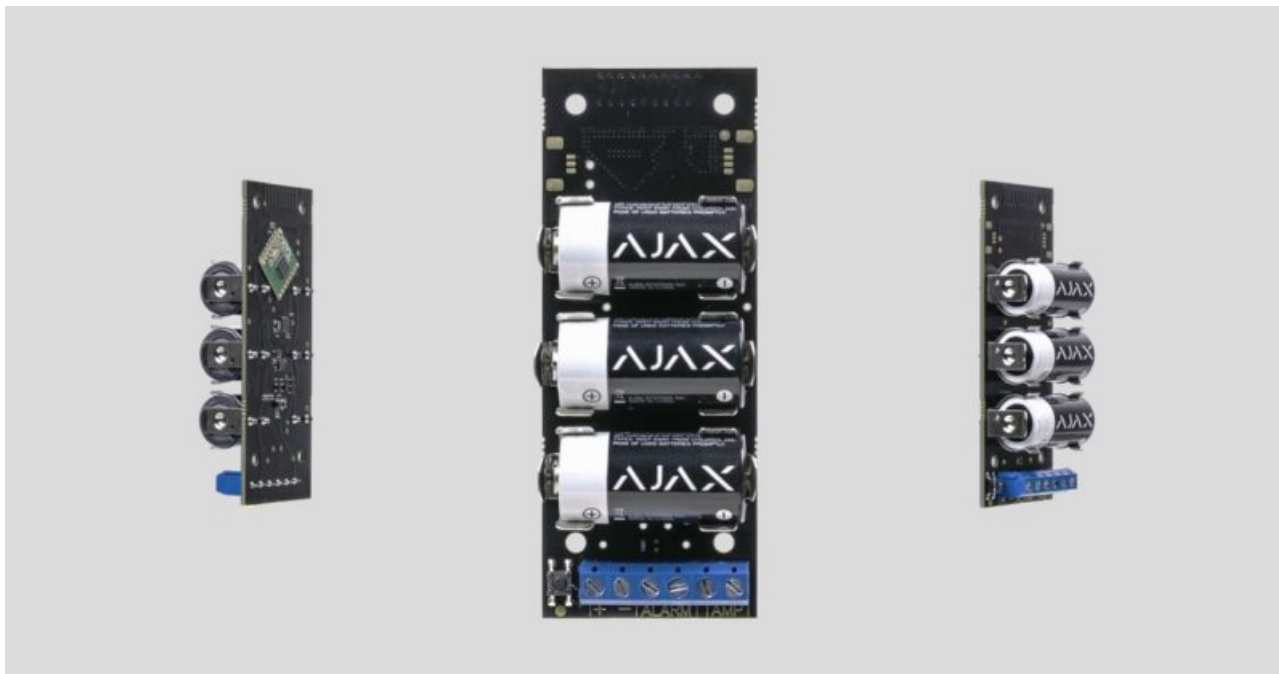# Transmitter User Manual

Updated June 10, 2020

Transmitter is a module for connecting third-party detectors to Ajax security system. It transmits alarms and warns about the activation of the external detector tamper and it is equipped with own accelerometer, which protects it from dismounting. It runs on batteries and can supply power to the connected detector.

Transmitter operates within the Ajax security system, by connecting via the protected **Jeweller** protocol to the **hub**. It is not intended to use the device in third-party systems.

> ⚠️ Not compatible with the **uartBridge** or **ocBridge Plus**

The communication range can be up to 1,600 meters provided that there are no obstacles and the case is removed.

Transmitter is set up via a **mobile application** for iOS and Android based smartphones.

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

☞   Buy integration module Transmitter

Functional Elements
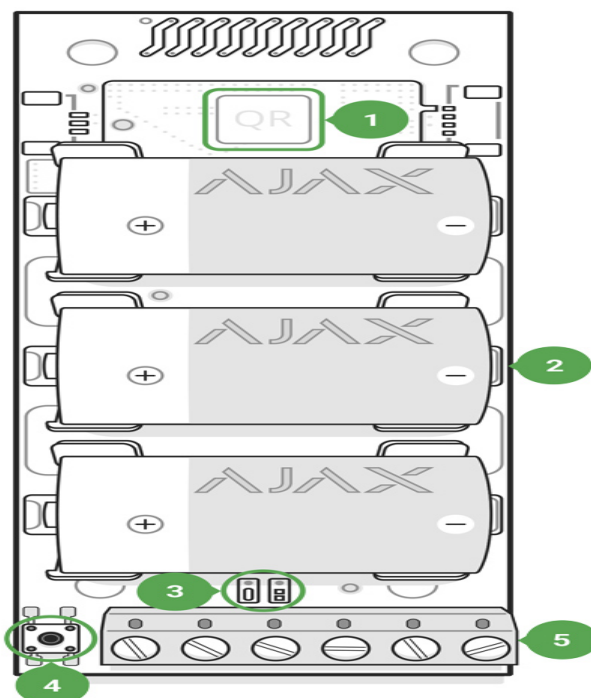
1. QR code with the device registration key.

