mobeye®

USER MANUAL

Mobeye® ThermoGuard

CM4200

R/SW 3.n

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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 the case of damage caused by disregarding the guidelines and the instructions for use, no liability is accepted and the warranty becomes void. The user must regularly check the proper functioning of the Mobeye® device. The manufacturer cannot be held liable for (direct and indirect) damage as a result of incorrect operation or incorrect functioning of the device, software, internet or telecom connection. The manufacturer is in no way liable for the loss of personal passwords or codes.

Safety guidelines

- The permitted ambient temperature during operation may not be exceeded (not lower than -10 °C and not higher than 50 °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, 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 messages and making telephone calls after an alarm situation. Other uses are not permitted and may invalidate the warranty.

Battery recycling

This product contains recyclable components. When disposing of this product, please take it to a waste collection point for disposal or to your sales point. Bring empty batteries to a recycling centre or collection point.

1. GENERAL DESCRIPTION

The Mobeye ThermoGuard is a monitoring device with an integrated communication module used to send alarm notifications after the temperature gets out-of-range or after the activation of an input. It can run battery operated or externally powered. If an external power supply is used, it can also send a power failure alarm.

In order to activate the device, a few steps are to be followed.

First of all, you need to insert a SIM card. The Mobeye SIM card ensures secure network coverage with strong signal penetrability in buildings and reliable operation in remote areas. It is a 'multi-provider' SIM that can be used internationally; it may choose from nearly all providers per country. In case of a 4G network issue it will automatically switch to another provider or fall back to 2G.

In addition, the Mobeye SIM card provides access to the Mobeye Portal – an online management platform that enables essential functions such as remote configuration, status and history display, and monitoring of test messages (keep alive).
The Mobeye Portal also offers extensive alarming options via the Mobeye app, voice calls (spoken text), SMS, email and alarm receiving centers. Push messages via app can be configured with escalation schemes and fallback options via voice calls. The designated contact persons will receive instructions and an installation link on their phone.

It is possible to use your own SIM card. In this setup the Mobeye Portal and app functions will not be available. However, key functions such as the alarm SMS and call notifications will work. Please note that a local SIM card can only connect to one local network provider, and some providers may not support calls over 4G.

Where the installation steps differ for both modes of use, this is indicated. The use of the Mobeye Portal with Mobeye SIM card is also referred to as Mobeye SIM/Portal.

2. STANDARD BEHAVIOUR

2.1 MOBEYE THERMOGUARD WITH MOBEYE SIM AND PORTAL

The Mobeye ThermoGuard with Mobeye SIM card and registered on the Mobeye Portal, has the following behaviour as factory settings:

- In the situation of a temperature alarm the Mobeye ThermoGuard sends an alarm message to the Mobeye Internet Portal. The Portal forwards the alarm as push notification, call (spoken message), text message and/or e-mail to the 'alarm contacts'.
- As soon as the temperature gets back to a value inside the range, a message is sent to the Mobeye Internet Portal. The Portal forwards the alarm to the 'alarm contacts'.
- In case one of the additional inputs is activated by a sensor, the Mobeye ThermoGuard sends an alarm message to the Mobeye Internet Portal. The Portal forwards the alarm to the 'alarm contacts'.
- When the temperature sensor is removed, the Mobeye ThermoGuard sends a message via the Mobeye Internet Portal.
- When an external power supply is used and a power failure occurs, the Mobeye ThermoGuard sends a 'power failure' message to Mobeye Internet Portal, to be forwarded to the 'alarm contacts'. When the power is restored, the Mobeye ThermoGuard sends a 'power restored' message.
- When the batteries need to be replaced, the Mobeye ThermoGuard sends a 'low battery' message to the Mobeye Portal. The portal forwards this to the 'service' contacts.
- The unit will send test messages to the portal as communication check (default: every 7 days). If these are not received in time, the portal sends an exception message to the 'service' contacts.

Chapter 5 describes how to influence the standard behaviour.

Communication between the Mobeye ThermoGuard and the Mobeye Portal takes place via data (and SMS as fallback). Messages can be sent as a push message to the Mobeye Messages app (via the portal). If a contact confirms the receipt of the message, the subsequent contacts will not receive it (alternatively a group message is possible). If the message is not confirmed (or the app is not used), it can still be sent by call (with spoken text). SMS and email are also possible. A credit system applies to calling and SMS texting, the other methods are unlimited. At initialisation and contract

renewal, a starting credit is loaded, which is sufficient for most users. In the event of a low balance, the account holder will receive an email with the advice to top up online. The credit balance has an unlimited validity period and applies to all devices under one account.

