USER MANUAL

Mobeye®

ThermoGuard TwinLog

CML2285

CONTENT

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
When disposing of this product, separate the product and the CR123 batteries from other waste streams to ensure that it can be recycled in an environmentally sound manner. For more information on collection and proper disposal, please contact your local government office or the retailer where you purchased this product.

1. GENERAL DESCRIPTION

The Mobeye CML2285 is a GSM module used to monitor the temperature and to send alarm messages once the temperature limits are violated, one of the inputs is activated, or -if powered externally – after a power failure. The display shows the actual values and alarm status. Two temperature probes can be monitored. If connected to the Mobeye Internet Portal, the temperature values are logged and transferred to the web portal.

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

First of all you'll have to choose a SIM card to place in the device. You can use the Mobeye SIM card or your own SIM card. The Mobeye SIM card provides access to the Mobeye Internet Portal. In this management environment the device is given additional functions such as online programming, status and history display, more options for forwarding messages and it will monitor test messages (keep alive). In addition, the Mobeye SIM is a cost-effective M2M roaming SIM card that can use multiple providers per country worldwide and offers more security than a provider-bound SIM card.

When using your own SIM card the most important alarm functions such as calling and/or texting after an alarm will also work.

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

2. STANDARD BEHAVIOUR

2.1 MOBEYE CML2285 WITH MOBEYE SIM AND INTERNET PORTAL

The Mobeye CML2285, equipped with a Mobeye SIM card and registered on the Mobeye Internet Portal, has the following standard behaviour as factory settings:

- Every 60 minutes the temperature values are measured and. Every 24 hours the logged values are sent to the Mobeye Internet Portal (intervals can be changed). In the portal they are visible as a graph and in tabular form. The values can be downloaded.
- In the situation of a temperature alarm the Mobeye CML2285 sends an alarm message to the Mobeye Internet Portal and calls the phone numbers programmed in by the user. The Portal forwards the alarm as text message and/or e-mail to the 'alarm contacts'.
- For all types of alarms a local alarm indication will sound, which can be interrupted by briefly pressing the button.
- 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 as SMS message and/or e-mail.
- When one of the additional inputs is activated by a sensor, the Mobeye CML2285 sends an alarm message to the Mobeye Internet Portal and calls the phone numbers programmed in by the user. The Portal forwards the alarm as text message and/or e-mail to the 'alarm contacts'.
- When the temperature sensor is removed, the Mobeye CML2285 sends a message via the Mobeye Internet Portal.
- When one of the inputs remain in the alarm status, the CML2285 repeats sending the alarm message via the Mobeye Internet Portal every four hours.
- When an external power supply is used and a power failure occurs, the Mobeye CML2285 sends a 'power failure' message to Mobeye Internet Portal, to be forwarded to the 'alarm contacts' and it calls the phone numbers programmed in by the user. When the power is restored, the Mobeye CML2285 sends a 'power restored' message via the portal.

- When the batteries need to be replaced, the Mobeye CML2285 sends a 'low battery' message to the Mobeye Internet 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.

As described, the Mobeye CML2285 will, in addition to calling in the event of an alarm, send various messages to the Mobeye Internet Portal. This is done via data traffic where possible. As a fallback, the alarm messages are sent to the portal via SMS. Both methods of communication are included in the flat fee of the SIM card. Messages can be forwarded from the portal to contacts such as SMS and / or free e-mail. If the SMS credits run out, the account holder automatically receives a message to upgrade them online.

2.2 MOBEYE CML2285 WITH OWN SIM CARD

The Mobeye CML2285, equipped with your own SIM card, has the following standard behavior as factory settings:
- In the situation of a temperature alarm, the Mobeye CML2285 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.
- For all types of alarms a local alarm indication will sound, which can be interrupted by briefly pressing the button.
- 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 CML2285 sends an SMS text message to the administrator (first telephone number) containing the text 'Temperature sensor not connected'.

