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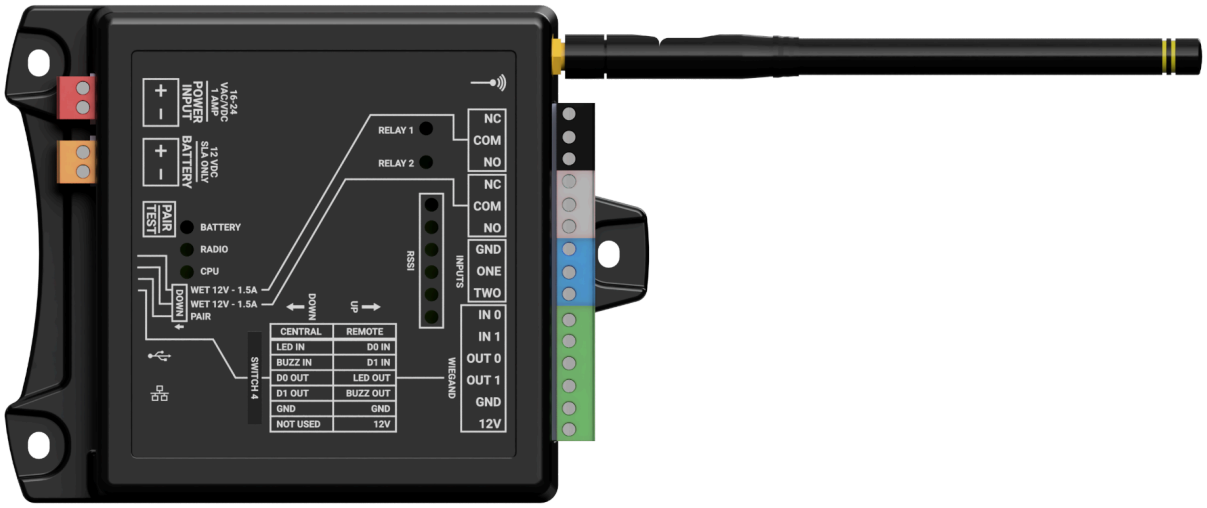
Wiegand Wave

WW100 - User Guide (v1.9)



Product Description	The Wiegand Wave is a wireless Wiegand bridge that transmits wireless signals (including Wiegand access codes and two contact inputs for controlling two relays) between remote Wiegand interface devices and a central access control module or panel.
Power	16-24 VAC/VDC
Protocol	Wiegand (26-bit)
Relays	Two NO/NC relays (dry or 12VDC wet)
Inputs	Two contact-closure inputs to ground (triggering relays on the paired unit)

