LightSwitch Jeweller User manual

Updated January 12, 2023

LightSwitch Jeweller is a smart touch light switch. For indoor installation. LightSwitch can replace any mechanical or touch switch: the product line includes one-gang, two-gang, and two-way versions. Devices can be combined by installing several switches next to each other in one frame.

LightSwitch is installed without changing the electrical wiring of the object. The device does not require a neutral wire and works only from the supply phase. The switch features a standard European form factor (55).

> ⓘ The list of compatible hubs and range extenders is available here.

LightSwitch operates as part of the Ajax security system and connects to the hub via the Jeweller secure radio communication protocol. The communication range is up to 1,100 meters without obstacles.

Buy LightSwitch

Design

LightSwitch is a prefabricated smart light switch. All switch elements are purchased separately. Elements are connected mechanically without the use of tools. There are two LightSwitch formats in the Ajax product line: single and combined.

Single switch

A single LightSwitch consists of two elements: a **LightCore** relay and a **SoloButton** touch-sensitive panel.

Relay ⌄

Touch-sensitive panels ⌄

Combined switch

A combined switch consists of several **LightCore** relays and touch-sensitive panels installed in one frame with the appropriate number of seats.

Touch-sensitive panels ⌄

Plastic frames ⌄

Touch-sensitive panels ⌄

> **i** Side touch-sensitive panels are installed on the right and left sides of the frame, while central touch-sensitive panels are installed in the center. For example, two side buttons and one central button should be used for three switches in one frame.

Colours

The product line includes 8 button colours for switches.

In the switch settings in Ajax apps, the colour of **LightSwitch** can be selected. The colour in the app does not necessarily have to match the colour of the installed button.

A PRO or user with admin rights can change the button colour at any time. For example, if the installer has replaced the touch-sensitive panel or a user wishes to set different colours for the switches in the app to distinguish them.

Functional elements

Relay

LightCore (1–gang) ⌄

LightCore (2–gang) ⌄

LightCore (2–way) ⌄

Touch-sensitive panels

SoloButton (1–gang / 2–way) ⌄

SoloButton (2–gang) ⌄

CenterButton (1–gang / 2–way) ⌄

CenterButton (2–gang) ⌄

SideButton (1–gang / 2–way) ⌄

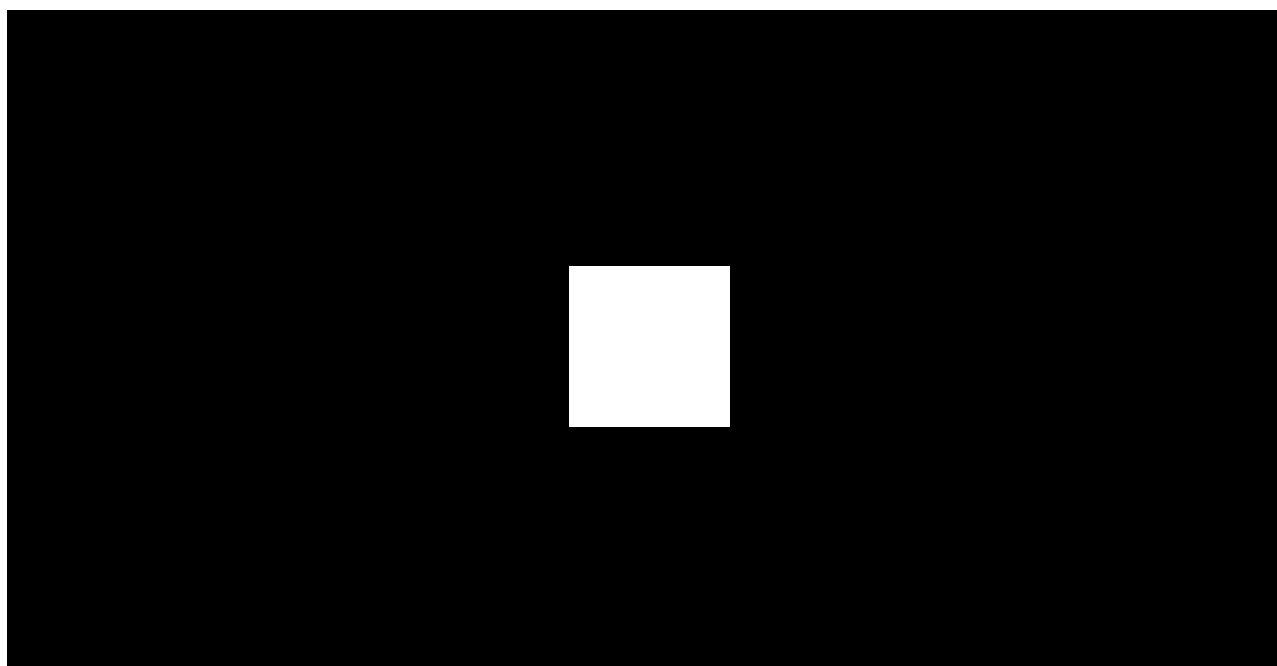**SideButton (2–gang)** ⌄

Frames

Frame (2 seats) ⌄

Frame (3 seats) ⌄

Frame (4 seats) ⌄

Operating principle

00:00   00:14

LightSwitch Jeweller is a smart touch light switch. It controls the lighting in three ways: manually, through smartphone and PC apps, and using **Automation Scenarios**.

The device is installed without changing the electrical wiring of the object. The device does not require a neutral wire and works only from the supply phase.

