

GSM Direct

**GSM Alarm
Smart Power Switch
User Manual**

GSM ALARM

SMART POWER SWITCH

User Manual

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Safety Instructions

The "**GSM Smart Power Switch**" (further referred to as GSM Power Switch) meets, satisfies and exceeds all technical standards and safety requirements. However, as the manufacturer, we would like to share certain safety precautions with you. In order for you to get many years of operation and to receive warranty service, please observe the following suggestions.

- Do not plug in electric devices whose power requirements exceed allowable levels for wiring, outlets and the GSM Power Switch.
- Do not install the device in locations having a high concentration of water vapors or at a location with inadequate ventilation (these conditions might create dangerous electrical conditions). The device is not water-proof; do not expose the device to aggressive environmental conditions (e.g. rain, leaking liquids, etc.).
- Do not install the device at locations near dangerous explosive substances.
- Do not install the device at medical facilities. The radio signals emitted by the device might interfere with the operation of certain sensitive equipment causing a possible threat and danger to human life.
- Do not install the device at locations where mobile telephone usage is prohibited.
- Install the battery with proper polarity and only when the device is un-plugged and disconnected from electrical current.
- Do not disassemble or attempt to repair the device on your own. In the event of a malfunction, please contact the service center.
- Do not plug-in or attach devices that have damaged electrical plugs.
- Do not short circuit the contacts on the device.
- Do not touch the electrical outlet in the device with metal objects, your hands and/ or your fingers.
- Do not expose the device to violent shaking and do not drop the device as this may damage the device.
- Store the device with its accessories at a location inaccessible to children.

Attention! *The manufacturer is not liable for any damages stemming from improper installation and use of the device or for any losses caused by not following the provided instructions.*

1 DESCRIPTION AND OPERATION

1.1 Purpose and Function

The "GSM Smart Power Switch" (further referred to as GSM Power Switch) was designed to manage alarm sensors via radio channel and to communicate with the user via dialed out phone calls and/or SMS notifications to a GSM standard mobile telephone. In addition, to remotely turn On/Off external electrical devices.

To prevent penetration of a secure zone utilizing various wireless alarm sensors together with a sound and flashing strobe light deterrent, such as the wireless SN1-A siren (sold separately).

The GSM Power Switch operates on 90-250 V current 50/60 Hz and is capable of switching a line load On/Off not in excess of 16 A.

In the event of a power failure, the GSM Power Switch contains a CR 123A lithium battery back-up power source. The back-up battery power source does not allow for remote line load operation, but does maintain and support protective security functions.

The device uses a grounded three prong plug.

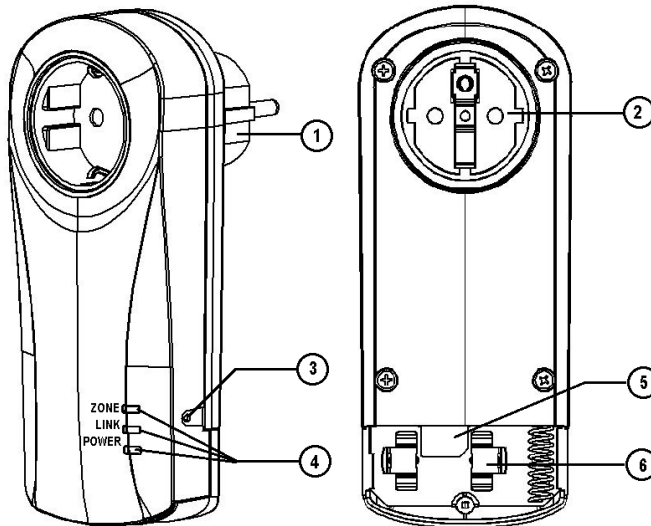
1.2 Device Package Contents

Chart 1- GSM Power Switch package contents

Description	Quantity
GSM Power Socket PS100	1
Keychain Remote Control BN-3S	1
Motion Detector MD101	3
Door/ Window Sensor Switch DWS102	1
User's Manual	1

1.3 External View

The GSM Power Switch is a security device with line load switch capability. The external view is described in diagram 1.



Diag.1

- 1 – Wall plug;
- 2 – Socket with ground;
- 3 – Button "R" is used to enter programming mode and to create the default settings template on the SIM card;
- 4 – Indicators: "ZONE"- Zone status, "LINK"- GSM network status & "POWER"- line load status;
- 5 – SIM card slot;
- 6 – Battery holder.

Caution! Install the battery using proper polarity.

1.4 The Device and its Operation

1.4.1 Main functions of the “GSM Smart Power Switch”

- Dial-up “On/ Off” switching of 110-220V 50/60 Hz line loads not exceeding 16 A;
- Transmits device status, including add-ons, to a registered telephone numbers using SMS notifications;
- Network power management via SMS status notifications
- Management and control via SMS notifications;
- Management via a three button Keychain Remote Control;
- Supports light and sound status indicators, main power status, status of add-on devices (Alarm);
- Capable of connecting to a wire-less siren;
- Capable of connecting up to six (6) wireless alarm sensors;
- Keychain Remote Control provisioned to operate as a panic button;
- Transfers to CR123A 3 V battery back-up power during main power failure and maintains security protection functionality(dial-inline load switching will not operate);
- Change settings with the assistance of a mobile telephone, online service <http://service.alpha-safe.com> or iOS/ Android “GSM Power Switch” apps;
- Manual or automatic SIM card remaining balance inquiry.

1.4.2 Main functions of the Keychain Remote Control

Buttons on the Keychain Remote Control, by default, execute the following operations:

- Button “A”- Arms the device;
- Button “B”- Disarms the device;
- Button “F”- Turns the device voltage line load On/Off.

The Keychain Remote Control can be programmed to operate as a “Panic” button device.

- Button “A”- “Panic” button;
- Button “B”- Arms/Disarms the device;
- Button “F”- Turns the device voltage line load On/Off.

In order to change the KRC operating mode, it is necessary to adjust the parameter value (see chart 16, cell 33).

For example:

Keychain Remote Controls can be registered to the Device. By default, all the KRC's are set to a value of “0”- A Arm/ B Disarm (cell value 33)000000 and in order to convert KRC No.3 button A into “Panic” button mode, it would be necessary to send the registered Power Switch the following SMS message: 33)001000- as a result KRC's 1,2,4,5&6 Button “A” Arms and KRC No.3 Button “A” is set to function as a “Panic” Button.

1.4.3 Indicators on the Keychain Remote Control and GSM Power Switch

The GSM Power Switch is outfitted with light and sound indicators.

The “ZONE” light diode indicates security functions; the “LINK” light diode indicates GSM network state; the “POWER” light diode indicates power line load status (On/Off).

The Keychain Remote light diode indicates Armed, dis-armed, line load On/Off. A status indicator description is provided in charts 2-4.

