



USER MANUAL

Mobeye® Outdoor Detector

CMVXI-R

Attention! Very important

This user manual contains important guidelines for the installation and usage of the Mobeye® device as described in this manual. Please read these thoroughly before you start using the Mobeye® device.

In case of damage caused by disregarding the guidelines, the warranty becomes void.

The user must regularly check the proper functioning of the device. The manufacturer cannot be held liable for any damage or loss caused by any incorrect use or incorrect functioning of the Mobeye® device.

Safety guidelines

- The permitted ambient temperature during operation may not be exceeded (not lower than -10°C and not higher than 50°C).
- 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, vapors 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® device.

Use in accordance with the regulations

The purpose of this device in accordance with the regulations is sending SMS text messages and making telephone calls after an alarm situation. Other uses are not permitted and may invalidate the warranty.

Battery recycling

CR123 batteries, as used in the Mobeye Outdoor Detector, are classified as non-hazardous waste and can be recycled. Please take empty batteries to a nearest collection point

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1. GENERAL DESCRIPTION

The Mobeye Outdoor Detector is a battery operated outdoor movement sensor with integrated GSM module and tag reader. It reacts on movements and sends a notification in the event of an alarm.

The factory settings of the Mobeye Outdoor Detector cause following reactions:

- When a movement is detected, the Mobeye Outdoor Detector sends an alarm SMS text message and calls the phone numbers programmed in by the user.
- When the batteries need to be replaced, the Mobeye Outdoor Detector sends a 'low battery' SMS text message to the first telephone number (administrator).

The Mobeye Outdoor Detector has many options to influence the behaviour, which are described in chapter 3.

If connected to the Mobeye Internet Portal, additional functions are active (also described in chapter 7:

- Notification of an alarm event as SMS phone call, text message or e-mail to alarm contact persons, technical messages to service contact persons.
- Logging of events such as alarm and arming/disarming (with used tag).
- Check on the communication between the Mobeye Outdoor Detector and the portal. In case the keep alive is not received, an exception message is sent to the (service) contact persons.
- Configuration of the options in the device via the internet portal.

2. GETTING STARTED

To get started with the Mobeye Outdoor Detector, at least the following steps need to be taken in the following order:

1. Open the Outdoor Detector
2. Insert a SIM card
3. Insert the batteries
4. Enter the program mode
5. Program at least one telephone number
6. Close the Outdoor Detector
7. Arming/disarming the system

These steps are further explained in this chapter.

2.1 OPEN THE OUTDOOR DETECTOR

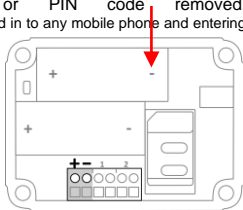
Remove the screw on the bottom (next to the tag reader). Open the cap of the housing by holding the black cap and moving the white cap to the outside. Then remove the two screws in the black inner housing and take the black part out. Make sure the wires do not come loose.

See the manual supplied with the Optex detector for a full explanation how to open the detector.

2.2 INSERT A SIM CARD

Push the black cover slightly outward to open the holder. Before installing the SIM card should have PIN code "0000", or PIN code removed. (A PIN code can be changed or removed by putting the SIM card in to any mobile phone and entering the 'security' menu) .

NB: It is possible to replace a SIM card. The settings are stored in the device memory. The SIM card shall have the "normal" size and be suitable for 2G. It is advised to use an M2M SIM card.



2.3 INSERT THE BATTERIES

Insert the two batteries (CR123) in the module. Use the +/- indication for the correct placement.

2.4 ENTER THE PROGRAM MODE

Directly after inserting the batteries, the Mobeye Outdoor Detector switches to the program mode. First the GSM module establishes network connection. During this time the LED in the tag reader flashes green and red. Within 10-30 seconds the connection is established and the LED starts flashing 1 sec. on/1 sec. off (or stays on continuously in case the first telephone number has been configured).

The Mobeye Outdoor Detector returns to the program mode by holding the tag to the tag reader for 5 seconds (make sure the tag connects to the metal plate and the ring at the same time), until the LED starts flashing red/green. Once it has GSM connection it will be flashing again (or stays on continuously). Alternatively the batteries can be re-inserted, without holding the tag to the reader.