The switch can control 5 to 600 W lighting devices. The kit includes a capacitor connected in parallel with the lighting device for low-power lamps. See the **installation section** of this manual for details.

LightSwitch frame has a LED backlight. The backlight is not bright, so it will not disturb users even if the device is installed near a bed. If necessary, a PRO or user with administrator rights can disable the backlight in **Ajax apps**.

The product line of devices includes 1−gang, 2−gang, and 2−way light switches:

- **1−gang** — control one lighting line (one lamp).

- **2−gang** — control two lighting lines (two lamps).

- **2−way** — control one light source from several seats.

If necessary, LightSwitch can also control other devices. For example, one of the buttons can control the light, and the other one — room ventilation.

Manual control
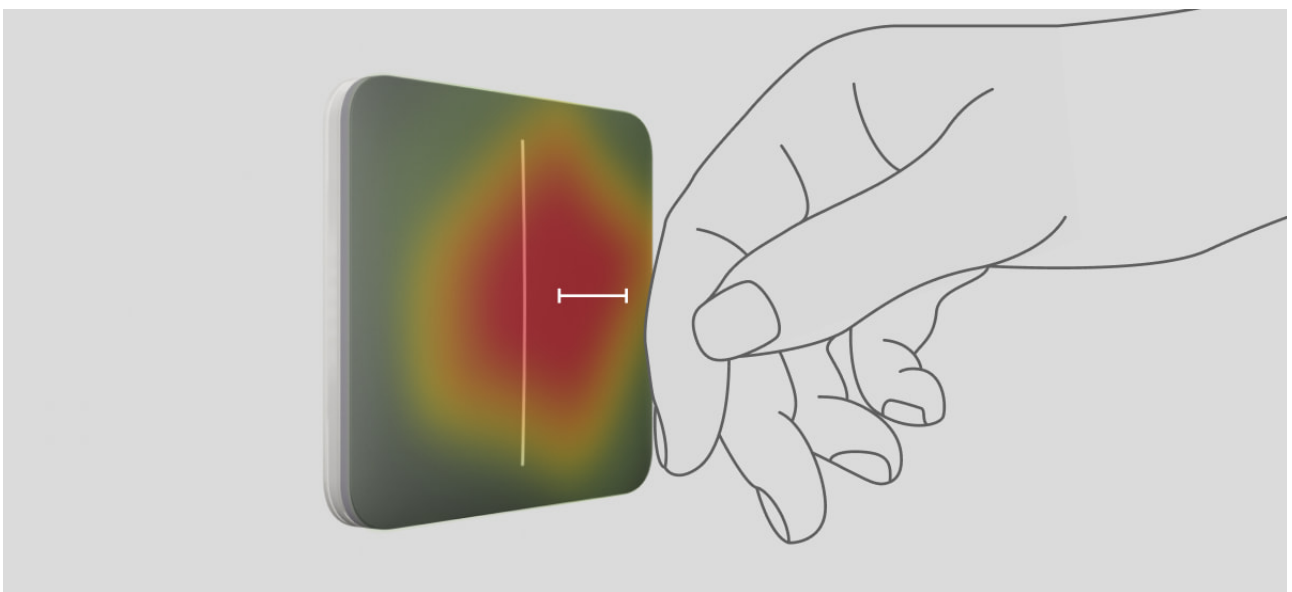
LightSwitch allows controlling lighting when a hand is 15 millimetres away from the switch or when touching the touch-sensitive panel of the switch. Contactless control does not limit the possibility of use, even if hands are dirty or wet. The

sensor reacts under any conditions. Therefore, the switch can be installed in crowded places: restaurants, factories, and offices.

The **LightSwitch** sensor instantly reads the signal and transforms it into an electric pulse. **LightCore** receives this pulse and activates a relay that switches on/off the lighting device or another connected load, such as a cooker hood.

The entire LightSwitch panel is touch sensitive. Therefore, the lighting can be controlled by pressing or reaching any part of the touch-sensitive panel with a hand.

Remote control

Control via the app

LightSwitch can be used to control lighting manually and remotely through **Ajax apps**.
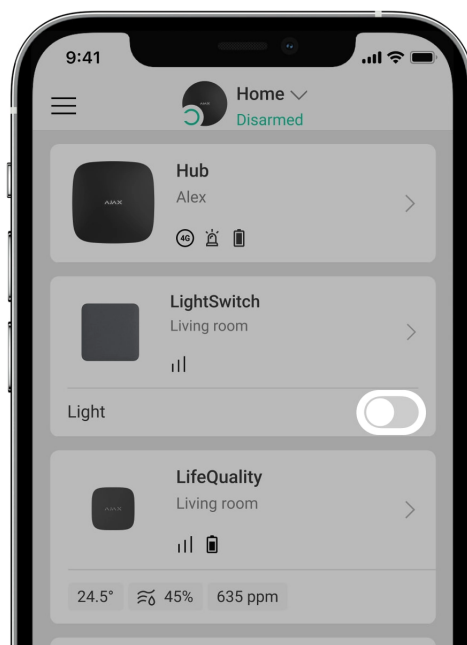
Press the switch in the **LightSwitch** field in the **Devices** ⊟ menu in the Ajax app, and the state of the switch contacts will change to the opposite; lighting will be switched off or on. This way, system users can remotely control the lighting. For example, switch on the light in the room in advance before entering the room.
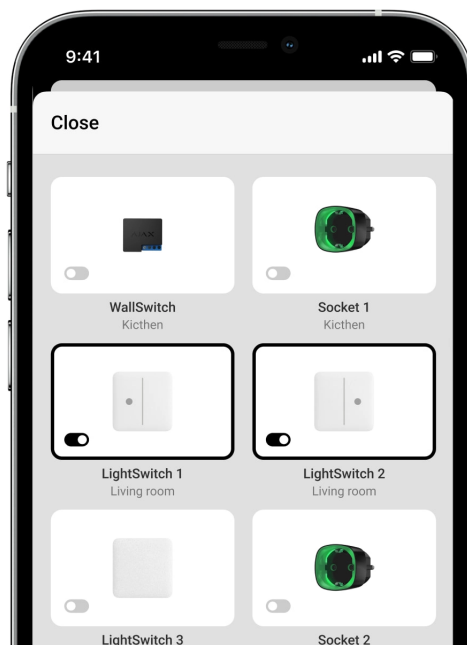
The lighting also can be controlled in the **Control** ⊕ menu. To do this, go to the **Control** ⊕ menu and swipe up. All control devices added to the hub will appear in the list. Click on the switch in the **LightSwitch** field, and the state of the device's contacts will change to the opposite. The lighting will switch on or off.

