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RR-RECEIVER

Wireless General Purpose Remote Control Receiver
INSTALLATION AND PROGRAMMING INSTRUCTIONS

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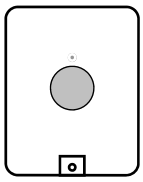
OVERVIEW

The **RR-RECEIVER** is a wireless general-purpose remote control receiver that provides remote unlocking to an Alarm Lock locking device, *or for any other application requiring a radio-controlled solid state relay closure*.

The RR-RECEIVER is factory supplied with Alarm Lock compatible battery connector plugs, simplifying installation within Alarm Lock cylindrical locking devices for wireless "remote release". The RR-RECEIVER can be used with a standard Alarm Lock battery pack or by simply cutting the power battery connector and using your own power supply (see **SPECIFICATIONS** for current consumption and power requirements).

RR-RECEIVER features include:

- Can be installed inside the lock housing to provide a "remote release" (remote unlock) function with legacy Alarm Lock locking devices (models DL2700, DL2800 or T3 non-Networx models without an integral radio
- Built-in battery connectors for quick installation inside Alarm Lock T2 or T3 locking devices
- Programmable "**Relay Closure Duration**", "**Relay 'Hold Off' Time**" and "**Relay Toggle Mode**" for advanced applications
- Compatible with both the **RR-1BUTTON** wireless remote (see WI1999) and the **RR-4BKEYFOB** 4-button pocket-size remote (see WI2004). Use a **RR-4BKEYFOB** if you want a single "keyfob remote" to activate up to 4 separate RR-RECEIVER's (for example, each button opens a separate door)
- Up to fifty (50) individual remote buttons can be "paired" (connected) to one RR-RECEIVER
- Can be used to drive high loads such as door strikes or magnetic locks by wiring to an auxiliary high current relay (see **Specifications** and **Wiring Diagram** for more information)
- Years of operation with a standard Alarm Lock battery pack (see **Specifications** below for current consumption and power requirements)
- Relay programming and remote button pairings are maintained even when power is removed
- For mortise locks, use the RR-MORTISE kit



RR-1BUTTON

RR-4BKEYFOB

Note: In this manual, "remote button" is used to describe the single button on the RR-1BUTTON (see WI1999) or any one of the four buttons on the RR-4BKEYFOB (see WI2004).

SPECIFICATIONS

Power Requirements: ..... 5-12VDC or use AL battery pack
Solid State Relay Contact Current: ..... 30mA maximum
Current Consumption: .....50 microamperes (µA) idle current

OPERATION

When a paired remote button is pressed, its paired RR-RECEIVER relay will typically close within 2 seconds of the button press, and will remain closed for its programmed "**Relay Closure Duration**" (2 seconds by default, programmable from 1-250 seconds).

After the "**Relay Closure Duration**" ends and the relay opens, an optional **Relay "Hold Off" Time** can be added during which time the RR-RECEIVER will ignore all paired remote button presses (**Relay "Hold Off" Time** is 0 seconds by default, programmable from 0-250 seconds). After the **Relay 'Hold Off' Time** ends, the RR-RECEIVER is then ready to respond to the next wireless remote button press. This **Relay 'Hold Off' Time** might be used for mechanical locking devices that require a minimum time to complete their operation, such as an entry gate swinging mechanism or mortise locks that require extra time to complete their mechanical operations (we recommend a minimum of 3 seconds "Hold Off" time be programmed when the RR-RECEIVER is used with Alarm Lock Exit Trim and Mortise locking devices). The columns in the table below (from left to right) summarize these RR-RECEIVER operations:

SUMMARY OF RR-RECEIVER RELAY OPERATIONS OVER TIME

Remote Button Press	RR-RECEIVER "Relay Closure Duration"	RR-RECEIVER "Relay 'Hold Off' Time	RR-RECEIVER "Relay 'Hold Off' Time Ends
0.5-2 sec. delay before relay closes	Default is 2 seconds; programmable between 1-250 seconds	Relay opens and ignores all paired remote button presses. Default time is zero seconds; programmable between 0-250 seconds	The RR-RECEIVER is ready to respond to the next wireless remote button press

A separate programmable relay option is "**Relay Toggle Mode**" where each press of a paired remote button causes the relay to alternate back and forth between open and closed states like a toggle switch. See "**RELAY TOGGLE MODE**" for details. **Note:** If "**Relay Toggle Mode**" is programmed, we recommend powering the RR-RECEIVER with a DC power supply, as the voltage drain due to extended relay close durations will decrease battery life. See **SPECIFICATIONS**.

