# JA-151R Repeater for JABLOTRON 100 wireless components

*The product is a component of the **JABLOTRON** system. It is designed to extend the communication distance and increase the reliability of transmission in large installations. It selectively repeats the signal of one-way and two-way asynchronous peripherals.* ***It does not allow the repetition of signals from two-way synchronous peripherals such as keypads, sirens, thermostats, multifunction relays, smart sockets, valve heads and selected detectors (MW, Photo-PIR).*** *The internal settings allow you to select which peripherals will be repeated. It can also repeat commands for non-addressable wireless PG modules from the JA-11xR radio module. The repeater is powered by 12 V – the recommended power supply type is HLK-PM12JBT or adapter LT-089.07. To maintain functionality during a power failure, it is equipped with a backup battery (12V power supply and battery are not included with the product and must be ordered separately). The product is supplied in a JA-194PL box.*

*It occupies one position in the system and is intended for installation by a trained technician with a valid Jablotron certificate.*

***The product is compatible with JA-103K and JA-107K control panels.***

## Use

The repeater significantly extends the wireless communication coverage of the building. It is designed for:

- Extending the communication distance by up to an additional 500 m (open space).
- Increasing the reliability of transmission for peripherals whose signal spreads to the radio module through many obstacles.

There can be multiple repeaters in the system, see Figure 1 (the number is limited only by the number of positions for peripherals). The signal from the repeater cannot be repeated by another repeater.

**Caution! The product does not increase the maximum number of positions for peripherals in the system.**

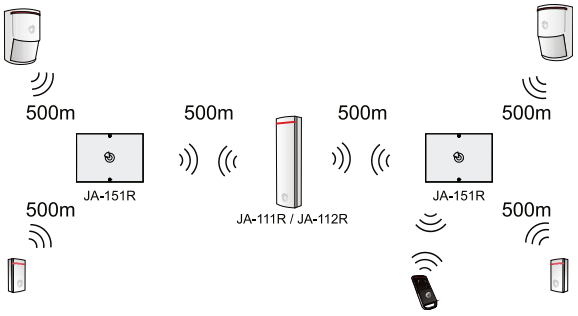



***Figure 1**: Extending the communication distance*

## Product behaviour description

Repeats the signal from selected unidirectional and bidirectional (asynchronous) peripherals learned in the control panel. If the repeated peripheral is within the range of both the repeater and the radio module, the system works without any problems. The internal logic of the control panel ensures that the first received signal that is not damaged is always processed. The selection of repeated peripherals is performed in the internal settings of the repeater from a list that is automatically loaded from the control panel and contains only peripherals supported by the repeater:

- JA-15x, JA-16x and JA-18x series **detectors**, except for JA-1xxPW and JA-1xxPC detectors)
- JA-15xJ MS (II), JA-16xJ, JA-18xJ **key fobs**
- JA-15xJ push **buttons**

Signal repetition for non-addressable wireless PG modules (JA-150N and JA-151N) can only be enabled for one repeater in the system (monitored by the F-Link configuration software).

To ensure functionality even during a mains power failure, the product includes a BAT-4V8-LH0900 backup battery (Note: Not included with the product, must be ordered separately). During a prolonged mains power failure, the connected battery is protected against deep discharge. If a drop in battery voltage below 4.2 V is detected, the product is switched off. Elements that do not have access to any radio module will report a fault within the specified time (see the control panel installation manual for details). Other elements with access to the installed radio modules will function without any restrictions.

The repeater informs the control panel of a mains power failure, fault, tampering, battery discharge and communication band interference.

The repeater is equipped with LED indicators to signal operating statuses.

## Installation

**Always connect the external power supply when the power is completely turned off.**

**To set the module in accordance with security grade 2, use the F-Link function "System profiles – EN50131-1, grade 2" in the Parameters tab (see the JA-10xK control panel manual).**

Install the repeater in a suitable location in the building where you want to extend the communication distance of the JABLOTRON 100 system or increase the reliability of its transmissions. If it is necessary to install the module near larger metal objects or larger electrical equipment (switchboards, etc.), maintain a minimum installation distance of 2 m from these devices or objects. Fixed installation near electrical wiring (e.g. through a plaster box) is possible without restriction. Do not install the repeater near JA-11xR radio modules JA-11xR (the same applies to other repeaters in the system).

