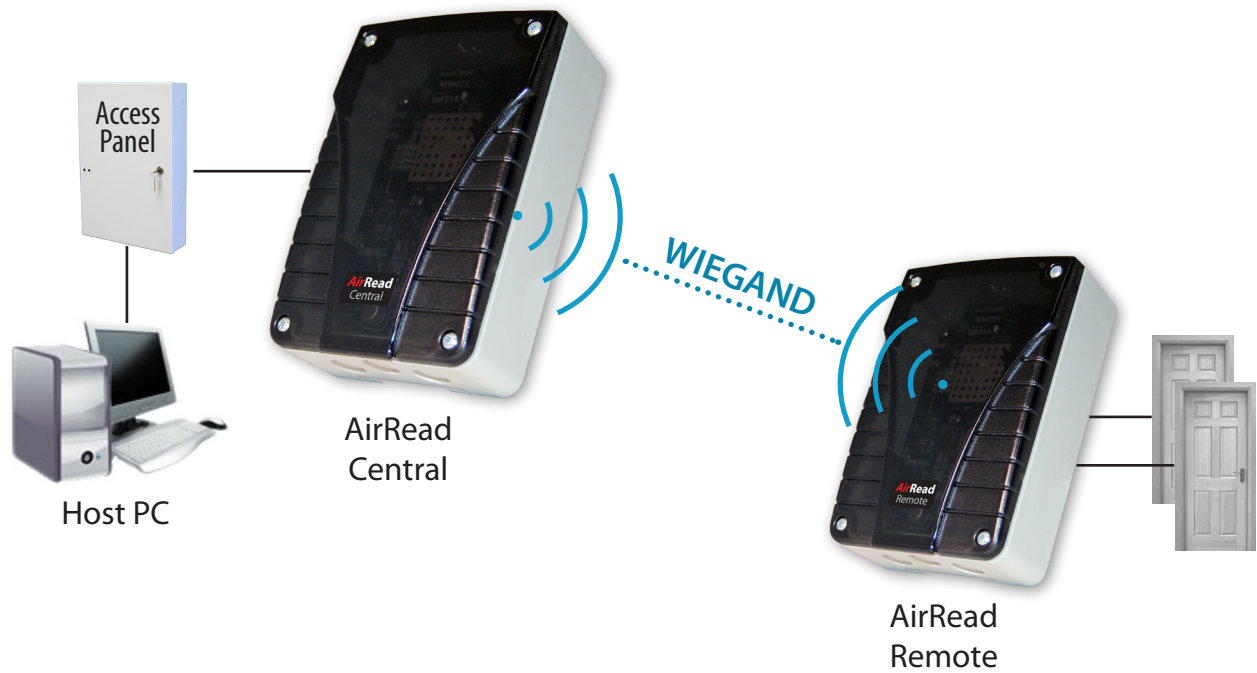


AirRead

INSTALLATION MANUAL



August 2017

Table of Contents

Introduction	3
KEY FEATURES.....	3
Typical Configuration	4
AirRead Package	4
Specifications	5
Install AirRead	6
1. POWER UP THE AIRREAD REMOTE AND CENTRAL UNITS	6
2. WIRING WIEGAND READERS.....	7
3. WIRING LOCK OUTPUT RELAYS.....	8
4. WIRING REQUEST TO EXIT AND DOOR CONTACT.....	9
Wiring Example - SmartLock Pro Plus	10
WIRING CENTRAL UNIT	10
WIRING REMOTE UNIT	11
TroubleShooting	12

Introduction

Keep your Wiegand system connected, forget about the miles of wires, easy installation for jobs where running wire is either too expensive or inconvenient.

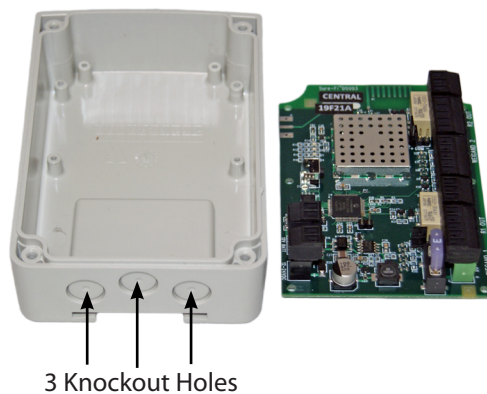
AirRead system include two units (Central and Remote) which are able to communicate wirelessly up to 536 meters (1/3 mile) through obstructions. Each AirRead system comes equipped with 2 Wiegand inputs, 2 relay outputs, and has the ability to power and wirelessly operate a mag lock, electric door strike, door position sensor, request to exit button, gate operator or any other device controlled through a relay. The AirRead system comes pre-programmed and paired from the factory so there is no set-up or configuration required - simply wire the devices and power the units on for immediate functionality. With the paired communication pre-set between remote and central units, it is possible to use up to 50 AirRead systems simultaneously in one location with no interference issues.

KEY FEATURES

- Works with any Wiegand protocol
- Indoor/Urban: 536 m (1/3 mile)
- Line-of-sight: 16 km (10 miles)
- 2 Wiegand inputs
- 2 relay outputs
- Request to exit input
- Door monitor input
- Battery backup
- Dry Relay
- Housing rated for outdoor use and is water tight

IMPORTANT

Remove the product control board from both the Remote and Central units prior to removing knockout holes.



