# Table of Contents

**Overview** 3  
- What is RFID WIZ?  
- Parts  

**Pinouts** 6  
- Power Input  
- Signal Output  

**Training a Tag** 8  

**Switching Modes** 9  

**Controlling a Maglock** 9  
- Using the WIZ’s power terminals  
- Using an external power supply  

**Controlling a Power Switch** 11  
- RFID WIZ 5V Logic Output
Overview

What is RFID WIZ?

RFID WIZ is a slick new product by Smooth Technology. It can read and recognize RFID tags and use them to control devices. It's easy to train and has both a relay and 5V logic output so it can be easily integrated into any project.

This board works with all MIFARE 13.56MHz RFID tags-- that includes cards, keyfobs, stickers, and more.

RFID Wizzes purchased after 7/15/22 will ship with the Red RFID Reader board & cable disconnected for packing purposes. Use the included 6-pin white JST-XH cable to connect it to the main board BEFORE powering up.
Parts

**RFID Wiz Kit by Smooth Technology**
RFID made easy! RFID Wiz is the easiest way to include RFID in all your projects. Their ONE-TOUCH training system will have you...
https://www.adafruit.com/product/5402

**Controllable Four Outlet Power Relay Module version 2**
Say goodbye to hazardous high voltage wiring and create the Internet of Things with safe, reliable power control....
https://www.adafruit.com/product/2935

**13.56MHz RFID/NFC Card - Classic 1K**
This is a blank 13.56MHz RFID/NFC card - often used for train/bus passes but also found in other systems where a proximity card is desired. The tag contains a small RFID chip and an...
https://www.adafruit.com/product/359
13.56MHz RFID/NFC Charm - Classic 1K
This is a blank 13.56MHz RFID/NFC embedded in a phone charm - often used for train/bus passes but also found in other systems where a proximity card is desired. The tag contains a...
https://www.adafruit.com/product/884

13.56MHz RFID/NFC Sticker - Classic 1K
This is a blank 13.56MHz RFID/NFC sticker - often used for inventory uses but also wherever a sticker is desired. The tag contains a small RFID chip and an antenna, and is...
https://www.adafruit.com/product/362
The RFID WIZ board has 2 power input sections and 2 signal output sections.

**Power Input**

RFID WIZ needs 6-12VDC to operate. This can be provided via the Vin and GND screw terminals or the 2.1mm barrel jack.
RFID WIZ has two signal outputs, both of which change state when the RFID WIZ is triggered:

1. Relay output, which is broken into three screw terminals, NO, C, and NC:
   - If the relay is untriggered, the NC pin (Normally Connected) is mechanically connected to COM. NO (Normally Open) is mechanically disconnected.
   - When the relay is triggered, NC becomes disconnected from COM and NO is connected to COM

2. 5V Logic output, which has two states:
   - High (SIG pin outputs 5V) when the board is triggered
   - Low (SIG pin is tied to GND) when the board is untriggered
Training a Tag

Training a tag on the RFID WIZ couldn't be easier. Simply hold the tag over the red reader board and press the "Train" button.

You'll see the Status light flash green, and you'll see the green LED by the Relay light up as well. This will stay lit until you remove the tag. The green LED displays the state of the relay and 5v logic output. You'll also hear the click of the relay when it changes state.

You can repeat this process with multiple tags. Training up to 20 tags has been tested with stability. Upwards of 40 should be possible but attempt at your own risk.
Switching Modes

This section discusses the three modes of the RFID WIZ.

Two of the modes are accessed by flipping the RELEASE switch.

- **INSTANT Mode** - The relay and 5V logic output will release as soon as the tag is removed from the reader board.
- **DELAYED Mode** - The relay and 5V logic output will hold its state for 5 seconds after the tag is removed, and then it releases. This is useful for magnetic locks (maglocks) and other devices that need some time to "do their thing" (i.e. giving time for a spring to push a maglocked door open)

The third mode is **TOGGLE mode**.

- **TOGGLE mode** is accessed by tapping the TRAIN button 3 times. In this mode, the state of the relay and 5v logic output is flipped every time the reader board sees a trained tag. It will hold that state until it sees a trained tag again. **TOGGLE mode** is indicated by an amber light on the Status LED.
- **TOGGLE mode ignores the state of the RELEASE switch.**

Controlling a Maglock

Controlling a maglock with RFID WIZ is easy! We can even use the Vin pin on the WIZ to power the maglock.
Mag Locks are generally available in 12VDC and 24VDC voltages. Make sure to use a maglock and power supply of the same voltage. Double check the current requirements of the lock and match the power supply appropriately.

Using the WIZ's power terminals

Follow the image above to make the following connections:

- Vin to maglock + wire
- C to maglock - wire
- GND to NC

Note - this will only work with a 12V maglock.

This wiring will keep the maglock in the "locked" state until a trained card is placed in front of the reader board.
Using an external power supply

In some cases, you might want to use an external power supply. In this case, the onboard relay is acting as a switch to connect and disconnect this external power supply. This would be handy if you're powering a device that needs more than 12VDC. Follow the image above to make the following connections:

- Maglock connects to +VDC on the power supply and C on the WIZ relay
- Connect NC on the WIZ relay to -VDC on the maglock

This will work with either a 12VDC or 24DC maglock. Make sure to match your power supply voltage to your maglock voltage.

This wiring will keep the maglock in the "locked" state until a trained card is placed in front of the reader board.

The onboard relay can switch up to 10A 250V. However, we recommend using caution if you are using more than 24VDC or any AC voltage source

Controlling a Power Switch

This section will show you how to switch AC outlets using a Four Outlet Power Relay Module. You can also use this method to control any device that looks for 5V logic (such as an Arduino input).
RFID WIZ 5V Logic Output

The RFID WIZ has a white JST PH (2mm pitch) jack with 2 pins

- **GND** - always stays at 0V
- **SIG** - switches from 0V to 5V when the relay flips

A 2-pin JST cable is included with your kit, and can be used to connect to any device looking for a 5V logic input.

The power relay module has corresponding inputs: