

Relay User Manual

Updated April 17, 2020



Relay is a wireless relay with a potential-free dry contact intended for switching appliances and devices on and off, powered by a 7–24 V DC source. The relay also has a pulse equipment control function. It is connected to the Ajax security system by the Jeweller secure protocol, the distance range is up to 1,000 meters if there are no obstacles.



The relay should be only installed by a qualified electrician! Regardless of the type of the electrical circuit in which the device is installed.

The built-in relay contacts are not galvanically connected to the device itself, so they can be connected to input control circuits for different equipment, imitating a button, switch, etc.



Operates only with [Ajax hubs](#). Not compatible with the [uartBridge](#) or [ocBridge Plus](#)

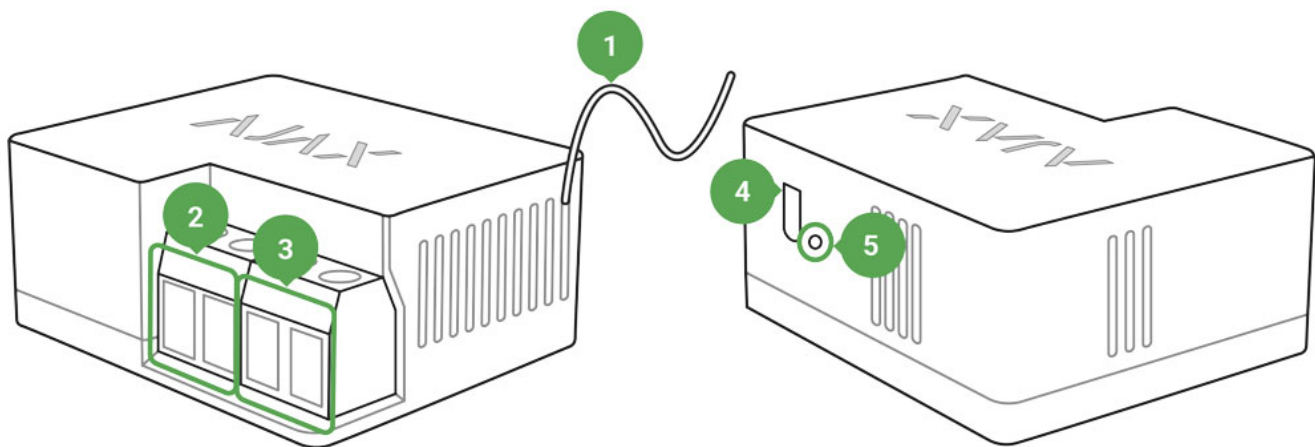
Use scenarios to program actions of [automation devices](#) (Relay, WallSwitch or Socket) in response to an alarm, pressing of the [Button](#) or by schedule. A scenario can be created remotely in the Ajax app.

How to create and configure a scenario in the Ajax security system

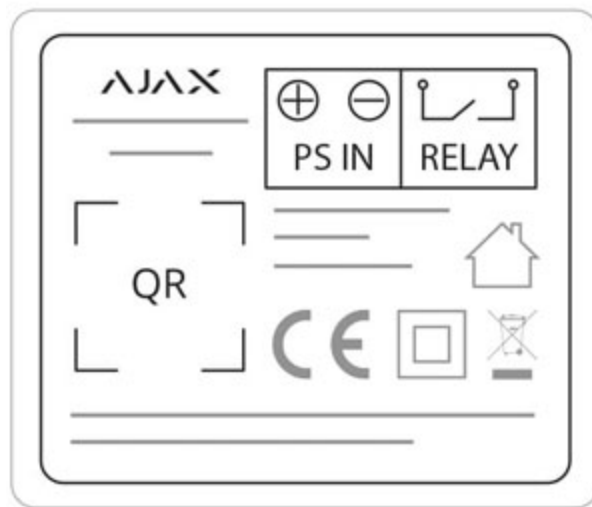
The Ajax security system is self-sustaining, but the user can connect it to the central monitoring station of a private security company.

Buy low-tension relay Relay

Functional Elements



1. Antenna
2. Power supply terminal block
3. Contacts terminal block
4. Function button
5. Light indicator



- **PS IN terminals** – “+” and “-” contact terminals, 7-24 V DC power supply.
- **Relay terminals** – output potential-free terminals of Relay contact terminals.

Relay Operating Principle



IMPORTANT: Do not connect the Relay power supply terminals to 110–230 V electric mains! Do not connect the Relay to a power supply with a voltage exceeding 36 V. It creates a fire hazard and will damage the device!

