	“ <b>Heartbeat</b> ” indicates the signal strength. The blinkings refer to the strength of cellular signal. Less-frequent blinking indicates weaker signal, more frequent blinking refers to stronger signal.	
	1 blink, pause:	weak signal; the device might completely lose signal and disconnect from network. It is worth to consider re-locating the device.
	2 blinks, pause:	weak signal; the device can restart which results a time of outage in operation.
	3 blinks, pause:	moderate signal; the device can operate stable.
	4 blinks, pause:	strong signal; the device can operate stable.
	5 blinks, pause:	maximum signal strength, the device can operate stable.
<b>Red</b> (fast blinking)	<ul style="list-style-type: none"> <li>- the GSM module cannot find network, or</li> <li>- the signal strength is not enough for operation, or</li> <li>- faulty antenna, or SIM card error, or the SIM card is not entitled for voice calls, or</li> <li>- SIM card is locked with PIN code</li> </ul>	
The " <b>Output</b> " LEDs states:		
<b>Blue</b> Continuously	The output is active, the output relay is on. If no lights the relay is off.	
The " <b>Input</b> " LEDs states:		
<b>White</b> Continuously	The common input is active (pulled to ground)	

## 4. Device wiring:

The device requires **+10-36V DC** power supply with at least **800mA** power supply connected to the red connectors which is equipped with polarity protection. The contact inputs are triggered with **0V**, i.e. pulling it to ground. It is forbidden to connect more than **+5V** to an input in case it is driven by open-collector lines. Both relay output are a high voltage high current "**No-Com-Nc**" types. The maximal load of relay outputs cant exceed the **6A** at **250Vac**.

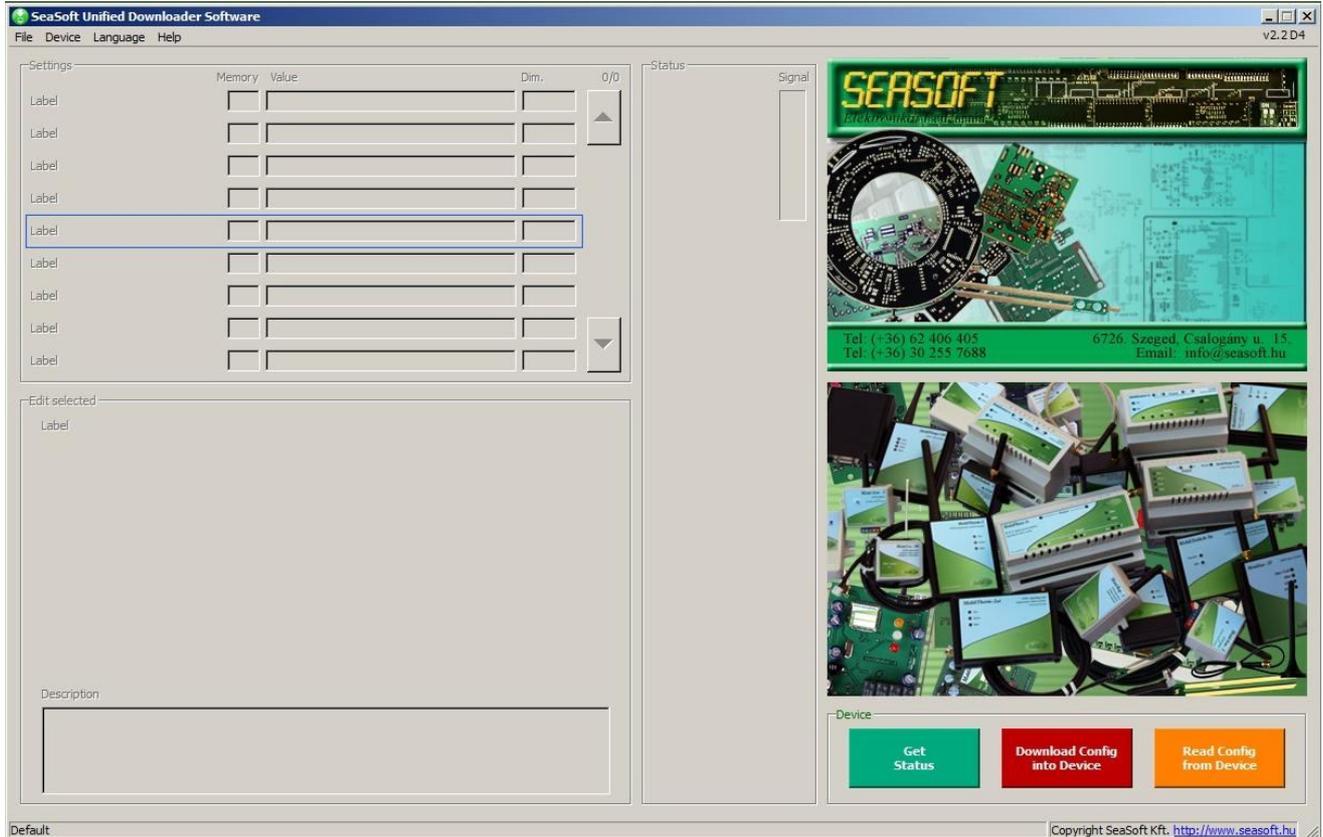
The contactinputs of device are equipped with noise protection, however external voltage must not be applied to them. Inputs can be triggered with a small-resistance (and without contact-bouncing) contacts, switches, and relays, etc.



