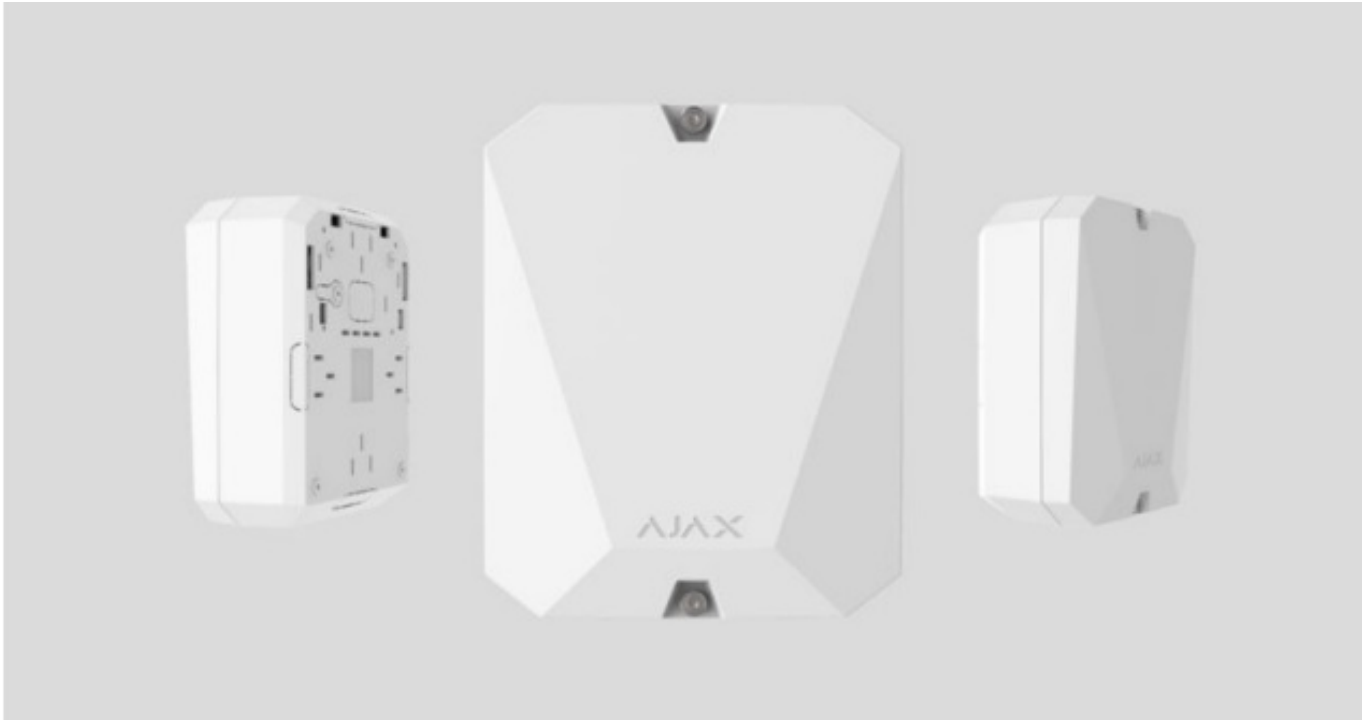
AJAX 20355 MultiTransmitter System User Manual

Contents

AJAX 20355 MultiTransmitter System



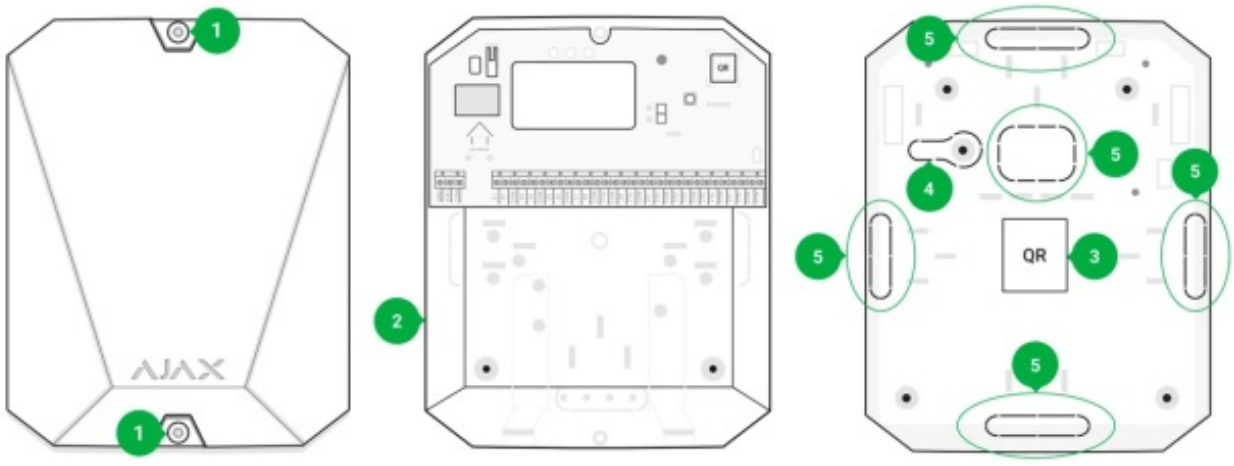
MultiTransmitter is an integration module with 18 wired zones for connecting third-party detectors to the Ajax security system. To protect against dismantling, MultiTransmitter is equipped with two tampers. It is powered from the mains 100–240 V AC, and can also run on a 12 V backup battery. It can supply 12 V power to connected detectors. MultiTransmitter operates as part of the Ajax security system by connecting via the Jeweller secure radio communication protocol to the hub. The hub communication range is up to 2,000 meters provided there are no obstacles. If jamming or interference is detected, the “high level of interference at Jeweller frequencies” event is transmitted to the central monitoring station of the security company and system users.

