

EN54 FireProtect (Heat/Smoke) Jeweller user manual

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Revision 3

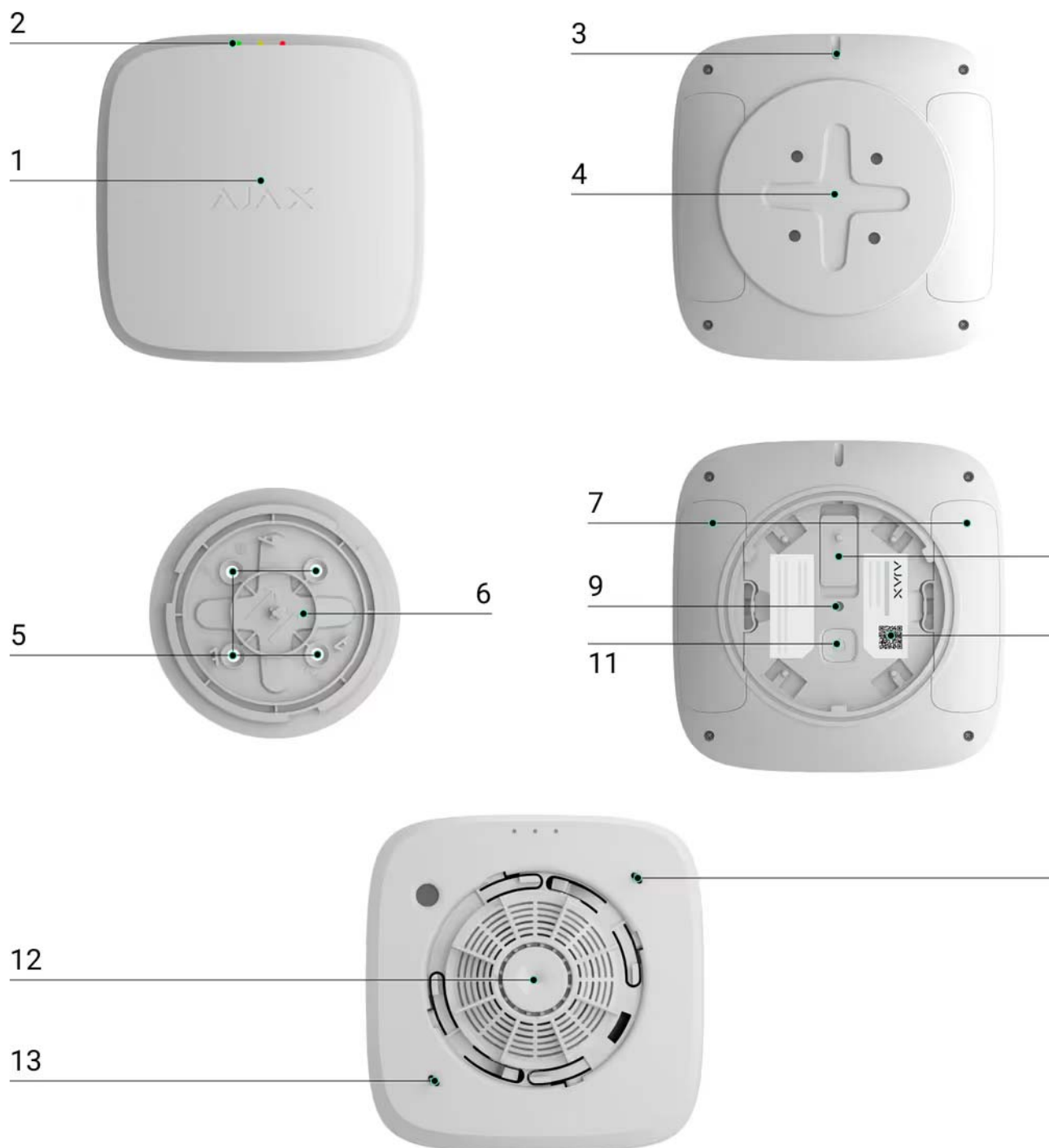


EN54 FireProtect (Heat/Smoke) Jeweller is a wireless addressable point heat and smoke detector. It complies with the EN 54-5 requirements for the Class A1 and Class B heat detectors with rate-of-rise (R) and static (S) response types. The device also meets the EN 54-7 requirements for point-type optical smoke detectors and the EN 54-29 requirements for point detectors using a combination of smoke and heat sensors. The device detects dangerous temperatures and any signs of smoke.