2. Batteries contacts.

3. LED indicator.

4. ON/OFF button.

5. Terminals for detector power supply, alarm and tamper signals.

Operation procedure

The Transmitter serves for connecting the external alarm sources to Ajax system: indoor and outdoor detectors tracking motion, opening, vibrations, breaks, fire, gas, leakage, etc. Compatible with detectors with NC/NO contacts.

Transmitter receives information about alarms and the activation of the external detector tamper button through the terminals. A separate pair of terminals ensures power supply to the external detector from the module batteries with 3.3 V.
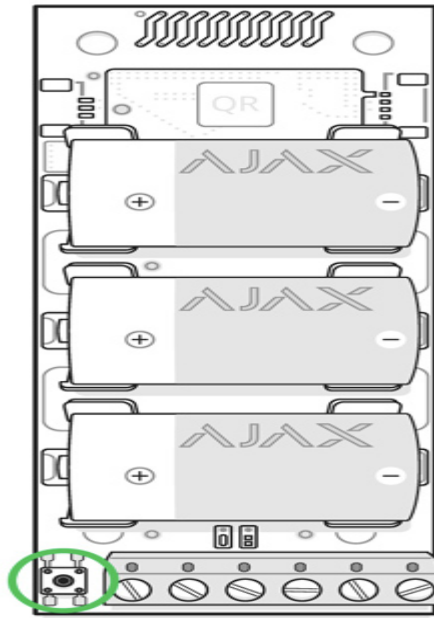
Connecting to the hub

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.

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

How to connect the Transmitter 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. Switch on the device (by pressing on/off button for 3 seconds).

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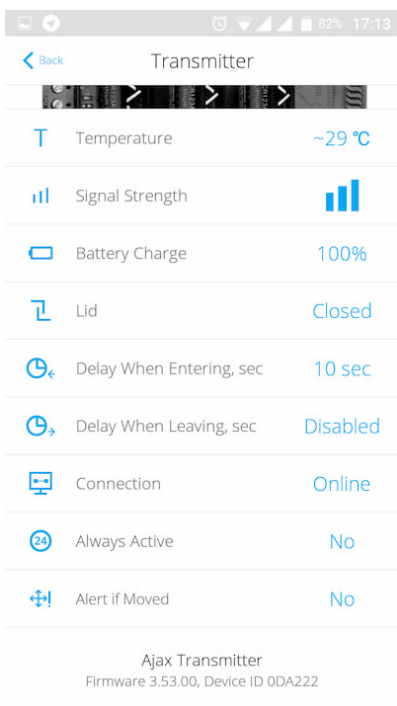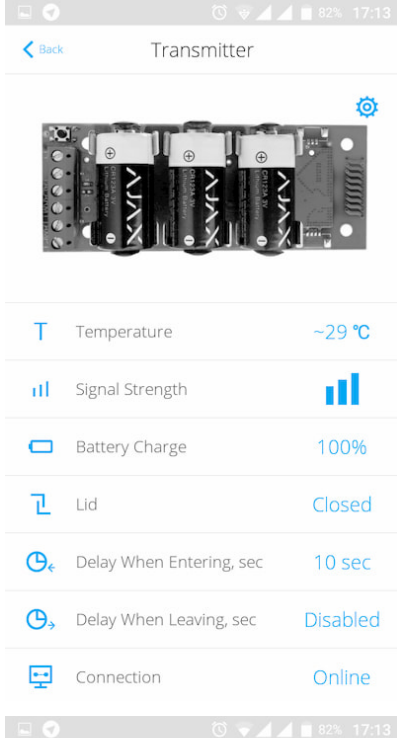
Request for connection to the hub is transmitted for a short time at the time of switching on the device.

If the connection to the Ajax hub failed, the Transmitter will switch off after 6 seconds. You may repeat the connection attempt then.

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

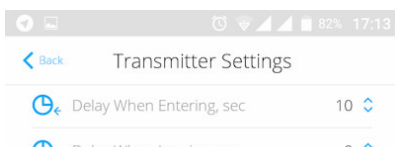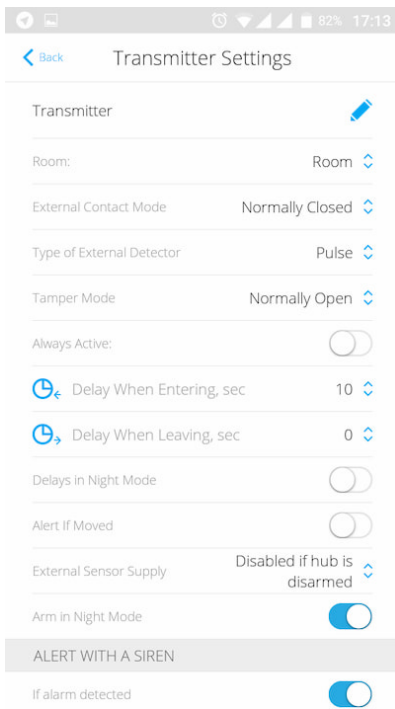## States

