Installation manual

Mobeye MS100B

GSM

Measure, Control and Alarm module

SW version 7.n

Attention! Very important

This user manual contains important guidelines for the installation and usage of the Mobeye MS100B. Please read these thoroughly before you start using the Mobeye MS100B!
In case of damage caused by disregarding the guidelines, the warranty becomes void.
The user must regularly check the proper functioning of the Mobeye MS100B. The manufacturer cannot be held liable for any damage or loss caused by any incorrect use or incorrect functioning of the Mobeye MS100B.

Safety guidelines
- The permitted ambient temperature during operation may not be exceeded (not lower than -10°C and not higher than 55°C).
- The device is intended for use in dry and clean places.
- Protect the device from moisture, heat and water splashing. Not intended for external use.
- The guidelines for the battery usage must be regarded.
- Do not expose the device to strong vibrations.
- Do not let it fall from height.
- Do not use in an environment where any inflammable gases, vapours or dust are present or could be present.
- Repair of the device may only be carried out by people, trained for Mobeye® repair.
- If the device must be repaired, only original replacement components may be used. The use of different parts may lead to damage of the Mobeye MS100B.

Use in accordance with the regulations
The purpose of this device in accordance with the regulations is the generation of SMS text messages and telephone calls after the activation of one of the inputs, or after an internal trigger; switching the outputs after an alarm or via incoming call/SMS. Other uses are not permitted.

Battery recycling
CR123 batteries, as used in the Mobeye MS100B can be recycled. Please take empty batteries to a nearest collection point.

Table of Content

1. INTRODUCTION

The Mobeye MS100B is an easy to install measure, control and alarm module that will send alerts using the built-in GSM communication module. It has inputs for sensors and signals. The Mobeye MS100B can also switch external devices that are connected (e.g. by SMS text message). To use the Mobeye MS100B you will need a SIM-card. This can be a prepaid or post-paid card.

The Mobeye MS100B has following features:
- In case one of the inputs is activated by a sensor, the Mobeye MS100B sends an alarm SMS text message and calls the phone numbers as programmed. The SMS message contains the text 'Mobeye alarm 1' or 'Mobeye alarm 2'.
- As soon as the inputs leave the alarm status, an SMS text message is sent to the set telephone numbers containing the text such as 'Mobeye Input 1 OK' or 'Mobeye Input 2 OK'.
- If the sensor and/or the input remain in the alarm status, the Mobeye MS100B repeats sending the SMS alarm message every four hours.
- With just batteries (no external power supply) the module is in low-power mode, which means that the GSM network connection is disabled and only established when it needs to send an alarm, test message or "battery low" message.
- When the batteries need to be replaced, the Mobeye MS100B sends a 'battery low' SMS text message to the administrator.
- If an external power supply is used and a power failure occurs, the Mobeye MS100B sends a 'power failure' SMS text message and calls the phone numbers as programmed by the user. When the power is restored, the Mobeye MS100B sends a 'power restored' SMS text message to the numbers.
- If an external power supply is used, the outputs can be switched by an incoming SMS command from an authorised telephone number.
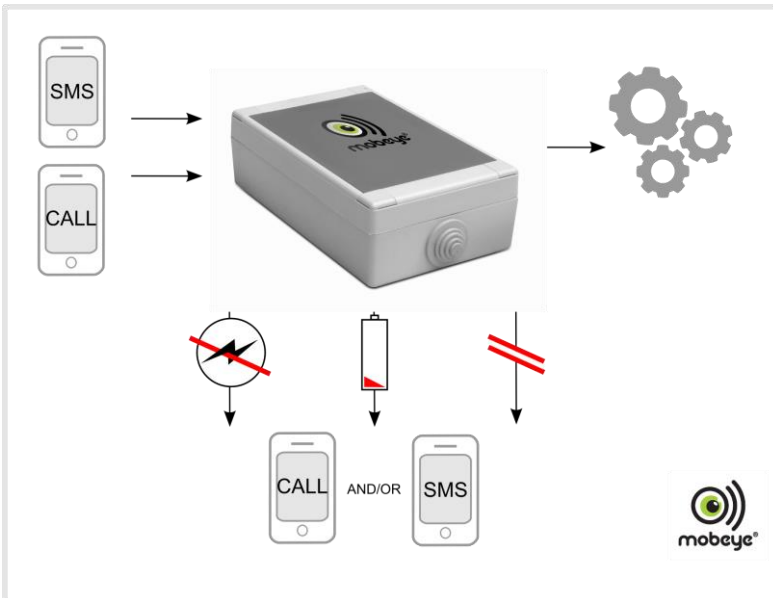
2. TO GET READY IN SEVEN STEPS

To get started with the Mobeye MS100B seven easy steps are needed.