Before You Begin

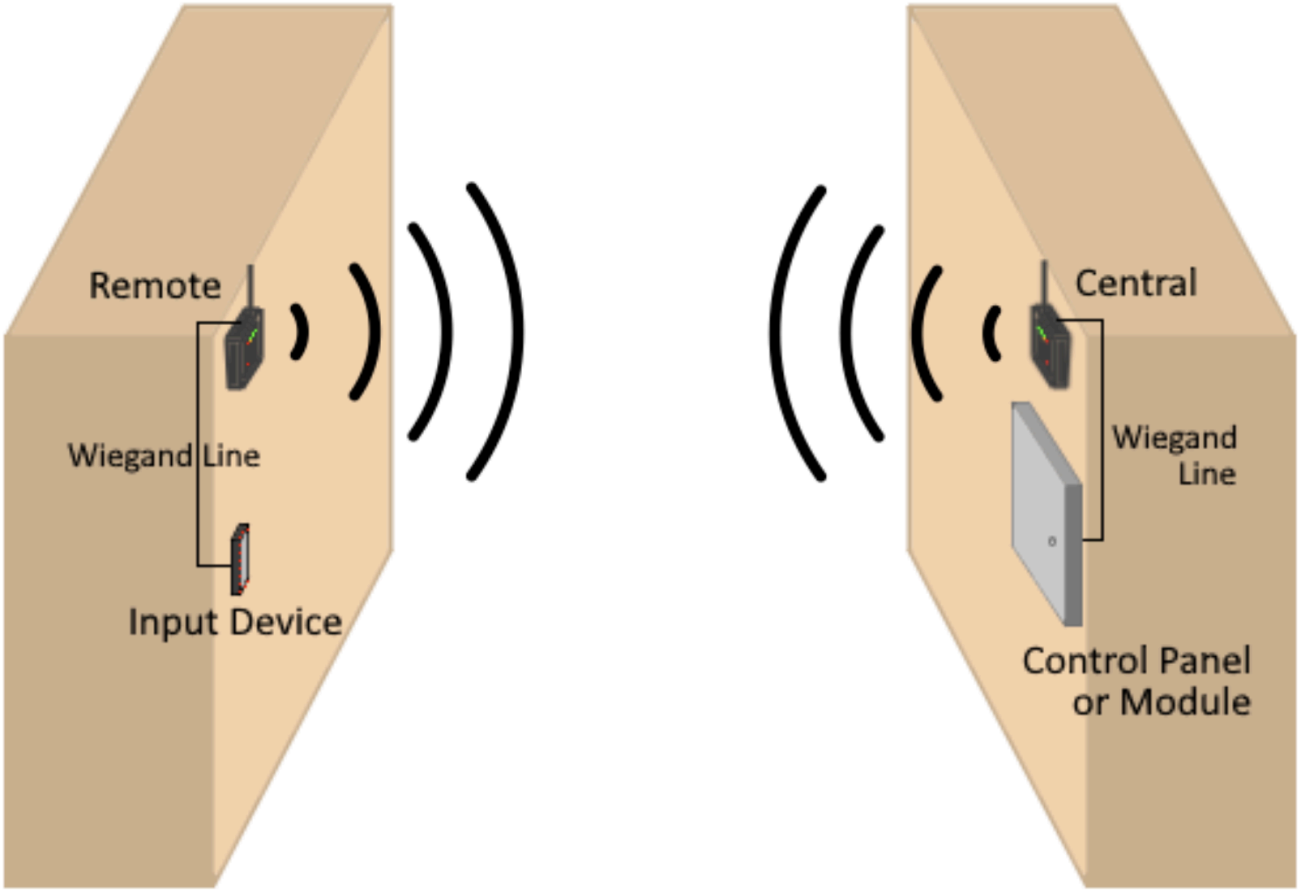
Ensure you have all required materials and recommended tools needed for a successful installation.

Part / Tool	Description	Quantity
WW100	These units function as a working pair. Installation and configuration can not be completed unless both units are available.	x2
Antenna	Provided	x2 one per unit
⅛ inch flathead screwdriver	*Not included, but recommended.*	x1
Power Supply	16-24 VAC/VDC	x2 one per unit

Helpful Terms

The following instructions utilize terms or abbreviations that may be unfamiliar. Please refer to the table to familiarize yourself before installation.

Central Unit	Receives wireless signals from a **Remote** unit, connects to an access control panel, and sends actions back to trigger devices like a door strike
Remote Unit	Connects input devices like card readers or sensors to send signals to the **Central** unit, which then triggers outputs to devices like door strikes.
WET Relay	Wet relays provide a 12VDC (1.5A Max) output to directly power devices when activated.
DRY Relay	Dry relays act as simple switches that open or close a circuit without supplying power.



Overview

The Wiegand Wave transmits wireless signals (including Wiegand access codes and two contact inputs for controlling two relays) between remote Wiegand interface devices and a central access control module or panel. This allows the access system to operate as if hardwired without programming or user interaction. Setup requires two Wiegand Wave units configured as **Central** and **Remote**.