Typical Configuration

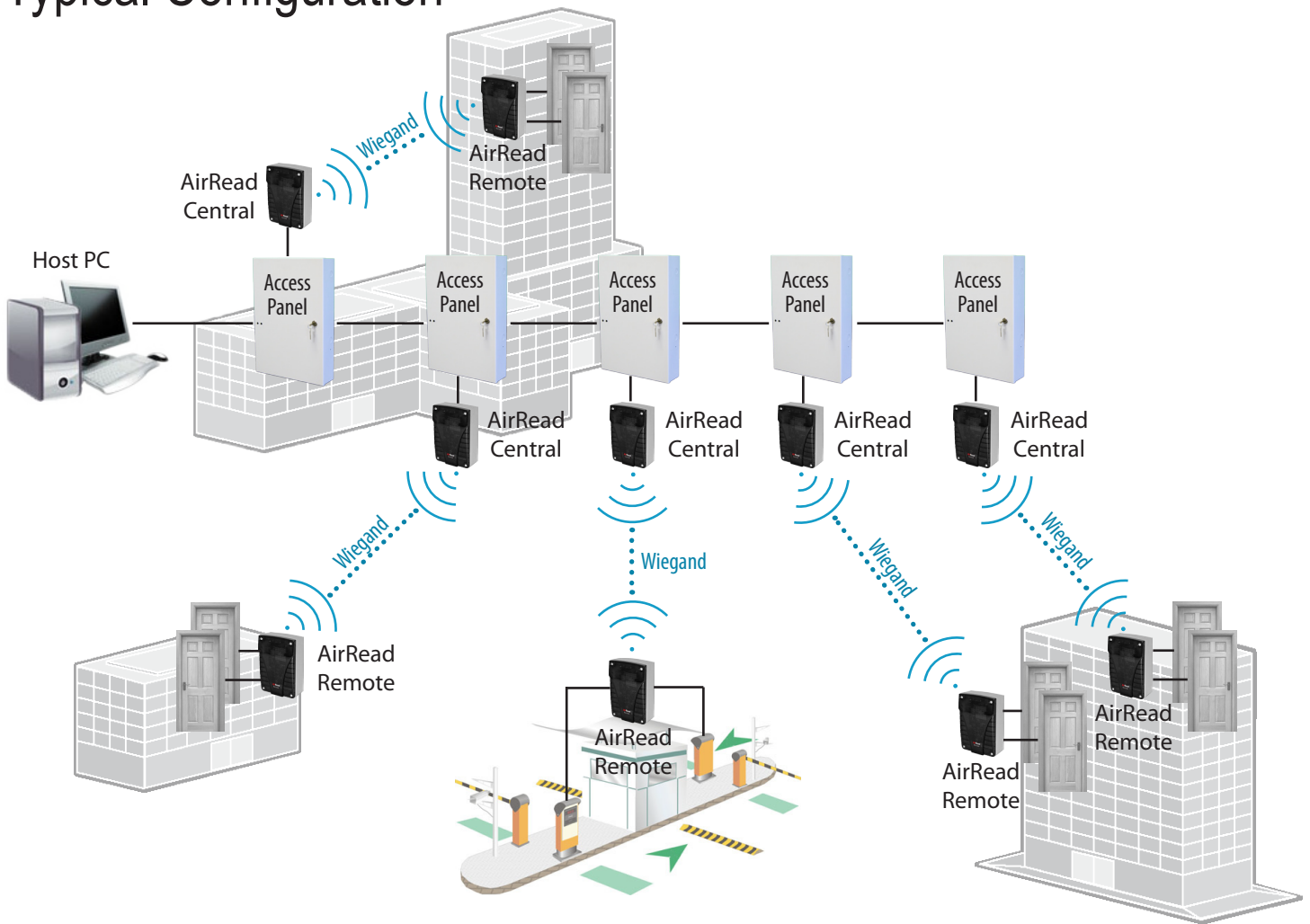
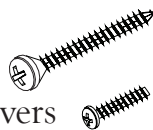


Figure 1: Typical Configuration

AirRead Package

The AirReader (TS-AirRead) package consists of:

- AirReader Central unit
- AirReader Remote unit
- Installation manual
- 2 Inline Fuses
- 1 S-4 surge suppressor
- 2 covers for Central & Remote units
- 6 knockout adapters
- 2 wall mounting brackets
- 4 anchor screws
- 4 screws for 2 wall mounting brackets
- 8 screws for Central & Remote unit covers



Specifications

Power

Operating Power.....	12/24 VDC
Read 12 VDC.....	50 mA (Idle), 1 A (Transmit)
Read 24 VDC	25 mA (Idle), 500 mA (Transmit)

Temperature -40° C/F to 85° C /185° F

Dimensions

AirReader (Central / Remote).....	3.25” (W) x 4.75” (H) x 1.5” (D)
.....	[83 mm (W) x 121 mm (H) x 38 mm (D)]

Weight

AirReader (Central / Remote).....	150 g [5.3 oz]
-----------------------------------	----------------

Range

Indoor/Urban	536 m [1/3 mile]
Line of Sight	6 km [10 miles]

Relays2 A 250 VAC, 2 A 220 VDC

Security Encryption AES

NOTE:

1. Specifications subject to change without notice.
2. Tech Support will only be provided where product installation guidelines have been followed.

IMPORTANT:

1. In some jurisdictions, the use of a UL approved power supply and connection to the fire alarm system for emergency release may be required. Installers should contact the local authority having jurisdiction to verify the specific requirements. Also, a building permit may be required in some jurisdictions for the installation of magnetic locks.
2. The included Surge Suppressors and Inline Fuses **MUST** be installed to comply with warranty.

Install AirRead

1. POWER UP THE AIRREAD REMOTE AND CENTRAL UNITS

The AirRead system comes pre-programmed and paired from the factory. Please ensure that the two numbers (e.g. 19F21A) labeled on the top left corner of the remote and central PCBs are identical. Otherwise, the remote and central units will not communicate.

Each side of AirRead (Remote and Central) needs 1 A of current draw to transmit at full power. You are not getting the desired range between Remote & Central units if they are not powered by their own dedicated power supply.