1. Place the SIM card
2. Connect a sensor to the input
3. Insert the four batteries
4. Connect the power supply
5. Go to the program mode
6. Enter at least one phone number
7. Check the settings

2.1 PLACE THE SIM CARD

To use the Mobeye MS100B a SIM card from any network is needed. On this SIM card, the PIN code security needs to be disabled or 0000. If you have a SIM card with PIN code, you can disable or change this using any mobile phone and change the PIN code security. Please consult the manual for that mobile phone for the procedure.

The SIM card needs to be inserted before the batteries. When using a prepaid SIM card, take note of the available credit. Additionally it is wise to set a recurrent test message so the card will be used at least once a month.

- Open the back cover.
- Insert the SIM card in the holder. For opening/closing, move the cover slightly.
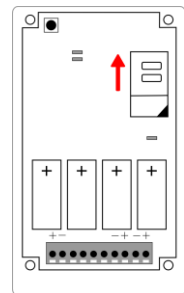
2.2 CONNECT A SENSOR

Open the hole in the enclosure and insert the 2 wires of an external sensor through the hole of the enclosure to the inside part and next in the two connectors of input 1 (press the orange pins for connecting the wires). It does not matter which wire is connected to which connector. If necessary the wires can be extended using appropriate wire material.

If the sensor should be closed in normal situation (and be opened in the event of an alarm), the input type should be changed (please refer to paragraph 5.10).
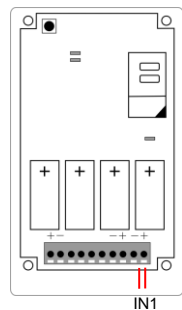
2.3 INSERT THE BATTERIES

Insert the four lithium 3,0 volt batteries (CR123). When replacing the batteries, all settings remain unchanged.

After inserting the SIM card and the batteries, the Mobeye MS100B will perform a self test taking 1 minute. During the test, the light is red.
If the light is flashing red, a problem with the SIM card is detected. A reason could be no SIM card was placed, or the PIN code security of the SIM card was not disabled.

2.4 CONNECT THE POWER SUPPLY

The Mobeye MS100B is designed to run on batteries, or to use an external power supply (9-32VDC). Using external power, the module is always in connection with the GSM network. This gives following advantages: a longer battery lifetime, possibility to receive power failure messages (using the batteries) and the possibility to perform remote actions, such as arm/disarm, switch the outputs, ask status reports and to program it via SMS-commands.

Connect the external power adapter (or any other regulated 9-32VDC power supply) to the power input of the connector (press on the orange pins for connecting the wires):

- V+ (black lead with white stripe) to "+"
- Ground (black lead) to "-"

If using the Mobeye mains adapter (Mobeye article 10027):
The black wire with the <u>white line</u> is "+", the other black wire is "-".

Close the Mobeye MS100B using the 4 screws.
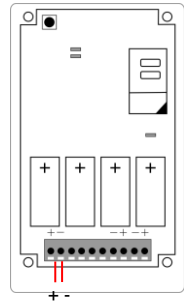
2.5 PROGRAM MODE

If only batteries are used, the GSM module will be closed most of the time, in order to save the batteries. The module cannot be approached from remote to receive SMS commands for programming or switching outputs. The battery-operated MS100B goes into the program mode after inserting the four batteries. First the GSM connection is being set-up. Once the LED is flashing (to indicate that the TEL1 was not programmed yet), the connection is established. During the first 3 minutes, the GSM module remains active, ready to receive SMS commands. After 3 minutes a time-out occurs and the GSM module switches off in order to save the batteries. The unit returns to the low power operational mode.

Using external power, the module is always in connection with the GSM network and therefore in program mode.