As long as the unit is in program mode, the status green LED is on (or flashing 1 sec. on/1 sec. off if the module has no configuration). 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.

2.5 PROGRAM AT LEAST ONE TELEPHONE NUMBER

The Mobeye Outdoor Detector 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 TEL1, the Mobeye Outdoor Detector cannot function.

When the Outdoor Detector is in initial (factory) status and the batteries are inserted (so the LED is flashing), the administrators' number is programmed by calling the telephone number of the Mobeye Outdoor Detector 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 4.1.

2.6 SWITCHING ON/OFF

After the previous steps, the Mobeye Outdoor Detector is ready for use.

In order to switch on (arm) the Mobeye Outdoor Detector:

- Hold a tag briefly against the tag reader, after which the exit indication starts. The exit time takes 120 seconds; hereinafter the sensor is active. In the first 20 seconds, the red LED in the sensor flashes.

In order to switch off (disarm) the Mobeye Outdoor Detector:

- Hold a tag briefly against the tag reader. Three short beeps are heard. The tag reader blinks green 3 times.

In the disarmed status the Mobeye Outdoor Detector will not send alarm notifications. The functions automatic arming and sending a 'low battery' message, are still active.

2.7 CONFIRMATION OF THE ALARM MESSAGE

When the system is triggered it will send alarm notifications. First an SMS text message is sent to all programmed alarm numbers, followed by a phone call. When you pick up the phone, you will hear beeps. It is possible to confirm the phone call by answering the phone and pressing any key. The other alarm numbers will not be called afterwards.

By switching off the 'SMS' function, the system will only call. This prevents the other numbers being notified by SMS.

3. CONFIGURATION

In normal operational mode, the GSM module is closed to save the batteries. To program the Mobeye Outdoor Detector, 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.

3.1 PROGRAM MODE

The program mode can be achieved by holding an enrolled tag to the tag reader for 5 seconds, until two short beeps are heard (make sure the tag makes contact with the ring and the metal plate at the same moment). After releasing the tag, the LED in the tag reader starts flashing red/green.

Alternatively, the program mode can be accessed by (re) inserting the batteries.

First the GSM module establishes network connection. During this time the LED flashes green/red. Normally this takes 10-30 seconds. Once the connection is established the status LED starts flashing 1 sec. on/1 sec. off (or stays on continuously in case the first telephone number has been configured).

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.

To leave the program mode earlier, hold the tag to the reader briefly. The unit is switched on. Hold the tag to the reader once more, to switch off the module and the GSM module. In this way the program mode is cancelled.

3.2 THE (SECURITY) CODE

For configuration activities the (security) code of the Mobeye Outdoor Detector must be used. The initial (security) code is '1111'. You can change the (security) code to your own code. See section 4.4.

3.3 PROGRAMMING THE SETTINGS BY SMS

To program the settings by SMS text message:

1. Make sure the Outdoor Detector is in program mode (please refer to 3.1).
2. Send an SMS text message with the (security) code and the command.
3. The green LED blinks 3 times to indicate the successful configuration. In case of an incorrect command, the red LED flashes 5 times.

SMS messages have the following content: **CODE COMMAND:OPTION**

- Do not forget the space character between (security) code and command.
- The commands are case insensitive.
- 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

See section 3.4 for a full list of SMS commands.
--

3.4 LIST OF SMS COMMANDS FOR CONFIGURATION

The setting options for the Outdoor Detector. The commands are case insensitive.

Setting	SMS Command	Options	Default value
Change security code	INSTCODE:	0000...9999	1111
Set telephone number for alarm messages	TEL1: ... TEL5:		Empty
Delete telephone number	DEL1 ... DEL5		
Identification text	NAME:	20 characters	Mobeye
Call on/off	CALL:	ON, OFF	ON
SMS on/off	SMS:	ON, OFF	ON
Exit delay	DELAYEXIT:	0...999 (sec)	120
Entry delay	DELAYENTRY:	0...999 (sec)	15
Inactive time input 1	INACTIVEIN1:	0..60 (min)	0
Alarm text input 1	TEXT1:	20 characters	Alarm
Actual time	TIME:	hhmm	Empty
Actual date	DATE:	yyyymmdd	Empty
Arming time	TIMEARM1:	hhmm	Empty (OFF)
Disarming time	TIMEDISARM1:	hhmm	Empty (OFF)
2 nd arming time	TIMEARM2:	hhmm	Empty (OFF)
2 nd disarming time	TIMEDISARM2:	hhmm	Empty (OFF)
Assigning times 1	DAYS1:	1234567	Empty
Assigning times 2	DAYS2:	1234567	Empty
Interval 'test SMS'	TEST:	0...30 (days)	0
Time test message	TESTTIME:	hhmm	

Examples:

Set phone number 1: 1111 TEL1:0712345678

Delete phone number 1: 1111 del1

Be aware of the space between "1111" and the command.