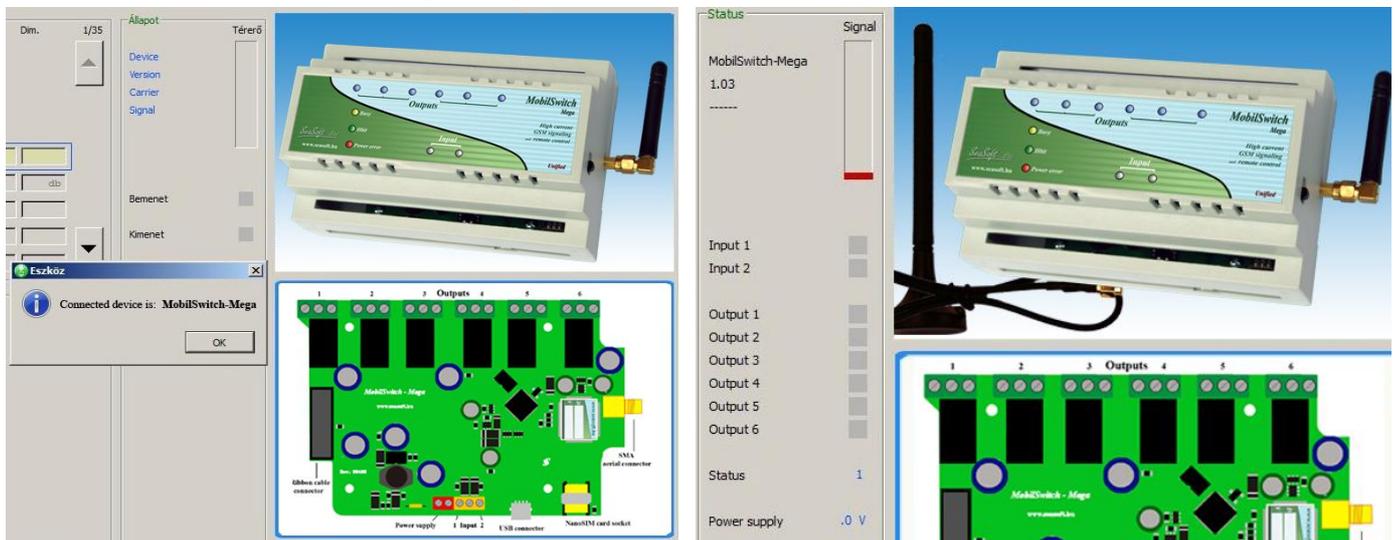
The module is equipped with a standard **nanoSIM** holder. The module can be programmed and configured with a common **MicroUSB** cable. (A simple 2 wired phone charger cable is not suitable)