- When one of the additional inputs is activated by a sensor, the CML2285 sends an alarm SMS text message and calls the phone numbers programmed in by the user.
- When one of the inputs remain in the alarm status, the CML2285 repeats sending the SMS alarm message every four hours.
- When the batteries need to be replaced, the Mobeye CML2285 sends a 'low battery' SMS text message to the first telephone number (administrator).
- When an external power supply is used and a power failure occurs, the Mobeye CML2285 sends a 'power failure' SMS text message to the set telephone numbers and calls them. When the power is restored, the Mobeye CML2285 sends a 'power restored' SMS text message.

Chapter 5 describes how to influence the standard behaviour.

3. GETTING STARTED

To get started with the Mobeye CML2285, at least the following steps need to be taken in the following order:

1. Insert the SIM card
2. Connect the temperature sensor(s)
3. Insert the batteries
4. Connect an external power supply (optionally)
5. Connect a sensor to the additional inputs (optionally)
6. Connect a device to the output (optionally)
7. Programming when using the Mobeye SIM/Portal
   a. Sign up in the Mobeye Internet Portal
   b. Activate the SIM card
   c. Enter the program mode
   d. Activate the device in the Mobeye Internet Portal
   e. Program the options and synchronise
8. Programming when using your own SIM card
   a. Enter the program mode
   b. Program the settings

Steps 1 to 6 are described in sections 3.1 up to 3.6.
Step 7 is described in chapter 4. Step 8 can be found in chapter 6.

## 3.1 INSERT THE SIM CARD

Open the enclosure by turning the 4 screws a quarter turn until they pop up. Insert the SIM card into the module. Push the black cover slightly outward to open the holder and close it afterwards.

When using the Mobeye SIM card:
The supplied SIM card has a PIN code protection, which means it can only be used in the Mobeye device.
Note: do not place it in another device.
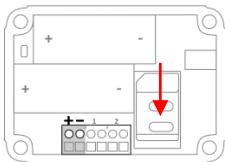
When using your own SIM card:

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. If you replace a SIM card, first remove the batteries (and remove any other external power supply). 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.

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 temperature sensor into the socket on the PCB (sensor 1) and press it firmly. Then insert the sensor head through the swivel to outside. It is possible to bring out the sensor head only partly, or the entire sensor with a part of the cable, depending on the application. Close the swivel by turning it a bit, just enough to reduce the tensile strength and make it waterproof. Do not close it too tight in order to avoid damage to the sensor cable! A second sensor can be connected similarly.
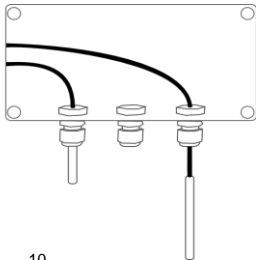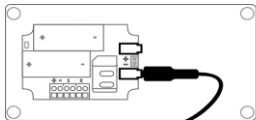
3.4 CONNECT AN EXTERNAL POWER SUPPLY (OPTIONALLY)

Although the Mobeye CML2285 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 GSM 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. This means the GSM module switches off and only establishes network connection when it needs to send an alarm notification, 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 to connect the wires):

- V+ (black lead with white stripe) to "+"
- Ground (black lead) to "-"
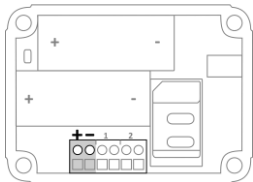
3.5 CONNECT A SENSOR TO THE INPUTS (OPTIONALLY)

It is possible to connect external (NO/NC) sensors to the inputs. A triggered input will lead to alarm notifications.
Insert the 2 wires of the external sensor through the swivel in the enclosure and insert them in the two connectors of input 2 (press on the green pins for connecting the wires). It does not matter which wire is connected to which connector.

As default the inputs are programmed as Normally Open (NO) contacts. This means the inputs are triggered if the input is closed for at least 1 second. In case the contact is Normally Closed (NC), please refer to paragraph 0. If you require the sensor to be activated for a shorter or
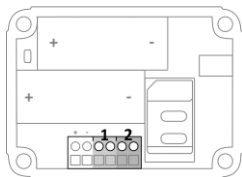
longer period before triggering an alarm, refer to 5.13.
A second sensor can be connected to input 2.

3.6 CONNECT A DEVICE TO THE OUTPUT (OPTIONALLY)

The Mobeye CML2285 has an open collector output, which switches after receiving a correct SMS or after an alarm. The output can switch permanently, or just switch for a pulse time after which the output automatically switches back (see 5.20).

The maximum load of the output is 200mA. To switch devices, a relay can be placed behind the output with an input voltage of 12VDC. The required switching voltage of the relay depends on the device connected.

NOTE: The output does not work if the CML2285 is battery-operated.
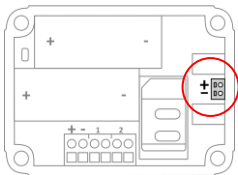
4. PROGRAMMING WHEN USING THE MOBEYE SIM AND PORTAL

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

PORTAL

Home   Sign up   Support

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 (info@mobeye.com).

4.1 REGISTER THE MOBEYE SIM CARD

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

Add Device

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

Activate SIM card

The screen leads you through several pop-ups. If asked, choose the device type (search for "CML2285") and select the type of contract ("CML2285 SIM + Portal Monitoring").

At the moment you accept the price and terms, you confirm the subscription. You will receive an invoice for the mentioned amount.
Before activating the device in the Mobeye Internet Portal, first prepare the unit. See next paragraphs to learn how to do this.

4.2 ENTER THE PROGRAM MODE

To activate the unit in the portal, the GSM module needs to be open and connected to the network.

In the situation that the CML2285 is connected to an external power supply, the unit is always in program mode.

A battery-operated Mobeye CML2285 switches to the program mode after pressing the on/off button for 5 seconds until the LED starts flashing. Alternatively the batteries are re-inserted.

While searching for the GSM network connection the outside LED flashes green and red, followed by blinking fast shortly. This process normally takes 10-30 seconds. As soon as the network has been established and the program mode has been reached the LED flashes 1 sec. on/1 sec. off (or stays on continuously in case the unit has been configured yet).

During 3 minutes the GSM module remains active, ready to be activated in the portal. In a battery-operated unit a time-out occurs after 3 minutes and the GSM module switches off in order to save the batteries. In this low power mode the LED flashes once per 3 seconds.

4.3 ACTIVATE THE DEVICE IN THE PORTAL

If the LED on the outside flashes once per second, you activate the device in the Mobeye Internet Portal by clicking 'Activate device', which is written behind the registered SIM card.

Contract			
SIM card + portal "Monitoring"	SIM card	telephone number	☐
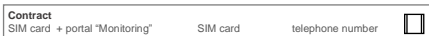
On the pop-up screen, enter the security code "1111" (factory code). The unit will receive a message from the portal and the data exchange is started. The next screen asks for a name and location for your device. These fields can be changed later.

Once the activation is completed, the new device is visible on the dashboard.

Name	Location	Status	Communication	
Mobeye Alarm Unit	Main Street 1, London		√	⚙

By clicking the name, the detail page will be opened.

4.4 CONFIGURATION AND SYNCHRONISATION

The device settings can be programmed in the Mobeye Internet 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 <u>after</u>:

1) any message to the portal (e.g. the regular test message, alarm, low batteries).
2) reconnecting power and reinserting batteries.
3) pressing the on/off button for 5 seconds.
4) in program mode: receiving the SMS command CODE SYNC (e.g. 1111 SYNC).

Once the device exchanges data with the portal, the LED quickly flashes green. A battery-operated unit will first blink red-green until it connects to the network.

4.5 BASICS OF THE MOBEYE INTERNET 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. For devices with a logging function a different view of the dashboard is visible by clicking on "graphs" or "gauges".
Select a device to go to the details of a specific device.

Status & History

The status block shows values that provide information about the status of the unit.
If the "Synchronized" status is set to "No", there are new settings or alarm numbers that still need to be transferred to the device.
The GSM status shows the network strength at the last communication session. If the value is lower than -95dB, 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 overview.

Device Settings
The device settings can be changed via the Mobeye Internet 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 4.4 for more information about synchronizing.

The device data contain the name and location of the device and can be changed here. These texts are mentioned in every text message and e-mail message to indicate the device. A free text is available as an internal comment field. This is not included in reports.