The Relay is powered by a 7–24 V DC source. The recommended voltage values for the Relay are 12 V and 24 V.

The Relay connection and setup is carried out via the [Ajax Security System mobile app](#).

The built-in relay contacts are not galvanically connected to the device itself, so they can be connected to input control circuits for different equipment, imitating a button, switch, etc.

Relay can be used to power various loads (sirens, water shut off valves, electromagnetic locks).

The miniature body of the device enables it to be installed inside a junction box, electric switchboard, or the cases of switching units.

The device relay closes and opens the contact terminals on command via the Ajax Security System application. The feasibility of automatic turning on/off of the Relay in response to the arming or disarming of the system has also been implemented.

Relay operation modes:

- **Bistable** — the relay operates in the switch mode closing/opening contact terminals.
- **Pulse** —the relay closes/opens contact terminals for a specified period of time.



In the pulse mode, the Relay will close/open contact terminals for 0.5 to 15 seconds and then it will automatically perform the reverse action.

Connecting to the hub

Before starting connection:

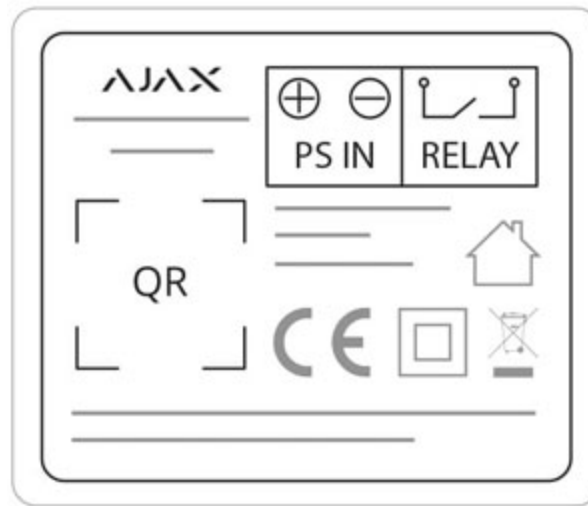
1. Following the hub instruction recommendations, install the [Ajax application](#) on your smartphone. Create an account, add the hub to the application, and create at least one room.
2. Go to the Ajax application.
3. Switch on the hub and check the internet connection (via Ethernet cable and/or GSM network).
4. Ensure that the hub is disarmed and does not start updates by checking its status in the mobile application.
5. Connect Relay to the power supply and wait for 30 seconds.



Only users with administrative privileges can add the device to the hub

How to connect the detector to the hub:

1. Select the **Add Device** option in the Ajax application.
2. Name the device, scan/write manually the **QR Code** (located on the body and packaging), and select the location room.



3. Select **Add** – the countdown will begin.
4. Press the Relay function button.

For the detection and interfacing to occur, the device should be located within the coverage area of the wireless network of the hub (at a single protected object).

Request for connection to the hub is transmitted for a short time at the time of switching on the device.

If the connection to the hub fails, wait for 30 seconds and retry the connection procedure.

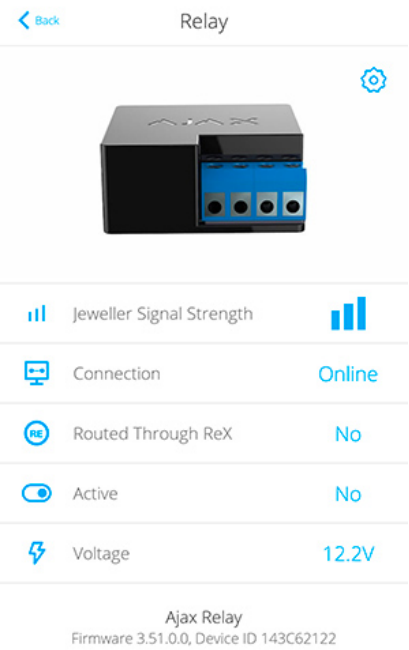
The Relay connected to the hub will appear in the list of devices of the hub in the application. Update of the detector statuses in the list depends on the device inquiry time set in the hub settings, with the default value – 36 seconds.



Once the relay is switched on for the first time, it will be disengaged! Once the Relay is removed from the Ajax system, the switch will disengage the relay!

