

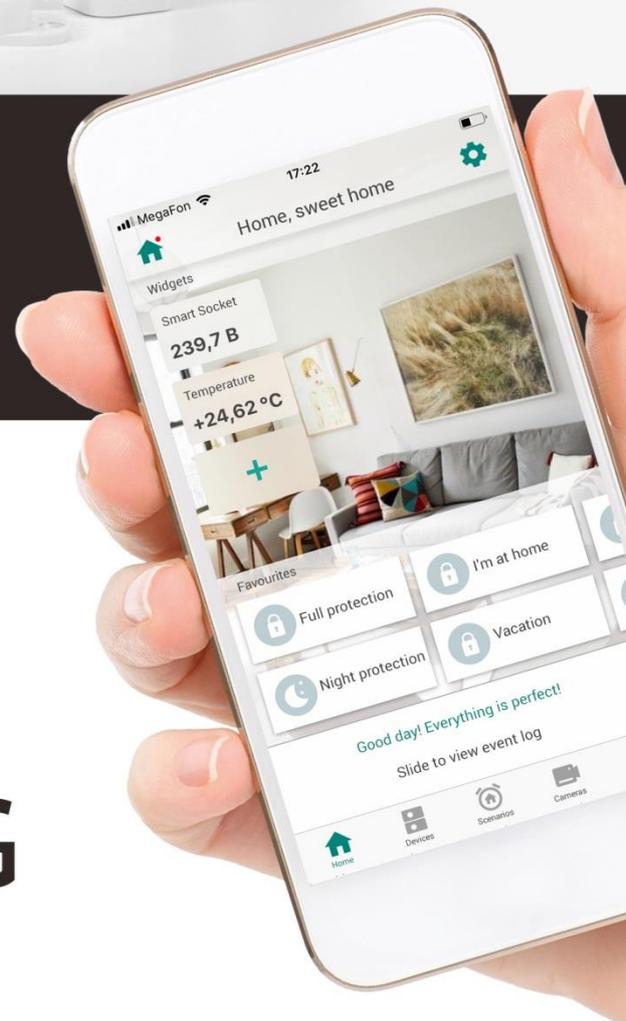


LIVICOM
YOUR SMART HOME



MANUAL

**Livi Smart Hub/
Livi Smart Hub 2G**



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1 INTRODUCTION

1.1 HUB DESCRIPTION

Livi Smart Hub / Livi Smart Hub 2G (hereinafter referred to as the hub) is designed to combine Livi radio devices into a single ecosystem of the Livicom smart home.

Hub control functions are:

- ✓ Receive data from sensors and endpoint devices installed at the site.
- ✓ Automatically control endpoint devices when running event-driven and endpoint scripts.
- ✓ Transmit commands issued by the user remotely to endpoint devices.
- ✓ Transfer data about Livicom smart home to the Livicom cloud server (the cloud server notifies users about events at the site via push-notifications in the Livicom mobile app or by email).
- ✓ Alert up to 8 users by SMS or via voice calls in case of alarms at the site.

Users can control the hub using the Livicom mobile app, SMS-commands and the hub voice menu (if any SIM-card is installed in the hub). Only the Livicom mobile app provides the complete set of hub control functions.

The hub can transmit notifications to the STEMAX server (if the security service is active) and to the users smartphones simultaneously, because the hub supports two active IP-connections for each communication channel.

One hub can be bound to 256 Livi radio devices.

Exceptions:

- Two-channel radio devices reduce the maximum number of bound devices, because they take place of two Livi radio devices when they are bound to the hub. Two-channel radio devices are Livi GS glass break sensor, Livi Key Fob control panel, Livi LS water leak sensor, Livi US universal sensor, Livi Light Control unit, Livi Water Control water leakage protection unit.
- One Livi Smart Hub can be bound up to 64 endpoint devices, such as Livi Relay, Livi Relay 12/24, Livi Socket, Livi Siren and Livi Roller Shutter unit.
- One Livi Smart Hub can be bound up to 32 two-channel endpoint devices, such as Livi Light Control unit and Livi Water Control unit.