2.6 PROGRAM THE PHONE NUMBERS

The Mobeye MS100B is able to send messages up to 5 telephone numbers. The first telephone number (TEL1) belongs to the administrator. Technical messages (such as battery low) are sent to the administrator only. Without the administrators' phone number, the MS100B cannot function.
When the MS100B is in initial (factory) status and in program mode (so the LED is flashing), the administrators' number is programmed by calling the telephone number of the Mobeye MS100B using the administrators' phone. The unit will recognize this number and store it as administrator (TEL1). The administrator will receive a confirmation SMS text message including the security code. This code is needed to program the other settings in the unit.

NB: For this way of programming the number recognition in the administrator's phone must be 'on'. To program or change the administrators' number by SMS command, please refer to 4.2.

A confirmation melody is played. The Mobeye MS100B is ready to use.

2.7 CHECK THE SETTINGS

The settings can be sent to the programmed telephone number as SMS text message by sending a request to the unit. In this way you also check the correct working of the SIM card.

Before sending the request, make sure the unit is in the program mode (please refer to 2.5). Upon sending the command, the Mobeye MS100B returns an SMS text message to the originator of the request.

SMS command list settings: **CODE SET?**
Example (code 1111 is factory default):   1111 SET?

Within ca. 30 seconds the programmed phone number will receive the list with settings.

2.8 ALARM MESSAGE CONFIRMATION

When the sensor of the system is activated, it will send an alarm notification. If the unit is battery operated first the GSM module starts to establish a connection to the network. First an SMS text message is sent to all programmed alarm numbers; next a phone call is made to the numbers. When you answer the phone, a beep tone is heard.

Confirm using "1"
It is possible to confirm the phone call by answering the phone and pressing "1". The other alarm numbers will not be called afterwards.

2.9 CONTROLLING THE OUTPUTS

The relay outputs can be switched in two ways:
1. Automatically after an alarm (see 6.1)
2. After an incoming call or SMS text message from an authorised telephone number (or, in case this option was set, unauthorised) (see 5.14 and 5.15). If an output pulse time was set, the relay outputs will switch back automatically. If the pulse time was set to "0", they shall be switched back manually (see 5.16).

3. SENSORS AND DEVICES

Several external sensors can be connected to the two inputs. The Mobeye MS100B can also switch external devices connected to it via the outputs after receiving an SMS command.
And although the Mobeye MS100B is designed to run on batteries, it is possible to use an external power supply in order to report power failure and to remotely control the system.

Please find below the architecture of the main unit.
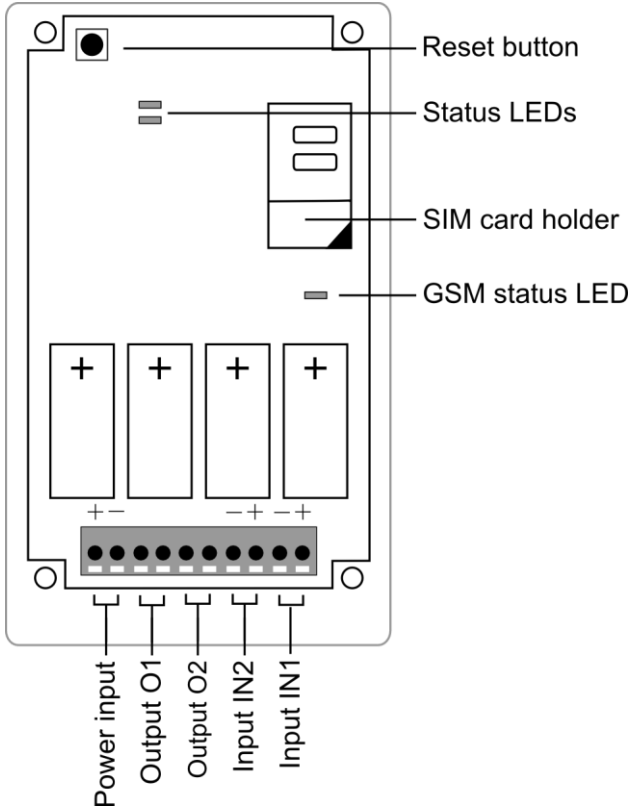
Inputs
External sensors can be connected to the inputs. Upon closing (or opening) an input, the Mobeye MS100B will send an alarm message to the set alarm numbers (factory default: SMS and call).