CAPACITY

Up to fifty (50) individual remote buttons can be "paired" to **one** RR-RECEIVER. However, a remote button can only be paired with **one** RR-RECEIVER at a time. *If a paired remote button is later paired with a second RR-RECEIVER, the first pairing will be erased.*

GETTING STARTED

First power the RR-RECEIVER, then perform the "Pairing Procedure" and "Relay Operational Programming".

- **For installations inside Alarm Lock housings:** Jump to the section "**INSTALLATION INSIDE AN ALARM LOCK DEVICE HOUSING**". You can perform the "Pairing Procedure" and "Relay Operational Programming" with the RR-

RECEIVER inside or outside the housing.

- **For other "general purpose" applications:** First power the RR-RECEIVER either by plugging a standard Alarm Lock battery pack's male plug into the RR-RECEIVER female power socket, or by cutting the RR-RECEIVER power plugs and wiring a 9V battery or your own compatible DC power supply (see **SPECIFICATIONS**).

Note: The use of a pencil or other small tool is required to press the recessed button on the RR-RECEIVER.

HOW TO PAIR A REMOTE TO A RECEIVER

After the RR-RECEIVER is powered, be sure to have either an RR-1BUTTON or RR-4BKEYFOB wireless remote powered and ready. Pair a remote button to a RR-RECEIVER as follows:

a. Press and release the RR-RECEIVER button. The green LED on the RR-RECEIVER will turn on, indicating the RR-RECEIVER is ready to pair ("pairing mode" begins). Within 30 seconds perform the next step.
(**Note:** Cancel pairing mode by simply pressing and releasing the RR-RECEIVER button again; the RR-RECEIVER LED will flicker and turn off).

b. With the RR-1BUTTON or RR-4BKEYFOB wireless remote in hand, observe the remote's LED as you perform the following:

☞ On the remote, **press and hold** a button...

☞ Continue holding button on remote until LED **flashes green**, *then release the button*. Observe the remote LED:

- **Solid green LED** = Pairing successful; go to step **c** to test.
  Note: The RR-RECEIVER LED will blink twice indicating it is ready for another pairing.
- **Solid red LED** = Pairing failure (start again at step **a**).

☞ To pair another remote button to this RR-RECEIVER, repeat step **b** (or do nothing and after 30 seconds the RR-RECEIVER's "pairing mode" will end automatically).
Pairing mode can be exited by simply pressing and releasing the RR-RECEIVER button again; the RR-RECEIVER LED will flicker and turn off.

c. Test the pairing: Once paired to a remote button, the RR-RECEIVER automatically enters a "Test Mode" that works in conjunction with the relay to simplify testing. To save battery power, this Test Mode ends after 30 minutes, and is nothing more than an LED on the RR-RECEIVER that turns on when its relay activates.
Simply press the button on the paired remote and ensure the RR-RECEIVER green LED turns on. **Note:** This LED will turn on for the length of the programmed **Relay Closure Duration** (see **RELAY OPERATIONAL PROGRAMMING**, below).

If you wish to re-activate "Test Mode" for another 30 minutes: Press and release the RR-RECEIVER button (LED turns on), wait two seconds, then press and release the RR-RECEIVER button again (LED turns off).

Once paired, you can now program the RR-RECEIVER **Relay Closure Duration** and **Relay "Hold Off" Time** in one procedure, detailed below. Alternatively, you can also program "**Relay Toggle Mode**". *If you choose not to program these relay operations, the default **Relay Closure Duration** is 2 seconds, the default **Relay "Hold Off" Time** is zero (0) seconds, and by default "**Relay Toggle Mode**" is disabled.*

RELAY OPERATIONAL PROGRAMMING

RELAY CLOSURE DURATION: When a paired remote button is pressed, its paired RR-RECEIVER relay will typically close within 2 seconds of the button press, and will remain closed for its programmed "**Relay Closure Duration**" (2 seconds by default, programmable from 1-250 seconds).