1.2 DIFFERENCES BETWEEN LIVI SMART HUB AND LIVI SMART HUB 2G

Livi Smart Hub and Livi Smart Hub 2G differ by two factors: a supported cellular standard and a battery life.

Supported cellular standard:

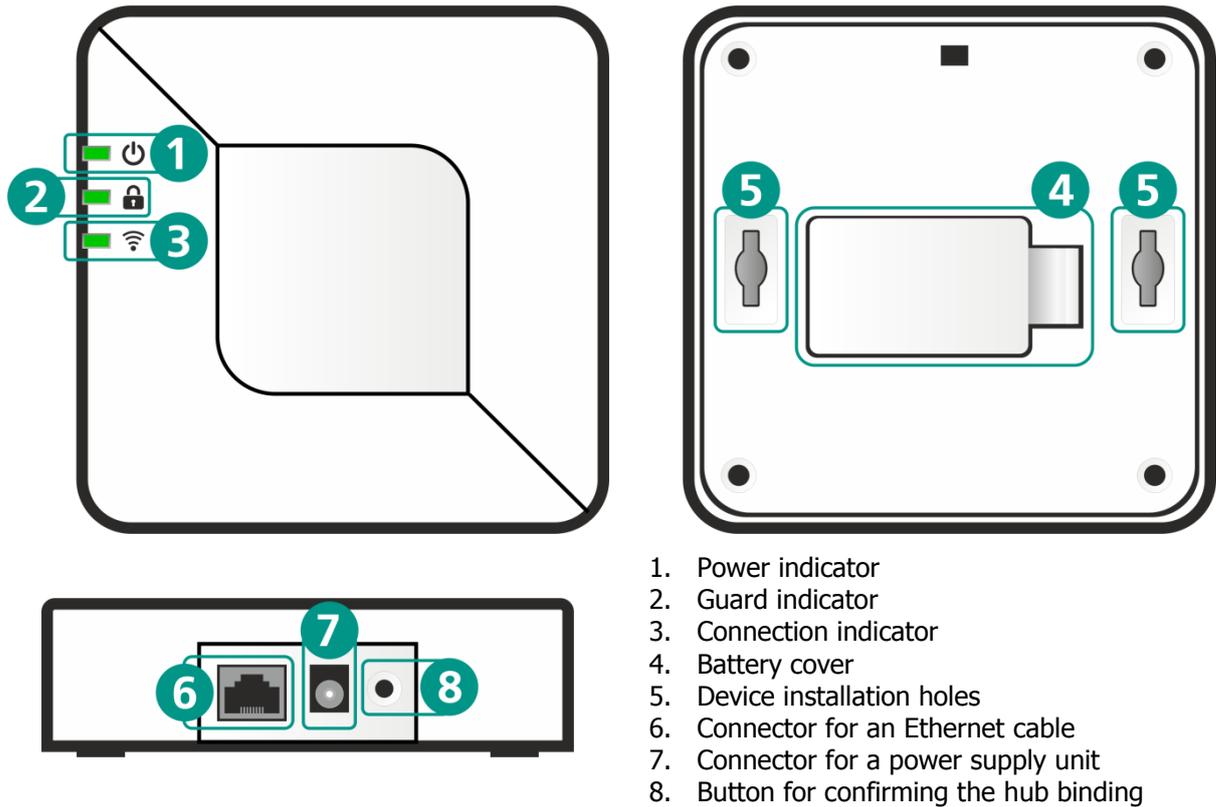
- Livi Smart Hub supports cellular standards 2G – GSM / GPRS (900 / 1800 MHz) и 3G – UMTS / HSPA+ (900 / 2100 MHz).
- Livi Smart Hub 2G supports only cellular standard 2G – GSM / GPRS (900 / 1800 MHz).

Battery life:

Battery will supply power to the hub if there is a power failure at the site. Livi Smart Hub will continue to operate on battery power for at least 12 hours and Livi Smart Hub 2G will continue to operate for at least 15 hours.