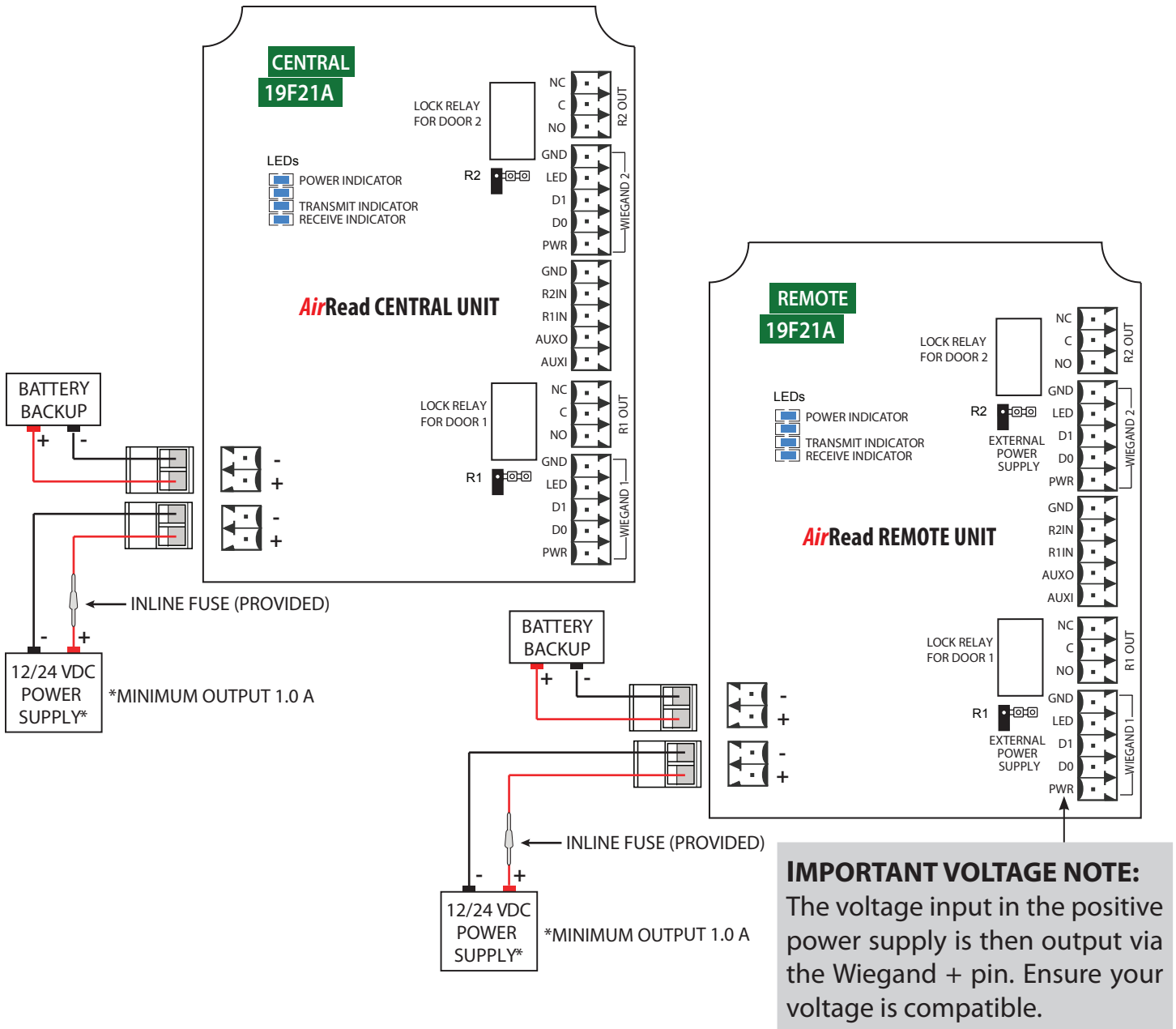
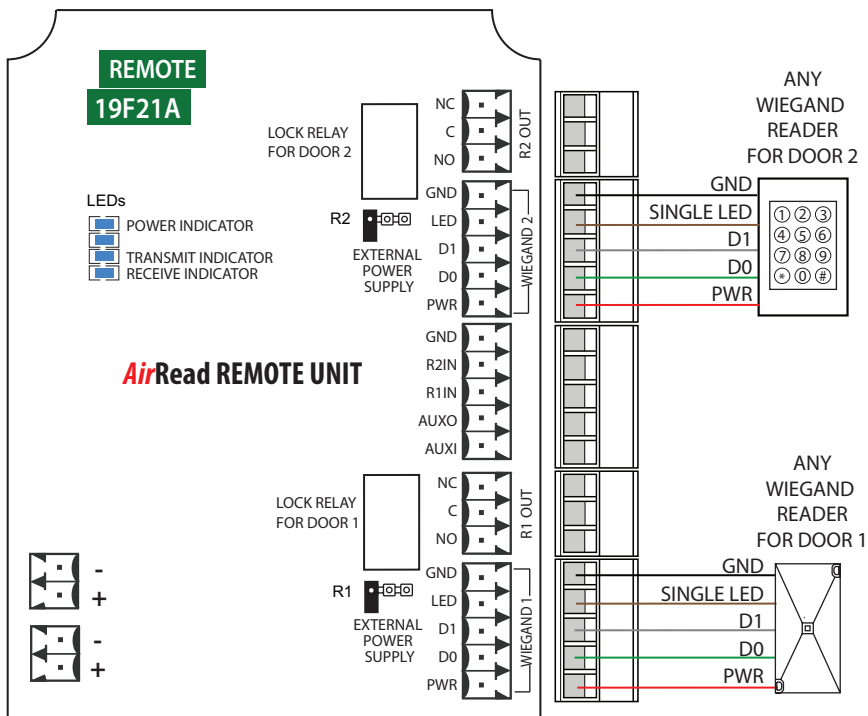