Quick Start

Configure and pair units

1. Screw on the included antenna, ensuring that it's tight enough that it doesn't fall or swing freely in any position. Complete this process on both units.
2. Before mounting, connect both units to temporary power.
3. Ensure all DIP switches are set to the up position.
4. Select one unit to be the **Central** unit , and one unit to be the **Remote** unit.
5. Set DIP switch 4 down for the Central unit, up for the Remote unit.
6. Set DIP switch 3 down to engage pairing mode on both units.
7. Briefly press Pair/Test button on the Central unit to complete pairing.
8. When all six RSSI LEDs light up, set DIP switch 3 up on both units.
9. Disconnect from temporary power.

Mount and wire units

1. Install each unit in a high, dry, unobstructed location.

   ⚠ **The Wiegand Wave is NOT water resistant.**

2. Connect 16-24VAC/VDC power to the red terminal block on each unit.
3. Verify that the RSSI LEDs on both units illuminate every 30 seconds. This confirms successful pairing.
4. Wire units based on their classification.
   a. **Central**: connect access panel to the green Wiegand terminal blocks.
   b. **Remote**: connect access readers to the green Wiegand terminal blocks.

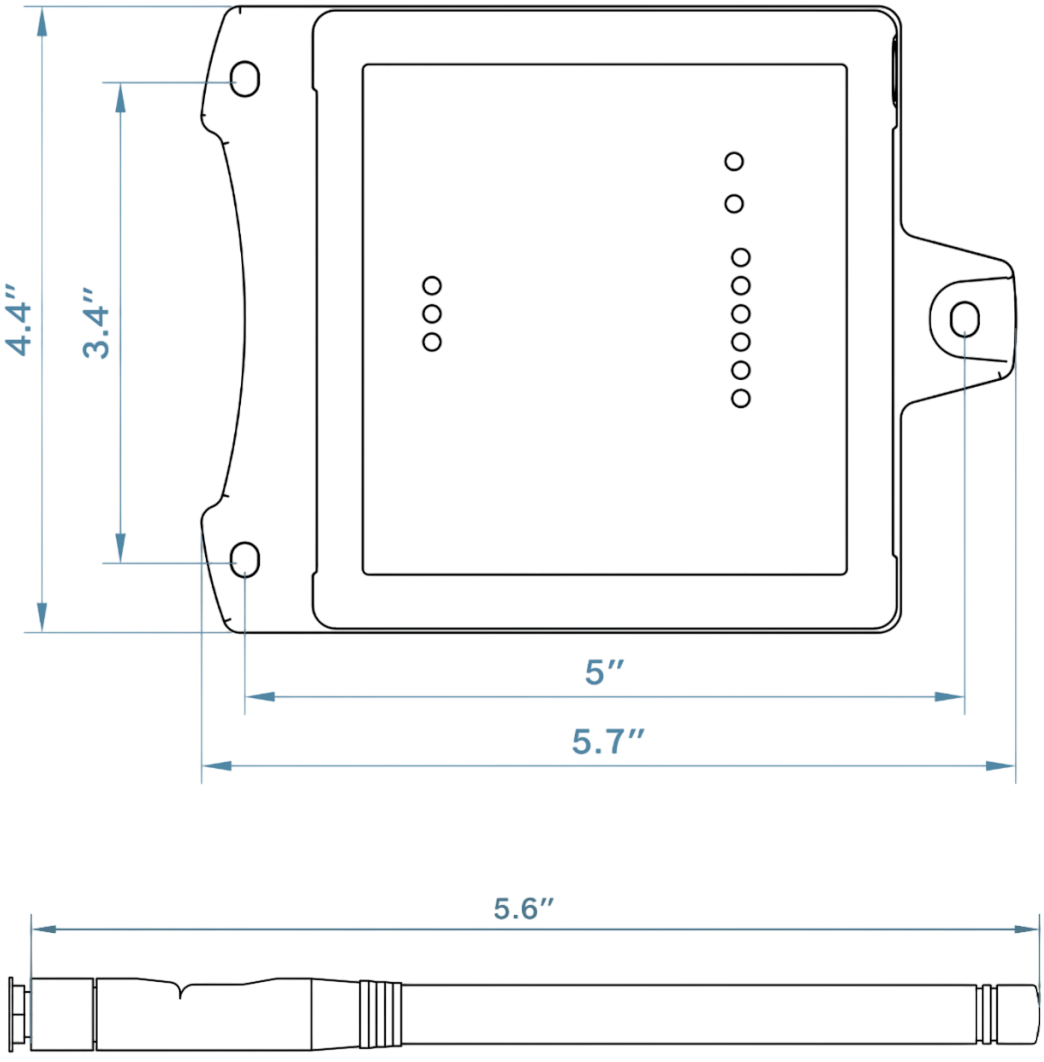
Test connection (⚠ A green RSSI LED is required for reliable operation)