EN54 FireProtect (Heat/Smoke) Jeweller operates as part of an Ajax system and communicates with control and indicating equipment (CIE) via secure Jeweller radio protocol. The communication range with the CIE is up to 1,700 m in open space.

[!\[\]\(e3f8612927870f2e0f9f5989e6dd3064_img.jpg\) Buy EN54 FireProtect \(Heat/Smoke\) Jeweller](#)

Functional elements



1. Front panel of the detector.
2. LED indicators: green, yellow, and red.
3. Hole for a special tool used to unlock the lock.
4. SmartBracket mounting panel. To remove the panel, insert the special tool into the corresponding hole and turn SmartBracket counterclockwise. If the device is unlocked, simply turn SmartBracket counterclockwise.
5. Fixing points to attach SmartBracket to the surface.

6. ↑↑ sign on SmartBracket. You can use it as a reference point to align the device properly when attaching the mounting panel to the surface.
7. Battery compartment lids. To replace the batteries, open the lids.
8. Lock to secure the device on SmartBracket (optionally).
9. Tamper button. It is triggered in case of an attempt to remove the device from the mounting panel.
10. QR code with the device ID. It is used to add the device to the CIE.
11. Power button.
12. Smoke chamber lid.
13. Thermistors that detect dangerous temperatures.

•The smoke chamber lid can be removed only after the enclosure is fully disassembled. The system identifies this action as a fault and responds accordingly. Both users and the monitoring company receive a fault notification.

Compatible CIEs and range extenders

The device requires the Ajax CIE with an up-to-date OS Malevich version.

➤ Check device compatibility

Operating principle

EN54 FireProtect (Heat/Smoke) Jeweller is a wireless fire detector with a heat sensor and smoke sensor, which is designed for indoor installation. The detector is always active and responds to a fire 24/7, regardless of the system's security mode.

EN54 FireProtect (Heat/Smoke) Jeweller supports fire alarm scenarios. Configured in space settings, these scenarios enable automated actions in response to specific triggers and alarms.

➤ How to set up a fire alarm scenario

The detector supports the **Coincidence detection** feature that allows alarm confirmation only if two or more independent detectors are triggered within a defined time window.

➤ How to configure Coincidence detection in EN54 Line systems

EN54 FireProtect (Heat/Smoke) Jeweller is powered by pre-installed batteries and does not require an external power supply. The device continuously monitors its operational state and informs the system of faults if any occur.

EN54 FireProtect (Heat/Smoke) Jeweller is protected by two tamper buttons: one to detect the device removal from the SmartBracket mounting panel, and the other to signal removal of the smoke chamber lid located under the front panel of the detector.

The EN54 FireProtect (Heat/Smoke) Jeweller detection mode can be configured depending on the installation site and fire safety requirements. The device can detect fire by analyzing heat and smoke simultaneously as a combined alarm criterion or by monitoring them independently. The detector can operate using only the heat sensor or only the smoke sensor. The heat sensor class is selected based on environmental conditions to ensure reliable fire detection and minimize false alarms.

Heat sensor

Two built-in thermistors detect a rapid temperature rise or when the temperature exceeds the threshold value. The thermistors trigger an alarm when a rapid temperature rise or static temperature is detected. The threshold temperature, temperature rise rate, and the response time at which the detector raises an alarm depend on the detector settings and comply with the requirements of the EN 54-5 standard.

Available heat sensor modes:

- A1, A1R, A1S.
- B, BR, BS.

i Only the following heat sensor modes are compliant with EN 54 requirements: A1R, A1S, BR, and BS.

Heat sensor mode description

The detector’s heat sensor modes fully correspond to the classification described in this section.