There are no other differences between Livi Smart Hub and Livi Smart Hub 2G: their functions, operating procedures and sets of settings are the same.

1.3 HUB APPEARANCE



2 PRECAUTIONARY MEASURES

In order to avoid the hub failure, **DO NOT**:

- use the hub with a damaged power cord;
- open the hub enclosure until the power supply unit is disconnected and the battery is removed;
- install the SIM-card in the hub or remove it when the hub power is on.

3 HUB PREPARATION FOR INSTALLATION AND OPERATION

The hub requires connection to the mains (230 V AC network) through the power supply unit and stable Internet access through a wired connection (Ethernet channel) and / or through a mobile network ("GSM/UMTS" channel).

One Internet access channel (Ethernet or "GSM/UMTS") is enough for the hub to operate. Two active communication channels can guarantee that the hub will continue to operate even if there are problems with Internet access through one of the connected channels.

If the connection between the hub and the Livicom cloud platform is interrupted (if there are problems with Internet access through both connected channels), then in two minutes the platform will create the "No connection to the Site" event and notify users in the Livicom app.

If the security service is active and the connection between the hub and the STEMAX server is interrupted, then in five minutes the hub will generate the "Connection to the security company is lost" event. The hub will generate the "Connection to the security company is restored" event also in 5 minutes after the connection is restored.

3.1 CONNECTING ETHERNET CHANNEL

If the Ethernet channel is connected to the hub, the hub sends alarm alerts and other notifications through it to the Livicom cloud platform. The hub will also use Ethernet to send test events to the platform every 10 seconds in order to monitor the state of the Ethernet connection.

If the Ethernet cable is removed from the hub, then in 40 seconds the hub will generate the "Ethernet failure" event and notify users in the Livicom app. Once the Ethernet cable is reconnected, the hub will generate the "Ethernet restored" event 30 seconds after the connection is restored.

If the security service is active, then the hub will maintain two active IP connections over the Ethernet channel: all notifications and test events will be transmitted simultaneously to the Livicom cloud platform and to the STEMAX server of the security company.

ATTENTION

The hub will automatically break the connection via Ethernet-channel if there is a power failure at the site, in order to reduce the power consumption

The hub will continue to use mobile Internet to connect to the Livicom server if any SIM-card is installed in the hub. If the SIM-card is not installed, data transfer between the hub and the cloud server will be temporarily terminated. The hub will operate offline according to the settings recorded by users earlier. Users will be able to change the state of the site guard using Livi Key Fob control panel or Livi RFID security control panel. The hub will automatically reconnect to the cloud server via Ethernet channel once the 230 V power supply of the hub is restored.

3.2 CONNECTING GSM/UMTS CHANNEL

If you decide to install a SIM-card in the hub, then select a mobile operator according to the following criteria:

- Check the signal strength of the operator's mobile network at your site.

Make sure that the network of the selected mobile operator has a strong signal at the intended location of the hub before purchasing a SIM-card. Verify the signal strength with your smartphone: if you are at the site and you have no problems receiving voice calls, SMS or with Internet access, then purchase the SIM-card of the same mobile operator.

- Select convenient tariff.

Select a tariff based on a reasonable ratio of cost and services. The hub requires no more than 150 MB of mobile Internet per month, voice calls and SMS (if at least one user should be notified by SMS and / or voice calls in case of alarms at the site).

Purchase a SIM-card for the hub, install it in any phone and turn off a PIN request for the SIM card. We also recommend to restrict the credit balance system and SMS commercials. Afterwards regularly check the SIM-card financial balance in order to avoid overspending due to wrong settings and to make sure that the hub is operated with minimal financial costs.

When the GSM/UMTS channel is connected, the hub sends test events over it every 25 seconds in order to monitor the channel state. The amount of Internet traffic that is required for the hub operation depends on the number of events at the site per month. The events number will be the greater, the more Livi devices are bound to the hub, the more scripts are active, and the more user commands the hub executes (for example, commands to enable/disable the guard, to turn on/off endpoint devices). With active hub operation, Internet traffic can reach 100-150 MB per month, of which about 30 MB will be spent on test events.