2.2 MOBEYE THERMOGUARD WITH OWN SIM CARD

The Mobeye ThermoGuard, equipped with your own SIM card, has the following standard behaviour as factory settings:

- In the situation of a temperature alarm, the Mobeye ThermoGuard sends an alarm SMS text message and calls the phone numbers programmed in by the user. The SMS message contains the text 'Temperature too high' or 'Temperature too low', followed by the measured temperature.
- As soon as the temperature gets back to a value inside the range, an SMS text message is sent to the phone numbers programmed in by the user containing the text 'Temperature OK'.
- When the temperature sensor is removed, the Mobeye ThermoGuard sends an SMS text message to first telephone number (TEL1) containing the text 'Temperature sensor not connected'.
- When one of the additional inputs is activated by a sensor, the Mobeye ThermoGuard sends an alarm SMS text message and calls the phone numbers programmed in by the user.
- When an external power supply is used and a power failure occurs, the Mobeye ThermoGuard sends a 'power failure' SMS text message and calls the phone numbers programmed in by the user. When the power is restored, the Mobeye ThermoGuard sends a 'power restored' SMS text message.
- When the batteries need to be replaced, the Mobeye ThermoGuard sends a 'low battery' SMS text message to the first telephone number.

Chapter 5 describes how to influence the standard behaviour.

3. GETTING STARTED

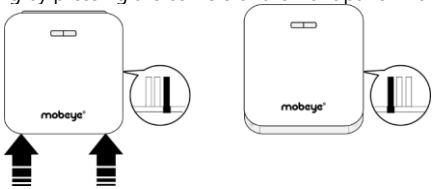
To get started with the Mobeye ThermoGuard, at least the following steps need to be taken in the following order:

1. Open the casing and insert the SIM card
2. Insert the batteries
3. Connect the temperature sensor
4. Connect an external power supply (optionally)
5. Connect a sensor to the input (optionally)
6. Connect an external power supply (optionally)
7. Programming when using the Mobeye SIM/Portal
   a. Sign up in the Mobeye Portal
   b. Activate the SIM card and the device
   c. Program the settings and synchronise
   d. Use of the portal and app
8. Programming when using your own SIM card
   a. Enter the program mode
   b. Program the settings

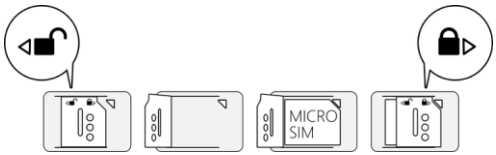
Steps 1 to 6 are described in this chapter.
Step 7 is described in chapter 4. Step 8 can be found in chapter 6.

3.1 OPEN THE CASING AND INSERT THE SIM CARD

Open the casing by pressing the corners of the front panel with both thumbs.



Insert the SIM card into the module.



When using the Mobeye SIM card:
The Mobeye SIM card is PIN code secured and will only work in a Mobeye device. Please do not place it in another device.

When using your own SIM card:
An own SIM card has a "micro" format, is able to make calls and send text messages. The SIM card is PIN code free or the code is "0000".
- The PIN code can be removed by putting the SIM card in to any mobile phone and entering the 'security' menu.
- The operation of the voice call depends on the operator (see 5.17).

Note: make sure that the power supply is removed when inserting or changing the SIM card. The settings are stored in the device memory.

3.2 INSERT THE BATTERIES

Insert the two batteries (CR123) in the module. Use the +/- indication for the correct placement. If you replace the batteries the settings will not be deleted, since they are stored in the device memory.

3.3 CONNECT THE TEMPERATURE SENSOR

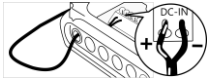
Plug the external temperature sensor into the socket and press it firmly.

3.4 CONNECT AN EXTERNAL POWER SUPPLY (OPTIONALLY)

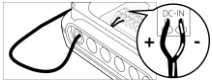
Although the ThermoGuard is designed to run on batteries, it is possible to use an external power supply. In this mode the module is always connected with the mobile network and therefore always in program mode. When the power fails, the batteries take over and a power failure alarm message is sent. The module continues operating albeit in the low power mode; i.e. the communication module switches off and only establishes network connection when it needs to send an alarm notification, test message or low battery alert.

Connect the power adapter (or any other regulated 12-24V DC source) to the power input of the connector (press on the green pins to connect the wires).

	Mobeye **EU** adapter 10027	position
- V+ to "+"	black lead with white stripe	left
- Ground to "-"	black lead	2nd from left

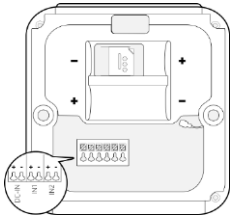


	Mobeye **UK** adapter 10131	position
- V+ to "+"	black lead	left
- Ground to "-"	black lead with white stripe	2nd from left



3.5 CONNECT A SENSOR TO THE INPUT (OPTIONALLY)

Two external sensors can be connected to the inputs.
Insert the 2 wires of an external sensor through the hole in the casing and insert them in the two connectors of input 1 (press on the green pins for connecting the wires). It does not matter which wire is connected to which connector.
A second sensor may be connected to input 2.



As default the input is programmed as Normally Open (NO) contact. This means the input is triggered if the input is closed for at least 1 second. In case the contact is Normally Closed (NC), see paragraph 5.8. If the sensor needs to be activated for a longer period before triggering an alarm, see 5.8.
If a recovery message after an alarm reset is desired, see 5.11.

3.6 NETWORK CONNECTION AND PROGRAM MODE

After placing the batteries (and external power) the Mobeye ThermoGuard will search for the network. The outside LED flashes green and red. This process normally takes 10-30 seconds, in a new device this can take some

minutes. When the network has been established the LED will first blink green rapidly and next stay green (or flashes 1 sec. on/1 sec. off in case the unit has not been configured yet).

In a battery-operated unit a time-out occurs after 3 minutes, after which the communication module switches off in order to save the batteries. In this low power mode the LED flashes once per 3 seconds. It will search for network connection once it needs to send notifications. It can also been forced to establish a network connection by re-inserting the batteries or pressing the button at the back for ca. 8 seconds.

If the ThermoGuard is connected to an external power supply, it has continuous network connection and is permanently in program mode.

4. PROGRAMMING WHEN USING THE MOBEYE SIM AND PORTAL

4.1 SIGN UP IN THE MOBEYE PORTAL

Go to www.mymobeye.com
and sign up for a new account.
Follow the instructions on the screen.

You will receive an e-mail to confirm the new account. After confirmation login on the portal.

If you do not receive this e-mail, please check your spam box or ask Mobeye via the "Support" button.

4.2 REGISTER THE MOBEYE SIM CARD

To activate the Mobeye SIM card in the Mobeye Portal, choose 'activate SIM card' on the 'Add Device´ screen.

Fill in the SIM card number. This number is written on the plastic SIM card below the barcode. You can take the entire number or only the last 8 digits.

If the SIM card and batteries are already installed, a pop-up will appear, where you assign a name and location to the device. You can change these later.
(If you have not installed the SIM card and batteries before, you will first be asked to select the device type, in your case it will be "CM4200".)

At the moment you accept the price and terms, you confirm the subscription. You will be taken to the payment screen. Payment by invoice is possible for companies.

After this step your device is visible on the dashboard.
The following sections describe the configuration options and methods.

4.3 CONFIGURATION AND SYNCHRONISATION

The device settings can be programmed in the Mobeye Portal. In this way you prepare the settings, to be picked up by the device. Since the Mobeye device is leading in the communication between the portal and the device, the data synchronisation is done after:

1) any message to the portal (regular test message, alarm, low batteries).
2) reconnecting power and reinserting batteries.
3) pressing the button (at the backside) for about 8 seconds.
4) pressing the SYNC symbol in the portal settings (only visible if external power is connected), or sending the SMS command 1111 SYNC to the phone number in the unit (1111 is the security code in factory settings).

During the data exchange with the portal, the LED flashes green. A battery-operated unit will first blink red-green while connecting to the network.

4.4 BASICS OF THE MOBEYE PORTAL

Dashboard

With multiple devices, the dashboard shows all devices, with the (alarm) messages in the last 24 hours, (missed) test messages and low battery status. If devices in the dashboard have logging functions, the dashboard changes when you click on "Diagrams" or "Gauges" in the gray bar.
Select a device to go to the details of a specific device.

Status & History

The status block shows values about the status of the unit.
If the "Synchronised" status is set to "No", there are new settings or alarm numbers that still need to be transferred to the device.
The network strength value at the last communication session is shown. If the value is lower than -98 dB, consider another location for the device.
Click on the position icon to see the geographical location during the last report. Note: this is an indication based on "cell-id".

The history displays all historical events. Click on "all events" to see the list.