Note: Not compatible with Oxbridge Plus, uartBridge, and third-party security central units

The device connects to the hub and is configured through Ajax apps on iOS, Android, macOS, and Windows. All alarms and user events are reported by push notifications, SMS, and calls if enabled. Ajax security system can be connected to the central monitoring station of the security company. The list of authorized partners is available here.

Functional elements

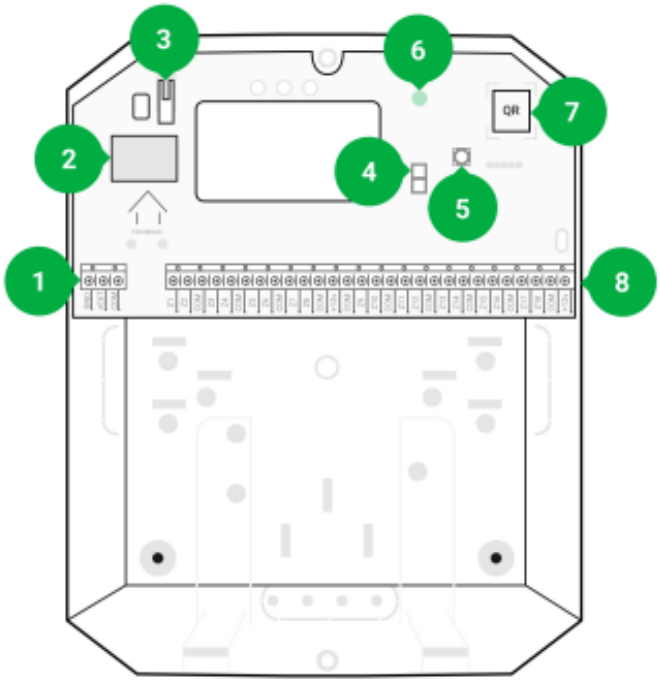
Body elements



1. Screws securing the body lid. Unscrew with bundled hexagon key (Ø 4 mm)
2. Cavity for backup battery

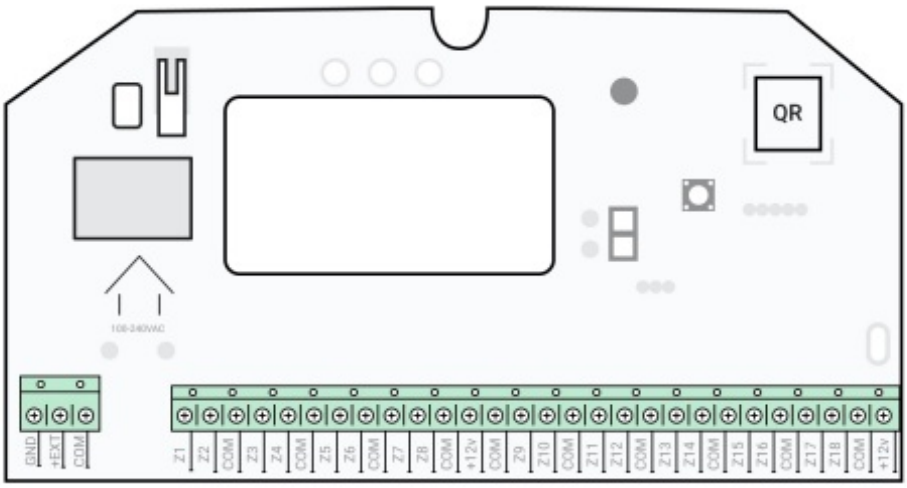
   Note: Battery not included with MultiTransmitter set
3. QR code and ID/serial number of the device
4. Perforated part of the body. It is necessary for tamper triggering in case of dismounting attempts
5. Perforated part of the body for the output of wires of connected detectors and devices