Recommended installation distances between repeaters or radio modules:

- in open space min. 10 m
- in built-up areas with wooden or plasterboard walls, across one wall with a minimum distance of 5 m
- in built-up areas with other types of walls through one wall

If you are installing the repeater outdoors, it must be protected against rain, condensation and direct sunlight, e.g. with a suitable outdoor installation box with appropriate protection.

**Installation description:**

1. Open the front cover of the JA-194PL by unscrewing the two screws and tilting it open.
2. Break out the holes for the power cable and pull the cables through the hole.
3. Screw the rear part of the plastic onto the wall through the holes in the corners (3). The product can be attached to a flush-mounted installation box using the holes (4).
4. Install the backup battery (10) in the marked position. Secure it with Velcro.
5. Connect the battery wires to the connector (9).
6. Connect the 12 V power supply to the terminals (8). Secure it to the rear of the plastic cover with a cable tie (included).
   **Note**: After switching on, the yellow LED indicates that the module is not assigned to the system
7. Next, follow the installation manual for the control panel. Basic procedure:
   a. In the F-Link software, select the desired position in the Peripherals tab and press the Assign option.
   b. Perform the learning process by entering the serial number (7) in the F-Link software. Enter all digits (serial number format: 1400-00-0000-0001).
8. Close the front cover and secure it with two screws.

**Notes:**

- The product can also be assigned by sending a learning signal after pressing the ***Enrol*** button.
- The learning signal is sent immediately after connecting the battery and power supply.

**Warning:**

**The wiring for connecting tamper contacts must not be routed through the antenna on the PCB. Incorrect wiring may lead to a deterioration in the radio parameters of the product.**

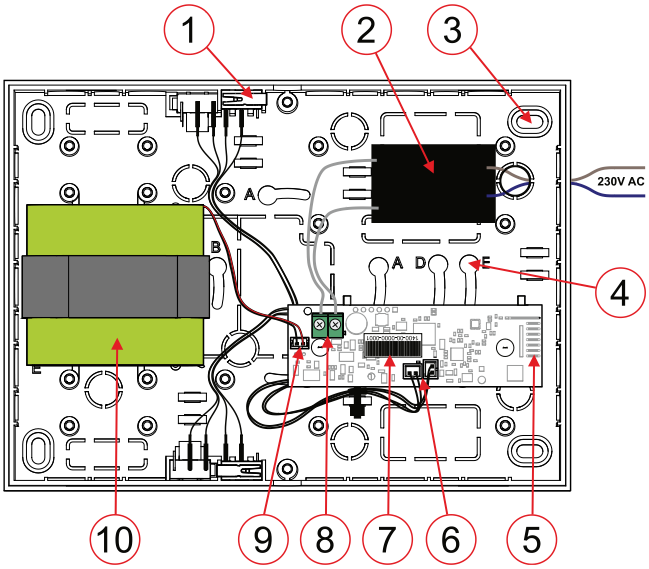



***Figure 2**: Radio module connection – connection via HLK-PM12JBT adapter*

***1** – tamper, **2** – power supply, **3** – holes for wall mounting (4x in each corner), **4** – holes for mounting the KU box; **5** – antenna, **6** – connectors for cover tamper contacts, **7** – serial number – removable, **8** – main power terminals, **9** – connector for connecting the backup battery, **10** – backup battery, **11** – alternative adapter*

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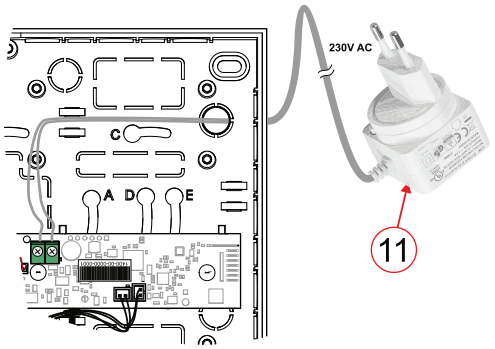



***Figure 3**: Use of alternative adapter*

## Setting module properties

This is done using the ***F-Link*** software, ***Devices*** tab. Use the Internal settings option for the module position. A dialogue box will appear in which you can set the parameters:

***LED indication during communication***: This is disabled by default. When this parameter is enabled, the repeater indicates communication with a wireless peripheral device with a red LED. In service mode, the repeater always indicates communication regardless of the setting.

***Interference detection***: This is disabled by default. It can be set to two levels – ***low*** (interference lasts longer than 30 seconds within a minute) and ***high*** (interference lasts longer than 10 seconds within 20 seconds). If detection is enabled and interference occurs, the system reports a communication channel interference fault.