Device Settings

The device settings can be changed via the Mobeye Portal. To do this, click on the "edit" icon and type in the security code (factory setting is "1111"). See chapter 5 for the description per setting.

After saving the new settings, they must be retrieved by the device (synchronized). See 4.3 for more information about synchronizing.

In the block “device data” the name and location of the device can be changed. These texts are mentioned in the call, text message and e-mail to indicate the device. A free text is available as an internal comment field. This is not included in reports.

Alarm dispatch and the Mobeye app

In the block "Contacts for messages" you link the contact persons who receive alarm and service messages via push notification, call, text message and/or e-mail. Service messages can be warnings about missed test messages and low battery voltage. To add a contact person, first create it as a contact. This can be done via the + or in the main menu under the blue Contacts tab. For push notifications, install the Mobeye Messages app from the Play Store/App Store on the phone.

- Select "App message" for a push notification. A contact will then (once) receive a code via SMS to register in the app.
- Optionally select "Voice call" as a fallback: If none of the contacts confirm the app message, a voice call will follow.
- If no app message is set for a contact, but call is set, this call is always made (regardless of whether other contacts receive push notifications).
- If SMS and/or email is set up for a contact, this is always sent (possibly alongside the app message).
- An app message can be sent as a group message (to all contacts at once) or via an escalation plan (where a "confirmation" prevents the app message from being forwarded to a next contact).
- When selecting "Escalation", adjust the order with the arrows ▲ and ▼.

Our hints:

- App + voice call (fallback) for alarms; email for service notifications.
- During testing, use only app and email (no calls/SMS) to conserve credit.
- If the app requests a new code or a contact gets a new phone, send it via the "Contacts" tab (edit the contact).

Message texts
The message texts contain the texts that, in addition to the name and location, are included in the messages. These texts can be adapted to your own text. Forwarding a notification can be prevented by starting the message text with --.

4.5 HOW TO ACTIVATE THE THERMOGUARD

After the previous steps the Mobeye ThermoGuard is ready for use. It is armed automatically.

In order to switch off (disarm) the ThermoGuard:
- Press the button at the backside for 1 second. The green LED switches off to indicate the disarmed status.

  In the disarmed status the Mobeye ThermoGuard will not send alarm notifications. The unit remains active and is able to switch on time-controlled and to send test and 'low battery voltage' messages.

In order to switch on (arm) the Mobeye ThermoGuard:
- Press the button at the backside for 1 second. The green LED blinks once every 3 seconds (battery-powered) or stays on continuously (in case of an external power supply).

If powered externally (with network connection), switching can be done via SMS commands:

SMS command to switch on:	CODE ARM	(e.g. 1111 ARM)
SMS command to switch off:	CODE DISARM	(e.g. 1111 DISARM)

To update the status in the Mobeye Portal: press the button for ca. 8 seconds, or - if the device is externally powered - send a question mark to the unit (without code).

SMS command status update:	?	The status in the portal will be refreshed (only with external power).

4.6 SYSTEM RESET

To reset the ThermoGuard two steps are necessary, in following sequence:

1. Delete the Mobeye ThermoGuard from the Mobeye Portal
Go to "Device Settings" and click on the delete icon in the "Device" block. Then confirm your choice.

2. Reset the Mobeye ThermoGuard to its factory settings

1. Remove the batteries and SIM card (and external power supply).
2. Press the outside button while reinserting the batteries. Keep it pressed for (about) another 8 seconds.
3. Release the button immediately after the LED starts to flash.

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

The SIM card is now disconnected and is visible on the "Add device" screen. The SIM card can be used again in another (or the same) Mobeye device in combination with the portal.

5. POSSIBLE SETTINGS

The Mobeye ThermoGuard has many setting options that influence the behaviour of the module. If connected on the Mobeye Portal, the settings are prepared in the portal (see chapter 4). If your own SIM card is used, programming is done via SMS commands (see chapter 8).

5.1 ALARM PHONE NUMBERS

When using Mobeye Portal: an unlimited number of contacts can receive the alarm messages. These are set in the portal.
When using your own SIM card: the Mobeye ThermoGuard can inform 5 telephone numbers in the event of an alarm. It is mandatory to set at least one number (TEL1). The numbers set are used for the telephone calls and/or SMS messages from the device.