MultiTransmitter card elements



1. Power supply terminals for fire detectors
2. Power supply input 110/230 V
3. Tamper button. Signals if MultiTransmitter body lid is removed
4. Terminals for connecting a 12 V backup battery
5. Power button
6. LED indicator
7. QR code and ID/serial number of the device
8. Terminals for connecting wired detectors (zones)

MultiTransmitter terminals



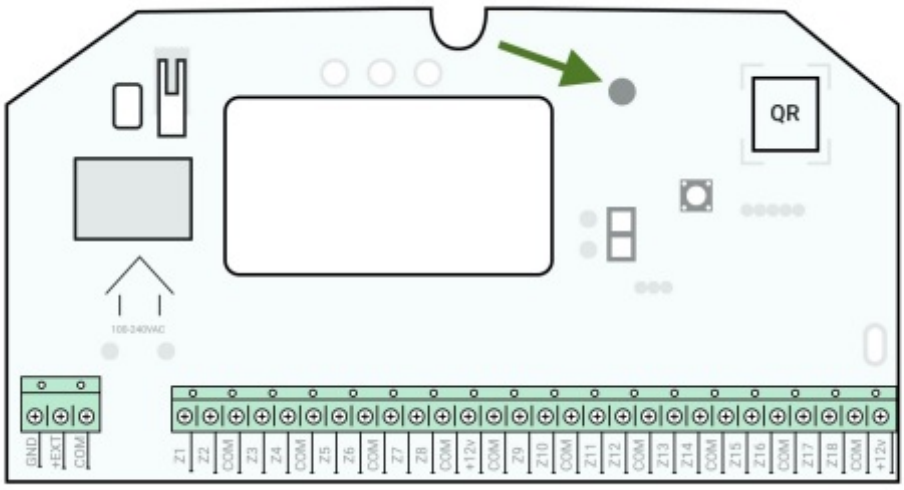
Left-hand terminals:

- GND — MultiTransmitter common ground
- +EXT — 12 V power supply output for re detectors
- COM — common input for connecting power supply circuits and signal contacts of wired detectors

Right-hand terminals:

- Z1–Z18 — input for wired detector connection
- +12 V — 12 V power supply output for wired detectors
- COM — common input for connecting power supply circuits and signal contacts of wired detectors

LED indication



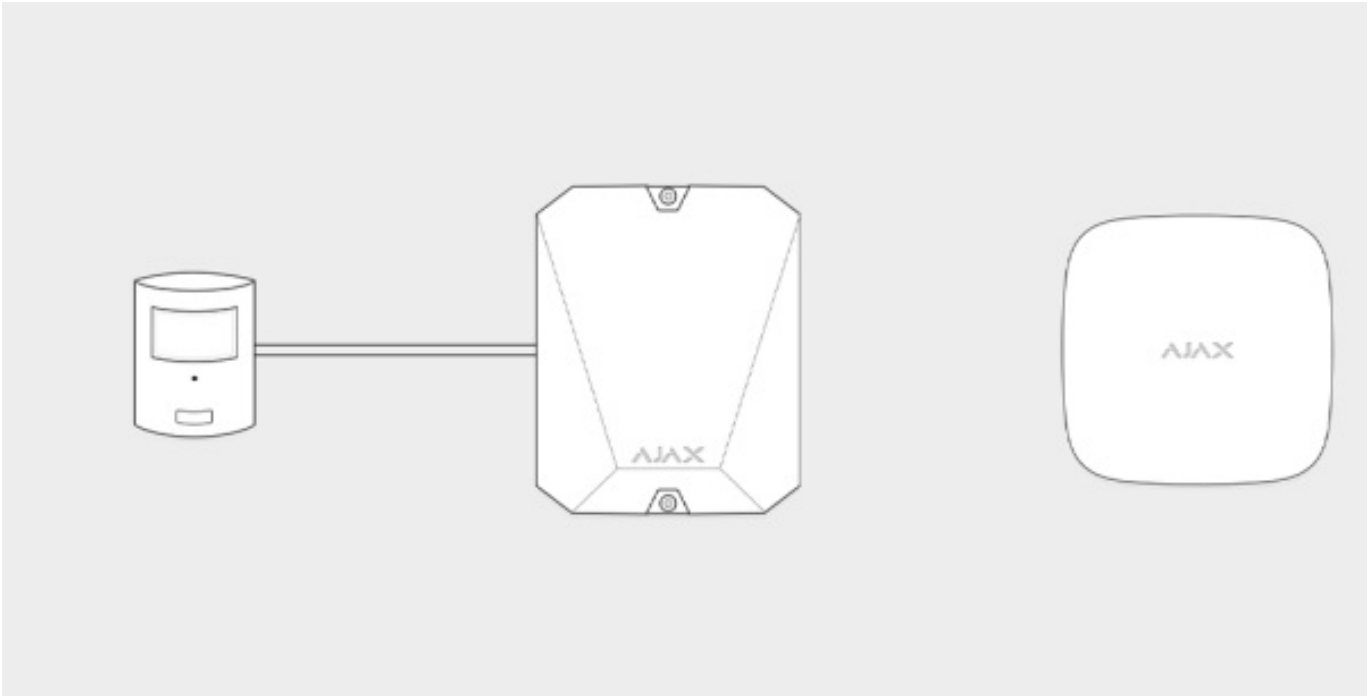
MultiTransmitter LED indicator may light up white, red, or green, depending on the status of the device. Please note that the LED indicator is not visible when the body lid is closed, but the status of the device can be found in the Ajax app.