Alarm dispatch
In the block "Contacts for text and e-mail messages" you link the contact persons who receive alarm and service messages via 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.
in the block "Alarm calls from device" the (max. 5) alarm numbers that are called directly from the unit are set. After saving, the alarm numbers must be retrieved by the device, i.e. synchronized. See 4.4 for more information about synchronizing.

Tips:
- Always insert a contact to receive service messages by e-mail.
- Allow text messages only after the test phase in order to save the SMS credits.

Display
It is possible to define own borders for the y-axis in the graph and gauge. Note that these must be set broader than the measured values.

Message texts
The message texts are the event texts which are, in addition to the name and location, included in the SMS text messages and e-mails. These texts can be customized.

4.6 SWITCHING ON/OFF

After the previous steps the Mobeye CML2285 is ready for use. It is armed (switched on) automatically.

In order to switch off (disarm) the Mobeye CML2285:
- Press the on/ off button at the upper side for 1 second. The green LED switches off to indicate the disarmed status.

  In the disarmed status the Mobeye CML2285 will not send alarm notifications. The functions automatic arming, sending test messages and sending a 'low battery' message, are still active.

In order to switch on (arm) the Mobeye CML2285:
- Press the on/ off button at the upper side 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 (GSM is open), switching can be done via SMS commands:

SMS command to switch on:	CODE ARM
SMS command to switch off:	CODE DISARM
example:	1111 ARM

The status can be requested via SMS command CODE STATUS?.

4.7 CONFIRMATION OF THE ALARM MESSAGE

When the system is triggered it will send alarm notifications. First a message is sent to the portal (and forwarded from there), followed by a phone call. When you pick up the phone, you will hear beeps. It is possible to acknowledge the phone call by answering the phone and pressing any key. The other alarm numbers will not be called afterwards. This works for most telephones.

4.8 SYSTEM RESET

To reset a Mobeye CML2285 two steps are necessary, in following sequence:

1. Delete the Mobeye CML2285 from the Mobeye Internet Portal
2. Reset the Mobeye CML2285

1. To delete the Mobeye CML2285 from the Mobeye Internet Portal
Go to "Device Settings" and click on the delete icon in the "Device" block. Then confirm your choice.

2. To reset the Mobeye CML2285 to its factory settings
1. Remove the batteries (and external power supply).
2. Press the outside button while reinserting the batteries. Keep it pressed for (about) another 5 seconds.
3. Release the button immediately after the LED starts to flash.
4. If relevant, connect the external power supply.

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 CML2285 has many setting options that influence the behaviour of the module. If connected on the Mobeye Internet 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

In the event of an alarm, the Mobeye CML2285 can call 5 telephone numbers (TEL1… TEL5). It is possible to confirm a call by picking up the telephone and pressing any key. The following numbers will not be called.

When using your own SIM card, it is mandatory to set at least one number (on TEL1). The TEL1 ... TEL5 are then used for telephone calls and / or text messages from the unit.

This is not mandatory when using the Mobeye Internet Portal. If no telephone numbers have been entered, the notifications will only be sent to the portal and forwarded by SMS and / or e-mail from there.

Note: the (unlimited number of) contacts who receive SMS / e-mail may be different from the numbers programmed on TEL1 ... TEL5.

5.2 CALL ON/OFF

Even if the alarm telephone numbers are set in the options, the calling process can be suppressed. By turning off the CALL, the unit will only send the notification via textual messages. The default value is set to "ON".

5.3 SMS ON/OFF

This setting is only relevant when using your own SIM card: the Mobeye CML2285 alerts after an alarm on the inputs with a call and an SMS. It is possible to turn off the SMS (OFF). As a factory setting, the SMS is set to "ON".

5.4 SET A MINIMUM AND/OR MAXIMUM TEMPERATURE LIMIT

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

5.5 LOG INTERVAL

When using the Mobeye Internet Portal the Mobeye CML2285 will log values and send these to the portal. The logging interval is the interval in which the measured values are logged (with a timestamp). The data are stored in the system until the next data transfer. The logging interval can be set between 0 and 9999 minutes. The default log interval is set at 60 (minutes).

5.6 TRANSFER INTERVAL

If the log interval is active the recorded values are periodically transmitted to the Portal during the data synchronisation. The transmission interval can be set between 1 and 999 hours. The standard transmission interval is set to 24 (hours).