4. POSSIBLE SETTINGS

4.1 PHONE NUMBERS

The Mobeye Outdoor Detector is able to send alarm messages to up to 5 phone numbers. The first telephone number (TEL1) belongs to the administrator. Only this number receives all system messages. The other phone numbers (including the administrator) only get the alarm messages.

To set or change telephone numbers:

SMS command 1st telephone number:

example:

TEL1:

1111 TEL1:07123456789

... similar for TEL2:, TEL3:, TEL4: and TEL5:

For foreign numbers, start with + followed by the country code (depending on the country leave out the zero for the local area code).

example:

1111 TEL1:+447123456789

To delete telephone numbers:

SMS command delete 1st telephone number: **DEL1**

example: 1111 DEL1

... similar for DEL2, DEL3, DEL4 and DEL5

4.2 IDENTIFICATION TEXT

It is possible to add a standard identification text (NAME) to all messages sent out by the Mobeye Outdoor Detector. 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'.

SMS command identification text:

example:

NAME:

1111 NAME:my Mobeye device

4.3 ALARM TEXTS

A unique alarm text can be programmed into the Mobeye Outdoor Detector. The user defined text has a maximum length of 20 characters. The default text for the alarm text is Alarm.

SMS command text alarm: **TEXT1:**
 example: 1111 TEXT1:alarm construction area

4.4 SMS ON/OFF

By default, the Mobeye Outdoor Detector sends alarm notifications via text message and calls (you will hear a beep signal) to the preset contact persons. By turning off the SMS, the unit will only call after a triggered input.

SMS command enable / disable SMS: **SMS:ON** or **SMS:OFF**
 example: 1111 SMS:OFF

4.5 CALL ON/OFF

By default, the Mobeye Outdoor Detector sends alarm notifications via text message and calls 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.

SMS command enable / disable call: **CALL:ON** or **CALL:OFF**
 example: 1111 CALL:ON

4.6 EXIT DELAY TIME

The exit delay time defines the time between the moment of switching on the module and the first possible movement detection. As factory settings this time is set to 120 seconds.

SMS command exit delay input 1: **DELAYEXIT:**
 example: 1111 DELAYEXIT:180

4.7 ENTRY DELAY TIME

The entry delay is the time between the moment of detection and the moment of sending the first SMS text message. When the armed system detects a movement, it first waits for the entry delay period and then it alarms. During the entry delay the GSM module starts to establish a connection to the network. If the system was not disarmed, the alarm messages follow. Note: If the GSM network has low signal strength, the time can be longer as the network connection may not be established within the time of the entry delay. As factory settings this time is set to 15 seconds.

SMS command entry delay time: **DELAYENTRY:**
 example: 1111 DELAYENTRY:60

4.8 INACTIVE TIME

The "inactive time" defines the time an input is not active after an activation. During the inactive time, no new alarm message will be sent. The motion detector itself has an inactive time of 2 minutes. This may be extended by a longer inactive time of the Mobeye GSM module. This inactive time can be set between 0 and 60 minutes. As a factory setting this time is set to "0", meaning that the 2 minutes of the Optex alarm are valid.

SMS command inactive time input 1: **INACTIVEIN1:**
 example: 1111 INACTIVEIN1:45

4.9 AUTOMATIC ARMING / DISARMING

The Mobeye Outdoor Detector only works if the unit is armed by the tag. It is also possible to automatically arm and disarm the unit, based on time schemes. Two schemes can be entered, which can be assigned to the days in the week (e.g. to have a different weekend scheme).

For arming/disarming automatically, the internal clock time needs to be correct. Some telecom providers offer this in the network, which the Mobeye Outdoor Detector synchronizes during start-up and after sending test messages. It is possible to set the time manually. To view the clock time, request a list of the settings by sending the command 1111 SET?.

