



## USER MANUAL

**Mobeye<sup>®</sup> Smoke Detector CM2400**  
**Mobeye<sup>®</sup> Heat Detector CM2400H**

SW version 3.n

## CONTENT

<b>1.</b>	<b>General description</b>	<b>1</b>
<b>2.</b>	<b>Getting started</b>	<b>2</b>
2.1	Insert a SIM card	2
2.2	Insert the batteries	2
2.3	Enter the program mode	2
2.4	Program at least one telephone number	2
2.5	Mount the GSM module housing to the ceiling	3
2.6	Fix the cover to the GSM module housing	3
2.7	Connect the EI detector and close the cover	3
2.8	Perform a test	3
<b>3.</b>	<b>Several detectors in a wireless network</b>	<b>4</b>
<b>4.</b>	<b>Use of external power supply</b>	<b>5</b>
<b>5.</b>	<b>Configuration</b>	<b>6</b>
5.1	Program mode	6
5.2	The (security) code	6
5.3	Programming the settings by SMS	6
5.4	List of SMS commands for configuration	7
<b>6.</b>	<b>Possible settings</b>	<b>8</b>
6.1	Phone numbers	8
6.2	Identification text	8
6.3	Alarm texts	8
6.4	SMS on/off	8
6.5	Call on/off	8
6.6	Test message	9
6.7	System reset	9
<b>7.</b>	<b>Request list of the settings and status</b>	<b>10</b>
<b>8.</b>	<b>Technical messages and status feedback</b>	<b>11</b>

## **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.

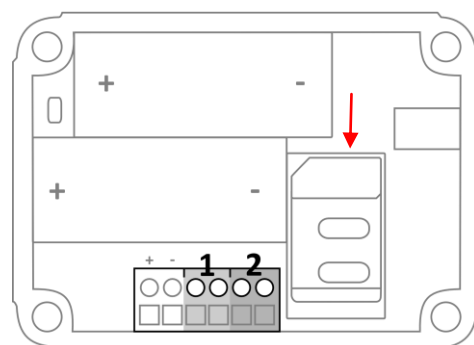
NB: in case several EI detectors form a network communicating by RF, at first the TF modules need to be placed and the detectors need to be enrolled. Please refer to chapter 3.

### 2.1 INSERT A SIM CARD

Insert a SIM card into the module. Push the black cover outward slightly 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: Make sure the SIM card is inserted before the batteries are inserted. In case of a SIM card change, please first remove the batteries (and remove any other external power supply).



### 2.2 INSERT THE BATTERIES

Insert 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 inserting 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 stays on continuously in case the first telephone number has been configured). The Mobeye CM2400(H) returns to the program mode by pressing the red button for 5 seconds, until the LED starts flashing (or stays on continuously).

As long as the unit is in the 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.

### 2.4 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 function.

When the CM2400(H) 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 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 5.2.

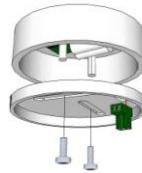
## 2.5 MOUNT THE GSM MODULE HOUSING TO THE CEILING

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 the cables are not jammed.



## 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 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.

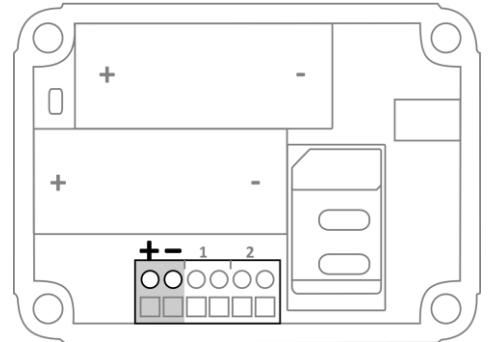
The placement of the RF modules in the EI Electronics detectors and the enrolment need to be done before all other steps in chapter 1. Please refer to the EI Electronics manuals for the steps to follow.

#### 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 low battery 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 “-“



## 5. CONFIGURATION

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 inserting 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. 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. The Mobeye CM2400(H) returns to the program mode by pressing the red button for 5 seconds, until the LED starts flashing (or stays on continuously).

If 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'. You can change the (security) code to your own code. See section 4.4.

### 5.3 PROGRAMMING THE SETTINGS BY SMS

To program the settings by SMS text message:

1. Be sure the CM2400(H) is in program mode (please refer to 5.1).
2. Send an SMS 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 should have the following content: **CODE COMMAND:OPTION**

- Do not forget the space character between (security) code and command.
- The commands are case sensitive. Use capitals for the commands.
- 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 5.4 for a full list of SMS commands.
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## 5.4 LIST OF SMS COMMANDS FOR CONFIGURATION

The setting options for the CM2400(H).

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
Alarm text input 1	TEXT1:	20 characters	Fire alarm!
Interval 'test SMS'	TEST:	0..30 (days)	0

### Examples:

Set phone number 1 :        1111 TEL1:0712345678

Delete phone number 1:    1111 DEL1

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



## 6.6 TEST MESSAGE

The Mobeye CM2400(H) 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 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

## 6.7 SYSTEM RESET

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

1. Open the back cover of the GSM module, using the reverse order as explained in chapter 2
2. Remove the batteries
3. Press the red button while reinserting the batteries. Keep it pressed for (about) another 5 seconds
4. 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 is back to factory settings as well.

## 7. REQUEST LIST OF THE SETTINGS AND STATUS

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

### STATUS REQUEST

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

SMS command status request:                   **STATUS?**  
  example:                                   1111 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 inputs, power and batteries.

### LIST OF GENERAL SETTINGS

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

SMS command list general settings:           **SET?**  
  example:                                   1111 SET?

### LIST OF PHONE NUMBERS

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

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

## 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
Blinking green, 2 seconds on, 1 second off	Module establishes network connection to send an alarm message	Wait until the network connection is established and the message is sent
Blinking green, 3 seconds on, 1 second off	Module establishes network connection to get to program mode	Wait until the network connection is established before programming
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
Ext. power connection	:	12 VDC (+/- 2 VDC) / min. 500 mA. (optional)
Power consumption low power	:	ca 50 $\mu$ A. 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, CM2600**

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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