Automation scenarios
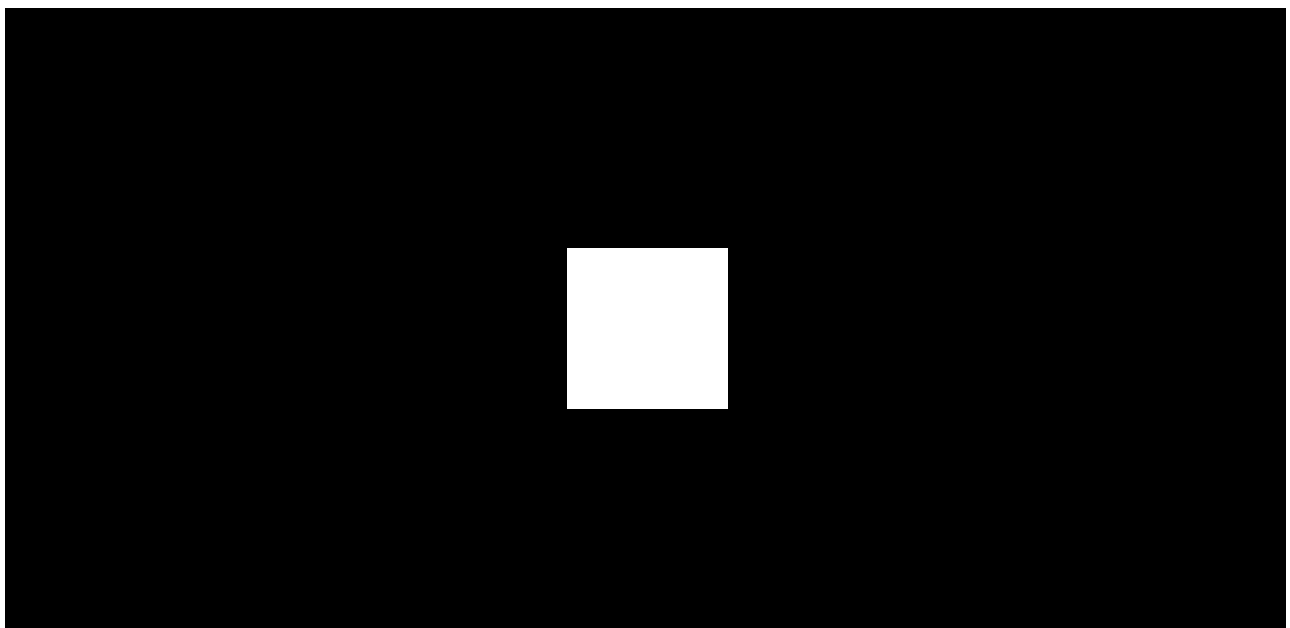
00:00   00:07

Scenarios help automate security and reduce the number of routine actions. For example, set the lights to switch on by the schedule or when disarming the security system.

LightSwitch supports the following types of scenarios:

- **By alarm.**

- **By arming/disarming.**

- **By schedule.**

- **By Button pressing.**

- **By temperature.**

- **By humidity.**

- **By CO$_2$ concentration.**

- **By LightSwitch pressing.**

> **i** Scenarios by humidity and CO$_2$ concentration are available when LifeQuality is added to the system.

More about scenarios

Operation modes

LightSwitch can operate in one of two modes: bistable or pulse. The operating mode is set by a user with admin or PRO rights in Ajax apps in the **device settings**.

By default, LightSwitch works in bistable mode. When controlling the lighting, it switches on or off.

When working in pulse mode, the lighting can be switched on for the required time: from 10 seconds to 2 hours. This mode is useful, for example, if a user needs to switch on the lighting in the corridor for 5 minutes when disarming the security system.

Types of electrical protection of the switch

LightSwitch has two independent types of protection: current and temperature.

Current protection is activated if the load current on the switch is 2.6 A or more. If the protection triggers, **LightSwitch** switches off power and sends a notification to Ajax apps. At the same time, the switch itself begins to flash red every second.

The power supply is not automatically restored when this protection is triggered. It can be reset by clicking on the toggle in the Ajax app or on the touch panel of the switch.

Temperature protection triggers if the temperature of the switch is greater than +60°C. If this protection triggers, LightSwitch turns off power and sends a notification to Ajax apps. The power supply resumes automatically when the switch temperature returns to normal.