Chart 2- Keychain Remote Control and GSM Power Switch Indicators

Event/ Mode	PS "ZONE" Diode Indicator	PS Sound Indicator	KRC diode Indicator
Battery Power On	—	1 audio chirp	—
GSM Network Search	Glows Orange	—	—
Entering Prog. Mode	Glows Orange	3 audio chirps	—
KRC Link-up	Glows Orange	1 extended audio beep	Alternately flashes Red/ Green
Arming	Flashes Green During Arming	1 audio beep followed	Briefly glows Red by a series of audio beeps While arming
Disarming	—	1 audio chirp	Briefly glows Green
Standby Mode	Short flashes green during 12 sec. when powered Via battery and steadily glows green when plugged into AC main power	—	—
Attention	Flashes Green	—	—
Alarm	Flashes Red	Series of audio beeps	—

Chart 3- "LINK" Light Diode Indicator

Power Source	"LINK" Light Diode Indicator
On Main AC Power	Indicates Signal Strength (Continuously Glows Green- Good, Orange-Medium & Red- Poor)
On Battery Power	—

Chart 4- "POWER" Light Diode Indicator

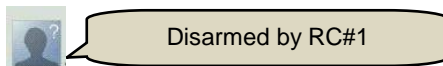
Power Source	"POWER" Light Diode Indicator
On Main AC Power	Load on Glows Red Load off Glows Green
On Battery Power	Flashes Red @ 12 sec. intervals when in Disarmed mode

1.4.4 Notifications

The GSM Power Switch transmits SMS status notifications to the telephone numbers stored in the SIM card memory indicating Alarm, Armed/ Disarmed, presence or absence of power, etc. (samples, as seen in diag. 2-4).



Diag.2 SMS "Armed"



Diag.3 SMS "Disarmed"



Diag.4 SMS "Alarm"

Test Notifications

SMS test notifications are sent at the selected interval and show remaining balance. The time reference point for the selected interval starts when the device is turned on and activated.

Alarm Notifications

When an alarm is triggered, the GSM Power Switch sends a SMS notification and calls out to registered telephone No. 1 (primary). Additionally, calls are made and SMS notifications are sent to the remaining telephone numbers. During this activity, the "ZONE" light diode flashes red and the siren sounds.

In the event that the notification delay feature is engaged (default setting of 20 sec.; see chart 16, cell 20), the GSM Power Switch will first wait out the selected delay while the "ZONE" light diode flashes green and afterwards will start the notifications.

When the GSM Power Switch is operating from an AC main power source, the GSM module is in a constant "On" state, allowing it to receive management commands at any moment. In the absence of a main power source, the GSM module only turns "On" to transmit triggered events.

If the Alarm delay is set to 0 seconds, then the GSM Power Switch, without any further delay, will immediately commence notifications. The Alarm delay includes the time required for the GSM module to turn "On" and for the SIM card to register on the network. The time required for the GSM module to turn "On" and for SIM card registration is approximately 10-30 seconds.

The GSM Power Switch will cease calling out and attempt to call the next number when:

- the subscriber's telephone does not pick-up within 30 seconds;
- the subscriber's telephone is busy;
- the subscriber's telephone is not on the network.

Dialing out will cease, after one of the called subscriber telephone numbers pick up and then, the GSM Power Switch will transmit SMS "Alarm" notifications to the numbers at "2SMS"... "6SMS".

Simultaneously, while SMS notifications and dialed out calls are executed, the registered siren will emit light and audio alarm signals for the duration of 1 minute.

After an Alarm is triggered, the GSM Power Switch can be disarmed with a Keychain Remote Control or an SMS command. Upon the GSM Power Socket receiving a disarm command, the primary telephone number will receive a confirmation SMS (if the "Arm Disarm" cell contains the value "1") and the device will enter "Disarmed" mode.

1.5 Control commands from a telephone

When the GSM Power Switch is plugged into an AC power source, it supports SMS commands from a telephone. Send an SMS command to the GSM Power Switch SIM card number as described in chart 5 in order to execute the selected command. A reply confirmation SMS is sent to the primary registered telephone number and to the telephone number from which the command was sent. A reply to a balance inquiry command will only be sent to the telephone from which the command was actually made.

Chart 5- SMS Commands

SMS' inquiry	Executed command	SMS - power switch response	
		Primary No.	Requesting No.
*0	Turn-off line load		
*0X	Turn-off line load "Relay turned- for X sec. Where X represents a Value from 0 to 65535 Seconds	"Relay turned- off by No.+1XXXXXXXXXX"	relay turned off"
*1	Turn-on line load		
*1X	Turn-on line load for X sec. Where X represents a Value from 0 to 65535 seconds	"Relay turned- on by No.+1XXXXXXXXXX"	"Relay turned-on"
*2	GSM Power Switch SIM card Balance inquiry	—	Balance
*3	ARM	"Armed from No. +1XXXXXXXXXX"	"Armed"
*4	DISARM	"Disarmed from No. +1XXXXXXXXXX"	"Disarmed"
*5	device status	"Relay turned-on/off, armed/disarmed, alarm"	"Relay turned-on/off, armed/disarmed, alarm"

¹- To use a non-registered telephone, a password must be added to the GSM Power Switch memory (see chart 16, cell 15). For example: 12345*1- Turn-on line load.

When making an inquiry from the primary No., the SMS messages are the same as from the inquiring No.

1.6 Arming and Disarming the Device

Arming and disarming the premises where the sensors are installed is accomplished by using a Keychain Remote Control registered to the GSM Power Switch or with via an SMS command.

Arming by using a Keychain Remote Control

Press the “A” button on the KRC. While waiting for an answer from the GSM Power Switch, the KRC light diode glows an orange color. Wait for the KRC light diode to flash red, the “ZONE” light diode will flash green and an intermittent beep will sound. The arming delay will commence (set by default at 40 sec., see chart 16, cell 19). After the arming delay has expired, the GSM Power Switch will enter “Armed” mode. At this phase, the Siren light diode will flash once and a short beep will be emitted.

The primary registered telephone number will receive an SMS containing “Armed by KRC”.

Arming Via SMS Commands (only available when plugged into AC main power)

Send an SMS command *3 from a previously registered telephone to the telephone number of the GSM Power Switch SIM card.

In order to Arm from telephone not registered to the GSM Power Switch, a password must be entered at the beginning of the message (see 4.15). For example: 12345*3

A confirmation SMS “Armed by a call from +1xxxxxxxxx” will be sent to the primary registered telephone number and an SMS “Armed” will be sent to the telephone number from which the command was sent.

Armed Mode

- When operating on battery power, the “ZONE” light diode will flash green once every 12 seconds.
- When operating on AC main power, the “ZONE”, “LINK”&“POWER” indicators glow green (or red, if the line load is turned “On”).