5.7 ALARM REPEAT TIME

In order to emphasize the urgency of the temperature and other alarm messages, all alarms can be repeated. As long as the temperature or inputs have not returned to the inactive status, the textual messages (no phone calls) will be repeated after the 'alarm repeat time'. A repeated temperature alarm includes the actual temperature. The repeat interval can be set between 0 (no repeat) and 24 hours. As default the alarm repeat time is set to 0 hours.

5.8 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.

5.9 UNIT OF TEMPERATURE

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

5.10 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 CML2285 measures 13 °C. Actual ambient temperature is measured as 13,5 °C. To adjust this difference, +0,5 degrees shall be programmed.

5.11 INPUT TYPE

The input type defines the character of input 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. The default input type is set to "NO".

5.12 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 60 minutes. As default, the inactive time is set to "0".

5.13 ALARM DELAY TIME

The delay time defines the time input IN1 or IN2 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 999 seconds. The delay time is set to "1".

5.14 POWER FAILURE MESSAGE

If the Mobeye CML2285 is powered externally and the power fails, it is able to make phone calls and/or send textual messages. There are three configuration options: Alert, Alarm, Off.

	Mobeye SIM/Portal	Own SIM
Alert	Message via portal	SMS to TEL1
Alarm	Call to TEL1···TEL5 and message via portal	SMS + call to TEL1···TEL5
Off	No message	No message

The default setting for the 'power failure message' is set to "ALARM".

5.15 POWER FAILURE DELAY TIME

If the Mobeye CML2285 is powered externally and the power fails it can notify the contact person(s). The power failure delay time 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".

5.16 AUTOMATIC ARMING / DISARMING

The Mobeye CML2285 only works if the unit is armed, which is done via the 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 entered in one command (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.

5.17 BUTTONLOCK

It can be useful to lock the button to prevent the unit from being switched off unintentionally. As default the buttonlock is locked (so, the button is disabled). To disable the button, the buttonlock needs to be switched to "OFF.

5.18 ALARM INDICATION

The CML2285 has an internal piezo siren, which sounds at an alarm and keeps sounding as long as the unit is in alarm status. The siren can be interrupted by briefly pressing the button. The alarm indication can be disabled, so it won't sound at all (OFF). As default this indication is set to 'ON'.

5.19 LOW POWER MODE

A battery-powered Mobeye CML2285 has the GSM module switched off in stand-by mode. It only switches on if it has to send a message. An externally powered unit always keeps the GSM module open (as factory default). When using the "low power mode" an externally powered unit will also keep the GSM module closed as much as possible, to minimize the power consumption. To achieve this, the LOWPOWER shall be set to "ON". In the low power mode, the presence of the external power source will still be monitored.

5.20 PULSE TIME AND OUTPUT BEHAVIOUR

The output switches in the event of an alarm or after an incoming SMS command, depending on the output behaviour. Output behaviour "ALARM" makes the output

switches off -in the event of an alarm- after the pulse time has elapsed (default: 5 seconds). With pulse time "0" it switches off when the alarm status is canceled.

Output behavior "RC" (remote control) means the output is switched on after the incoming SMS command CODE O1ON (default: 1111 O1ON) and switches back once the pulse time has elapsed. Switching time "0" makes it only switches back after the incoming SMS command CODE O1OFF (default: 1111 O1OFF).

The pulse time is adjustable between 1 and 9999 seconds. By default, the output behavior is set to "ALARM" and the pulse time to "5" seconds.

5.21 TEST MESSAGE

<u>When using the Mobeye Internet Portal:</u> The Mobeye CML2285 can send regular test messages (*keep alive*) to the Mobeye Internet Portal, to ensure the proper functioning of the unit. The message will update the temperature in the status block. The test message will also be sent if the unit is disarmed. The Mobeye Internet 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 can 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 message) and 30 days. The default test interval is set to "7" (weekly test message).

<u>When using your own SIM card:</u> The Mobeye CML2285 can send regular test SMS messages (*keep alive*) to the first phone number (TEL1), to ensure the proper functioning of the unit. It will include the actual temperature. 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).