1. Devices

2. Transmitter

⚙

T	Temperature	~29 ℃
il	Signal Strength	▮▮▮
▭	Battery Charge	100%
⤵	Lid	Closed
⏱	Delay When Entering, sec	10 sec
⏱	Delay When Leaving, sec	Disabled
💻	Connection	Online

T	Temperature	~29 ℃
il	Signal Strength	▮▮▮
▭	Battery Charge	100%
⤵	Lid	Closed
⏱	Delay When Entering, sec	10 sec
⏱	Delay When Leaving, sec	Disabled
💻	Connection	Online
24	Always Active	No
✛	Alert if Moved	No

Ajax Transmitter
Firmware 3.53.00, Device ID 0DA222

Parameter	Value
Temperature	Temperature of the device. Measured on the processor and changes gradually
Signal Strength	Signal strength between the hub and the device
Battery Charge	Battery level of the device, displayed in increments of 25%
Lid	The tamper terminal state
Delay when entering, sec	Delay time when entering
Delay when leaving, sec	Delay time when exiting
Connection	Connection status between the hub and the Transmitter

Always Active	If active, the device is always in an armed mode
Alert if moved	It turns on the Transmitter accelerometer, detecting device movement
Firmware	Detector firmware version
Device ID	Device identifier

Settings

1. Devices

2. Transmitter

3. Settings ⚙
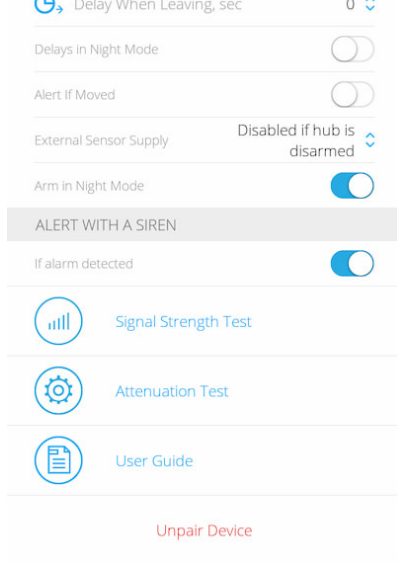
Setting	Value
First field	Device name, can be edited
Room	Selecting the virtual room to which the device is assigned
Contact status of the external detector	Selection of the external detector normal status: • Normally closed (NC) • Normally opened (NO)
Type of the external detector	Selection of the external detector type: • Pulsed • Bistable
Tamper mode	Selection of the normal tamper mod for an external detector: • Normally closed (NC) • Normally opened (NO)
Always active	When the mode is active, the Transmitter transmits alarms even when the system is disarmed
Delay when entering, sec	Selecting delay time when entering
Delay when leaving, sec	Selecting delay time on exit
Delays in night mode	Delay turned on when using night mode

Alert if moved	The accelerometer turning on the Transmitter to provide an alarm in the event of device movement
Power supply of the external detector	Turning the power on in 3.3 V external detector: • Disabled if hub is disarmed • Always disabled • Always active
Arm in night mode	If active, the device will switch to armed mode when using night mode
Activate the siren if an alarm is detected	If active, **HomeSiren** and **StreetSiren** actuate if an alarm is detected
Signal Strength Test	Switches the device to the signal strength test mode
Attenuation Test	Switches the device to the signal fade test mode (available in detectors with **firmware version 3.50 and later**)
User Guide	Opens the device User Guide
Unpair Device	Disconnects the device from the hub and deletes its settings

Set the following parameters in the Transmitter settings:

- **The state of the external detector contact**, which can be normally closed or normally open.

- **The type (mode) of the external detector** that can be bistable or pulse.

- **The tamper mode**, which can be normally closed or normally open.

- **The accelerometer-triggered alarm** — you can turn this signal off or on.

Select the power mode for the external detector:

- **Turned off when the hub is disarmed** — the module stops powering the external detector upon disarming and does not process signals from the ALARM terminal. When arming the detector, the power supply resumes, but the alarm signals are ignored for the first 8 seconds.

- **Always disabled** — the Transmitter saves energy by turning off the power of the external detector. The signals from the ALARM terminal are processed both in the pulse and bistable modes.

- **Always active** — this mode should be used if there are any problems in the "Turned off when the hub is disarmed". When the security system is armed, signals from the ALARM terminal are processed no more than once in three minutes in the pulse mode. If the bistable mode is selected, such signals are processed instantly.