Disarming by using a Keychain Remote Control

Press the “B” button on the KRC. While waiting for an answer from the GSM Power Switch, the KRC light diode glows an orange color. When the GSM Power Switch enters “Disarmed” mode, the KRC light diode will flash green. At this phase, the Siren light diode will flash twice and 2 short beeps will be emitted.

The primary registered telephone number will receive an SMS containing “Disarmed by KRC”.

Disarming Via SMS Commands (only available when plugged into AC main power)

Send an SMS command *4 from a previously registered telephone to the telephone number of the GSM Power Switch SIM card.

In order to Disarm from telephone not registered to the GSM Power Switch, a password must be entered at the beginning of the message (see 4.15). For example: 12345*4

A confirmation SMS “Disarmed by a call from +1xxxxxxxxx” will be sent to the primary registered telephone number and an SMS “Disarmed” will be sent to the telephone number from which the command was sent.

Disarmed Mode

- When operating on battery power, the “POWER” light diode will flash red once every 12 seconds.
- When operating on AC main power, the “LINK”&“POWER” indicators glow green (or red, if the line load is turned “On”).

1.7 Turning the Line Load On/Off

When the GSM Power Switch is plugged into an AC main power source, it is possible to turn a line load on or off via a registered Keychain Remote Control or via SMS commands.

Turning on the Line Load On via a Keychain Remote Control

Press the “F” button on the KRC. While waiting for a response from the GSM Power Switch, the KRC light diode glows orange. When the lit KRC orange light diode flashes, it will indicate the line load is turned “On”. The “POWER” light diode on the GSM Power Switch will glow red to indicate that the line load is turned “On”.

Turning the Line Load On via SMS Commands

Send an SMS command *1 from a previously registered telephone to the telephone number of the GSM Power Switch SIM card.

In order to Arm from telephone not registered to the GSM Power Switch, a password must be entered at the beginning of the message (see 4.15). For example: 12345*1

A confirmation SMS “GSM Socket is Switched On from +1xxxxxxxxx” will be sent to the primary registered telephone number and an SMS “GSM Socket is Switched On” will be sent to the telephone number from which the command was sent.

Turning of the Line Load Off via a Keychain Remote Control

Press the “F” button on the KRC. While waiting for a response from the GSM Power Switch, the KRC light diode glows orange. When the lit KRC orange light diode flashes green, it will indicate the line load is turned “Off”. The “POWER” light diode on the GSM Power Switch will glow green to indicate that the line load is turned “Off”.

Turning of the Line Load Off via SMS Commands

Send an SMS command *0 from a previously registered telephone to the telephone number of the GSM Power Switch SIM card.

In order to Arm from telephone not registered to the GSM Power Switch, a password must be entered at the beginning of the message (see 4.15). For example: 12345*0

A confirmation SMS “GSM Socket is Switched Off from +1xxxxxxxxx” will be sent to the primary registered telephone number and an SMS “GSM Socket is Switched Off” will be sent to the telephone number from which the command was sent.

1.8 Panic Button

In order to trigger the silent alarm “Panic Button”, regardless the state the device is in (Armed/ Disarmed), press the “A” button located on the Keychain Remote Control. While waiting for a response from the GSM Power Switch, the KRC light diode glows orange and then flashes a few times. The “ZONE” light diode flashes red. Then the primary registered telephone number will receive an SMS notification containing “Remote Control # Alarm”, followed by a call to the primary telephone number. Afterwards, SMS notifications will be sent to the remaining registered telephone numbers “2SMS...6SMS”.

In order to turn off the silent alarm “Panic Button”, press button “B” on the Keychain Remote Control. An SMS notification will be sent to the primary registered telephone number containing “Disarmed by RC#”.

2 TECHNICAL SPECIFICATIONS

<i>Device power supply</i>	90-250 V 50/60 Hz
<i>Line load switching capacity</i>	110-220 V 50/60 Hz not to exceed 16 A
<i>Switching power</i>	3.5 kW
<i>Maximum operating distance for the Keychain Remote Control</i>	50 m
<i>Maximum operating distance for the wireless siren</i>	100 m
<i>Maximum operating distance for the sensors</i>	100 m
<i>GSM module operating standards</i>	GSM-850/900/1800/1900
<i>Maximum quantity of registered Telephones for notification</i>	6
<i>Maximum quantity of registered Keychain Remote Controls</i>	6
<i>Maximum quantity of registered Security Sensors</i>	6

Maximum quantity of wireless sirens	1
Average delivery time required to send an Alarm notification to the subscriber's Telephone	20-40 seconds
Type of back-up battery for the GSM Power Switch	CR2032 3V Lithium battery
Type of battery for the Keychain Remote	-10 - +50 °C
Control- Temperature operating range Relative air humidity without Vapor condensation, not to exceed	93%
Overall dimensions; do not exceed	67x80x160 mm
Weight, no more as	0.3 kg

3 ALARM SENSORS, DETECTORS & ANNUNCIATORS

Wireless Motion Detectors MD101 (further referred to as Motion Detector) and Door / Window Sensor Switch DWS102 (further referred to as Sensor Switch) can be used in conjunction with the GSM Power Switch to control and monitor penetration of a protected zone at an enclosed location. In addition, the wireless SN1-A siren can be utilized for audio and light warnings.

3.1 Motion Detector MD101

The passive infrared radio channel Motion Detector MD101 (further referred to as Motion Detector) serves to detect penetration of a protected zone at an enclosed location and to transmit a notification via radio channel to the GSM Power Switch.

The operating principle of the Motion Sensor is based on the recognition of heat changes emanating from a person crossing thru a sensitive zone (see Diag. 6) that is monitored by a lens and a pyro electric detector.

Primary technical specifications can be found in chart 6.

Chart 6- Technical Specifications

Parameter description	Value
Detection distance at normal sensitivity	fr 0 to 10m
Detection distance at reduced sensitivity ("sensitivity" jumper closed)	fr 0 to 8m
Movement speed range of the violator	fr 0.3 to 3m/s
Type of power source	CR123A (3V lithium)
Battery operating span, not less than	3 years
Radio signal frequency spectrum	fr 433.05 to 434.79 MHz
Radio signal operating range; "line of sight"*	100m
Maximum transmitter power	5 mW
Interval at which "Heartbeat" control signal transmits	hourly
Operating temperature range	fr -10 to +50 °C
Dimensions, not exceeding	90 x 58 x 45 mm
Weight, not exceeding	0.1 kg
Service operating life, not less than	10 years

- Indoor radio signal operating range can be affected by construction materials used and the installation location inside the premises.