1. Press Pair/Test and confirm blinking LEDs on both units.
2. Test fob on access reader (when connected to a central access control panel) to ensure everything is working.

Mounting

Screw on the included antenna, ensuring that it's tight enough that it doesn't fall or swing freely in any position. Mount the unit in an area where the antenna has a mostly-unobstructed airway towards its paired unit, preferably high and near an exterior wall or window if mounted indoors. The unit will require power and a Wiegand connection.

⚠ **The Wiegand Wave is NOT water resistant.**



Wiring

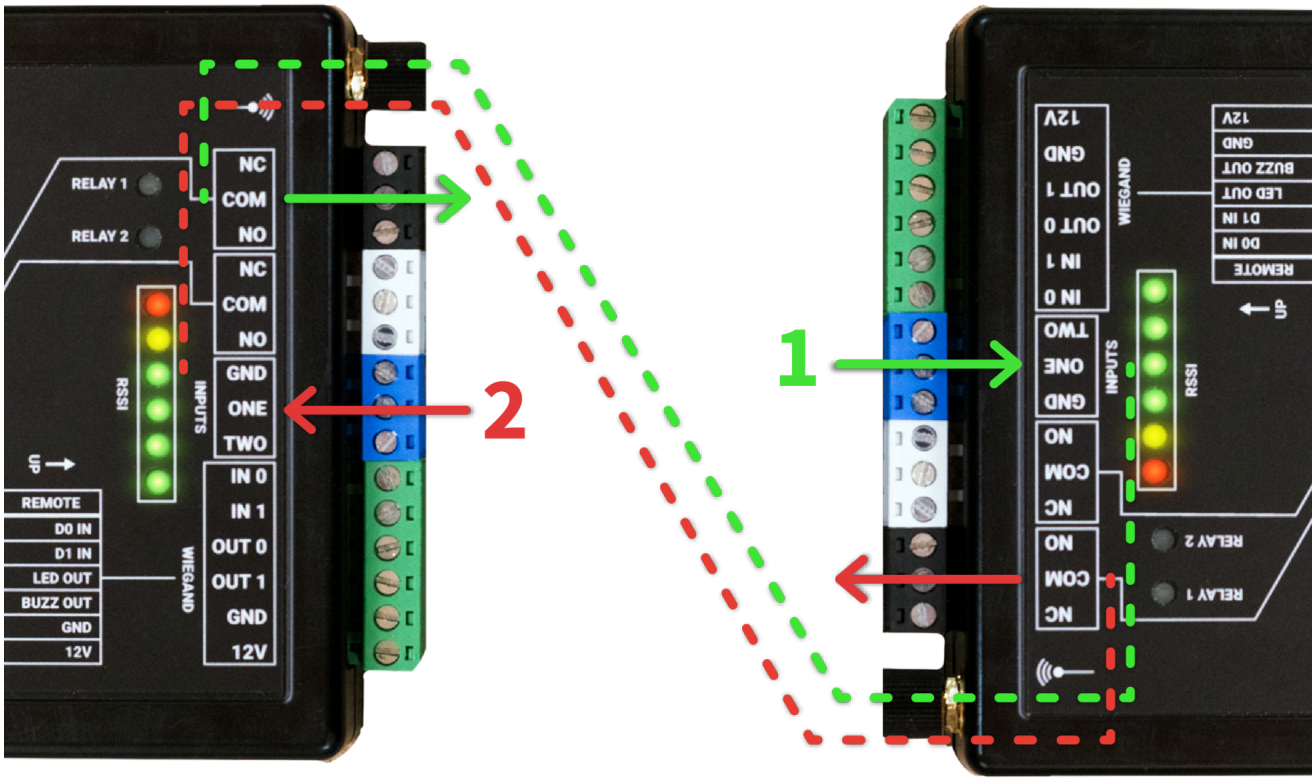
The following list correlates to the colored terminals on the units. Wiring set up is different for the **Central** unit and the **Remote** unit. Please read carefully to ensure you are completing the correct steps for each unit.

