



USER MANUAL

Mobeye[®] Smoke Detector CM2400
Mobeye[®] Heat Detector CM2400H

SW version 1.n

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! Please refer to the manual of the EI Electronics detector for the instructions regarding the smoke or heat detector.

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

The user must regularly check the proper functioning of the device. The manufacturer cannot be held liable for any damage 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 0°C and not higher than 40°C).
- The device is intended for use in dry and clean places.
- Protect the device from moisture, heat and water splashing.
- 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.
- The repairs of the device may only be carried out by people trained for Mobeye[®] repair.
- In case 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.
- Please refer to the manual of the EI Electronics detector for the complete safety guidelines.

Use in accordance with the regulation

The use of the Mobeye GSM module in accordance with the regulation is sending SMS text messages and making telephone calls after an alarm situation. Other usages are not permitted.

Battery recycling

CR123 batteries, as used in the Mobeye CM2400(H), 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

This manual is applicable for the Mobeye CM2400 and the Mobeye CM2400H. The CM2400 is a battery operated GSM module used to send out an alarm after the input is triggered by the EI Electronics smoke detector EI605TYC.

The CM2400H is a battery operated GSM module used to send out an alarm after the input is triggered by the EI Electronics heat detector EI603TYC.

In this manual the products are referred to as CM2400(H).

The Mobeye CM2400(H) has following behaviour.

- In case the input of the alarm module is activated by the EI Electronics detector, the Mobeye CM2400(H) sends an alarm SMS text message and calls to the phone numbers as programmed by the user.
- In case the batteries need to be replaced, the Mobeye CM2400(H) sends a 'battery low' SMS text message to the administrator.

Please refer to the manual of the EI Electronics detector for the description of the behaviour of the smoke or heat detector.

2. GETTING STARTED

To get started with the Mobeye CM2400(H) at least the following steps need to be taken in following order:

1. Place a SIM card (with PIN code 0000 or without PIN code)
2. Place the batteries
3. Enter the program mode
4. Program at least one telephone number (administrators' number)
5. Mount the GSM module housing to the ceiling
6. Fix the cover to the GSM module housing
7. Connect the EI Electronics detector and close the cover
8. Perform a test

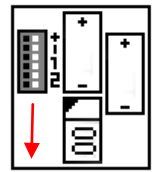
These steps are further explained in this chapter. After these steps the module will be operational.

NB: in case several EI detectors form a network communicating by RF, at first the TF modules need to be placed and the detectors need to be enrolled. Please refer to chapter 3.

2.1 PLACE A SIM CARD

Insert a SIM card into the GSM module. Push the black cover outward slightly to open the holder. Before installing the SIM card should have PIN code "0000", or be free of a PIN code.

(A PIN code can be changed or removed by putting the SIM card in a mobile phone and change or remove the PIN in the security menu.)



NB: make sure the SIM card is inserted before the batteries are placed. In case of a SIM card change, please first remove the batteries.

2.2 PLACE THE BATTERIES

Place the two batteries (CR123) in the module. Use the +/- indication for the correct placement. The green LED will flash to indicate that the module is not configured (at least one telephone number should be programmed).

2.3 ENTER THE PROGRAM MODE

Directly after placing the batteries, the Mobeye CM2400(H) switches to the program mode. First the GSM module establishes network connection. During this time the LED flashes 2 sec. on/1 sec. off. Within 10-30 seconds the connection is established and the status LED starts flashing 1 sec. on/1 sec. off (or 'on' in case the first telephone number has been configured).

The Mobeye CM2400(H) returns to the program mode by pressing the red on/off button, until the LED starts flashing (or turns to 'on').

As long as the unit is in the program mode, the status 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 open, 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.

2.4 PROGRAM AT LEAST ONE TELEPHONE NUMBER

The Mobeye CM2400(H) is able to send messages up to 5 telephone numbers. The first telephone number belongs to the administrator. Technical messages (like "battery low") are sent to the administrator only. Without the administrators' phone number, the Mobeye CM2400(H) cannot not function.

When the CM2400(H) is in initial (factory) status and the batteries are placed (so the LED is flashing), the administrators' number is programmed by calling the telephone number of the Mobeye CM2400(H) using the administrators' phone. The unit will recognize this number and store it as administrator (telephone number 1). 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 5.4.1.

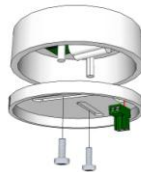
2.5 MOUNT THE GSM MODULE HOUSING TO THE CEILING

Mount the housing in which the module is fixed to the desired place to the ceiling, using the plugs and screws. Please refer to the manual of the EI Electronics detector for the ideal location.



2.6 FIX THE COVER TO THE GSM MODULE HOUSING

Take the back cover of the EI Electronics detector. Screw this part to the housing of the GSM module. A small opening shows the exact place. Lead the green connector through the hole in the back cover. Take care to not jam the wires.