If the security service is active, then the hub will maintain two active IP connections over the GSM/UMTS channel: all notifications and test events will be transmitted simultaneously to the Livicom cloud platform and to the STEMAX server of the security company, which will lead to a doubling of the consumed traffic.

3.3 CONNECTING TWO CHANNELS

The hub uses the Ethernet channel to communicate with the Livicom cloud server and the GSM/UTS channel to notify users by SMS and via voice calls about alarms at the site, when both communication channels are connected. Additionally, the GSM/UTS channel can be used to control the hub using the hub voice menu and SMS commands.

The hub will always send test events via both communication channels. The hub will switch to work via the GSM/UMTS channel automatically if the connection via the Ethernet channel is interrupted.

4 HUB TURNING ON

The hub must be unpacked and allowed to reach room temperature for at least two hours before handling if it was transported or stored at low temperatures.

1. Open the compartment on the back of the hub (4), remove the battery and remove a protective film from the contacts in the battery compartment.

2. Insert a SIM-card into a special slot, position it as indicated.

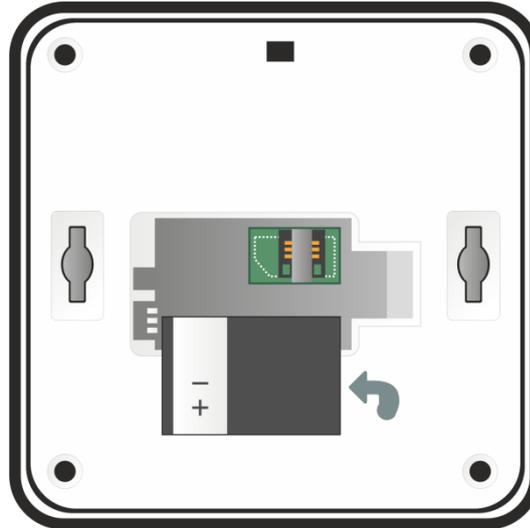


Figure 1. Installing a SIM-card in the hub

3. Return the battery to the Hub, align the contacts on the battery with the hub contacts and close the compartment.
4. The hub package contains a power supply unit and an Ethernet-cable. Insert both wires in the connectors (6) and (7) on the side of the hub. Then plug the power supply unit into a 230 V power outlet and an Ethernet cable into an Internet outlet or a router.

The hub automatically switches to the intelligent power-on mode after power up. If the battery is discharged, the hub first charges the battery to the operating level and then the hub switches to the operating mode. The power indicator (1) blinks white while the battery is charging.

Wait until the power (1) and communication (3) indicators light green steadily. If indicators light any different color, refer to the table "LED Indication" to find out the reason.

5. Download the Livicom mobile app on [Google Play](#) and [App Store](#) and install it on your smartphone.
6. Sign up and then sign in to the Livicom system.
7. Follow on-screen instructions to register the hub and create your livicom site.

You can bind sensors and endpoint devices to the hub once your Livicom site is created. Invite family members to control the Livicom smart home together.

5 HUB INSTALLATION

5.1 CHOOSING LOCATION FOR THE HUB

The hub is designed to operate in heated apartments and houses. It is recommended to install the hub in the area of stable radio signal reception and stable Internet access (via a mobile network and / or Ethernet).

When choosing the place for the hub, keep in mind that one wire from the hub needs to be plugged into an electrical outlet and the other one might be connected to an Internet outlet or a router.ϕ

Advice: hide the hub from guests and strangers. Security sensors won't be able to protect your property if it will be easy for intruders to disable the hub.

It is forbidden to install the hub:

- outdoors;
- in places with high humidity or at temperatures exceeding the operating temperature range (see [10](#));
- in safe boxes, metal mounting boxes and electrical panels;
- near massive metal objects, which can shield radio signal or cause its attenuation;
- near sources of radio signal interference (household appliances, etc.).