LED indication	Event	Note
Lights white	Connection with the hub is establis hed, external power supply is conn ected	
Lights red	There is no connection with the hu b, external power supply is connect ed	For example, the hub is turned off o r MultiTransmitter is outside the cov erage area of the hub's wireless net work
Goes out for 0.5 seconds, then light s up green and turns off	Switching off the MultiTransmitter	
Blinks red once per second	MultiTransmitter is not assigned to t he hub	
		Lights up white if there is connectio n with hub.
Lights up for a second once every 1 0 seconds	No external power supply is connected to MultiTransmitter	Lights up red if there is no hub conn ection
During an alarm, gradually lights up and goes out once every 10 second s	No external power supply and disc harged external battery of MultiTra nsmitter	Lights up white if there is connectio n with hub. Lights up red if there is no hub conn ection

Note: If MultiTransmitter is not assigned to the hub or has lost connection with it, the integration module will not give an indication of the battery status or the presence of external power supply.

Operating principle

MultiTransmitter is designed for connecting third-party wired detectors and devices to the Ajax security system. The integration module receives information about alarms and triggering of detector tampers via wires connected to the terminals.



MultiTransmitter can be used to connect panic and medical alarm buttons, indoor and outdoor motion detectors, as well as detectors tracking opening, vibration, breaking, fire, gas, leakage, etc. The type of device is indicated in the zone settings. The text of notifications about alarms and events of the connected device, as well as event codes transmitted to the Central Monitoring Station (CMS) of the security company depend on the selected device type.

A total of 6 types of devices are available:

Type	**Icon**
Tamper	
Intrusion alarm	
Fire alarm	
Medical alarm	
Panic button	
Gas concentration alarm	

MultiTransmitter has 18 wired zones. The number of connected devices depends on their power consumption. The total maximum current consumption of all connected devices or detectors is 1 A.

Supported connection types:

Designation	Type
NO	Normally open
NC	Normally closed. Without resistors
EOL (NC with resistors)	Normally closed. With resistors
EOL (NO with resistors)	Normally open. With resistors

How to connect a wired detector or device to MultiTransmitter

The integration module has 3 power supply lines of 12 V: one dedicated line for other detectors and two — for other devices.

Note: After the fire alarm, fire detectors need a power reset to restore normal operation. Therefore, the fire detectors power supply should only be connected to a dedicated line. Also, avoid connecting other detectors and devices to power terminals of fire detectors as this may lead to false alarms or incorrect operation of the devices.

Event transmission to the monitoring station

Ajax security system can connect to the CMS and transmit alarms to the monitoring station in Sur-Gard (ContactID) and SIA protocol formats. The loop (zone) number of the integration module and the devices connected to it can be found in Ajax apps, in the Groups menu of the hub settings. To learn the loop (zone) number, select the group in which the integration module is located or the desired connected device. The Device Number (or DeviceIndex in Ajax PRO Desktop) corresponds to the loop (zone) number.

Connecting to the hub

For the Ajax security system, MultiTransmitter acts as a single device and each connected device or detector occupies a single slot in the limited number of the hub devices — 100 in Hub and Hub 2, 150 in Hub Plus, and 200 in Hub 2 Plus.

Note: Wired detectors can be connected to MultiTransmitter both before and after connecting the module to the hub.

Before starting connection

1. Install the Ajax app. Create an account **.** Add a hub to the app and create at least one room.
2. Check that the hub is on and has access to the internet (via Ethernet cable, Wi-Fi, and/or mobile network). You can do this in the Ajax app or by looking at the hub logo on the front panel. The logo should light up white or green if the hub is connected to the network.
3. Ensure that the hub is disarmed and does not start updates by checking its status in the app.
   Note: Only users with administrator rights can add MultiTransmitter to the hub.