5.2 TEST MESSAGE

When using the Mobeye Portal: The Mobeye ThermoGuard can send regular test messages (keep alive) to the Mobeye Portal, to ensure the proper functioning of the unit and to send the latest actual temperature. The test message will also be sent if the unit is disarmed. The Mobeye Portal expects the test message and checks the timely receipt. The monitoring of the test messages follows the 'management by exception' rule: only if the message was not received, the 'service' contacts will receive a notification.
The timing of the test message can be programmed. Since new settings (options) will be synchronised after the test message, setting a specific time of the test message may help the process of remote programming. Example: if you force a daily test message at 17.30 hrs, you can prepare new settings and be sure they are loaded into the device before the evening.
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 "7" (weekly).

When using your own SIM card: The Mobeye ThermoGuard can send regular test SMS messages (keep alive) to the first phone number (TEL1), 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 set. 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).

5.3 MINIMUM AND/OR MAXIMUM TEMPERATURE LIMIT

A separate high and/or low limit for the temperature can be set. The limits can be set between -35 ºC and +70 ºC, with one decimal. Negative values are set by a "-" before the value.

5.4 TEMPERATURE DELAY TIME

The temperature delay time defines the duration a temperature limit is violated before an alarm is initiated. If the temperature returns to the non-alarm status within the delay time, no alarm is sent. The time can be set between 0 and 999 minutes.
As default, the temperature delay time is set to 0 minutes.

5.5 TEMPERATURE CALIBRATION

The high quality digital temperature sensor is calibrated in the factory. For special applications it is possible to calibrate the sensor and program a correction. The adjusted temperature will be used in the measurement and reports. Example: the Mobeye ThermoGuard measures 13 °C. Actual ambient temperature is measured as 13,5 °C. To adjust this difference, +0,5 degrees shall be programmed.

5.6 TEMPERATURE UNIT

The temperature can be programmed and displayed in degrees Celsius (C) or Fahrenheit (F). As default this unit is set to C.

5.7 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 when the connection between the input terminals is broken. If the input is 'OFF', a connected sensor is ignored. As a factory setting, the inputs have type NO.

It is possible to connect a sensor with an analog output value between 1V and 48V, by placing a resistor or relay between the sensor and the input. For an explanation, see the support page on www.mobeye.com.

5.8 ALARM DELAY TIME

The input delay time defines the time that the input is triggered before an alarm is initiated. If the input returns to the non-alarm status within the delay time, no alarm is sent. The time can be set between 0 and 999999 seconds. As default, the input delay time is set to 1 second.

5.9 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. Only when the input returned to the non-alarm status, gets activated again and remains active, an alarm will be sent yet after the inactive time. If the time is set to "0" (minutes), the input will be active again immediately after returning to the non-alarm status. The time can be set between 0 and 999 minutes. As default, the inactive time is set to "0".

5.10 ALARM REPEAT TIME

In order to emphasize the urgency of the alarm messages, all alarms can be repeated. As long as the input has not returned to the inactive status, the textual messages (no phone calls) will be repeated after the 'alarm repeat time'. The repeat interval can be set between 0 (no repeat) and 999 minutes. As default the alarm repeat time is set to "0".

5.11 ALARM RESTORE MESSAGE

In factory setting, the Mobeye ThermoGuard does not send a recovery message if an input alarm has been restored. It is possible to set a recovery message per input.
In the Mobeye Portal, the recovery text is visible (and can be changed) under the message texts, after an initial recovery message.

5.12 POWER FAILURE MESSAGE

If the Mobeye ThermoGuard is supplied with external power and the power fails, it can send alarm messages. If the setting is "OFF", no message is sent. When set to “ALARM”, notifications are sent to the set contacts. When using your own SIM card, the setting “ALERT” only results in an SMS notification to TEL1. The default is "ALERT" for own SIMs and “ALARM” for the portal.

5.13 POWER FAILURE DELAY TIME

To avoid false alarms caused by short power failures, a power failure delay time can be set. This defines the time between the initial power failure and the alarm notification. If the power is restored within the delay time, no alarm is sent. The time can be set between 0 and 999 minutes. As default, the delay time is set to "0".

5.14 AUTOMATIC ARMING / DISARMING

The Mobeye ThermoGuard only works if the unit is armed, which is done via the on/off button. It is possible to automatically arm and disarm the unit, based on an arming and/or disarming time scheme. Two schemes can be entered, which can be assigned to the days in the week (e.g. to have a different weekend scheme).
As default the automatic (dis) arming times are valid for all days. It is possible to assign them to only a few days in the week. In this way it is possible to have two different schemes, which are valid on different days.
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 set in a row (e.g. 12345 means Monday till Friday).
Example: to arm the system only during weekdays, from 6AM to 7PM, set the TIMEARM1 to 06:00, TIMEDISARM1 to 19:00 and DAYS1 to 12345.