6. PROGRAMMING WHEN USING OWN SIM CARD

If your own SIM card is used, programming proceeds via SMS commands. The GSM module requires network connection during programming. If the Mobeye CML2285 runs entirely on batteries, it must first be put into programming mode.

6.1 PROGRAM MODE

To program the unit with SMS commands, the GSM module needs to be open and connected to the network.
In the situation that the CML2285 is connected to an external power supply, it has continuous network connection and the unit is permanently in program mode.
A battery-operated Mobeye CML2285 switches to the program mode after pressing the on/off button for 5 seconds until the LED starts flashing. Alternatively the batteries are re-inserted.

While searching for the GSM network connection the outside LED flashes green and red, followed by blinking fast shortly. This process normally takes 10-30 seconds. As soon as the network has been established and the program mode has been reached the LED flashes 1 sec. on/1 sec. off (or stays on continuously in case the unit has been configured yet).
During 3 minutes the GSM module remains active, ready to receive SMS commands. In a battery-operated unit a time-out occurs if no correct command is received for 3 minutes, the GSM module switches off in order to save the batteries. In this low power mode the LED flashes once per 3 seconds.

6.2 PROGRAMMING THE SETTINGS BY SMS

Using your own SIM card, all settings are programmed in by SMS text messages:

1. Make sure the CML2285 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:+44772345678**

- 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.
- 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

- 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 chapter 7.1 all possible SMS commands are listed.

6.3 PROGRAM AT LEAST ONE TELEPHONE NUMBER

The Mobeye CML2285 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 administrator's phone number, the Mobeye CML2285 cannot function.
When the CML2285 is in initial (factory) status and the batteries are inserted (so the LED is flashing), the administrator's number is programmed by calling the telephone number of the Mobeye CML2285 using the administrator's 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 administrator's number by SMS command, please refer to the next section.

6.4 PROGRAM THRESHOLD VALUES FOR THE TEMPERATURE

A separate high and/or low temperature limit can be set for the temperature sensor(s). All 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.
To enter a temperature limit, be sure the Mobeye CML2285 is in program mode. Send an SMS text message to the unit with following content:

SMS command lower limit sensor 1: **1111 LTL1:**
              example: 1111 LTL1:-5
SMS command upper limit sensor 2: **1111 HTL1:**
              example: 1111 HTL1:25,5

(similar for second sensor with LTL2 and HTL2)
Please mind the space behind 1111.

7. LIST OF SMS COMMANDS FOR PROGRAMMING WITH OWN SIM

7.1 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
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
Lower limit temperature sensor 1 and 2	LTL1: LTL2:	-35··· 70 (ºC)	OFF
Upper limit temperature sensor 1 and 2	HTL1: HTL2:	-35··· 70 (ºC)	OFF
Delay temperature sensor 1 and 2	DELAYTEMP1: DELAYTEMP2:	0···999 (min)	0
Temperature calibration	TOFFSET1:	-5,0··· 5,0 (ºC)	0
Unit of temperature	TEMPUNIT:	C, F	C
Input type input 1	TYPEIN1:	NO, NC	NO
Input type input 2	TYPEIN2:	NO, NC	NO
Delay on input 1	DELAY1:	0···999 (sec)	1
Delay on input 2	DELAY2:	0···999 (sec)	1
Inactive time input 1	INACTIVEIN1:	0···60 (min)	0
Inactive time input 2	INACTIVEIN2:	0···60 (min)	0
Alarm repeat time	REPEAT:	0···24 (hrs)	0

