

# Relay User Manual

Updated December 8, 2021



**Relay** is a wireless, low-voltage relay featuring potential-free (dry) contacts. Use Relay to remotely switch on/off appliances powered by a 7–24 V DC source. Relay can operate both in pulse and bistable mode. The device communicates with a hub via [Jeweller](#) radio protocol. In the line of sight, the communication distance is up to 1,000 m.



Regardless of the type of electrical circuit, only a qualified electrician should install Relay!

The Relay contacts are not galvanically connected to the device itself, so they can be connected to the input control circuits of various equipment to imitate a button, toggle switch, etc.



Relay is compatible only with [Ajax hubs](#) and does not support connecting via [uartBridge](#) or [ocBridge Plus](#).

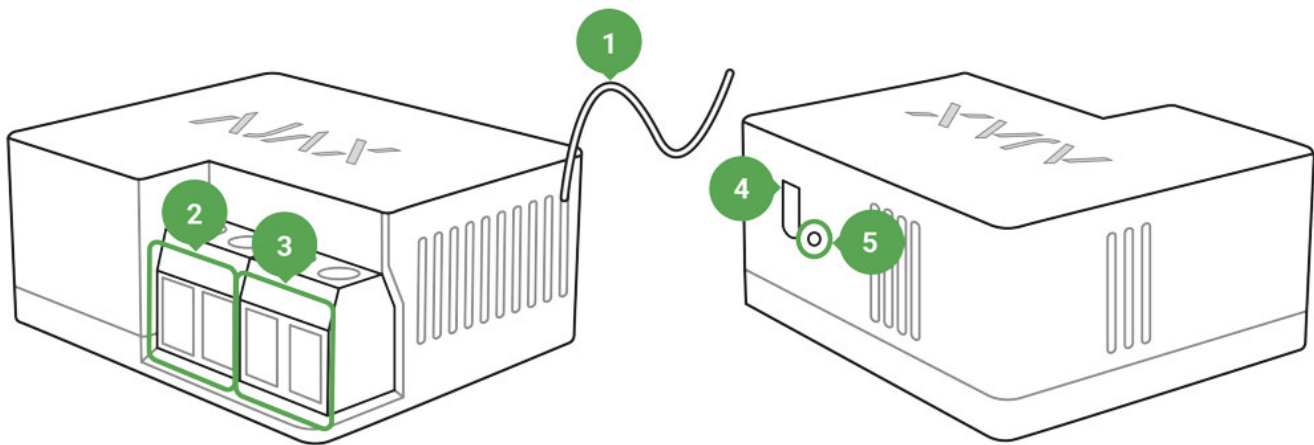
Use scenarios to program actions of [automation devices](#) (Relay, WallSwitch or Socket) in response to an alarm, [Button](#) press or schedule. A scenario can be created remotely in the Ajax app.

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

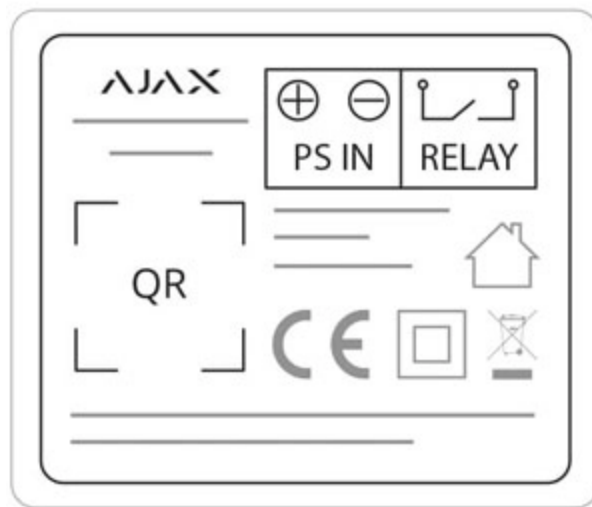
The Ajax security system can be connected to the central monitoring station of a security company.

### 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 input power supply.
- **Relay terminals** – output potential-free terminals.

## Operating Principle



Do not connect Relay power supply input terminals to a voltage exceeding 36 V or alternate current sources. It creates a risk of fire and will damage the device!

Regardless of the type of electrical circuit, only a qualified electrician should install Relay!

Relay is powered by a 7–24 V DC source. The recommended voltage values are 12 V, and 24 V. Use the [Ajax Security System app](#) to connect and set up Relay.

Relay features dry (potential-free) contacts. The contacts are not connected to the device galvanically so that Relay can imitate a button, switch, etc. in electrical circuits of various voltages (sirens, electrical valves, electromagnetic locks). The miniature body makes it possible to install Relay inside a junction box, switchboard, or a switch.

Relay closes and opens the contacts by user command from the app or automatically by scenario.

## Relay operation modes:

- **Bistable** – Relay opens or closes contact and remains in this state.
- **Pulse** – Relay opens or closes contacts for a pre-set time (from 0.5 to 255 seconds) then switches back to the initial state.