(Only) when using your own SIM card, the DATE and TIME must also be set manually. The portal synchronizes this automatically.

5.15 BUTTONLOCK

It can be useful to lock the on/off button to prevent the unit from being switched off unintentionally. As default the buttonlock is unlocked (so, the button is enabled). To disable the button, the buttonlock needs to be

switched to "ON". Synchronising the settings to the portal, by pressing for ca. 8 seconds, still works.

5.16 LOW POWER MODE

The low power mode is only important with an externally powered Mobeye ThermoGuard. If the (factory) mode is set to “OFF”, the communication module will always have a network connection. When set to “ON” the behaviour is the same as for a battery-powered device; the communication module is turned off as much as possible to minimize power consumption. Note: in low power mode the module cannot be reached via SMS.

5.17 CALL AND/OR SMS (OWN SIM CARDS)

When using your own SIM card, by default the ThermoGuard will call and send SMS text messages. It is possible to suppress one of these. By turning off the CALL, the unit will only send SMS text messages. By turning off the SMS, it will only call. The default both values are set to "ON".
The ability to make calls may be blocked by the local provider, or APN settings may need to be configured (see 6.5).

5.18 NOTIFICATION TO PRIVATE EMERGENCY CENTER

The Mobeye ThermoGuard can send the reports to a control room using the standard SIA DC09 protocol. This requires the use of the Mobeye SIM/Portal. Contact Mobeye for information.

6. PROGRAMMING WHEN USING OWN SIM CARD

If your own SIM card is used, programming proceeds via SMS commands. For this purpose the communication module requires network connection.

6.1 PROGRAM MODE

If the ThermoGuard is connected to an external power supply, it has continuous network connection and is permanently in program mode.
A battery-operated Mobeye ThermoGuard switches to the program mode after re-inserting the batteries or pressing the button at the back for ca. 8 seconds. While searching for the network connection the outside LED flashes green and red. This process normally takes 10-30 seconds. When the network has been established the LED will first blink green rapidly and next stay green (or flashes 1 sec. on/1 sec. off in case the unit has not been configured yet).

In this program mode the device is ready to receive commands and settings. In a battery-operated unit a time-out occurs if no correct command is received for 3 minutes, after which the communication module switches off in order to save the batteries. In this low power mode the LED flashes once per 3 seconds to indicate it is armed.

6.2 PROGRAMMING THE SETTINGS BY SMS

When using your own SIM card, the settings are programmed in by SMS text messages:

1. Make sure the ThermoGuard is in program mode (please refer to 6.1).
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**
Example: **1111 TEL1:0044772345678**

- CODE stands for the security code, factory setting is 1111.
- Do not forget the space character between (security) code and command.
- The commands are case insensitive.

- Each command needs to be sent in a separate SMS text message.
- All settings are saved and remain saved, even when the unit has no power or the batteries are removed.

> In chapter 5 the options are explained.
>
> In paragraph 6.5 all possible SMS commands are listed.

6.3 PROGRAM AT LEAST ONE TELEPHONE NUMBER

The Mobeye ThermoGuard is able to send messages up to 5 telephone numbers. The first telephone number (TEL1) is mandatory. This number will receive, next to alarm message, also system messages such as battery low and keep-alive message. The telephone number TEL1 is programmed via an SMS command. This can be done from any telephone, making it possible to program someone else's number. The TEL1 telephone will receive a confirmation text message with the security code.

SMS command 1st telephone number: CODE TEL1:
example: 1111 TEL1:07212345678
.... similar for TEL2 ... TEL5

To program international numbers, start with 00 followed by the country code (for example 0044123456789).
example: 1111 TEL1:0044612345678

6.4 PROGRAM THRESHOLD VALUES FOR THE TEMPERATURE

A separate high and/or low temperature limit can be set for the temperature sensor. Both limits can be set between -35 ºC and +70 ºC with one decimal. Negative values are entered by placing a "-" in front of the value.
Send an SMS text message with the temperature limit, while the Mobeye ThermoGuard is in program mode (mind the space behind 1111).

SMS command lower limit: 1111 LTL:
example: 1111 LTL:-5
SMS command upper limit: 1111 HTL:
example: 1111 HTL:25,5

6.5 LIST OF SMS COMMANDS

When using your own SIM card, the settings are programmed via SMS commands. See chapter 6 for the programming method and chapter 5 for an explanation per setting. The commands are case insensitive.