Detection of lighting devices with insufficient power

LightSwitch regularly measures the switching current. If LightSwitch controls the power of a lighting device with insufficient power (up to 5 W), the system will notify the users of the Ajax system. In this case, it is necessary to replace the lighting device with a similar one with higher capacity or to connect a bundled capacitor in parallel with the lighting device.

Jeweller data transfer protocol

Jeweller is a radio protocol for fast and reliable two-way communication between a hub and connected devices. The protocol provides a range of wireless radio communication between LightSwitch and the hub (or range extender) up to 1,100 meters. This communication range allows installing switches not only in flats or private houses but also in open spaces or large warehouses.

Jeweller is responsible for transmitting all the necessary information and providing instant control of any number of LightSwitch devices in the system. Thanks to Jeweller, users can always control the light and see the current state of switches in Ajax apps at any time.

Jeweller supports block encryption with a floating key and authentication of devices at each communication session to prevent sabotage or device spoofing. The protocol involves regular polling of system devices by the hub at intervals of 12 to 300 seconds (depending on the **Jeweller** or **Jeweller/Fibra** settings) to monitor communication with all devices and shows their statuses in the Ajax apps.

More about Jeweller

Sending events to the monitoring station

The Ajax security system can transmit events and alarms to the **PRO Desktop** monitoring app as well as the Central Monitoring Station (CMS) via **SurGard (Contact ID), SIA DC-09 (ADM-CID), ADEMCO 685**, and other protocols.

Which CMSs are compatible with the Ajax security system

Only events of lost connection between the switch and the hub (or range extender) are transmitted to the CMS. No other events are sent to third-party monitoring stations of security or monitoring companies. Use PRO Desktop to receive all switch events on the CMS.

> **i** Temperature or current protection triggering events are not sent to PRO Desktop as alarms.

The addressability of Ajax devices allows sending to PRO Desktop or to CMS not only events but also the type of the device, its assigned name, security group, and room. The list of transmitted parameters may vary depending on the selected communication protocol with the CMS. The largest amount of information is transmitted to the PRO Desktop CMS.

> **i** The switch ID and loop (zone) number can be found in their states in the Ajax app.

Selecting the installation site
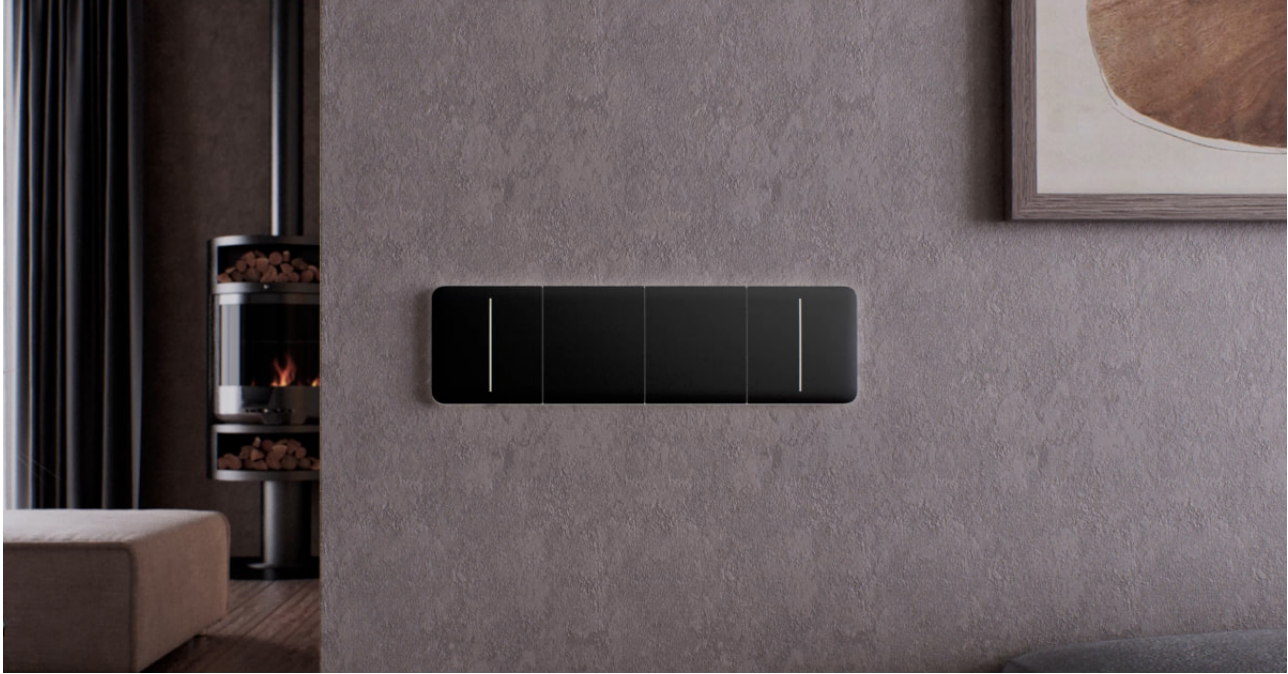
LightSwitch is designed to fit into standard sub-sockets of the European form factor (55). The device should be connected to the power phase cable for proper operation. Connecting the zero power cable is not required.

> ⚠️ Do not connect the zero power cable to LightSwtich. This can damage the device.

When installing LightSwitch, consider the Jeweller signal strength. It is determined by the ratio of the number of undelivered or corrupted data packages to those expected that are exchanged between the switch and the hub or range extender over a certain period.

The signal strength is indicated by the icon ıl| in the **Devices** ➖ menu. The signal strength is also indicated in the switch states.

Signal strength value:

- **Three bars** — excellent signal strength.