## 5. Device configuration from PC:

The **MobilSwitch-Mega-C** GSM device can be fully programmed and configured with our universal

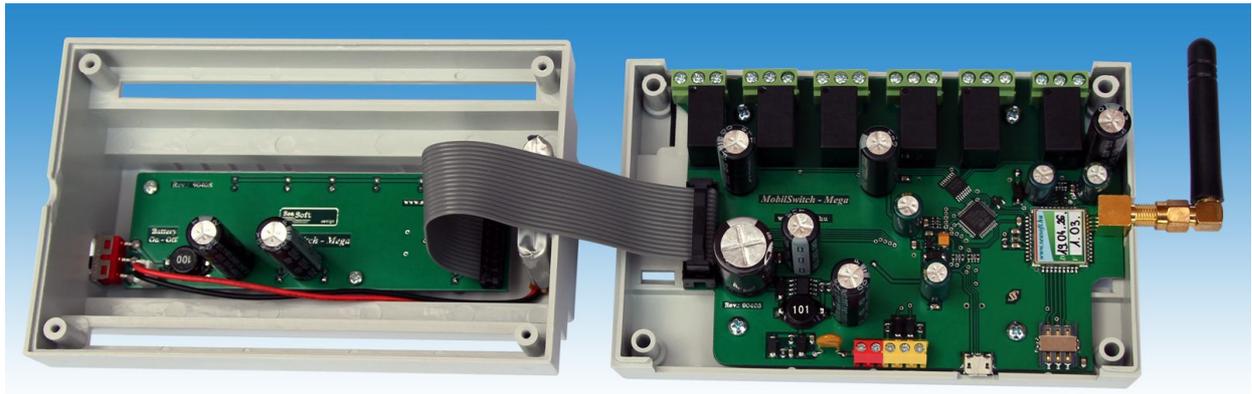


downloader software called **"Unified"** via a **MicroUSB** cable. After powering on the device and plugging in the USB cable, all **Windows** operating systems (**Windows XP, 7, 8, and 10**) automatically recognize the



the connected device. Our universal software handles and configures all products from the **MobilSwitch**, **MobilArm**, **MobilGate**, **MobilTherm**, **MobilPhase** and **Mobilcar** 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 **#008** memory location. Filling the first telephone number is mandatory, the rest are optional, they can be left empty. Under the **#008 - #015** 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 with a little help of the memory map of device.

No.	Function of memory	Factory settings:	User settings:
001	Provider's SMS central	<b>+36309888000</b>	
002	Maximal number of sent SMS in 2 hours	<b>20</b>	
003	SMS command of modul's <b>ARM</b> status	<b>Arm</b>	
004	SMS command of modul's <b>DISARM</b> status	<b>Disarm</b>	
005	SMS command of time of temporary disarmd	<b>Pause</b>	
006	Time of temporary disarmd	<b>01:59:00</b>	
007	Time interval opf automatic test	<b>72:00:00</b>	
008	1st (master) phone number	<b>+36 30 1234567</b>	
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 no.1 is <b>"ON"</b>	<b>V1,S1</b>	
017	Functions when input no.1 is <b>"OFF"</b>	<b>V1</b>	
018	Functions when input no.2 is <b>"ON"</b>	<b>V1,S1</b>	
019	Functions when input no.2 is <b>"OFF"</b>	<b>S1</b>	
020	Functions for service SMS messages	<b>R1,S1</b>	
021	Functions when comes a call from an unknown user	<b>S1</b>	
022	Name of 1st input	<b>Panic button</b>	
023	SMS message when input no.1 is <b>"ON"</b>	<b>pressed</b>	