In order to connect MultiTransmitter

1. Go to the Devices tab in the Ajax app and click Add Device.
2. Name the integration module, scan or enter the QR code manually (located on the body and packaging), and

select the placement room.

3. Click Add; the countdown will begin.
4. Turn on MultiTransmitter by holding the power button for 3 seconds. Keep in mind that the request to connect to the hub is transmitted only when the integration module is turning on.|

   Note: For the detection and pairing to occur, the integration module should be located within the coverage area of the hub's wireless network (at the same guarded object).

If the connection has failed, disconnect MultiTransmitter for 5 seconds and try again.
If the integration module has already been assigned to another hub, turn off the integration module, and then follow the standard addition procedure.
The connected integration module will appear in the app, in the hub's list of devices. Updating device statuses in the list depends on the ping time dened in Jeweller settings. The default value is 36 seconds.

MultiTransmitter states

Icons

Icons display some of the MultiTransmitter states. You can view them in the Ajax app, in the Devices tab .

Icon	Value
	Jeweller signal strength — displays the signal strength between the hub and MultiTransmitter
	A fire detector connected to MultiTransmitter has registered an alarm
	MultiTransmitter battery charge level
	MultiTransmitter has a malfunction. The list is available in the integration module states
	MultiTransmitter works through a ReX radio signal range extender

States

States can be found in the Ajax app:

1. Go to the Devices tab .
2. Select MultiTransmitter from the list.

Parameter	Value

Malfunction	Click to open the list of MultiTransmitter malfunctions The field is displayed only if a malfunction is detected.
Jeweller Signal Strength	Signal strength between the hub and MultiTransmitter
Connection	Connection status between the hub and MultiTransmitter
Battery Charge	Battery level of the device. Displayed as a percentage **How battery charge is displayed in Ajax apps**
Lid	The status of tampers that respond to detachment or violation of the integrity of the body **What is a tamper**
External Power	The presence of external power supply 110/230 V
ReX “range extender name”	The ReX range extender connection status. Displayed if MultiTransmitter is working via a **ReX radio signal range extender**
Detector power line	Status of detector power terminals: **OK** — terminals in normal condition **Shorted** — terminals are shorted

Fire detector power line	Status of power supply terminals of fire detectors: **OK** — terminals in normal condition **Shorted** — terminals are shorted

Temporary Deactivation	Shows the status of the device temporary deactivation function: **No** — the device operates normally and transmits all e vents. **Lid only** — the hub administrator has disabled notifica tions about triggering on the device body. **Entirely** — the device is completely excluded from the system operation by the hub administrator. The device does not follow system commands and does not repor t alarms or other events. **By number of alarms** — the device is automatically di sabled by the system when the number of alarms is ex ceeded (specified in the settings for Devices Auto Dea ctivation). The feature is configured in the Ajax PRO a pp. **By timer** — the device is automatically disabled by the system when the recovery timer expires (specified in t he settings for Devices Auto Deactivation). The featur e is configured in the Ajax PRO app.
Firmware	MultiTransmitter firmware version. It is not possible to change the firmware
ID	ID/serial number of MultiTransmitter. Also located on t he device box and on the integration module body

MultiTransmitter settings

Settings can be changed in the Ajax app

1. Go to the Devices tab .

2. Select MultiTransmitter from the list.
3. Go to Settings by clicking on the icon.

   Note: that after changing the settings, you should click the Back button to save them.

Setting	Value
First field	Integration module name that can be edited. The name of the device is displayed in the text of SMS and notifications in the event feed. The name can contain up to 12 Cyrillic characters or up to 24 Latin symbols
Room	Selecting the virtual room to which MultiTransmitter is assigned. The room name is displayed in the text of SMS and notifications in the event feed
Alert with a siren, if power supply for detectors is shorted out	When enabled, sirens connected to the security system signal if detectors power line is shorted out
Jeweller Signal Strength Test	Switches the integration module to the Jeweller signal strength test mode. The test allows you to check the signal strength between the hub and MultiTransmitter and determine the optimal installation location **What is Jeweller Signal Strength Test**
Attenuation Test	Switches MultiTransmitter to the signal attenuation test mode **What is signal attenuation test**

Temporary Deactivation	Allows the user to disconnect the device without removing it from the system. Two options are available: **Deactivate entirely** — the device will not execute system commands or participate in automation scenarios, and the system will ignore device alarms and other notifications **Deactivate lid notifications** — the system will ignore only notifications about the triggering of the device tamper button Learn more about temporary deactivation of devices **Note that the system will ignore only the disabled device. Devices connected via MultiTransmitter will continue operating normally** The system can also automatically deactivate devices when the set number of alarms is exceeded or when the recovery timer expires. Learn more about auto deactivation of devices
User Guide	Opens MultiTransmitter User Guide
Unpair device	Unpairs MultiTransmitter, disconnects it from the hub, and deletes its settings

States of connected detectors and devices

You can find the states of connected wired detectors and devices in the app:

1. Go to the Devices tab .
2. Select MultiTransmitter in the device list.
3. Click on Devices.
4. Select the device from the list.