2.7 CONNECT THE EI DETECTOR AND CLOSE THE COVER

Press the cabled connector to the pins of the EI Electronics detector. Next to these pins the text 1 2 is written. **Hold the EI detector to prevent tension on the wires!**

Close the EI detector by bringing it close to the back cover at the correct position and turn it gently until it is closed. In the EI detector a red light will flash regularly.



2.8 PERFORM A TEST

After the previous steps, the Mobeye CM2400(H) is in use.

It is armed (switched on) automatically. The green LED on the GSM module blinks once in 3 seconds, which can only be seen when opening the back cover of the EI detector.

In order to execute a test:

- Press the TEST & HUSH button of the EI detector during a few seconds. The siren will sound times and the GSM module will establish network connection in order to send the SMS messages and call the contact persons.

3. SEVERAL DETECTORS IN A WIRELESS NETWORK

Although the Mobeye CM2400(H) can run as stand-alone unit, it is also possible to form a wireless network with several EI detectors. For this purpose each EI Electronics detectors needs to be equipped with an RF module. This module can be integrated in the EI Electronics detector. Before the detectors are operational, the detectors need to enrolled, in order to know each other.

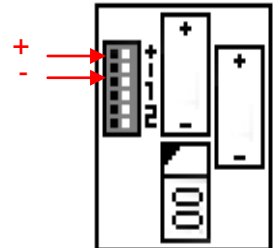
The placement of the RF modules in the EI Electronics detectors and the enrolment need to be done before all other steps in chapter 1. Please refer to the EI Electronics manuals for the steps to follow.

4. USE OF EXTERNAL POWER SUPPLY

Although the Mobeye CM2400(H) is designed to run on batteries, it is possible to use an external power supply. In this mode the module is always in connection with the GSM network and therefore always in program mode. In case the power fails, the batteries take over the functioning and the administrator is informed by an SMS text message. The module continues operating albeit in the low power mode. This means the GSM module switches off and only establishes network connection in case it needs to send out an alarm, test message or battery low alert.

Connect the external power adapter (or any other regulated 12VDC power supply) to the power input of the connector (press on the green pins for connecting the wires):

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



In case an external power supply is used and a power failure occurs, the Mobeye CM2400(H) sends a 'power failure' SMS text message to the administrator. In case the power is restored, the Mobeye CM2400(H) sends a 'power restored' SMS text message to the administrator.

5. EXTENDED OPTIONS

To program the Mobeye CM2400(H), 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.

5.1 PROGRAM MODE

Directly after placing the batteries, the Mobeye CM2400(H) switches to the program mode. First the GSM module establishes network connection. During this time the LED flashes 2 sec. on/1 sec. off. Within 10-30 seconds the connection is established and the status LED starts flashing 1 sec. on/1 sec. off (or 'on' in case the first telephone number has been configured).

The Mobeye CM2400(H) returns to the program mode by pressing the program button during 1 seconds, until the LED starts flashing (or turns to 'on'). The red program button is located inside the enclosure and can be reached by opening the smoke detector.

As long as the unit is in the program mode, the status LED is on (or flashing 1 sec. on/1 sec. off in case the module has no configuration). During the first 3 minutes the GSM module remains open, 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. In case the unit is connected to an external power supply, the CM2400(H) has network connection all the time and the unit is in program mode all the time.

5.2 THE SECURITY CODE

For configuration activities the security code of the Mobeye CM2400(H) must be used. The initial security code is '1111'.

In this manual this code is referred to as <CODE>.

5.3 PROGRAMMING THE SETTINGS BY SMS

The settings are programmed by SMS text messages.

- Be sure the CM2400(H) is in program mode (please refer to 5.1).
- Send an SMS message with following content:

<CODE> <command>

- Do not forget the space character between <PIN code> and <command>.
- 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> <command1>#<command2> #<commandN>

The green LED blinks 3 times to indicate the successful configuration. In case of an incorrect command, the LED flashes 5 times.

In 5.5 the complete scheme with SMS commands is listed
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5.4 POSSIBLE GENERAL SETTINGS

This paragraph describes the general settings for the CM2400(H).

5.4.1 Phone numbers

The Mobeye CM2400(H) is able to send alarm messages 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: <CODE> TEL1:<tel. number>

SMS command 2nd telephone number: <CODE> TEL2:<tel. number>

.... similar for TEL3...TEL5

To delete telephone numbers:

SMS command delete 1st telephone number: <CODE> DEL1

.... similar for DEL2...DEL5

In case a foreign number needs to be entered start with + followed by the country code. Example: 1111
TEL1:+44612345678.

5.4.2 Identification text

It is possible to add a standard identification text (NAME) to all messages sent out by the Mobeye CM2400(H). 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: <CODE> NAME:<free text>

5.4.3 Alarm text

Unique alarm text can be programmed into the Mobeye CM2400(H). The user defined text has a maximum length of 20 characters.