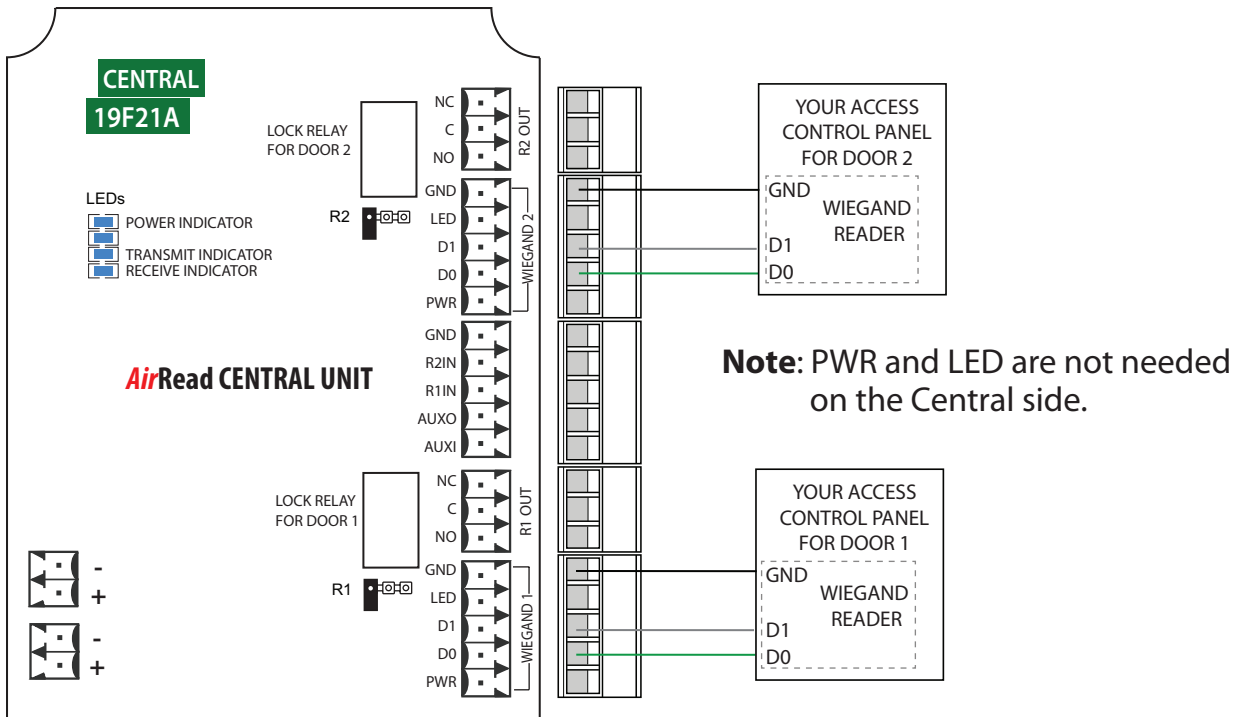
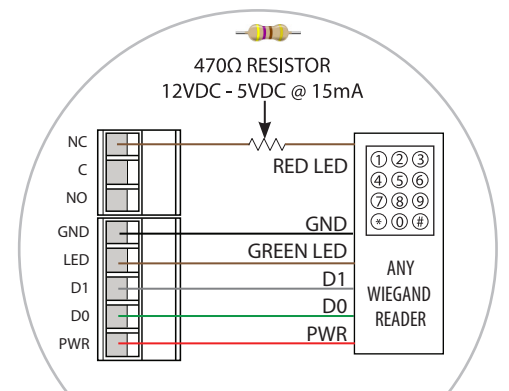