Parameter	Value
Malfunction	Click to open the malfunctions list of the connected wired detector. The field is displayed only if a malfunction is detected
Delay when entering, sec	Delay time when entering in seconds. Delay when entering (alarm activation delay) is the time you have to disarm the security system after entering the premises What is Delay When Entering
Delay when leaving, sec	Delay time when leaving in seconds. Delay when leaving (alarm activation delay) is the time you have to exit the premises after the security system is armed What is Delay When Leaving
Detector status	The status of the connected wired detector: **OK** — the connected detector is normal **Alarm** — the connected detector has detected an alarm **Shorted** — the terminals to which the detector is connected are shorted. Status is only available in case of an EOL NC connection **Break** — is displayed if the connected detector is disconnected. Status is only available in case of an EOL NO connection
Always active	When enabled, the detector is always in armed mode

MultiTransmitter	Status and name of the MultiTransmitter to which the wired detector is connected: **Connected** — MultiTransmitter is connected to the hub **No connection** — MultiTransmitter has no connection with the hub
Temporary Deactivation	Shows the status of the device temporary deactivation function: **No** — the device operates normally and transmits all events. **Lid only** — the hub administrator has disabled notifications about triggering on the device body.

	Entirely — the device is completely excluded from the system operation by the hub administrator. The device does not follow system commands and does not report alarms or other events. **By number of alarms** — the device is automatically disabled by the system when the number of alarms is exceeded (specified in the settings for Devices Auto Deactivation). The feature is configured in the Ajax PRO app. **By timer** — the device is automatically disabled by the system when the recovery timer expires (specified in the settings for Devices Auto Deactivation). The feature is configured in the Ajax PRO app.
Device #	The number of MultiTransmitter zone to which the detector is connected

Settings of connected wired detectors and devices

Settings can be changed in the Ajax app

1. Go to the Devices tab .

2. Select MultiTransmitter in the device list.
3. Click on Devices.
4. Select the desired device from the list.
5. Go to Settings by clicking on the .

   Note: after changing the settings, you should click the Back button to save them.

Setting	**Value**
First field	The name of the detector or device that can be changed. The name is displayed in the text of SMS an d notifications in the event feed. The name can contain up to 12 Cyrillic characters or u p to 24 Latin symbols
Room	Selecting the virtual room to which a detector or devic e is assigned. The room name is displayed in the text of SMS and notifications in the event feed
Device Type	Selecting the connected device type: **Tamper Sensor**
External Detector Contact Status	Selecting the normal contact state of the connected de tector or device: **NC NO** **EOL (NC with R) EOL (NO with R)**

External detector type	Type of connected detector or device: **Pulse** — e. g., a motion detector. After an alarm, a rec overy event is not sent if the detector returns to the no rmal state **Bistable** — e. g., an opening detector. After an alarm, a recovery event is also sent when the detector return s to the normal state Set the type that matches the connected detector. The pulsed detector in the bistable mode generates unnec essary recovery events. A bistable detector in pulsed mode, on the contrary, will not send recovery events

Always active	The detector constantly registers alarms in the **Always active** mode. Regardless of whether the system is in the armed m ode, the detector will notify you of every triggering. The mode should be enabled if the detector is installed in a room that requires constant monitoring	
Delay when entering, sec	Selecting the delay time when entering. Delay when entering (alarm activation d elay) is the time you have to disarm the security system after entering the premi ses. You can set a value from 0 to 120 secon ds **What is Delay When Entering**	

Delay when leaving, sec	Selecting the delay time when leaving. Delay when leaving (alarm activation delay) is the time you have to exit the premises after the security system is armed. You can set a value from 0 to 120 seconds **What is Delay When Leaving**	
Arm in Night mode	If active, the device will switch to armed mode when using night mode **What is Night Mode**	
Delays in Night mode	Delay turned on when using night mode	
Pulse time	Pulse time of a detector or device for detecting an alarm: 20 ms 100 ms 1 s An alarm is raised if the pulse from the detector is longer than the specified value in this setting. It can be used as a bounce filter	
Resistance	The resistance of the resistor connected to the detector. Can be set from 1 kΩ to 7.5 kΩ in increments of 100 ohms.	

MultiTransmitter automatically measures the resistance of the connected resistor and displays it in this field as the recommended value

Alarm type	Selecting the detector alarm type: Intrusion Fire Medical help Panic button Gas The text of SMS and notifications in the event feed de pends on the selected type of alarm
Alert with a siren if alarm is detected	When enabled, **sirens** connected to the security syste m signal about the alarm of the detector or device
Temporary Deactivation	Allows the user to disconnect the device without remo ving it from the system. Two options are available: **Deactivate entirely** — the device will not execute syst em commands or participate in automation scenarios, and the system will ignore device alarms and other not ifications **Deactivate lid notifications** — the system will ignore only notifications about the triggering of the device tam per button **Learn more about temporary deactivation of devic es** **Note that the system will ignore only the disabled device. Devices connected via MultiTransmitter wil l continue operating normally** The system can also automatically deactivate devices when the set number of alarms is exceeded or when t he recovery timer expires.

Connecting wired detectors and devices to MultiTransmitter

How to connect a wired detector or device

When connecting third-party detectors and devices, do not twist the wires together, but solder them. The ends of wires of the devices or detectors, which will be inserted into the integration module terminals should be tinned or crimped with a special sleeve.

1. Select the MultiTransmitter zone to which you would like to connect a detector or device.
2. Route the wires of the detector or device into the integration module body.
3. Connect a wired detector or device to the appropriate MultiTransmitter terminals. The wiring diagram can be found in the User Guide provided by the manufacturer of the wired detector or device.
4. Securely fasten the cable to the terminals.

How to connect a wired detector or device to MultiTransmitter

If the detector or device requires 12 V power supply for operation, it can be connected to the power terminals of the corresponding MultiTransmitter zone. Separate terminals are provided for re detectors. Do not connect the external power supply to the detector power terminals, as this may damage the device.

How to add a wired detector or device

1. In the Ajax app, go to the Devices tab .
2. Select MultiTransmitter in the device list.
3. Click on Devices.
4. Click Add Wired Device.
5. Name the device or detector, select the wired zone to which the device or detector is connected, and select a placement room and a group.
6. Click Add. The device or detector will be then added within 30 seconds. If for some reason this does not happen, try again. If you encounter connection problems, contact Support Service.

MultiTransmitter functionality test

Integration module functionality tests do not begin immediately, but not later than over a single ping period of the hub detector (36 seconds with the standard settings of the hub). You can change the ping period of devices in the Jeweller menu of the hub settings.
Tests are available in the device settings menu (Ajax app → Devices → MultiTransmitter → Settings):

- Jeweller Signal Strength Test
- Attenuation Test

Selecting MultiTransmitter placement

Note: The placement of the integration module determines its distance from the hub and the presence of obstacles between them that impede the passage of the radio signal: walls, inter-floor constructions, or large-sized objects located in the room.

Be sure to check the signal strength at the installation site. If the signal strength is low (a single bar), we cannot guarantee a stable operation of the security system! At the very least, relocate the device as repositioning even by 20 cm can significantly improve the signal reception.If poor or unstable signal strength is still reported after the

relocation of the device, use the ReX radio signal range extender of the security system.
When choosing the installation location, consider the distance between the integration module and wired devices or detectors — the cable length should be suficient for connection. The maximum length of the signal cable for connecting a device or a detector is 400 meters (cable material is copper-plated aluminum, cross-section is 0.22 mm²). The value may vary if a different type of cable is used. No tests were conducted on other types of cables.

MultiTransmitter installation

Note: Prior to mounting the integration module, ensure that you have selected the optimal location and that it corresponds to this manual!

The body allows mounting the integration module on a vertical surface.

In order to install a module:

1. Secure the body to the surface with bundled screws using at least two fixing points. In order for the integration module tamper to respond to a dismantling attempt, be sure to fix the body at the point with the perforated section.
2. Install the MultiTransmitter card into the body on the racks.
3. If available, connect a backup battery. Don’t connect external power supply!
   Note: We recommend using a 12 V battery with a capacity of 4 or 7 A·h. For such batteries, special racks in the body are designed. You can also use similar batteries of a different capacity, of matching size, with the maximum full charge time of no more than 30 hours. The maximum battery size for installation in the body is 150 × 64 × 94 mm.
4. Connect wired detectors and devices to the integration module. Turn on the integration module.
5. Install the lid on the body and secure it with the bundled screws.
   Note: After installation, be sure to check the MultiTransmitter tamper status in the Ajax app.

Do not install the integration module:

- Outdoors.
- Near metal objects and mirrors causing radio signal attenuation or screening.
- Inside premises with temperature and humidity outside the permissible limits.
- At a distance of less than 1 meter from the hub.

Maintenance

Check the functionality of the integration module regularly. Clean the body from dust, cobwebs, and other contaminants as they emerge. Use a soft dry cloth that is suitable for equipment care. Do not use any substances containing alcohol, acetone, gasoline, and other active solvents to clean the device.

Malfunction notifications
MultiTransmitter can report malfunctions to the central monitoring station of the security company, as well as to users through push notifications and SMS.