To set the actual date:

SMS command actual date: **DATE:**

To set the actual time:

SMS command actual time: **TIME:**

To set a daily arming scheme:

SMS command arming scheme 1: **TIMEARM1:**

To set a daily disarming scheme:

SMS command disarming scheme 1: **TIMEDISARM1:**

To set a second daily arming scheme:

SMS command arming scheme 2: **TIMEARM2:**

To set a second daily disarming scheme:

SMS command disarming scheme 2: **TIMEDISARM2:**

example: 1111 TIMEDISARM2:1455

As default the automatic (dis) arming times are valid for all days. It is possible to assign them to a few days in the week. In this way it is possible to have two different schemes, which are valid on different days.

To assign TIMEARM and/or TIMEDISARM to weekdays:

SMS command to assign 'scheme 1': **DAYS1:**

SMS command to assign 'scheme 2': **DAYS2:**

As value the weekdays can be entered. Monday is 1, Tuesday is 2, etc. If the scheme is valid for several days, the days can be entered in one command (e.g. 12345 means Monday till Friday).

examples: 1111 DAYS1:12345
1111 DAYS2:67

4.10 TEST MESSAGE

The Mobeye Outdoor Detector can send regular test SMS messages (*keep alive*) to the administrator (first phone number), to ensure the proper functioning of the unit. The test message function is only active if the unit is armed.

The timing of the test message is determined by the time of programming. The test time can also be programmed.

The interval between the test messages can be set between 0 days (no test message) and 30 days. The default test interval is set to 0 (no test message).

SMS command interval test message: **TEST:**

example: 1111 TEST:21

4.11 SYSTEM RESET

To reset the Mobeye Outdoor Detector to its factory settings:

1. Remove the batteries.
2. Press an enrolled tag to the tag reader while reinserting the batteries. Keep it pressed for (about) another 5 seconds. A beep sounds continuously.
3. Release the button immediately after the LED starts to flash. A confirmation tone sounds.

After a successful reset, the status LED on the tag reader will blink green to indicate that the module is not configured. The security code is back to factory settings and the tags are removed from the memory.

5. REQUEST LIST OF THE STATUS, SETTINGS AND SIGNAL STRENGTH

Several lists and status reports can be retrieved by sending an SMS text message to the Mobeye Outdoor Detector, from any telephone. Before sending the request, make sure the unit is in the program mode (please refer to 3.1).

Upon sending the command, the Mobeye Outdoor Detector returns an SMS text message to the originator of the request. The commands are case insensitive.

STATUS REQUEST

The status can be requested by sending following SMS text message. The status includes the armed/disarmed status, status of the inputs and batteries.

SMS command status request:	STATUS?
example:	1111 STATUS?

LIST OF SETTINGS

The settings can be requested by sending following SMS text message:

SMS command list basic settings:	SET?
SMS command list of texts:	TEXT?
example:	1111 SET?

LIST OF PHONE NUMBERS

The list of telephone numbers can be requested by sending following SMS text message:

SMS command list of phone numbers:	CALL?
example:	1111 CALL?

GSM SIGNAL STRENGTH

The signal strength of the used mobile network can be requested. If the network is weak, it is advised to use a SIM card of another network provider or an external GSM antenna (a Mobeye accessory). The GSM signal strength can be requested by sending following SMS text message:

SMS command request GSM signal:	NETWORK?
example:	1111 NETWORK?

6. ENROLMENT OF NEW TAGS

Tags are used for switching on and off and to enter the program mode. The supplied tags are already enrolled and therefore directly usable. If additional tags are provided, they must be enrolled by the user. To enrol a new tag, the Mobeye Outside detector should be in program mode (see 3.1).

Once in program mode, send following SMS command to the unit to reach the enrolment mode:

SMS command to switch to the tag enrolment mode:	TAG
example:	1111 TAG

A short melody confirms the correct command and indicates the tag enrolment mode.

Now hold a new tag to the tag reader at the bottom of the detector. The detector confirms the successful enrolment of the new tag by beeps. The number of beeps represents the tag number (the first tag beeps once, the second tag twice, etc.). If a tag was enrolled before, the beeps will sound to indicate the tag number; it will not re-enrol.