Chart 7- Installation recommendations for radio channel devices

Location of radio channel devices	Recommended distance, Not more than
In premises with "line of sight"	50 m
In premises containing wooden or sheetrock partitions	35 m

<i>In premises containing brick, cinderblock, etc. walls, not thicker than 250mm</i>	<i>20 m</i>
<i>In premises containing concrete walls and barriers</i>	<i>12 m</i>

The Motion Sensor transmits the following types of notifications:

- “Alarm”- when penetration of the protected zone is detected;
- “Enclosure opened”- when the tamper contacts are opened or closed;
- “Heartbeat control”- periodically sent to confirm and verify Motion Sensor operation.

When transmitting notifications, a two-way exchange with acknowledgement is utilized. Transmitted information is encoded, thereby preventing the use of substitute devices and unauthorized operation of the Power Switch.

Notifications are transmitted under the following conditions:

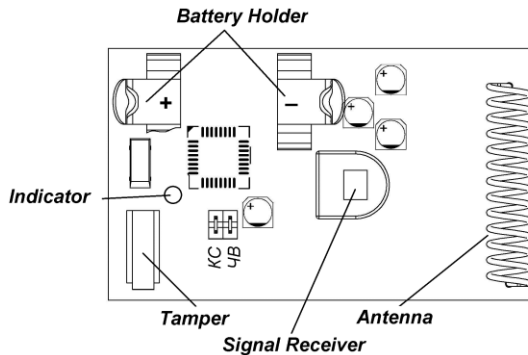
- After power-up, transmission of all signals are blocked for one (1) minute;
- After entering “Armed” mode, an “Alarm” notification cannot be generated prior to thirty (30) seconds elapsing;
- “Enclosure opened” and “Heartbeat control” are transmitted in both “Armed” and “Disarmed” modes;

The Motion Sensor gets its power from one (1) battery. Power up occurs when the tamper is depressed and the protective plastic insert is removed from in between the battery and battery holder.

Attention! When installing or replacing with a new battery, make sure to keep the tamper depressed.

Motion Sensor design structure

The Motion Sensor is constructed utilizing a primary base and a removable cover together with an infrared lens. Installed inside are a signal receiver, a transceiver with antenna, a battery, a light diode indicator, an anti-tampering sensor (tamper) and two jumpers for setting modes (see diag.5).



Diag.5 Motion Detector Circuit Board View

Chart 8- Jumper definitions

Jumper position		Selected mode	
“KC”		<i>Closed</i>	<i>Send notification “Enclosure opened”</i>
		<i>Open</i>	<i>Do not send notification “Enclosure opened”</i>
“CB”		<i>Closed</i>	<i>Reduced sensitivity</i>
		<i>Open</i>	<i>Normal sensitivity</i>

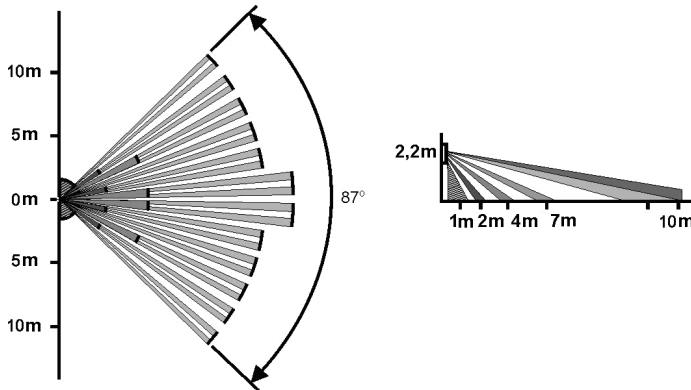
Chart 9- Light indicators

Motion sensor state	Red indicator
<i>Normal</i>	<i>Not lit</i>

<i>Notification sent</i>	<i>single or a series of flashes</i>
<i>Battery voltage below normal</i>	<i>flashes once every 8 seconds</i>
<i>"Armed" mode entered</i>	<i>series of 3 flashes</i>
<i>Conclusion of the GSM Power Switch "programming" mode</i>	<i>series of 3 flashes</i>

Installation recommendations

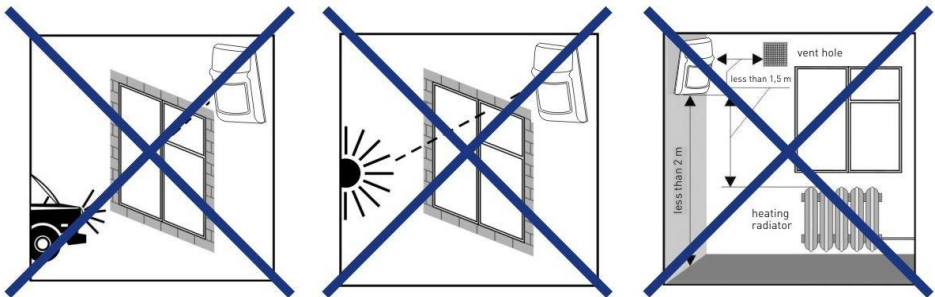
The Motion Detector should be installed in a manner that takes into account the likely path of a violator crossing into and thru the axis of the protected zone. The recommended installation height is approximately 2 to 2.5m. At an installation height of 2m, the detection range is approximately 10 m, at a view of 87 degrees (see diag.6). The presence of objects in the protected zone, such as furniture, screens, plants, etc., might create "blind spots" and possibly interfere with the detection of human movement.



Diag. 6 Detection zone description

The Motion Detector is not intended to be operated in corrosive and potentially explosive environments.

The surface on which the Motion Detector is mounted should not be subject to vibration. Do not install the Motion Detector near strong heat sources (air conditioners, radiators, heaters, etc.) or in any location subject to strong air currents, sudden air temperature changes or direct sunlight (see diag. 7). It is possible to reduce Motion Detector sensitivity by placing the "CB" jumper into the closed mode position.



Diag. 7 Examples of improper installation

The Motion Detector should be installed in a spot, at the location, that is not hindered from the GSM Power Switch by concrete or thick brick walls.

The Motion Detector should be installed away from high voltage electrical wiring, electric lamps, electronic devices and computer equipment. Doing so, will increase radio channel operating distances and help avoid false alarms.

In order to quickly verify proper radio channel signal operation at the selected installation spot, the “Enclosure Opened” notification indicator feature can be used. The verification can be done after the Motion Detector is registered and the “KC” jumper is placed in the closed position. Each flash of the indicator light diode represents a signal dispatch. If after pressing or releasing the tamper lever, the light diode indicator flashes 1-2 times, then the communication channel is adequately strong. If there are 3 flashes or more, then the distance to the GSM Power Switch is too far or the selected installation spot is inadequate.

Installation and mounting of the Motion Detector at the selected spot should be executed in accordance with the instructions found in the device’s operating manual.

If necessary, verification of operation and detection zone adjustments can be made by moving thru and around the area after the GSM Power Switch has been armed.