RELAY "HOLD OFF" TIME: After the "**Relay Closure Duration**" ends and the relay opens, an optional **Relay "Hold Off" Time** can be added during which time the RR-RECEIVER will ignore all paired remote button presses. After the **Relay "Hold Off" Time** ends, the open RR-RECEIVER relay is then ready to respond to another remote button press (the default **Relay "Hold Off" Time** is 0 seconds, programmable from 0-250 seconds).

Program the **Relay Closure Duration** and optional **Relay "Hold Off" Time** in one set of steps, below. We recommend having these durations planned and ready beforehand to simplify programming. Also, verify the RR-RECEIVER LED is off before continuing:

a. Press and hold the button on the RR-RECEIVER until the solid green LED on the RR-RECEIVER turns off. The RR-RECEIVER is now in "relay program mode".

b. Press and release the RR-RECEIVER button for each second you wish to assign to the **Relay Closure Duration**. (For example, 1 press = 1 second, 2 presses = 2 seconds, etc.).

c. Stop and observe the RR-RECEIVER: Its LED will verify the **Relay Closure Duration** entered by flashing *once* for each *second* pressed in step **b**.

(If no **Relay "Hold Off" Time** is desired, go to step **f**)

d. Press and release the RR-RECEIVER button for each second you wish to assign to the **Relay "Hold Off" Time**. (For example, 1 press = 1 second, 2 presses = 2 seconds, etc.).

e. Stop and observe the RR-RECEIVER: Its LED will verify the **Relay "Hold Off" Time** entered by flashing *once* for each *second* pressed in step **d**.

f. Wait for RR-RECEIVER LED to flash rapidly indicating the end of "relay program mode".

g. Test the pairing: After step **f** ends, the RR-RECEIVER automatically enters a "Test Mode" that works in conjunction with the relay to simplify testing. To save battery power, this Test Mode ends after 30 minutes, and is nothing more than an LED on the RR-RECEIVER that turns on when its relay activates.
Simply press the button on the paired remote and ensure the RR-RECEIVER green LED turns on for the length of the programmed **Relay Closure Duration**. If a **Relay "Hold Off" Time** was programmed, the RR-RECEIVER will likewise ignore all paired remote button presses during this time (its LED will remain off when the paired remote button is pressed).

If you wish to re-activate "Test Mode" for another 30 minutes: Press and release the RR-RECEIVER button (LED turns on), wait two seconds, then press and release the RR-RECEIVER button again (LED turns off).

RELAY TOGGLE MODE: The RR-RECEIVER can be programmed to operate in "**Relay Toggle Mode**" where each press of the same paired remote button causes the relay to alternate back and forth between open and closed states like a toggle switch. **Note:** The fastest the relay will toggle between open and closed states is 2 seconds.

Enable "**Relay Toggle Mode**" as follows:

a. Press and hold the RR-RECEIVER button…

- ☞ LED lights solid green (keep holding the button)
- ☞ LED turns off (keep holding the button)
- ☞ LED lights solid green again
- ☞ Release the button
- ☞ Wait for RR-RECEIVER LED to flash rapidly and turn off. "**Relay Toggle Mode**" is now operational.

b. Test the RR-RECEIVER. After "**Relay Toggle Mode**" is programmed, the RR-RECEIVER automatically enters a "Test Mode" that works with the relay to simplify testing. To save battery power, Test Mode ends after 30 minutes. Test Mode is simply an LED on the RR-RECEIVER that turns on when its relay closes. To test the "**Relay Toggle Mode**" operation, press the paired remote button and ensure the RR-RECEIVER LED turns on (indicating relay closure). Press the paired remote button again to ensure the LED turns off (relay open).

If you wish to re-activate "Test Mode" for another 30 minutes: Press and release the RR-RECEIVER button (LED turns on), wait two seconds, then press and release the RR-RECEIVER button again (LED turns off).