Detector classification temperatures

Detector classification	Typical application temperature °C	Maximum application temperature °C	Minimum static response temperature °C	Maximum static response temperature °C
A1	25	50	54	65
B	40	65	69	85

The "S" suffix means the detector will not trigger below the minimum static response temperature defined for its class – a threshold set above the highest expected ambient temperature. This makes it particularly well-suited for environments where temperature can rise sharply or fluctuate significantly, such as boiler rooms or industrial spaces, without causing false alarms.

The "R" suffix means the detector responds to the rate of temperature rise, not just to a fixed threshold being exceeded. It will trigger when the ambient temperature rises rapidly – even well before reaching the static response temperature – allowing for earlier fire detection. This makes it a good fit for spaces where a sudden heat buildup is a key indicator of fire, including unheated areas like storage rooms, garages, or outbuildings, where background temperatures can be quite low.

Detectors without a suffix (e.g., A1, B) will also respond to rapid temperature changes, but only if the temperature is already above the typical application threshold. These are better suited for environments with more stable ambient temperatures.

Response time limits

Rate of rise of air temperature	Category A1				Categories B & C			
	Lower limit		Upper limit		Lower limit		Upper limit	
K/min	min	s	min	s	min	s	min	s
1	29	0	40	20	29	0	46	0
3	7	13	13	40	7	13	16	0
5	4	9	8	20	4	9	10	0
10	1	0	4	20	2	0	5	30
20	0	30	2	20	1	0	3	13
30	0	20	1	40	0	40	2	25

Smoke sensor

EN54 FireProtect (Heat/Smoke) Jeweller detects smoke using a dual-spectrum optical sensor. Inside the smoke chamber, blue and infrared LEDs emit light at different wavelengths. This technology enables the detector to assess the size of volatile particles inside the chamber and identify the presence of smoke.

The smoke chamber is protected from dust, dirt, and insects. Even if some dust settles inside, it does not compromise fire detection. The optical system is designed to prevent non-volatile particles from getting within the field of both blue and infrared LEDs at the same time, reducing the risk of false alarms.

The HazeFlow 2 software algorithm also helps prevent false alarms. When smoke is detected, the algorithm additionally processes the data received from the detector and confirms the alarm.

Jeweller data transfer protocol

Jeweller is a wireless data transfer protocol that provides fast and reliable two-way communication between the CIE and devices. The device uses Jeweller to transmit commands, alarms, and events.

➤ [Learn more](#)

Sending events to the monitoring station

An Ajax system can transmit alarms to both the [Ajax PRO Desktop](#) app and the monitoring station in the formats of **SurGard (Contact ID)**, **SIA (DC-09)**, **ADEMCO 685**, and [other protocols](#).

The system with EN54 FireProtect (Heat/Smoke) Jeweller installed can transmit the following events:

1. Fire alarm / recovery after the alarm.
2. Heat sensor fault/recovery.
3. Smoke sensor fault/recovery.
4. Smoke chamber is dirty/clean.
5. Battery charge is low/OK.
6. Tamper alarm / tamper button recovery.
7. Loss/recovery of communication between EN54 FireProtect (Heat/Smoke) Jeweller and the CIE.

❗ The system allows disabling fault indication and notifications of Jeweller connection loss for EN54 devices used in mobile environments, such as fire engines.

➤ [How to disable Jeweller connection loss notifications for EN54 devices](#)

When an alarm is received, the operator at the monitoring station knows precisely what happened and where. The addressability of Ajax devices allows sending events to Ajax PRO Desktop or the monitoring software, including the device type, its name, fire zone, virtual room, and location description. Please note that the list of transmitted

parameters may vary depending on the monitoring software and the selected communication protocol for the monitoring station.

i You can find the device ID and zone number in the device [states](#).

Adding to the system

⚠ The detector is designed for indoor installation only.

Follow your local fire safety regulations when selecting the device installation site.

When choosing where to place the detector, consider the parameters that affect its operation:

- Jeweller signal strength.
- Distance between the device and the CIE.
- Presence of obstacles to radio signal or sound transmission.