3.2 Door/ Window Sensor Switch DWS102

The radio channel magnetic Door/ Window Sensor Switch (further referred to as Sensor Switch) serves to detect the unauthorized opening of doors, windows, hatches, etc. and to transmit an “Alarm” notification via radio channel to the GSM Power Switch. It contains a built-in magnetic Sensor Switch and an “Enclosure Opened” sensor (Tamper). Additional passive magnetic switch sensors can be connected by means of an external wired circuit loop.

Primary technical specifications for the Sensor Switch can be found in chart 10.

Chart 10- Primary technical specifications

Parameter description	Value
<i>Distance (Between sensor & magnet) at which an “Alarm” signal is generated</i>	<i>12mm & greater</i>
<i>Distance at which “Normal” mode is restored</i>	<i>10mm & less</i>
<i>Maximum length of an external wired loop</i>	<i>10m</i>
<i>Impedance of the external wired loop resistor</i>	<i>7.5 kOhm</i>
<i>Type of power source</i>	<i>CR123A (3V lithium)</i>
<i>Battery operating span, not less than</i>	<i>3 years</i>
<i>Radio signal frequency spectrum</i>	<i>fr 433.05 to 434.79 MHz</i>
<i>Radio signal operating range; “line of sight”*</i>	<i>100m</i>
<i>Maximum transmitter power</i>	<i>5 mW</i>
<i>Interval at which “Heartbeat” control Signal transmits</i>	<i>hourly</i>
<i>Operating temperature range</i>	<i>fr -10 to +50 °C</i>
<i>Dimensions, not exceeding</i>	<i>109×32×27,5 mm</i>
<i>Dimensions of magnet, not exceeding</i>	<i>56,5×18×15,7 mm</i>
<i>Weight of the Sensor Switch / magnet, not exceeding</i>	<i>60 g / 10 g</i>
<i>Service operating life, not less than</i>	<i>10 years</i>

*- Indoor radio signal operating range is affected by construction materials used and the installation location inside the premises.

Installation recommendations for radio channel devices are shown in Chart 7.

The Sensor Switch transmits the following types of notifications:

- “Alarm”- when the magnetic Sensor Switch is triggered;
- “Enclosure opened”- when the tamper contacts are opened or closed;
- “Heartbeat control”- periodically sent to confirm and verify Sensor Switch operation.

When transmitting notifications, a two-way exchange with acknowledgement is utilized. Transmitted information is encoded, thereby preventing the use of substitute devices and unauthorized operation of the GSM Power Switch.

Notifications are sequenced in the following order:

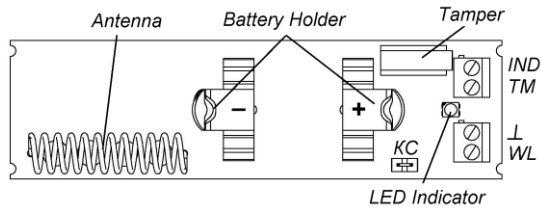
- After power-up, transmission of all signals by the Sensor are blocked for one (1) minute;
- Minimum interval time between the transmission of “Alarm” notifications is one (1) minute;
- “Enclosure opened” and “Heartbeat control” are transmitted in both “Armed” and “Disarmed” modes;

The Sensor Switch receives its power from a single (1) battery. Power up occurs when the tamper lever is depressed and the protective plastic insert is removed from in between the battery and battery holder.

Attention! When installing or replacing with a new battery, make sure to keep the tamper lever depressed.

Sensor Switch Design Structure

The Sensor Switch is constructed utilizing a removable cover, a primary base and circuit board. The cover snaps into and attaches to the base. Installed on the circuit board are a battery, a magnetic sensor, a “KC” jumper, a two color LED indicator, an anti-tampering sensor (tamper) and terminal blocks permitting external connections (see diag.8). A “>” mark can be found on the cover indicating the location of the magnetic sensor.



Diag.8 Sensor Switch Circuit Board View

Chart 11- “KC” jumper definitions



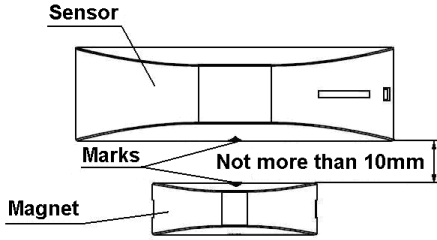
Jumper position		Selected mode
«KC»	 Closed	Send notification “Enclosure opened”
	 Open	Do not send notification “Enclosure opened”

Chart 12- Light indicators

Sensor Switch state	Red indicator
Normal	Not lit
Notification sent	Single or a series of flashes
Battery voltage below normal	Flashes once every 8 seconds
“Armed” mode entered	Series of 3 flashes
Conclusion of the GSM Power Switch “programming” mode	Series of 3 flashes



Diag. 9 Overview of installation & connection measurements

Installing and Testing the Sensor Switch

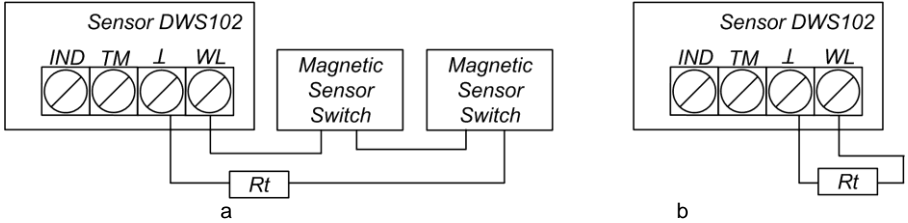
The Sensor Switch is not intended to be operated in corrosive and potentially explosive environments.

The Sensor Switch should be installed in a spot, at the location, that is not hindered from the GSM Power Switch by concrete or thick brick walls.

The Sensor Switch should be installed away from high voltage electrical wiring, electric lamps, electronic devices and computer equipment. Doing so, will increase the radio channel operating distance.

In order to activate the magnet built into the sensor during Sensor Switch registration, it is necessary to place the magnet that came with the unit, near to the ">" mark located on the housing of the Sensor Switch. Otherwise, the magnetic Sensor Switch will not process properly during operation.

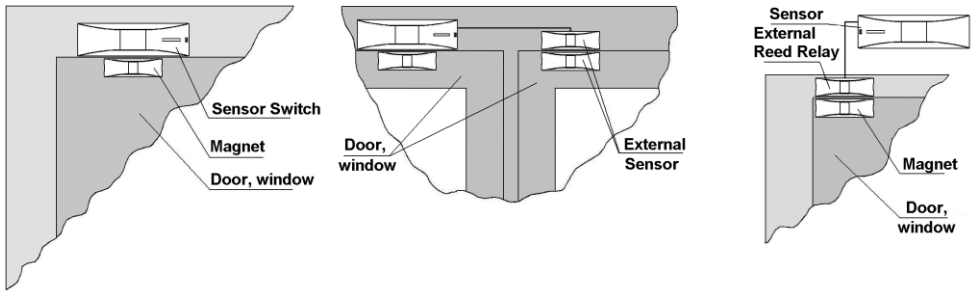
If necessary, attach additional Sensor Switches to the Sensor Switch inputs (see diag. 10a).