Figure 2: Power up AirRead Remote and Central Units

2. WIRING WIEGAND READERS



DUAL LED READER WIRING FOR DOOR1 OR DOOR2



Note: COM must be connected to 12 VDC. If other voltage or other LED brightness required, scale resistor accordingly. Some devices have single wire, two LED modes.

Figure 3: Wiring Wiegand Readers

3. WIRING LOCK OUTPUT RELAYS

The R1IN & R2IN inputs on the Central unit correspond directly with the R1 & R2 outputs on the Remote unit. The R1IN & R2IN inputs are used to control a maglock, electrical strike, gate operator, or other device to control access.

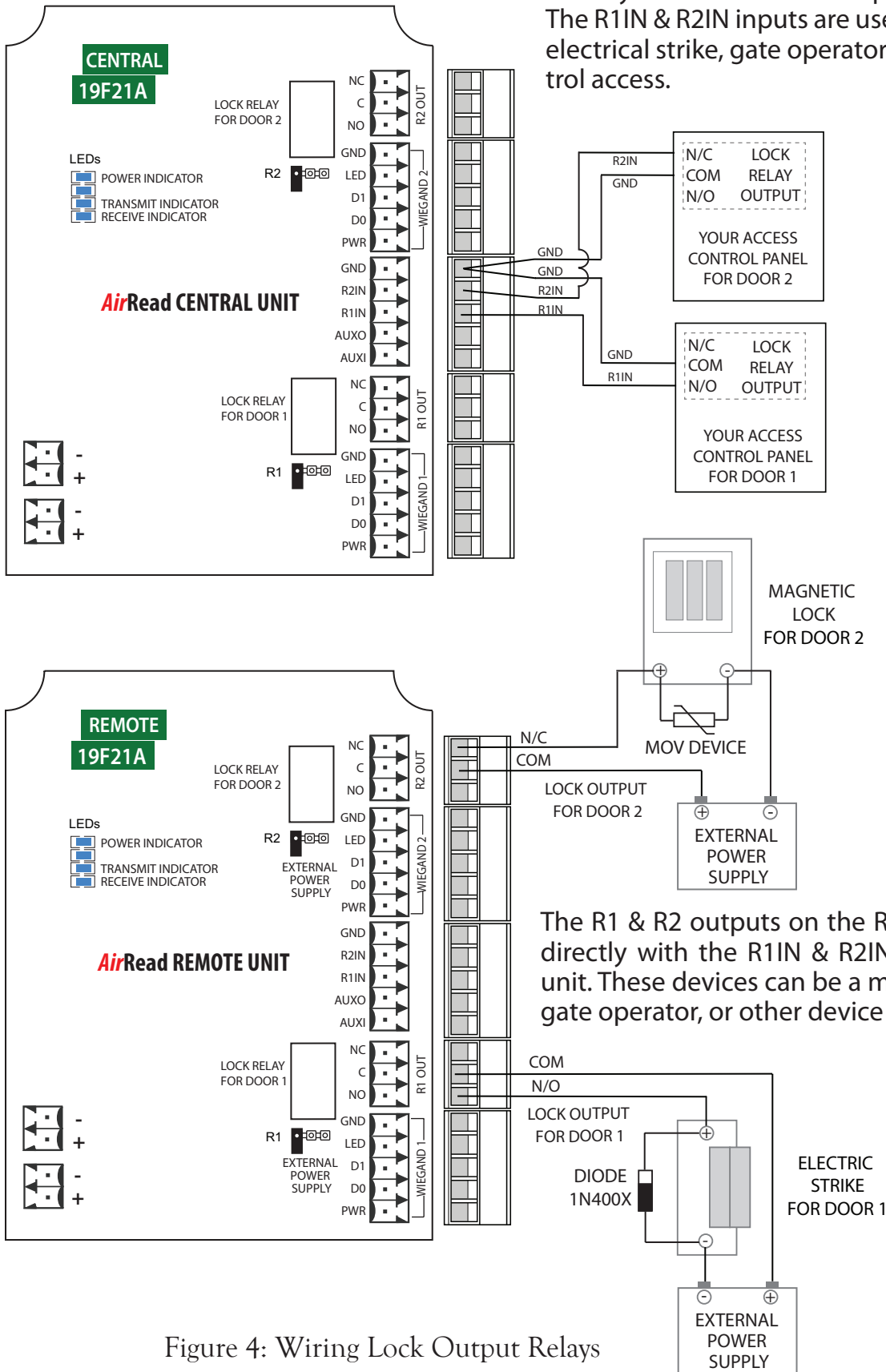
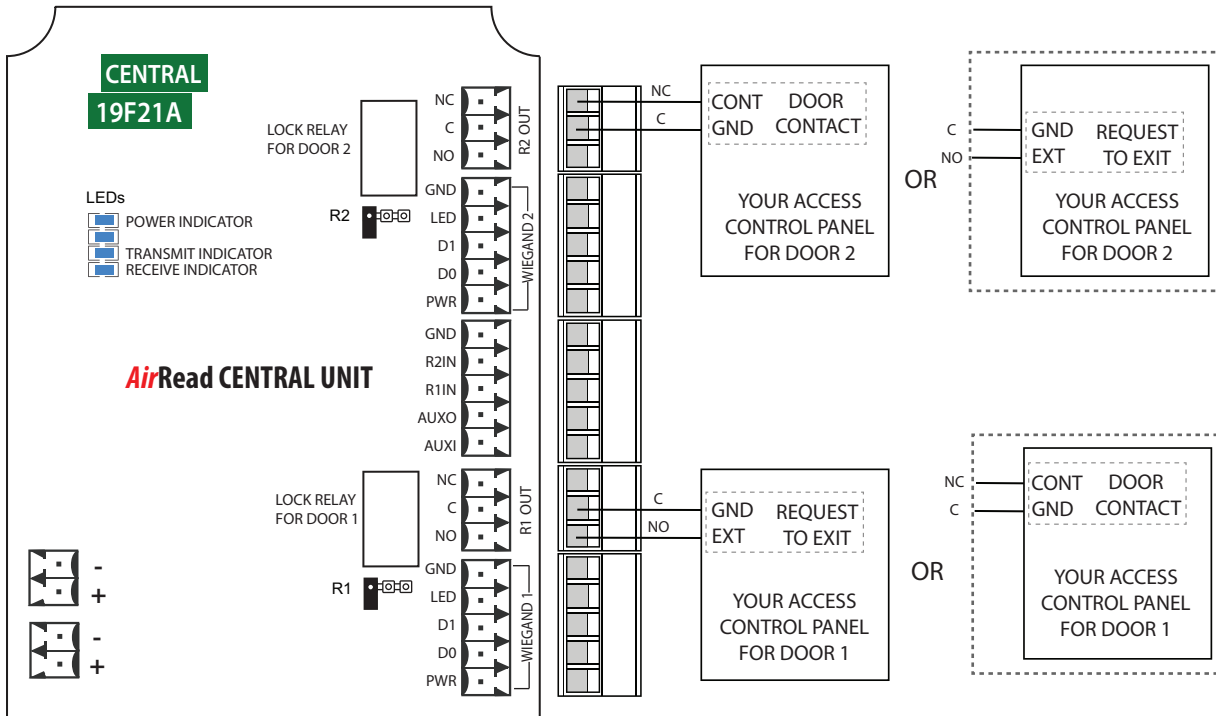


Figure 4: Wiring Lock Output Relays

4. WIRING REQUEST TO EXIT AND DOOR CONTACT

The R1 & R2 outputs on the Central unit correspond directly with the devices connected to the R1IN & R2IN inputs on the Remote unit. The R1 & R2 outputs on the Central unit are wired to the appropriate R1IN AND R2IN inputs on your access control panel (request to exit or door contact)



The R1IN & R2IN inputs on the Remote unit correspond directly with the R1 & R2 outputs on the Central unit. The R1IN & R2IN inputs can be used for a door contact or a request to exit. Use R1IN and GND to wire a desired device, and use R2IN and GND to wire another desired device on the Remote unit.