Consider the placement recommendations when developing a system project. Only specialists may design and install Ajax systems. A list of recommended partners is [available here](#).

Signal strength

The signal strength is determined by the number of undelivered or corrupted data packages over a certain period of time. The  icon in the **Devices**  tab in Ajax apps indicates the signal strength:

- **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.

Note that if the signal strength is excellent, the device can automatically adjust the radio transmission power to reduce power consumption and radio interference.

*Run the radio signal strength survey before final installation. The test checks the signal strength at the device's maximum transmission power. **To comply with EN 54 requirements,**

the signal strength between the device and the CIE must be Medium or Strong.

If the signal strength is **Weak** during the test, we do not guarantee the device will operate stably. Consider relocating the detector, as adjusting its position even by 20 cm or rotating it relative to the CIE can significantly improve the signal strength. If the signal remains poor or unstable after relocation, consider using an [Ajax radio signal range extender](#).

Refer to the [Functionality testing](#) section to learn how to run the radio signal strength survey.

Where not to install the device

- Outdoors. This can lead to detector failure.
- Indoors, where the temperature and humidity are outside the permissible limits. This may damage the detector.
- In places with fast air circulation. For example, near fans, vents, open windows, or doors. This may interfere with fire detection.
- Opposite any objects whose temperature changes rapidly, such as electric and gas heaters. This may cause false alarms.
- In the corners of the room. This may interfere with fire detection.
- In bathrooms, showers, or other areas where the temperature changes rapidly. This may cause false alarms.
- In premises where the generation of gases, vapors, or smoke is part of normal operations. For example, in a garage, where exhaust fumes can cause false alarms. For such environments, we recommend using a detector with a heat sensor.
- In very dusty areas or places with an abundance of insects. Dust, insects, and other contaminants may settle on the smoke chamber lid, interfering with fire detection.
- Near lighting fixtures, decorations, and other interior items that may interfere with the circulation of air on the premises. This may interfere with fire detection.
- On surfaces that are usually warmer or colder than the rest of the premises. For example, on skylights. Temperature fluctuations may interfere with fire detection.
- In places with low or unstable Jeweller signal strength. This may result in losing connection to the CIE.
- Closer than to the CIE or radio signal range extender.

Installation



▲Before installing EN54 FireProtect (Heat/Smoke) Jeweller, ensure that you have selected the optimal location that complies with the requirements of this manual.

Only a professional must install this device.

To install the device:

1. Remove the SmartBracket mounting panel from the device. To remove the panel, turn it counterclockwise.

▲Use the device only with FP.54HS.J-000-EU, FP.54H.J-000-EU, FP.54HA.J-000-EU, FP.54S.J-000-EU, or FP.54SA.J-000-EU SmartBracket mounting panels.

2. Attach the SmartBracket panel to the surface using the bundled screws for all fixing points. When using other fasteners, make sure they do not damage or deform the mounting panel. The ↑↑ sign on SmartBracket is for informational purposes only. It can help you align the device properly.



3. Add EN54 FireProtect (Heat/Smoke) Jeweller to the CIE.
4. To additionally secure the device on SmartBracket with the lock, move the locking mechanism to  position. In this case, you will need to insert a special tool into the corresponding hole to remove the mounting panel.



5. Place the device on the SmartBracket mounting panel.
6. Adjust the device position if necessary. The SmartBracket mounting panel allows the detector to be rotated up to 90°.
7. Run the device functionality testing.

Adding to the system

▲The CIE and the device must operate at the same radio frequency; otherwise, they are incompatible. The radio frequency range of the device may vary based on the region. We recommend purchasing and using Ajax devices in the same region. You can verify the range of operating radio frequencies with the technical support service.

Before adding the device

1. Install an [Ajax app](#).
2. Log in to your [account](#) or create a new one.
3. Select a [space](#) or create a new one.
4. Add at least one [virtual room](#).
5. Add a [compatible CIE](#) to the space. Ensure the CIE is switched on and has internet access via Ethernet, Wi-Fi, and/or mobile network.
6. Check the states in the Ajax app to ensure the space is disarmed and the CIE is not starting an update.

