mobeye®

USER MANUAL

Mobeye® MCK400

Call-Key

SW version 2.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 switching the output relays and 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 Call-Key is telemetry module that switches the relay output after an incoming call. Linking the output to an electronic lock or switch unlocks a door or opens a gate. A second relay output can be switched via an SMS command.
The administrator sets authorisations in the portal, which are synchronised with the Call-Key every hour. At that time, it also sends back the list of events of the past hour back to the portal, after which the 'history' block shows who opened the door/gate and when.

If batteries are installed, the external voltage source is also monitored and a notification follows in case of power failure.
The Call-Key has four potential-free inputs. If one of the inputs is activated, alarm messages are sent to contact persons.

The included Mobeye SIM card is 'multi-provider', works on 4G LTE + 2G and is internationally deployable; it can choose from multiple providers per country, allowing the device to keep working if one of the networks fails. The Mobeye SIM card works in conjunction with the Mobeye Internet Portal.

When activating the SIM/portal service, following options are possible:

- Authorised numbers have access 24/7 or on specified days and time slots. It is also possible that everyone always has access (authorisations are then off). Max. 500 users can be authorised.
  This option costs €7 excl. per month*.
- If up to 1000 users are required, there is a separate contract option.
- In addition to the above authorisation options, an automatic timer is possible, allowing the relay to switch according to the deployed opening and closing times (according to a daily schedule). This option costs an additional €3 per month*.

* To be settled annually

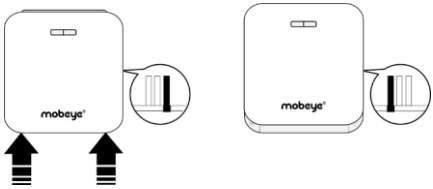
2. GETTING STARTED

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

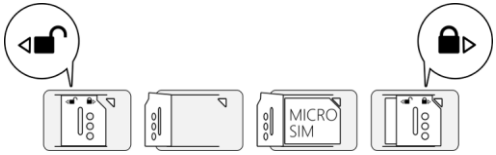
1. Open the casing and insert the SIM card
2. Connect an electronic door lock or motor block to the output
3. Insert the batteries (optionally)
4. Connect an external power supply
5. Connect a sensor to the input (optionally)
6. Programming when using the Mobeye SIM/Portal
   a. Sign up in the Mobeye Internet Portal
   b. Activate the SIM card and the device
   c. Program the settings and synchronise
   d. Use of the portal and app

2.1 OPEN THE CASING AND INSERT THE SIM CARD

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

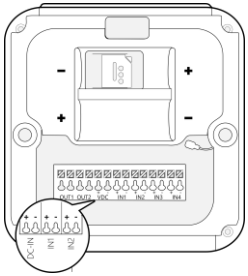


Insert the SIM card into the module.



2.2 CONNECT A LOCK OR DEVICE TO THE OUTPUT

Two electronic locks can be connected to the outputs (OUT1 en OUT2).



OUT1 switches after an incoming call.
OUT2 switches after an incoming SMS tekst command and/or if the timer functions is set.

Each output can switch a maximum of 30V/1A. For heavier devices placing an additional relay is required.

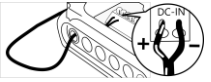
2.3 INSERT THE BATTERIES (OPTIONALLY)

In order to receive power failure messages, insert the two batteries (CR123) in the module. Use the +/- indication for the correct placement.

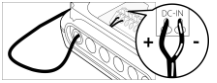
2.4 CONNECT AN EXTERNAL POWER SUPPLY

Connect the power adapter (or any other regulated 12-24VDC power supply) 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	5th from left
- Ground to "-"	black lead	6th from left



	Mobeye **UK** adapter 10131	position
- V+ to "+"	black lead	5th from left
- Ground to "-"	black lead with white stripe	6th from left



2.5 CONNECT A SENSOR TO THE INPUT (OPTIONALLY)

Four 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 one of the inputs (press on the green pins for connecting the wires). It does not matter which wire is connected to which connector.

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 5.9. If the sensor needs to be activated for a longer period before triggering an alarm, see 5.9.
If a recovery message after an alarm reset is desired, see 5.12.

2.6 NETWORK CONNECTION AND PROGRAM MODE

After placing the batteries (and external power) the Mobeye Call-Key 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).
If the Call-Key is connected to an external power supply, it has continuous network connection and is permanently in program mode.
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 5 seconds.