The detector leaves the enrolment mode if no tag was hold against the tag reader for 15 seconds.

In total 25 tags can be enrolled to the CMVXI-R. The same tags will function in combination with other CMVXI-R Outdoor Alarm systems, which makes it possible to operate several devices with one tag.

7. MOBEYE INTERNET PORTAL

The Mobeye Outdoor Detector sends GSM messages to the preset contact persons. It is also possible to connect the system to the Mobeye Internet Portal. In this secured internet environment the Mobeye Outdoor Detector system(s) can be administered.

The portal offers various functions:

- 1) the portal forwards alarm messages to contact persons (SMS and/or mail), which are set in the portal. The receivers of alarm messages may be different from the receivers of technical messages. Alarm phone calls will still be done directly from the Mobeye Outdoor Detector.
- 2) logging of events such as alarm and switching on/off (with tag number).
- 3) the name and location can be set in the portal. This name is used in SMS and mail messages.
- 4) the device settings can be programmed through the internet portal or via SMS command.
- 5) once connected to the internet portal, test messages (*'keep alive'*) will be sent regardless the armed or disarmed state. The portal will check the receipt of test messages ('keep alive'); when the message was not received on time, it sends an exception message.

Look at www.mobeye.eu/portal for more information.

8. TECHNICAL MESSAGES AND STATUS FEEDBACK

Technical messages

In the event of technical issues the administrator receives an SMS message. Possible technical messages are:

Message	Reason
Low batteries, external power supply OK	Power is available, batteries need to be replaced.
No external power supply, batteries OK	No external power supply, batteries are able to take over operation in low power mode.
Low batteries, no external power supply	No external power supply, batteries need to be replaced.
External power supply OK, batteries OK	The external power is restored (or the adapter is plugged in a socket), batteries do not need to be replaced.
(delayed message)	If (delayed message) is added to the SMS text messages, the message couldn't be sent earlier, due to a SIM card failure or GSM network failure.

When receiving one of the above mentioned technical messages, please take appropriate action as soon as possible. During the battery replacement, the SIM card does not have to be removed.

Status feedback

LED pattern	Status	Required action
Blinking green, 1 second on / 1 second off	Module not configured	Configure at least one telephone number.
1 green flash every 3 seconds	Module is switched on, powered by batteries	No action required.
Green LED stays on continuously	Module is switched on, powered by an external source	No action required.
Flashing red/ green every second	Module establishes network connection	Wait until the network connection is established.
2 flashes red, every 3 seconds	No GSM connection	Try the SIM card in any mobile telephone; replace SIM card using other telecom provider; try the module at another location.
3 flashes red, every 3 seconds	No valid SIM card or wrong PIN	Try the SIM card in any mobile telephone; remove PIN code; check credit; replace SIM card.
Blinking 3 times green	Successful programming action	No action required.
Blinking 5 times red	Faulty programming action	Check SMS command.
4 red flashes every 3 seconds	Low batteries	Replace both batteries.

Technical specifications

GSM	: Quad band EGSM, 850/900/1800/1900 MHz
Batteries	: 2* CR123 (lithium)
Battery life in normal mode	: ~ 1 year (at normal use)
Power consumption	: ca. 50 μ A stand-by / max. ca. 500 mA
Ambient temperature	: -10 °C until +50 °C

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Declaration of Conformity

Herewith we, Mobeye, declare that the

Mobeye CM21 telemetry module

And the derived products

CM2000, CM2100, CM2200, CM2300, CM2300-FS, CM2410, CM2500, CM2600,
CML2015, CML2025, CML2055, CML2255, CML2275, CML2285, CMVXI-R

are in compliance with the essential requirements of the following European standards / EU Directives:

Directive 73/23/EEC (low voltage directive)

Directive IEC/EN 50130 (Electromagnetic compatibility)

Directive 2014/53/EU (RED)

The conformity with the essential requirements set out in Art.3 of the 2014/53/EU has been demonstrated against the following harmonized standards:

EN 60950-1 : 2006 + A11 : 2009 + A1 : 2010 + A12 : 2011 + A2 : 2013
EN 62311 : 2008
EN 301 489-1 V2.1.1, Draft EN 301 489-52 V1.1.0
EN 301 511 V12.5.1

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