No.	Function of memory	Factory settings:	User settings:
024	SMS message when input no.1 is "OFF"	released	
025	Name of 1st input	Burglary system	
026	SMS message when input no.2 is "ON"	Alarm	
027	SMS message when input no.2 is "OFF"	Restore	
050	Power supply is on	Power is ok	
051	Power supply is off	Power error	
052	Functions in case of power supply error	S1,V1	
060	Name of 1st output	OUT1	
061	SMS to switch ON 1st output	ON1	
062	SMS to switch OFF 1st output	OFF1	
063	Name of 1st output	OUT2	
064	SMS to switch ON 2nd output	ON2	
065	SMS to switch OFF 2nd output	OFF2	
066	Name of 3rd output	OUT3	
067	SMS to switch ON 3rd output	ON3	
068	SMS to switch OFF 3rd output	OFF3	
069	Name of 4th output	OUT4	
070	SMS to switch ON 4th output	ON4	
071	SMS to switch OFF 4th output	OFF4	
072	Name of 5th output	OUT5	
073	SMS to switch ON 5th output	ON5	
074	SMS to switch OFF 5th output	OFF5	
075	Name of 6th output	OUT6	
076	SMS to switch ON 6th output	ON6	
077	SMS to switch OFF 6th output	OFF6	
080	Functions in case of a call from a dedicated user	A1,Z2,Z3,Z4,Z5,Z6	
081	Timing of output relay	00:00:05	
082	Functions in case of acknowledge requirements		
083	SMS message in case of a call of an un-dedicated user	Unknown caller	
099	Status of module	1	<i>Non editable !</i>
494	Status of Output-1	Output-1	<i>Non editable !</i>
495	Status of Output-2	Output-2	<i>Non editable !</i>
496	Status of Output-3	Output-3	<i>Non editable !</i>
497	Status of Output-4	Output-4	<i>Non editable !</i>
498	Status of Output-5	Output-6	<i>Non editable !</i>
499	Status of Output-6	Output-6	
500	Type of module	MobilSwitch-Mega	<i>Non editable !</i>
501	Firmware	1.28	<i>Non editable !</i>
502	Signal quality	4	<i>Non editable !</i>
503	Proider's name	T-MobileH	<i>Non editable !</i>
504	Status of Input-1	Input-1	<i>Non editable !</i>
505	Status of Input-2	Input-2	<i>Non editable !</i>
510	Power supply	13.0	<i>Non editable !</i>

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

Response SMS: **MobilSwitch-Mega Ver:1.03 T-MobileH Rssi:4 Ubat:13.0V A:1, 00:10:00 Panik button:0 Burglary system:0 Siren:0 Lamp:0**

where:	<b>Ver.: 1.22</b>	- firmware
	<b>T-MobileH</b>	- provider's name (here hungarian)
	<b>Rssi:4</b>	- signal quality
	<b>Ubat:13.0V</b>	- power supply in Volts
	<b>A:1</b>	- modul is active( <b>1</b> ) or passive ( <b>0</b> )
	<b>00:10:00</b>	- time of temporary disarmd
	<b>Panic button:0</b>	- status of 1st input
	<b>Burglary sysetm:0</b>	- status of 2nd input
	<b>Siren:0</b>	- status of 1st output
	<b>Lamp:0</b>	- status of 2nd input

- Set output command **Sound on**  
(now input 1st switched on, look memory #029)