3. PROGRAMMING WHEN USING THE MOBEYE SIM AND PORTAL

3.1 SIGN UP IN THE MOBEYE INTERNET 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 (info@mobeye.com).

3.2 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.

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.

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 "Call-Key" or "MCK400".)

At the moment you accept the price and terms, you confirm the subscription. You will be taken to the payment screen. You will receive an invoice for the mentioned amount. Your new device is now visible on the dashboard.

Before the device is ready for use, first prepare the settings and alarm forwarding. See next paragraphs to learn how to do this.

3.3 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 after:

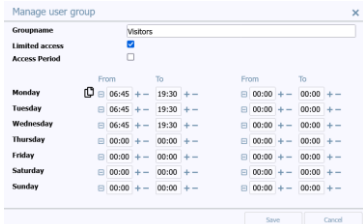
1) any message to the portal (regular test message, alarm, low batteries).
2) reconnecting power and reinserting batteries.
3) pressing the button (at the backside) for 5 seconds.
4) pressing the SYNC symbol in the portal settings (only visible if external power is connected), or sending the SMS command 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.

3.4 SET AUTHORISATIONS IN THE MOBEYE INTERNET PORTAL

3.4.1 User groups

A user group defines the access granted to users. Ten groups can be created, each with its own windows. Users are assigned to groups.



There are three types of groups:

1. Unlimited access
2. Limited access, period
3. Limited access, time windows

3.4.2 Setting up authorisations

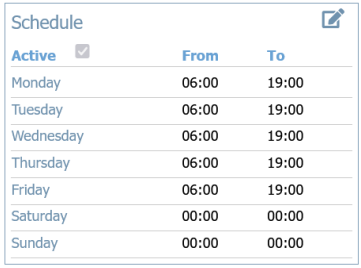
1. Create at least one user group. Assign it a logical name. If the group has always access, select 'save' directly. Otherwise, tick 'access limited', after which the screen allows you to enter a period and/or time blocks during which the group is authorised.

2. Create at least one user under the blue tab 'Contacts'. Users are the contacts assigned to user groups and therefore authorised to open the door lock by calling it.
3. Assign users to a user group in the 'Users' block using the +. Select a contact from the contact list, assign a user group and save it.

Note that the authorisations are not yet automatically in the Mobeye Call-Key. This happens during data synchronisation. See paragraph 3.3. As long as the synchronisation has not yet taken place, the status block reads No at Synchronised.

3.5 AUTOMATIC OPENING HOURS

If the contract type allows, it is possible to enter a daily schedule for automatic opening and closing times.



Note: these automatic opening times react with output 2 of the Mobeye Call-Key. If a lock needs to respond both after a telephone call and to the automatic timer function, it is advisable to connect it to both output 1 and output 2.

3.6 OTHER 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. 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 Internet Portal. See chapter 5 for the description per setting.
After saving the new settings, they must be retrieved by the device (synchronized). See 3.3 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.

When used for access control
If the device is only used to grant access, the advice is to assign one or a few contacts to receive an email for service messages. Service messages are alerts about missed test messages and low battery voltage.
A contact must first be created as a contact. This can be done via the + or under the blue Contacts tab.

When using alarm inputs
If the device is also used as an alarm system, i.e. with the input alarms, we recommend more extensive alarm forwarding.
For push notifications, install the Mobeye Messages app from the Play Store/App Store on the phone of the contact persons.
- 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 ▼.

Hints:
- Always include an email contact for service notifications.
- During testing, we recommend using the app and email (and minimizing calls and texts) to save on credit.
- If the app asks for a new code or a contact has a new phone, send it from the contacts tab (change 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. MOBEYE CALL-KEY IN USE

4.1 OPENING THE LOCK

After connecting and setting up the authorisations, the lock can be operated with the telephone of the authorised numbers.
When calling the telephone number of the SIM card in the Mobeye Call-Key by an authorised telephone number, the output switches for a pulse time of 10 seconds. The unit will recognize the number and hang up immediately; this means that no telephone costs are incurred.