- **Two bars** — good signal strength.

- **One bar** — low signal strength. Stable operation is not guaranteed.

- **Crossed out icon** — no signal. Stable operation is not guaranteed.

Check the Jeweller signal strength at the installation site. The switch should have a signal strength of two or three bars. To roughly calculate the signal strength at the place of installation, use a **radio communication range calculator**.

With a signal strength of one or zero bars, the stable operation of the switch is not guaranteed. Use the **radio signal range extender** if the selected installation site has a signal strength of fewer than two bars.

Do not install the switch

- Outdoors. The device has an IP20 protection class. This may result in device failure or incorrect operation.

- On metal structures. This can lead to incorrect operation of the sensor: it may not respond to pressing or give false triggerings.

- In rooms with humidity and temperature that are outside the permissible limits. Doing so may cause the device to malfunction or not work properly. The operating temperature range is from −10 to +40°C. The permissible humidity is up to 75% without condensation.

- In places with low or unstable signal strength. This may result in a loss of communication between the hub (or range extender) and the switch.

Installation
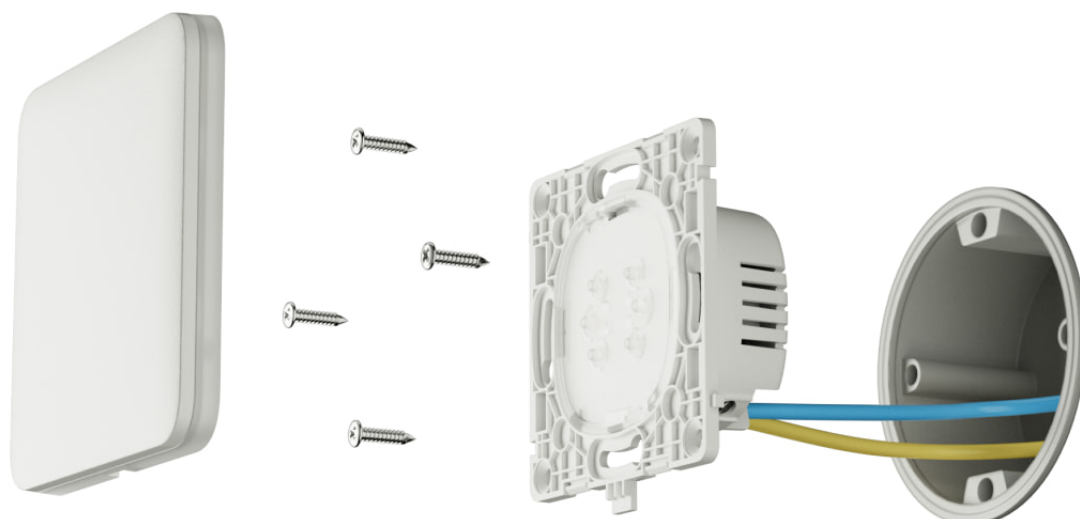
Before installing the switch, ensure that the optimal location has been selected and that it complies with the requirements of this manual. When installing and operating the device, follow the general electrical safety rules for using electrical appliances and the requirements of electrical safety regulations.

For connection, use cables with a cross-section recommended by the manufacturer of the lighting device. LightSwitch cannot be connected to electric circuits with a load exceeding 600 W. The device does not require a neutral wire and works only from the supply phase.

After installing and connecting the switch, be sure to run the **Jeweller signal strength test** and check the operation of the device: how it responds to touch, and whether it switches on/off the lights.

ℹ️ The installed touch-sensitive panel can be removed from LightSwitch with a flat screwdriver. To complete this, insert it into the hole from below and turn the screwdriver.

Installation of 1–gang switch

Installation of switch ⌄

Installation of 2–gang switch

Installation of switch ⌄

Installation of 2–way switch

2−way LightSwitch with a third-party mechanical switch ⌄

Two 2−way LightSwitch switches ⌄

Two 2−way LightSwitch switches with a third-party intermediate switch ⌄

Adding to the system

Before adding a device

1. Install the **Ajax app**.

2. **Create an account** if you don't have one.

3. Add a **hub compatible with the switch** to the app. Set the required settings and create at least one **virtual room**.

4. Make sure that the hub is on and has Internet access via Ethernet, Wi-Fi, and/or mobile network. This can be done in the Ajax app or by looking at the LED indicator of the hub: it should light up white or green.

5. Make sure the hub is not updated and not disarmed by checking its status of the Ajax app.

> ⓘ A PRO or user with admin rights can connect LightSwitch to the hub.

Connecting to the hub

> ⚠ Do not switch on power at the switches before installing the touch-sensitive panels. Also, do not try to register the device before installing the touch-sensitive panel, as it contains antennas necessary for communication with the hub.

LightSwitch should be within the coverage area of the hub's radio network to connect to the hub. To work via the **radio signal range extender**, connect the LightSwitch with the hub and then connect the device to the range extender. This can be done in the range extender settings. The detailed instructions can be found in the manual for the relevant range extender.

The hub and the switch operating at different frequencies are incompatible. The radio frequency range of the device may vary by region. We recommend buying and using Ajax devices in the same region. Please contact **Technical Support** for information on the operating frequency range.

LightSwitch only works with one hub. When connected to a new hub, the switch stops sending commands to the old one. When added to a new hub, the switch is not removed from the device list of the old hub. This must be done through the Ajax app.

To connect LightSwitch to the hub:

1. **Install LightSwitch** if you haven't done so before.