Outputs
The Mobeye MS100B has two outputs (O1 and O2).These relay outputs can switch external devices. The maximum load is 2A/30V per output.
When connected to an external power, the GSM module is active all the time, able to receive SMS commands. This enables remote control (see 5.14).

4. CONFIGURATION METHOD

To program the Mobeye MS100B, the GSM module must have network connection. In case only batteries are used, first switch the unit to the program mode. Next send SMS commands for the configuration. All settings are stored and will be kept in the unit, even in case the power supplies are removed.

4.1 PROGRAM MODE

If the unit is connected to an external power supply, the Mobeye MS100B has continuous network connection and the unit is permanently in program mode.
If the unit is battery-powered the program mode can be achieved by (re)inserting the batteries.

First the GSM module establishes network connection and the light flashes red (interval ca. 1 sec). As soon as the light turns green, the Mobeye MS100B is able to receive SMS-messages. After five minutes there is a time-out and a beep is heard.

In program mode, the device is ready to receive SMS commands. If no correct command is received for 3 minutes, the GSM module switches off in order to save the batteries. The unit returns to the low power operational mode.

4.2 HOW TO PROGRAM BY SMS

- Be sure the unit is in program mode
- Send an SMS message with following content:

> **CODE COMMAND:OPTION**

- The CODE stands for the installation code. Factory setting is "1111".
- Do not forget the space between CODE and COMMAND.
- The complete scheme with SMS commands is listed chapter 7.
- The commands are case sensitive.
- Several commands may be combined in one SMS message (with a maximum of 160 characters) by placing a # between the commands.

> **CODE COMMAND:OPTION#COMMAND:OPTION#COMMAND:OPTION**

A confirmation melody is played to indicate a correct command. In the event of an incorrect command, a beep is heard.

Example: To program a telephone number at memory position 2:
1111 TEL2:+4934578692

Example: To set the SMS to OFF (just call):
1111 CALLALARM:OFF

Or: both commands in one message:

Example:
1111 TEL2:+4934578692#CALLALARM:OFF

5. CONFIGURATION POSSIBILITIES

This chapter describes the possible settings in the Mobeye MS100B.

5.1 INSTALLATION CODE

The installation code is the 4-digit code for switching on/off and programming the settings or activating the special functions. Factory default is "1111". It is possible to change the code to any 4-digit number. Please change the code to make the unit more secure.

5.2 TELEPHONE NUMBERS

Up to five telephone numbers can be programmed in to the Mobeye MS100B. In the event of an alarm the Mobeye MS100B first sends an SMS text message to all numbers, next they are called. It is possible to confirm the call, after which the other numbers will not be called anymore.
Note: the first telephone number is required, the others are optional.

5.3 SMS ON/OFF

By default, the Mobeye MS100B sends alarm notifications via text message and calls to the preset contact persons. By turning off the SMS, the unit will only call after the sensors send an alarm.

5.4 CALL ON/OFF

By default, the Mobeye MS100B sends alarm notifications via text message and calls to the preset contact persons. By turning off the CALL, the unit will only send an SMS text message as alarm notification. It is not possible to switch off both the SMS and the call.

5.5 INTERVAL TEST MESSAGE

The Mobeye MS100B can send test messages. Through these 'keep alive' reports you will be informed about the status of your Mobeye MS100B. You can set the interval between the test reports. This is adjustable between 0 (no test reported) and 30 (every 30 days a test message). Note when MS100B is battery-operated: the interval of 1 day will result in a daily test message; the exact time between the messages will be about 24 hours.
The smaller the interval between the test reports, the shorter is the battery life. The test message only works if the system is on.

5.6 SET ACTUAL TIME AND DATE

If the system is to be armed automatically, the internal clock time needs to be correct. Some Telecom providers offer this in the network, to be synchronised by the Mobeye MS100B during the start-up and after sending test messages. It is possible to set the time and date manually. To view the clock time, send a list of the settings to the first programmed phone number (CODE SET?).

5.7 AUTOMATIC TIME-BASED ARM/DISARM

The MS100B can be armed and/or disarmed based on a daily time schedule. The first telephone number needs to be set before the arming and/or disarming time can be set.

5.8 IDENTIFICATION TEXT

It is possible to add a standard identification text (NAME) to all messages sent out by the Mobeye MS100B. The alarm messages are a combination of the name and the alarm text. A user defined identification has a length of maximum 20 characters. The default identification text is 'Mobeye'.