5.2 INSTALLATION OF THE HUB

Choose installation method: the hub can be mounted on a wall, set upright on a shelf or lay down on a table.

For mounting the hub on a wall:

1. Screw the supplied screws into the wall at the intended location of the hub.
2. Install the hub: align the screws with holes (5) on the back of the hub and pull the hub down to secure it.

6 MOBILE INTERNET ACTIVATION

Install any SIM card into the hub and check whether the hub succeeded to connect to the Livicom server via mobile Internet. To check disconnect Ethernet-cable from the hub, wait several minutes and look at the connection indicator (3). Mobile Internet is automatically activated if the connection indicator lights yellow.

If the connection indicator blinks red, then follow these steps to activate mobile Internet:

1. Ask your mobile operator for access point information (APN) through which the hub can connect to mobile Internet:
 - a. APN (for example: internet.beeline.ru);
 - b. User name (for example: beeline);
 - c. Password (for example: beeline);
 - d. USSD balance request (for example: *102#).
2. Record the following command as an SMS on your smartphone:

apn=APN,user name,password,USSD balance request

Do not put spaces and change letter cases (upper and lower case letters) when typing an SMS

If a username and / or a password are not required to access the mobile Internet, then put commas in the SMS as in the example for the Yota SIM-card below.

For example:

- For Beeline SIM-card record the command:
apn=internet.beeline.ru,beeline,beeline,*102#
- For Yota SIM-card record the command: apn=internet.yota,,,*100#
- For Kcell SIM-card record the command: apn=internet,,,*100#

3. Send an SMS with the command to the phone number of the SIM-card installed in the hub.

Note that the SMS with the command can be sent from any phone number if the hub is new. If the hub has been registered in the Livicom mobile app, then the command will be accepted by the hub only if it is sent from the phone number of the registered user.

Wait several minutes and look at the connection indicator (3). Mobile Internet is activated if the connection indicator lights yellow. If the connection indicator continues to blink red, then specify the protocol by which the hub will request authentication from the mobile operator (PAP / CHAP / NONE):

- Record the following command as an SMS on your smartphone: ppp_auth=pap
- Send the SMS to the phone number of the SIM-card installed in the hub. Wait several minutes and look at the connection indicator (3). Mobile Internet is activated if the connection indicator lights yellow. If the connection indicator continues to blink red, then record the following command as an SMS on your smartphone: ppp_auth=chap
- Send the SMS to the phone number of the SIM-card installed in the hub. Wait several minutes and look at the connection indicator (3). Mobile Internet is activated if the connection indicator lights yellow.

Note that if mobile Internet on the SIM-card was activated with an SMS and you decide to replace the SIM-card in the hub, then you will have to return the hub to the factory settings: as described in section 9.2, but without deleting the site from the app. If the site is not deleted, then the hub will automatically restore information about the devices, users, and scripts by downloading the site data from the Livicom cloud platform, immediately after returning to the factory settings.

7 USER NOTIFICATION ALGORITHM

The Livicom cloud platform notifies users about all events at the site via push-notifications and by e-mail. The hub performs user alerts about site alarms via voice calls or SMS if these notification methods are enabled in the site settings and if a SIM-card is installed in the hub.

The algorithm of the user notification performed by the hub is shown below (see Figure 2). The implementation of the algorithm in each case depends on the site settings.