Diag. 10 Connection diagram

In case the Wire Loop (WL) circuit is not employed, the terminating resistor (Rt) must be directly connected to the WL and "l" inputs (see diag. 10b). The lack of a terminating resistor (Rt) will cause the unit to trigger unwanted Alarms.

Basic options for locating Sensors Switch are shown in diagram 11.



Diag. 11 Options for locating and deploying Sensor Switches

In order to quickly verify proper radio channel signal operation at the selected installation spot, the “Enclosure Opened” notification indicator feature can be used. The verification can be done after the Sensor Switch is registered and the “KC” jumper is placed in the closed position. Each flash of the indicator light diode represents a signal dispatch. If after pressing or releasing the tamper lever, the light diode indicator flashes 1-2 times, then the communication channel is adequately strong. If there are 3 flashes or more, then the distance to the GSM Power Switch is too far or the selected installation spot is inadequate.

Installation and mounting of the Sensor Switch at the selected spot should be executed in accordance with the instructions found in the device’s operating manual.

3.3 Alarm Siren SN1-A

The wireless SN1-A siren (further referred to as Siren) is designed to sound an Alarm in operating with the GSM Power Switch.

In addition to sounding an Alarm, the Siren functions as a sound and light annunciator in order to acknowledge system arming and disarming.

Basic technical specifications for the Siren are shown in chart 13.

Chart 13- Basic technical specifications

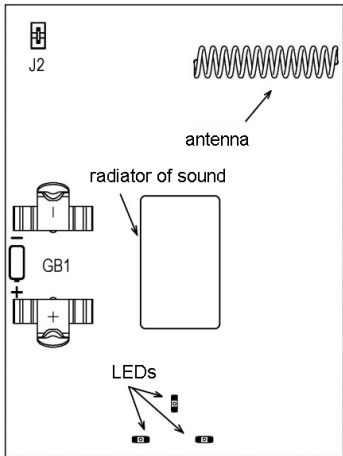
<i>Parameter description</i>	<i>Value</i>
<i>Loudness sound level at a distance of 1m</i>	<i>85-95 dB</i>
<i>Maximum radio channel signal range with the GSM Power Switch</i>	<i>100 m</i>
<i>Battery type</i>	<i>Lithium battery CR123A 3V</i>
<i>Battery operating life</i>	<i>12 months</i>
<i>Temperature operating range</i>	<i>Fr -10 to +50 °C</i>

Wireless Siren design structure

The Siren consists of a base, a cover, a circuit board and a sound annunciator. The Siren circuit board contains a jumper (J2) that serves to turn on or off the audio sound confirmation feature during Arming and Disarming. When the jumper is in the closed position, the audio sound confirmation feature is not available. The base and cover attach to each other using a single screw that can be found at the lower part of the unit.

The Siren mounts in any convenient manner on a hard surface using two screws.

Power is provided by a CR123A 3V Lithium battery. The battery should be installed using proper polarity as indicated on the circuit board.



Diag.12 Siren plate

The Siren provides light and sound alerting. A description of notification alerts can be found in chart 14.

Chart 14- Siren Notifications

Notification	Sound alert	Light alert
<i>Power-up</i>	<i>1 Sound chirp</i>	<i>1 Flash</i>
<i>Registration confirmation</i>	<i>1 Sound chirp</i>	<i>3 Flashes</i>
<i>Alarm device Armed Acknowledgement</i>	<i>1 Sound chirp</i>	<i>1 Flash</i>
<i>Alarm device Disarmed</i>	<i>2 Sound chirps</i>	<i>2 Flashes</i>
<i>Acknowledgement "ALARM"</i>	<i>Sounds periodically during 1 minute</i>	<i>Flashes periodically During 1 minute</i>

Chart 15- Audio sound Armed/ disarmed confirmations

Jumper position J2	Audio sound confirmations for Armed/ Disarmed modes
<i>Closed</i>	<i>No</i>
<i>Opened</i>	<i>Yes</i>

4 SET-UP PROCEDURE

4.1 Preparing the Device for Operation

Purchase a new SIM card (preferably M2M; machine to machine). Prior to set-up, de-activate the PIN code request feature on the GSM Power Switch SIM card by using a GSM type telephone (refer to the instructions found in the telephone Operating Manual) and turn-off any additional extra services found on the SIM card. Confirm that the SIM card memory is cleared and that an adequate balance is available.

If the SIM card was previously used, execute erasure of the phonebook (4.4).

After opening the package, visually inspect the GSM Power Switch to make sure there is no physical damage and that all the parts are present.

4.2 Setting Up the GSM Power Switch

All GSM Power Switch settings are saved to and kept in the SIM card memory. When powered up for the first time with a new SIM card, the GSM Power Switch creates a values template in accordance with chart 16.

Chart 16- Setting up the GSM Power Switch Parameter Values

Cell#	Cell label	Default Value	Description	Possible Values or
1	1sms	000	1st notification tel. number (primary)	Enter number in the following format +1*****
2	2sms	000	Notification tel. numbers	Enter number in the following format +1*****
3	3sms	000		
4	4sms	000		
5	5sms	000		
6	6sms	000		
7	BALANCE	0	Remaining balance Inquiry US. Auto detection of remaining balance command for major providers	Manual entry of remaining balance command for specific provider *100#

Cell#	Cell label	Default Value	Description		Possible Values or
8	RC#1	000000000	Factory set Remote Control number	Entered automatically during RC registration. 000000000 - RC not registered	123456789
9	RC#2	000000000			
10	RC#3	000000000			
11	RC#4	000000000			
12	RC#5	000000000			
13	RC#6	000000000			
14	TEST	7	Frequency for Test/ heartbeat SMS notification	Interval sets in Days. 0- Test/ heartbeat SMS notification disabled	7 – 7 days
15	Password	00000	Password to control from	00000 - Password disabled by default. Commands blocked from all non-registered tel.'s	12345
16	ArmDisarm	1	Send SMS when armed/ disarmed mode activated	0 - Disable Send 1 - Enable Send	0
17	AvtoArm	60	Reset time to re-Arm after a triggered Alarm; no notification Sent	0 - 250 seconds 0 - Reset disabled	120
18	AlarmNot	1	Alarm notification Option/Type during Alarm mode	0 - SMS sent to 1sms...6sms 1 - Call + SMS; SMS sent to 1sms, then calls placed to all tel. numbers, followed by SMS transmittal to all remaining tel. numbers "2sms... 6sms"; 3 - Only calls placed to "1sms...6sms"	0
19	ArmDelay	40	Arming delay	0 - 250 sec.	125
20	NotDelay	20	Notification delay, after triggered alarm to permit disarming	0 - 250 sec.	100
22	Siren	000000000	Unique Siren ID Number	Auto Recorded registration; 000000000- device not registered	123456789
25	TriggerAlarm	0	Turns Alarm Sensor sound off/on during triggered alarm	0 – On 1- Off	0
26	SIGNAL1	000000000	Unique Sensor ID Number	Auto Recorded registration; 000000000-device not registered	123456789
27	SIGNAL2	000000000			
28	SIGNAL3	000000000			
29	SIGNAL4	000000000			
30	SIGNAL5	000000000			
31	SIGNAL6	000000000			