⚠ Only a PRO or a space admin with the rights to configure the system can add the device to the CIE.

➤ Types of accounts and their rights

Adding to the CIE

1. Open an [Ajax app](#). Select a [space](#) to which you want to add the device.
2. Go to the **Devices**  tab and select **Add device**.
3. Scan the QR code or enter the device ID manually. A QR code with the ID is placed on the device under the SmartBracket mounting panel. Also, it is duplicated on the device packaging.



4. Assign a name to the device.
5. Select a fire zone and a virtual room.
6. If necessary, specify the device location in the **Location** field.
7. Select **Add device**, and the countdown will begin.
8. Switch on the device by holding the power button for 3 seconds.



Once added to the CIE, the device will appear in the list of CIE devices in the Ajax app. The update frequency for device states in the list depends on the **Jeweller** settings and is 36 seconds by default.

If the connection fails, try again in 5 seconds. If the maximum number of devices has already been added to the CIE, you will receive an error notification when you try to add more.

- EN54 FireProtect (Heat/Smoke) Jeweller works with only one CIE. When added to a new CIE, the device stops sending events to the old one. After the device is added to a new CIE, it will not be automatically removed from the device list of the old CIE. This must be done through the Ajax app.

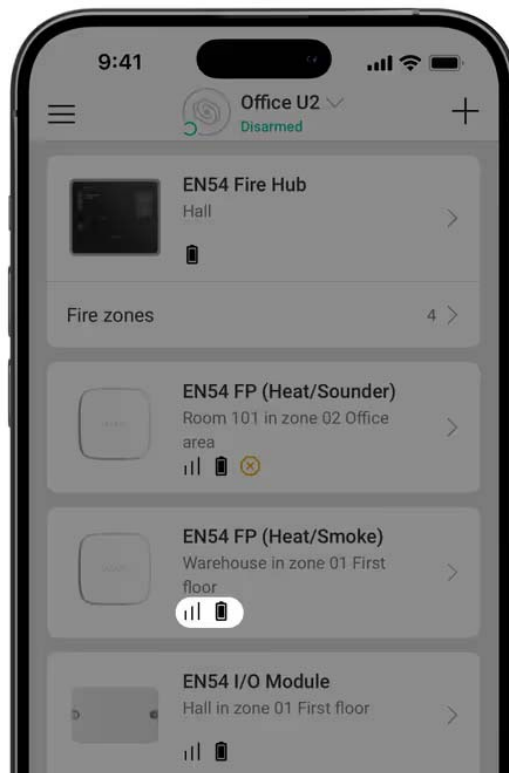
Functionality testing

An Ajax system provides the **Radio signal strength survey** to help select the correct installation place for the devices. The test allows you to determine the signal strength and stability between the CIE (or the radio signal range extender) and the device via the wireless Jeweller data transfer protocol at the device installation site.

To run the test:

- Open an Ajax app. Select a space with the added device.
- Go to the **Devices**  tab.
- Select **EN54 FireProtect (Heat/Smoke) Jeweller**.
- Go to Settings .
- Select **Radio signal strength survey**.

Icons

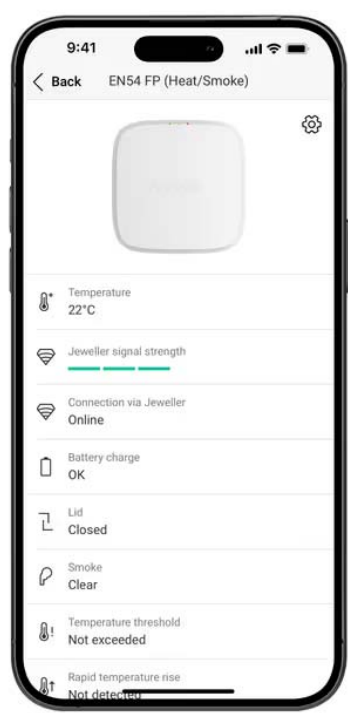


Icons in an Ajax app display some of the EN54 FireProtect (Heat/Smoke) Jeweller states. You can check the icons in the **Devices**  tab.