Notification	Value	Action
	MultiTransmitter terminals for connecting the wired device are sh orted.	Check the connection of the wired device or detector for short circuit.
Contact is shorted out, **[device na me]** in **[room name]**	Notification can only be received if an EOL NC connection is used	After the normal state of the termin als is resumed, you will receive res pective notification
Lost contact, **[device name]** in	The connected wired detector	Check the connection of the

[room name]	is torn off. Notification can be obtained if an EOL NO connection is used	wired device or detector to the integration module	
External power has been disconnected, **[device name]** in **[room name]**	MultiTransmitter does not have a 100–240 V power supply	Check for external power supply on the integration module	
Battery has been disconnected, **[device name]** in **[room name]**	The backup battery is disconnected from MultiTransmitter	Check the connection of the backup battery to the integration module	
Power supply terminal for detectors is shorted out, **[device name]** in **[room name]**	One of the two MultiTransmitter power supply outputs is shorted	Check the power supply connection of wired devices or detectors for short circuit. After the normal state of the terminals is resumed, you will receive respective notification	
Fire detector power supply terminal is shorted out, **[device name]** in **[room name]**	MultiTransmitter fire detector power supply output is shorted	Check the power supply connection of the wired fire detector for short circuit. After the normal state of the terminals is resumed, you will receive respective notification	
Battery is charging too long *Displayed in integration module statuses*	MultiTransmitter battery charges for over 40 hours	The battery is most likely defective. Install another backup battery	

Fire alarms reset

In case of alarms of the fire detectors connected to MultiTransmitter, the window prompting of the need to reset the alarms is displayed in the Ajax app. This will make the detectors return to their normal state and continue to respond to a fire.
Note: If the detectors are not reset after the fire alarm, they will not respond to the next fire, as they will remain in alarm mode.

There are two ways to reset re detectors:

1. 1. By clicking the button in the notification in the app.
   2. Via MultiTransmitter menu: click on the red button opposite the integration module.

Technical specifications

Number of alarm/tamper zones	18
Supported detector contact types	NO, NC (without R), EOL (NC with R), EOL (NO with R) **How to connect a wired detector or device to MultiTransmitter**
Resistance of the EOL Resistor	From 1 kΩ to 7.5 kΩ
Alarm signals processing mode	Pulsed or bistable
Main power supply	110–255 V, 50/60 Hz
Backup power	12 V DC
Supported battery type	12 V battery with a full charge cycle of up to 30 hours. The maximum battery size for installation in the body is 150 × 64 × 94 mm
Recommended battery type	12V battery with a capacity of 4 or 7 A·h
Detector power supply	12 V DC, up to 1 A total for all detector power supply outputs
Protection against dismantling	Tamper
Radio signal frequency band	868.0–868.6 MHz or 868.7–869.2 MHz, depending on the sales region
Compatibility	**Operates only with all Ajax hubs, and range extenders**
Maximum RF output power	Up to 7.29 mW (25 mW limit)
Radio signal range	Up to 2,000 m (any obstacles absent)
Operating temperature range	From –10°C to +40°C
Operating humidity	Up to 75%

Complete Set

1. MultiTransmitter
2. Power cable
3. 12 V battery connection cable
4. Installation kit
5. Body
6. Quick Start Guide

Warranty

The 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!
Technical support: support@ajax.systems

Documents / Resources

	AJAX 20355 MultiTransmitter System [pdf] User Manual 20355, MultiTransmitter System

References

- What jamming of a wireless security system is and how to resist it | Ajax Systems Blog
- End user agreement - Ajax Systems
- Jeweller radio technology | Ajax Systems
- Current product lines of the Ajax security system
- Current product lines of the Ajax security system
- Current product lines of the Ajax security system
- Hub 2 — Security control panel supporting detectors with photo
- Hub — Intelligent security control panel | Ajax Systems
- Hub 2 Plus — Advanced control panel with 4 communication channels
- Ajax Hub Plus — Intelligent security control panel
- MultiTransmitter — Module for integrating wired third-party devices
- ocBridge Plus — Module for Ajax devices integration with wired systems
- ReX — Intelligent radio signal range extender | Ajax Systems
- uartBridge — Module for Ajax devices integration with third-party wireless alarms systems
- Software | Ajax Systems
- Warranty - Ajax Systems
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- How battery charge is displayed in Ajax apps | Ajax Systems Support
- What is Devices Auto Deactivation and how it works | Ajax Systems Support
- How to create the Ajax account? | Ajax Systems Support

- What is a tamper | Ajax Systems Support
- How to temporarily deactivate a device without removing it from the system | Ajax Systems Support
- Ajax PRO Desktop User Manual | Ajax Systems Support
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