5.9 ALARM TEXT

Custom alarm texts can be programmed. These texts have a maximum length of 20 characters.
The following texts are programmed as factory default:

Power failure   TEXT2: power failure
Power restored   TEXT3: power restored
Triggered input 1   TEXT4: alarm 1
Triggered input 2   TEXT5: alarm 2
Restored input 1   TEXT6: Input 1 restored
Restored input 2   TEXT7: Input 2 restored

5.10 INPUT TYPE

The input type defines the character of the inputs IN1 and IN2. This can be Normally Open (NO) or Normally Closed (NC). If an input is set to NO, the alarm will be triggered as soon as the terminals of the input are closed. If the input is set to NC, the alarm is triggered if the connection between the input terminals is broken.
The default input type is set to NO.

5.11 INPUT DELAY TIME

The input delay time defines the time that the inputs are triggered before an alarm is initiated. If the input returns to the non-alarm status within the delay time, no alarm is sent. The delay time can be set between 0 and 999 seconds.
As default, the input delay time is set to 1 second.

5.12 INACTIVE TIME

The "inactive time" defines the time the movement sensor, input 1 or input 2 is not active after an activation. If the time is set to "0" (minutes), the input is active again immediately after returning to the non-alarm status. If the time is set to e.g. 30 minutes, the input remains inactive for the first 30 minutes. If the input is again (or still) activated after these 30 minutes, a new alarm message is sent. The inactive time can be set between 0 and 60 minutes.
As default, the inactive time is set to "5" for all inputs.

5.13 POWER FAILURE DELAY TIME

The power failure delay time defines the time that the power fails before an alarm is initiated. If the power is restored within the delay time, no alarm is sent. The delay time can be set between 0 and 60 minutes. As default, the delay time is set to 1.

5.14 AUTHORISATIONS AND REMOTE CONTROL

When powered externally, the GSM module is always 'on', able to receive SMS commands. This enables both programming and remote control. Remote control actions are: arming, disarming and switching the outputs. As prerequisite for remote control the 'controlling telephone number' needs to be authorised. A maximum of fifty numbers can be authorised via SMS command. If it is not clear what memory positions are available, it is possible to add a new number by the SMS command 'ADDTELA' . The new number takes the first free position.
To receive a list with the authorised numbers, please refer to 8.3.
SMS-commands for remote control (no code is necessary, numbers need to be authorised):
Arm: ARM
Disarm: DISARM
Switch on output 1:   O1ON
Switch off output 1:   O1OFF

| Switch on output 2: | O2ON |
| Switch off output 2: | O2OFF |

5.15 UNAUTHORISED SWITCHING OF OUTPUTS

Although the Mobeye MS100B is designed to only switch the outputs by an incoming SMS (or call, see chapter 6) from an authorized phone, there is also an option to let them be switched by any incoming call/SMS, without being authorised. To disable the need for authorised numbers, the 'authorization' option can be set to OFF. Default is ON.

5.16 DURATION OF OUTPUTS: SWITCH OR PULSE TIMES

If an output is used, the time this output is activated can be set between 1 and 9999 seconds. If the setting is set to 0, the output does not return to its previous state automatically. An authorised number can switch it back by the SMS command O1OFF or O2OFF. In the factory settings the duration of the pulse time for the outputs is "10".

5.17 INITIAL STATE OUTPUT

In the factory settings the outputs are set to "open" (NO); they close after e.g. the SMS command "O1ON". This initial state can be set to "closed" (NC).

5.18 RESET TO FACTORY SETTINGS

It is possible to reset the Mobeye MS100B to factory settings.

- Remove power adapter and /or batteries
- Restore the power source and keep the reset button pressed for about 15 seconds until a short melody sounds followed by 3 beeps.
- Release the button when the LED flashes

After several seconds a short confirmation tone is heard. The installation code is also reset to 1111.
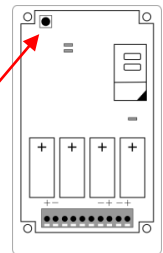
6. ACTION RULES

The alarm message and behaviour of the outputs of the Mobeye MS100B are programmed by action-reaction patterns. These so-called Action Rules are pre-programmed, according to the needs of many applications. However, it is possible to change these action rules (for advanced users only!).

| Trigger | → | Reaction | ✚ | Reaction | ✚ | Reaction |

The trigger + related reactions are called an "action rule". Each action rule may contain 3 reactions. A maximum of 15 action rules can be programmed.