Icon	Meaning
	Jeweller signal strength. It displays the signal strength between the CIE or the range extender and the device. The recommended value is 3 bars. Learn more
	Battery charge level of the device. Learn more
	The device operates via the radio signal range extender. Learn more
	The detector has detected a rapid temperature rise.
	The detector has detected that the temperature threshold has been exceeded.
	EN54 FireProtect (Heat/Smoke) Jeweller has a fault. The list of faults is available in the device states .
	The device test is in progress.
	EN54 FireProtect (Heat/Smoke) Jeweller is completely or partially disabled.

Offline	The device has lost connection to the CIE, or the CIE has lost connection to the Ajax Cloud server.
Not transferred	The device has not been transferred to the new CIE. Learn more

States



The states include information about the device and its operating parameters. You can find the states of EN54 FireProtect (Heat/Smoke) Jeweller in Ajax apps:

- 1. Go to the Devices  tab.
- 2. Select **EN54 FireProtect (Heat/Smoke) Jeweller** from the list.

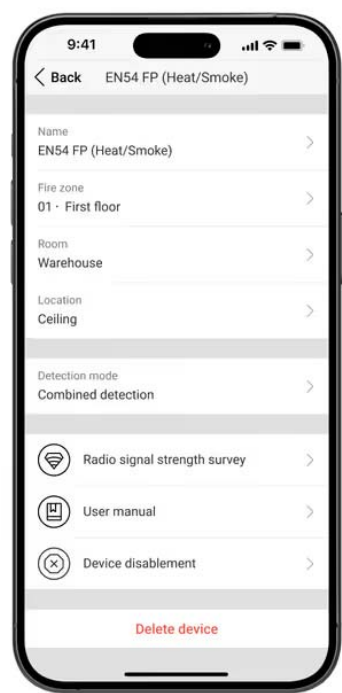
Parameter	Meaning
Alarm	The device has detected a fire. Tapping on  opens detailed information about the fire location. The field is displayed only if a fire is detected.
Data import	Displays the error when the data is being transferred to the new CIE:

	• Failed — the device has not been transferred to the new CIE. Learn more
Fault	The device has faults. Tapping on ■ opens the list of EN54 FireProtect (Heat/Smoke) Jeweller faults. The field is displayed only if a fault is detected.
Disabled	The device or some of its functions are disabled. It does not respond to the alarm or notify users and the monitoring station. Tapping on ■ opens a list of disabled device functions. The field is displayed only if the device is completely or partially disabled.
Temperature	Air temperature on the premises where the device is installed. Measured in degrees Celsius or Fahrenheit, depending on the app settings. In the normal state, the temperature value is displayed in black. When the temperature rises, the field is highlighted in red.
Jeweller signal strength	Jeweller signal strength between the device and the CIE (or the radio signal range extender). The recommended value is 3 bars. Jeweller is a protocol for transmitting commands, events, and alarms.
Connection via Jeweller	The connection state via the Jeweller channel between the device and the CIE (or the range extender): • Online — the device is connected to the CIE (or the range extender). Normal state. • Offline — the device is not connected to the CIE (or the range extender). Check the device connection.
Range extender name	The connection state between the device and the radio signal range extender. • Online — the device is connected to the range extender. • Offline — the device is not connected to the range extender. The field is displayed if the device operates via the radio signal range extender.