If the "Always active" operating mode is selected for the module, the external detector is powered only in the "Always active" or the "Turned off when the hub disarmed" mode, regardless of the security system status.

Indication

Event	Indication
The Module is switched on and registered	The LED lights up when the ON button is briefly pressed.
Registration failed	LED blinks for 4 seconds with an interval of 1 second, then blinks 3 times rapidly (and automatically switches OFF).
The Module is deleted from the list of hub devices	LED blinks for 1 minute with an interval of 1 second, then blinks 3 times rapidly (and automatically switches OFF).
The Module has received alarm/tamper signal	The LED lights up for 1 second.
Batteries are discharged	Smoothly lights up and goes out when the detector or tamper is activated.

Performance 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).

Connection of the Module to the wired detectora

Location of the Transmitter determines its remoteness from the hub and presence of any obstacles between the devices hindering the radio signal transmission: walls, inserted floors, large-size objects located within the room.

> ⚠️ Check the signal strength level at the installation location

If the signal level is one division, we cannot guarantee stable operation of the security system. Take possible measures to improve the quality of the signal! As a minimum, move the device – even 20 cm shift can significantly improve the quality of reception.

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

The Transmitter should be encased inside the wired detector case. The Module requires a space with the following minimum dimensions: 110 x 41 x 24 mm. If the installation of the Transmitter within the detector case is impossible, then any available radiotransparent case could be used.

1. Connect the Transmitter to the detector through the NC/NO contacts (choose the relevant setting in the application) and COM.

> ℹ️ The maximum cable length for connecting the sensor is 150 m (24 AWG twisted pair). The value may vary when using different type of cable.

The function of the Transmitter's terminals
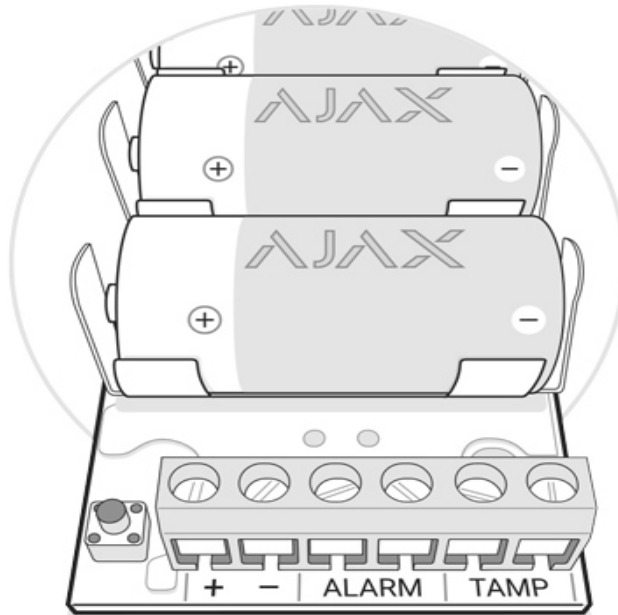
+ − — power supply output (3.3 V)
ALARM — alarm terminals
TAMP — tamper terminals

> ⚠ IMPORTANT! Do not connect external power to the Transmitter's power outputs. This may damage the device

2. 2. Secure the Transmitter in the case. Plastic bars are included in the installation kit. It is recommendable to install the Transmitter on them.

Maintenance and Battery Replacement

The device does not require maintenance when mounted in the housing of a wired sensor.

Battery Replacement

Tech Specs

Connecting a detector	ALARM and TAMPER (NO/NC) terminals
Mode for processing alarm signals from the detector	Pulse or Bistable
Power	3 x CR123A, 3V batteries

Capability to power the connected detector	Yes, 3.3V
Protection from dismounting	Accelerometer
Frequency band	868.0–868.6 MHz or 868.7 – 869.2 MHz, depends on sales region
Compatibility	Operates only with **Hub**, **Hub Plus**, **Hub 2** and **ReX**
Maximum RF output power	Up to 20 mW
Modulation	GFSK
Communication range	Up to 1,600 m (any obstacles absent)
Ping interval for the connection with the receiver	12–300 sec
Operating temperature	From -25°C to +50°C
Operating humidity	Up to 75%
Dimensions	100 x 39 x 22 mm
Weight	74 g

Complete Set

1. Transmitter

2. Battery CR123A — 3 pcs

3. Installation kit

4. Quick Start Guide

Warranty

Warranty for the "AJAX SYSTEMS MANUFACTURING" LIMITED LIABILITY COMPANY products is valid for 2 years after the purchase and does not apply to the pre-installed battery.

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**

Technical support: **support@ajax.systems**

Need help?

In this section you'll find detailed manuals and educational videos about all features of Ajax. And in case you need help of a technical specialist, we're available 24/7.

Send request