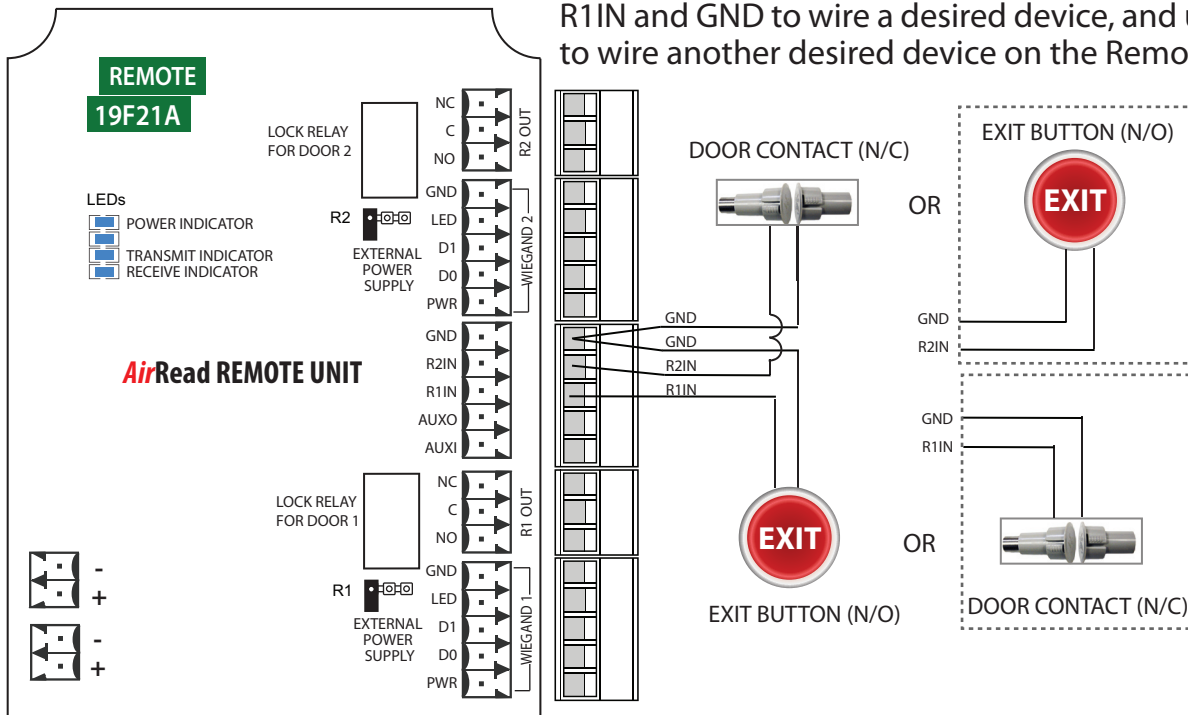


Figure 5: Wiring Inputs

Wiring Example - SmartLock Pro Plus

WIRING CENTRAL UNIT

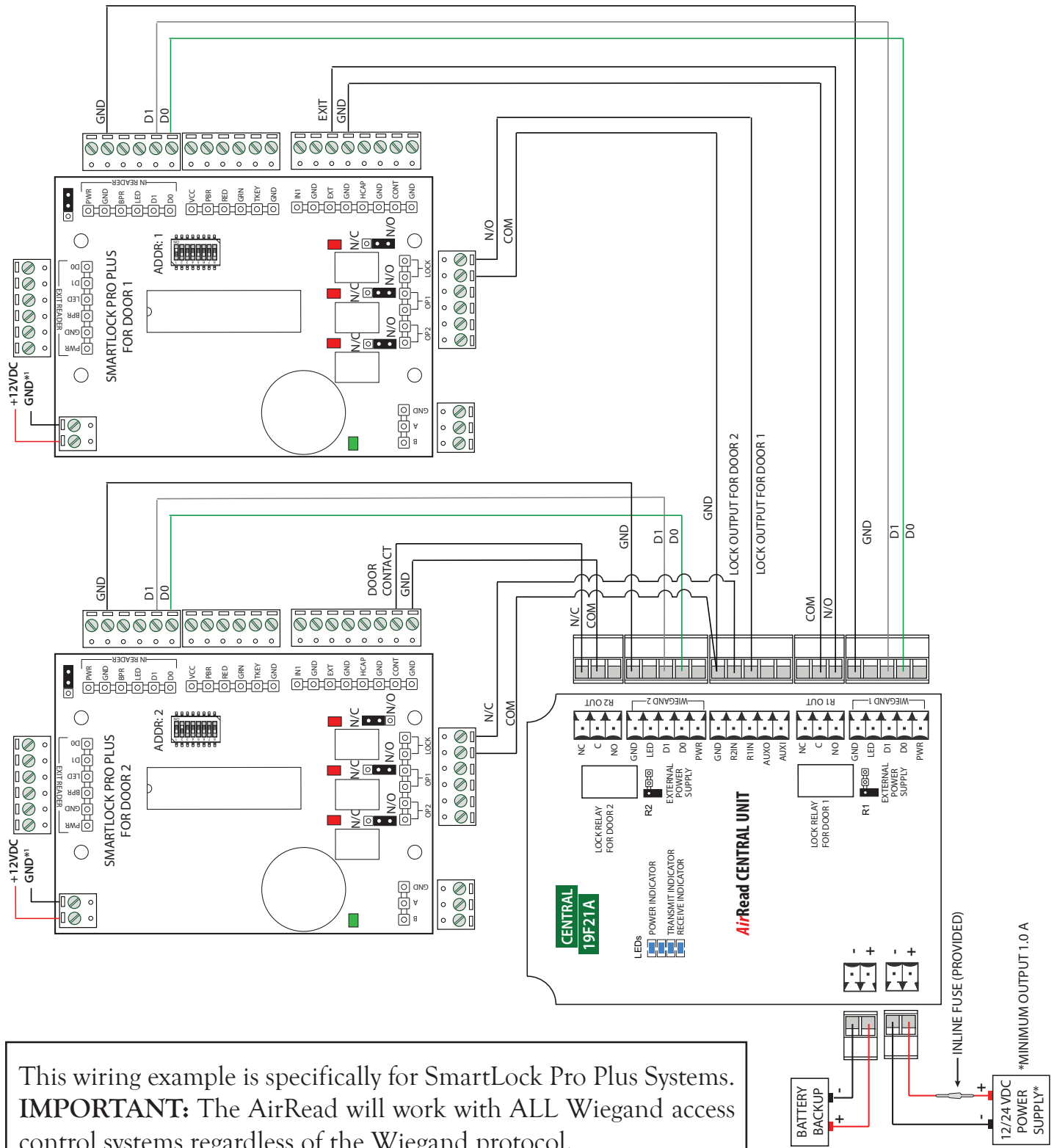


Figure 6: Wiring Central Unit

WIRING REMOTE UNIT

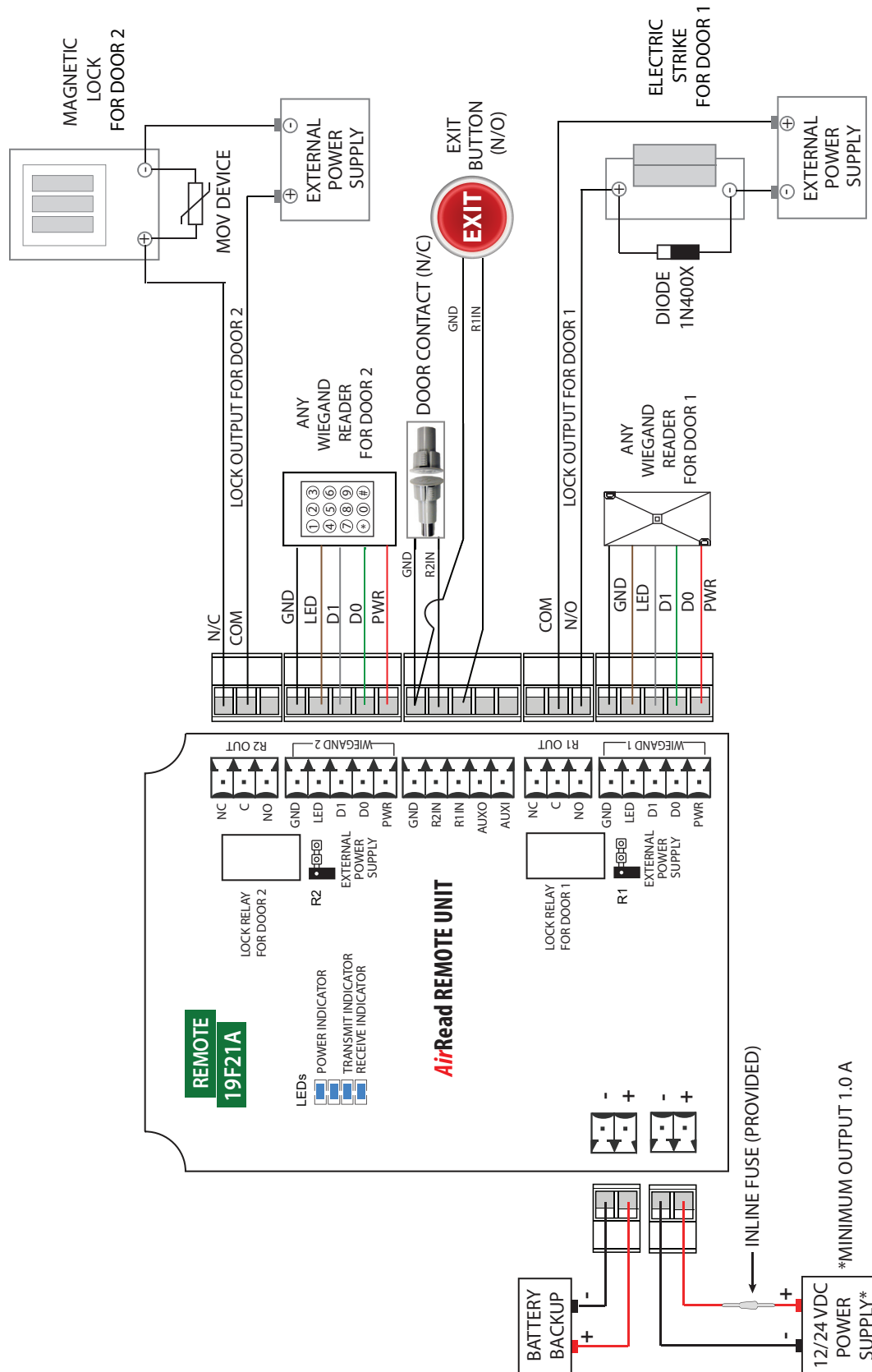


Figure7: Wiring Remote Unit

TroubleShooting

Remote & Central are not communicating:

The AirRead system comes pre-programmed and paired from the factory. Please ensure that the two numbers (e.g. 19F21A) labeled on the top left corner of the remote and central PCBs are identical. Otherwise, the remote and central units will not communicate.

After presenting a credential to the Wiegand device -

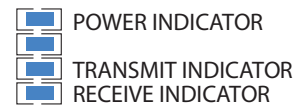
Look on the board of the remote or central unit to ensure that the following happens:

1. The transmit LED is active

And shortly after

2. The receive LED is active

LEDs



You do not see the transmit and receive LED lights activate:

1. Power cycle both the remote and central units.

2. Move the remote and central unit to a higher location and avoid mounting on/in metal objects.

You are not getting the desired range between Remote & Central units:

1. Ensure that the both devices are powered by their own dedicated power supply

2. Ensure that 1 amp of power draw is available to each device during transmission

3. Move the remote and central units to a higher location - and avoiding mounting in/on metal objects