Setting	SMS command	Options	Default value
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
Interval 'test SMS'	TEST:	0 ··· 30 (days)	0
Time test message	TESTTIME:	hhmm	
Lower limit temperature	LTL:	-35,0 ··· 70,0 (ºC)	OFF
Higher limit temperature	HTL:	-35,0 ··· 70,0 (ºC)	OFF
Temperature delay	DELAYTEMP:	000 ··· 999 (min)	0
Inactive time temp.	INACTIVETEMP1:	00 ··· 60 (min.)	0
Temperature calibration	TOFFSET:	-5,0 ··· 5,0 (ºC)	0
Temperature unit	TEMPUNIT:	C, F	C
Input type input 1	TYPEIN1:	NO, NC, OFF	NO
Input type input 2	TYPEIN2:	NO, NC, OFF	NO
Delay on input 1	DELAY1:	0 ··· 999999 (sec)	1
Delay on input 2	DELAY2:	0 ··· 999999 (sec)	1
Inactive time input 1	INACTIVEIN1:	0 ··· 999 (min)	0
Inactive time input 2	INACTIVEIN2:	0 ··· 999 (min)	0
Alarm recovery input 1	RESTOREIN1:	ON, OFF	OFF
Alarm recovery input 2	RESTOREIN2:	ON, OFF	OFF
Alarm repeat time	REPEAT:	0 ··· 999 (min)	0
Power message	POWERMESSAGE:	OFF,ALERT,ALARM	ALERT
Power failure delay time	DELAYPOW:	0 ··· 999 (min)	0
Actual time	TIME:	hhmm	Empty
Actual date	DATE:	yyyymmdd	Empty
Arming time	TIMEARM1:	hhmm	Empty
Disarming time	TIMEDISARM1:	hhmm	Empty
2nd arming time	TIMEARM2:	hhmm	Empty
2nd disarming time	TIMEDISARM2:	hhmm	Empty

Setting	SMS command	Options	Default value
Assigning times 1	DAYS1:	1234567	Empty
Assigning times 2	DAYS2:	1234567	Empty
Use of on/off button	BUTTONLOCK:	ON (button locked) OFF (unlocked)	OFF
Low power status	LOWPOWER:	ON, OFF	OFF
Call on/off	CALL:	ON, OFF	ON
SMS on/off	SMS:	ON, OFF	ON
Alarm text power failure	TEXT1:	20 characters	Power failure
Alarm text power restore	TEXT2:	20 characters	Power restored
Alarm text low temperature	TEXT3:	20 characters	Temperature too low:
Alarm text high temperature	TEXT4:	20 characters	Temperature too high:
Text temperature alarm restore	TEXT5:	20 characters	Temperature OK:
Alarm text input 1	TEXT10:	20 characters	Alarm 1
Restore text input 1	TEXT11:	20 characters	Restore 1
Alarm text input 2	TEXT12:	20 characters	Alarm 2
Restore text input 2	TEXT13:	20 characters	Restore 2
APN 4G	APN:		
APN user name	APNLOGIN:		
APN password	APNPASSWORD:		
Reset APN data	APNRESET		

Examples:

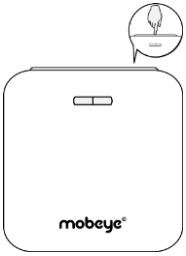
Set phone number 1: 1111 TEL1:0712345678

Delete phone number 1: 1111 del1

Be aware of the space between “1111” and the command.

6.6 HOW TO ACTIVATE THE THERMOGUARD

After the previous steps the Mobeye ThermoGuard is ready for use. It is armed automatically.



In order to switch off (disarm) the Mobeye ThermoGuard:

- Press the button at the backside for 1 second. The green LED switches off to indicate the disarmed status.

  In the disarmed status the Mobeye ThermoGuard will not send alarm notifications. The unit remains active and is able to switch on time-controlled and to send 'low battery voltage' messages.

In order to switch on (arm) the Mobeye ThermoGuard:

- Press the button at the backside for 1 second. The green LED blinks once every 3 seconds (battery-powered) or stays on continuously (in case of an external power supply).

If powered externally (with network connection), switching can be done via SMS commands:

SMS command to switch on:	CODE ARM	(e.g. 1111 ARM)
SMS command to switch off:	CODE DISARM	(e.g. 1111 DISARM)

6.7 SYSTEM RESET

To reset the Mobeye ThermoGuard to its factory settings:

1. Remove the batteries and SIM card (and external power supply).
2. Press the outside button while reinserting the batteries. Keep it pressed for (about) another 8 seconds.
3. Release the button immediately after the LED starts to flash.