Note:
- The telephone number in the Call-Key is visible in the portal under device details: users must call this number to open the door.
- In the telephone of the authorised number (the 'caller'), caller ID (number recognition) must be switched on.
- The SIM card is a foreign number; if necessary, switch on 'roaming' (normally, no telephone costs are incurred!).
- The door cannot be opened during synchronisation between the Call-Key and the portal. Try again a few seconds later.

4.2 THE OUTPUT BEHAVIOUR

The Call-Key has two relay outputs, which are switched as follows:

Via call
Switch on output 1

Via SMS command

Switch on output 1	O1ON
Switch off output 1	O1OFF
Switch on output 2	O2ON
Switch off output 2	O2OFF

- The pulse time determines how long the output remains switched before it automatically switches back. By default, this is set to 10 seconds for both outputs. If the pulse time is set to 0 seconds, the output will not switch

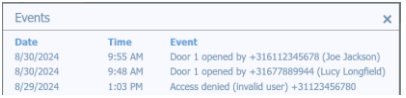
back automatically, but only after a switch-back command. The pulse time of an output can be set between 0 and 9999 seconds (see 5.2).

- If the “authorisation” setting is set to “OFF”, no authorizations are required to switch, switching can be done from any phone.
- Mind the letter O in O1ON, O1OFF etc. (no digit).

4.3 VIEW THE EVENT HISTORY

In the ‘History’ block, select ‘show all’ to see the historical log.

Both openings of the lock by authorised numbers and rejected calls are displayed.



5. POSSIBLE SETTINGS

5.1 SECURITY CODE

The security code is used in SMS commands and can be set in the portal to secure the settings. The factory setting is 1111. And can be changed when changing the settings in the portal.

5.2 PULSE TIME OUTPUT

The pulse time (switching time) indicates how long the output remains switched before it automatically switches back. If the pulse time is set to 0 seconds, the output will not switch back automatically, but only after an SMS command. The pulse time of an output can be set between 1 and 9999 seconds. By default, this is set to 10 seconds for both outputs.

5.3 AUTHORISATION FOR SWITCHING THE OUTPUT

Switching of the outputs is done by incoming call (output 1), automatic time schedules (output 2) and sending SMS commands (output 1 or 2). Only authorised phone numbers, with caller ID (umber recognition) on, are accepted. If the “authorisation” setting is set to “OFF”, any phone number can open the lock. By default, authorisation is set to “on”.

5.4 POWER FAILURE MESSAGE

If batteries are placed and the external 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. The default setting is "ALARM".

5.5 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".

5.6 ALARM PHONE NUMBERS

An unlimited number of contacts can receive the alarm messages. These are set in the portal.

5.7 TEST MESSAGE

The Mobeye Call-Key can send regular test messages (keep alive) to the Mobeye Internet Portal, to ensure the proper functioning of the unit. 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 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).

5.8 INPUT TYPE

The input type defines the character of the four alarm inputs. 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.

5.9 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.

5.10 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”.

5.11 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 and 24 hours. As default the alarm repeat time is set to 4 hours.

5.12 ALARM RESTORE MESSAGE

In factory setting, the Mobeye Call-Key does not send a recovery message if an input alarm has been restored. It is possible to set a recovery message per input.

5.13 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 5 seconds, always works.

5.14 4G LTE SETTINGS IF OTHER SIM CARD IS USED

If Mobeye has been agreed to insert a different Mobeye SIM card than the one supplied, the provider's APN settings must be used via commands to the telephone number in the device.

	sms-command
APN for 4G LTE	1111 APN:
APN user name	1111 APNLOGIN:
APN password	1111 APNPASSWORD:
Reset APN data	1111 APNRESET

1. Make sure the module is powered and has a network connection.
2. Send an SMS text message with security code and command to the unit.
3. The green LED flashes three times to indicate successful setting. After an incorrect command, the LED flashes red 5 times.

SMS text messages have following format: **CODE COMMAND:OPTION**
example: **1111 APN:internet**
CODE stands for the security code. This is in the factory setting 1111.
Do not forget the space between your security code and the command.

5.15 SYSTEM RESET

To reset the Call-Key two steps are necessary, in following sequence:

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

2. Reset the Mobeye Call-Key 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 5 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.

6. 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	Incorrect PIN on SIM, SIM card required PUK	Set PIN in regular telephone to 0000 or contact provider (Mobeye).
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 LTE-CAT1 (EU) + 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	:	> 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 until +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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