Following default texts are programmed:

Triggered input <TEXT1>: Fire alarm!

SMS commands text 1: <CODE> TEXT1:<free text>

5.4.4 Alarm notification type: SMS or SMS + call

As default behaviour, after an activated input the Mobeye CM2400(H) notifies by SMS text message followed by a telephone call (beep signal). The combination of SMS text and the call increases the chance of getting the attention of the contact persons. It is possible to disable the call (OFF), so that only an SMS message will be sent. The default alarm notification type is ON (SMS + call).

SMS command alarm notification type: <CODE> CALL:xxx

5.4.5 Test SMS text message

The Mobeye CM2400(H) can send regular test SMS messages ('keep alive') to the administrator, to ensure the proper functioning of the unit. The test message function is only active in case the unit is armed.

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: <CODE> TEST:xx

5.4.6 Power failure SMS message

In case the Mobeye CM2400(H) is powered externally and the power fails it sends an SMS text message to the administrator. The message is only sent in case the unit is armed. This message can be set to 'OFF'. The default setting for the 'power failure SMS text message' is set to "ON".

SMS command power failure message: <CODE> POWERSMS:xx

5.5 LIST OF SMS COMMANDS FOR CONFIGURATION

Setting	SMS Command	Range	Default value
Change security code	INSTCODE:<xxxx>	0000..9999	1111
Set telephone number for alarm messages	TEL1:<tel number> TEL5:<tel number>		Empty
Delete telephone number	DEL1 DEL5		
Identification text	NAME: <text>	20 characters	Mobeye
Alarm notification type	CALL: <type>	ON, OFF	ON
Alarm text	TEXT1:<text>	20 characters	Alarm 1
Interval 'test SMS'	TEST:<days>	0..30 (days)	0
Power failure SMS	POWERSMS:<xx>	ON or OFF	ON

Examples:

Set phone number1 : 1111 TEL1:0612345678

Delete phone number1: 1111 DEL1 *(be aware of the space behind 1111)*

5.6 RESET OF SYSTEM

To reset the Mobeye CM2400(H) to its factory settings:

- Open the back cover of the GSM module, using the reverse order as explained in chapter 2
- Remove the batteries
- Press the red button while entering the batteries. Keep it pressed for (about) another 5 seconds
- Release the button immediately after the LED starts to flash

After a successful reset, the status LED on the keypad will blink green to indicate that the module is not configured. The security code <CODE> is back to factory settings as well.

6. REQUEST LIST OF THE SETTINGS AND STATUS

The programmed settings and status of the GSM detector can be received per SMS message. Before sending the request, make sure the unit is in the program mode (please refer to 5.1).

6.1 STATUS REQUEST

The status of the Mobeye CM2400(H) can be requested by sending an SMS with the content:

<CODE> STATUS?

Upon sending this request, the Mobeye CM2400(H) returns the status to the originator of the request. The status message includes the ARMED / NOT CONFIGURED status of the Mobeye CM2400(H), the status of the input, power and batteries.

6.2 LIST OF GENERAL SETTINGS

The general settings of the Mobeye CM2400(H) can be requested by sending an SMS with the content :

<CODE> SET?

Upon sending this request, the Mobeye CM2400(H) returns the list of programmed settings to the originator of the request.

6.3 LIST OF PHONE NUMBERS

The list of telephone numbers can be requested by sending an SMS message with the content :

<CODE> CALL?

Upon sending this request, the Mobeye CM2400(H) returns the list of programmed telephone numbers to the originator of the request.

7. TECHNICAL MESSAGES AND STATUS FEEDBACK

Technical messages

In case 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 capable 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
Message(s) missed due to Network/SIM failure	One or more SMS text messages couldn't be sent, 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

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

Technical specifications GSM module

GSM	: Quad band EGSM, 850/900/1800/1900 MHz
Antenna	: 900/1800/1900 MHz
Batteries	: 2* CR123 (lithium)
Battery life in normal mode	: >1 year
Ext. power connection	: 12 VDC (+/- 2 VDC) / min. 500 mA. (optional)
Power consumption low power	: ca 50 µA. stand-by / max. ca. 500 mA
Power consumption 12V	: ca 50 mA. stand-by / max. ca. 500 mA
Dimensions	: 80 x 60 x 40 mm
Ambient temperature	: -10 °C until +50 °C

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Declaration of Conformity

Herewith we, Mobeye, declare that the product

Mobeye CM21 telemetry module

And the derived products

**CM2000, CM2100, CM2200, CM2300,
CM2300FS, CM2400, CM2500**

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 1995/5/EC R&TTE (Radio & Telecommunications Terminal Equipment)

The conformity with the essential requirements of 1995/5/EC has been verified against:

ETSI EN 301 489-1 V1.5.1

ETSI EN 301 489-7 V1.2.1

ETSI EN 301 511 V9.0.2

CENELEC EN 60950:2001

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Date: 31 maart 2013