## Connecting to the hub

### Before connecting the device:

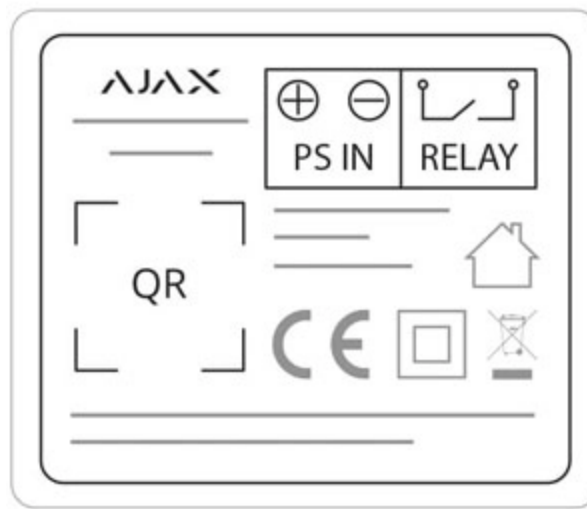
1. Switch on the hub and check its Internet connection (the logo glows white or green).
2. Install the [Ajax app](#). Create the account, add the hub to the app, and create at least one room.
3. Make sure that the hub is not armed, and it does not update by checking its status in the Ajax app.
4. Connect Relay to 12 or 24 V power supply.



Only users with administrator rights can add a device to the app

### To pair Relay with a hub:

1. Click **Add device** in the Ajax app.
2. Name the device, scan it, or enter the **QR code** manually (located on the case and packaging), select the room.



3. Click **Add** – the countdown will begin.

4. Press the functional button.

For detection and pairing to occur, the device should be located in the coverage area of the hub's wireless network (at the same object). The connection request is transmitted only at the moment of switching on the device.

If the device failed to pair, wait 30 seconds and then retry. Relay will appear in the list of hub devices.

The device statuses update depends on the ping interval set in the hub settings. The default value is 36 seconds.



When switching on for the first time, Relay contacts are open! When deleting Relay from the system, contacts open!

## States


1. Devices -

2. Relay


Parameter	Value
Jeweller Signal Strength	Signal strength between the hub and Relay

Connection	Connection status between the hub and the relay
Routed Through ReX	Displays the status of using a <u>radio signal range extender</u>
Active	State of the relay contacts (closed / open)
Voltage	The current input voltage
Temporary Deactivation	Displays the status of the device: active or completely disabled by the user
Firmware	Device firmware version
Device ID	Device identifier

## Settings

1. Devices 

2. Relay

3. Settings 

Settings	Value
First field	Device name, can be edited
Room	Selecting the virtual room to which the device is assigned
Relay Mode	Choosing the relay operation mode <ul style="list-style-type: none"> <li>• Pulse</li> <li>• Bistable</li> </ul>
Contact State	Normal contact state <ul style="list-style-type: none"> <li>• Normally Closed</li> <li>• Normally Open</li> </ul>
Pulse duration, sec	Selecting the pulse duration in the pulse mode:

	From 0.5 to 255 seconds
Scenarios	<p>Opens the menu for creating and configuring scenarios</p> <p><a href="#"><u>Learn more</u></a></p>
Jeweller Signal Strength Test	Switches the relay to the signal strength test mode
User Guide	Opens the Relay User Manual
Temporary Deactivation	<p>Allows a user to deactivate the device without removing it from the system. The device will not execute system commands and participate in automation scenarios. All notifications and alarms will be ignored</p> <p><b>Please note that deactivated device will save it's current state (active or inactive)</b></p>
Unpair Device	Disconnect Relay from a hub and delete its settings

**Voltage protection** – the contact will open when the voltage exceeds the limits of 6.5–36.5 V.

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

## Indication

The Relay light indicator can light green depending on the device status.

When not paired with the hub, the light indicator blinks periodically. When the functional button is pressed, the light indicator lights up.

## Functionality Testing

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

The tests do not start immediately but within a period of 36 seconds when using default settings. The test time start depends on the settings of the detector ping interval (the **Jeweller** menu in the hub settings).

## Jeweller Signal Strength Test

## Installation of the Device



Regardless of the type of electrical circuit, only a qualified electrician should install Relay.

The communication range with the hub in the line of sight is up to 1,000 meters. Take this into account when choosing the location for Relay.

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

## Installation process:

1. De-energize the cable to which Relay will be connected.
2. Connect the grid wire to the Relay terminals according to the following scheme:

When installing Relay in the box, lead out the antenna and place it under the plastic frame of the socket. The bigger the distance between the antenna and metal structures, the lower the risk of interfering (and impairment) of the radio signal.



Do not shorten the antenna! Its length is optimal for operation within the used radio frequency range!



During the installation and operation of Relay, follow the general electrical safety rules and the requirements of electrical safety regulatory acts.

It is strictly forbidden to disassemble the device. Do not use the device with damaged power cables.

### **Do not install the relay:**

1. Outdoors.
2. In metal wiring boxes and electrical panels.
3. In places with temperature and humidity exceeding the permissible limits.
4. Closer than 1 m to a 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 36 V DC, 13 A at 230 V AC
Operating modes	Pulse and bistable
Pulse duration	0.5 to 255 seconds
Maximum current protection	No
Parameter control	Yes (voltage)
Device energy consumption	Less than 1 W
Radio communication protocol	Jeweller

## [Learn more](#)

Radio frequency band	866.0 – 866.5 MHz 868.0 – 868.6 MHz 868.7 – 869.2 MHz 905.0 – 926.5 MHz 915.85 – 926.5 MHz 921.0 – 922.0 MHz Depends on the region of sale.
Compatibility	Operates only with all Ajax <a href="#">hubs</a> , and <a href="#">radio signal range extenders</a>
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)  <a href="#">Learn more</a>
Communication ping with the receiver	12 – 300 sec (36 sec default)
Shell protection rating	IP20
Operating 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 × 33 × 18 mm
Weight	25 g
Service life	10 years



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!

## [Compliance with standards](#)

# 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](mailto:support@ajax.systems)