DEFAULTING THE RR-RECEIVER

To erase all paired remote buttons and all Relay Operational Programming, returning the RR-RECEIVER to its original factory settings ("**Relay Closure Duration**" of 2 seconds, **Relay "Hold Off" Time** of zero seconds and "**Relay Toggle Mode**" disabled), proceed as follows:

a. Remove power from the RR-RECEIVER. Wait 3 seconds.

b. Replace power to the RR-RECEIVER.

c. Within 5 seconds, press and hold the RR-RECEIVER button until the green LED start to flicker (rapid flashing).

The rapid flashing indicates the RR-RECEIVER has been returned to its original factory settings

INSTALLATION INSIDE AN ALARM LOCK DEVICE HOUSING

T3 Alarm Lock locking device models have a programmable Remote Input feature (momentary closure to unlock the locking device, enabled by default). Check the Programming Instructions that came with your Alarm Lock locking device; if in doubt, enter Program Mode and enable Function 65 (press [1] [6] [5] [*]) to enable this Remote Input feature. For T2 models, the Remote Input feature is enabled by default; see the Programming Instructions that came with your T2 locking device.

To install the RR-RECEIVER inside an Alarm Lock locking device housing, such as a model DL2700 or DL2800, proceed as follows:

1. Remove the screw at the back of the lock housing and remove the rear cover.
2. Remove and disconnect the battery pack.
3. Inside the rear housing, locate and take hold of the two white "Remote Input" wires and the disconnected battery plug connector. Push all other wires and the motor wire into the bottom "cavity" of the rear housing (**Fig. 1**).

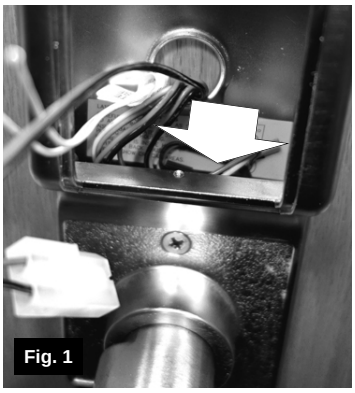


Fig. 1

Push other wires into the bottom of the housing (the "cavity")

4. Apply the double-sided adhesive strip (provided) to the side of the RR-RECEIVER without the holes and secure to the inside of the lock housing (upper-left side as shown in **Fig. 2**). Curl the antenna wire up and to the side of the RR-RECEIVER as shown in **Fig. 2**.
5. Connect the battery connector inside the housing to the RR-RECEIVER plug. Then connect the battery pack to the RR-RECEIVER. **Note:** The lock may beep upon supplying power; the internal clock may need to be reset (if equipped).

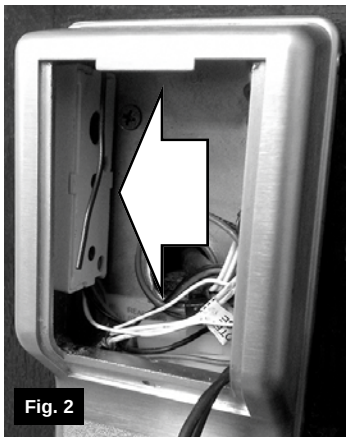


Fig. 2

Secure the RR RECEIVER to the side as shown

6. Connect the remote input wire of the lock to one white wire of the RR-RECEIVER. Then connect the other remote input wire to the other white wire of the RR-RECEIVER.
7. Before placing the battery pack into the housing, perform the "**PAIRING PROCEDURE**" that pairs a wireless remote button to the RR-RECEIVER. When finished pairing, return to this section and perform step **8** to replace the battery pack.
8. After pairing, make room inside the housing for the battery

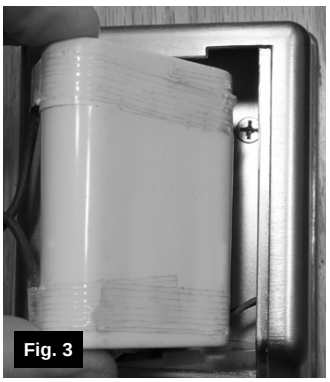


Fig. 3

First insert the right side of the battery pack into the housing...