4. The voltage input in the positive power supply is then output via the Wiegand + pin. Ensure your voltage is compatible.

Verify Power at Central and Remote

If Power LED (D7) is OFF

- | | | | |
|-------------------------------------|----|----------|--|
| <input checked="" type="checkbox"/> | D7 | POWER | - Verify system voltage on power connector (J12) and wiring. |
| <input type="checkbox"/> | D6 | | |
| <input type="checkbox"/> | D5 | TRANSMIT | - If power is on J12 - verified with a volt mete. |
| <input type="checkbox"/> | D4 | RECEIVE | ✓ Hardware is possibly bad or damaged. |

Verify Wiegand Input at Remote

Present credential to Wiegand Device. The TRANSMIT LED should light for around ½ second.

- | | | | |
|-------------------------------------|----|----------|--|
| <input checked="" type="checkbox"/> | D7 | POWER | If NO TRANSMIT |
| <input type="checkbox"/> | D6 | | |
| <input checked="" type="checkbox"/> | D5 | TRANSMIT | - Verify Wiegand power, ground, and data line wiring. |
| <input type="checkbox"/> | D4 | RECEIVE | - Move Wiegand Device to 2nd Wiegand input (if unused, or swap). |
| | | | - Verify Wiegand bit string does not exceed 56. |
| | | | - If possible, try another Wiegand Device. |

If STILL NO TRANSMIT

- Reset Power





- ✓ If TRANSMIT LED returns verify electric strikes, mag locks, and other inductive devices are properly clamped and surge protected.