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

**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

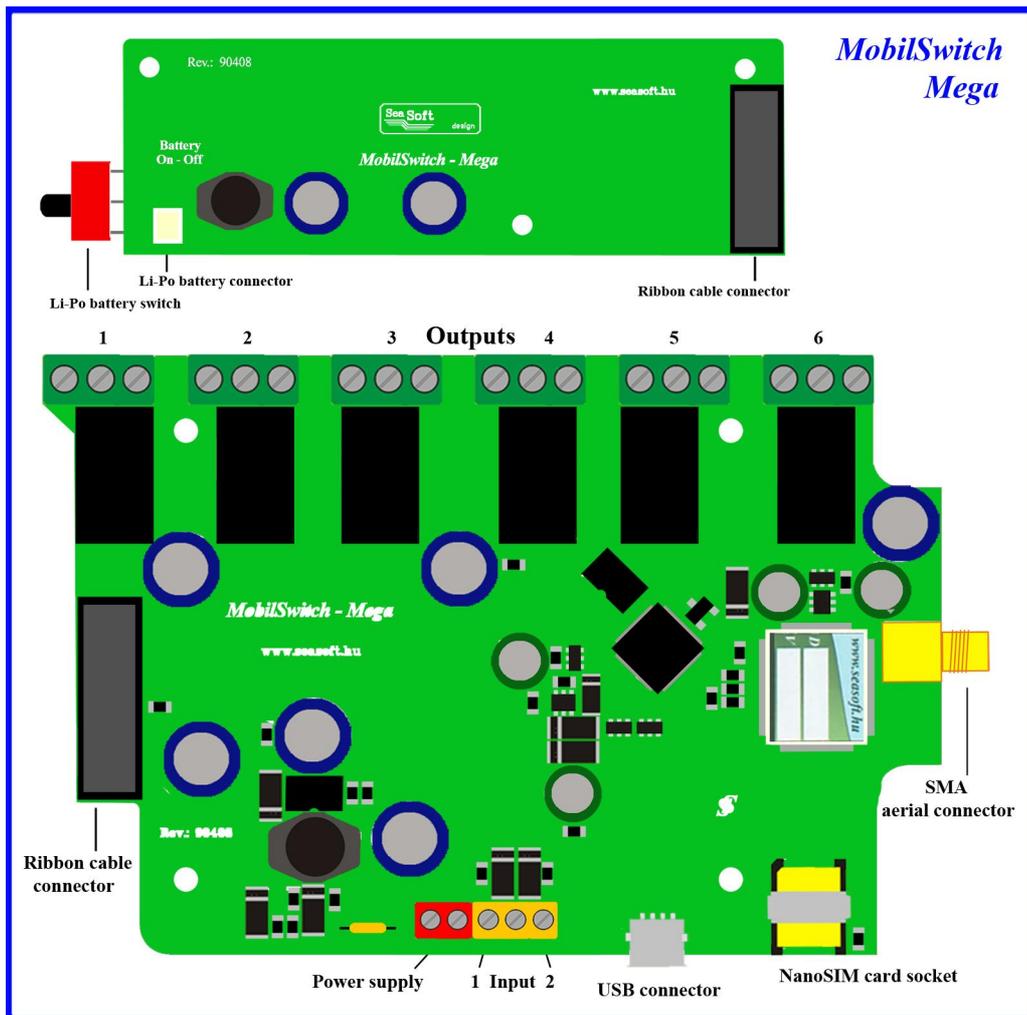
- Pause command: **Pause**  
(Memory #006) where: **01:59:00** - reflects the mute duration. Within this duration, the module does not send notifications upon input changes, however it is still capable of sending response SMS-s.

- 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 (nano)SIM card
- b. The received SMS-s from the carrier and unknown numbers are forwarded to the telephone number specified under the #008 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-Mega* GSM signaling and control device from the PC, it restarts itself, which lasts approx. for 40 seconds while the module searches and registers to 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.



## 8. Specifications:

Range of power supply:	<b>10 - 30 Vdc</b>	Frequency:	<b>800/900/1800/1900MHz</b>
Lowest current consumption:	<b>32 mA</b>	Communication:	<b>SMS, voice</b>
Current consumption when relays on:	<b>52 mA</b>	Max. voltage on inputs:	<b>+6 V max.</b>
Mean consumption (24hours):	<b>70 mA</b>	Aerial connector:	<b>SMA</b>
Max. consumption:	<b>192 mA</b>	Ambient temperature:	<b>-30 ... +70 C</b>

*SeaSoft Ltd. - 2019*