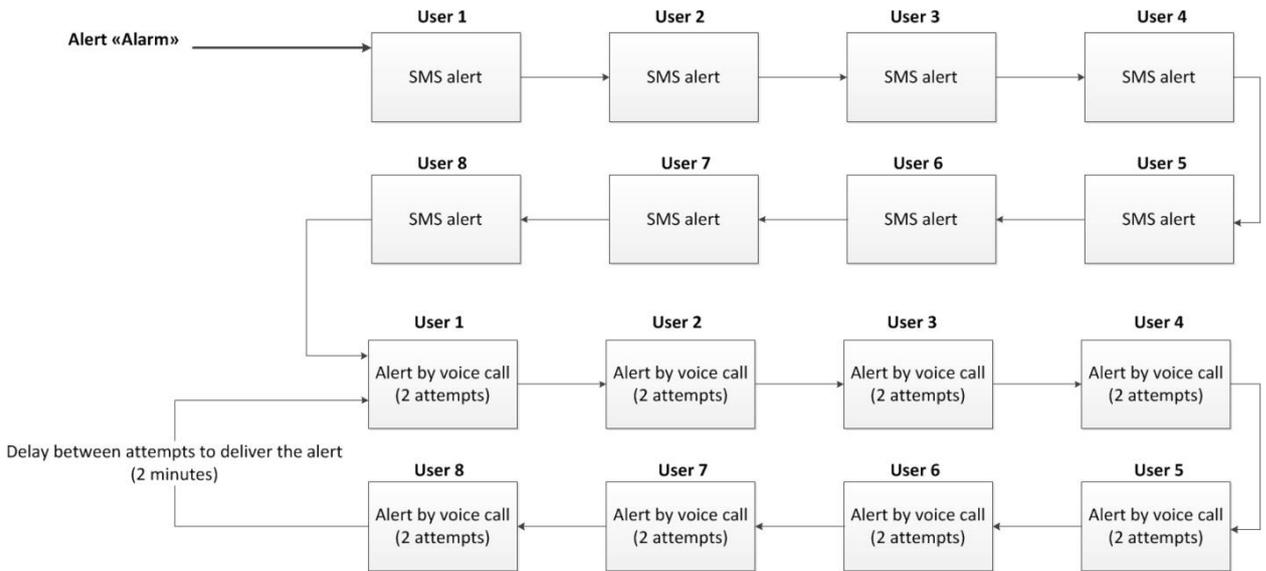


Figure 2. User notification algorithm

An SMS is a non-confirmable notification method, which means that the hub does not receive any confirmation from the user that the message was received. Therefore SMS are sent to users only once for each alarm.

A voice call is a confirmable notification method (with feedback from the recipient). The hub continues to call users until the alert is successfully received.

Users should pick up the phone and press the # button to confirm that they have received a voice notification

Any user can stop notification algorithm by pressing button **5** on the phone after picking up (then the hub will stop making calls about the current alarm).

The hub can send only a limited number of SMS and make a limited number of voice calls (received by users) within a certain period of time. By default the hub can send 30 SMS in 3 hours and make 60 calls in 6 hours. If this amount has been exceeded, the corresponding notification function will be blocked for 30 minutes.

8 HUB CONTROL

8.1 LIVICOM MOBILE APP

Livicom mobile app allows you to remotely control devices of the Livicom smart home, provide access to those you trust and automatically control home appliances using event-driven and scheduled scripts.

App features:

- Connect and configure the Livicom smart home;
- Enable and disable the site guard remotely;
- Notify instantly up to 8 users;
- Check the status of the entire system or of individual devices;
- View the event log;

- Invite new site users and setting notification methods for them;
- Control home appliances remotely.

Hub control through the Livicom mobile app is described in details in the app user guide, available for download on [the official Livicom website](#).

8.2 HUB VOICE MENU

Users can change the site guard status and get information about the hub using the hub voice menu if an active SIM-card is installed in the hub.

Only registered users of the site get access to the hub voice menu. Authentication is performed by phone number (without password request)

Users should dial the phone number of the hub SIM-card and switch the phone to the tone dialing mode to use the hub voice menu. The answering machine will respond with a suggestion to select one of the voice menu commands. Press buttons on the phone keyboard following instructions of the answering machine or the voice menu diagram presented below (Figure 3) to send commands to the hub.

Press the # button to return to the previous menu. Press the "Hang up" button to exit the voice menu.