Cell#	Cell label	Default Value	Description		Possible Values or
32	RelayAlarm	0	Using Relay Output During Alarm	0- Do not use 1- Close Relay 2- Open Relay	2
33	BlockRelay Mode	000000	Button A&B mode type	1- "A" Panic "B" Arm/Disarm 0 -"A" Arm "B" Disarm	010011 RC 1,3&4 Button "A"- Arm, Button "B"- Disarm RC 2,5&6 Button "A"- Panic, Button "B"- Arm/Disarm
34	SOCKET	0	Template name w/settings	Service parameters, created in Socket template during set-up	
35	AlarmNmb	000	Service Cell	Alarm Device Tel.#	+17180000000
36	LANG	0	SMS Notification Language	0-Ru 1-En	1

For example, if cell "Auto Arm" (see chart 6, cell 17) contains "90", then after a triggered Alarm, the GSM Power Switch will pause for 90 seconds, after which, it will re-enter "Armed" mode.

For example, if cell "Not Delay" (see chart 6, cell 20) contains "40", after a triggered alarm, the "Alarm" notification transmission will be delayed 40 seconds in order to facilitate Disarming.

4.3 Accessing Programming Mode

The GSM Power Switch can access programming mode via 2 methods.

Method 1

In order to access GSM Power Switch programming mode, execute the following steps consecutively.

1. Lift-off the battery compartment cover.
2. Remove the battery and insert a SIM card into the slot.
3. Replace the battery using proper polarity.
4. Wait for a single audible beep. Light diodes "ZONE", "LINK" & "POWER" will glow a steady orange indicating power-up.
5. Wait for the SIM card to log on to the network. Upon completion of log on, 3 audible beeps are heard. The "ZONE" light diode will glow orange, while "LINK" indicates GSM signal strength (green-good or red- poor) and "POWER" is not lit-up. This indicates that the GSM Power Switch has accessed programming mode.

Method 2

In order to access the GSM Power Switch programming mode from "Standby" mode, press down button "R" until the "ZONE" indicator lights up (glows steady orange and "LINK" indicates GSM signal strength).

Caution! While accessing programming mode, do not press button "R" in excess of hearing 4 audible beeps. Otherwise, all previous settings will be cleared from the SIM card.

For a span of 60 seconds the GSM Power Switch waits for incoming calls and for connection inquiries from Remote Controls, Sirens and SMS's containing changes in settings (each one of these actions will extend the GSM Power Switch wait period for an additional 60 seconds). After the wait

period expires, the GSM Power Switch will enter "Disarmed" mode and transmit an SMS notification indicating all added devices to the primary telephone number.

4.4 Erasing the Telephone Book (Creating the Default Template)

If the SIM card was previously used in a GSM Power Switch, it will be necessary to create a default template. Execute the following steps consecutively.

1. Install a SIM card.
2. Press and hold down the "R" button for a duration of 5 beeps. When the beeps cease, all the indicators will glow orange.
3. Release the button. An audible beep will confirm erasure.
4. The Indicator will show that the GSM Power Switch is in the programming mode ("Zone" light diode glows a steady orange, "Link" shows GSM signal strength (green- strong or red- weak) and "Power" is not lit-up).

After the template is created, the SIM card is now ready for further set-up.

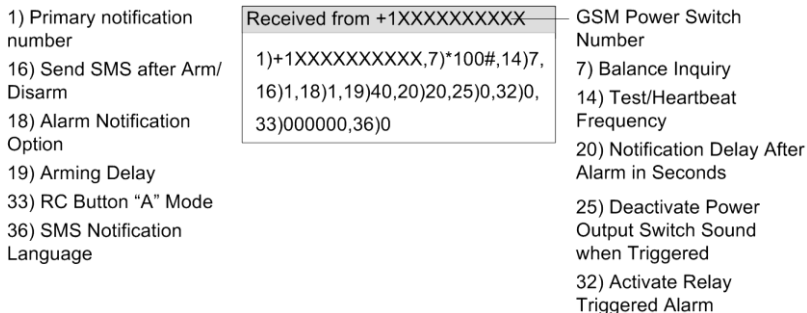
4.5 Initial Programming (Set-Up)

When the GSM Power Switch powers up for the first time, cells will be created in the SIM card telephone book containing default parameter values. In the future, these values can be edited.

Execute the following steps consecutively.

1. Access programming mode in the device (see 4.3).
2. Add telephone numbers for notifications (see 4.7).
3. Add the Siren (see 4.9).
4. Add Keychain Remote Controls (4.11).
5. Add Alarm Sensors & Motion Detectors (see 4.13).

6. The primary telephone number will receive an SMS notification indicating all added devices; an SMS showing settings (see diag.13) and an SMS showing all registered Keychain Remote Controls, the Siren and detector sensors (see diag.14).



Diag. 13- SMS w/ Settings Description



Diag. 14- SMS w/ Registered Devices

4.6 Changing the Value Parameters

The value parameter settings that were created at first power-up can be changed. The parameter values can be changed using a few methods.

Method 1

The GSM Power Switch settings can be changed with the aid of an online service (service.alpha-surf.ru), an OS Android App from google.play.com or an iOS App from iTunes (search "GSM Power Switch").

Method 2

1. Create an SMS message using values in accordance with Chart 16. For example, in order to change the type of notification, an SMS message must be sent from a registered telephone to the GSM Power Switch SIM card telephone number containing this text (text is entered w/o angle brackets): <<18)0>>, where: 18) is the cell number; and 0 is the parameter value. In order to change a number of parameter values, the listed parameter values must be separated by a comma; for example: <<16),18)0>>

2. Send the created SMS message to the GSM Power Switch SIM card telephone number.

Method 3

It is also possible to change the parameter values directly via a GSM telephone. In order to accomplish this, install the SIM card into a GSM telephone, access the required cell # via the phone book (in accordance with Chart 16) and then edit the parameter value accordingly.

Attention! This method cannot be used to register Keychain Remote Controls, Detectors/ Sensors and Sirens.

4.7 Adding Notification Telephone Numbers

Notification telephone numbers can be added in the following manner:

1. Access programming mode in the GSM Power Switch (see 4.3). For a span of 60 seconds, the GSM Power Switch will wait to receive incoming calls.