- Remote Hardware is possibly bad or damaged.

Verify Wiegand Receive at Central

Present credential to Wiegand Device.

- ✓ The TRANSMIT LED on the REMOTE should light for around ½ second.
- ✓ The RECEIVE LED on the CENTRAL should light for around ½ second.

	D7	POWER
	D6	
	D5	TRANSMIT
	D4	RECEIVE

1 - If NO RECEIVE on Central

- Look for obvious heavy obstruction or interference. Move the Central closer to the Remote to and test if in question.
- ✓ If the Central and Remote are moved in close proximity and the Transmit LED lights on the Remote without the Receive LED on the Central, then Central hardware is possibly bad or damaged.

2 - If units work in closer proximity

- Verify Remote and Central power supplies are capable of delivering 1 AMP @ 12VDC.
- Put both Central and Remote units in an upright, vertical position.
- Elevate as high as possible.
- Locate with least amount of obstruction between units as possible.
- Look for signs of obvious RF interference (difficult to do, but unlikely the cause).

3 - If still NO RECEIVE on Central

- Verify inductive devices are properly clamped and surge protected.
- Central Hardware is possibly bad or damaged.





Verify Wiegand Receive at Controller

Present credential to Wiegand Device at Remote.

- ✓ The TRANSMIT LED on the REMOTE should light for around ½ second.
- ✓ The RECEIVE LED on the CENTRAL should light for around ½ second.
- ✓ The TRANSMIT LED on the CENTRAL should light for around ½ second.





1 - If NO TRANSMIT on Central

- Verify controller accepted the Wiegand credential correctly
 - ✓ If not, verify Wiegand data line and ground connections.
 - ✓ Verify bit string is less than 56 bits.
 - ✓ Refer to Bridge User Manual for series diode instruction on Wiegand datalines.
- Verify the controller activated the corresponding relay output and asserted the Relay Input on the Central – typically goes from 0 to 5 VDC.

	D7	POWER
	D6	
	D5	TRANSMIT
	D4	RECEIVE

2 - If still NO TRANSMIT on Central

- Verify inductive devices are properly clamped and surge protected.
- Central Hardware is possibly bad or damaged.

	D7	POWER
	D6	
	D5	TRANSMIT
	D4	RECEIVE

Verify Central (Controller Relay) receive at Remote

Present credential to Wiegand Device at Remote.

- ✓ The TRANSMIT LED on the REMOTE should light for around ½ second.
- ✓ The RECEIVE LED on the CENTRAL should light for around ½ second.
- ✓ The TRANSMIT LED on the CENTRAL should light for around ½ second.
- ✓ The RECEIVE LED on the REMOTE should light for around ½ second.

1 - If NO RECEIVE on Remote

- Look for obvious heavy obstruction or interference. Move the Central closer to the Remote to and test if in question.
 - ✓ If the Central and Remote are moved in close proximity and the Transmit LED lights on the Remote without the Receive LED on the Central, then Central hardware is possibly bad or damaged.

2 - If units work in closer proximity

- Verify Remote and Central power supplies are capable of delivering 1 AMP @ 12 VDC.
- Put both Central and Remote units in an upright, vertical position.
- Elevate as high as possible.
- Locate with least amount of obstruction between units as possible.
- Look for signs of obvious RF interference (difficult to do, but unlikely the cause).

3 - If still NO RECEIVE on Remote

- Verify inductive devices are properly clamped and surge protected.
- Central Hardware is possibly bad or damaged.

4 - If still NO RECEIVE on Remote

- Verify electric strikes, mag locks, and other inductive devices are properly clamped and surge protected.
- Remote Hardware is possibly bad or damaged.

Verify Remote Relay Outputs

Present credential to Wiegand Device at Remote.

- ✓ The TRANSMIT LED on the REMOTE should light for around ½ second.
- ✓ The RECEIVE LED on the CENTRAL should light for around ½ second.
- ✓ The TRANSMIT LED on the CENTRAL should light for around ½ second.
- ✓ The RECEIVE LED on the REMOTE should light for around ½ second.
- ✓ You should hear a brief “click” of the corresponding relay on the REMOTE.

- 1 - If NO RELAY on Remote
 - Verify the correct Relay Input is connected to the Central.
- 2 - If Relay actuated, but no device actuation
 - Verify normally open/normally closed wiring.
 - Verify wet (12DC common) or dry (GND common) requirements.
- 3 - If still NO actuation from the Remote Relay
 - Verify inductive devices are properly clamped and surge protected.
 - Switch to or swap with another relay channel and test.
 - Remote Hardware is possibly bad or damaged.

Common Problems

- Controller is logging double entries
 - The Remote is retrying the transmission because the Central didn't respond with a relay Command.
 - ✓ Wiegand credential not registered at controller (so no Relay asserted)
 - ✓ Latency (delay) of controller is greater than ½ second.
 - ✓ Central relay input is not connected to Controller
- Controller will not accept Wiegand from Central Bridge
 - Verify Wiegand bit string is less than 56 bits.
 - Refer to Bridge User Manual for series diode instruction on Wiegand data lines.
- Central or Remote is locking up (power reset makes it work again)
 - Verify inductive devices are properly clamped and surge protected.
- Remote and Central will communicate in close range but not in installation
 - Verify the power supply is 12 VDC @ 1 AMP. Lower amperage will cause shorter range.
 - Reduce obstructions where possible.
 - Position Central and Remote units in upright, vertical position.
- Dual LED keypads
 - Use the keypad in single wire mode. Some require a dipswitch setting and others automatically detect. Typically the LED output of the Remote is connected to the ORANGE wire. Consult your reader user manual for specific instructions.
 - The Remote LED follows the corresponding Relay Output. No Central LED connection is required.