***Rear tamper sensor***: Factory default setting is on. The parameter turns the rear tamper sensor on/off. Marked as TMP2 on the board.

***Front tamper sensor***: Factory default setting is on. The parameter turns the front tamper sensor on/off. Marked as TMP1 on the board.

***Repeats signal for PG***: Disabled by default. When enabled, it starts repeating the signal for JA-150N and JA-151N PG modules. This parameter can only be enabled in one repeater in the system (monitored by F-Link).

***Enable JA-18x elements***: Factory default setting is off. When enabled, it will also be possible to repeat JA-18x series elements.

***Repeated peripherals***: No peripherals are selected by default. Provides a list of all peripherals learned in the system that can be repeated. By ticking specific peripherals, it will start receiving their signal and repeating it. A maximum of 60 peripherals can be selected.

## Repeater FW update

The repeater supports wireless FW updates, which are performed using the ***F-Link*** software in ***Service*** mode.

1. Select ***Control Panel*** → ***Firmware Update***. JA-151R will also appear in the table. If F-Link contains newer firmware than the repeater, it is automatically selected for update.
2. Press the ***OK*** button to update the selected peripherals.
3. After updating the FW, check the internal settings of the repeater in the ***Devices*** → ***Internal Settings*** window.
4. Test the repeater's operation.

| LED indicator status | Meaning |
|---|---|
| Yellow light | Not programmed into the system |
| | Does not communicate with the radio module |
| | Open internal settings |
| Red flashing | Radio communication in progress<br>RF band interference |
| Red short flash | Signal reception from learned peripheral device |

## Diagnostics

The ***Diagnostics*** tab in the ***F-Link*** programme provides a complete overview of the status of the repeater and the individual wireless peripherals that are being repeated.

- **Status**: Displays the current status of the peripheral device.
- **Battery status/voltage**: Displays the battery voltage without load/with load.
- **Signal level**: Displays the strength of the repeater signal relative to the radio module.
- **Channel**: Shows the communication path through which the wireless signal reaches the control panel.

## Replacing the battery in the repeater

The repeater automatically checks the battery status. If a faulty battery is reported, it must be replaced as soon as possible to prevent the repeater from becoming completely out of service. When replacing the battery, follow the instructions in the Installation chapter.

**Notes:**

- Before replacing the battery, the control panel must be put into service mode.
- Use only the BAT-4V8-LH0900 (NiMH) battery.

## Technical parameters

| | |
|---|---|
| *Power supply* | *8–15 V DC* |
| *Battery* | *BAT-4V8-LH0900 NiMH 4.8 V/900 mAh* |
| *Nominal current consumption (12 V)* | *16.5 mA* |
| *Maximum current consumption (12 V)* | *45 mA* |
| *Nominal current consumption (5.2 V)* | *30 mA* |
| *Maximum current consumption (5.2 V)* | *60 mA* |
| *Battery life* | *approx. 4 years* |
| *Low battery voltage detection* | *≤4.2 V* |
| *Communication frequency* | *868.1 MHz* |
| *Maximum radio frequency power (ERP)* | *<25 mW* |
| *Communication range (line of sight)* | *500 m* |
| *Discharge protection* | *≤4.2 V* |
| *Dimensions with JA-194PL box* | *130 x 180 x 45 mm* |
| *Weight (without battery)* | *268 g* |
| *Classification* | *security grade 2 / environment class III (according to EN 50131-1)* |
| *Environment* | *outdoor protected or extreme indoor conditions* |
| *Operating temperature range* | *-25 °C to +50 °C* |
| *Average operating humidity* | *75 % RH, non-condensation* |
| *Certification body* | *Trezor Test s.r.o. (No. 3025)* |
| *Complies with* | *EN 50131-3, EN 50131-5-3, EN 50131-6, ETSI EN 300 220-2, EN 50130-4, EN 55032, EN 62368-1, EN IEC 63000* |
| *Can be operated according to* | *ERC REC 70-03* |

JABLOTRON a.s. declares that the JA-151R product is designed and manufactured in accordance with the harmonised legislation of the European Union: Directives No.: 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/EU, when used as intended. The original declaration of conformity is available at www.jablotron.com in the Downloads section.

Note: Although the product does not contain any harmful materials, do not dispose of it in the rubbish, but take it to an electronic waste collection point. For more detailed information, visit www.jablotron.com in the Downloads section.