2. Place a call from the telephone number to be added to telephone number of the GSM Power Switch SIM card.

3. Wait for the GSM Power Switch to pick-up, then drop the incoming call and then confirm registration with a single audio beep. The telephone number will be recorded at an available cell position@ <<2sms>>...<<6sms>>.

4. The telephone number from which the call was made will receive an SMS response showing the added telephone number. For the next 60 seconds, the GSM Power Switch will wait for additional incoming registration calls (up to 6 telephone numbers can be added).

Notification telephone numbers can be added using any of the methods described in 4.6.

4.8 Deleting Notification Telephone Numbers

In order to delete a telephone number from the notification list, execute the following steps.

1. Send an SMS from a registered telephone to the SIM card telephone number of the GSM Power Switch containing the following text (text is entered w/o angle brackets): <<2)000>>- in order to delete the second notification telephone number, <<3)000>>- in order to delete the third notification telephone number, etc.. In order to delete multiple notification telephone numbers, separate the listed parameter values with a comma. For example; <<2)000,3)000,4)000,5)000,6)000>>- This deletes all the listed additional notification telephone numbers.

In case the telephone number from which deleting is not registered with the GSM Power Switch, then the SMS needs to be composed with a password (see 4.15).

2. The GSM Power Switch will emit 1 audible beep or a number of audible beeps, depending on the length of the SMS message.

4.9 Adding the Wireless Siren

1. While the GSM Power Switch is in programming mode, power-up the Siren by removing the protective plastic insert from in between the battery and the battery holder. This Siren will be registered in cell 22 <<Siren>>. Upon power-up, the Siren's light diode's will flash once and a short beep is heard. When registration is completed, the Sirens light diodes will flash three times and a short beep is heard.

2. Wait for the GSM Power Switch to beep once.

3. An SMS will arrive on the telephone indicating the added Siren.

Attention! The GSM Power Switch memory permits the registration of only one Siren. In the event that a second Siren is registered, the GSM Power Switch will automatically delete the previously registered Siren.

4.10 Deleting the Wireless Siren

In order to delete a previously registered Siren from the GSM Power Switch memory, execute the following steps.

1. Send an SMS from a registered telephone to the SIM card telephone number of the GSM Power Switch containing the following text (text is entered w/o angle brackets):<<22)00000000>>.

In case the telephone number from which deleting is not registered with the GSM Power Switch, then the SMS needs to be composed with a password (see 4.15).

2. The GSM Power Switch will emit 1 audible beep.

Attention! Delete a registered Siren from the GSM Power Switch memory in the event its power is turned off or if it is located outside its operating range.

4.11 Adding a Keychain Remote Control

1. While in programming mode, press any button on the Keychain Remote Control in order to register it in the SIM card memory. This Keychain Remote Control will be registered in cell 8 as <<RC1>> (see chart 16).

2. The Keychain Remote Control light diode will glow orange, then during the registration process the light diode will alternately flash red and green. Upon completion of registration, 1 audible beep will be heard and the light diode indicator will turn off.

3. An SMS will arrive on the telephone indicating the added Keychain Remote Control.

Repeat these steps in order to register additional Keychain Remote Controls (up to 6 Keychain Remote Controls may be registered).

4.12 Deleting a Keychain Remote Control

In order to delete previously registered Keychain Remote Controls, execute the following steps consecutively:

1. Send an SMS from a registered telephone to the SIM card telephone number of the GSM Power Switch containing the following text (text is entered w/o angle brackets): <<8)000>>- in order to delete RC1, <<9)000>>- in order to delete RC2, etc.. In order to delete multiple Keychain Remote Controls, separate the listed parameter values with a comma. For example; <<8)00000000,9)00000000,10)00000000,11)00000000,12)00000000>>- This deletes all the listed additional Keychain Remote Controls.

In case the telephone number from which deleting is not registered with the GSM Power Switch, then the SMS needs to be composed with a password (see 4.15).

2. The GSM Power Switch will emit 1 audible beep or a number of audible beeps, depending on the length of the SMS message.

4.13 Adding Alarm Sensors & Motion Detectors

1. Access programming mode in the GSM Power Switch.

2. Open the Alarm Sensor or Motion Detector enclosure.

3. While keeping the tamper lever depressed, power-up the Alarm Sensor or Motion Detector by removing the protective plastic insert from in between the battery and the contacts or by installing a battery.

4. At the conclusion of registration, the Alarm Sensor or Motion Detector indicator will blink red 3 times and the GSM Power Switch will emit 1 audible beep.

5. An SMS will arrive on the telephone indicating the added Alarm Sensor(s) and/ or Motion Detector(s).

Repeat these steps in order to register any additional Alarm Sensors and/ or Motion Detectors.

Attention! Whenever an Alarm Sensor and/ or a Motion Detector is powered-up, it is necessary to keep the tamper lever depressed until the light diode indicator lights up.

Up to 6 Alarm Sensors and / or Motion detectors of these 2 types can be registered in the GSM Power Switch memory.

4.14 Deleting Alarm Sensors & Motion Detectors

In order to delete previously registered Alarm Sensors & Motion Detectors, execute the following steps consecutively:

1. Send an SMS from a registered telephone to the SIM card telephone number of the GSM Power Switch containing the following text (text is entered w/o angle brackets): <<26)00000000>>- in order to delete Sensor/Detector1, <<26)00000000>>- in order to delete Sensor/Detector 2, etc..

In case the telephone number from which deleting is not registered with the GSM Power Switch, then the SMS needs to be composed with a password (see 4.15).

2. The GSM Power Switch will emit 1 audible beep or a number of audible beeps, depending on the length of the SMS message.

4.15 Changing the Password

By default, the password for controlling and managing the GSM Power Socket via a non-registered telephone is- "00000" (see chart 16, cell 15). This means that the password feature is deactivated, i.e. all commands from non-registered telephones are not allowed.

In order to change the password, it is necessary to send an SMS containing a new password from a registered telephone. For example (text is entered without the angle brackets): <<15)12345>>; now the device can be controlled and managed from a non-registered telephone.

Attention! *The password must consist of 5 numerals.*

5 WARRANTY COVERAGE

The warranty period is one year from date of purchase. During the warranty period, the manufacturer will repair, exchange, adjust, or replace at its discretion, any defective product. This warranty does not cover damage resulting from any unauthorized attempts to repair or from any use not in accordance with the instruction manual. The warranty does not cover physical damage of any kind whatsoever nor does it cover damage caused by any attempt to tamper with or disassemble the product. The warranty coverage does not extend to the batteries. The warranty period commences on the day first purchased from the manufacturer or an authorized reseller as evidenced by a purchase receipt. Without a valid purchase receipt, the manufacturer is relieved of its obligation to provide warranty service.