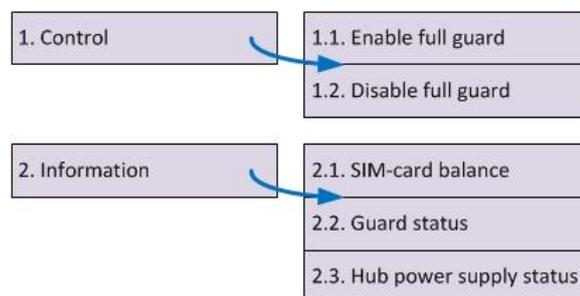


Figure 3. Structure of the hub voice menu

Let us take a closer look at the structure of the hub voice menu:

1. Control of the site guard status

1.1. Enable full guard of the site.

Press buttons **1, 1** to enable full guard of the site. The answering machine will report the result of the command execution: *Full guard is enabled.*

1.2. Disable full guard of the site.

Press buttons **1, 2** to disable full guard of the site. The answering machine will report the result of the command execution: *Full guard is disabled.*

2. Information about the hub

2.1. SIM-card financial balance.

Press buttons **2, 1** for information on the financial balance of the hub SIM-card. The answering machine will report the result of the command execution, for example: *First network balance is 560 point 6.*

Note that the hub sends a SIM-balance request after each reboot (in 5 minutes after the hub turns on) and then repeats the request once every 24 hours.

2.2. Full guard status.

Press buttons **2, 2** for information on the guard state of the site (enabled / disabled). The answering machine will report the result of the command execution, for example: *Full guard is disabled.*

2.3. Hub power supply status

Press buttons **2, 3** for information on the status of the hub power sources (220 V status, battery status and current battery voltage). The answering machine will report the result of the command execution, for example: *220 OK, battery OK, battery voltage is 3 point 7 volts.*

The owner of the site can reboot the hub using the hub voice menu. Press buttons **9, 1** while listening to the hub voice menu (with 1 sec pause between button pressings) to reboot the hub. The answering machine will report the result of the command execution, for example: *The hub will be rebooted in 15 seconds.*

8.3 SMS-COMMANDS

Users can change the site guard status and get information about the hub using SMS if an active SIM-card is installed in the hub.

Note that only SMS sent by registered users of the site will be executed. Authentication is performed by phone number (without password request).

Users should send an SMS with the command code to the phone number of the SIM-card installed in the hub to control the hub¹. Command codes are shown in the table below (see Table 1).

Table 1 – SMS-command codes

Code	Command description	SMS-reply from the hub (example)
11	Enabling full guard of the site ²	(receipt) Full guard is enabled
12	Disabling full guard of the site ²	(receipt) Full guard is disabled
21	Request for the hub SIM-card balance	(receipt) Balance SIM 1: 840,50
22	Request for information on the current guard status of the site	(receipt) Full guard is enabled (receipt) Full guard is disabled
23	Request for information on the hub power supply status	(receipt) 220 V OK, battery OK (receipt) 220 V OK, battery failure (receipt) 220 V failure, battery OK
27	Request for temperature sensor readings ³	(receipt) Temperature in hall: 25.7 / 5.3 / 23.9, Temperature in sauna: 22.0 / 60.4 / 0.0.
93	Request for the hub firmware version	(receipt) Hub firmware version: v.1.3
99	Request for the hub restart	(receipt) The hub will be rebooted

¹ If the hub firmware version is lower than 1.8, then SMS should start with the serial number of the hub followed by a command code (separated by space).

² Commands 11 and 12 (Enabling and disabling full guard) will be accepted only from the phone number of the site user with the role *Owner* or of users with access to control the guard status of the site (the owner can grant access to users in the Livicom mobile app).

All other commands can be sent by any registered user of the site.

³ An SMS-reply will contain readings of all temperature sensors bound to the hub. The SMS-reply will contain the name of each Livi TS and readings of the internal sensor, first and second external sensors.

9 HUB FIRMWARE UPDATE AND HUB RESET

9.1 HUB FIRMWARE UPDATE

Firmware updates optimize the operation of the hub, add new features and improvements.

The Livicom system automatically checks firmware updates, so users will receive push-notifications as soon as a new version of the firmware becomes available for installation.