Fig. 4

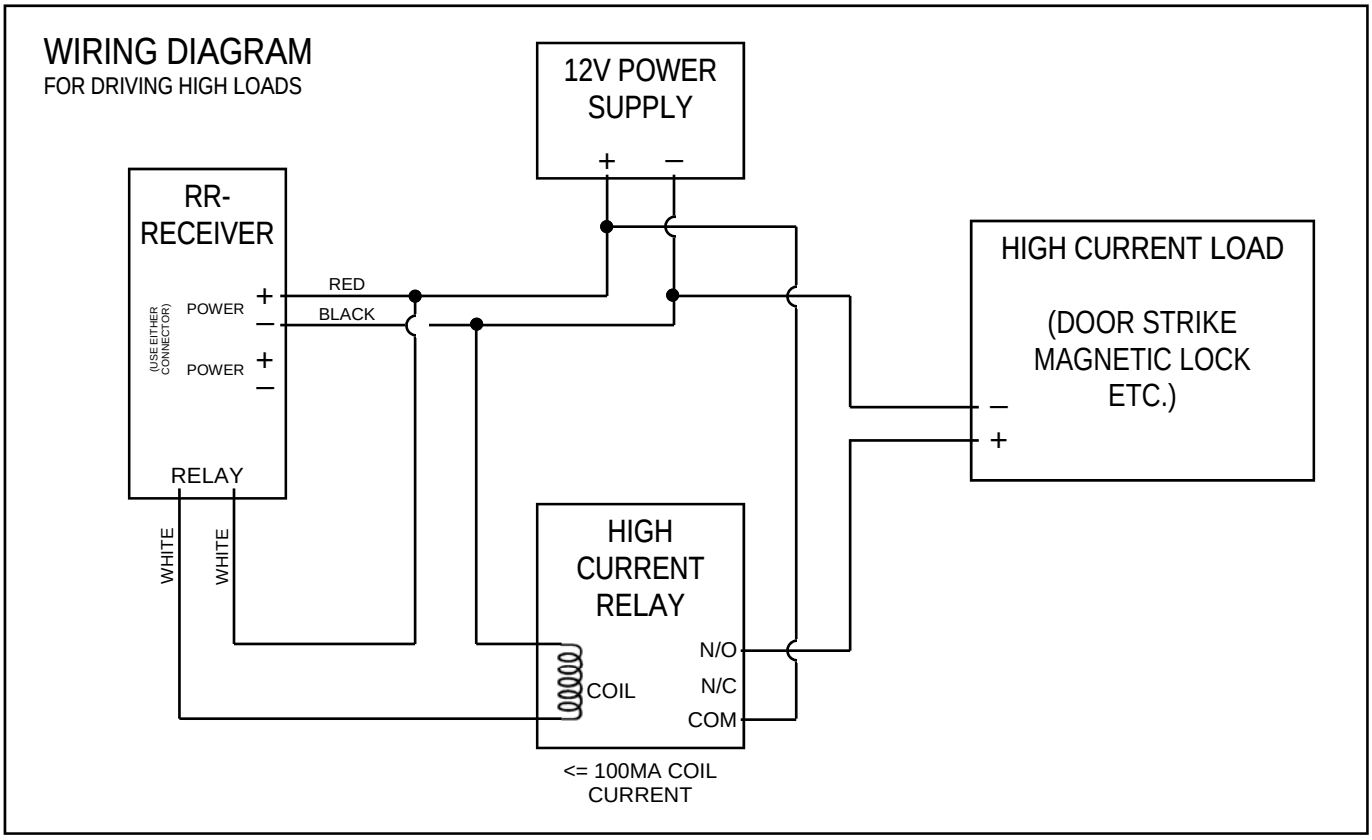
...then slide in the remaining half.

pack: Before replacing the battery pack, carefully push all of the remaining wires that are inside the housing down into the "cavity" shown in **Fig. 1**. Replace the battery pack by ***placing the right side of the battery pack into the housing first*** (see **Fig. 3** and **Fig. 4**).

9. At the back of the lock, replace the cover and secure with the cover screw.

GENERAL PURPOSE APPLICATIONS

When driving high loads such as door strikes or magnetic locks, the **RR-RECEIVER** solid state relay should be wired to drive an auxiliary high current relay as shown in the following wiring diagram:



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