Central unit wiring

- **Red terminal block:** Connect 16-24VAC/VDC to the red terminal block. When connected properly, the CPU power LED will illuminate.
- **OPTIONAL: Orange terminal block:** If installing a backup battery, connect the battery to the orange terminal block to provide backup power in the event of a power outage. ⚠ **Use 12VDC sealed lead acid battery ONLY.**
- **Green terminal block:** Connect the Access Control panel using the GND, OUT0 (D0), and OUT1 (D1) terminals on the green terminal block.
- **OPTIONAL: Green Terminal Block:** If applicable, also connect IN 0 and IN 1 for the reader LED and buzzer control.
- **Black/gray terminal blocks:** If applicable, connect relay 1 or 2 to a door position sensor or similar device on the access control panel. Can be configured for “wet” or “dry” operation. The Central relay outputs are wirelessly connected to the Remote relay inputs.
- **Blue terminal block:** Connect the door-open signal from the access control panel to input One or Two and GND, similar to how you would connect it to a door strike or gate controller relay. The Central relay inputs are wirelessly connected to the remote relay outputs.

Remote unit wiring

- **Red terminal block:** Connect 16-24VAC/VDC to the red terminal block. When connected properly, the CPU power LED will illuminate.
- **OPTIONAL: Orange terminal block:** If installing a backup battery, connect the battery to the orange terminal block to provide backup power in the event of a power outage. ⚠ **Use 12VDC sealed lead acid battery ONLY.**
- **Green terminal block (Wiegand):** Attach the reader to the 12V, GND, IN0 (D0), and IN1 (D1) terminals on the green terminal block. Unit will turn on once connected to 12V and GND.
- **OPTIONAL: Green terminal block (Wiegand):** Reader LED and buzzer control.
- **Black/white terminal blocks:** Connect devices like door strikes or gate controllers to either relay 1 or 2. Can be configured for "wet" or "dry" operation. The **Remote** relay outputs are wirelessly connected to the **Central** relay inputs.
- **OPTIONAL: Blue terminal block:** Connect a REX button or door sensor to inputs One and/or Two, and GND. The **Remote** relay inputs are wirelessly connected to the **Central** relay outputs.