2. Open the **Ajax app**.

3. Select the hub if you have several of them or using the **Ajax PRO app**.

4. Go to the **Devices** ⚊ tab and click **Add device**.

5. Enter the name of the device.

6. Scan the QR code of the device or enter the ID manually. QR code is located on the rear panel of LightCore, the front panel of LightCore, and the device packaging. The device ID can be found below the QR code.

7. Select the **virtual room** and security group (if the **group mode** is enabled).

8. Click **Add** — the countdown will begin.

> ⓘ   If the maximum number of devices is added to the hub, when you try to add the switch in the Ajax app, you will get a notification about exceeding the device limit. The number of devices that can be connected to the hub depends on the central unit model and the **Jeweller** (or **Jeweller/Fibra**) settings.

9. In a few seconds, LightSwitch will appear in the list of hub devices. Refreshing the device statuses in the list depends on the **Jeweller** (or **Jeweller/Fibra**) settings. The default value is 36 seconds.

If the connection fails, try again in 5 seconds. But this time, during the countdown, press and hold the switch button for at least 3 seconds. If adding a 2-gang switch, press either button.

Functionality testing

After installation, test the operation of the switch: how it reacts to touch and whether it switches on/off the light.

Ajax security system provides several tests to select the location of devices correctly. Tests do not start immediately. However, the waiting time does not exceed the duration of one "hub—device" ping interval. The default value is 36 seconds. The device ping interval can be changed in the **Jeweller** (or **Jeweller/Fibra**) menu in the hub settings.

The **Jeweller signal strength test** is available for LightSwitch. The test allows for determining the strength and stability of the signal at the installation site.

To run a test in the Ajax app:

1. Select the hub if you have several of them or using a PRO app.

2. Go to the **Devices** ⬛ tab.

3. Select LightSwitch.

4. Go to **Settings** ⚙️.

5. Select **Jeweller Signal Strength Test**.

6. Run and perform the test using the prompts in the app.

Icons
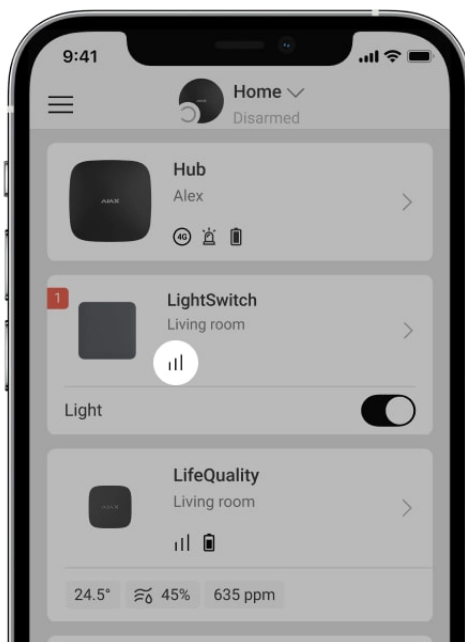
Icons display some of LightSwitch states. Icons can be checked in the Ajax app in the **Devices** ⊟ tab.

Icon	Meaning
�ıl	Jeweller Signal Strength displays the signal strength between the hub and the switch. **Learn more**
Ⓡᴱ	The switch communicates with the hub via a **radio signal range extender**.
⌂	Current protection was activated. **Learn more**
🌡°	Temperature protection was activated. **Learn more**

States
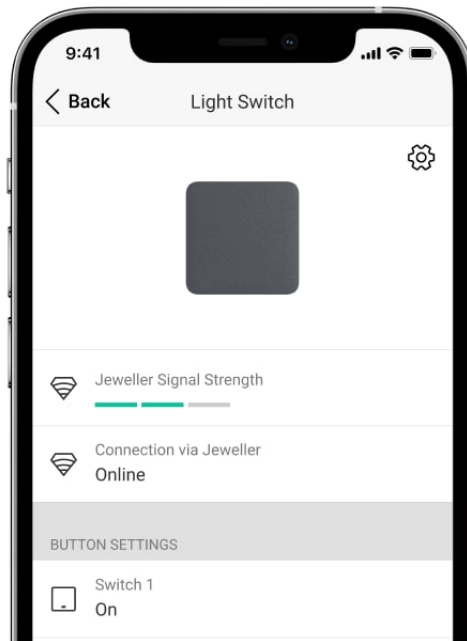
The states include information about the switch and its operating parameters. LightSwitch states can be seen in an Ajax app. To see them:
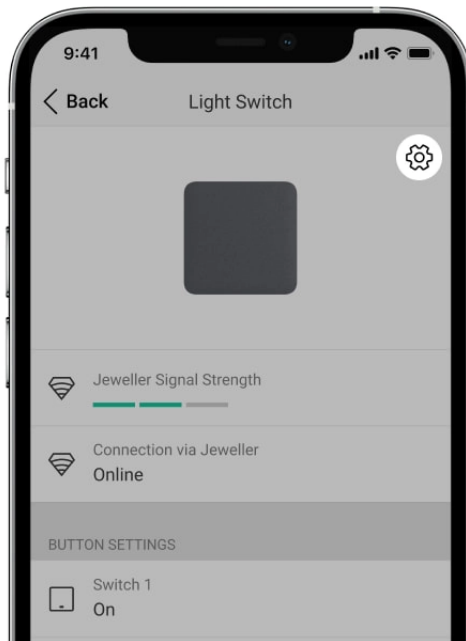
1. Open the Ajax app.