Battery charge	The device's battery charge level. Three states are available: • OK. • Battery low. • Error. When the batteries need to be replaced, users and the monitoring company will receive appropriate notifications. Learn more
Lid	The state of the device's tamper button that responds to the detachment or opening of the device enclosure: • Open — the device is removed from the SmartBracket mounting panel, or its integrity is compromised. Check the device mounting. • Closed — the device is installed on the SmartBracket mounting panel. The integrity of the device enclosure and the mounting panel is not compromised. Normal state. Learn more
Smoke	State of the smoke detection by the device: • Clear — No signs of smoke detected. The device is operating normally. • Detected — the device has detected signs of smoke. The system is in fire alarm mode.
Temperature threshold	Alarm state if a temperature threshold is exceeded: • Not exceeded — normal state; the detector does not detect a temperature threshold being exceeded. • Alarm — the detector has detected that a temperature threshold has been exceeded. If a temperature threshold exceedance is detected, the text field is highlighted in red. Learn more
Rapid temperature rise	Alarm in case of a rapid temperature rise: • Not detected — normal state; the detector does not detect a rapid temperature rise. • Alarm — the detector has detected a rapid temperature rise. If a rapid temperature rise is detected, the text field is highlighted in red. Learn more
Fire zone	The number and name of the fire zone to which the device is assigned.
Room	The name of the room to which the device is assigned.

Location	The detailed device location description.
Firmware	Device firmware version.
Device ID	The EN54 FireProtect (Heat/Smoke) Jeweller ID. It is also available on the QR code on the device enclosure and on its packaging.
Device No.	Number of the device loop (zone).

Settings



To change EN54 FireProtect (Heat/Smoke) Jeweller settings, in an Ajax app:

1. Go to the **Devices**  tab.
2. Select **EN54 FireProtect (Heat/Smoke) Jeweller** from the list.
3. Go to **Settings** .
4. Set the required settings.
5. Select **Back** to save the new settings.

Settings	Meaning
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Name	Name of the device. It is displayed in the list of CIE devices, SMS text, and notifications in the event feed. To change the device name, tap on the text field. The name can contain up to 24 Latin characters or up to 12 Cyrillic characters.
Fire zone	Selecting the fire zone to which EN54 FireProtect (Heat/Smoke) Jeweller is assigned. The fire zone is displayed in the text of SMS and notifications in the event feed.
Room	Selecting the virtual room to which EN54 FireProtect (Heat/Smoke) Jeweller is assigned. The room name is displayed in the text of SMS and notifications in the event feed.
Location	The detailed location of the device. It is displayed next to the room in the event feed notifications. The location text can contain up to 24 Latin or Cyrillic characters.
Detection mode	Opens a menu with Detection mode settings. Learn more
Radio signal strength survey	Switching the device to the radio signal strength survey. The test allows you to check the signal strength between the CIE (or the radio signal range extender) and the device via the wireless Jeweller data transfer protocol to select the optimal installation site. Learn more
User guide	Opening the EN54 FireProtect (Heat/Smoke) Jeweller user manual in an Ajax app.
Device disablement	The option allows for deactivating the device or its specific functions. The device remains within the system but no longer detects signs of fire or raises an alarm.
Delete device	Unpairing the device, disconnecting it from the CIE, and deleting its settings.

Detection mode settings

Settings	Meaning
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Detection mode	Selecting the signs of fire the device will detect. • Combined detection (by default) – the device analyzes heat and smoke signs simultaneously. • Heat and smoke – both sensors are active but operate independently. • Heat – only the heat sensor is active. • Smoke – only the smoke sensor is active.
Heat sensor mode	Selecting the heat sensor mode depending on the installation site: • A1 • A1R • A1S • B • BR • BS ▲If the EN 54 compliance mode is enabled, the A1 and B heat sensor modes are not available. The setting is not available when the Smoke detection mode is selected.

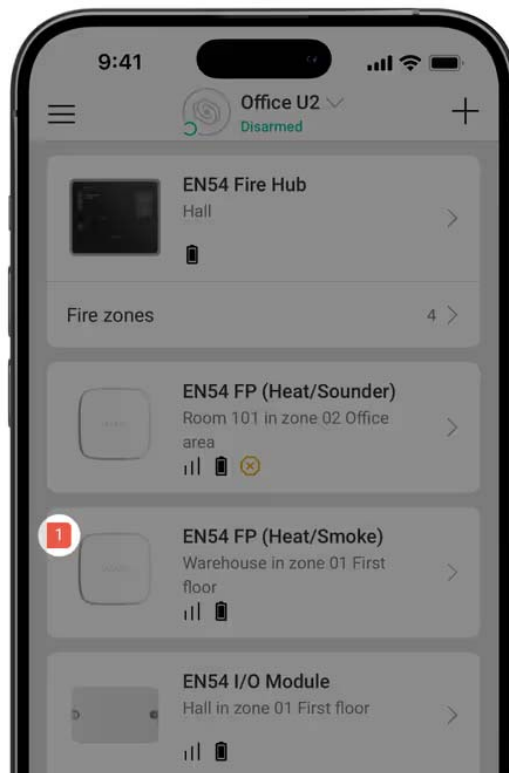
Indication

The EN54 FireProtect (Heat/Smoke) Jeweller LED indicators inform about alarms, faults, and other device states.

Event	System LED indication	Note
Alarm.	The red LED lights up for 1 second, then goes off for 1 second constantly.	The device stops alarming as soon as the fire alarm is reset. Also, you can mute the alarm by tapping the Silence alarm button on the CIE touch screen or in an Ajax app.
Turning on the device.	The green, yellow, and red LEDs light up in turn and then go off.	Press the power button until the green LED lights up.
Turning off the device.	The green, yellow, and red LEDs light up simultaneously and then go off in reverse order.	Press the power button until the red LED goes off.

Adding to the CIE is in progress.	The green LED is permanently on.	The indication turns off after the detector is added to the CIE.
The device has been removed from the CIE.	The green LED flashes 6 times in a row.	The indication turns on when the detector receives information that it has been removed from the CIE.
The battery is completely discharged.	The yellow LED constantly flashes.	The battery needs to be replaced.
Turning off the device when the battery is completely discharged.	The green, yellow, and red LEDs light up simultaneously and then go off in reverse order.	The battery needs to be replaced.
Tamper alarm. The device has been removed from the SmartBracket mounting panel.	The yellow LED lights up for 1 second.	
The device is installed on the SmartBracket mounting panel.	The green LED lights up for 1 second.	
Performing the radio signal strength survey.	The indication depends on the signal strength: • Strong — the green LED lights up continuously; • Medium — the yellow LED lights up continuously; • Weak — the red LED lights up continuously; • No signal — the red LED flashes rapidly.	

Faults



When an EN54 FireProtect (Heat/Smoke) Jeweller fault is detected, an Ajax app displays a fault counter on the device icon. All faults are indicated in the device states. Fields with faults are highlighted in yellow. Also, faults are displayed in the **Control** tab of the CIE display. More details about the fault can be found in the **Event center** or **Fire zones** tabs of the CIE.

A fault of the EN54 FireProtect (Heat/Smoke) Jeweller is displayed if:

1. The device is removed from the SmartBracket mounting panel, or its integrity is compromised (a tamper button has been triggered).
2. There is no connection to the CIE or radio signal range extender via Jeweller.
3. The device battery is low.
4. The device has a hardware fault (failure of one or more device components).

An admin or a user with **access level 2** can disable the notifications of Jeweller connection loss. The **Deactivate notifications** feature allows disabling fault indication and notifications of Jeweller connection loss for EN54 devices used in mobile environments, such as fire engines.

How to disable Jeweller connection loss notifications for EN54 devices ➤

Maintenance

Regularly check the device operation. Clean the device enclosure from dust, cobwebs, and other contaminants as they emerge. Use soft, dry wipes suitable for equipment maintenance. Do not use substances that contain alcohol, acetone, gasoline, or other active solvents to clean the device.

The smoke chamber is protected from dust and insects, so it requires no cleaning.

The pre-installed batteries provide up to 5 years of autonomous operation with the standard Jeweller settings (the polling interval is 36 seconds). If the batteries are low, the system will send an appropriate notification.

We recommend replacing the batteries immediately upon receiving the notification. It is advisable to use **Huiderui CR123A, 3 V, 1,600 mAh, LiMnO₂** batteries.

❗ Ensure the batteries are installed with the correct polarity. The polarity is marked inside the enclosure. After replacing the batteries, run the [functionality test](#) to ensure the device operates properly.

How long Ajax devices operate on batteries, and what affects this ➤

Technical specifications

[All technical specifications](#)

[Compliance with standards](#)