6.1 PRE-PROGRAMMED ACTION RULES

In the factory defaults following action rules are pre-programmed:

Action rule number	Trigger	Reaction
1	Receive SMS	Switch outputs
2	Power failure	Send SMS + call
3	Power restored	Send SMS
4	Input 1 triggered	Send SMS + call
5	Input 2 triggered	Send SMS + call
6	Input 1 restored	Send SMS
7	Input 2 restored	Send SMS

The SMS texts are stored with a text number referring to the number of the action rules (e.g. TEXT2 and TEXT3). Texts for new action rules are stored and can be changed too (e.g. TEXT8). Please refer to 5.9.

6.2 TRIGGERS AND REACTIONS

TRIGGERS

For defining your own action rules, you can use triggers and combine them with reactions. As trigger the following events can be used:

Trigger	Command
Input 1 triggered	IN1
Input 2 triggered	IN2
Input 1 restored	IN1RESET
Input 2 restored	IN2RESET
Power failure	POWERFAIL
Power restore	POWERRESET
Incoming call	CALL
Time	TIME:hhmm (e.g. TIME:1230)

REACTION

Each trigger can initiate a maximum of 3 reactions out of the following list:

Reaction	Command	Remark
Switch Output 1	O1ON, O1OFF, O1TGL	Toggle means the output switches each time the action is executed, regardless the current status
Switch Output 2	O2ON, O2OFF, O2TGL	
Send SMS	SEND:text	Max. 20 characters. An alarm SMS contains the identification text and the text as defined here. The text is also stored as TEXTy, where y stands for the action rule number.
Call	CALL	The unit calls the set alarm numbers. The receiver will hear a 2-tone signal and can confirm by pressing '1'.

6.3 PROGRAMMING ACTION RULES

Send following SMS commands in following format:

> **CODE TRIGGER:REACTION1,REACTION2,REACTION3**

Example: Switch output 2, call and send SMS text 'Pump failure' after a triggered input2:

1111 IN2:O2ON,CALL,SEND:Pump failure

Example: Switch output 1 after a triggered input1:

1111 IN1:O1ON

- Do not forget the space between CODE and the TRIGGER.
- The Mobeye MS100B will play a short melody to indicate a successful configuration. In case of a wrong command, a long beep will sound.

6.4 TIME-BASED ACTION RULES

It is possible to let the action be daily performed at a certain time. The time is the trigger.
To program a time-based action, include the time in the action rule, in following way.

CODE TIME:hhmm:REACTION

Example:

1111 TIME:1115:O1ON

6.5 LIST OF PROGRAMMED ACTION RULES

A list of programmed action rules, the Action Rules List (ARL), can be requested by sending following SMS to the unit.

Request programmed action rules:
CODE ARLREPORT?

Example:

1111 ARLREPORT?

6.6 DELETE ACTION RULES

An action rule can be deleted by an SMS by the command below incl. index number. The index number is the sequence number of the action rule as displayed in the ARLREPORT.

CODE DELARL:indexnumber

Example:
1111 DELARL:1

Remark: a rule will keep its index number, even if a rule with a previous number is deleted. This will result in "gap" in the index list. If a new Action Rule is added, this rule will get the index number of the first empty position.