You can update the hub firmware in the Livicom mobile app on the hub settings screen.

The hub firmware update process is described in details in the user manual for the mobile app available for download on the [website of the Livicom system](#).

9.2 HUB RESET

Hub reset allows you to delete all information about connected devices, user settings and created scripts from the hub's internal memory and reload it from the Livicom cloud platform.

Follow these steps to reset the hub:

1. Disconnect all power sources from the hub:
 - a. disconnect the power supply unit from the 230 V power outlet;
 - b. open the compartment on the back of the hub (4) and remove the battery from the hub.
2. Press and hold the button for confirming the hub binding (8).
3. Plug the power supply unit of the hub into the 230 V power outlet while holding the button (8).
4. Hold the button (8) and wait until the power indicator lights red.
5. Release the button (8).
6. Press 10 times on the button (8).

Three LED indicators on the hub will blink red together 8 times, and then the hub will be rebooted. All data about connected devices, user settings and created scripts will be deleted from the hub's internal memory and reloaded from the Livicom cloud platform.

Note that you can only perform the hub reset within 1 minute after the hub restarted. If you have not succeeded to complete all steps in time, then disconnect all power sources from the hub again and repeat steps from 2 to 6.

10 HUB SPECIFICATIONS

Table 2 – Specifications

First connection channel	Ethernet 10 Mbps
Second connection channel	Livi Smart Hub 2G – GSM / GPRS (900 / 1800 MHz) and 3G – UMTS / HSPA+(900 / 2100 MHz)
	Livi Smart Hub 2G 2G – GSM / GPRS (900 / 1800 MHz)
Frequency range	868 MHz
Radio communication range *	1000 m
Radio channel power	25 mW
Livi devices number	256 **
* Number of bound Livi endpoint devices (Livi Relay, Livi Relay 12/24, Livi Socket, Livi Siren)	up to 64
** Number of bound two-channel endpoint devices (Livi Water Control water leakage protection unit, Livi Light Control unit)	up to 32
Main power supply	from the 230 V network through the power supply unit 5 V, 1 A
Backup battery	battery BL-5C, 1020 mAh
Battery life	Livi Smart Hub at least 12 hours
	Livi Smart Hub 2G at least 15 hours
Supported radio protocol	Livi
Enclosure protection category	IP30
Operating temperature range	from 0 to +45 °C
Dimensions	130 x 130 x 35 mm

* **Radio communication range** is the maximum distance between the hub and the radio device in line of sight and without interference.

11 LED INDICATION

Table 3 – LED Indication

Power indicator	
Main power and battery are OK	The indicator lights green
Main power is OK, battery low (battery is charging)	The indicator lights red
Main power is OK, battery is extremely low (the hub can't turn on, the battery is charging)	The indicator blinks white
Battery is OK, main power failure	The indicator lights yellow
Low battery, main power failure	The indicator lights red
Guard indicator	
Guard is disabled	The indicator is off
Full guard is enabled	The indicator lights green
Night guard is enabled	The indicator lights blue
Guard is enabled with some sensors exception ***	The indicator lights yellow
Delay for entry (delayed alarm)	The indicator blinks red
Delay for exit (delayed arming)	The indicator blinks green
Alarm alert	The indicator lights red
Connection indicator	
Connection to the cloud server is established via Ethernet	The indicator lights green
Connection to the cloud server is established via mobile network	The indicator lights yellow
Establishing a connection to the cloud server (connection failure)	The indicator blinks red

*****Guard is enabled with some sensors exception** is the guard mode that can be selected by the user if the full guard or the night guard is enabling at the moment when not all security sensors are ready to perform guarding functions. The sensors may not be ready for various reasons: e.g. any technical failure is detected, the Livi CS or Livi CSM opening sensor is in the *Open* state, or the Livi MS or Livi MSW motion sensor is in the *Motion detected* state. Read more about the [full guard enabling with some sensors exception](#) and the [night guard enabling with some sensors exception](#).