Setting	SMS Command	Options	Default value
Text at too low temperature sensor 1	TEXT1:	20 characters	Temperature 1 too low:
Text at too high temperature sensor 2	TEXT2:	20 characters	Temperature 1 too high:
Text temperature sensor 1 restoration	TEXT3:	20 characters	Temperature 1 OK:
Text at too low temperature sensor 2	TEXT4:	20 characters	Temperature 2 too low:
Text at too high temperature sensor 2	TEXT5:	20 characters	Temperature 2 too high:
Text temperature sensor 2 restoration	TEXT6:	20 characters	Temperature 2 OK:
Alarm text input 1	TEXT7:	20 characters	Alarm 1
Alarm text input 2	TEXT8:	20 characters	Alarm 2
Alarm text power failure	TEXT9:	20 characters	Power failure
Alarm text power restore	TEXT10:	20 characters	Power restored
Power failure delay time	DELAYPOW:	0…999 (min)	0
Power message	POWERMESSAGE:	OFF,ALERT,ALARM	ALARM
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
Assigning times 1	DAYS1:	1234567	Empty
Assigning times 2	DAYS2:	1234567	Empty
Use of button	BUTTONLOCK:	ON (button locked) OFF (unlocked)	ON
Alarm indication	ALARMSOUND:	ON, OFF	OFF
Pulse time output	TO1:	0…9999 (sec)	5
Output behaviour	OUTPUT:	ALARM, RC	ALARM
Low power status	LOWPOWER:	ON, OFF	OFF

Setting	SMS Command	Options	Default value
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.

7.2 SWITCHING ON/OFF

After the previous steps the Mobeye CML2285 is ready for use. It is armed (switched on) automatically. It can be switched on and off by the user-defined time schemes or the button on top. By default this button is 'locked', to prevent that the unit can be switched off by mistake. This can be changed by choosing the value "OFF" for the setting "BUTTONLOCK" (see 5.17). After unlocking the button, the system can be switched on and off pressing it for one second.

When the unit is switched off, the green LED is off. When the unit is on, the green LED blinks once every 3 seconds (battery-powered) or stays 'on' continuously (in case of an external power supply).

In the disarmed status the Mobeye CML2285 will not send alarm notifications. The functions automatic arming and 'low battery' notifications are still active.

If powered externally (GSM is open), switching can be done via SMS commands:

SMS command to switch on: CODE ARM
SMS command to switch off: CODE DISARM
             example: 1111 ARM

The status can be requested via SMS command CODE STATUS?.

7.3 THE DISPLAY

If Mobeye CML2285 is switched on, the actual temperature values can be read on the display. In a battery-operated unit the light switches on by briefly pressing the button. If the unit is in alarm, the type of alarm is indicated by a flashing alarm text.

7.4 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 acknowledge the phone

call by answering the phone and pressing any key. The other alarm numbers will not be called afterwards. This works for most telephones.

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

7.5 SYSTEM RESET

To reset the Mobeye CML2285 to its factory settings:

1. Remove the batteries (and external power supply).
2. Press the outside button while reinserting the batteries. Keep it pressed for (about) another 5 seconds.
3. Release the button immediately after the LED starts to flash.
4. If relevant, connect the external power supply.

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.

7.6 SMS REPORTS WHEN USING OWN SIM CARD

Several lists and status reports can be retrieved by sending an SMS text message to the Mobeye CML2285, from any telephone number. Before sending the request, make sure the unit is in the program mode (please refer to 6.1).

Upon sending the command, the Mobeye CML2285 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 Mobeye CML2285 can be requested by sending an SMS text message with the content (without code):

?

STATUS REQUEST

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

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?

7.7 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.
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. During the battery replacement, the SIM card does not have to be removed.

8. 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.
Quickly flashing green	Module exchanges data with portal	No action required

Technical specifications

GSM	:	Quad band EGSM, 850/900/1800/1900 MHz
Batteries	:	2* CR123 (lithium) recommended: Varta, Panasonic and Energizer (please do not use Duracell or Philips)
Battery life in normal mode	:	> 1 year (battery operated)
	:	> 3 years (external power supply)
Ext. power connection	:	12 VDC (+/- 2 VDC) / min. 500 mA (optional)
Power consumption low power	:	ca. 50 µ A stand-by / max. ca. 500 mA
Power consumption 12V	:	ca. 50 mA stand-by / max. ca. 500 mA
Dimensions	:	162 x 82 x 55 mm
Ambient temperature base unit	:	-10 °C until +50 °C
Temperature sensor head	:	-35 °C until +70 °C
To be used relay for output	:	input voltage 12 VDC
Open collector output	:	max. 200 mA

CE

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

Mobeye
Poeldonkweg 5
5216 JX 's-Hertogenbosch
The Netherlands

Name: Jack van de Vijver
Position: General Manager
Signature:

Date: 12 july 2017

mobeye