7. COMPLETE LIST OF SETTINGS

Setting	Menu/ command	Options	Factory default
Installation code	INSTCODE:	4 digits	1111
Interval test message	TEST:	0, 1, 2, 3, … or 30 (days)	0
SMS on/off	SMSALARM:	ON, OFF	ON
CALL on/off	CALLALARM:	ON, OFF	ON
Actual time	SETTIME:	hhmm	
Actual date	SETDATE:	yyyymmdd	
Automatic arming time	TIMEARM:	hhmm hhmm (delete by "OFF")	
Automatic disarming time	TIMEDISARM:	hhmm hhmm (delete by "OFF")	
Input type input 1	TYPEIN1:	OFF, NO, NC	ON
Input type input 2	TYPEIN2:	OFF, NO, NC	ON
Inactive time Input 1	INACTIVEINP1:	0..999 (min.)	5
Inactive time input 2	INACTIVEINP2:	0..999 (min.)	5
Delay time input 1	DELAY1:	0..999 (sec.)	1
Delay time input 2	DELAY2:	0..999 (sec.)	1
Power failure delay time	DELAYPOW:	00..60 (min.)	1
Pulse time output 1	TO1:	1..9999 (sec.)	10
Pulse time siren/output 2	TO2:	1..9999 (sec.)	10
Initial state output 1	INITSTATEO1:	OFF, ON	OFF
Initial state output 2	INITSTATEO2:	OFF, ON	OFF
Repeat	REPEAT:	0..99 (hours)	4
TEL1	TEL1:	Telephone number	
TEL2	TEL2:	Telephone number	
TEL3	TEL3:	Telephone number	
TEL4	TEL4:	Telephone number	
TEL5	TEL5:	Telephone number	
Delete telephone number	DEL1….DEL5		
Authorise telephone number	TELA1: ...TELA50: of ADDTELA:	Tel. number	
Delete authorised number	DELA:1..DELA:50		
Authorised remote control	AUTH:	ON, OFF	ON
Identification text	NAME:	20 characters	Mobeye
Alarm text power failure	TEXT2:	20 characters	Power failure
Alarm text power restored	TEXT3:	20 characters	Power restored
Alarm text input 1	TEXT4:	20 characters	Alarm 1

Setting	Menu/command	Options	Factory default
Alarm text input 2	TEXT5:	20 characters	Alarm 2
Text restored input 1	TEXT6:	20 characters	Input 1 restored 2
Text restored input 2	TEXT7:	20 characters	Input 2 restored

Program method via SMS (in program mode):

CODE COMMAND:OPTION

Or several commands at once:

CODE COMMAND:OPTION#COMMAND:OPTION#COMMAND:OPTION

8. REPORTS AND LISTS

The programmed settings and the Mobeye MS100B status can be requested as SMS-text message via SMS-command (be sure the unit is in program mode).

8.1 STATUS REQUEST

The status can be requested by sending an SMS with the content:

CODE STATUS?   The originator of the request receives the armed/not armed status, the status of the inputs, power and batteries as SMS text message.

8.2 LIST OF SETTINGS

The settings can be requested by sending an SMS with the content:

CODE SET?   The originator of the request receives the list of basic settings.

8.3 AUTHORISATION LIST

The list with authorised numbers for remote control can be requested by sending an SMS with the content:

CODE ANL?   The originator of the request receives the authorised numbers as list.

8.4 TEST GSM NETWORK STRENGTH

Before using the Mobeye MS100B is it advised to test the GSM signal strength at the location.
The list with the GSM signal strengths per found network can be requested by sending an SMS with the content:

CODE GSM?   The originator of the request receives GSM signal strength as list.

Warning
In the event of a weak signal, the Mobeye MS100B can still be used, but there is a risk that messages cannot be sent or will be received with a delay. In case of no signal, it is advised to try a different network.

9. ISSUE SOLVING AND TECHNICAL DATA

Issues

Error	Possible reason	Solution
Mobeye MS100B does not work	No valid Telephone number was entered.	Enter a valid number.
The light is flashing red during switching on.	No valid SIM card was entered or the SIM card was not made pin code free.	Check the SIM card.
No GSM signal during the GSM test	No network is available, belonging to the SIM cards provider.	Choose another network provider.
The light remains red.	You entered an incorrect installation or user code three times.	Wait 10 minutes and then re-enter the correct installation or user code.
You do not receive an SMS with the settings.	Telephone number is not correct.	Re-program the telephone number at position '01'
For other questions, please refer to the site www.mobeye.eu		

Technical data
- GSM: Quad Band EGSM 850/900/1800/1900 MHz compatible to the ETSI GSM Phase 2+ standard
- Temperature range: -10°C until +55°C
- Dimensions: 161 x 90 x 35 mm (LxWxH)
- Batteries: 4 x CR123 Lithium 3.0 V
- Power, battery operated: 50 µA, short peaks of max. 2 A
- Power, ext. powered: 50 mA, short peaks of max. 2 A

For support on technical problems regarding Mobeye MS100B please contact info@mobeye.eu.