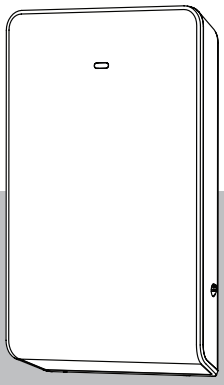
RADION receiver ST

RFRC-STR3



en Installation manual

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1 Safety

Caution!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

2 Receiver introduction

This document contains the basic information that a trained installer needs to install the RADION system. It supplements the graphical install guide contained inside the receiver packaging.
This reference guide contains:

- A description of the general installation procedure.
- Receiver-specific installation procedures.
- Specification information.

How to use this document

The information contained in this document is constructed in a manner that is systematic and sequential for the installer on a “point of need” basis. The following represents a basic outline of that information;

- Chapter 1 (this chapter) – introductory information and how to use this document.
- Chapter 2 – general installation information.
- Chapter 3 – RADION receiver-specific installation information.

2.1 About documentation

Copyright

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

2.2 Bosch Security Systems, Inc product manufacturing dates

Manufacturing dates

For product manufacturing dates, go to http://www.boschsecurity.com/datecodes/ and refer to the serial number located on the product label.

3 General installation

Phases of installation

The installation of the RADION system is achieved by following the sequential process as defined below. Overall, there are four main phases;

1. Planning
2. Physical installation of the devices
3. System enrollment/configuration
4. System testing (walk test, pattern test)

It is essential that these steps are performed in the order mentioned above for proper functionality and operation.

Plan your RADION installation based on the control panel and RADION device specifications, and the radio-frequency signal strength (**RFSS**) between devices and receivers.

Installation considerations

- RADION devices are intended only for indoor, dry applications.
- Mount RADION devices on flat, rigid surfaces. Some devices can be optionally corner mounted as indicated in the installation instructions.
- Avoid mounting RADION devices in areas with large, metallic objects, electrical panels, or electric motors. They might reduce the radio-frequency (RF) range of a RADION device.
- Avoid installing the devices where excessive humidity, moisture, or temperatures outside of the acceptable operating range exist.
- Wire all objects according to their specifications.

RADION devices use batteries of different types. When installing batteries, observe safety and polarity recommendations as indicated in the documentation for those products.

3.1 Wall tamper switch installation

RADION receiver contains a feature that activates the wall tamper switch located on the base of the device. In order to properly install the device, you must consider the following:

To properly install with an active wall tamper functionality, insert a screw in the designated screw slot location. Refer to the graphical installation guide for the tamper switch location.
Failure to insert a screw into the wall tamper slot prevents the wall tamper feature from generating a tamper signal when the receiver is pulled away from a wall.

3.2 Complete installation

Testing the entire RADION system can only be achieved by performing an area wide test through the control panel and corresponding keypad(s). This is achieved by performing an overall service walk test. Refer to your control panel documentation for system-walk, or other system-wide testing procedures.
To ensure proper operation of the RADION devices, test the basic functionality of the device locally. Depending on the RADION device to be tested, perform the following procedures for functionality:

- When testing the receiver, power up the compatible control panel in which the receiver is connected to and observe the LED behavior on the receiver.
- Local walk testing can be performed on the motion detectors as defined in the TriTech and PIR chapters of the Transmitter Reference Guide found online.
- Magnet testing can be performed by opening or closing the door/window.

3.3 Maintenance

It is recommended to check the battery of each device annually. This ensures proper operation and functionality of the devices.

4 RFRC-STR3 receiver

This device is a wireless receiver that connects RADION wireless peripherals to supported Bosch streamline bus control panels via the terminal block connection. A compatible control panel powers the receiver through the wiring connection. Features include:

- Easy addressing via a rotary switch
- Cover and wall tamper protection
- External LEDs
- Detection and reporting of radio frequency interference

Use this reference guide along with the control panel's documentation and each device's installation instructions to complete the installation process.

Product	Description	Document
RFRC-STR2	RADION receiver ST	Graphical installation guide (P/N: F01U318430)
RADION transmitters	RADION transmitters	Transmitter reference guide (P/N: F01U304662)
RFBT[1]	RADION specialty (billtrap)	Graphical installation guide (P/N: F01U305014)
RFDL-11	RADION TriTech	Graphical installation guide (P/N: F01U305016)
RFDW-RM	RADION contact RM	Graphical installation guide (P/N: F01U305018)
RFDW-SM	RADION contact SM	Graphical installation guide (P/N: F01U305017)
RFKF-TBS/RFKF-FBS/ RFKF-TB/RFKF-FB	RADION keyfob	Graphical installation guide (P/N: F01U305025)
RFPB-SB/RFPB-TB	RADION panic	Graphical installation guide (P/N: F01U305026)

Product	Description	Document
RFPR-12	RADION PIR	Graphical installation guide (P/N: F01U305019)
RFPR-C12	RADION PIR C	Graphical installation guide (P/N: F01U305020)
RFRP[2]	RADION repeater	Graphical installation guide (P/N: F01U305022)
RFSM	RADION smoke	Graphical installation guide (P/N: F01U305021)
RFGB	RADION glassbreak	Graphical installation guide (P/N: F01U305023)
RFUN	RADION universal	Graphical installation guide (P/N: F01U305024)
[1]The RADION Bill Trap reports as a “door window” transmitter when the receiver is operating in Legacy Mode. [2]The RADION Repeater reports as a “PIR transmitter” when the receiver is operating in Legacy Mode. Refer to the supporting control panel’s documentation for transmitter enrollment procedures.		

Table 4.1: RADION Wireless products

4.1 Certifications and approvals

Australia and New Zealand
The RFRC-STR3 complies with AS/NZ EMC standard AS/NZS ??????????????????.

4.2 Installation

4.2.1 Configuration

RADION Wireless System operates on a radio frequency of 433.42 MHz.

Configuring the address switch

The address switch is used to select the receiver modes. Set the receiver's address prior to installation. Use a slotted screwdriver to set the address switch. Refer to the table below for address switch settings.

The figure below shows the address switch setting for address 3.

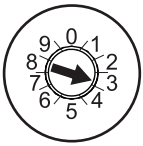

Figure 4.1: Address switch set to 3

Streamline address settings

Depending on the supporting control panel, use the following table as a reference when selecting the address setting switch for the compatible control panel.

Address switch setting	Function
1 or 2	RADION Mode (for future use)
3 or 4	Legacy Mode[1]
5 or 6	Maintenance Mode, EN50131 Grade 2 (6dB attenuation), for RADION (for future use)
7 or 8	Maintenance Mode, EN50131 Grade 2 (6dB attenuation), for Legacy
9	Receiver reset
[1]Legacy Mode supports the following control panels: Solution 64 (CC110), Solution 16Plus (CC100), Solution 16i (CC500), Solution Ultima 880 (CC488), Solution 6000/144 (610)	

Table 4.2: Streamline address settings

The receiver and control panel establish communication between each other when the appropriate address switch is selected.

4.2.2 Base mounting installation

Some consideration and planning are required when locating a position to mount the base of the receiver onto the desired surface. The base must be mounted in such a way that provides plenty of accessible space to insert a flat-headed screwdriver, and remove the receiver cover when maintenance and troubleshooting scenarios occur.

Because of the location of the opening mechanism on the side of the device, you will need approximately 254 mm (10 in) of clearance on one side of the base to provide easy access to the opening mechanism, and approximately 15 mm (0.6 in) of clearance on the opposite side to compensate for the physical dimensions of the device cover. This should allow for adequate space in which the device cover can be opened, and the cover removed, should the need arise.

Other mounting considerations include;

- Minimum clearance above the location to compensate for the vertical sliding movement to attach or remove the device from the base is: >30 mm (1.2 in).
- Minimum clearance below the location where the base is mounted: >23 mm (0.9 in).

4.2.3 Wiring connections

Notice!

Do not install long cable runs next to high-current power feeds. Keep cable lengths as short as possible to minimize noise pickup.