2. Select the hub if you have several of them or if using a PRO app.

3. Go to the **Devices** ⊟ tab.

4. Select LightSwitch in the list.

Parameter	Meaning
Malfunction	Clicking on ⓘ opens a list of switch malfunctions. The field is displayed only if a malfunction is detected.
Jeweller Signal Strength	Signal strength between the switch and the hub (or the range extender) via the Jeweller channel. Recommended values: 2–3 bars. Jeweller is a protocol for transmitting LightSwitch events and commands. **Learn more**

Connection via Jeweller	Connection status between the switch and the hub (or range extender): • **Online** — the switch is connected to the hub (or range extender). • **Offline** — the switch has lost connection with the hub (or range extender). **Check the device**.
Name of the button/buttons	The section that shows the state of the switch buttons: • **On** — the switch is on, and the light is on. • **Off** — the switch is off, and the light is off.
Operating time	The time during which lighting will be switched on. The field is displayed when the device is operating in pulse mode (the **Shutoff by Timer** option is activated).
Lock Switch Buttons	The switch button lock status is displayed as follows: • **On** — the button/buttons are locked. The switch will not respond to button/buttons touch. • **Off** — the button/buttons are not locked. The switch will respond to button/buttons touch.
Backlight	The status of the switch frame backlight is displayed as follows: • **On** — the LED frame is backlit when the switch is off. • **Off** — the LED frame is not backlit when the switch is off.
Range extender name	Status of switch connection to the **radio signal range extender**: • **Online** — the switch is connected.

	• **Offline** — the switch is not connected. **Check the device**. The field is displayed if the switch operates via a radio signal range extender.
Temporary Deactivation	Shows the status of the device temporary deactivation function: • **No** — the device responds to commands, executes scenarios, and transmits all events. • **Entirely** — the switch will not respond to commands, execute scenarios, or report events, but will respond to touch. **Learn more**
Firmware	Switch firmware version.
Device ID	Device ID/serial number. Indicated on the relay box and relay body.
Device No.	Number of the switch loop (zone). With this number, events are sent to third-party CMS of security and monitoring companies.

# Settings

To change the switch settings in the Ajax app:

1. Open the Ajax app.

2. Select the hub if you have several of them or using a PRO app.

3. Go to the **Devices** ▬ tab.

4. Select LightSwitch in the list.

5. Go to **Settings** by clicking on the gear icon ⚙.

6. Set the required settings.

7. Click **Back** to save the new settings.

Settings	Meaning
Name	LightSwitch name. Displayed in the text of SMS and notifications in the event feed. To change the switch name, click on the text field. The name can contain up to 12 Cyrillic characters or up to 24 Latin symbols.
Room	Virtual room to which LightSwitch is assigned.

	To change the room, click on the field. The room name is displayed in the text of SMS and events feed notifications.
Colour	Option to select a colour for the switch icon in the app. In the app, one of 8 colours can be chosen: • Black • White • Fog • Grey • Oyster • Olive • Graphite • Ivory The list of colors corresponds to the colors of the touch-sensitive panels.
Notification	Switch notification settings in the app: • **About Switch On/Off** — enable the option to receive notifications in the app about switching on/off the light with the switch. • **About scenario execution** — enable the option to be notified in the app when the switch executes a scenario.
Backlight	Option for the switch frame backlight setup. Activate this option to switch backlit when the lighting is off.
Lock Switch Buttons	Option for the switch button lock setup. Activate if you want the switch not to react to pressing. Users will be able to control the switch in the app only.
Button name	To change the name, click on the text field.

|	
Shutoff by Timer	Option for deactivating the switch after a set time. If this option is enabled, you need to set a time: from 10 seconds to 2 hours.
Scenarios	Opens the menu for creating and configuring automation scenarios. Use scenarios to automate security, for routine activities, and to improve comfort. For example, to switch on lighting according to the schedule or switch it off when the system is armed. **Learn more**
Jeweller Signal Strength Test	Starts testing the Jeweller signal strength between the switch and the hub (or range extender). The test allows checking the Jeweller signal strength and the stability of the connection between the switch and the hub (or range extender) to select the optimal installation site. **Learn more**
User Guide	Opens the switch User Manual in the Ajax app.
Temporary Deactivation	Allows to temporarily deactivate the device without removing it from the system. Two options are available: • **No** — the device responds to commands, executes scenarios, and transmits all events. • **Entirely** — the switch does not respond to commands in the app, does not execute scenarios or report events, but responds to touch. **After deactivation, LightSwitch will retain its state at the time of deactivation: on or off.** **Learn more**
Unpair Device	Disconnects the device from the hub and deletes its settings.