*(**Central** Unit)*

*(**Remote** Unit)*

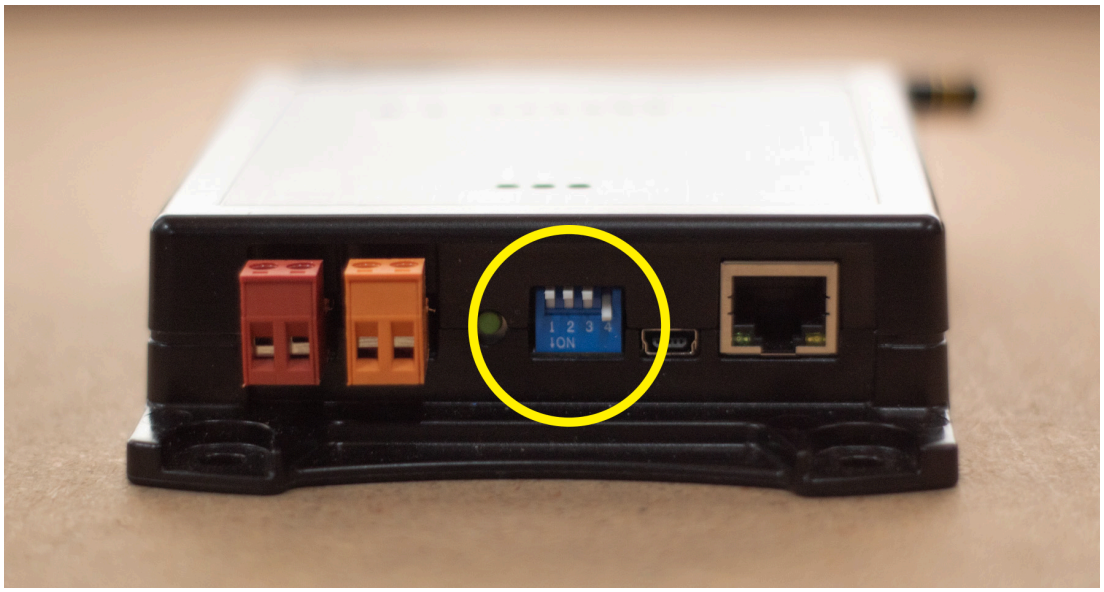
Wiring Example

The image above shows the interaction between the inputs and relays. A contact closure input on one unit will trigger the corresponding relay on the paired unit.

In this scenario, a door position input triggers the Input One on the **Remote** unit, shown in green. This wirelessly signals the **Central** unit's Relay One to activate. This could be connected to a position sensor input on the access control module or panel for monitoring the state of the door. If a card scan is approved, the access control module or panel would respond with a contact closure to the **Central** Input One, shown in red. The **Central** unit then signals Relay One to activate on the **Remote** unit, which opens the door.

Configuration

The units are configured through the blue DIP switch block on the side of the unit near the orange battery terminals.



The switches allow you to configure the unit for **Central** or **Remote** operation, enable pairing mode, or set relays to be Wet or Dry. Dry relays act as simple switches that open or close a circuit without supplying power. Wet relays provide a 12VDC (1.5A Max) output to directly power devices when activated.

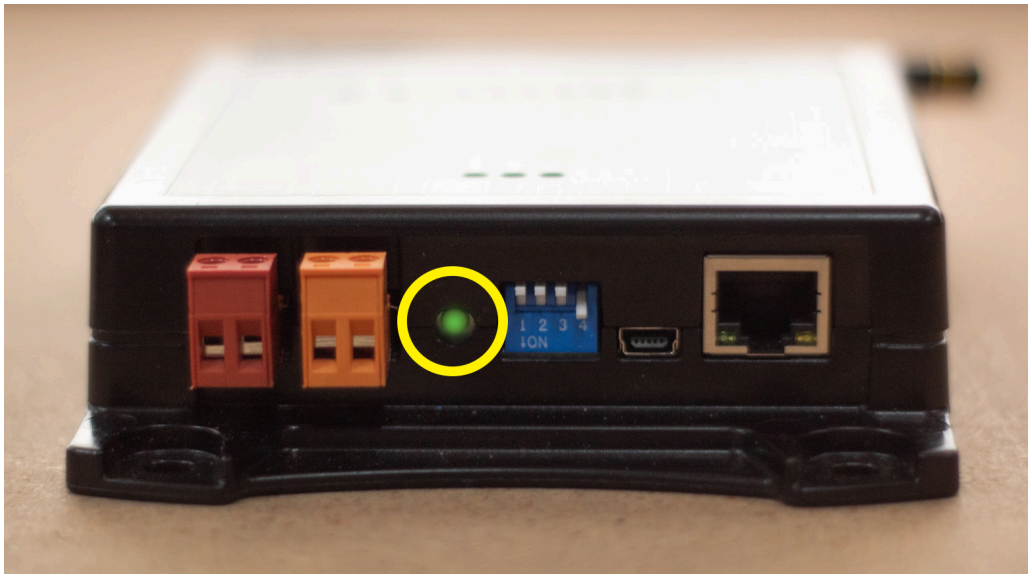
SWITCH	UP POSITION	DOWN POSITION
Switch 1 (Relay 1)	Dry	Wet
Switch 2 (Relay 2)	Dry	Wet
Switch 3 (Pairing)	Normal mode	Pairing mode
Switch 4 (Role)	Remote	Central

Pairing Units

Perform the following steps to pair the **Central** and **Remote** units. It's recommended to have them in close proximity for pairing, but not required. Once successfully configured and paired, the units will communicate every 30 seconds. The RSSI LEDs will indicate signal strength between the two units.

1. Move all DIP switches to the up position on both units.

2. Press and hold the green Pair/Test button on both units for 10 seconds, or until the six RSSI LED indicators illuminate three times.

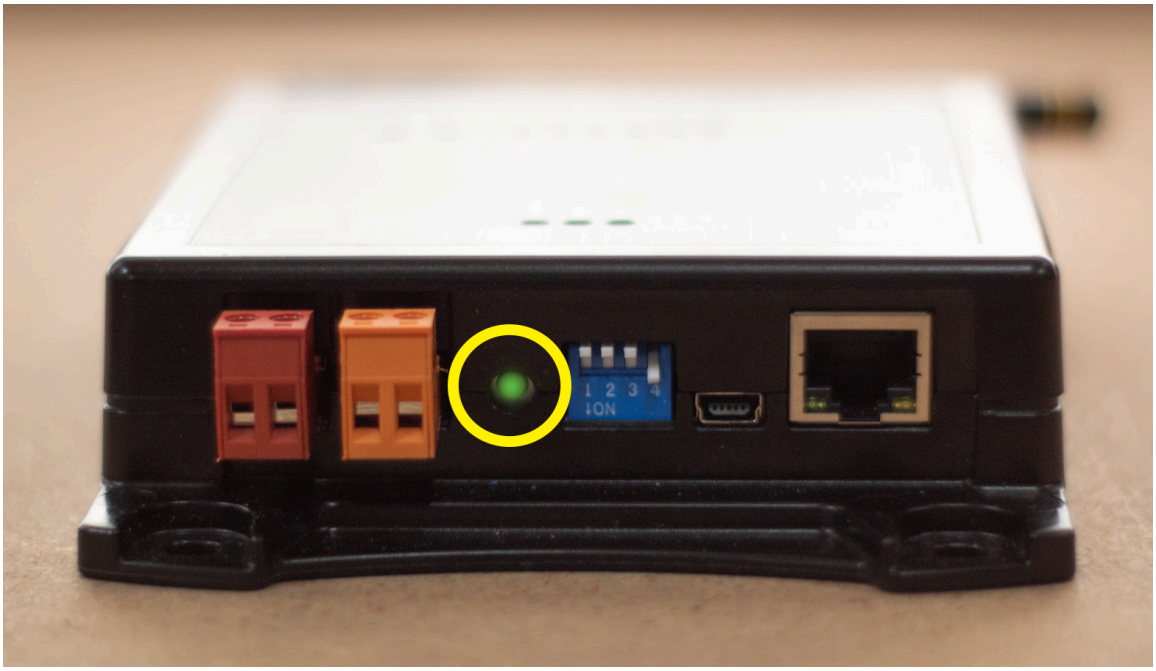


3. Set DIP switch 4 down on the **Central** unit
4. Set DIP switch 4 up on the **Remote** unit.
5. Move DIP switch 3 to the down (pairing mode) position on both units.
6. Briefly press the green Pair/Test button on the **Central** unit. RSSI lights will count up until all six are lit on both units, indicating pairing is complete.
7. Move DIP switch 3 back to the up (normal mode) position on both units.