Ensure that the wiring used meets the following specifications:

- Three-conductor unshielded 0.65 mm (22 AWG) to 1.3 mm (16 AWG) maximum.
- Wire length must not exceed 304.8 m when connecting to a Bosch Solution control panel using Streamline bus.

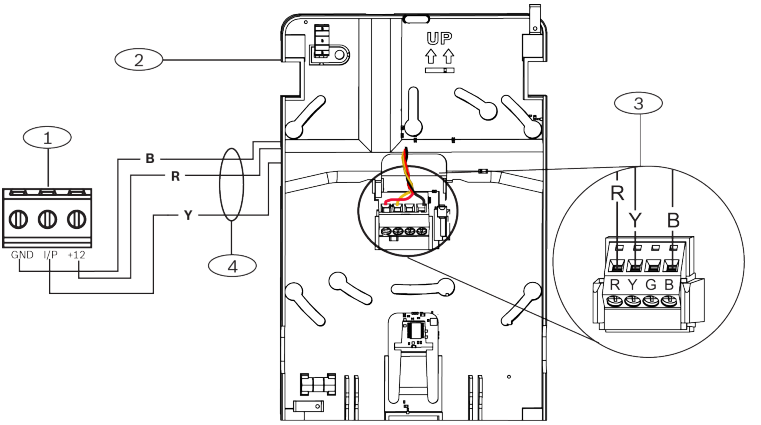

Figure 4.2: Wiring to a compatible control panel

Callout	Description
1	Control panel
2	RADION receiver ST
3	Terminal block
4	Terminal wiring

4.2.4 Programming wireless points in the control panel

After completing the physical installation of the RADION system, you must configure the RADION points in order to establish communication between the RADION system and the supported streamline bus control panel. This can be accomplished by using one of two methods:

– Using remote programming software on a supported laptop computer, or
– Compatible keypad devices to enable your points

A “point” can be a detection device, or a group of devices connected to your security system.

The first step to enable communication is to verify that the RADION transmitter is programmed into the supporting control panel.

For more information on programming wireless points in the control panel, refer to the *Installation and Operation manual* of the compatible control panel on registering the receiver.

4.2.5 System test

It is recommended to test the entire system at least once every year, including this receiver, by an installer to ensure proper functionality of the RADION system.

4.3 External LED states

The receiver utilizes the External LED to show various states of the receiver. These states fall into the following five categories:

- Power up and Test state
- Normal state
- Trouble state
- Maintenance state
- Off state

Power up and Test state:

The receiver LED displays the major and minor software versions during the power-on state. This is followed by a Manufacturing test mode which lasts for 10 seconds where the LED flashes at 500 ms on/off.

LED condition	State description
250 ms on/off flashes followed by 1 second off	Major and minor revision number (number of flashes indicate revision number).
500 ms on/off flashes for 10 seconds	This indicates that the receiver is in Manufacturing test mode.

Normal state:

The receiver enters a normal state when it has passed all power-on self-tests. The receiver remains in this state as long as no issues are present that would prevent the receiver from operating in a normal condition.

LED condition	State description
On (Normal)	Indicates the receiver is functioning normally.
Turns Off momentarily	Indicates the receiver obtained a valid transmission from a RADION transmitter.

Trouble state:

The receiver enters a trouble state when an internal self-test detects a failure. Another cause for the receiver entering into a trouble state would be if the receiver detects radio frequency interference failure.

LED condition	State description
Continuous fast flash (125 ms on/off): A continuous pulse between On and Off states (Trouble state)	– Indicates the receiver is in a trouble state, experiencing a radio frequency interference failure – A communication failure with internal hardware components within the receiver

Maintenance state

The receiver enters a maintenance state when the address switch setting is set at address 7 or 8 for Legacy maintenance mode. The receiver exits the maintenance state after the address switch is set back to normal Legacy mode, and the receiver is powered off/on.

LED condition	State description
Continuous slow flash (875 ms on/125 ms off): A continuous pattern of short off time, followed by long on time.	Indicates the receiver is in Maintenance Mode.

Off state
Indicates there is a power failure to the receiver. Check the wire connections for proper wiring.

4.4 Specifications

Housing Dimensions (H x W x D)	139.7 mm x 209.6 mm x 31.8 mm (5.5 in x 8.25 in x 1.25 in)
Power/Voltage	12 VDC nominal
Maximum Current Draw	20 mA
Operating Environment	Functional range: -10°C to +49°C (+14°F to +120°F) EN 50130-5 Class II only: -10 C to 40 C (+14 F to +104 F)
Relative Humidity	Up to 93% non-condensing
Frequency	433.42 MHz
Wiring Distance	Maximum distance of 304.8 m from the control panel
Wiring Gauge	0.65 mm (22 AWG) to 1.3 mm (16 AWG) maximum
Wall and Cover Tamper Switch	Transmits a tamper signal when the device is removed from its base or pulled away from the wall

Table 4.3: RFRC-STR

4.5 Troubleshooting

Refer to the following sections for troubleshooting hardware issues.

4.5.1 Inoperable secure keyfob (RFKF-FBS/RFKF-TBS)

Try resetting the receiver if the RADION keyfob no longer operates as originally programmed. RF IDs remain active if previously enrolled, and will not have to be re-enrolled when resetting the receiver.

Failure conditions

The following conditions describe the state of the keyfob when it no longer arms/disarms the security system:

- The keyfob is correctly programmed in the control panel, and
- The receiver LED flashes when the keyfob is activated, but
- The expected action (arm/disarm) does not occur at the control panel.

Synchronizing the keyfob with the receiver

Perform the following steps to reset the receiver and restore arming/disarming functionality for the keyfob.

Resetting the receiver:

1. Power off the receiver (or remove the receiver from its base).
2. Set the receiver address switch to 9.
3. Power on the receiver (or re-attach the receiver to its base).
4. LED indicates the firmware version. The LED turns on steady for a short time to reset the receiver, and then turns off. Replace the receiver if the LED continues to flash.
5. Power off the receiver (or remove the receiver from its base).
6. Set the receiver address switch back to the original address setting.
7. Power on the receiver (or re-attach the receiver to its base).
8. Your system is ready for normal operation.

4.5.2 Troubleshooting table

Refer to the following table for troubleshooting hardware issues.

Problem	Description	Check status	Solution
Inoperable keyfob	The keyfob no longer works after normal use. Your system does not arm or disarm when you press the keyfob.	Step 1. Insert a new battery and press a button. Verify LED activity on the keyfob. Does the keyfob LED illuminate?	If the answer is “yes”, then go to the next solution. Otherwise replace the keyfob.
		Step 2. Does the receiver LED flash when the keyfob is pressed?	If the answer is “yes” then perform the *Failure conditions, page 16* to reset the receiver.
Repeater low battery fault in an associated zone	A low battery fault is declared within a specific zone. The keypad might sound, or the affected repeater’s LED flash twice and pause. This pattern repeats continuously.	This procedure is for Legacy Mode and is used in situations where there is loss in AC power to the repeater or low battery fault. Step 1. Verify the power outlet that the AC adapter is plugged into has power and is functioning properly.	The receiver clears the trouble when AC power is re-established. If the receiver reports a repeater low battery fault and the keypad sounds for a second time, battery power is extremely low. Supply AC power immediately.

Problem	Description	Check status	Solution
		Step 2. Verify the AC power supply connection to the repeater is secure. Step 3. Verify the wiring is secure within the terminal block.	
Control panel indicates there is a receiver trouble	Receiver LED activity appears erratic and is flashing in a rapid or fast state.	Verify the receiver is not jammed.	Power off/on the receiver. If the problem continues, perform the *Failure conditions, page 16* to reset the receiver. Replace the receiver if the problem persists.
Some RADION devices do not work when installed	Some RADION devices are not working when installed due to an incorrect address setting on the back of the Streamline receiver	Verify the address switch setting on the receiver is set to address 3 or address 4 (Legacy Mode). Refer to RFRC-STR configuration for more information on address setting	Verify the device battery condition if the problem continues. Replace the device if the address switch on the receiver

Problem	Description	Check status	Solution
			is correct and the device battery is good.

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