State

- 1. Devices
- 2. Relay



Parameter	Value
Jeweller Signal Strength	Signal strength between the hub and the relay
Connection	Connection status between the hub and the relay
Routed Through ReX	Displays the status of using the ReX range extender
Active	State of the relay contacts (closed / open)
Voltage	The current input voltage level of Relay
Firmware	Device firmware version
Device ID	Device identifier


Settings


- 1. Devices


2. Relay


3. Settings


[< Back](#) Relay Settings


Relay 


Room: office 


Relay Mode Pulse 

Contact State Normally Closed 

Pulse Duration, sec 5 

 Scenarios (beta)

 Jeweller Signal Strength Test

 User Guide

Unpair Device

Settings	Value
First field	Device name, can be edited
Room	Selecting the virtual room to which the device is assigned
Relay mode	<div>Choosing the relay operation mode</div> <ul style="list-style-type: none">PulseBistable
Contact state	<div>Normal contact state</div> <ul style="list-style-type: none">Normally closedNormally open
Pulse duration, sec	Selecting the pulse duration in the pulse mode (from 0.5 to 15 seconds)
Scenarios	Opens the menu for creating and configuring scenarios
Jeweller Signal Strength Test	Switches the relay to the signal strength test

	mode
User Manual	Opens the Relay Manual
Unpair Device	Disconnects the relay from the hub and deletes its settings

Voltage protection — the contact will be opened when the voltage falls outside the limits of 6.5–36.5 V.

Temperature protection — the contact will be opened when the threshold temperature of 85°C is reached inside the Relay.

Indication

The Relay light indicator may light up green depending on the device status.

The green LED of Relay will blink intermittently if it is not assigned to the hub. When the functional button is pressed, the green LED lights up.

Functionality Testing

The Ajax security system allows conducting tests for checking the functionality of connected devices.

The tests do not start straight away but within a period of 36 seconds when using the standard settings. The test time start depends on the settings of the detector scanning period (the paragraph on “**Jeweller**” settings in hub settings).

Signal Strength Test

Installation of the Relay



The relay should be only installed by a qualified electrician! Regardless of the type of the electrical circuit in which the device is installed.

Communication range with the hub absent any obstacles between the devices – up to 1,000 meters. Take account of this when choosing the location for Relay.

If the device has a low or unstable signal strength, use a radio signal range extender ReX.

1. De-energize the cable to which Relay will be connected.
2. Connect the power supply cable to the Relay terminals, and then the Relay contact terminals to the required circuit with wires/cable of a sufficient cross-section. It's recommended to use cables with cross-section of 1.5 – 2 mm².
3. If the device is installed in a connection box, install the antenna outside. The further the antenna is located away from metal structures, the less the chance of radio signal shielding. The antenna must not be shortened under any circumstances.



During the Relay installation and operation, follow the general electrical safety rules for using electrical devices, as well as the requirements of the electrical safety regulations. It is expressly prohibited to disassemble the device.

Do not install the Relay:

1. Outside the premises (outdoors).
2. In metal junction boxes and electric service panels.
3. In rooms with a temperature and humidity outside the allowable limits.
4. Closer than 1 m from the hub.

Maintenance

The device does not require maintenance.

Tech Specs

Actuating element	Electromagnetic relay
The service life of the relay	200,000 switchings
Supply voltage range	7 – 24 V (DC only)
Voltage protection	Yes, min – 6.5 V, max – 36.5 V
Maximum load current*	5 A at 24 V DC, 13 A at 230 V AC
Maximum current protection	No
Parameter control	Yes (voltage)
Device energy consumption	Less than 1 W·h
Frequency band	868.0 – 868.6 MHz or 868.7 – 869.2 MHz depending on the region of sale
Compatibility	Operates only with Hub , Hub Plus , Hub 2 and ReX
Effective radiated power	3.99 mW (6.01 dBm), limit – 25 mW
Modulation of the radio signal	GFSK
Maximum distance between the device and the hub	Up to 1000 m (any obstacles absent)
Communication ping with the receiver	12 – 300 sec (36 sec default)
Shell protection rating	IP20
Operation temperature range	From 0°C to +64°C (ambient)
Max. temperature protection	Yes, over 65°C at the place of installation or over 85°C inside the Relay
Operating humidity	Up to 75%
Dimensions	39 x 33 x 18 mm
Weight	25 g



If using inductive or capacitive load, the maximum commutated current decreases to 3 A at 24 V DC and to 8 A at 230 V AC!

Complete Set

1. Relay
2. Connecting wires – 2 pcs
3. Quick Start Guide

Warranty

Warranty for the “AJAX SYSTEMS MANUFACTURING” LIMITED LIABILITY COMPANY products is valid for 2 years after the purchase.

If the device does not work correctly, you should first contact the support service—in half of the cases, technical issues can be solved remotely!

[The full text of the warranty](#)

[User Agreement](#)

Technical support: support@ajax.systems