Unpairing Units

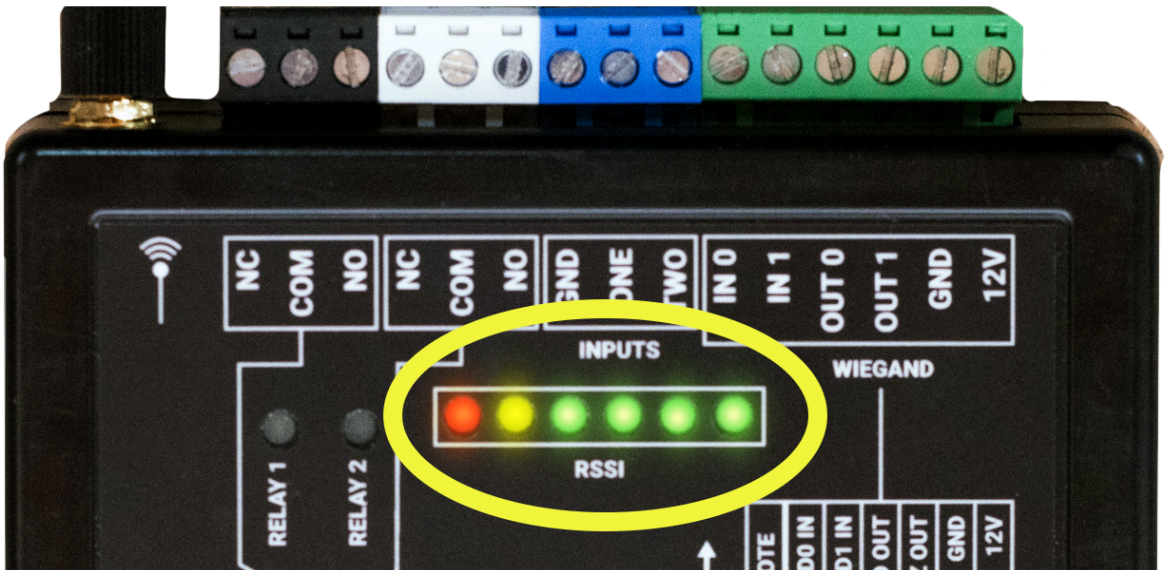
In the event that you need to unpair two WW100's from each other, perform the following steps to unpair the **Central** and **Remote** units. You do not need to have the units in close proximity to each other to complete this.

1. Move all DIP switches to the up position on both units.
2. Hold the green Pair/Test button until the LEDS on the top of the unit light up 3 times. This process takes roughly 10 seconds.



Testing

For a quick connection test, briefly press the green Pair/Test button. The RSSI LEDs on both units will strobe if successful.



For further testing, connect a Weigand reader to the **Remote** unit, the reader should turn on during this test. Swipe a fob on the reader and look for the following:

- The RSSI lights should illuminate, indicating the signal strength.
- The Radio Power LED should illuminate briefly, indicating that a message was sent or received.
- The **Central** unit should output a Wiegand code that matches the fob swiped on the reader.
- If wired correctly to an access control panel, the **Central** unit will trigger the relay input and the corresponding relay output on the **Remote** unit will illuminate to indicate a successful door open.

Repeat this test with the devices mounted in their desired locations.

After mounting, check the signal strength on the RSSI LED indicators. You may want to adjust the mounting location and antenna orientation if the signal strength is poor or if the response is inconsistent.

⚠ **A green RSSI LED is required for reliable operation**

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