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

6.8 SMS REPORTS WHEN USING OWN SIM CARD

Several lists and status reports can be retrieved by sending an SMS text message to the Mobeye ThermoGuard, from any telephone number. Before sending the request, make sure the unit is in the program mode (see 6.1).
Upon sending the command, the Mobeye ThermoGuard returns an SMS text message to the originator of the request. The commands are case insensitive.

ACTUAL TEMPERATURE

The actual temperature values as measured by the ThermoGuard can be requested by sending an SMS text message with the content (without code):

?

STATUS REQUEST

The status (armed/disarmed, inputs, power, batteries and network) can be requested by sending following SMS text message:

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 advanced settings:	**SETA?**
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?

6.9 TECHNICAL MESSAGES

In the event of technical issues the telephone number programmed in at position 1 (TEL1) 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.
Batteries too low. Module shutting down.	The module has shut down due to low voltage. Replace the batteries or connect the power supply to restart the unit.
Module restarted. Power supply [status]. Batteries [status].	The module has been able to restart after a shutdown.

When receiving one of the above mentioned technical messages, please take appropriate action as soon as possible.

7. STATUS FEEDBACK

The LEDs on the outside provide feedback about the status of the device.

LED pattern	Status	Required action
Blinking green / red every second	Module establishes network connection	Wait until the network connection is established.
Blinking green, 1 second on / 1 second off	Module not configured (own SIM card)	Configure at least one telephone number.
1 green flash every 3 seconds	Module is switched on, powered by batteries	No action required.
1 red flash every 3 seconds	Module is switched on, powered by batteries, batteries are low	Replace batteries.
On (green)	Module is switched on, externally powered	No action required.
Off	Module is switched off	Verify if this is desired. If button does not respond, check batteries.
2 flashes red, every 3 seconds	No network connection	Restart the module. Try again in a different location.
3 flashes red, every 3 seconds	SIM card failure (own SIM: no credit)	Restart the module. Own SIM: check SIM card in regular telephone, check credit, replace SIM card.
4 flashes red, every 3 seconds	Module can't read SIM, incorrect PIN on SIM, SIM card requires PUK	Check placement of SIM, verify PIN in telephone or contact provider.
Blinking 3 times green	Successful SMS configuration action	No action required.
Blinking 5 times red	Faulty SMS configuration action	Check SMS command.
4 red flashes every 3 sec., short green in between	Low batteries	Replace both batteries.
Flashes green/red simultaneously	Retrieving new firmware from Mobeye server	Wait fifteen minutes.
Quickly flashing green	Module exchanges data with portal	No action required.

Technical specifications

Communication	:	4G CAT1-R1EA, 2G 900/1800 MHz
Processor type	:	ARM
Batteries	:	2* CR123 (lithium) recommended: Varta, Panasonic and Energizer (please no Duracell or Philips)
Battery life in normal mode	:	> 1 year (battery operated)
	:	> 3 years (external power supply)
Ext. power connection (optional)	:	12 -24 VDC (+/- 2 VDC) / min. 500 mA any 24 VDC power source needs to be regulated
Power consumption low power	:	ca. 100 µA stand-by / max. ca. 500 mA
Power consumption 12-24V	:	ca. 50 mA stand-by / max. ca. 500 mA
Dimensions	:	94 x 94 x 28 mm
Ambient temperature	:	-10 °C to +50 °C

This product is designed and manufactured in the Netherlands.
For more information, visit www.mobeye.com.

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This user manual meets the technical requirements at the moment of printing. Changes in technology and equipment are reserved.

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CE

Declaration of Conformity

Herewith we, Mobeye, declare that the

Mobeye CM41 telemetry module

And the derived products
CM4000, CM4001, CM4040, CM4042, CM4100, CM4200, CM4300, CM4300-FS, CM4410, CM4500, CM4600, CM4610, CML4015, CML4055, CML4255, CML4275, CMVXI-R, iCM41, MCK400, MCK401

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

Directive 2014/35/EU (low voltage directive)

Directive 2014/30/EU (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 62368-1:2014+A11:2017 / EN 62479:2010 / EN 50385:2017
EN 301 489-1 V2.2.3 / Draft EN 301 489-19 V2.2.0 /
Draft EN 301 489-52 V1.1.2
EN 301 511 V12.5.1 / EN 301 908-1 V13.1.1 / EN 301 908-13 V13.1.1 /
EN 303 413 V1.1.1

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