LED indication
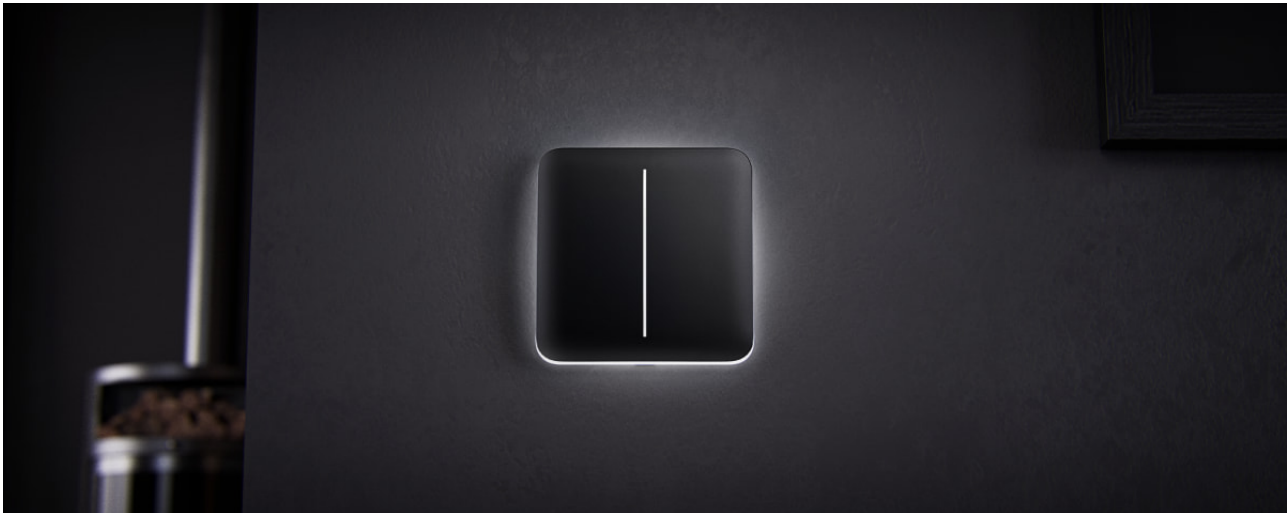
LightSwitch has a backlight that makes the switch visible in the dark. If the frame of the device is backlit, the light is off. When the light is on, the frame is not backlit. The backlight is not bright, so it will not disturb users even if the device is installed near a bed. The backlight can be turned off in the Ajax app if necessary.

If the temperature or current protection of LightSwitch has been triggered, or the touch-sensitive panel removed, the switch flashes red every second.

Malfunctions
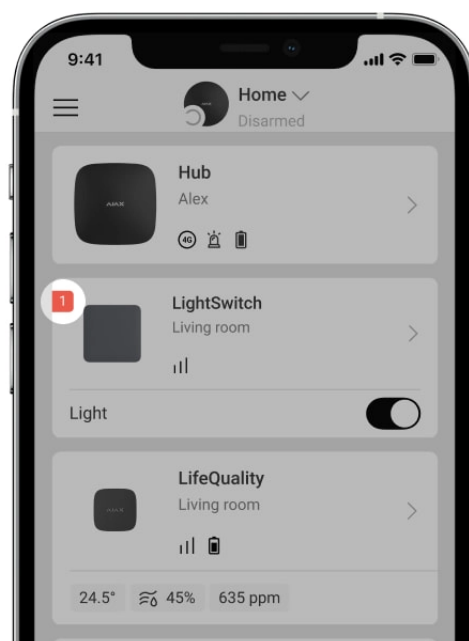
When a device identifies a fault (for example, there is no connection with the hub), the Ajax app displays a fault counter in the device field.

All malfunctions are shown in switch **states**. Fields with malfunctions will be highlighted in red.

A malfunction is displayed if:

- Current protection was activated.

- Temperature protection was activated.

- A device with insufficient power is connected.

- An insufficient power supply is detected.

- There is no connection between LightSwitch and the hub (or range extender).

What to do in case of connection loss with the device
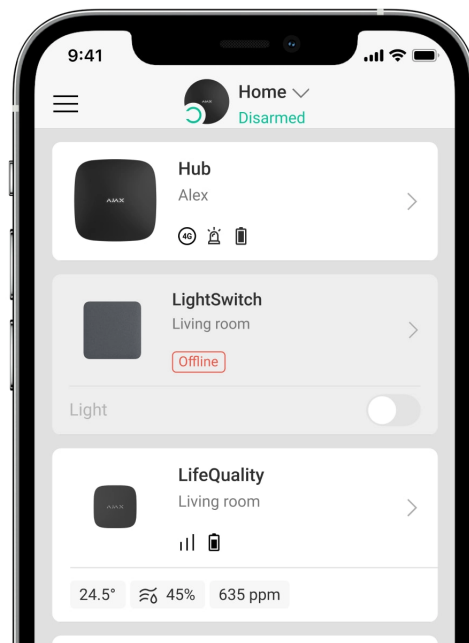
LightSwitch may lose connection with the hub for the following reasons:

- Power is no longer supplied.

- The touch-sensitive panel has been removed (it has antennas on it, which are necessary for communication with the hub or range extender).

- The lighting device is faulty (for example, the incandescent lamp burned out).

- A device with insufficient power (up to 5 W) is connected.

- LightSwitch malfunction.

If an event is received about the loss of communication with the switch, the installer should check:

1. Power supplied on LightSwitch.

2. The presence of a touch-sensitive panel on the switch.

3. The operability of the lighting device.

> **i** If LightSwitch controls a lighting device with insufficient power (up to 5 W), it is necessary to replace the lighting device with a similar one with a higher power or connect a bundled capacitor in parallel with the lighting device.

Maintenance

Check the functioning of the switch regularly. Clean the enclosure from dust, cobwebs, and other contaminants as they emerge. Use a soft dry cloth suitable for equipment care. Do not use substances that contain alcohol, acetone, petrol, and other active solvents to clean the device.

Technical specifications

All technical specifications of LightSwitch

Compliance with standards

Complete set

LightSwitch is a prefabricated smart light switch. All parts are purchased separately.

Warranty

The warranty for the products of the Limited Liability Company "Ajax Systems Manufacturing" is valid for 2 years after purchase.

If the device does not operate properly, we recommend contacting support service first, as in most cases, technical issues can be resolved remotely.

[Warranty obligations](#)

[User Agreement](#)

Contact Technical Support:

- [e-mail](#)

- [Telegram](#)